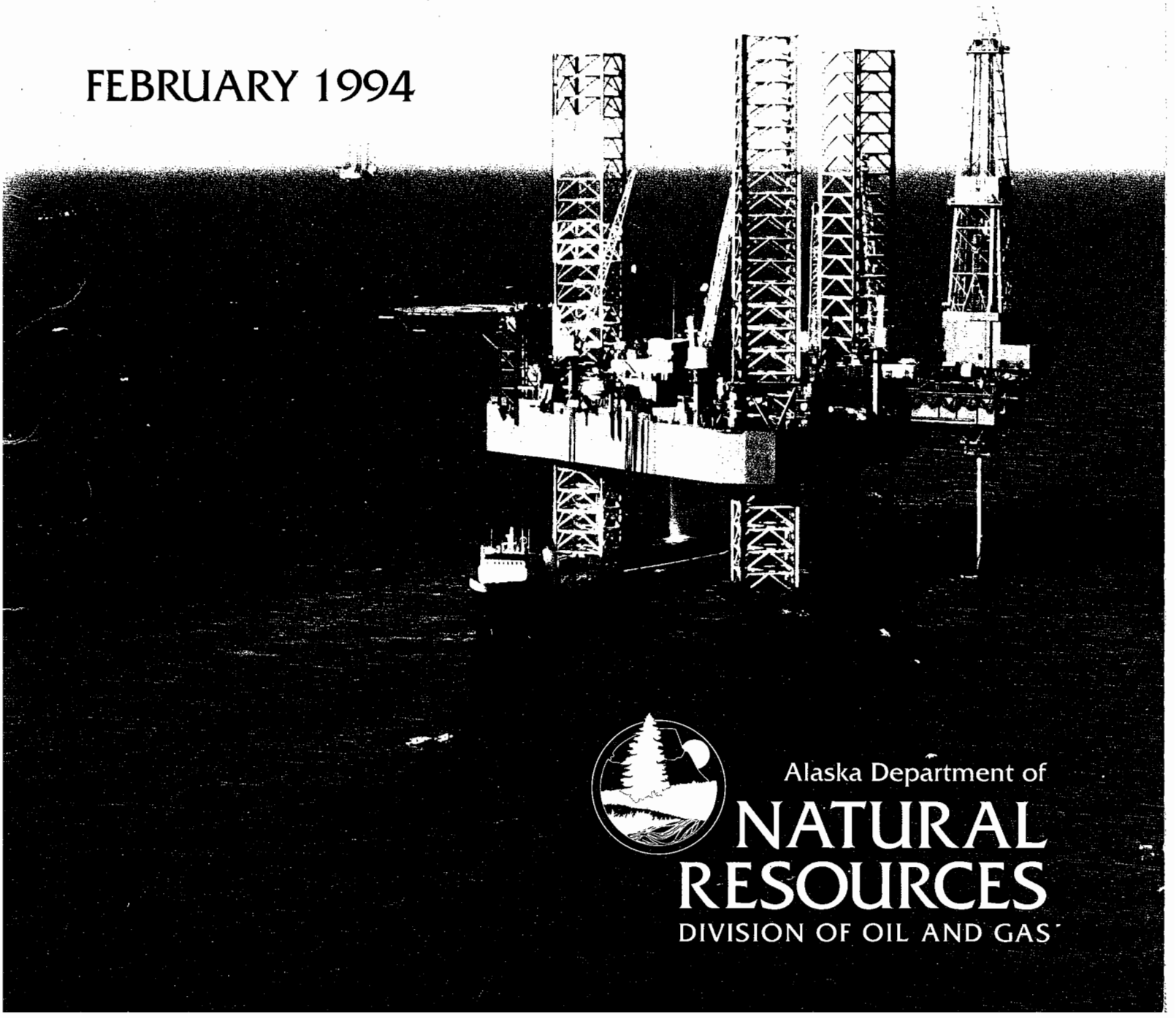
HISTORICAL AND PROJECTED OIL AND GAS CONSUMPTION

FEBRUARY 1994



Alaska Department of
NATURAL RESOURCES
DIVISION OF OIL AND GAS

Cover Photo: Exploratory drilling in Cook Inlet Alaska. Courtesy of ARCO Alaska, INC.

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STATE OF ALASKA

HISTORICAL AND PROJECTED OIL AND GAS CONSUMPTION

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A ALASKA OIL AND GAS RESOURCE MANAGEMENT

Alaska's oil and gas resources are owned and administered by the State of Alaska, the U.S. government and,in a very few cases, by private landowners.

STATE OF ALASKA

Department of Natural Resources/Division of Oil & Gas (DO&G)

- estimates the value of proposed lease sale areas
- leases state land for oil and gas exploration and development
- sets the regulations under which oil and gas leases may be developed
- monitors lease development for consistency with regulations
- collects oil and gas royalties
- participates in sales and trades of lease ownership.

Department of Revenue/Oil and Gas Audit Division (DOR)

- collects oil and gas severance taxes
- audits royalty and tax payments
- estimates how much tax and royalty money the state will receive. This figure is used to prepare the state's annual budget.

Alaska Oil and Gas Conservation Commission (AOGCC)

- insures the greatest ultimate recovery of oil and gas on private, state and federal leases. The commission tries to get maximum volume from reservoirs, not maximum value.
- monitors production to insure that production is efficient and that oil and gas are not wasted
- protects correlative rights of lease owners
- monitors production meters at each field
- approves plans of development
- regulates well drilling, well treatment, well spacing, waste disposal, ground water protection, and production quantity and rate.

FEDERAL GOVERNMENT

Bureau of Land Management

- leases and administers onshore federal oil and gas resources.

Minerals Management Service

- leases and administers offshore federal oil and gas resources.

PRIVATE LANDOWNERS

- most private oil and gas holdings in Alaska are controlled by Native Corporations.

1 RESERVES OF OIL AND NATURAL GAS

Table 1 lists the oil and gas reserves of developed and undeveloped Alaskan fields, as of January 1, 1994. It also lists the state's royalty share of the reserves.

PROVEN RESERVES

Reserves are an estimate of how much oil and gas can be economically extracted from a reservoir. Only a fraction of oil or gas in any reservoir be extracted and that fraction depends on available technology and the economics of the reservoir. A decision to develop a new reservoir or continue to produce an already developed field depends on the difference between how much it will cost to extract the oil and the value of the oil. Reserves and production forecasts are calculated by many methods, but no method is universally adopted. Three state agencies, Department of Revenue/Oil and Gas Audit Division (DOR), Department of Natural Resources/Division of Oil & Gas (DO&G), and Alaska Oil and Gas Conservation Commission (AOGCC), calculate reserves for their different requirements. DOR's calculations emphasize oil and gas prices, whereas DO&G and AOGCC calculations emphasize production volumes.

AOGCC estimated the reserves of the major, mature North Slope fields this past summer by analyzing the fields' recent production and decline curves and extrapolating the curves to 2015. Reserves are the estimated amount of oil that can be produced until production volumes decline to an uneconomic level. The estimates are calculated as of January 1, 1994. Reserves of undeveloped North Slope and Cook Inlet oil pools, only some of which have been fully delineated, are more speculative, primarily because their economics are uncertain.

Reserve estimates of oil for North Slope fields have increased through the years. In January 1986 Prudhoe Bay had produced 4.4 billion barrels and reserves were 5.8 billion barrels, whereas by January 1994 the field has produced 8.3 billion barrels and reserves are 3.6 billion. Much of the increase in ultimate recovery was due to improved technology such as increased horizontal drilling and enhanced oil recovery. Technology and infill drilling may further increase future reserve estimates, but the main variable likely will be the perceived future price of oil.

DO&G estimates that Alaska's total reserves are:

Oil: 6.2 billion barrels
Gas: 28.6 trillion cubic feet

North Slope fields hold 99% of the oil and 92% of the state's gas reserves. The balance of reserves are in Cook Inlet. All of the North Slope oil and gas reserves except those of the South Barrow, East Barrow and Walakpa gas fields are located on state land. Most Cook Inlet reserves, except Swanson River, Beaver Creek, Birch Hill, a portion of Beluga River and most of the Kenai fields are on state owned land.

ROYALTY RESERVES

The state's royalty share of reserves are:

Oil: 856 million barrels
Gas: 3.8 trillion cubic feet.

Estimated royalty reserves are the multiplication product of field reserves times the field's royalty rate, 12.5% in nearly all cases.

TABLE 1 – ESTIMATED REMAINING RESERVES AND ROYALTY SHARE, AS OF 1/1/94

OIL: MILLIONS OF BARRELS
GAS: BILLIONS OF CUBIC FEET

	OIL		GAS	
	Reserves	Royalty Share	Reserves	Royalty Share
NORTH SLOPE				
DEVELOPED				
East Barrow	–	–	6 [1]	–
Endicott	262 [2]	37	908 [1]	127
Kuparuk River	1,142 [2]	143	709 [1]	89
Lisburne	83 [2]	10	277 [1]	35
Milne Point	81 [2]	15	–	–
Point McIntyre	356 [2]	45	–	–
Prudhoe Bay	3,618 [2]	452	21,551 [1] [3]	2,694
Prudhoe Bay Other	25 [2]	3	–	–
South Barrow	–	–	4 [1]	–
UNDEVELOPED				
Beaufort Sea	180 [2]	36	–	–
Pt. Thomson/Flaxman Id.	200 [2]	25	3,000 [2]	375
West Sak	149 [2]	19	–	–
Niakuk/Alapah	55 [2]	7	–	–
TOTAL	6,151	791	26,455	3,319
COOK INLET				
PROVEN AND DEVELOPED				
Beaver Creek	1 [1]	0	115 [1]	0
Beluga River	–	–	375 [1]	28
Cannery Loop	–	–	226 [1]	9
Granite Point	14 [2]	2	33 [1]	4
Ivan River, Lewis River, Pretty Creek, Stump Lake	–	–	185 [2]	23
Kenai	–	–	204 [1]	4
McArthur River	42 [2]	5	349 [1]	44
Middle Ground Shoal	16 [2]	2	11 [1]	<1
North Cook Inlet	–	–	410 [1]	51
Swanson River	11 [1]	0	165 [1]	0
Trading Bay	6 [2]	<1	29 [1]	4
West McArthur River	5	1		
PROVEN BUT UNDEVELOPED OR SHUT–IN				
Birch Hill	–	–	11 [1]	0
Falls Creek	–	–	13 [1]	2
Nicolai Creek	–	–	2 [1]	<1
North Fork	–	–	12 [1]	<1
Sterling	–	–	23 [1]	<1
Sunfish	77	10		
West Foreland	–	–	20 [1]	0
West Fork	–	–	4 [1]	<1
TOTAL	172	19	2,187	169
STATE				
TOTAL	6,323	810	28,642	3,488

[1] Alaska Oil and Gas Conservation Commission, "Estimate of Oil Reserves in Alaska" and "Estimate of Gas Reserves in Alaska". Estimates calculated as of 1/1/94.
[2] William Van Dyke, Division of Oil and Gas.
[3] Not adjusted for future fuel use.
02/22/94

2 PROJECTED PRODUCTION OF OIL

Table 2A shows:

-projected yearly and cumulative production from both producing and several to-be-developed North Slope fields from 1994 to 2015 and yearly and cumulative production from Cook Inlet fields

-royalty share of projected production; how much will be produced, how much is contracted to be sold in-kind and how much is unincumbered by Royalty-In-Kind (RIK) contracts.

Figure 2A-1 graphs the forecast production for North Slope fields listed in Table 2A.

Figure 2A-2 graphs the royalty share of forecast production for the North Slope fields listed in Table 2A.

Table 2B shows each producer's share of production from the producing North Slope fields listed in Table 2A. It also shows the royalty share of that production.

NORTH SLOPE

North Slope oil production peaked in 1988 at 2.0 million barrels per day and subsequently has declined to 1.5 million barrels per day in 1993. Production in 1994 is expected to be 1.64 million barrels. DO&G estimates that the combined production of the five presently operating fields and five planned fields will decline to 1.6 million barrels per day in 1995, to 1.0 million barrels per day in 2000, and to 137 thousand barrels per day in 2015. The division expects that cumulative production during 1994-2015 will be 5.8 billion barrels. Of note this year, BP recently bought Chevron's and Conoco's interest in Milne Pt. Unit.

