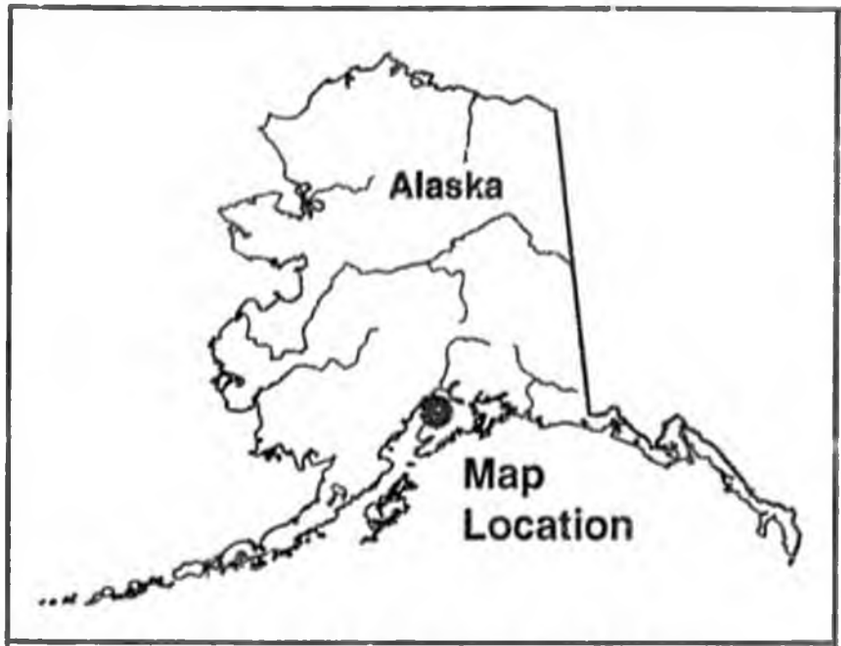
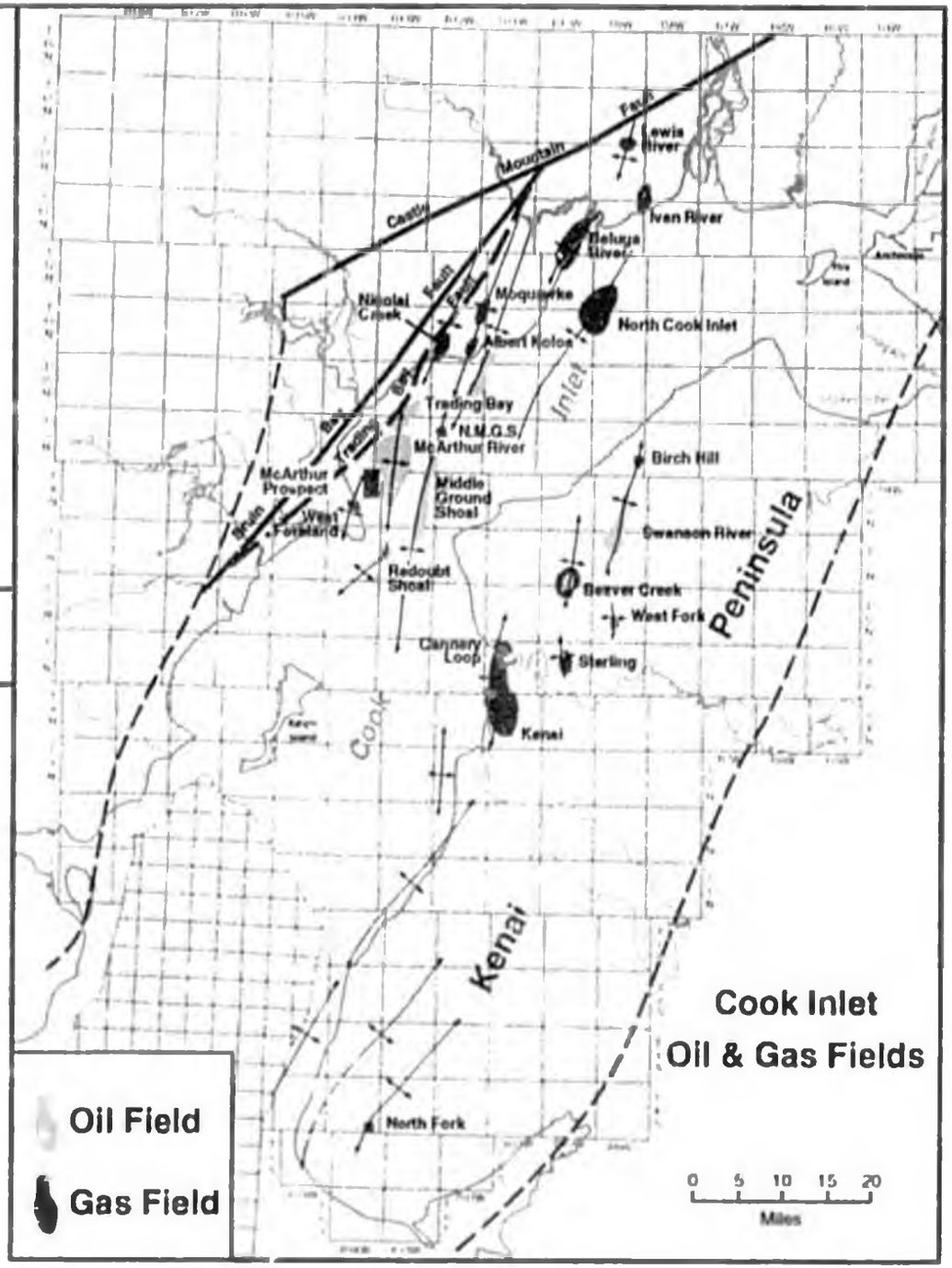
ALASKA LEGISLATURE COMMITTEE FILES 1995-1996 8672
8964 SENATE RESOURCES



Alaska Vicinity Map

Oil & Gas Fields of the Cook Inlet Basin Alaska, USA



PART II

Cook Inlet Basin - Discovery Rates & Historical Oil & Gas Reserves

PLATE "A" is appended comparing yearly exploratory wells drilled during the "discovery royalty" period of 1959 - 1969 versus the recent period of 1985 - 1995. During the "discovery royalty" period a total of 174 exploratory wells were drilled; in the latter, "non-discovery royalty" period 16 were drilled. This represents a decrease in exploration of 92%.

The appended PLATE "B": COOK INLET PRODUCING OIL FIELDS illustrates that prior to 1959, one field, Swanson River, was discovered with estimated ultimate reserves of 235 MMBO. During the "discovery royalty" period (1959-69) discoveries were made with an estimated ultimate recovery of 1,060 (1.06 BBO). Subsequent to 1969, two discoveries have been made which will aggregate less than 30 MMBO.

Note also that the fields discovered in 1957 - 1969 are approximately 91% depleted.

Plate "A"

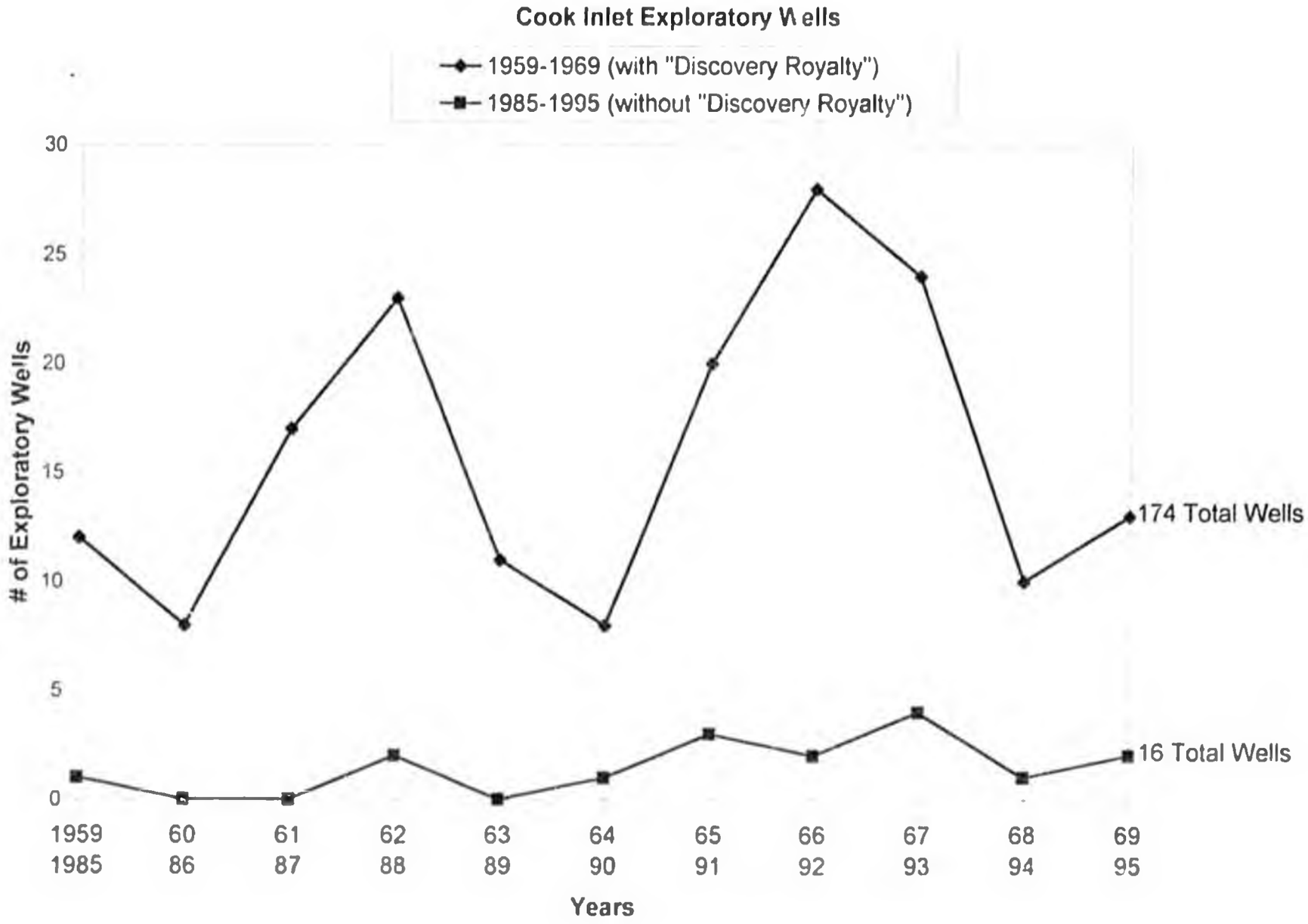
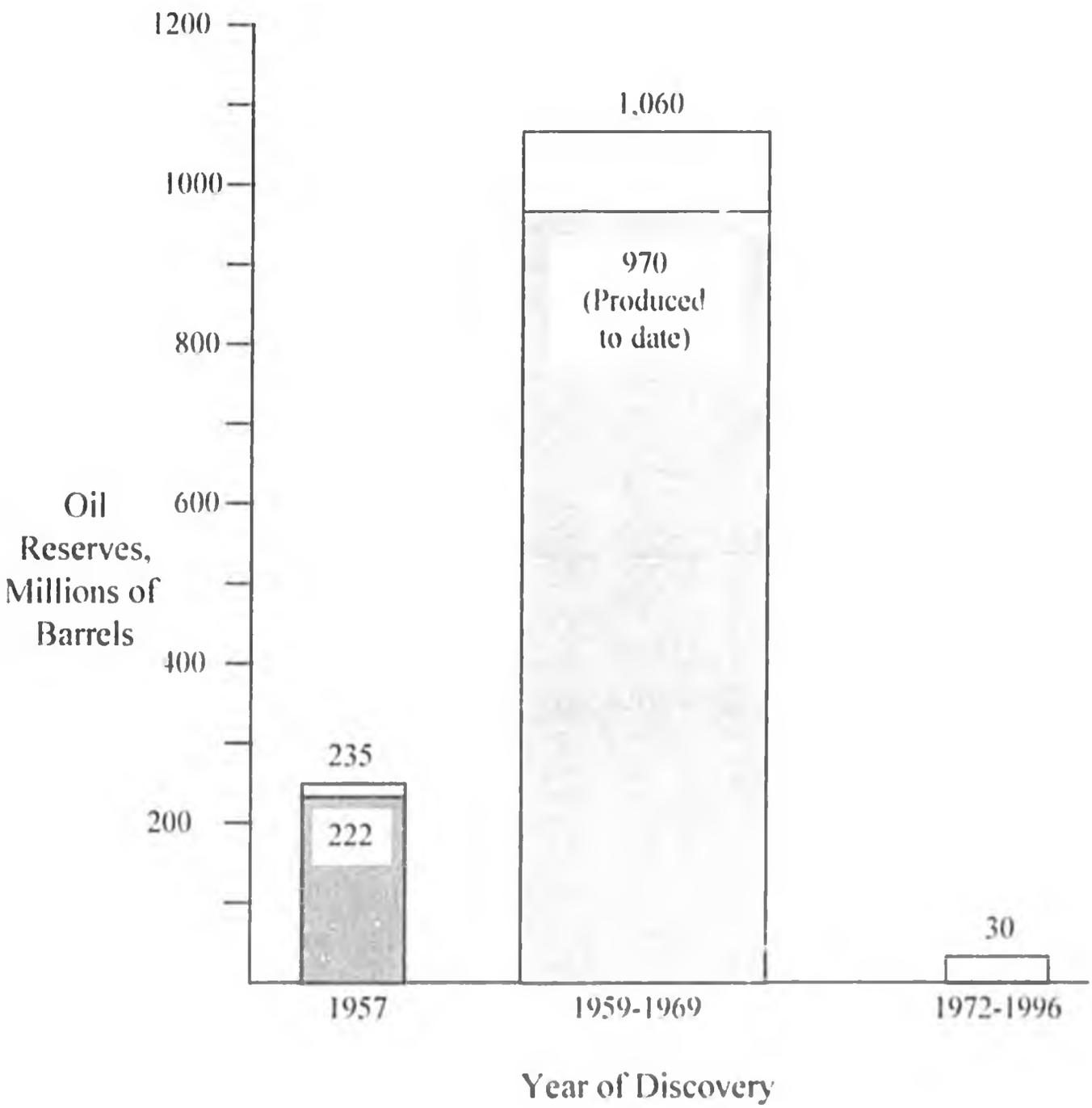

Cook Inlet Exploratory Wells
1959-1969 (with "Discovery Royalty")
1985-1995 (without "Discovery Royalty")
# of Exploratory Wells
30
25
20
15
10
5
0
174 Total Wells
16 Total Wells
1959 60 61 62 63 64 65 66 67 68 69
1985 86 87 88 89 90 91 92 93 94 95
Years

Plate "B"
Cook Inlet
Producing Oil Fields



PART III

Estimate of Undiscovered Oil & Gas Reserves

Geological estimates of undiscovered basinal reserves include basic estimates of: basin size and volume of potential reservoir rock, further quantified by consideration of: reservoir quality, volume of potential source beds, hydrocarbon content and thermal maturity of the source rocks, structural history of the basin and any known post-depositional or diagenetic changes in the reservoir rocks.