COOK INLET

Cook Inlet fields probably will continue to produce well into the next century, but DO&G estimates the region's production only to 2003, a shorter span than for the North Slope. Cook Inlet production depends on economic factors which can not be reasonably estimated beyond then. Production from Sunfish, however, which was discovered in 1991 and is being delineated now, is estimated to 2007. Swanson River and Beaver Creek will continue producing oil and gas, but DO&G has not projected their production because the state holds no leases in these fields. Regional production will increase to 52 thousand barrels per day in 1997 then decrease to 30 thousand barrels per day in 2003, yielding a cumulative 153 million barrels between 1994 and 2007.

AVAILABLE ROYALTY OIL

The state's royalty share of total production will decline from 212 thousand barrels per day in 1994 to 207 thousand barrels per day in 1995, to 135 thousand barrels per day in 2000, and to 17 thousand barrels per day in 2015. Between 1994 and 2015, cumulative North Slope royalty production will be 728 million barrels and Cook Inlet royalty production will be 18 million barrels, for a state total of 746 million barrels.

The state currently takes all Cook Inlet oil in-value, whereas it takes North Slope royalty oil both in-value and in-kind. Two North Slope in-kind contracts commit a maximum of 138 million barrels during their terms, which leaves at least 608 billion barrels in-value. The Tesoro contract expires in 1995 and Mapco contract expires in 2003. Petro Star's RIK contract with the state expired at the end of 1993.

PRODUCERS SHARE OF NORTH SLOPE PRODUCTION

Table 2B lists projected production and royalty share, from Table 2A, for the five producing North Slope fields and lists how much oil the producers will extract through the next 22 years, assuming their respective ownerships remain constant (which they will not). Prudhoe Bay working interests are based on 1993 offtake and Lisburne Production Center working interests are weighted averages of producer interests in Lisburne, Pt. McIntyre, North Beach, North Prudhoe Bay State and Niakuk/Alapah fields. Working interests in the other fields are actuals.

TABLE 2A – PRODUCTION FORECAST AND AVAILABLE ROYALTY OIL

THOUSANDS OF BARRELS PER DAY

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
PRODUCTION FORECAST [1]											
NORTH SLOPE											
Prudhoe Bay	1,078	1,048	987	893	800	708	621	540	467	405	353
Kuparuk	315	310	295	280	265	250	220	190	170	150	125
Lisburne	24	14	14	15	15	13	10	10	10	10	10
Endicott [2]	100	94	83	72	63	55	47	40	34	29	24
Milne Point [3]	20	20	20	20	20	20	20	18	16	14	13
Prudhoe Bay Other	6	11	11	10	7	6	5	4	3	2	2
West Sak	–	–	–	6	6	12	12	25	25	50	50
Point McIntyre	90	90	90	90	90	85	78	70	60	50	40
Niakuk/Alapah	10	18	18	18	16	14	12	10	9	8	7
TOTAL	1,643	1,605	1,518	1,404	1,282	1,163	1,025	907	794	718	624
COOK INLET [4]											
Granite Point	6.2	5.1	4.6	4.1	3.7	3.3	3.0	2.7	2.4	2.2	–
McArthur River	17.9	15.8	14.2	12.8	11.5	10.3	9.3	8.4	7.5	6.6	–
Trading Bay	2.2	2.1	2.0	1.8	1.6	1.4	1.3	1.2	1.1	1.0	–
Middle Ground Shoal	6.1	5.9	5.3	4.8	4.3	3.9	3.5	3.2	2.8	2.4	–
West McArthur River	2.0	3.0	3.0	3.0	2.0	2.0	–	–	–	–	–
Sunfish	–	–	–	25.0	25.0	25.0	25.0	23.0	20.0	18.0	16.0
TOTAL	34.4	31.9	29.1	51.5	48.1	45.9	42.1	38.5	33.8	30.2	–
STATE											
TOTAL	1,677	1,637	1,547	1,456	1,330	1,209	1,067	946	828	748	624
AVAILABLE ROYALTY OIL											
NORTH SLOPE											
Prudhoe Bay [5]	135	131	123	112	100	89	78	68	58	51	44
Kuparuk [5]	39	39	37	35	33	31	28	24	21	19	16
Lisburne [5]	3	2	2	2	2	2	1	1	1	1	1
Endicott [2] [6]	14	13	12	10	9	8	7	6	5	4	3
Milne Point [3] [7]	3	3	3	3	3	3	3	3	3	2	2
Prudhoe Bay Other [5]	1	1	1	1	1	1	1	1	<1	<1	<1
West Sak [5]	–	–	–	1	1	2	2	3	3	6	6
Point McIntyre [5]	11	11	11	11	11	11	10	9	8	6	5
Niakuk/Alapah [5]	1	2	2	2	2	2	2	1	1	1	1
TOTAL	208	203	192	177	162	147	130	115	100	91	79
COOK INLET [4]											
Granite Point	0.8	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	–
McArthur River	2.2	2.0	1.8	1.6	1.4	1.3	1.2	1.1	0.9	0.8	–
Trading Bay	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	–
Middle Ground Shoal	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.3	–
West McArthur River	0.3	0.4	0.4	0.4	0.3	0.3	–	–	–	–	–
Sunfish	–	–	–	3.1	3.1	3.1	3.1	2.9	2.5	2.3	2.0
TOTAL	4.3	4.0	3.6	6.4	6.0	5.7	5.3	4.8	4.2	3.8	2.0
STATE											
TOTAL	212	207	196	184	168	153	135	120	104	94	81
IN–KIND ROYALTY OIL SALES											
Mapco [8]	35	35	35	35	35	35	35	35	35	35	–
Tesoro [9]	28	–	–	–	–	–	–	–	–	–	–
TOTAL	63	35	35	35	35	35	35	35	35	35	–
IN–VALUE ROYALTY OIL											
TOTAL	149	172	161	149	133	118	100	85	69	59	81

Note: numbers may not sum to totals due to rounding errors.
[1] Includes oil, condensate, and NGL.
[2] Includes Sag Delta North.
[3] Includes Schrader Bluff.
[4] Projection is not extended beyond 2003 because production is very sensitive to short term economics.
[5] 12.5% of production.
[6] 14.0% of production (weighted average).
[7] 18.0% of production (weighted average).
[8] 35,000 BPD of Prudhoe royalty production. Contract expires December 2003.
[9] Maximum 18% of Prudhoe Bay royalty production. Contract expires January 1995.

02/05/94

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL (MMBbl)
PRODUCTION FORECAST [1]												
NORTH SLOPE												
Prudhoe Bay	308	270	238	211	187	167	151	136	124	114	105	3,617,515
Kuparuk	105	90	75	65	55	45	35	30	25	20	15	1,142,450
Lisburne	8	8	8	8	8	8	8	8	7	6	5	82,855
Endicott [2]	21	18	16	13	10	–	–	–	–	–	–	262,435
Milne Point [3]	12	10	–	–	–	–	–	–	–	–	–	81,395
Prudhoe Bay Other	1	–	–	–	–	–	–	–	–	–	–	24,820
West Sak	42	35	30	26	22	18	14	12	10	8	6	149,285
Point McIntyre	32	25	20	15	12	10	8	5	5	5	5	355,875
Niakuk/Alapah	6	5	–	–	–	–	–	–	–	–	–	55,115
TOTAL	535	461	387	338	294	248	216	191	171	153	136	5,771,745
COOK INLET [4]												
Granite Point	–	–	–	–	–	–	–	–	–	–	–	13,615
McArthur River	–	–	–	–	–	–	–	–	–	–	–	41,720
Trading Bay	–	–	–	–	–	–	–	–	–	–	–	5,731
Middle Ground Shoal	–	–	–	–	–	–	–	–	–	–	–	15,403
West McArthur River	–	–	–	–	–	–	–	–	–	–	–	5,475
Sunfish	13	11	10	–	–	–	–	–	–	–	–	77,015
TOTAL	13	11	10	–	–	–	–	–	–	–	–	153,118
STATE												
TOTAL	548	472	397	338	294	248	216	191	171	153	136	5,924,863
AVAILABLE ROYALTY OIL												
NORTH SLOPE												
Prudhoe Bay [5]	39	34	30	26	23	21	19	17	16	14	13	452,189
Kuparuk [5]	13	11	9	8	7	6	4	4	3	3	2	142,806
Lisburne [5]	1	1	1	1	1	1	1	1	1	1	1	10,357
Endicott [2] [6]	3	3	2	2	1	–	–	–	–	–	–	36,741
Milne Point [3] [7]	2	2	–	–	–	–	–	–	–	–	–	13,837
Prudhoe Bay Other [5]	<1	–	–	–	–	–	–	–	–	–	–	2,738
West Sak [5]	5	4	4	3	3	2	2	2	1	1	1	18,661
Point McIntyre [5]	4	3	3	2	2	1	1	1	1	1	1	44,484
Niakuk/Alapah [5]	1	1	–	–	–	–	–	–	–	–	–	6,889
TOTAL	67	58	48	42	37	31	27	24	21	19	17	727,960
COOK INLET [4]												
Granite Point	–	–	–	–	–	–	–	–	–	–	–	1,702
McArthur River	–	–	–	–	–	–	–	–	–	–	–	5,215
Trading Bay	–	–	–	–	–	–	–	–	–	–	–	716
Middle Ground Shoal	–	–	–	–	–	–	–	–	–	–	–	1,925
West McArthur River	–	–	–	–	–	–	–	–	–	–	–	684
Sunfish	–	–	–	–	–	–	–	–	–	–	–	8,076
TOTAL	–	–	–	–	–	–	–	–	–	–	–	18,318
STATE												
TOTAL	67	58	48	42	37	31	27	24	21	19	17	746,278
IN-KIND ROYALTY OIL SALES												
Mapco [8]	–	–	–	–	–	–	–	–	–	–	–	127,750
Tesoro [10]	–	–	–	–	–	–	–	–	–	–	–	10,092
TOTAL	–	–	–	–	–	–	–	–	–	–	–	137,842
IN-VALUE ROYALTY OIL												
TOTAL	67	58	48	42	37	31	27	24	21	19	17	608,437