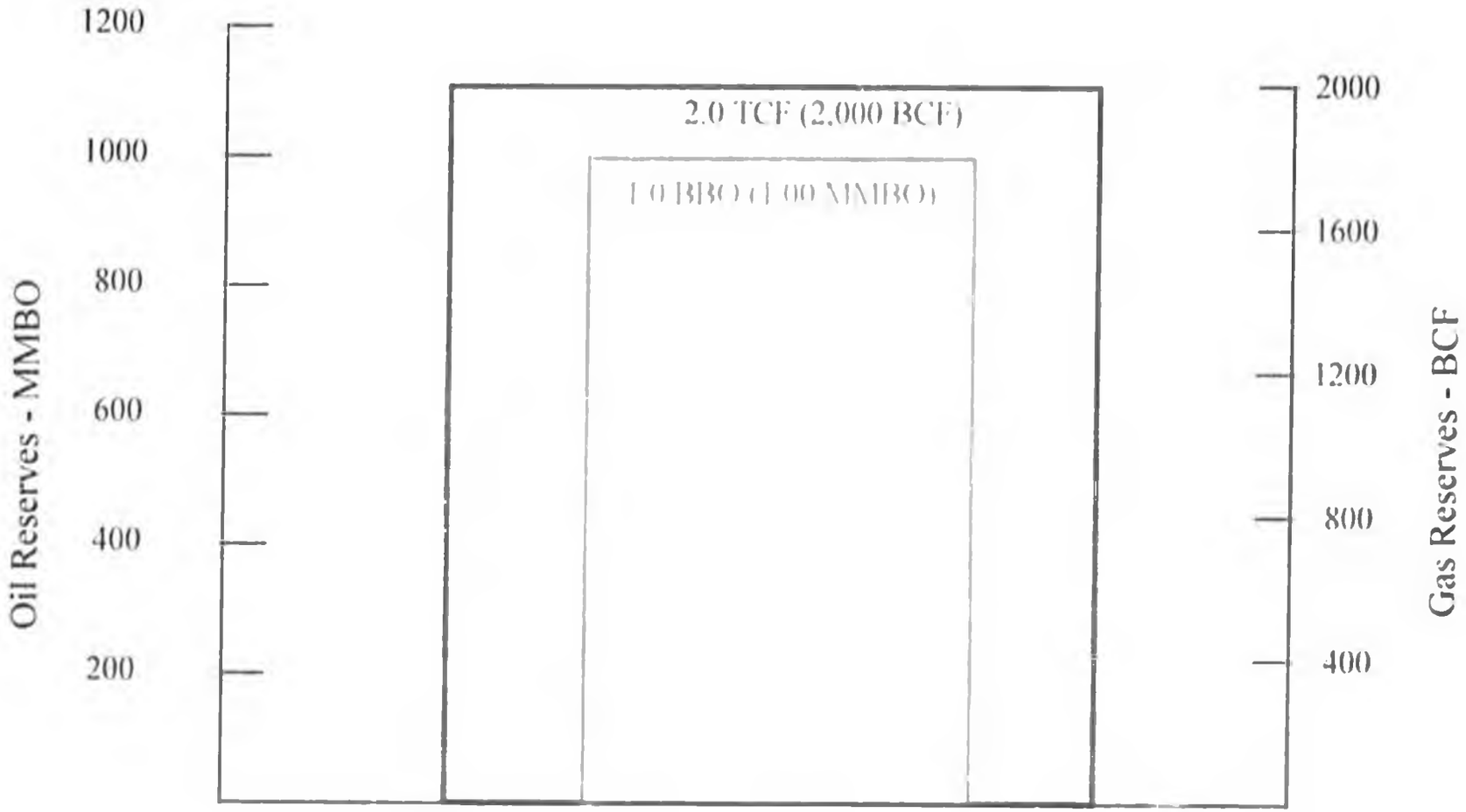
Various studies incorporating some or all of these parameters have been made and it is a generally held opinion that the Cook Inlet generating process, or "oil kitchen" generated considerably more hydrocarbons than can be accounted for in presently known resources. The unaccounted for or undiscovered portion of these reserves will not be found primarily in large, easily identifiable structural traps, but will be concentrated in more subtle traps: stratigraphic pinchouts, sub-thrust fault blocks, and diagenetically influenced reservoirs.

Exploration for these reserves will require a deeper geological understanding of historical basin processes, utilization of sophisticated seismic and other exploration systems and innovative drilling and completion techniques.

This will be an expensive search but the technology and will exists to do it. Only in this manner will these reservoirs be found.

Based upon private studies it is estimated that a reasonable figure of expectation for undiscovered oil and gas reserves is: 1.0 BBO and 2.0 TCFC. This would represent a replacement of 74% of the known oil reserves and 30% of the gas produced to date.

Plate "C"
Estimated Undiscovered Oil & Gas Reserves
Cook Inlet Basin



PART IV

Estimate of State of Alaska Royalty Values Attributable to Undiscovered Oil & Gas Reserves

Assuming that the estimate of 1.0 BBO and 2.0 TCFC (PART III, supra) is reached, and an average constant well-head price of $15.00 per barrel for oil and $1.70 per MCF of gas is maintained, these reserves would have a gross undiscounted value of $15.0 billion to the oil and $3.4 billion to the gas for a total of $18.4 billion.

However, only a portion of the wells drilled would constitute "discovery wells";based upon estimates of future field (and discovery tract) size, it is estimated that the "discovery royalty" of 5% would apply to no more than 20% of all wells drilled.

TABLE "A" is appended setting forth Alaska royalty calculations for oil and gas reserves both "discovery royalty" and " regular royalty".

Note that the average royalty percentage received by the State of Alaska would be 11%. The total calculated value of these oil and gas royalties is: $2.024 Billion.

Table "A"

Estimated Value to State of Alaska Royalties on Undiscovered Oil Gas Reserves - Cook Inlet Basin

ITEM	OIL	GAS
Total Reserves	1.0 BBO	2.0 TCF
Gross Value (Revenue) ($15/BO and $1.70/MCF)	$15.0 Billion	$3.4 Billion
Alaska Royalty On 20% "Discovery" Portion (5%)	$150 Million	$34 Million
Alaska Royalty On 80% "Non-Discovery" Portion (12.5%)	$1.5 Billion	$340 Million
Total Alaska Royalty (Gross Undiscounted Value)	$1.650 Billion	$374 Million
Average Alaska Royalty	11%	11%
Total Value Alaska Oil & Gas Royalty	$2.024 Billion	

PART V

Ancillary Economic Benefits to Increased Exploratory Well Rate

The most obvious benefit to increased drilling is the creation of immediate jobs in and around the drilling operation. This would include primary drilling personnel and, as wells were brought on line, would also include personnel for production operations. At all times, support jobs (e.g. camp cook and catering, road maintenance, etc) would become available. These positions would be filled by local Alaskans.

The economy will benefit from injections of new dollars into the (local) capital stream and of course, real economic value will be created and tax bases increased.

It is estimated that each well drilled will create approximately 75 new jobs each of which will receive an average of $60,000 (+/-) per year. Each calendar year of drilling activity per rig can therefore be anticipated to provide $4,500,000 in real capital infusion, or approximately $1,875,000 per individual well. This amounts to a total of $28,125,000 (+/-) in direct payroll attributable to 15 exploratory wells.

PART VI

Summary & Conclusions

From the foregoing data it may be concluded that:

1) The Cook Inlet Basin is an important Alaskan hydrocarbon producing basin.

2) Presently known oil reserves of 1.35 Billion Barrels of Oil (BBO) are approximately 91% depleted.

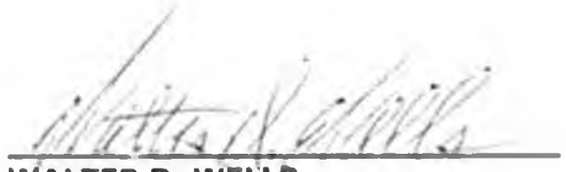
3) During the years 1959 - 1969 a "discovery royalty" provision was in effect. During this period approximately 81% of the known reserves were discovered.

4) Discovery rates are tied directly to exploratory well rates. During 1959 - 1969 a total of 174 exploratory wells were drilled resulting in oil discoveries aggregating in excess of 1 Billion barrels of oil. During the recent period of 1985 - 1995 a total of 16 exploratory wells were drilled (a decrease of 92%) resulting in discoveries aggregating only 30 MMBO

5) It is estimated that the Cook Inlet Basin contains undiscovered reserves aggregating at least 1.0 BBO and 2.0 TCFG.

6) State of Alaska royalties received from these reserves would total approximately $2.024 Billion.

7) Substantial economic benefits will accrue to local economies. Each exploratory well drilled will create approximately 75 new jobs and approximately $1,875,000 in capital infusion on the local level.



WALTER D. WELLS

CERTIFIED PETROLEUM GEOLOGIST

American Association of Petroleum Geologists - CPG #3214
American Institute of Professional Geologists - CPG #6993
Alaska - CPG #AA-307

Data Sources

Field discovery dates were taken from the: 1994 Statistical Report Alaska Oil & Gas Conservation Commission.

Production data and estimates of remaining discovered reserves were taken from the: March, 1995 Historical and Protected Oil & Gas Consumption - Alaska Department of Natural Resources - Division of Oil & Gas.

BY:
Stewart
Petroleum

SENATE BILL NO. 112

IN THE LEGISLATURE OF THE STATE OF ALASKA

NINETEENTH LEGISLATURE - FIRST SESSION

BY THE SENATE RESOURCES COMMITTEE

Introduced: 3/7/95
Referred: RES. FIN

A BILL

FOR AN ACT ENTITLED

"An Act establishing a discovery royalty for the lessees of state land located in Cook Inlet Basin, Alaska's oldest petroleum producing province, who drill exploratory wells and make the first discovery of oil and/or gas in commercial quantities."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

***Section 1.** AS 38.05.180 is amended by addition of a new section (cc) to read:

(cc) The holder of a lease who drills and makes the first discovery of oil and/or gas in commercial quantities in a geologic structure shall pay a royalty on all production under the lease of five percent for the first 10 years following the date of discovery and thereafter the royalty shall be payable as originally provided in such lease at date of issue; provided, however, that such lease shall not upon expiration of said 10 year period be disqualified from benefit under other available royalty reduction or incentive programs, if any, for which it may qualify.

The provisions of this section shall apply only to discoveries made after January 1, 1991 within the Cook Inlet sedimentary basin, effective upon date of discovery. Any previous royalty payments paid subsequent to such discovery date which are in excess of the five percent royalty provided hereunder, shall constitute a credit against future royalty payments under this section.

9-LS0608\A

SENATE BILL NO. 112

IN THE LEGISLATURE OF THE STATE OF ALASKA

NINETEENTH LEGISLATURE - FIRST SESSION

BY THE SENATE RESOURCES COMMITTEE

Introduced: 3/7/95
Referred: RES, FIN

A BILL

FOR AN ACT ENTITLED

"An Act establishing a discovery royalty [credit] for the lessees of state land located in Cook Inlet [AREA, ALASKA'S OLDEST PETROLEUM PRODUCING PROVINCE, WHO SHALL] [drilling] exploratory wells and [making] the first discovery of oil or gas in commercial quantities."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 38.05.[134] is amended to read:

[Sec. 38.05.134. CONVERSION TO LEASE. If the licensee requests and the commissioner determines that the work commitment obligation set out in an oil and gas exploration license issued under AS 38.05.132 has been met, the commissioner shall convert to one or more oil and gas leases all or part, as the licensee may indicate, of the area described in the exploration license that remains after the relinquishments, removals, or deletions required by AS 38.05.132(d)(2). A lease issued under this section

(1) is subject to the acreage limitations imposed by AS 38.05.140(c);

(2) is subject to AS 38.05.180(i) - (m), (o) - (u), and (x) - (z);]

New Text Underlined [DELETED TEXT BRACKETED]

[(3) must be conditioned upon a royalty in amount or value of not less than 12.5 percent of production, except that the lessee who, proceeding under AS 38.05.131 - 38.05.134, makes the first discovery of oil or gas in commercial quantities in a geologic structure shall pay a royalty on all production under the lease of five percent for the first 10 years following the date of discovery and thereafter the royalty shall be as determined under this paragraph;

(4) must include an annual rent of $3 per acre or fraction of an acre initially paid to the state at inception of the lease and payable annually after that until the income to the state from royalty under that lease exceeds the rental income to the state under that lease for that year; and

(5) is subject to other conditions and obligations that are specified in the lease.

* Sec. 2. AS 38.05.180(f) is amended to read:

(f) Except as provided by AS 38.05.131 - 38.05.134, the commissioner may issue oil and gas leases on state land to the highest responsible qualified bidder as follows:

(1) the commissioner shall issue an oil and gas lease to the successful bidder determined by competitive bidding under regulations adopted by the commissioner; bidding [. BIDDING] may be by sealed bid or according to any other bidding procedure the commissioner determines is in the best interests of the state;

(2) whenever [. WHENEVER], under any of the leasing methods listed in this subsection, a royalty share is reserved to the state, it shall be delivered in pipeline quality and free of all lease or unit expenses, including but not limited to separation, cleaning, dehydration, gathering, salt water disposal, and preparation for transportation off the lease or unit area;

(3) following [. FOLLOWING] a pre-sale analysis, the commissioner may choose at least one of the following leasing methods:

(A) [(1)] a cash bonus bid with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease;

[(B) [(2)] a cash bonus bid with a fixed royalty share reserved]

New Text Underlined [DELETED TEXT BRACKETED]

[to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease and a fixed share of the net profit derived from the lease of not less than 30 percent reserved to the state;

(C) [(3)] a fixed cash bonus with a royalty share reserved to the state as the bid variable but no less than 12.5 percent in amount or value of the production removed or sold from the lease;

(D) [(4)] a fixed cash bonus with the share of the net profit derived from the lease reserved to the state as the bid variable;

(E) [(5)] a fixed cash bonus with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease with the share of the net profit derived from the lease reserved to the state as the bid variable;

(F) [(6)] a cash bonus bid with a fixed royalty share reserved to the state based on a sliding scale according to the volume of production or other factor but in no event less than 12.5 percent in amount or value of the production removed or sold from the lease;

(G) [(7)] a fixed cash bonus with a royalty share reserved to the state based on a sliding scale according to the volume of production or other factor as the bid variable but not less than 12.5 percent in amount or value of the production removed or sold from the lease;]

(7) (cc) [~~(4) notwithstanding a requirement in the leasing method chosen, of a minimum fixed royalty share,~~ the holder of a lease who drills and makes the first discovery of oil or gas in commercial quantities in a geologic structure shall pay a royalty on all production under the lease of five percent for the first 10 years following the date of discovery and thereafter the royalty shall be ~~determined and~~ payable ~~under (2) of this subsection~~ as originally provided in such lease at date of issue; provided however that such lease shall not upon expiration of said 10 year period be disqualified from benefits under other available royalty reduction or incentive programs, if any, for which it may qualify.

The provisions of this section shall apply to discoveries made after January 1, 1991 within the Cook Inlet sedimentary basin, effective upon date of discovery. Any previous royalty payments paid subsequent to such discovery date which are in excess of the five percent royalty provided hereunder, shall constitute credit against future royalty payments under this section.

SB0112A

SB 112

New Text Underlined [DELETED TEXT BRACKETED]

SENATE BILL NO. 112

IN THE LEGISLATURE OF THE STATE OF ALASKA

NINETEENTH LEGISLATURE - FIRST SESSION

BY THE SENATE RESOURCES COMMITTEE

Introduced: 3/7/95
Referred: RES, FIN

A BILL

FOR AN ACT ENTITLED

"An Act establishing a discovery royalty credit for the lessees of state land drilling exploratory wells and making the first discovery of oil or gas in commercial quantities."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. AS 38.05.134 is amended to read:

Sec. 38.05.134. CONVERSION TO LEASE. If the licensee requests and the commissioner determines that the work commitment obligation set out in an oil and gas exploration license issued under AS 38.05.132 has been met, the commissioner shall convert to one or more oil and gas leases all or part, as the licensee may indicate, of the area described in the exploration license that remains after the relinquishments, removals, or deletions required by AS 38.05.132(d)(2). A lease issued under this section

(1) is subject to the acreage limitations imposed by AS 38.05.140(c);

(2) is subject to AS 38.05.180(j) - (m), (o) - (u), and (x) - (z);

(3) must be conditioned upon a royalty in amount or value of not less than 12.5 percent of production, except that the lessee who, proceeding under AS 38.05.131 - 38.05.134, makes the first discovery of oil or gas in commercial quantities in a geologic structure shall pay a royalty on all production under the lease of five percent for the first 10 years following the date of discovery and thereafter the royalty shall be as determined under this paragraph;

(4) must include an annual rent of $3 per acre or fraction of an acre initially paid to the state at inception of the lease and payable annually after that until the income to the state from royalty under that lease exceeds the rental income to the state under that lease for that year; and

(5) is subject to other conditions and obligations that are specified in the lease.

* Sec. 2. AS 38.05.180(f) is amended to read:

(f) Except as provided by AS 38.05.131 - 38.05.134, the commissioner may issue oil and gas leases on state land to the highest responsible qualified bidder as follows:

(1) the commissioner shall issue an oil and gas lease to the successful bidder determined by competitive bidding under regulations adopted by the commissioner; bidding [. BIDDING] may be by sealed bid or according to any other bidding procedure the commissioner determines is in the best interests of the state;

(2) whenever [. WHENEVER], under any of the leasing methods listed in this subsection, a royalty share is reserved to the state, it shall be delivered in pipeline quality and free of all lease or unit expenses, including but not limited to separation, cleaning, dehydration, gathering, salt water disposal, and preparation for transportation off the lease or unit area;

(3) following [. FOLLOWING] a pre-sale analysis, the commissioner may choose at least one of the following leasing methods:

(A) [(1)] a cash bonus bid with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease;

(B) [(2)] a cash bonus bid with a fixed royalty share reserved

to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease and a fixed share of the net profit derived from the lease of not less than 30 percent reserved to the state;

(C) [(3)] a fixed cash bonus with a royalty share reserved to the state as the bid variable but no less than 12.5 percent in amount or value of the production removed or sold from the lease;

(D) [(4)] a fixed cash bonus with the share of the net profit derived from the lease reserved to the state as the bid variable;

(E) [(5)] a fixed cash bonus with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease with the share of the net profit derived from the lease reserved to the state as the bid variable;

(F) [(6)] a cash bonus bid with a fixed royalty share reserved to the state based on a sliding scale according to the volume of production or other factor but in no event less than 12.5 percent in amount or value of the production removed or sold from the lease;

(G) [(7)] a fixed cash bonus with a royalty share reserved to the state based on a sliding scale according to the volume of production or other factor as the bid variable but not less than 12.5 percent in amount or value of the production removed or sold from the lease;

(4) notwithstanding a requirement, in the leasing method chosen, of a minimum fixed royalty share, the holder of a lease who makes the first discovery of oil or gas in commercial quantities in a geologic structure shall pay a royalty on all production under the lease of five percent for the first 10 years following the date of discovery and thereafter the royalty shall be determined and payable under (3) of this subsection.

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

Pouch Y, State Capitol
Juneau, Alaska 99811
(907) 465-3991

March 11, 1986

MEMORANDUM

TO: Representative Andre Marrou

FROM: Gretchen Keiser
Legislative Analyst

RE: Oil and Gas Discovery Royalty Incentive
Research Request 86-126

You requested us to provide information about a former provision in State statute which allowed a lessee to pay a reduced royalty on production for ten years following the discovery of commercial quantities of oil or gas. Specifically, you wanted to know:

- when and why the provision was dropped;
- how successful the provision was with respect to encouraging exploration;
- State revenue "lost" because of the reduced royalty; and
- State revenue ultimately gained because of the production of commercial quantities which would otherwise not have been discovered.

Brief History of the Discovery Royalty

The so called "discovery royalty" provision was dropped from Alaska Statute in 1969 (§ 1, Ch. 65, SLA 1969). Prior to its deletion, the provision was as follows:

> "...the holder of a lease who drills and makes the first discovery of oil or gas in commercial quantities in a geologic structure shall pay a royalty on all production under the lease of five percent for 10 years following the date of discovery and thereafter the royalty rate shall be not less than 12-1/2 percent..." [AS 38.05.180(a)]

This condition, which allowed a lessee to pay a reduced royalty to the State, stems from similar provisions on federal leases in Alaska dating back to enactment of the Mineral Leasing Act of 1920. The reduced royalty was unique to Alaska and was intended to provide special incentives to encourage oil and gas production in Alaska. A discovery royalty provision was adopted by the territorial government and subsequently incorporated into Alaska Statute in the Alaska Lands Act of 1959.

According to Mark Worcester, the Assistant Attorney General who handled the most recent legal dispute (in the early 1980s) regarding discovery royalty in the Kuparuk River oil field, the provision was apparently dropped in the late 1960s because it: 1) was not a useful incentive for oil and gas exploration; 2) was costing the State money; 3) created an administrative burden for the State; and 4) generated considerable disputes between the State and the oil and gas companies in Cook Inlet oil and gas fields. To the best of our knowledge, no specific study analyzing the effect of the discovery royalty provision was prepared at that time.

Attachment A presents a list of the ten discovery wells which were granted a discovery royalty by the State. These wells occur in eight Cook Inlet fields discovered in the early to mid 1960s and in the Prudhoe Bay and Kuparuk oil fields which were discovered in the late 1960s. Some of the discovery well requests were contested by other oil companies or by the State. The Cook Inlet well Grayling No. 1-A (Union-Marathon), for example, was discovered in 1965 and finally granted the discovery royalty in 1982 after more than a decade of litigation. Much of the legal dispute in Cook Inlet revolved around the determination of whether a discovery well occurred in an "unknown geologic structure" when the area had already been rather extensively explored.

About the time the discovery royalty provision was dropped in 1969, it was becoming apparent that the provision could begin to cost the State a great deal because: 1) the Prudhoe Bay State No. 1 well had been granted the reduced royalty; and 2) the Ugnu No. 1 had just discovered the Kuparuk River oil field. In retrospect, the discovery royalty provision was used for production from only eight wells statewide for an average period of 5 and 1/3 years.

Discovery Royalty as an Exploration Incentive

The discovery royalty provision has been characterized as providing an incentive to explore only to the extent that it encouraged a company to drill in a particular formation before its competitors rather than an incentive which justified exploring that possible formation in

the first place.[1] In other words, the provision generally affected the timing of drilling in a prospective area after the decision to explore had been made.

The Cook Inlet discoveries listed in Attachment A occurred during the period of extensive oil and gas exploration of the many separate geologic structures in the region. It appears unlikely that the discovery royalty provision was instrumental in encouraging exploration beyond what was already warranted based on preliminary geophysical investigations.

The discovery royalty did provide some incentive to develop, produce and market discovered commercial quantities of oil or gas as quickly as possible. However, the incentive to produce was quite small because the reduced royalty provision applied only to the single lease where the discovery occurred. In the initial unitization covering the 63 leases in the Kuparuk River Unit, for example, only 0.0206 percent of the oil produced was allocated to the discovery lease.[2] Generally, hydrocarbon quality, ease of extraction, the cost of transportation, and market value were much more significant factors in the decision to develop an oil or gas field.

In 1978, a provision for exploration incentive credits was included in the extensive revision of Alaska's oil and gas leasing statute [Alaska Statute 38.05.180(i)]. The Commissioner of the Department of Natural Resources can provide credits--of up to 50 percent of the cost of exploratory drilling or geophysical work--to be applied against royalties, rentals or severance taxes payable to the State. According to Ed Phillips, Petroleum Economist for the department, the current exploration incentive credits (EICs) provide a much more significant inducement to drill than the old discovery royalty provision. Not only are EICs applicable to any exploratory well drilled by a lessee, but partners in the exploratory well (who may or may not be owners of that specific lease) may also receive EICs proportional to their involvement. The EICs provide for immediate recovery of a sizable portion of the exploratory costs (e.g. 30 to 40 percent) because the credits can be applied existing rental, royalty, or severance tax obligations.

---

[1]Affidavit of C.V. "Chat" Chatterton (Commissioner of the Alaska Oil and Gas Conservation Commission) in the Kuparuk River discovery royalty court case (BP Alaska et. al. v. State of Alaska).

[2]Affidavit of Ed Phillips (Petroleum Economist for the Alaska Deaprtment of Natural Resources) in BP Alaska et. al. v. State of Alaska.

State Revenue Loss/Gain Under the Discovery Royalty Provision

Unfortunately, no report exists which summarizes the revenue given up by the State because of the reduced royalty payments for production from the eight aforementioned discovery wells. Litigation over two of the wells lead to cash settlements by the State of $36 million in the late 1970s (the Grayling No.1 well) and $950,000 in the early 1980s (the Ugnu No. 1 well).

In order to determine the lost revenue, one would have to obtain monthly royalty reports for each specific field during the period 1966-1978 from the Department of Natural Resources.[3] Specific information necessary would include:

- the monthly total production for each field;
- the percent of monthly production allocated to each discovery well; and
- the monthly average in-value price for each field.

There is also no report estimating the revenue ultimately gained by the State as a result of the discovery royalty provision. As mentioned in the previous section of this memorandum, this provision was not the key factor leading to the exploration and discovery of new oil and gas fields. We suggest, therefore, that there has been no revenue gain to the State which could be specifically attributed to the discovery royalty provision.

Under the current exploration incentive credits system, the Department of Natural Resources had certified (as of August 1985) $28.4 million in exploration costs incurred at five wells as eligible for EICs (Attachment B). These EICs represent a future revenue loss to the State since the companies can deduct the credits from royalties, rentals and taxes once production commences from any of the five wells.

* * * * *

I hope this information is useful. Please call me if you have any questions or would like me to provide further information.

GK

Attachments

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[3]At this time, it is uncertain whether royalty records dating back to the 1960s would be available from archives.

ATTACHMENT A

Discovery Wells Granted the State Discovery Royalty Provision
(Department of Law)

Name of Well	Lessee (present names)	ADL No.	Date of Discovery[1]	First Affidavit or claim of discovery[4]	Date of written decision granting discovery royalty[5]	Effective date of the 10-year discovery royalty[6]	Commencement of commercial production	Date 12½% royalty replaced 5% discovery royalty rate	Period royalty actually reduced
Falls Creek Unit No. 1	Chevron ARCO	00590	4-10-61	12-3-63	2-18-64	5-1-61	none[7]	no royalty ever paid	never used
Middle Ground Shoal No. 1	AMOCO Getty Phillips	17595	6-10-62	11-12-62	1-15-63	6-10-62	5-66[8]	6-10-72[12]	6 years 1 month[12]
[redacted] Inlet State No. 1	Phillips	17589	8-21-62	11-12-62	11-24-64	9-1-62	3-69[8]	9-72	3 years, 6 months
Beluga River Unit No. 1	Chevron ARCO Shell	17599	12-1-62	9-17-63	12-19-62	1-1-63	3-68[8]	1-73	4 years, 10 months
Granite Point No. 1	Mobil Union	18761	5-16-65	5-21-65	9-14-65	6-1-65	5-67[9]	6-75	8 years, 1 month
Trading Bay No. 1-A	Union Marathon	18731	5-23-65	6-18-65	8-27-65	6-1-65	1-67[8]	6-75	8 years, 5 months
Grayling No. 1-A	Union Marathon	17594	9-29-65[2]	10-28-65	1-19-82	10-1-65	10-67[10]	10-75[10]	8 years 1 month[10]
[redacted]lal Creek State No. 1	Texaco Superior	17598	4-28-66	5-23-66	8-19-66	5-1-66	10-68[8]	no production[13] after 1972	no more than about 4 years
Prudhoe Bay State No. 1	ARCO Exxon	28303	12-19-67[3]	3-26-68	4-7-69	1-1-68	6-20-77[10]	1/78	6 months, 11 days
Ugnu No. 1	BP, Sohio ARCO	25633	4-7-69	9-15-69	11-12-82	5-1-69	12-13-81[11]	12½% royalty paid from 12-13-81, the first date of production	never used

EXHIBIT NO. 2
PAGE 1 OF 2

1 Dates as set forth in the respective public notices unless otherwise specified.

2 Date is from the affidavit of first discovery. See Exhibit 7A to Affidavit of William Van Alen.

3 Although ARCO claimed a discovery date of March 12, 1968, the decision granting the discovery royalty found that the discovery actually occurred on December 19, 1967.

4 See Exhibits 1A, 2A, [illegible]A, 4A, 5A, 6A, 7A, 8A, 9A, and 10A to Affidavit of William Van Alen.

5 See Exhibits 1C, 4D, 5D, 6D, 7E and 8D to Affidavit of William Van Alen, and Exhibits 2B and 9D to Affidavit of Romaine Clark with regard to Cook Inlet No. 2, the date is estimated based upon dates of related documents. See Exhibits 3F to Affidavit of William Van Alen and Exhibits 3C and 3D to the Affidavit of Romaine Clark.

6 Date provided for in respective decisions granting discovery except in the case of Grayling 1-A, where no date was provided, and the date was derived from the royalty settlement calculations. See Affidavit of Ed Park.

7 See Affidavit of C. V. "Chat" Chatterton and Exhibit 1-D to William Van Alen Affidavit.

8 See Affidavit of Harry Kugler.

9 See Exhibit 5E to Affidavit of Romaine Clark.

10 See Affidavit of Edward W. Park.

11 See Appellants Brief at page 27.

12 The oldest retained royalty report (11-72) reflects payment at 12½%. See Affidavit of Edward W. Park. Presumably the switch from the 5% discovery royalty to the 12½% royalty occurred 10 years after the commencement date of the discovery royalty date.

13 See Affidavit of Edward W. Park.

EXHIBIT NO. 2
PAGE 2 OF 2

ATTACHMENT B

Exploration Incentive Credits Certified
by the State of Alaska

EXPLORATION INCENTIVE CREDITS
Report Month: August 1965

ADL	WELL	COMPANY	CERTIFICATION DATE	TOTAL AMOUNT
343109	G-2 Well	Exxon	10/5/83	$6,197,625.00
		Sohio	12/27/83	$4,152,408.75
		BPAE	10/5/83	$2,045,216.25
344010	Leffingwell	Arco	10/2/84	$3,706,000.00
		Union	10/2/84	$3,706,000.00
344033	J-1 Well	Exxon	10/31/84	$5,119,500.00
355005	Long Island Well	Exxon	11/14/84	$1,378,076.00
		Sohio	11/14/84	$1,378,076.00
345126	Totek Hills	Arco Alaska	8/02/85	$715,530.81
GRAND TOTAL				$28,398,432.81

Source: Alaska Department of Natural Resources, Division of Oil and Gas

State of Alaska
Department of Natural Resources
Division of Oil and Gas - Director's Office
3601 C Street, Suite 1380, Anchorage, Alaska 99503
Phone (907)762-2549 Fax (907)562-3852

Fax transmittal

To: Bill VanDyke

Fax: 463-5138

From: Mike Kotowski

Date & Time:

Pages (including cover sheet): 4

Comments: OLD
The AD Discovery Royalty
Regs.

the payment was determined in accordance with the rental or acreage figure stated in the lease or in a bill, decision, notice or letter by the division of lands and the figure is found to be in error, or if the director finds that the deficiency was otherwise justifiable and not due to a lack of reasonable diligence on the part of the lessee, the lease shall be reinstated if the lessee corrects the deficiency within 15 days of receipt of notice of the deficiency. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.035(b)(2)
AS 38.05.145(a)

11 AAC 83.180. DEFAULT. (a) Whenever the lessee of a lease on which there is no well capable of producing oil or gas in paying quantities fails to comply with any provision of the lease or applicable regulations other than the payment of rental and the failure to comply continues for 60 days after receipt of notice to the lessee of the failure to comply, the director may terminate the lease by mailing notice of the termination to the lessee. Termination is effective upon giving the notice.