TABLE 2B – PRODUCTION FORECAST AND AVAILABLE ROYALTY OIL FOR PRODUCING NORTH SLOPE FIELDS

THOUSANDS OF BARRELS PER DAY

	Working Interest	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
PRODUCTION FORECAST FOR NORTH SLOPE [1]												
Prudhoe Bay [2]		1,078	1,048	987	893	800	708	621	540	467	405	353
Amerada	0.44%	5	5	4	4	4	3	3	2	2	2	2
Arco	25.49%	275	267	252	228	204	180	158	138	119	103	90
BP	44.10%	475	462	435	394	353	312	274	238	206	179	156
Chevron	0.64%	7	7	6	6	5	5	4	3	3	3	2
Exxon	25.49%	275	267	252	228	204	180	158	138	119	103	90
LL&E	0.03%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Marathon	0.04%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mobil	1.60%	17	17	16	14	13	11	10	9	7	6	6
Phillips	1.59%	17	17	16	14	13	11	10	9	7	6	6
Shell	0.11%	1	1	1	1	1	1	1	1	1	<1	<1
Texaco	0.45%	5	5	4	4	4	3	3	2	2	2	2
Kuparuk		315	310	295	280	265	250	220	190	170	150	125
Arco	55.17%	174	171	163	154	146	138	121	105	94	83	69
BP	39.19%	123	121	116	110	104	98	86	74	67	59	49
Chevron	0.11%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Exxon	0.22%	1	1	1	1	1	1	<1	<1	<1	<1	<1
Mobil	0.36%	1	1	1	1	1	1	1	1	1	1	<1
Union	4.95%	16	15	15	14	13	12	11	9	8	7	6
Lisburne Production Center [3]		130	133	133	133	128	118	105	94	82	70	59
Arco	29.00%	38	39	39	39	37	34	30	27	24	20	17
BP	37.00%	48	49	49	49	47	44	39	35	30	26	22
Exxon	34.00%	44	45	45	45	44	40	36	32	28	24	20
Endicott [4]		100	94	83	72	63	55	47	40	34	29	24
Amoco	10.49%	10	10	9	8	7	6	5	4	4	3	3
Arco	0.02%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BP	56.78%	57	53	47	41	36	31	27	23	19	16	14
CIRI	0.65%	1	1	1	<1	<1	<1	<1	<1	<1	<1	<1
Doyon	0.13%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Exxon	21.02%	21	20	17	15	13	12	10	8	7	6	5
NANA	0.39%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Unocal	10.52%	11	10	9	8	7	6	5	4	4	3	3
Milne Point [5]		20	20	20	20	20	20	20	18	16	14	13
BP	90.40%	18	18	18	18	18	18	18	16	14	13	12
Oxy	9.60%	2	2	2	2	2	2	2	2	2	1	1
TOTAL		1,643	1,605	1,518	1,398	1,276	1,151	1,013	882	769	668	574
AVAILABLE ROYALTY OIL												
Prudhoe Bay [6]		135	131	123	112	100	89	78	68	58	51	44
Kuparuk [6]		39	39	37	35	33	31	28	24	21	19	16
Lisburne [6]		16	17	17	17	16	15	13	12	10	9	7
Endicott [4] [7]		14	13	12	10	9	8	7	6	5	4	3
Milne Point [5] [8]		4	4	4	4	4	4	4	3	3	3	2
TOTAL		208	203	192	177	162	146	128	112	98	85	73
IN–KIND ROYALTY OIL SALES												
Mapco [9]		35	35	35	35	35	35	35	35	35	35	–
Tesoro [10]		28	–	–	–	–	–	–	–	–	–	–
TOTAL		63	35	35	35	35	35	35	35	35	35	–
IN–VALUE ROYALTY OIL												
TOTAL		145	168	157	142	127	111	93	77	63	50	73

Note: numbers may not sum to totals due to rounding errors.
[1] Includes oil, condensate, and NGL.
[2] Total offtake.
[3] Combined production from Lisburne, Prudhoe Bay Other, Pt. McIntyre and Niakuk/Alapah. from Table 2A
[4] Includes Sag Delta North.
[5] Includes Schrader Bluff.
[6] 12.5% of production.
[7] 14.0% of production (weighted average).
[8] 18.0% of production (weighted average).
[9] 35,000 BPD of Prudhoe royalty production. Contract expires December 2003.
[10] Maximum 18% of Prudhoe Bay royalty production. Contract expires January 1995.
02/05/94

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL (MMBbl)
PRODUCTION FORECAST FOR NORTH SLOPE [1]													
Prudhoe Bay [2]		308	270	238	211	187	167	151	136	124	114	105	3,617,515
Amerada	0.44%	1	1	1	1	1	1	1	1	1	1	<1	15,983
Arco	25.49%	79	69	61	54	48	43	38	35	32	29	27	922,167
BP	44.10%	136	119	105	93	82	74	67	60	55	50	46	1,595,500
Chevron	0.64%	2	2	2	1	1	1	1	1	1	1	1	23,095
Exxon	25.49%	79	69	61	54	48	43	38	35	32	29	27	922,100
LL&E	0.03%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,181
Marathon	0.04%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,483
Mobil	1.60%	5	4	4	3	3	3	2	2	2	2	2	58,043
Phillips	1.59%	5	4	4	3	3	3	2	2	2	2	2	57,576
Shell	0.11%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4,091
Texaco	0.45%	1	1	1	1	1	1	1	1	1	1	<1	16,295
Kuparuk		105	90	75	65	55	45	35	30	25	20	15	1,142,450
Arco	55.17%	58	50	41	36	30	25	19	17	14	11	8	630,252
BP	39.19%	41	35	29	25	22	18	14	12	10	8	6	447,749
Chevron	0.11%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,241
Exxon	0.22%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2,483
Mobil	0.36%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4,168
Union	4.95%	5	4	4	3	3	2	2	1	1	1	1	56,558
Lisburne Production Center [3]		47	38	28	23	20	18	16	13	12	11	10	518,665
Arco	29.00%	11	8	7	6	5	5	4	3	3	3	1	150,413
BP	37.00%	14	10	9	7	7	6	5	4	4	4	2	191,906
Exxon	34.00%	13	10	8	7	6	5	4	4	4	3	2	176,346
Endicott [4]		21	18	16	13	10	–	–	–	–	–	–	262,435
Amoco	10.49%	2	2	2	1	1	–	–	–	–	–	–	27,540
Arco	0.02%	<1	<1	<1	<1	<1	–	–	–	–	–	–	61
BP	56.78%	12	10	9	7	6	–	–	–	–	–	–	149,017
CIRI	0.65%	<1	<1	<1	<1	<1	–	–	–	–	–	–	1,694
Doyon	0.13%	<1	<1	<1	<1	<1	–	–	–	–	–	–	339
Exxon	21.02%	4	4	3	3	2	–	–	–	–	–	–	55,165
NANA	0.39%	<1	<1	<1	<1	<1	–	–	–	–	–	–	1,017
Unocal	10.52%	2	2	2	1	1	–	–	–	–	–	–	27,601
Milne Point [5]		12	10	–	–	–	–	–	–	–	–	–	81,395
BP	90.40%	11	9	–	–	–	–	–	–	–	–	–	73,581
Oxy	9.60%	1	1	–	–	–	–	–	–	–	–	–	7,811
TOTAL		484	416	352	309	270	228	199	178	160	144	130	5,622,460
AVAILABLE ROYALTY OIL													
Prudhoe Bay [6]		39	34	30	26	23	21	19	17	16	14	13	452,189
Kuparuk [6]		13	11	9	8	7	6	4	4	3	3	2	142,806
Lisburne [6]		5	4	3	3	2	2	2	2	1	1	1	62,917
Endicott [4] [7]		3	3	2	2	1	–	–	–	–	–	–	36,741
Milne Point [5] [8]		2	2	–	–	–	–	–	–	–	–	–	14,651
TOTAL		61	53	44	39	34	29	25	22	20	18	16	709,305
IN-KIND ROYALTY OIL SALES													
Mapco [9]		–	–	–	–	–	–	–	–	–	–	–	127,750
Tesoro [11]		–	–	–	–	–	–	–	–	–	–	–	8,853
TOTAL		–	–	–	–	–	–	–	–	–	–	–	137,970
IN-VALUE ROYALTY OIL													
TOTAL		61	53	44	39	34	29	25	22	20	18	16	571,335

FIGURE 2A-1 - PROJECTED PRODUCTION OF OIL

THOUSANDS OF BARRELS PER DAY

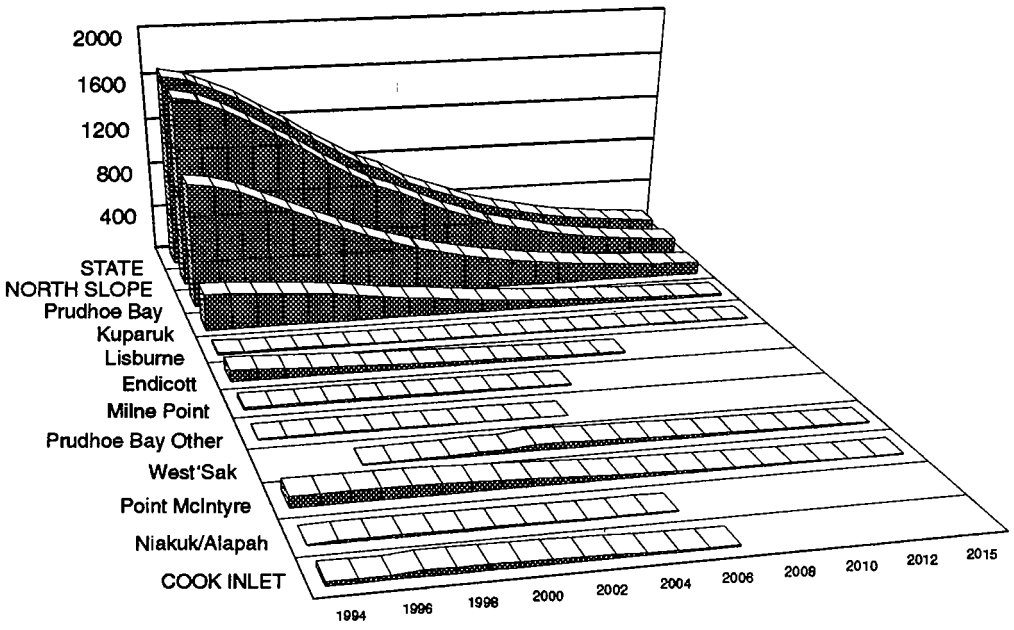
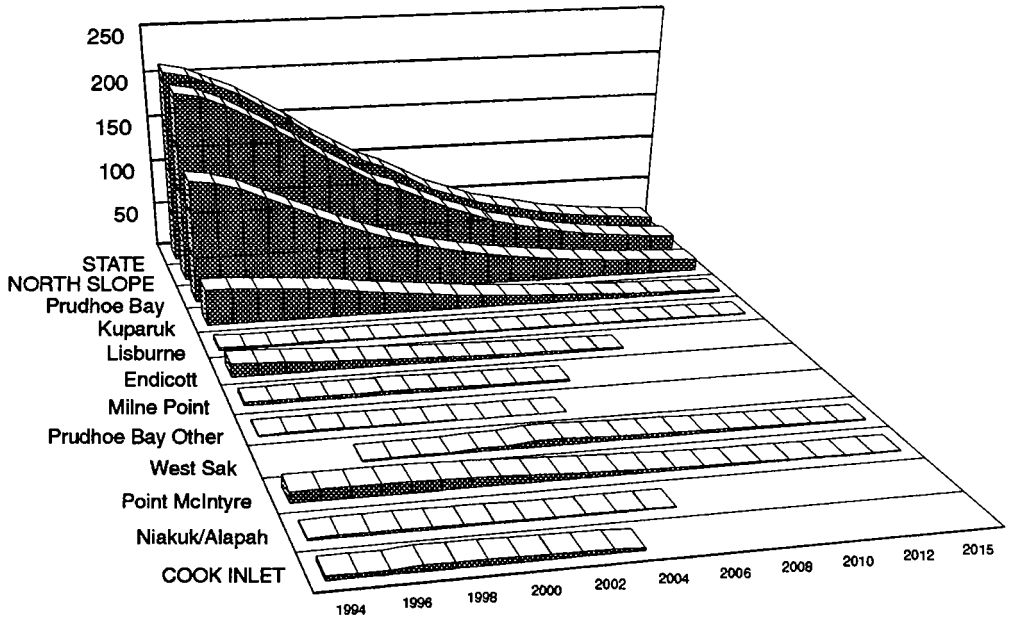


FIGURE 2A-2 - AVAILABLE ROYALTY OIL

THOUSANDS OF BARRELS PER DAY



3 HISTORICAL PRODUCTION OF OIL

Table 3 lists oil and natural gas liquids (NGL) production from all Alaskan fields. The table also lists "Throughput at PS #1" and "Lifting at Valdez."

Figure 3-1 graphs the oil production of North Slope fields from 1977 to 1993.

Figure 3-2 graphs the oil production of Cook Inlet fields from 1958 to 1993.

All of Alaska's oil is currently produced from two regions, North Slope and Cook Inlet.

NORTH SLOPE

Prudhoe Bay was the first commercial North Slope oil field discovered, in 1968, and the first to produce oil. Commercial production began in 1977 when Alyeska Pipeline Co. completed the TAPS line between Valdez and Prudhoe Bay. Between discovery and the start of commercial production, operators produced and refined small amounts of oil and gas for fuel to run field equipment, and injected the residual oil back into the reservoir. Several years later Endicott extracted gas for fuel during field development and injected the oil. North Slope production peaked at 744 million barrels per year in 1988 (2.0 million barrels per day) and declined to 640 million barrels per year (1.6 million barrels per day) in 1993. North Slope fields produced 9.9 billion barrels by end of 1993, 85% of it from Prudhoe Bay, 11% from Kuparuk and 4% from combined Endicott, Lisburne and Milne Point fields.

From the beginning of Prudhoe Bay production in 1977, the water and natural gas dissolved in the crude oil has been separated from the oil at flow stations and gathering centers and injected into the reservoir. Sea water also has been injected into the reservoir. The combined volume of dissolved gas, free gas and water produced from the wells has progressively increased and the proportion of oil decreased. As the produced gas volume approached the capacity of the facilities, the facilities became a production bottleneck. To alleviate this constriction the facilities were expanded in 1986, 1991 and again in 1993-1944.

Three North Slope pools began production in 1993. Pt.McIntyre, by far the largest of the pools, has produced considerably more than expected, averaging 97 thousand barrels of oil per day in November. North Prudhoe Bay State and West Beach together produced 8 thousand barrels per day that month.

COOK INLET

Companies first discovered Cook Inlet oil at Swanson River in 1957 and began production in 1959. Regional production peaked in 1970 at 83 million barrels per year and subsequently has declined to 13.7 million barrels in 1993. By the end of 1993 Cook Inlet fields have produced 1.2 billion barrels of oil, 48% of this from McArthur River, 19% from Swanson River and the balance from the other fields. Two fields, West McArthur River and Sunfish, were discovered in 1991. West McArthur River produced some oil and gas in 1993 but volumes reported to AOGCC are confidential as this report is published, and Sunfish is still being delineated.

TAPS FLOW

Table 3 shows the volume of oil produced from the fields, the volume of oil passing Pump Station #1 (PS #1), the starting point of TAPS, and the volume of oil loaded on ships at Valdez. Most of the volume difference between field production and "Throughput at PS #1" is fuel used to run production operations at Prudhoe Bay fields. The difference between "Throughput at PS #1" and "Liftings at Valdez" is the volume consumed by several TAPS pump stations, losses and the amount used by the Mapco and Petro Star refineries at North Pole.

NATURAL GAS LIQUIDS

Lessees of most North Slope fields and three Cook Inlet fields have reported NGL at some time in their histories, and Kenai gas field lessees reported NGL production from 1969 to 1979. Prudhoe Bay, Lisburne and Endicott NGLs that lessees currently report are blended with the other crude oil streams upstream of the LACT meters.

TABLE 3 – HISTORICAL OIL PRODUCTION

MILLIONS OF BARRELS PER YEAR

	Type*	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
NORTH SLOPE												
Endicott	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Kuparuk River	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
Lisburne	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
Milne Point	oil	–	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay	oil	–	–	–	–	–	–	–	–	–	–	–
State	NGL	–	–	–	–	–	–	–	–	–	–	–
Point McIntyre	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	oil[1]	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Sag Delta	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	oil	–	–	–	–	–	–	–	–	–	–	–
West Beach	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
West Sak	oil	–	–	–	–	–	–	–	–	–	–	–
TOTAL OIL [1]		–	–	–	–	–	–	–	–	–	–	–
TOTAL NGL		–	–	–	–	–	–	–	–	–	–	–
TOTAL INJECTION		–	–	–	–	–	–	–	–	–	–	–
COOK INLET												
Beaver Creek	oil	–	–	–	–	–	–	–	–	–	–	–
Granite Point	oil	–	–	–	–	–	–	–	0.002	–	7.052	13.131
Kenai	NGL	–	–	–	–	–	–	–	–	–	–	–
McArthur River	oil	–	–	–	–	–	–	–	0.001	0.003	0.749	21.782
	NGL	–	–	–	–	–	–	–	–	–	–	–
Middle Ground Shoal	oil	–	–	–	–	–	–	–	0.027	2.649	7.404	14.134
Redoubt Shoal	oil	–	–	–	–	–	–	–	–	–	–	0.002
Swanson River	oil	0.036	0.187	0.558	6.327	10.259	10.740	11.054	11.099	11.712	12.980	13.619
	NGL	–	–	–	–	–	–	–	–	–	–	0.004
Trading Bay	oil	–	–	–	–	–	–	–	–	–	0.729	3.477
	NGL	–	–	–	–	–	–	–	–	–	–	–
TOTAL OIL	oil[1]	0.036	0.187	0.558	6.327	10.259	10.740	11.054	11.131	14.364	28.913	66.146
TOTAL NGL	NGL	–	–	–	–	–	–	–	–	–	–	0.004
STATE												
TOTAL OIL [1]		0.036	0.187	0.558	6.327	10.259	10.740	11.054	11.131	14.364	28.913	66.146
TOTAL NGL		–	–	–	–	–	–	–	–	–	–	0.004
TOTAL INJECTION		–	–	–	–	–	–	–	–	–	–	–
TAPS FLOW [2]												
Throughput at PS #1		–	–	–	–	–	–	–	–	–	–	–
Liftings at Valdez		–	–	–	–	–	–	–	–	–	–	–

* oil = crude oil, NGL = natural gas liquids, liq = liquids (oil + NGL) inj = injection net = oil+NGL–inj
NA = Not Applicable, ND = No Data
Source: Alaska Oil and Gas Conservation Commission (OGCC), "Alaska Production Summary by Field and Pool", monthly report.
Data includes revisions to October 31, 1993.
[1] Includes condensates.
[2] 1977–81: Alaska Oil and Gas Conservation Commission, "Statistical Report."
1982–93: Alyeska Pipeline Service Co.
01/30/94

		1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
NORTH SLOPE											
Endicott	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–
Kuparuk River	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
Lisburne	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
Milne Point	oil	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay	oil	–	–	–	–	–	–	–	–	–	–
State	NGL	–	–	–	–	–	–	–	–	–	–
Point McIntyre	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	oil[1]	0.277	1.193	1.157	0.922	0.944	2.170	2.870	4.604	115.258	397.679
	NGL	–	–	–	–	–	–	–	–	–	–
	inj	0.217	0.879	0.833	0.792	0.817	1.640	2.147	3.611	2.075	–
Sag Delta	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	oil	–	–	–	–	–	–	–	–	–	–
West Beach	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
West Sak	oil	–	–	–	–	–	–	–	–	–	–
TOTAL OIL		0.277	1.193	1.157	0.922	0.944	2.170	2.870	4.604	115.258	397.679
TOTAL NGL		–	–	–	–	–	–	–	–	–	–
TOTAL INJECTION		0.217	0.879	0.833	0.792	0.817	1.640	2.147	3.611	2.075	–
COOK INLET											
Beaver Creek	oil	–	–	–	0.002	0.416	0.375	0.322	0.302	0.276	0.223
Granite Point	oil	9.183	7.522	5.577	4.663	4.767	4.237	4.361	4.471	4.711	4.867
Kenai	NGL	0.002	0.002	0.001	0.002	0.001	<.001	0.001	0.001	<.001	0.001
McArthur River	oil	31.301	40.165	40.537	40.774	38.884	39.145	40.876	35.810	33.235	30.223
	NGL	–	0.426	0.593	0.570	0.661	0.654	0.644	0.653	0.733	0.730
Middle Ground Shoal	oil	10.467	12.719	11.304	9.720	10.239	9.001	8.670	8.864	7.617	6.382
Redoubt Shoal	oil	–	–	–	–	–	–	–	–	–	–
Swanson River	oil	13.151	12.408	11.466	8.896	10.064	9.765	8.754	7.591	5.981	4.870
	NGL	0.070	0.063	0.077	0.012	0.098	0.096	0.089	0.090	0.086	0.065
Trading Bay	oil	9.936	9.600	8.744	8.585	7.825	7.552	6.128	5.366	4.276	3.567
	NGL	–	0.039	0.039	0.025	0.051	0.043	0.031	0.026	0.044	0.019
TOTAL OIL	oil[1]	74.038	82.415	77.628	72.640	72.196	70.074	69.111	62.404	56.095	50.132
TOTAL NGL	NGL	0.073	0.530	0.710	0.608	0.812	0.793	0.765	0.770	0.863	0.815
STATE											
TOTAL OIL [1]		74.098	82.735	77.952	72.770	72.322	70.603	69.833	63.398	169.278	447.810
TOTAL NGL		0.073	0.530	0.710	0.608	0.812	0.793	0.765	0.770	0.863	0.815
TOTAL INJECTION		0.217	0.879	0.833	0.792	0.817	1.640	2.147	3.611	2.075	–
TAPS FLOW [2]											
Throughput at PS #1		–	–	–	–	–	–	–	–	112.315	397.149
Liftings at Valdez		–	–	–	–	–	–	–	–	96.669	394.080

TABLE 3 CONTINUED – HISTORICAL OIL PRODUCTION

MILLIONS OF BARRELS PER YEAR

		1979	1980	1981	1982	1983	1984	1985	1986	1987
NORTH SLOPE										
Endicott	oil	–	–	–	–	–	–	–	0.011	8.796
	NGL	–	–	–	–	–	–	–	–	0.003
	inj	–	–	–	–	–	–	–	0.007	0.014
Kuparuk River	oil	–	–	1.092	32.406	39.876	46.169	78.926	93.900	102.448
	NGL	–	–	–	–	–	–	0.761	1.072	1.257
Lisburne	oil	–	–	0.002	0.208	0.087	0.294	1.123	3.594	16.158
	NGL	–	–	–	–	–	–	–	–	0.458
Milne Point	oil	–	–	–	–	–	–	0.704	4.709	0.040
North Prudhoe Bay	oil	–	–	–	–	–	–	–	–	–
State	NGL	–	–	–	–	–	–	–	–	–
Point McIntyre	oil	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–
Prudhoe Bay	oil[1]	468.412	555.394	555.170	558.889	560.837	561.952	568.534	561.538	572.045
	NGL	–	0.254	0.450	0.500	0.311	0.317	0.056	0.230	14.610
	inj	–	–	–	–	–	–	–	–	–
Sag Delta	oil	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–
Schrader Bluff	oil	–	–	–	–	–	–	–	–	–
West Beach	oil	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–
West Sak	oil	–	–	–	–	0.006	0.124	0.326	0.300	–
TOTAL OIL		468.412	555.394	556.264	591.503	600.806	608.539	649.613	664.052	699.486
TOTAL NGL		–	0.254	0.450	0.500	0.311	0.317	0.817	1.302	16.328
TOTAL INJECTION		–	–	–	–	–	–	–	0.007	0.014
COOK INLET										
Beaver Creek	oil	0.211	0.214	0.180	0.182	0.170	0.159	0.146	0.158	0.185
Granite Point	oil	4.613	4.394	3.975	3.467	3.550	3.287	3.052	3.169	2.803
Kenai	NGL	<.001	–	–	–	–	–	–	–	–
McArthur River	oil	25.440	20.894	18.022	15.806	13.564	11.707	7.454	7.942	7.375
	NGL	0.541	0.412	0.484	0.449	0.332	0.317	0.194	0.228	0.196
Middle Ground Shoal	oil	5.423	4.854	4.291	3.573	3.381	3.238	3.098	3.211	2.834
Redoubt Shoal	oil	–	–	–	–	–	–	–	–	–
Swanson River	oil	4.344	3.724	2.938	2.999	3.017	2.517	2.165	2.055	2.059
	NGL	0.080	0.064	0.048	0.048	0.045	0.039	0.026	0.054	0.030
Trading Bay	oil	2.892	2.167	1.669	1.384	1.081	1.076	1.029	1.046	0.935
	NGL	0.014	0.006	0.005	0.002	0.004	0.005	0.004	0.002	0.001
TOTAL OIL	oil[1]	42.923	36.247	31.075	27.411	24.763	21.985	16.944	17.580	16.191
TOTAL NGL	NGL	0.635	0.481	0.538	0.499	0.381	0.361	0.223	0.284	0.227
STATE										
TOTAL OIL [1]		511.335	591.641	587.339	618.914	625.569	630.524	666.557	681.625	715.662
TOTAL NGL		0.635	0.735	0.988	0.999	0.692	0.678	1.040	1.586	16.555
TOTAL INJECTION		–	–	–	–	–	–	–	0.007	0.014
TAPS FLOW [2]										
Throughput at PS #1		467.939	554.934	556.067	591.142	600.859	608.836	649.887	665.435	716.662
Liftings at Valdez		464.394	548.895	547.026	583.370	592.319	596.588	643.512	603.028	700.878