(b) Whenever the lessee of a lease on which there is a well capable of producing oil or gas in paying quantities fails to comply with any of the provisions of the lease or applicable regulations and the failure continues for a period of 60 days following notice to the lessee of the failure to comply, the lease may be cancelled by judicial proceedings instituted for that purpose in any court of competent jurisdiction having jurisdiction over the land covered by the lease or any part of it. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.035
AS 38.05.145(a)

ARTICLE 2. OIL AND GAS LEASES DISCOVERY ROYALTY

Section
200. Discovery lease
205. Discovery royalty definitions
210. Discovery royalty filing requirements
215. Certification after compliance and application
220. Cancellation
225. Termination
230. Five percent discovery royalty

Repealed in May 1969

11 AAC 83.200. DISCOVERY LEASE. A operator who by time and date first encoun sufficient evidence of oil or gas in a partic geologic structure covered by any state oil gas lease issued prior to April 20, 1967, to ca the operator diligently to continue in good fa testing, reworking, drilling or other operati on that lease, whether in the same hole or ot holes, in an effort to establish production of or gas in the same structure, is qualified fo discovery well certification under the terms said state lease if he completes a well a establishes production in commercial quantit in the same zone in which oil or gas was fi encountered. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(
AS 38.05.180

11 AAC 83.205. DISCOVERY ROYALT DEFINITIONS. In secs 200–230 of this chapt and applicable provisions in state leases

(1) "discovery" means the first acceptab evidence in a drilling well of the existence of o or gas which can be produced in commerci quantities after well completion;

(2) "geologic structure" means any structur and/or stratigraphic entrapping mechanis containing one or more intervals, zones, strat formations, or fault blocks which has th necessary physical characteristics to accumulat and prevent the escape of oil or gas; it i intended that this definition be similar to tha used by the United States Geological Survey i the administration of the federal Mineral Leasin Act of February 25, 1920 (41 Stat. 437), a amended;

(3) "completed well" means a well which i cased and controlled and in which al underground work has been finished, and the well is capable of producing oil or gas;

(4) "commercial quantities" means those amounts of oil or gas which after well completion would appear to a reasonable and prudent operator to be sufficient to recover ordinary costs of drilling, completing and producing an additional well on the same geologic structure at an offset location with a reasonable profit to the operator, if a market were available;

(5) "committee" means the Alaska Oil and Gas Conservation Committee as defined in 11 AAC 22.510 of the Alaska Oil and Gas Conservation Regulations. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(a)
AS 38.05.180

11 AAC 83.210. DISCOVERY ROYALTY FILING REQUIREMENTS. (a) To establish priority as to time and date of discovery, an operator must furnish the committee with a sworn statement and substantiating evidence, acceptable to the committee, that oil or gas has been encountered in sufficient showing to cause a reasonable and prudent operator to conduct further operations in an effort to complete a well in the discovery zone so that the well can be tested for potential oil or gas production in commercial quantities. The statement must include the time and date of first discovery, the exact location of the well, the precise interval of discovery, and the Alaska Division of Lands' lease number on which the well is located. The statement shall be furnished to the committee as soon as possible, but not later than 30 days after the date claimed for the discovery.

(b) To establish and prove oil or gas in commercial quantities, the operator shall

(1) conduct a potential test of the discovery zone within one year after completion of a discovery well;

(2) notify the committee or its designated representative five days in advance of the scheduled potential test and furnish transportation (if requested) for a designated representative of the committee to witness the test; the committee may at its option or at the option of its designated representative waive the witnessing of the test and require sworn evidence to establish the results of the test; the sworn evidence shall be delivered to the committee or its designated representative within 30 days after the test.

(c) To establish the geologic structure from which the oil or gas can be produced, the operator must furnish pertinent data to the committee which will enable it to determine the geologic structure from which the oil or gas is being produced. This may include, but is not limited to, geophysical data, total depth, casing records, perforation data, electric logs, drilling and mud logs, core analyses, sample cuttings and sample logs and the operator's interpretation thereof, together with any other records and interpretations the operator deems pertinent. This data shall be supplied within 90 days after the date of the potential test required in (b) of this section. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(a)
AS 38.05.180

11 AAC 83.215. CERTIFICATION AFTER COMPLIANCE AND APPLICATION. After compliance with sec. 210 of this chapter, the operator may apply to the director for discovery well certification. Within 10 days of receipt of the request, the director will publish notice of the application allowing 30 days for any interested party to object to or protest the application. If no protest or objection is received by the director, the director will, within 70 days after the receipt of an application, either certify the well as in (1) or deny the application as in (3) of this section. If any protest or objection is made, it must be submitted in writing to the director within the specified 30 day period. After receipt of the protest or objection, the director will advertise and hold an open public hearing in accordance with the Alaska Land Act (AS 38.05) and in accordance with the Alaska Administrative Procedure Act (AS 44.62.300 – 44.62.630). Within 30 days after the hearing, the director will do one of the following:

(1) certify the well in question a first discovery well which has established oil or gas in commercial quantities in (name geologic structure) as of (time) on (date), and specify the date of commencement of the 10 year-5 percent discovery royalty term, which date shall be the first of the next month after the established date of initial discovery; after discovery well certification, no other well, regardless of when drilled, is eligible for consideration for certification for the same geologic structure;

(2) continue the hearing at a later specified date;

(3) deny the application for discovery well certification. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(a)
AS 38.05.180

11 AAC 83.220. CANCELLATION. If, after discovery well certification, any information supplied to the committee is proven false or erroneous and the information would have affected the decision of the director to the extent that the original application for certification would have been denied, the certification shall immediately be revoked. A certification may also be revoked when it is determined that the error was caused by failure to disclose full and complete knowledge available to the operator at the time of application for certification. After a certification is revoked, royalty payment of 7½ percent on production prior to revocation is due and payable, and 12½ percent royalty on all subsequent production shall be paid. Should the royalty due not be paid on demand, the state will take legal steps to cancel the lease involved. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(a)

11 AAC 83.225. TERMINATION. In the event of the termination of a discovery lease for any cause, the five percent discovery royalty terminates and will not be allowed or reinstated on the same geologic structure. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(a)
AS 38.05.180

11 AAC 83.230. FIVE PERCENT DISCOVERY ROYALTY. A "First Discovery Well Certification" secures the five percent royalty rights for the holder of the state lease on which the well is located on all production from all zones, strata, formations and structures under and within the exterior boundaries of the lease. If, before or after discovery well certification, the state lease on which the well is located is subject to or made a part of a development unit or pooling or consolidation contract, the five percent discovery royalty rate will apply only to the production allocated to the lease under the agreement. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.02(
AS 38.05.14:
AS 38.05.18(

ARTICLE 3. UNITIZATION

Section
300. Application for designation of area
305. Designation; effect
310. Draft of agreement
315. Rates of prospecting and production
320. Parties
325. Signatures
330. Counterparts
335. Unit operators
340. Approval of unit agreement
345. Modification of unit agreements
350. Approval of federal units
355. Applications
360. Notation of approval
365. Unit bonds
370. Segregated leases

11 AAC 83.300. APPLICATION FO DESIGNATION OF AREA. An application f designation of an area as logically subject development under a unit agreement and f determination of the depth of a test well may b filed by any proponent of a unit agreement. Th application must be accompanied by

(1) a map or diagram on a scale of not le than one inch to one mile outlining the are sought to be designated, indicating federal, stat and privately owned lands by distinctiv symbols or colors and identifying Alaska lease and lease applications by serial numbers; and

(2) geologic information, including th results and interpretations of any geophysica surveys and any other available informatin showing that unitization is necessary an advisable in the public interest; if requested geologic and geophysical information furnished with the application will be treated a confidential. (Eff. 9/20/74, Reg. 51)

Authority: AS 38.05.020
AS 38.05.145(a

11 AAC 83.305. DESIGNATION: EFFECT The designation of an area does not create an exclusive right to submit a unit agreement for the area, nor preclude the inclusion of the area

Discovery Royalty Provision

STATE OF ALASKA
DEPT OF NATURAL RESOURCES

FILE TYPE	FILE NUMBER		ACRES	UNIT CODE	UNIT DESCRIPTION
ADL	592		395,513	KE	KENAI RIVER
ADL	592✓			FC	FALLS CREEK
ADL	591		395,513	KE	KENAI RIVER
ADL	571		[illegible]	BE	BELUGA RIVER
ADL	703		[illegible]	NF	NORTH FORK
ADL	[illegible]		[illegible]	NF	NORTH FORK
ADL	2097		[illegible]	CL	CANNERY LOOP
ADL	3111		100,720	KE	KENAI [illegible]
ADL	[illegible]		[illegible]	ST	STERLING
ADL	[illegible]				UNIT IN TABLE
ADL	[illegible]				UNIT IN TABLE
ADL	[illegible]				UNIT IN TABLE
ADL	[illegible]		[illegible]	TB	TRADING BAY
ADL	[illegible]		[illegible]	[illegible]	[illegible]
ADL	[illegible]			UP	[illegible]
ADL	[illegible]			UP	UNITIZED PRODUCING
ADL	[illegible]✓		[illegible]	MI	MIDDLE GROUND SHOAL
ADL	[illegible]		[illegible]	NI	NORTH COOK INLET
ADL	[illegible]		[illegible]	[illegible]	BELUGA RIVER
ADL	[illegible]✓		[illegible]	TL	TRADING BAY
ADL	[illegible]✓			UP	UNITIZED PRODUCING
ADL	[illegible]		560,000	NT	NORTH TRADING BAY
ADL	[illegible]✓		101,000	NC	NICOLAI CREEK
ADL	[illegible]✓		[illegible]	BR	BELUGA RIVER
ADL	17600		[illegible]	TR	[illegible] RIVER
			[illegible]	SL	SWAN LAKE
ADL	17602		[illegible]	TB	TRADING BAY
ADL	17658		[illegible]	BR	BELUGA RIVER
ADL	18711		[illegible]	TB	TRADING BAY
ADL	~~[illegible]~~		[illegible]	TE	TRADING BAY
ADL	[illegible]		[illegible]	TB	TRADING BAY
ADL	[illegible]✓			UP	UNITIZED PRODUCING
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ADL	[illegible]		[illegible]	NI	NORTH COOK INLET
ADL	[illegible]			UP	UNITIZED PRODUCING
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ADL	[illegible]		[illegible]	SG	SOUTH MIDDLE GROUND SHOAL
ADL	18751			UP	UNITIZED PRODUCING
ADL	18755			UP	UNITIZED PRODUCING
ADL	[illegible]		[illegible]	TB	TRADING BAY
ADL	18761✓			UP	UNITIZED PRODUCING
ADL	18772		[illegible]	TL	TRADING BAY
ADL	18777		[illegible]	NT	NORTH TRADING BAY
ADL	18777		[illegible]	TL	TRADING BAY
ADL	18795			UP	UNITIZED PRODUCING
ADL	21068		160,000	TE	TRADING BAY
ADL	21125		120,000	BR	BELUGA RIVER
ADL	21127		560,000	BR	BELUGA RIVER

✓ DR Granted
—— Within Discovered Fields

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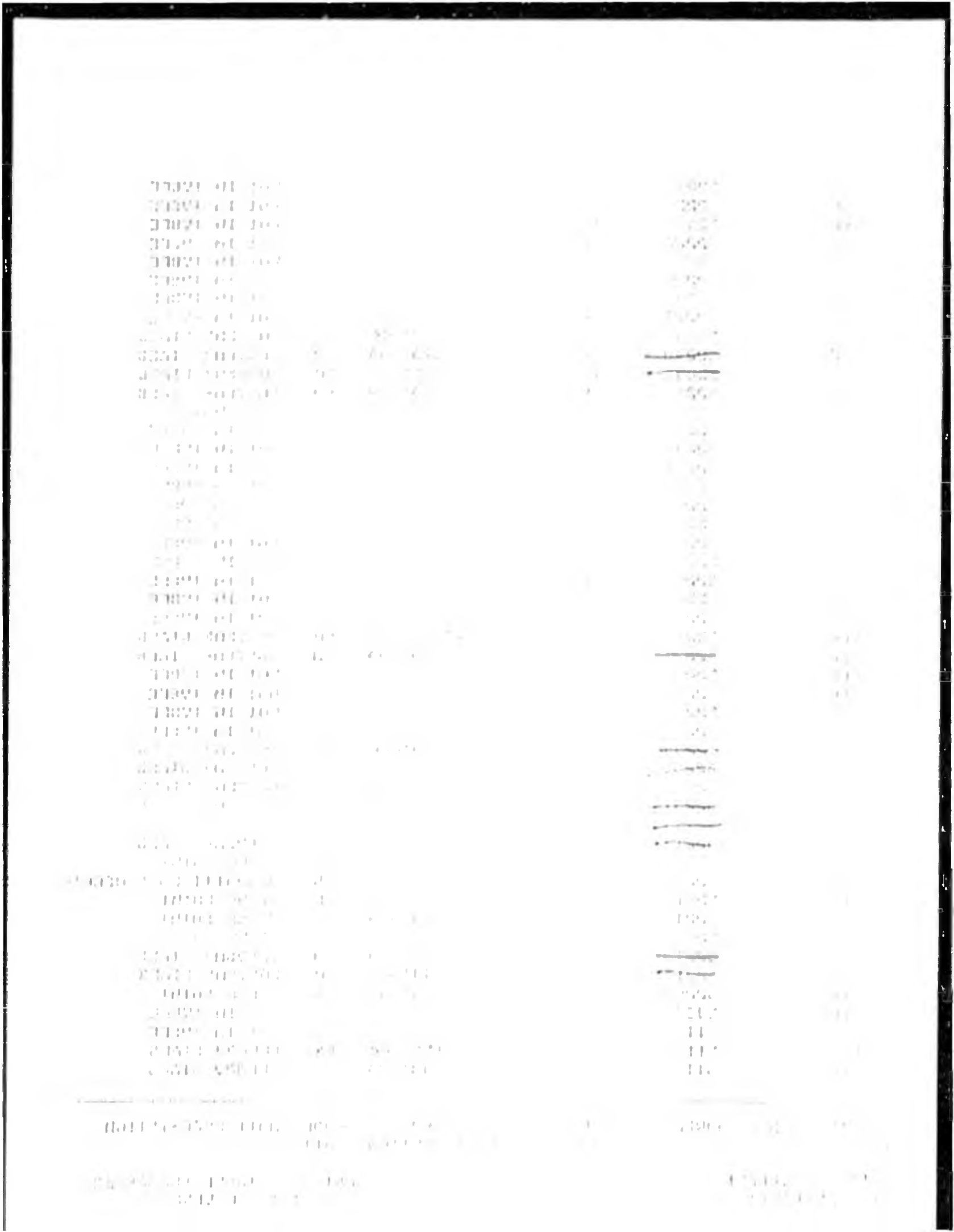