		1988	1989	1990	1991	1992	1993 Est.	Cumulative Est. (MMBbl)	Field Depletion
NORTH SLOPE									
Endicott	oil	37.441	35.746	36.181	38.996	40.603	39.138	236.912	47%
	NGL	0.492	0.839	0.845	1.170	1.468	1.524	6.340	
	inj	–	–	–	–	–	–	0.021	
Kuparuk River	oil	110.891	109.770	107.206	113.532	118.506	115.145	1,069.867	48%
	NGL	0.256	–	–	–	–	–	3.346	
Lisburne	oil	14.773	13.091	14.466	13.315	12.466	8.705	98.281	54%
	NGL	1.008	1.093	1.204	1.337	1.516	1.315	7.930	
Milne Point	oil	–	3.715	6.624	6.701	5.820	5.623	33.937	30%
North Prudhoe Bay	oil	–	–	–	–	–	0.131	0.131	ND
State	NGL	–	–	–	–	–	0.002	0.002	
Point McIntyre	oil	–	–	–	–	–	1.693	1.693	0%
	NGL	–	–	–	–	–	0.017	0.017	
Prudhoe Bay	oil[1]	559.412	505.940	470.140	465.399	432.587	384.073	8,307.396	70%
	NGL	19.274	16.928	16.094	21.307	23.902	23.831	138.064	
	inj	–	–	–	–	–	–	13.013	
Sag Delta	oil	–	0.349	1.542	2.309	1.002	0.810	6.012	ND
	NGL	–	0.005	0.028	0.048	0.011	0.007	0.098	
Schrader Bluff	oil	–	–	0.004	0.756	1.135	1.030	2.925	ND
West Beach	oil	–	–	–	–	–	0.689	0.689	ND
	NGL	–	–	–	–	–	0.006	0.006	
West Sak	oil	–	–	–	–	–	–	0.755	1%
TOTAL OIL		722.517	668.611	636.164	641.009	612.119	557.036	9,758.599	61%
TOTAL NGL		21.029	18.864	18.171	23.861	26.897	26.702	155.804	
TOTAL INJECTION		–	–	–	–	–	–	13.034	
COOK INLET									
Beaver Creek	oil	0.141	0.227	0.212	0.179	0.175	0.152	4.607	82%
Granite Point	oil	2.677	2.275	1.462	2.064	2.522	2.545	120.400	90%
Kenai	NGL	–	–	–	–	–	–	0.012	NA
McArthur River	oil	7.143	6.955	4.265	7.250	7.397	6.577	561.277	93%
	NGL	0.162	–	–	–	–	–	8.979	
Middle Ground Shoal	oil	2.742	2.769	2.688	2.670	2.423	2.134	168.525	91%
Redoubt Shoal	oil	–	–	–	–	–	–	0.002	ND
Swanson River	oil	2.127	1.875	1.878	1.962	1.773	1.584	218.534	95%
	NGL	0.033	0.024	0.019	0.023	0.019	0.018	1.320	
Trading Bay	oil	0.886	1.264	0.643	1.216	0.886	0.751	94.709	94%
	NGL	<.001	–	–	–	–	–	0.360	
TOTAL OIL	oil[1]	15.716	15.366	11.147	15.340	15.176	13.744	1,168.053	93%
TOTAL NGL	NGL	0.195	0.024	0.019	0.023	0.019	0.018	10.670	
STATE									
TOTAL OIL [1]		738.233	683.978	647.311	656.349	627.295	570.780	10,926.651	64%
TOTAL NGL		21.224	18.888	18.191	23.884	26.916	26.720	166.473	
TOTAL INJECTION		–	–	–	–	–	–	13.034	
TAPS FLOW [2]									
Throughput at PS #1		743.302	688.062	654.551	665.175	639.390	591.220		
Liftings at Valdez		736.047	672.461	636.199	647.345	623.217	570.707		

FIGURE 3-1 - PRODUCTION OF STATE OIL

MILLIONS OF BARRELS PER YEAR

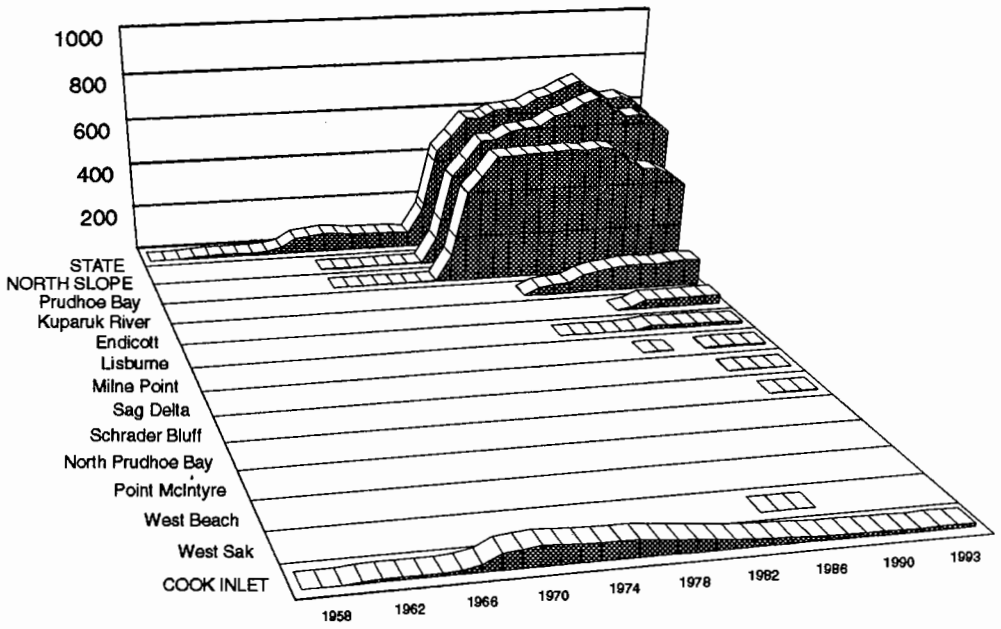
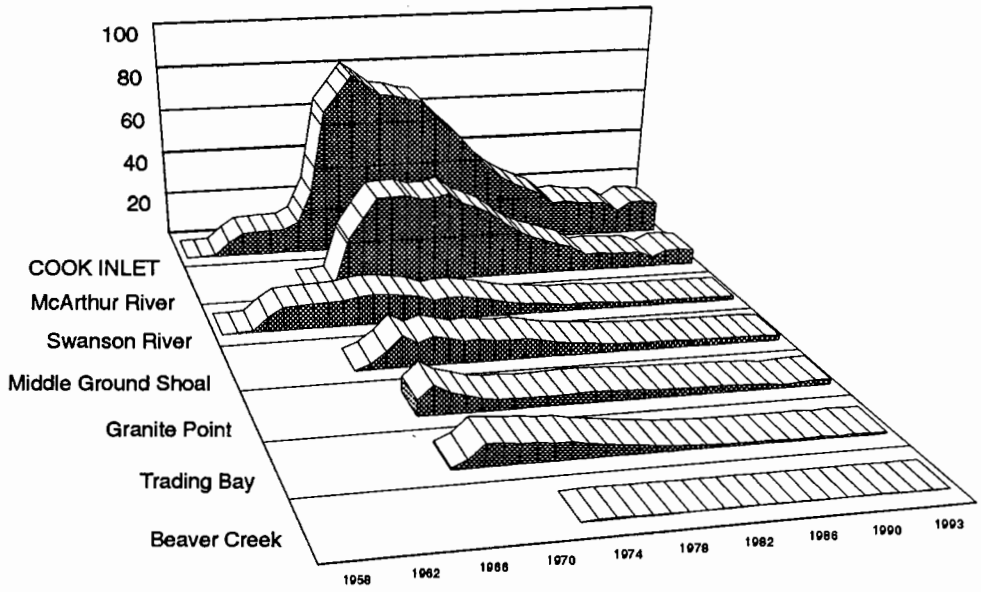


FIGURE 3-2 - PRODUCTION OF COOK INLET OIL

MILLIONS OF BARRELS PER YEAR



4 HISTORICAL PRODUCTION OF NATURAL GAS

Table 4 lists the volumes of gas extracted from and injected into each Alaskan field. The table includes regional subtotals for gross production, injection, and production net of injection.

Figure 4-1 graphs production of North Slope gas, net of injection, from 1958 to 1993.

Figure 4-2 graphs production of Cook Inlet gas, net of injection, from 1958 to 1993.

All Alaska gas is produced from the North Slope, mostly from Prudhoe Bay area, and from Cook Inlet, the same two regions that produce all the state's oil, The production regimes of the two regions are very different because their markets are very different. The primary market for North Slope gas is as fuel for oil production and related facilities. Most of the extracted gas is injected back into the reservoirs. That gas is available for sale if and when a market develops. No gas currently is marketed off of the North Slope. Cook Inlet fields, however, lie near the Anchorage and Kenai commercial markets and two gas processing plants. Consequently, nearly all extracted gas has been consumed and very little has been injected.

NORTH SLOPE

North Slope gas production began in 1946 from South Barrow field, which produces gas for Barrow's local use. Prudhoe Bay oil field was discovered in 1968, and during the development of the field a small amount oil and casinghead gas was produced for fuel. When TAPS was completed in 1977 and commercial oil production began, a large amount of dissolved gas was produced along with it. Through seventeen years of production, as oil has been withdrawn and gas returned to the reservoir, gas has become an increasingly greater proportion of field production. Since 1977, net gas production has grown in all but two years to 252 billion cubic feet in 1993 and is expected to increase for the next several years, whether or not a gas pipeline is built. North Slope fields have produced a cumulative net 2.1 trillion cubic feet by the end of 1993. North Slope lessees report NGL production as natural gas production.

COOK INLET

Cook Inlet gas production began with a small net production from Swanson River field in 1958 and remained low for several years. Regional production grew from 12.8 billion cubic feet per year in 1966 to 145.0 billion cubic feet per year in 1970 then rose more gradually to a peak of 217 billion cubic feet per year in 1985 and has generally declined to 196 billion cubic feet per year in 1993. Cook Inlet fields have produced a cumulative net 4.5 trillion cubic feet by the end of 1993.

Since its early years, Swanson River gas and gas bought and "rented" from other fields has been injected into the Swanson River oil reservoir to maintain reservoir pressure. In late 1992 the operator ended the injection program and that gas is being produced now.

TABLE 4 – HISTORICAL GAS PRODUCTION

BILLIONS OF CUBIC FEET PER YEAR

	Type*	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
NORTH SLOPE												
East Barrow	dry	–	–	–	–	–	–	–	–	–	–	–
Endicott	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Kuparuk River	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Lisburne	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Milne Point	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay State	csg	–	–	–	–	–	–	–	–	–	–	–
Point McIntyre	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Sag Delta	csg	–	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	csg	–	–	–	–	–	–	–	–	–	–	–
South Barrow	dry	0.119	0.132	0.172	0.172	0.197	0.211	0.249	0.389	0.438	0.475	0.504
Walakpa	dry	–	–	–	–	–	–	–	–	–	–	–
West Beach	csg	–	–	–	–	–	–	–	–	–	–	–
West Sak	csg	–	–	–	–	–	–	–	–	–	–	–
TOTAL GROSS		0.119	0.132	0.172	0.172	0.197	0.211	0.249	0.389	0.438	0.475	0.504
TOTAL INJECTED		–	–	–	–	–	–	–	–	–	–	–
TOTAL NET		0.119	0.132	0.172	0.172	0.197	0.211	0.249	0.389	0.438	0.475	0.504
COOK INLET												
Albert Kaloa	dry	–	–	–	–	–	–	–	–	–	–	–
Beaver Creek	csg	–	–	–	–	–	–	–	–	–	–	–
	dry	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Beluga River	dry	–	–	–	–	–	0.014	0.137	–	–	0.168	2.018
Birch Hill	dry	–	–	–	–	–	–	–	0.065	–	–	–
Cannery Loop	dry	–	–	–	–	–	–	–	–	–	–	–
Falls Creek	dry	–	–	–	–	–	–	–	–	0.019	–	–
Granite Point	csg	–	–	–	–	–	–	–	–	–	4.890	10.036
	dry	–	–	–	–	–	–	–	–	–	–	–
Ivan River	dry	–	–	–	–	–	–	–	–	–	–	–
Kenai	dry	–	–	0.017	0.215	1.460	3.106	4.493	5.985	33.375	39.624	46.014
Lewis River	dry	–	–	–	–	–	–	–	–	–	–	–
McArthur River	csg	–	–	–	–	–	–	–	–	–	0.220	6.124
	dry	–	–	–	–	–	–	–	–	–	–	0.032
Middle Ground	csg	–	–	–	–	–	–	–	0.010	1.200	3.215	6.654
Shoal	dry	–	–	–	–	–	–	–	–	–	–	–
Moquawkie	dry	–	–	–	–	–	–	–	–	–	0.034	0.353
Nicolai Creek	dry	–	–	–	–	–	–	–	–	–	–	0.026
North Cook Inlet	dry	–	–	–	–	–	–	–	–	–	–	–
North Fork	dry	–	–	–	–	–	–	–	–	0.105	–	–
Pretty Creek	dry	–	–	–	–	–	–	–	–	–	–	–
Redoubt Shoal	csg	–	–	–	–	–	–	–	–	–	–	<.001
Sterling	dry	–	–	–	–	0.025	0.046	0.058	0.120	0.157	0.180	0.198
Stump Lake	dry	–	–	–	–	–	–	–	–	–	–	–
Swanson River	csg	0.006	0.027	0.099	1.293	1.914	2.808	3.233	3.831	5.622	13.541	25.434
	dry	–	–	0.020	–	0.157	4.838	3.943	2.141	0.740	–	–
	inj	–	–	46.482	–	0.259	6.478	5.620	4.843	28.770	37.944	58.316
Trading Bay	csg	–	–	–	–	–	–	–	0.001	0.315	0.722	2.961
	dry	–	–	–	–	–	–	–	–	–	–	–
West Fork	dry	–	–	–	–	–	–	–	–	–	–	–
TOTAL GROSS		0.006	0.027	0.137	1.508	3.557	10.810	11.865	12.155	41.534	62.593	99.851
TOTAL INJECTED		–	–	46.482	–	0.259	6.478	5.620	4.843	28.770	37.944	58.316
TOTAL NET		0.006	0.027	(46.345)	1.508	3.298	4.333	6.245	7.311	12.764	24.649	41.535
STATE												
TOTAL GROSS		0.124	0.159	0.309	1.680	3.753	11.021	12.114	12.543	41.971	63.069	100.355
TOTAL INJECTED		–	–	46.482	–	0.259	6.478	5.620	4.843	28.770	37.944	58.316
TOTAL NET		0.124	0.159	(46.173)	1.680	3.495	4.543	6.494	7.700	13.201	25.124	42.039

* dry = dry gas, csg = casinghead gas, inj = injected.
NA = Not Applicable, ND = No Data
Source: Alaska Oil and Gas Conservation Commission, "Alaska Production Summary by Field and Pool", monthly report.
[1] Milne Point is assigned no gas reserves because most of its gas will be used for production fuel.
[2] Ivan River, Lewis River, Pretty Creek and Stump Lake are computed as a single reservoir.
[3] More gas was injected into the field than was produced, to maintain oil production.
01/27/94

		1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
NORTH SLOPE												
East Barrow	dry	–	–	–	–	–	–	–	–	–	–	–
Endicott	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Kuparuk River	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Lisburne	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Milne Point	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay State	csg	–	–	–	–	–	–	–	–	–	–	–
Point McIntyre	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	csg	0.243	1.037	0.889	0.658	0.699	2.022	3.046	5.077	94.936	307.966	432.475
	inj	–	–	–	–	–	–	–	–	68.118	271.854	390.136
Sag Delta	csg	–	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	csg	–	–	–	–	–	–	–	–	–	–	–
South Barrow	dry	0.582	0.619	0.627	0.675	0.707	0.765	0.799	0.832	0.879	0.893	0.913
Walakpa	dry	–	–	–	–	–	–	–	–	–	–	–
West Beach	csg	–	–	–	–	–	–	–	–	–	–	–
West Sak	csg	–	–	–	–	–	–	–	–	–	–	–
TOTAL GROSS		0.825	1.655	1.516	1.333	1.406	2.787	3.845	5.909	95.814	308.859	433.388
TOTAL INJECTED		–	–	–	–	–	–	–	–	68.118	271.854	390.136
TOTAL NET		0.825	1.655	1.516	1.333	1.406	2.787	3.845	5.909	27.696	37.004	43.252
COOK INLET												
Albert Kaloa	dry	–	0.095	0.024	–	–	–	–	–	–	–	–
Beaver Creek	csg	–	–	–	–	0.153	0.130	0.104	0.095	0.090	0.092	0.094
	dry	–	–	–	–	0.054	0.020	0.218	0.166	0.113	0.237	0.088
	inj	–	–	–	–	–	0.019	–	0.091	0.100	0.144	0.079
Beluga River	dry	3.038	3.571	4.055	4.142	4.929	5.596	6.980	11.211	13.353	14.253	16.994
Birch Hill	dry	–	–	–	–	–	–	–	–	–	–	–
Cannery Loop	dry	–	–	–	–	–	–	–	–	–	–	–
Falls Creek	dry	–	–	–	–	–	–	–	–	–	–	–
Granite Point	csg	8.043	9.211	7.753	5.773	4.518	3.265	3.390	3.205	3.634	3.851	3.287
	dry	–	–	–	–	–	–	–	–	–	–	–
Ivan River	dry	–	–	–	–	–	–	–	–	–	–	–
Kenai	dry	59.340	80.612	72.184	76.007	71.345	68.485	77.175	79.467	81.886	97.290	97.029
Lewis River	dry	–	–	–	–	–	–	–	–	–	–	–
McArthur River	csg	9.565	14.989	15.732	15.477	14.178	12.739	13.474	12.202	11.969	10.923	8.849
	dry	4.629	4.699	3.572	4.245	4.885	6.861	7.997	6.825	7.737	7.662	7.756
Middle Ground	csg	6.006	6.137	5.147	4.075	4.826	4.259	4.199	4.347	4.108	3.290	2.744
Shoal	dry	–	–	–	–	–	–	–	–	–	–	–
Moquawkie	dry	0.514	0.083	–	–	–	–	–	–	–	–	–
Nicolai Creek	dry	0.387	0.202	0.141	0.066	0.006	0.011	0.083	0.108	0.032	–	–
North Cook Inlet	dry	7.881	40.947	45.024	41.580	42.709	44.238	45.622	45.091	47.201	46.757	49.448
North Fork	dry	–	–	–	–	–	–	–	–	–	–	–
Pretty Creek	dry	–	–	–	–	–	–	–	–	–	–	–
Redoubt Shoal	csg	–	–	–	–	–	–	–	–	–	–	–
Sterling	dry	0.265	0.265	0.267	0.172	0.027	0.032	0.035	0.035	0.029	0.024	0.025
Stump Lake	dry	–	–	–	–	–	–	–	–	–	–	–
Swanson River	csg	40.756	50.396	66.569	67.441	74.067	80.869	90.665	101.427	106.911	106.934	116.068
	dry	–	–	–	–	–	–	–	–	–	–	0.198
	inj	67.215	73.139	73.892	76.133	87.482	86.793	97.976	113.279	118.279	114.557	120.268
Trading Bay	csg	7.119	7.156	9.097	5.668	3.539	3.312	2.613	2.473	2.890	2.427	1.708
	dry	–	–	–	–	–	–	–	–	–	–	–
West Fork	dry	–	–	–	–	–	–	–	–	–	0.052	0.770
TOTAL GROSS		147.543	218.363	229.566	224.647	225.236	229.816	252.554	266.651	279.955	293.792	305.058
TOTAL INJECTED		67.215	73.139	73.892	76.133	87.482	86.793	97.976	113.279	118.279	114.557	120.268
TOTAL NET		80.328	145.224	155.674	148.514	137.754	143.023	154.578	153.372	161.675	179.235	184.790
STATE												
TOTAL GROSS		148.368	220.019	231.081	225.979	226.642	232.603	256.399	272.560	375.769	602.651	738.446
TOTAL INJECTED		67.215	73.139	73.892	76.133	87.482	86.793	97.976	113.279	186.397	386.411	510.403
TOTAL NET		81.153	146.879	157.189	149.846	139.160	145.810	158.423	159.281	189.372	216.239	228.043

TABLE 4 CONTINUED – HISTORICAL GAS PRODUCTION

BILLIONS OF CUBIC FEET PER YEAR

		1980	1981	1982	1983	1984	1985	1986	1987
NORTH SLOPE									
East Barrow	dry	–	0.037	0.717	0.689	0.693	0.632	0.589	0.590
Endicott	csg	–	–	–	–	–	–	0.196	8.237
	inj	–	–	–	–	–	–	–	5.615
Kuparuk River	csg	–	0.615	22.989	44.391	57.508	104.279	114.889	125.089
	inj	–	–	17.822	38.277	47.930	85.909	90.449	89.191
Lisburne	csg	–	0.003	0.374	0.154	0.343	1.902	8.677	64.906
	inj	–	–	–	–	–	–	–	56.741
Milne Point	csg	–	–	–	–	–	0.253	1.644	0.011
	inj	–	–	–	–	–	–	0.197	0.000
North Prudhoe Bay State	csg	–	–	–	–	–	–	–	–
Point McIntyre	csg	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–
Prudhoe Bay	csg	597.148	647.768	756.884	818.993	846.674	936.613	970.290	1,228.527
	inj	546.509	595.106	697.813	754.044	768.899	846.786	882.883	1,104.827
Sag Delta	csg	–	–	–	–	–	–	–	–
Schrader Bluff	csg	–	–	–	–	–	–	–	–
South Barrow	dry	1.027	1.009	0.532	0.541	0.650	0.678	0.589	0.622
Walakpa	dry	–	–	–	–	–	–	–	–
West Beach	csg	–	–	–	–	–	–	–	–
West Sak	csg	–	–	–	0.005	0.079	0.134	0.108	–
TOTAL GROSS		598.175	649.431	781.496	864.775	905.947	1,044.491	1,096.982	1,427.982
TOTAL INJECTED		546.509	595.106	715.635	792.321	816.829	932.695	973.529	1,256.374
TOTAL NET		51.665	54.325	65.861	72.454	89.119	111.796	123.453	171.608
COOK INLET									
Albert Kaloa	dry	–	–	–	–	–	–	–	–
Beaver Creek	csg	0.091	0.080	0.082	0.092	0.101	0.094	0.078	0.053
	dry	0.090	0.137	0.308	8.252	9.234	10.833	17.694	15.475
	inj	0.029	0.020	0.037	0.031	–	–	–	–
Beluga River	dry	17.002	17.248	18.653	18.084	19.833	22.571	25.357	23.971
Birch Hill	dry	–	–	–	–	–	–	–	–
Cannery Loop	dry	–	–	–	–	–	–	–	–
Falls Creek	dry	–	–	–	–	–	–	–	–
Granite Point	csg	3.233	3.509	2.780	2.578	2.340	2.147	2.415	2.431
	dry	–	–	–	–	–	–	–	–
Ivan River	dry	–	–	–	–	–	–	–	–
Kenai	dry	98.846	105.800	115.913	112.978	110.109	115.843	82.471	90.014
Lewis River	dry	–	–	–	–	0.696	1.644	1.338	0.345
McArthur River	csg	8.043	7.651	7.521	6.444	5.834	4.073	4.397	3.393
	dry	7.547	7.555	8.719	7.931	9.242	6.603	9.163	9.884
Middle Ground	csg	2.628	2.502	2.277	2.294	2.212	2.129	1.199	1.274
Shoal	dry	–	–	0.097	0.371	0.514	0.493	0.394	0.312
Moquawkie	dry	–	–	–	–	–	–	–	–
Nicolai Creek	dry	–	–	–	–	–	–	–	–
North Cook Inlet	dry	41.540	49.486	45.368	47.877	46.981	45.819	43.838	42.889
North Fork	dry	–	–	–	–	–	–	–	–
Pretty Creek	dry	–	–	–	–	–	–	0.067	0.776
Redoubt Shoal	csg	–	–	–	–	–	–	–	–
Sterling	dry	0.026	0.023	0.024	0.022	0.018	0.012	0.002	–
Stump Lake	dry	–	–	–	–	–	–	–	–
Swanson River	csg	118.787	103.592	105.654	97.508	96.710	92.104	95.083	83.508
	dry	0.068	–	–	–	–	–	–	0.555
	inj	120.636	106.137	113.023	95.353	93.687	89.025	93.602	87.013
Trading Bay	csg	1.448	1.232	1.221	0.915	0.940	1.115	0.994	0.991
	dry	0.104	0.192	0.411	0.631	0.626	0.417	0.385	0.443
West Fork	dry	0.476	0.030	0.086	0.067	0.037	0.022	–	–
TOTAL GROSS		299.929	299.038	309.114	306.044	305.427	305.919	284.874	276.314
TOTAL INJECTED		120.636	106.137	113.023	95.353	93.687	89.025	93.602	87.013
TOTAL NET		179.293	192.901	196.092	210.692	211.739	216.894	191.272	189.302
STATE									
TOTAL GROSS		898.104	948.469	1,090.610	1,170.819	1,211.374	1,350.410	1,381.856	1,704.296
TOTAL INJECTED		667.146	701.243	828.658	887.674	910.516	1,021.720	1,067.130	1,343.387
TOTAL NET		230.958	247.226	261.952	283.145	300.858	328.690	314.725	360.909