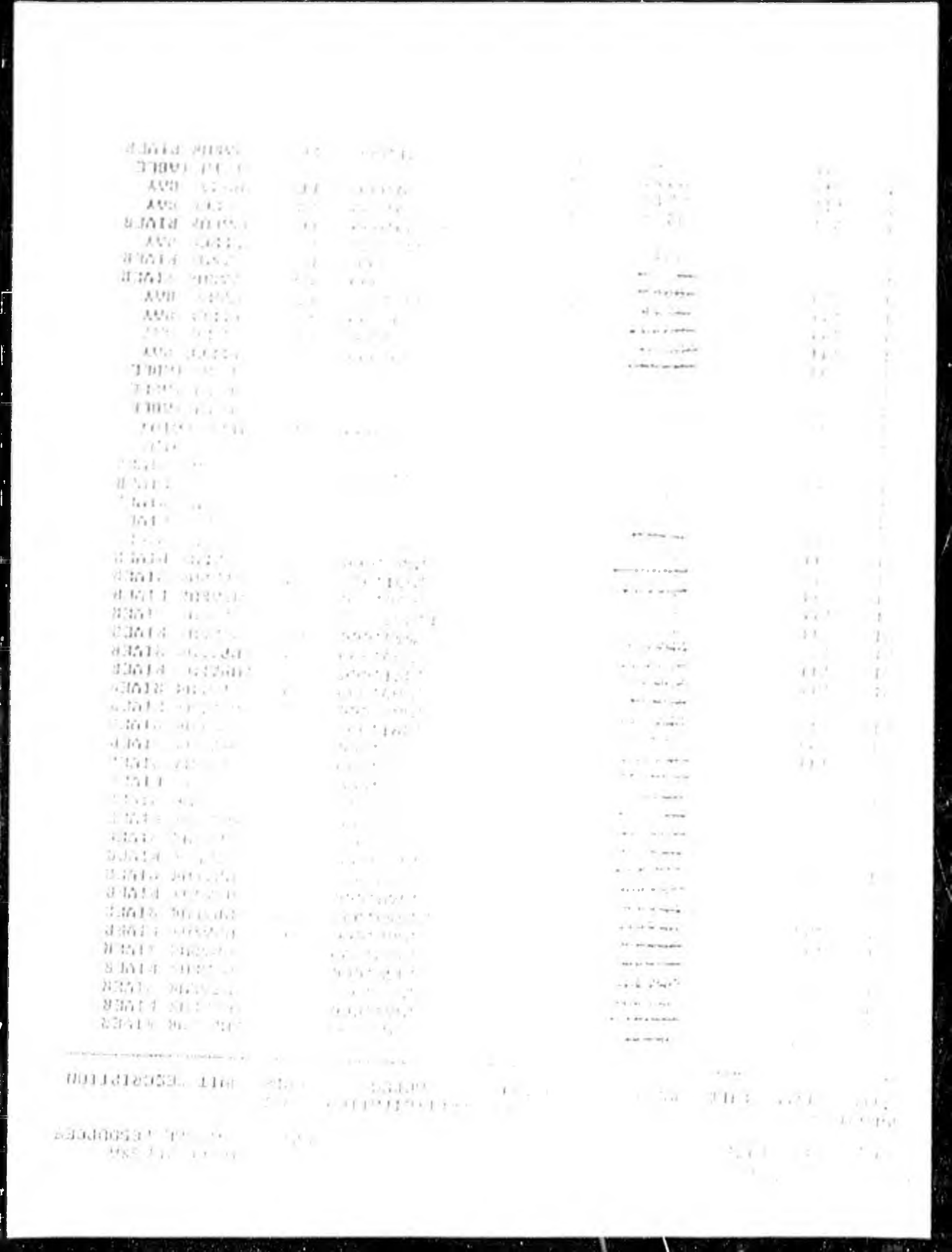

STATE OF ALASKA
DEPT OF NATURAL RESOURCES

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	ADL	25581				NOT IN TABLE
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21	ADL	25584				NOT IN TABLE
21	ADL	25585				NOT IN TABLE
21	ADL	25586		1,120.000	KU	KUPARUK RIVER
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1	ADL	[illegible]		[illegible]	KU	KUPARUK RIVER
1	ADL	[illegible]		[illegible]	KU	KUPARUK RIVER
21	ADL	25627		320.000	KU	KUPARUK RIVER
				1,280.000	TR	PRUDHOE BAY
21	ADL	25633		2,400.000	KU	KUPARUK RIVER
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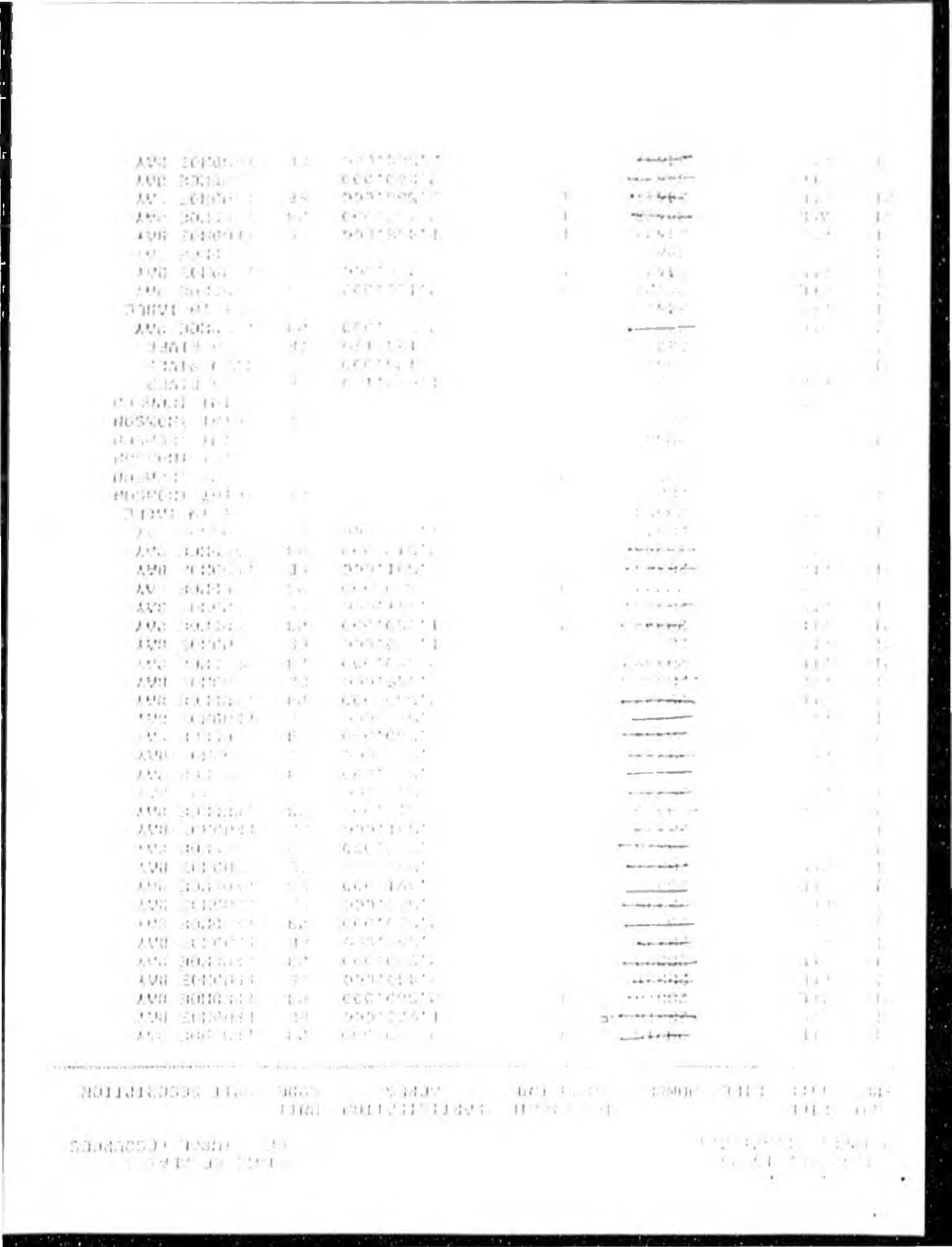

STATE OF ALASKA
DEPT OF NATURAL RESOURCES

COMP ID	TITLE	FILE NUMBER	INTEREST OF [illegible]	PARTICIPATION ACRES	UNIT CODE	UNIT DESCRIPTION
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01	ADL	[illegible]		2,560,000	EL	DUCK ISLAND
1	ADL	[illegible]		1,000,000	DI	DUCK ISLAND
				1,580,000	EB	ENDICOTT BAY
.1	ADL	[illegible]		2,560,000	PB	PRUDHOE BAY
01	ADL	[illegible]		1,000,000	EI	DUCK ISLAND
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.1	ADL	[illegible]		1,000,000	TI	SOUTH COOK INLET
.1	ADL	[illegible]		[illegible]	MC	MCCULLOCH CREEK
1	ADL	[illegible]			KA	KAVIK
1	ADL	[illegible]			KA	KAVIK
1	ADL	[illegible]			KA	KAVIK
1	ADL	[illegible]			KA	KAVIK
1	ADL	[illegible]			KA	KAVIK
.1	ADL	[illegible]		[illegible]	KU	KUPARUK RIVER
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[illegible]

FISCAL NOTE

STATE OF ALASKA **BILL NO. CSSB112(RES)**

1996 LEGISLATIVE SESSION

Revision Date: Original | Dept Affected: Natural Resources

Title: An Act establishing a discovery royalty credit for the lessees of state land drilling exploratory wells and... | BRU: Resource Development | Component: Oil & Gas Development

Sponsor: Senate Resources

Requestor: Senate Finance | Component Serial No. 439

Expenditures/Revenues (Thousands of Dollars)

OPERATING EXPENDITURES	FY97	FY98	FY99	FY00	FY01	FY02
PERSONAL SERVICES	91.0	91.0	91.0	91.0	91.0	91.0
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	91.0	91.0	91.0	91.0	91.0	91.0
CAPITAL EXPENDITURES	0.0	0.0	0.0	0.0	0.0	0.0
CHANGE IN REVENUES (-)						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	91.0	91.0	91.0	91.0	91.0	91.0
1005 GF/Program Receipts						
1006 GF/MHTIA						
Other						
TOTAL	91.0	91.0	91.0	91.0	91.0	91.0

Estimate of any current year (FY96) cost: $ none

POSITIONS

FULL-TIME	1	1	1	1	1	1
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS: (Attach a separate page if necessary)

This bill reinstates Discovery Royalty (which was repealed in 1969) as a means to reduce royalty payments under certain conditions for leases in Cook Inlet Sedimentary Basin.

It is apparent that the discovery royalty incentive has previously been geared toward frontier exploration. In frontier areas, the geologic risk of drilling an unsuccessful well is high, since little geological information is available to the operator prior to drilling. The element of risk was used by the state as an important yard stick for determining eligibility in some previous discovery royalty decisions in Cook Inlet. Cook Inlet was a frontier basin in the 1950's and 1960's. However, today, due to a long history of exploration and production, geologists consider Cook Inlet a mature petroleum province. Almost all wells drilled on state land in Cook Inlet are drilled in close proximity to other wells containing known oil or gas and should be considered step-out wells and not wildcat exploration wells. Step-out wells have relatively low exploration risk when compared to wildcat exploration wells.

Prepared by: Ken Boyd, Director | Phone: 269-8800

Division: Oil & Gas | Date: 22-Mar-96

Approved by Commissioner: | Date: 22-Mar-96

Agency: Natural Resources

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FISCAL ANALYSIS CSSB112(RES) continued...

Based on past experience, SB 112 will be very difficult to administer. Due to the issuance of pre-1970 conditional leases and the holding of other pre-1970 leases by unitization, the state has many current leases that still have a contractual right to a discovery royalty under the repealed program. As of January 1995, the state has 340 active leases that currently retain the discovery royalty provision, and the Division of Oil and Gas still actively manages the program. Under the previous discovery royalty program, thirteen applications were made for wells in Cook Inlet Basin, eight of which were granted and five were denied. Many of these applications were granted or denied only after years of litigation.

Although SB 112 attempts to eliminate many of the administrative problems with the old discovery royalty program, certain significant problem are inherent with both the repealed program and SB 112. These problems were recognized as far back as 1962 and remain today. It is doubtful that new regulations could eliminate the problems faced in the earlier program.

It is unlikely that the Division can draft regulations under the time constraints imposed by the bill.

Analysis of discovery royalty applications is a very time consuming process and will require the addition of one Petroleum Geologist.

Alaska State Legislature

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Juneau AK 99801

MEMO

TO: Nico Bus/DNR (X3886)
Chuck Logsdon/Revenue/Oil & Gas Audit (278-5026)
via fax: 5 pages

FROM: Annette Kreitzer, Aide to
Senate Resources Committee

DATE: March 18, 1996

RE: Fiscal notes to CS SB 112(RES): Discovery Royalty

Please create new fiscal notes to the Resources committee substitute for SB 112 using 9-LS0808\K dated March 15, 1996 (attached). This CS was passed from committee March 13.

9-LS0808\K
Chenoweth
3/15/96

CS FOR SENATE BILL NO. 112(RES)

IN THE LEGISLATURE OF THE STATE OF ALASKA

NINETEENTH LEGISLATURE - SECOND SESSION

BY THE SENATE RESOURCES COMMITTEE

Offered:
Referred:

Sponsor(s): SENATE RESOURCES COMMITTEE

A BILL

FOR AN ACT ENTITLED

"An Act establishing a discovery royalty credit for the lessees of state land drilling exploratory wells and making the first discovery of oil or gas in an oil or gas pool in the Cook Inlet sedimentary basin."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* **Section 1.** AS 38.05.134 is amended to read:

Sec. 38.05.134. CONVERSION TO LEASE. If the licensee requests and the commissioner determines that the work commitment obligation set out in an oil and gas exploration license issued under AS 38.05.132 has been met, the commissioner shall convert to one or more oil and gas leases all or part, as the licensee may indicate, of the area described in the exploration license that remains after the relinquishments, removals, or deletions required by AS 38.05.132(d)(2). A lease issued under this section

(1) is subject to the acreage limitations imposed by AS 38.05.140(c);

(2) is subject to AS 38.05.180(j) - (m), (o) - (u), and (x) - (z);

(3) must be conditioned upon a royalty in amount or value of not less than 12.5 percent of production, **except that the lessee who, proceeding under AS 38.05.131 - 38.05.134, under a lease issued in the Cook Inlet sedimentary basin who is certified by the commissioner to be the first to drill a well discovering oil or gas in a previously undiscovered oil or gas pool shall pay a royalty of five percent on all production of oil or gas from that pool attributable to that lease for a period of 10 years following the date of discovery of that pool, and thereafter the royalty payable on all production of oil or gas from the pool attributable to that lease shall be determined and payable as specified in the lease; the payment of the five percent royalty under this paragraph is authorized only to a holder of a lease who meets the requirements of AS 38.05.180(f)(4);**

(4) must include an annual rent of $3 per acre or fraction of an acre initially paid to the state at inception of the lease and payable annually after that until the income to the state from royalty under that lease exceeds the rental income to the state under that lease for that year; and

(5) is subject to other conditions and obligations that are specified in the lease.

* **Sec. 2.** AS 38.05.180(f) is amended to read:

(f) Except as provided by AS 38.05.131 - 38.05.134, the commissioner may issue oil and gas leases on state land to the highest responsible qualified bidder **as follows:**

(1) the commissioner shall issue an oil and gas lease to the successful bidder determined by competitive bidding under regulations adopted by the commissioner**; bidding** [. BIDDING] may be by sealed bid or according to any other bidding procedure the commissioner determines is in the best interests of the state;

(2) whenever [. WHENEVER], under any of the leasing methods listed in this subsection, a royalty share is reserved to the state, it shall be delivered in pipeline quality and free of all lease or unit expenses, including but not limited to separation, cleaning, dehydration, gathering, salt water disposal, and preparation for transportation off the lease or unit area;

(3) following [. FOLLOWING] a pre-sale analysis, the commissioner may choose at least one of the following leasing methods:

(A) [(1)] a cash bonus bid with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease;

(B) [(2)] a cash bonus bid with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease and a fixed share of the net profit derived from the lease of not less than 30 percent reserved to the state;

(C) [(3)] a fixed cash bonus with a royalty share reserved to the state as the bid variable but no less than 12.5 percent in amount or value of the production removed or sold from the lease;

(D) [(4)] a fixed cash bonus with the share of the net profit derived from the lease reserved to the state as the bid variable;

(E) [(5)] a fixed cash bonus with a fixed royalty share reserved to the state of not less than 12.5 percent in amount or value of the production removed or sold from the lease with the share of the net profit derived from the lease reserved to the state as the bid variable;

(F) [(6)] a cash bonus bid with a fixed royalty share reserved to the state based on a sliding scale according to the volume of production or other factor but in no event less than 12.5 percent in amount or value of the production removed or sold from the lease;

(G) [(7)] a fixed cash bonus with a royalty share reserved to the state based on a sliding scale according to the volume of production or other factor as the bid variable but not less than 12.5 percent in amount or value of the production removed or sold from the lease;

(4) notwithstanding a requirement in the leasing method chosen of a minimum fixed royalty share, on and after a date that is 180 days following the effective date of this Act, the lessee under a lease issued in the Cook Inlet sedimentary basin who is certified by the commissioner to be the first to drill a well discovering oil or gas in a previously undiscovered oil or gas pool shall pay a royalty of five percent on all production of oil or gas from that pool attributable to that lease for a period of 10 years following the date of discovery of that pool, and thereafter the royalty payable on all production of oil or gas from the pool

attributable to that lease shall be determined and payable as specified in the lease; the reduced royalty authorized by this paragraph is subject to the following:

(A) a lessee is eligible to pay the reduced royalty authorized by this paragraph only if the lessee is the first to drill a well discovering oil or gas in a previously undiscovered oil or gas pool;

(B) only one reduction of royalty authorized by this paragraph may be allowed on each lease that qualifies for reduction of royalty under this paragraph;

(C) if, under this paragraph, application is made for a royalty reduction for a lease that was entered into before the date that is 180 days following the effective date of this Act, the commissioner may approve the application only if, on the date referred to in this subparagraph, the lease was a nonproducing lease that was not committed to a unit approved by the commissioner under (m) of this section, that is not part of a unit under (p) or (q) of this section, and that has not been made part of a unit under AS 31.05;

(D) if application for a royalty reduction is made under this paragraph for a lease on which a discovery royalty was claimed or may be claimed under the discovery royalty provisions of former AS 38.05.180(a) in effect before May 6, 1969, the commissioner shall disallow the application under this paragraph unless the applicant waives the right to claim the right to a reduced royalty under the discovery royalty provisions of former AS 38.05.180(a) in effect before May 6, 1969; and

(E) the commissioner shall adopt regulations setting out the standards, criteria, and definitions of terms that apply to implement the filing of applications for, and the review and certification of, discovery oil and gas royalty certifications under this paragraph.