		1988	1989	1990	1991	1992	1993 Est.	Cumulative Est. (Bcf)	Field Depletion	
NORTH SLOPE										
East Barrow	dry	0.661	0.475	0.488	0.583	0.439	0.220	6.812	53%	
Endicott	csg	34.834	41.197	42.490	60.246	97.047	116.888	401.136	7%	
	inj	28.023	33.033	35.523	51.136	85.082	96.983	335.395		
Kuparuk River	csg	119.883	107.519	116.579	123.207	122.767	117.850	1,177.563	27%	
	inj	87.906	83.323	91.273	95.982	96.625	91.828	916.514		
Lisburne	csg	94.670	104.746	107.592	124.263	154.457	134.550	796.636	20%	
	inj	87.815	102.248	101.542	112.457	141.598	124.598	727.000		
Milne Point	csg	–	0.978	2.718	3.515	3.025	2.921	15.066		[1]
	inj	–	0.320	1.401	1.704	1.632	1.764	7.018		
North Prudhoe Bay State	csg	–	–	–	–	–	0.172	0.172		
Point McIntyre	csg	–	–	–	–	–	1.079	1.079		
	inj	–	–	–	–	–	0.642	0.642		
Prudhoe Bay	csg	1,404.992	1,412.853	1,481.462	1,768.837	1,951.156	2,124.859	17,707.826	7%	
	inj	1,245.254	1,244.000	1,312.874	1,574.366	1,750.219	1,946.368	16,077.012		
Sag Delta	csg	–	0.236	1.416	2.347	0.703	0.575	5.277		
Schrader Bluff	csg	–	–	–	0.244	0.536	0.514	1.294		
South Barrow	dry	0.598	0.758	0.733	0.662	0.628	0.386	20.759	84%	
Walakpa	dry	–	–	–	–	0.252	0.614	0.866		
West Beach	csg	–	–	–	–	–	0.487	0.487		
West Sak	csg	–	–	–	–	–	–	0.326		
TOTAL GROSS		1,655.639	1,668.761	1,753.478	2,083.904	2,331.010	2,501.114	20,135.300	7%	
TOTAL INJECTED		1,448.997	1,462.924	1,542.612	1,835.645	2,075.156	2,262.183	18,063.580		
TOTAL NET		206.642	205.837	210.865	248.258	255.854	238.931	2,071.719		
COOK INLET										
Albert Kaloa	dry	–	–	–	–	–	–	0.119		
Beaver Creek	csg	0.039	0.064	0.058	0.049	0.048	0.042	1.729	53%	
	dry	14.307	12.257	12.416	10.354	7.320	6.425	125.998		
	inj	–	–	–	–	–	–	0.551		
Beluga River	dry	25.586	30.126	39.512	38.494	36.534	31.928	455.358	55%	
Birch Hill	dry	–	–	–	–	–	–	0.065	1%	
Cannery Loop	dry	9.400	11.255	12.502	12.318	10.635	9.617	65.726	23%	
Falls Creek	dry	–	–	–	–	–	–	0.019	0%	
Granite Point	csg	2.543	2.251	1.431	1.586	2.246	2.449	104.795	76%	
	dry	–	–	–	–	–	0.009	0.009		
Ivan River	dry	–	–	0.676	2.132	1.774	6.529	11.112	6%	[2]
Kenai	dry	76.299	65.706	38.393	25.581	24.187	23.942	2,081.189	91%	
Lewis River	dry	0.045	0.095	1.485	1.420	0.706	0.383	8.157		[2]
McArthur River	csg	4.120	4.317	2.559	5.121	5.175	4.084	219.172	64%	
	dry	12.603	26.683	48.897	56.075	64.895	55.746	398.443		
Middle Ground	csg	1.223	1.250	1.334	1.074	1.015	1.009	83.638	88%	
Shoal	dry	0.411	0.715	1.246	0.513	1.362	1.916	8.345		
Moquawkie	dry	–	–	–	–	–	–	0.985		
Nicolai Creek	dry	–	–	–	–	–	–	1.062	0%	
North Cook Inlet	dry	44.989	45.287	45.014	44.695	44.411	44.964	1,089.657	99%	
North Fork	dry	–	–	–	–	–	–	0.105		
Pretty Creek	dry	0.871	0.641	0.607	0.742	0.762	0.372	4.838		[2]
Redoubt Shoal	csg	–	–	–	–	–	–	<.001		
Sterling	dry	–	–	–	–	–	–	2.088	8%	
Stump Lake	dry	–	–	0.528	1.608	1.504	0.824	4.464		[2]
Swanson River	csg	101.685	102.910	101.685	101.885	101.083	95.186	2,357.294		[3]
	dry	0.915	1.184	2.710	2.944	2.915	2.123	25.449		
	inj	99.734	107.802	106.031	105.174	104.724	93.301	2,632.965		
Trading Bay	csg	1.120	1.291	0.465	0.944	0.705	0.638	66.021	35%	
	dry	0.191	0.141	0.003	–	–	–	3.543		
West Fork	dry	–	–	–	0.460	1.364	0.684	4.049	50%	
TOTAL GROSS		296.347	306.173	311.519	307.997	308.641	288.872	7,123.429	67%	
TOTAL INJECTED		99.734	107.802	106.031	105.174	104.724	93.301	2,632.984		
TOTAL NET		196.614	198.370	205.488	202.823	203.917	195.571	4,490.445		
STATE										
TOTAL GROSS		1,951.986	1,974.933	2,064.996	2,391.900	2,639.651	2,789.986	27,258.729	19%	
TOTAL INJECTED		1,548.731	1,570.726	1,648.643	1,940.819	2,179.880	2,355.484	20,696.564		
TOTAL NET		403.255	404.207	416.353	451.081	459.771	434.502	6,562.165		

FIGURE 4-1 - NET PRODUCTION OF NORTH SLOPE GAS

BILLIONS OF CUBIC FEET PER YER

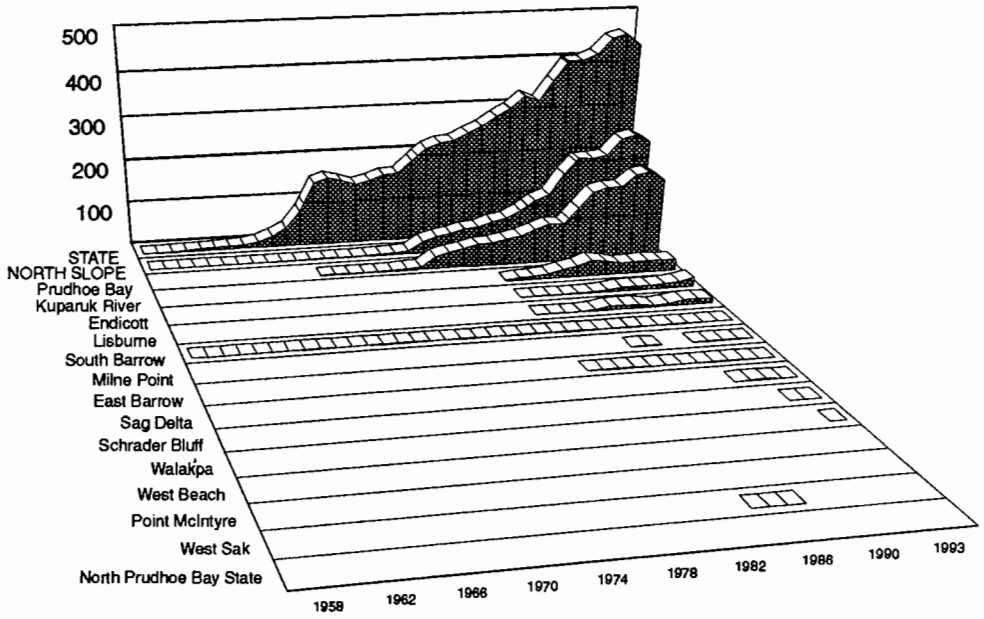
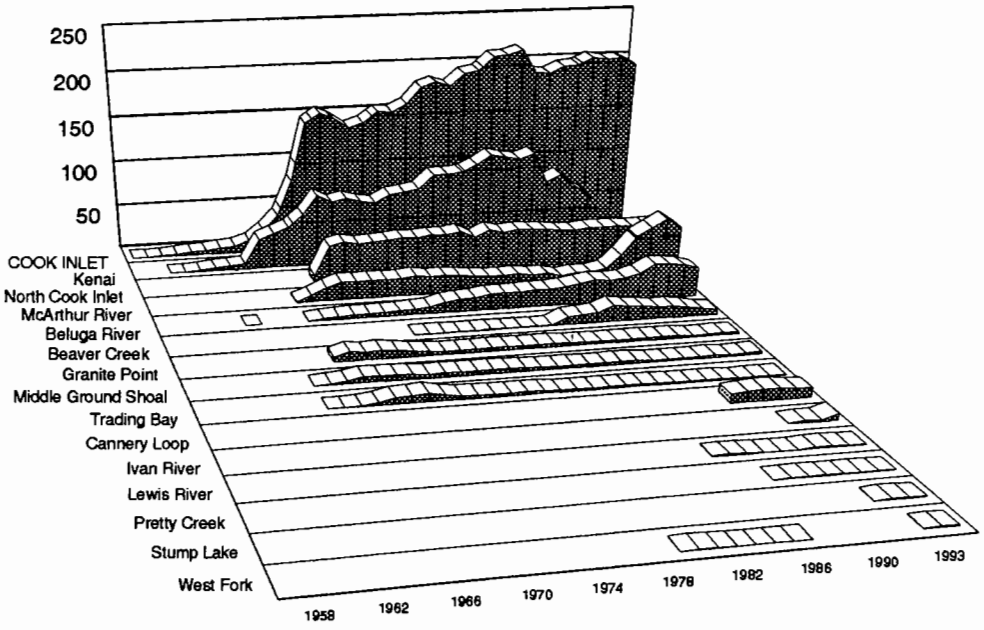


FIGURE 4-2 - NET PRODUCTION OF COOK INLET GAS

BILLIONS OF CUBIC FEET PER YEAR



5 HISTORICAL CONSUMPTION OF OIL

Table 5A lists how much fuel was sold, by major DOR categories, from 1977 to 1993.

Figure 5 graphs the sales of the major categories in Table 5A from 1977 to 1993.

Table 5B lists an estimate of how much fuel was sold in 1993, under a complete list of DOR categories.

All of the oil consumed in Alaska is refined fuels, and no significant amount of crude oil has ever been used for manufacturing or commercial use. Much of Alaska's fuel demand is supplied by four in-state refineries. The balance is imported from west coast refineries, though neither the proportion nor exact volumes can be calculated from public data.