Stewart Petroleum Company
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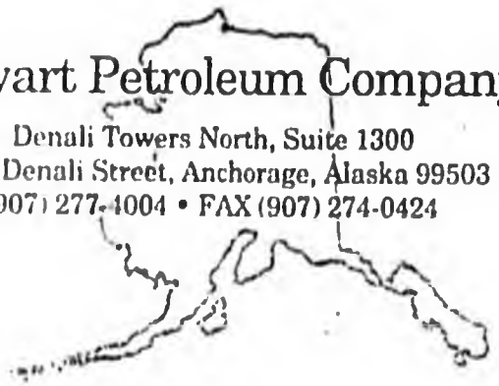

TESTIMONY

of

WILLIAM R STEWART

before the

OIL AND GAS POLICY COUNCIL

MAY 25, 1995

Chairman Wunnicke and members of the Oil & Gas Policy Council, my name is Bill Stewart, President of Stewart Petroleum Company. I have 26 years of oil and gas industry experience in Alaska. Our company is a small Alaska based independent oil and gas exploration and production company active in Alaska and seven other states. Our primary area of interest within Alaska is Cook Inlet Basin. In late 1991, we were fortunate in discovering the West McArthur River Oil Field, a field of significant size on the west side of Cook Inlet. We are in the development stage at the present time. With a pipeline system in place, production of two wells is underway and a third well is currently drilling below 14,000' from an onshore location to an offshore bottom hole location.

According to available information, we are the first independent to establish commercial oil production in Alaska in modern times. (I say "modern times" because oil production was established by independents much earlier at Katalla in 1902. The field produced low gravity crude until their on-site refinery burned in 1933.) In fact, it may interest you to know that about 60 wells have been drilled here by independents, including the first well in Alaska. That well was drilled by a group of independents in 1898 on the Iniskin Peninsula utilizing cable tools and undoubtedly following up on natural oil seeps that still exist there today.

Back to modern times, I feel qualified because of my Alaska experience to discuss why we have very few independents here and what might attract more of them to the State. In general terms, I believe we have very few independents here for three basic reasons. Those reasons are Alaska's natural obstacles, it's man-made obstacles and its high operating costs.

1. Natural Obstacles

The natural obstacles include the obvious factors of climate, remoteness, and logistics. These are significant problems faced by both independents and major companies but they can be handled through proper planning. Without proper planning Alaska is very unforgiving. Independents without experience here fear these obstacles.

2. Man-made Obstacles

The man-made obstacles include lack of available lands (due to scarcity of fee lands, massive public interest land withdrawals in the form of riders to the Alaska Native Claims Settlement Act of 1971 and a State leasing system

which is restricted to competitive leasing only) as well as the regulatory rain forest which exists here. I mentioned earlier that we operate in seven other states. None of those states even begin to approach the kind of governmental micro management of oil and gas operations that we have here. Independent companies much larger than mine are afraid of the process and choose not to operate here.

3. High Operating Costs

The high operating costs are a function of both the natural obstacles and the man-made obstacles mentioned. I'm not sure which is the greatest contributor to these costs. Investment in our own project at West McArthur River exceeds $50 million since 1991. Significant returns are just now beginning to be realized.

Fortunately, the story is not all bad at this point. I'm encouraged by the efforts of Governor Knowles toward attracting industry investment in Alaska and in forming this Council. I'm encouraged by the efforts of Commissioner Burden to streamline ADEC. I'm also encouraged by the oil and gas incentive programs being explored by the Alaska Legislature. At this point I would like to suggest several possible incentive programs, which may or may not be of interest to major companies, but which would definitely be of interest to independents, as follows:

1. Royalty Reduction (Existing Fields)

I've been travelling for the past couple of weeks but I understand a final revision of the royalty reduction bill (HB 207) has passed both the House, and the Senate and is awaiting signature by the Governor. Basically, I feel that while the reasoning behind that legislation is to be commended, it is (as a practical matter) far too complex.

It's the sort of thing that endless audits and lawsuits are made of. While both major companies and the State of Alaska are perhaps well equipped for endless audits and lawsuits, independents are not.

If the opportunity should arise again, I would support a much simpler approach to royalty reduction. Such an approach would involve a predetermined formula based on production much like the ELF formula which has been in place for years. ELF effectively reduces the tax burden for smaller fields by application of the predetermined formula. A similar arrangement for royalty reduction would be a tremendous incentive for new activity for companies large and small who are operating smaller fields, at least small by Alaska standards.

2. Discovery Royalty

The State of Alaska had a discovery royalty program in effect until its abolishment in the early 1970's. Under the program, royalty burden (on the discovery lease only) was reduced from 12.5% to 5% for a period of ten years. Any and all wells located on the lease received the reduction. Perhaps this program or some variation thereof could be reinstated. The incentive created would result in more aggressive development schedules. Coordination with the Royalty Reduction Program discussed earlier would be involved.

3. Acreage Availability

At about the same time the discovery royalty program ceased to be, all State lands were classified for competitive bid only and prior non-competitive

programs were eliminated. The Federal government and many oil producing states maintain non-competitive leasing programs. The mentality in Alaska has been to maximize lease bonuses. It can be better for both industry and State if those dollars go into exploration and development activities resulting in long term production of oil and gas. Non-competitive programs could include openings for over-the-counter filing in relatively unexplored areas and a simultaneous filing program similar to the Federal program in other states. Parcels which do not receive bids at competitive sale could be reclassified non-competitive. It is always possible that new geological thinking will evolve and result in new activity on such parcels.

4. Simplification of Permitting

I mentioned Alaska's regulatory rain forest earlier. The permitting system is overwhelming and often involves interagency conflict. Our operation has involved more than 40 permits to date and numerous field inspections both announced and unannounced. The system deters activity by the independent sector. Changing the system will not be easy. A "lead agency" concept for oil and gas may be a solution but not if it is simply another layer of regulation. The lead agency (probably Alaska Oil & Gas Conservation Commission) would eliminate or replace the existing permitting functions of other agencies and provide "one stop shopping" for industry. Also, reasonable time limits for issuance or rejection of a permit are needed. Considerable resistance to those concepts will be received from middle and lower level officials in the agencies. It is our experience that, while the Governor and the department heads may be working toward positive changes, the message does not filter down to the lower levels. We have

experienced on a number of occasions in our permitting efforts that the lower level officials do not simply "carry out policy"as would be expected. They "make policy" and that policy is usually "stop" or "no". These officials, of course, do not have the "answerability" of the elected or appointed officials above.

5. Reduce DEC Financial Responsibilities Requirements

These requirements were created in the wake of the Exxon Valdez incident. Even with the reductions enacted in 1994 by the Legislature, the required coverages are very hard to come by for a small company, especially with the "Direct Access" provision required under insurance policies. By the way, we have elected to exceed the required coverages at West McArthur River but that was a business decision which may not be applicable in all cases.

6. Development Funding Programs

With Alaska's high cost of operating, State funding for development activities could significantly encourage exploration and hopefully more discoveries by the independent sector. A development loan program, which would be available only after discovery in paying quantities and would not be for exploration purposes, would encourage aggressive development and benefit both the State of Alaska and industry. I know from experience that oil and gas operations do not fit the AIDA programs. A new funding mechanism would be required.

As indicated earlier, our project at West McArthur River has involved more than $50 million in investment to date. During periods of drilling, approximately 40

full time on-site jobs are created together with approximately 20 support jobs in Anchorage and Kenai. Pipeline construction involved approximately 30 full time on-site jobs and 15 support jobs. After full development of the field, about 15 permanent on-site and support jobs will be involved in the producing operation. In addition to the taxes and royalties involved, the employment created by operations such as ours can only be good for Alaska's economy.

Despite the obstacles, independents can function in Alaska, but these types of incentives are needed. As an independent producer, we are in touch with many other independent producers. There are roughly 10,000 members in IPAA, the Independent Petroleum Association of America. Most of the IPAA members will never venture to Alaska, but in the wake of our success, we are beginning to hear expressions of interest from quite a few.

Thank you for inviting me to appear today. We look forward to continued work with the Council and we are prepared to assist with specific language to accomplish these suggested changes. In the meantime, I'll try to answer any questions you may have.

STEWART PETROLEUM COMPANY

By: _____

W. R. Stewart, President

May 25, 1995

Sec. 31.05.170. Definitions. In this chapter, unless the context otherwise requires

(1) "and" includes "or" and "or" includes "and";

(2) "correlative rights" mean the opportunity afforded, so far as it is practicable to do so, to the owner of each property in a pool to produce without waste the owner's just and equitable share of the oil or gas, or both, in the pool; being an amount, so far as can be practically determined, and so far as can practicably be obtained without waste, substantially in the proportion that the quantity of recoverable oil or gas, or both under the property bears to the total recoverable oil or gas or both in the pool, and for such purposes to use the owner's just and equitable share of the reservoir energy;

(3) "commission" means the Alaska Oil and Gas Conservation Commission;

(4) "cubic foot" of natural gas means the volume of gas contained in one cubic foot of space measured at a pressure base of 14.65 pounds per square inch absolute and a temperature base of 60 degrees Fahrenheit;

(5) "field" means a general area which is underlain or appears to be underlain by at least one pool, and includes the underground reservoir containing oil or gas; and the words "pool" and "field" mean the same thing when only one underground reservoir is involved, but "field" unlike "pool" may relate to two or more pools;

(6) "gas" includes all natural gas and all hydrocarbons produced at the wellhead not defined as oil;

(7) "landowner" means the owner of the subsurface estate of the tract affected;

(8) "oil" includes crude petroleum oil and other hydrocarbons regardless of gravity which are produced at the wellhead in liquid form and the liquid hydrocarbons known as distillate or condensate recovered or extracted from gas, other than gas produced in association with oil and commonly known as casinghead gas;

(9) "owner" means the person who has the right to drill into and produce from a pool and to appropriate the oil and gas the person produces from a pool for that person and others;

(10) "person" includes a natural person, corporation, association, partnership, receiver, trustee, executor, administrator, guardian, fiduciary or other representative of any kind, and includes a department, agency or instrumentality of the state or a governmental subdivision of the state;

(11) "pool" means an underground reservoir containing, or appearing to contain, a common accumulation of oil or gas. Each zone of a general structure which is completely separated from any other zone in the structure is covered by the term "pool";

(12) "producer" means the owner of a well or wells capable of producing oil or gas or both;

AK Copy

Senator Loren Leman
SB 112
Senate Resources Committee

This is additional information for SB 112: Discovery Royalty Credit.
Please put this information in your committee packet for SB 112.

Delivered 3/15

Union Exploration / Grayling No. 1
3/10/82

ALASKA DEPARTMENT OF NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION
FOR DISCOVERY ROYALTY BY THE UNION
OIL COMPANY OF CALIFORNIA AND
MARATHON OIL COMPANY (ADL 17594)

State of Alaska
Department of Natural Resources

OPINION IN SUPPORT OF DECISION

This decision concerns the application made by the Union Oil Company of California and Marathon Oil Company, co-lessees of state oil and gas lease ADL 17594, for discovery well certification of the Grayling No. 1-A well. On January 19, 1982, I issued a written decision confirming my November 13, 1981, determination which granted the application. This opinion contains my findings and conclusions which support the discovery royalty award to Union and Marathon.

In order to provide a context for the issues addressed by this decision, a chronological review of all pertinent events also will be presented. This review covers (1) the geologic evolution of Cook Inlet and the formation of the features which produced the hydrocarbons at issue, (2) antecedent federal laws and regulations concerning discovery royalties and geologic structures, (3) the laws and programs adopted by Alaska at statehood, (4) the leasing and development of Cook Inlet for oil and gas purposes, and (5) the sequence of discovery royalty applications and awards considered under the state discovery

royalty program. Finally, this decision will evaluate the Union-Marathon application and the issues pertaining to it.

I. INTRODUCTION.

On May 9, 1965, Union Oil Company of California and its partner, Marathon Oil Company ("Union-Marathon"), commenced a well, Trading Bay No. 1, in Cook Inlet on state lease ADL 18731. This well was plugged and abandoned the same day because the surface casing being set in the well parted. On May 10, Union commenced the Trading Bay No. 1-A well from the same location. At the time, the State of Alaska had an incentive program in the form of a discovery royalty to encourage oil and gas development in the state. A discovery royalty reduced the normal 12.5% royalty rate to 5% for ten years from the date of "discovery" for all production from the lease where a lessee had made the first discovery of commercial hydrocarbons on a new geologic structure. Sec. 18, Ch. 30, SLA 1964.*/ Union-Marathon's Trading Bay No. 1-A well encountered commercial quantities of oil in what became known as the Trading Bay Field. They were awarded a discovery

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*/ The applicable law at the time was AS 38.05.180(a). The relevant provisions of this law were first enacted as subsection 7, section 3, article VIII, chapter 169, SLA 1959, which was amended by section 18, chapter 30, SLA 1964. Legislative amendment in 1967 curtailed the discovery royalty program, which was abolished in 1969. 1967 Alaska Sess. L., ch. 91, § 2; 1969 Alaska Sess. L., ch. 65, § 1.

royalty for this lease by the Department of Natural Resources ("department") on August 27, 1965.

Union-Marathon, after further defining their Trading Bay discovery with two additional wells, moved their drilling barge approximately five miles south and commenced the Grayling No. 1 well on September 2, 1965. This well, too, was plugged and abandoned as a result of mechanical problems. The Grayling No. 1-A well was commenced immediately. Again, Union-Marathon found commercial quantities of hydrocarbons in what was to become known as the McArthur River Field. They filed an application for discovery royalty with the department on November 15, 1965, for state lease ADL 17594, which is adjacent to state lease ADL 18731.

It is at this point that the controversy giving rise to this decision began. Under the law, only one discovery royalty could be issued on any new geologic structure found to contain commercial hydrocarbons. 11 AAC 83.215(1) (repealed November 9, 1979).*/ The dispute has centered around whether the Trading Bay and McArthur River fields are separate geologic structures, which would permit discovery royalty certification of both the Trading Bay No. 1-A and Grayling No. 1-A wells, or are both part of a single dominant geologic structure, in which case approval of

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*/ Formerly 11 AAC 505.745(a).

Union-Marathon's application on the Grayling No. 1-A well would not be permissible.

On January 26, 1966, the department issued a decision denying the Union-Marathon discovery royalty application for the Grayling No. 1-A well on the ground that insufficient information existed to determine that the Trading Bay and McArthur features were not part of a single structure. Specifically, department geologists were concerned that shallow productive sands might continuously overlap the larger Hemlock reservoirs on both features, even though the Hemlock zones appeared to be separated by a major fault system and displaced by more than 3,000 feet.

Although the scant geologic data at the time prevented a definitive conclusion on the overlap questions, discovery royalty regulations required that information in support of an application be filed within 90 days after the well had been tested for commercial quantities (which had taken place from November 6-8, 1965). 11 AAC 83.210(c) (repealed November 9, 1979).*/ The denial was based on the information submitted within that 90-day time frame.

On February 14, 1966, Union-Marathon petitioned the department for reconsideration and interpretation of its decision

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*/ Formerly 11 AAC 505.744.

of January 26, 1966, denying the Grayling No. 1-A discovery royalty application. Their petition was made at least partially in response to encouragement from members of the department. Because of disagreement within the department over procedural and substantive questions relating to discovery royalties, no reply was given until October 31, 1968, at which point the commissioner granted Union-Marathon 60 days in which to submit more information. On December 30, 1968, Union-Marathon filed additional geologic information developed during the period since January 1966 and requested that the matter be set for hearing. On February 26, 1970, then natural resources commissioner Kelly established a hearing date of April 17, 1970, but notified Union-Marathon that only the information filed or developed within the original 90-day period would be considered. At the hearing, Union-Marathon submitted more new geologic information, and thereafter sent the commissioner a letter stating why he should consider the evidence acquired after the original 90-day period had expired. On October 7, 1970, Commissioner Kelly issued a decision denying Union-Marathon's application for the discovery royalty based on the evidence submitted within the 90-day period.

Union-Marathon then sought review in the superior court, which remanded the matter to the commissioner for a new decision, including a statement of the basis for the decision. On February 17, 1972, the commissioner reaffirmed his earlier

decision on the basis that insufficient information was submitted within the 90-day period to determine whether or not there were two separate structures. Union-Marathon again sought review in superior court. The court dismissed the appeal on grounds of lack of jurisdiction. Union-Marathon then appealed to the supreme court which reversed on the jurisdictional issue and remanded the case for further consideration. Union Oil Co. of Cal. v. State Dept. of Nat. Resources, 526 P.2d 1357 (Alaska 1974). On remand the superior court concluded that the commissioner of natural resources could not legally consider the after-acquired evidence and that the original decision was sustainable on the basis of the evidence submitted within the 90-day period. From that decision, entered July 31, 1975, Union-Marathon again appealed to the supreme court.

In its decision, dated February 10, 1978, the Alaska supreme court remanded certain questions relating to this application to the commissioner of natural resources for determination. Union Oil Co. of Cal. v. State, 574 P.2d 1266 (Alaska 1978). The threshold question was whether the 90-day limit of 11 AAC 505.744 (recodified as 11 AAC 83.210(c) (repealed November 9, 1979)) on submitting data regarding geologic structure was unreasonable as applied to Union and Marathon. If so, the commissioner was ordered to receive additional evidence regarding geologic structure and to rule on the application on the basis of all the data submitted.

In compliance with the supreme court's order, I first determined that the 90-day limitation, as applied to the applicants in this case, was unreasonable.*/ Thereafter, I received additional evidence concerning the issue of whether the Grayling 1-A well was the first discovery of oil or gas in a new geologic structure.

With the goal in mind of sustaining Commissioner Kelly's decision, several officials of the Alaska Department of Law (including then deputy attorney general Wilson L. Condon and then assistant attorneys general Susan A. Burke and Jeffrey B. Lowenfels) undertook an extensive effort to gather evidence which would challenge the validity of Union's and Marathon's claims. As part of this effort, they traveled extensively throughout the United States and conducted numerous interviews with federal officials employed by the United States Department of the Interior, including the United States Geologic Survey ("USGS"), who were intimately familiar with implementation of the federal discovery royalty program and the concept of a "known geologic structure of a producing oil and gas field" ("KGS"). Interviews were conducted with Interior official in Washington, D. C., and USGS officials in Langley, Virginia; Casper, Wyoming; Denver, Colorado; and Los Angeles, California. Among those federal officials interviewed was Emmett A. Finley, former chief of the Minerals Classification

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*/ See Part VI of this opinion.

Branch of USGS and author of USGS Circular 419, which purported to codify USGS practice in administering the KGS system. Interviews were also conducted within Alaska with state officials from the departments of Revenue and Natural Resources who were familiar with the state's discovery royalty program.

The Department of Law also compiled a glossary of all geologic terms relevant to the definition of the term "geologic structure" and prepared a comprehensive documentary history, in seven volumes, describing the development and administration of the discovery royalty provision of AS 38.05.180(a). Volume I (entitled "Summary of Documents") is a summary of their findings; it discusses certain federal oil and gas leasing practices (summarized in Section III of this opinion); describes the evolution of the Alaska Land Act and the Alaska oil and gas lease form (summarized in Section IV of this opinion); and traces the history of early oil and gas discoveries in the Cook Inlet region, the development of regulations governing discovery royalties, and the administration of those provisions with respect to applications for discovery awards on state leases in the Cook Inlet region (summarized in Section V of this opinion). Volume II describes the territorial and state administrative organization for the oil and gas from 1958 to 1970 (Appendix A), the evolution of the oil and gas lease form (Appendix B), and oil and gas development in the Cook Inlet region (Appendix C) and contains copies of the relevant affidavits (Appendix D). Volumes

III - VII are an extensive compilation of the correspondence and other documents which are summarized in Volume I.

Beginning March 13, 1980, I held a hearing to enable the applicants to submit additional evidence in support of their application. In preparation for that hearing, I had reviewed the following materials:

1. the Summary of Documents and appendices;

2. the documents referred to in the summary;

3. a videotape of a deposition of Emmett A. Finley and the exhibits submitted at that deposition;

4. the maps submitted in support of the applications for discovery certification of Union-Marathon's Trading Bay State No. 1-A well, Union-Marathon's Kustatan No. 1 and 1-A wells, Atlantic Richfield's West Foreland Unit No. 3 well, Texaco's Trading Bay No. 1 and 1-A wells, and the Grayling No. 1 and 1-A wells;

5. information submitted in support of the application for discovery well certification of Atlantic Richfield's Trading Bay State No. 1 well, including: the baroid mud log and dual induction laterolog submitted with the affidavit of

establishment of priority as to time and date on June 7, 1967; the materials submitted to the Oil and Gas Conservation Committee on September 27, 1967, to establish a separate geologic structure, including an evaluation of the mechanical logs (Exhibit 1), a structure contour map (Exhibit 2), a structural cross section -- A-A^1 (Exhibit 3), completion information drafted on an electric log (Enclosure 1), and a core analysis -- cores 1-10 (Enclosure 2); additional information supporting the application transmitted on December 30, 1968, including a structure contour map (Exhibit 1), an east-west cross section -- A-A^1 (Exhibit 2), and an east-west cross section -- B-B^1 (Exhibit 3); and exhibits presented at the hearing before the commissioner of natural resources on April 16, 1970, including a structural contour map of the Hemlock formation in the Trading Bay and North Trading Bay fields (Exhibit 1) and a structural contour map of the Hemlock formation showing producing trends in the Cook Inlet Basin (Exhibit 2);

6. all materials submitted by Union-Marathon through March 13, 1980, including the "blue box" and accompanying geologic reports; the light blue folders submitted at the April 17, 1970, hearing; and Volume III of the green folders, dated September 28, 1979, including the redrawn maps which were submitted later; and

7. all available information from Union-Marathon's Trading Bay State No. 2 and No. 3 wells which were drilled in the

late summer of 1965 and Union-Marathon's A-20 well drilled from their Monopod Platform on July 24, 1977.

Also in preparation for the hearing, I interviewed Tom Marshall, a petroleum geologist formerly employed by the state Oil and Gas Conservation Committee, regarding state administrative practices relating to discovery royalty applications and his understanding of Cook Inlet geology; William Van Alen, a petroleum geologist from the Alaska Oil and Gas Conservation Commission, on the structural history of the Trading Bay area; and William Van Dyke, a reservoir engineer employed by the division of minerals and energy management, regarding his interpretation of the well data in state files and Union-Marathon's interpretation of that data as depicted in their exhibits.

At the hearing testimony was given by Thomas Wilson, Jr., who worked as a geologist for Marathon Oil Company and had participated in joint Union-Marathon exploratory work in the Cook Inlet area since 1958 (he discussed the results of Marathon's exploratory and drilling work in the Trading Bay and McArthur River fields from 1959 through 1965); Richard A. Lyon, who worked as the Alaska District Exploration Manager for the Union Oil Company from 1963 through 1966 (he gave his perceptions of Alaska's discovery royalty program and its impact on Union's early exploration efforts in Alaska); Robert C. Warthen, who worked as a geologist for Union Oil Company (he presented a

compilation of all geologic information collected in the area by Union and Marathon to date, including updated geologic information not previously submitted to the state); Kenneth Zerda, a reservoir engineer for Union Oil Company (he compared the reservoir characteristics of the McArthur River and Trading Bay fields); Gerould H. Smith, a geochemist employed by Union (he compared the geochemical characteristics of the oil found at Trading Bay with the oil found at McArthur River); Ed Hall, a geologist from Union (he presented maps he had prepared based on examples of KGSs he had collected from several USGS offices); Charles M. Schwartz, a geologist in charge of Union's exploration and production activities in Alaska (he compared the physical characteristics of the two fields and hypothesized regarding the structural growth of these areas); and Joseph David "Red" Cerkel, Jr., a retired geologist who had served as chief of the Minerals Classification Branch of the USGS. Tom Cook, then director of the division of minerals and energy management; K. Daniel Hinkle, Marathon Oil Company's attorney; and Arden Page and John Sedwick, Union Oil Company's attorneys, also attended the hearing.

On April 23, 1981, I took testimony from William Van Alen, who gave a presentation on the geologic history of the Cook Inlet sedimentary basin and formation of the ancestral Trading Bay anticline (summarized in Part II of this opinion) and Thomas R. Marshall, who discussed the application of the Greater Trading Bay Structure concept to the award of discovery royalties by the

Oil and Gas Conservation Committee. Also present were Assistant Attorney General Michael E. Arruda, Mr. Page, and Mr. Sedwick.

As a result of the efforts of the Department of Law and Union-Marathon, examination of the issues in this case was extremely thorough. For the reasons set forth in my decision, however, I determined that this matter should be resolved in favor of the applicants.

More specifically, I determined that there is sufficient subsurface information to determine that the McArthur River feature, on which the Grayling 1-A well is located, is not overlapped by the previously certified Trading Bay feature and, furthermore, is a separate geologic structure within the meaning of then applicable 11 AAC 83.200 and 11 AAC 83.205(2) (repealed November 9, 1979).*/ On this basis, the application for discovery well certification of the Grayling 1-A well was granted.

II. GEOLOGIC EVOLUTION OF THE COOK INLET SEDIMENTARY BASIN AND THE TRADING BAY AND MCARTHUR GEOLOGIC FEATURES.

The Trading Bay and McArthur River geologic features which are the subject of this case are located within the Cook Inlet sedimentary basin, a major oil and gas province.

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*/ Formerly 11 AAC 505.74 and 11 AAC 505.741(b), respectively.

PAGES 13-22 ARE AVAILABLE FROM KEN BOYD, DNR/DO&G. THESE PAGES CONTAIN GEOLOGIC INFORMATION FROM THE EARLY JURASSIC PERIOD TO THE PLEISTOCENE PERIOD.

A SUMMARY OF THESE PAGES IS ON PAGE 23, WHICH FOLLOWS THIS PAGE.

M. Summary

In summary, the Cook Inlet Basin as we know it today began with the deposition of volcaniclastic materials (the Talkeetna formation) nearly 200 million years ago. Approximately 175 million years ago, sediments and organic matter were deposited in the Tuxedni Group, which became the source rock for most of the hydrocarbons in Cook Inlet. Over the succeeding 100 million years, additional coarse materials were deposited in the area which experienced the alternating uplift and subsidence, mountainous formation and folding conducive to generating the lateral and vertical compression and geothermal heat required for the formation of petroleum hydrocarbons in the Tuxedni source rock. At or slightly before the beginning of Tertiary time (65 million years ago) and thereafter, the area experienced (1) downwarping of the Cook Inlet trough exposing the westward and eastward ends of the Tuxedni source rock and forcing the migration of oil upwards; (2) the creation of the present day Alaska, Chugach and Kenai mountain ranges, creating a further depositional environment in Cook Inlet beginning with the Larimide revolution; (3) deposition of sedimentary materials constituting the West Foreland formation and the Kenai group, which became the reservoir rock formations receiving upward migrating oil from the exposed Tuxedni source rock; (4)general east-west folding of

stratigraphic layers in the Cook Inlet Basin caused by mountain formation and the underthrusting of the North Pacific Oceanic Plate, initially establishing north-south anticlines which became entrapping mechanisms for hydrocarbons and, through further foldings, steepening the flanks of those anticlines (including Trading Bay) to the point that reverse faulting occurred; (5) the counterclockwise rotational movement of the Alaskan (North American) Continental Plate and subjacent thrusting of the North Pacific Oceanic Plate causing right-lateral strike-slip faulting along major regional faults (for example, the Castle Mountain fault) and similar movements along subordinate faults (for example, the Bruin Bay and Trading Bay faults). The last of these forces caused the upper portion of what was once a single Trading Bay anticline to migrate eastward approximately three and one-half miles. Therefore, through the composite action of folding, reverse faulting, normal faulting and strike-slip faulting occurring over the past 25 million years, the Trading Bay anticline has evolved from a simple fold into a complex structure with the Trading Bay field portion offset from the McArthur River Field portion.

III. ANTECEDENT FEDERAL LAWS AND REGULATIONS.

Alaska statutes and regulations adopted at statehood provided for a discovery royalty to be awarded to a lessee that was the first to encounter commercial quantities of oil and gas

on a new geologic structure. Neither the concept of a discovery royalty nor of using the term "geologic structure" for oil and gas regulatory purposes was without precedent. The term "KGS" had been used by the USGS since 1920 to determine whether land would be leased competitively or noncompetitively for oil and gas purposes. From 1937 to 1958, the term "geologic structure" was used for purposes of establishing reduced royalties on noncompetitive leases under regulations implementing the Alaska Oil Proviso of the Federal Mineral Leasing Act of 1920. */ Therefore, the use by federal officials of the term "geologic structure" and the federal discovery royalty provide some background for interpretation of the provisions of Alaska law contested in this case.

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*/ A discovery incentive program was initiated by the federal government in 1942 to encourage petroleum discoveries in the interest of national defense. This program, authorized by the so-called O'Mahoney Amendment to the Mineral Leasing Act on December 24, 1942, Pub. L. No. 832, Stat. 1080 (1942), placed a 12½ percent ceiling on royalty rates for discoveries of a "new oil or gas field or deposit." The amendment had the effect of reducing royalties on oil and gas production. The federal program was, in many ways, much easier to administer than the state's "new geologic structure" program because it was administered in a way that looked only to whether a discovery was made in a new "deposit." See Appendix 1. The concept of a separate field or deposit is much more easily defined than the concept of a separate geologic structure. The United States Department of the Interior never adopted specifications to administer this program until it was further amended in 1946. The six diagrams in Appendix 1 of this decision entitled "Possible Interpretations Under Act of December 24, 1942," clearly illustrate how the program was in fact administered.

A. Competitive-Noncompetitive Leasing Determinations.

In 1920 Congress passed the Federal Mineral Leasing Act, 41 Stat. 437 (1920), which was the organic statute governing oil and gas leasing in the United States. Under the act, land could be leased for oil and gas purposes either competitively or noncompetitively. The law required that land be leased competitively if it were located on a KGS. From then on, USGS geologists followed petroleum exploration activities in the United States, drawing and platting KGSs as new discoveries were made. Oil and gas rights to land not covered by a KGS could be obtained noncompetitively.

Although the USGS plotted hundreds of KGSs over the years after 1920, no regulations defining a KGS were adopted until 1970. In 1959, however, Emmett A. Finley authored a document entitled, "The Definition of Known Geologic Structures of Producing Oil and Gas Fields" (Circular 419).. This document was considered the principal reference in making KGS determinations.

B. Discovery Royalties.

The 1920 Federal Mineral Leasing Act also contained a section known as the "Alaska Oil Proviso." This section authorized the secretary of the United States Department of the

Interior to establish special lowered royalty rates on leases issued in the State of Alaska in order to encourage oil and gas development in this frontier area. Although regulations implementing the Alaska Oil Proviso were amended several times (which usually changed the lowered royalty formula), by 1950 they provided for payment of a 5% royalty (compared to the normal 12.5%) for ten years following the date of discovery by any lessee that made the first discovery of oil or gas in commercial quantities in a new geologic structure. The Alaska Oil Proviso was virtually identical to a provision of the discovery royalty statute enacted by the Alaska legislature in 1959 except that the Proviso applied to noncompetitive land only. The Alaska Oil Proviso was repealed in 1958.

In summary, at the time of statehood, the term "known geologic structure" had been used by the USGS since 1920 to determine whether land would be leased competitively or noncompetitively. During the same period, the term "geologic structure" had been used for purposes of awarding discovery royalties under the Alaska proviso, but on noncompetitive leases only.

IV. DEVELOPMENT OF A STATE DISCOVERY ROYALTY PROVISION.

Because the territorial government had no land to manage, territorial land officials had little experience with

land management, including oil and gas leasing. With the approach of statehood, these officials began the massive preparation necessary for the transition from territorial status and the problems which statehood would bring, including problems associated with the receipt of immediate title to 45 million acres of tide and submerged land and the selection of 103,350,000 acres of upland.

In order to assume their new responsibilities, territorial officials began developing programs for the selection, management, and disposal of state land and its resources. Special attention was given to the leasing and management of land containing oil and gas resources because of its potential for generating revenue for the cash-poor state. The major concern was development of a well-conceived leasing program which would avoid land speculation in areas of oil and gas potential.

During the two years before statehood, there was continued activity by territorial officials debating the provisions to be included in the Statehood and Alaska Land acts. Much of the discussion centered on the extent to which the state would competitively lease land with oil and gas potential. Although the territorial land board retreated from its initial proposal to competitively lease all sedimentary basins, their final proposal required competitive leasing on a broader scale than the federal act had. There also was considerable discussion regarding

adoption of a discovery royalty program by the state. The oil industry advocated its adoption on the ground that the federal royalty program had attracted the industry to Alaska in the first place.

The Alaska Land Act passed in 1959. Unlike the federal act which limited competitive oil and gas leasing to land containing a KGS, the state act required competitive leasing on land known or believed to contain oil or gas. The state act also contained a discovery royalty provision virtually identical to the terms of the Alaska Oil Proviso. Under this provision a lease holder that drilled and made the first discovery of oil or gas in commercial quantities in a geologic structure could be rewarded by paying a discovery royalty of only five percent of the value of oil and gas extracted for the first ten years, after which the normal rate of 12½ percent was applicable. The new state oil and gas leasing form also contained a provision which repeated verbatim the discovery royalty provision included in the state act.

V. IMPLEMENTATION OF THE STATE'S DISCOVERY ROYALTY PROGRAM IN THE COOK INLET REGION.

A. Early Leasing Activity.

Although Alaska received a large entitlement of land at statehood, this was a nonliquid asset. The state was cash poor

and unable to adequately operate the government and provide essential public services. To obtain the revenue needed to run the new state, state officials quickly began implementing programs which would generate cash from the land. High on their list of activities was oil and gas leasing, as evidenced by the quick succession of legislation (the Alaska Land Act was signed on May 2, 1959), regulations (effective September 15, 1959), and lease sales (the first was conducted in December of 1959).

From 1959 through 1966 the state conducted 17 competitive oil and gas lease sales. All major oil discoveries and most major natural gas discoveries in Cook Inlet were made on leases sold at the seventh and ninth lease sales (held on December 19, 1961 and in July of 1962, respectively). Virtually all subsequent discovery royalty determinations involved leases sold in these two sales.

Most land opened by the state for oil and gas exploration, development, and production activities in the upper Cook Inlet area was leased by a small number of oil companies in combination. Pan American Petroleum Corporation and its partners (the Pan American group) leased by far the greatest amount of acreage in the seventh and ninth competitive lease sales. The SRS group (consisting of the Shell Oil Company, the Richfield Oil Company, and the Standard Oil Company of California) acquired the second largest amount of acreage. Union Oil Company of

California and Marathon Oil Company, as partners, acquired four leases in these sales and a fifth by assignment. Union also acquired an interest in two other leases in partnership with Mobil. Texaco and Superior together obtained three leases. Atlantic Refining Company obtained eight leases.

B. Initial Exploratory Efforts Affecting Land in the Seventh and Ninth Competitive Oil and Gas Lease Sales.

Given the large amount of land leased by the Pan Am group and the SRS group in the seventh and ninth competitive oil and gas lease sales and the close proximity of these leases to one another, it was likely that these two groups would compete for discovery royalty awards if oil or gas were found in the area. During the summer of 1962, even before the ninth lease sale was held, four wells (two by the Pan Am group and two by the SRS group) were commenced to test the potential of the leases in this area.

On May 15, 1962, the Pan American group spudded its Middle Ground Shoal State No. 1 well from a drilling barge on lease ADL 17595 in the area now known as the Middle Ground Shoal Field. This well blew out one week later while it was being drilled at a depth of 1,132 feet. It was brought under control on the same day. While being drilled at a depth of 5,216 feet,

the well blew out again upon encountering a high pressure gas zone. The well remained out of control for 45 days, and a large gas flow erupted through the inlet floor 700 feet from the well. During this period Pan Am pumped into the well 25,265 barrels of mud and lost circulation material, 16,480 sacks of cement, 975 sacks of Cal Seal, and a large quantity of diesel gel cement, topped off by burlap sacks, parachutes, gravel, sand, and sawdust. Finally, on July 25, 1962, the well was controlled. It was then plugged and abandoned.

On May 30, 1962, Shell, as operator for the SRS group, spudded a well, State No. 1, on lease ADL 17582. This well was drilled roughly halfway between what is now known as the Middle Ground Shoal Field and Cook Inlet Gas Field. The well was drilled to a depth of 14,401 feet and completed on September 14, 1962. Although shows of oil were found in various tests of the well, no commercial discovery was made.

On May 31, 1962, Pan Am, on behalf of the Pan Am group, spudded a second well, Cook Inlet State No. 1, on lease ADL 17589 in the area now known as the Cook Inlet Gas Field. While it was being drilled at a depth of 12,237 feet, this well also blew out. Because of the high volume and pressure of escaping hydrocarbons, the drilling barge had to move off the well and the escaping gas and oil had to be ignited. A relief well was spudded about 1,500 feet to the northeast one week later. The initial well continued

to blow ignited for almost fourteen months before it was finally controlled by pumping salt water down the relief well.

On April 19, 1962, at an onshore location on a federal lease adjacent to lease ADL 17599, the Standard Oil Company of California, as operator for the SRS group, spudded a well. The well was tested on December 1, 1962. On December 4, Standard announced that it had discovered what became known as the Beluga River Gas Field.

C. Development of the Discovery Royalty Regulations.

The drilling of the four wells described above led representatives of the Pan Am group and the SRS group to ask the department about the policies and procedures for making discovery royalty awards. The state, as lessor, and the oil companies, as lessees, were all faced with the same problem: neither the statute authorizing discovery royalty awards, the regulations adopted to implement the statute, nor the state lease form defined what was meant by the terms "first discovery," "commercial quantities," or "geologic structure."

The need to define the terms "first discovery" and "commercial quantities" was brought to a head by the advent of Pan Am's two blowouts. This situation made plain that the state had implemented a discovery royalty program without adequately

considering the practical problems which materialize after a program is put into practice. After four wells had been drilled, the department began to attempt to untangle the confusion which the lack of specifics in the regulations had created. There followed extensive exchanges of memoranda, position papers, and other communications among members of the department, oil companies, and the Western Oil and Gas Association as they attempted to work out acceptable solutions. Concurrently, Pan American applied for discovery royalty awards for leases covered by the two wells that had blown out the previous summer, and SRS applied for a discovery royalty for the gas discovery in their Beluga River well (Appendix 4 summarizes all state discovery royalty applications in Cook Inlet). While the department did not want to make hasty discovery royalty awards, state officials were also concerned that drilling races would result from the department's failure to answer essential questions on discovery royalty awards where there was mixed ownership of leases over a potential structure.

Further confusion occurred within the department because of differing views on the problems caused by the absence of detailed discovery royalty regulations. While aware of the problems relating to the definitions of "first discovery," "commercial quantities," and "geologic structure," the commissioner's office was also concerned about whether a discovery royalty award applied to all production from within the lease, all production from only a particular pool or interval, or all production from within the exterior boundaries of the discovery structure on the lease.

On January 15, 1963, the department issued a decision granting Pan Am's application for the Middle Ground Shoals well on state lease ADL 17595 (for the structure only). (A map prepared by the Union Oil Company which accompanied the testimony of E.A. Hall and illustrates federal and state discovery royalty awards generally is attached to this opinion as Appendix 2.) The award was contested by SRS. Concurrently, the Western Oil and Gas Association was urging the department to define discovery royalty terms by regulations in a manner which would clear up any misunderstandings.

Subsequently, department officials conducted hearings on proposed discovery royalty regulations. These hearings were characterized by acrimony and disagreement between oil companies and other organizations. Although most of the discussion concerned the meaning of the term "first discovery" (because of Pan Am's two blowout wells), there was also some discussion of the definition of "geologic structure," although a factual dispute involving this term had not yet arisen.

A hearing was held in June of 1963 to consider new department draft regulations put out at the end of May. After the hearing some revisions were made. The final regulations were filed in July and became effective in August. Those regulations read as follows:

505.73 Royalty.

The royalty rate on production under competitive leases will be fixed in the lease form for each lease offer and shall not be less than 12 1/2 percent in amount or value of the production removed or sold from the leased lands, except as provided in Section 505.74.

505.74 Discovery Lease.

Any operator who by time and date first encounters sufficient evidence of oil and/or gas in a particular geologic structure covered by any State oil and gas lease to cause said operator diligently to continue in good faith testing, reworking, drilling or other operations on said lease, whether in the same hole or other holes, in an effort to establish production of oil and/or gas in the same structure shall be qualified for a discovery well certification under the terms of said state lease should he complete a well and establish production in commercial quantities in the same zone in which oil and/or gas was first encountered.

505.741 Definitions.

With regard to regulations 505.74 through 505.748 and applicable provisions in State leases, the following terms shall have the meanings indicated.

(a) "Discovery" shall be the first acceptable evidence in a drilling well of the existence of oil and/or gas which can be produced in commercial quantities after well completion.

(b) "Geologic Structure" shall be any structural and/or stratigraphic entrapping mechanism containing one or more intervals, zones, strata, formations, or fault blocks which has the necessary physical characteristics to accumulate and prevent the escape of oil and/or gas. It is intended that the meaning shall be similar to that as used by the United States Geological Survey in the administration of the Federal Mineral Leasing Act of February 25, 1920 (41 Stat. 437) as amended.

(c) "Completed Well" shall be a well which is cased, controlled and in which all underground work in connection therewith has been finished and such well is capable of producing oil and/or gas.

(d) "Commercial Quantities" shall be those amounts of oil and/or gas which after well completion would appear to a reasonable and prudent operator to be sufficient to recover ordinary costs of drilling, completing and producing an additional well on the same geologic structure at an offset location with a reasonable profit to the operator, if a market were available.

(e) "Committee" shall be the Alaska Oil and Gas Conservation Committee composed of the Director of Mines and Minerals (Chairman), the State Petroleum Geologist, the State Petroleum Engineer and the Deputy Commissioner or the Department of Natural Resources or his designee.

505.742 Establishment of Priority as to Time and Date.
To establish priority as to time and date of discovery, an operator must furnish the Committee with a sworn statement substantiating evidence, acceptable to the Committee, that oil and/or gas has been encountered in sufficient showing to cause a reasonable and prudent operator to conduct further operations in an effort to complete a well in the discovery zone so that such well can be tested for potential oil and/or gas production in commercial quantities. Such statement must include the time and date of first discovery, the exact location of the well concerned, the precise interval of discovery and the Alaska Division of Lands lease number on which said well is located. Such statement should be furnished to the Committee as soon as possible, but not later than thirty (30) days after the date claimed for the discovery.

505.743 Establishment of Commercial Quantities.
To establish and prove oil and/or gas in commercial quantities, operator must: (a) Conduct a potential test of the discovery

zone within one year after completion of a discovery well. (b) Notify the Committee or its designated representative five days in advance of such scheduled potential test and furnish transportation (if requested) for a designated representative of the Committee to witness such test. The Committee may at its option or at the option of its designated representative waive the witnessing of the test and require sworn evidence to establish results of said test. Any such sworn evidence shall be delivered to the Committee or its designated representative within thirty (30) days after such test.

505.744 Establishment of Geologic Structure.

To establish the geologic structure from which the oil and/or gas can be produced, the operator must furnish pertinent data to the Committee which will enable it to determine the geologic structure from which the oil and/or gas is being produced. This may include but is not limited to, geophysical data, total depth, casing records, perforation data, electric logs, drilling and mud logs, core analyses, sample cuttings and sample logs, and the operator's interpretation thereof, together with any other records and interpretations the operator deems pertinent. This data must be supplied within ninety (90) days after the date of the potential test as required in Section 505.743. All such data submitted shall be held confidential for a period of 24 months unless written authorization from the operator for the release of same is secured.

505.745 Certification After Compliance and Application.

After compliance with Sections 505.742 through 505.744 inclusive, the operator may apply to the Director for discovery well certification. Within ten (10) days of receipt of such request the Director will publish notice of such application allowing thirty (30) days for any interested party to object to or protest the application. If no protest or objection is received by the Director, the Director will, within seventy (70) days after the receipt of an application, either certify the well as in (a) or

deny the application as in (c) of this section. If any protest or objection is made it must be submitted in writing to the Director within the specified thirty (30) day period. After receipt of said protest or objection the Director will advertise and hold an open public hearing in accordance with the Alaska Land Act (AS 38.05) and in accordance with the Alaska Administrative Procedures Act (AS 44.62.300 - AS 44.62.630). Within thirty (30) days after such hearing the Director will do one of the following.
(a) Certify the well in question a first discovery well which has established oil and/or gas in commercial quantities in (name geologic structure) as of (time) on (date), and specify the date of commencement of the 10 year 5 per cent discovery royalty term which date shall be the first of the next succeeding month from the established date of initial discovery. After discovery well certification, no other well, regardless of when drilled, shall be eligible for consideration for certification as to the same geologic structure.
(b) Continue the hearing at a later specified date.
(c) Deny the application for discovery well certification.

505.746 Cancellation.
At any time after discovery well certification should any information supplied to the Committee be later proven false or erroneous and such information would affect the decision of the Director to the extent that the original application for certification would have been denied on such basis, the certification shall be immediately revoked. Such action also may be taken when it is determined that error was caused by failure to disclose full and complete knowledge available to the operator at the time of application for certification. After such certification is revoked royalty payment of 7 1/2 per cent on production theretofore shall be immediately due and payable and 12 1/2 per cent royalty on all subsequent production shall be paid. Should the royalty due not be paid on demand, the State shall take legal steps to cancel the lease involved.

505.747 Termination.
In the event of the termination of a discovery lease for any cause, the 5 per cent discovery royalty terminates and will not be allowed or reinstated on the same geologic structure.

505.748 Five Per Cent Discovery Royalty.
A "First Discovery Well Certification" shall secure the 5 per cent royalty rights for the holder of the State lease on which such well is located on all production from all zones, strata, formations and structures under and within the exterior boundaries of said lease. If at any time before or after discovery well certification, the State lease on which such well is located is subject to or made a part of any development unit, pooling or consolidation contract, the 5 per cent discovery royalty rate shall apply only to the production allocated to said lease under such agreement.

In 1973 the state's discovery royalty regulations were recodified. 11 AAC 84.152 -- 11 AAC 84.168 were the discovery royalty provisions applicable to competitive leases and 11 AAC 84.407 -- 11 AAC 84.422 were the discovery royalty provisions applicable to noncompetitive leases. In 1974 these two sets of regulations were combined into one set of discovery royalty provisions generally applicable to all oil and gas leases, 11 AAC 83.200 -- 11 AAC 83.230. These regulations were repealed on November 9, 1979.

D. The Dispute Between Pan Am and Shell Over the Middle Ground Shoal Discovery Royalty Award.