The Department of Revenue Income and Excise Audit Division taxes certain fuel sales and accordingly collects data on how much fuel is sold within the state. DOR compiled its fuel categories for tax purposes, not to record fuel use patterns. Consequently, some categories do not describe end use well. A major caveat for both tables is that the category, "Other Diesel/Exported as Cargo" is primarily residual oil from Tesoro refinery sold to west coast or Pacific Rim refineries and so, under most definitions, is not consumed in Alaska. In 1993, after subtracting Other Diesel/Exported as Cargo from total fuel sales, Alaska consumed 1.5 billion gallons of fuel, including 646 million gallons of aviation jet fuel, 591 million gallons of diesel, and 231 million gallons of gasoline.

TABLE 5A – HISTORICAL OIL CONSUMPTION

MILLIONS OF GALLONS PER YEAR

	1977	1978	1979	1980	1981	1982	1983	1984	1985
FUEL SALES									
Aviation Gas	16.770	15.830	16.925	16.912	18.754	16.596	15.244	17.399	17.997
Exempt	1.521	0.685	0.552	0.558	0.574	0.589	0.498	0.574	0.515
Taxable	15.249	15.145	16.373	16.354	18.180	16.007	14.746	16.825	17.482
Aviation Jet	330.744	363.607	415.164	416.184	400.177	432.366	517.575	611.314	518.092
Exempt	227.581	250.601	288.974	286.110	247.619	99.957	242.815	311.820	223.635
Taxable	103.163	113.006	126.190	130.074	152.558	332.409	274.760	299.494	294.457
Marine Gas	11.766	7.714	8.296	7.598	7.602	7.878	8.568	8.955	14.664
Exempt	5.707	0.554	0.292	0.025	0.085	0.032	0.052	0.120	0.251
Taxable	6.059	7.160	8.004	7.573	7.517	7.846	8.516	8.835	14.413
Marine Diesel	38.613	51.985	59.492	67.711	72.282	99.443	147.569	124.416	98.675
Exempt	6.396	10.116	6.325	5.370	5.153	30.443	75.395	50.874	9.724
Taxable	32.217	41.869	53.167	62.341	67.129	69.000	72.174	73.542	88.951
Other Gas	186.213	187.359	181.329	177.353	186.446	210.644	197.968	223.178	235.081
Exempt	5.094	8.290	7.527	8.162	9.084	12.809	10.887	11.028	15.353
Taxable	181.119	179.069	173.802	169.191	177.362	197.835	187.081	212.150	219.728
Other Diesel	165.752	184.876	269.377	302.647	326.440	411.125	420.279	436.308	643.430
Exempt	46.160	54.050	120.960	120.939	117.074	187.856	178.494	190.891	369.279
Taxable	119.592	130.826	148.417	181.708	209.366	223.269	241.785	245.113	274.151
TOTAL	749.858	811.371	950.583	988.405	1,011.701	1,178.052	1,307.203	1,421.570	1,527.939

	1986	1987	1988	1989	1990	1991	1992	1993 Est.
FUEL SALES								
Aviation Gas	17.815	18.492	19.314	19.309	20.807	19.555	20.228	15.032
Exempt	0.858	0.384	0.743	0.816	1.019	0.673	0.747	0.298
Taxable	16.957	18.108	18.571	18.493	19.788	18.882	19.481	14.734
Aviation Jet	592.620	644.477	684.910	682.239	873.336	716.737	753.220	645.780
Exempt	280.654	318.349	333.703	311.805	423.583	342.262	373.772	335.702
Taxable	311.966	326.128	351.207	370.434	449.753	374.475	379.448	310.078
Marine Gas	10.464	11.510	10.554	10.202	10.477	10.269	13.082	8.915
Exempt	0.291	0.183	0.075	0.194	0.239	0.607	0.144	0.258
Taxable	10.173	11.327	10.479	10.008	10.238	9.662	12.938	8.657
Marine Diesel	105.218	171.769	159.027	176.361	198.301	193.194	198.553	160.970
Exempt	10.097	83.120	43.828	28.636	15.701	14.852	10.512	7.510
Taxable	95.121	88.649	115.199	147.725	182.600	178.342	188.041	153.460
Other Gas	234.482	221.259	222.162	215.462	244.488	217.039	245.690	222.266
Exempt	21.558	17.541	15.040	15.445	9.331	7.811	13.304	14.343
Taxable	212.924	203.718	207.122	200.017	235.157	209.228	232.386	207.923
Other Diesel	897.970	843.045	858.228	956.127	843.652	756.671	655.217	657.381
Exempt	559.413	583.305	576.131	674.692	570.569	471.046	382.923	435.960
Taxable	338.557	259.740	282.097	281.435	273.083	285.625	272.294	221.421
TOTAL	1,858.569	1,910.552	1,954.195	2,059.700	2,191.061	1,913.465	1,885.990	1,710.344

Source: Alaska Department of Revenue, "Report of Motor Fuel Sold or Distributed in Alaska."
01/27/94

TABLE 5B – ESTIMATED FUEL SOLD OR DISTRIBUTED IN ALASKA IN 1993

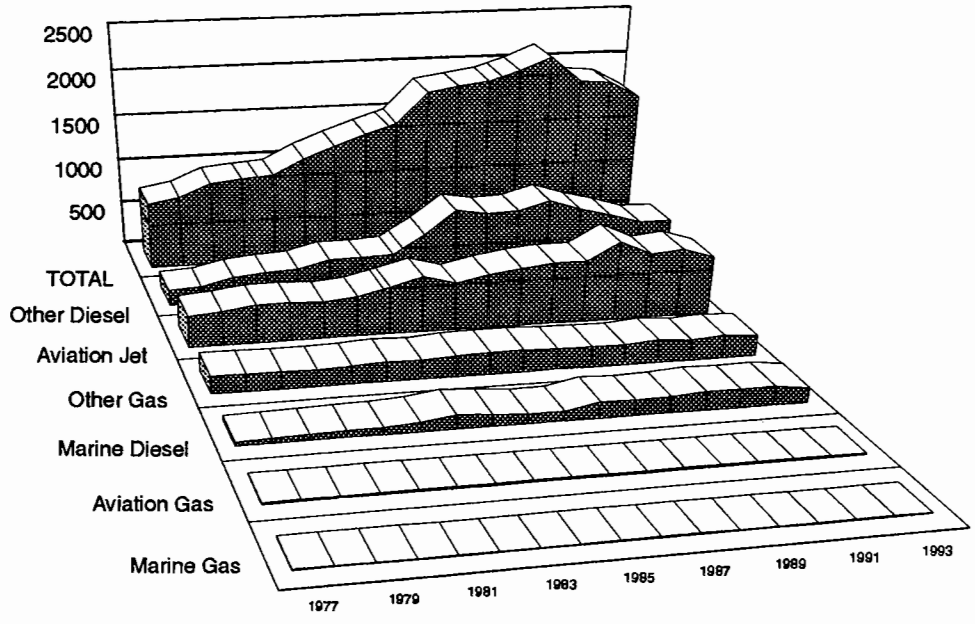
MILLIONS OF GALLONS PER YEAR

	Aviation Gas	Aviation Jet	Marine Gas	Marine Diesel	Other Gas	Other Diesel	TOTAL
EXEMPT							
Sold for heating use	–	0.094	–	–	0.002	144.450	144.546
Federal government	0.140	34.174	0.053	1.316	2.344	5.724	43.751
State/local government	0.145	0.298	0.198	5.147	3.354	13.004	22.146
Charitable institution	0.006	0.001	0.006	0.028	0.064	0.296	0.401
Pub. util./non–profit power asso	–	–	–	–	0.065	22.960	23.025
Exempt power plant	–	–	–	–	0.058	6.369	6.427
Jet fuel–foreign flights	–	184.716	–	–	–	–	184.716
Bonded jet fuel	–	71.913	–	–	–	–	71.913
Consigned to foreign countries	–	8.994	–	–	0.127	0.017	9.138
Exported as cargo	0.007	37.950	–	1.019	5.214	227.776	271.966
Gasohol	–	8.606	0.002	–	3.115	14.014	25.737
Actual losses	–	–	–	–	–	–	–
Other	–	8.956	(0.001)	–	–	1.350	10.305
TOTAL EXEMPT	0.298	335.702	0.258	7.510	14.343	435.960	814.071
TOTAL TAXABLE	14.734	310.078	8.657	153.460	207.923	221.421	916.273
TOTAL EXEMPT + TAXABLE	15.032	645.780	8.915	160.970	222.266	657.381	1,710.344

Source: Alaska Department of Revenue, "Report of Motor Fuel Sold Or Distributed in Alaska." 01/27/94

FIGURE 5 - CONSUMPTION OF OIL

MILLIONS OF GALLONS PER YEAR



6 HISTORICAL CONSUMPTION OF NATURAL GAS

Table 6 lists the volumes of gas major end users consumed from 1971 to 1993.

Figure 6-1 graphs how much North Slope gas major end users consumed from 1974 and 1993.

Figure 6-2 graphs how much Cook Inlet gas major end users consumed from 1971 to 1993.

NORTH SLOPE

At present, the only market for North Slope gas is as fuel for oil production facilities and related activities. Consequently, 90% of the extracted gas is injected back into the fields to maintain reservoir pressure. Of the estimated 253 billion cubic feet that were consumed in 1993, 82% went to field related activities of which the largest consumers were the gas handling and gas injection systems, 9% was reported as NGL and 5% was sold to TAPS for fuel. The volume of gas consumed on the North Slope to produce oil is larger than the combined Anchorage and Kenai domestic, commercial and industrial markets.

COOK INLET

Anchorage and Kenai markets and exports consume all the gas extracted from Cook Inlet fields except for a small amount injected until 1992 into Swanson River field to maintain oil reservoir pressure. This gas is now being produced. Of an estimated 196 billion cubic feet consumed in 1993, 34% went to Phillips-Marathon's LNG plant for combined fuel use and product, 29% went to Union's ammonia/urea plant for both energy and feed stock, 14% to power generation, 12% to utility gas, and 10% to field operations.

TABLE 6 – HISTORICAL GAS CONSUMPTION

BILLIONS OF CUBIC FEET PER YEAR

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
NORTH SLOPE												
Field Operations [1]	ND	ND	ND	2.650	2.808	3.856	24.444	29.231	33.763	39.697	41.607	51.921
Vented and Flared	ND	ND	ND	1.076	1.061	1.254	10.882	2.313	1.840	1.801	2.485	3.490
Used on Lease	ND	ND	ND	1.556	1.747	2.602	13.562	18.826	23.559	28.967	29.642	37.864
Shrinkage	ND	ND	ND	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other	ND	ND	ND	0.018	0.000	0.000	0.000	8.092	8.364	8.929	9.480	10.567
Sold [1]	ND	ND	ND	0.136	1.037	2.054	3.347	7.802	9.512	12.007	12.791	14.000
Power generation [2]	ND	ND	ND	ND	ND	ND	ND	0.219	0.235	0.235	0.315	0.404
Gas Utilities [2]	ND	ND	ND	ND	ND	ND	ND	0.291	0.317	0.400	0.435	0.539
TAPS [3]	0.00	0.00	0.00	0.000	0.000	0.000	1.754	6.949	8.648	10.686	11.106	11.952
NGL [4]	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.215	0.381	0.424
Other [5]	ND	ND	ND	ND	ND	ND	ND	0.343	0.312	0.471	0.554	0.681
TOTAL	ND	ND	ND	2.786	3.845	5.910	27.791	37.033	43.275	51.704	54.398	65.921
COOK INLET												
Field Operations [1]	45.25	36.56	20.90	49.834	28.830	24.467	24.416	25.949	24.101	22.304	20.559	20.957
Vented and Flared	33.18	20.98	6.93	7.978	9.496	5.421	4.848	3.870	2.710	3.045	3.175	3.494
Used on Leases	10.96	14.86	12.42	39.845	16.215	15.822	16.404	16.228	14.564	14.608	14.950	14.861
Shrinkage	1.11	0.72	1.55	2.011	3.119	3.224	3.145	3.426	2.847	2.438	2.434	2.602
Other	0.00	0.00	0.00	0.000	0.000	0.000	0.019	2.425	3.980	2.213	0.000	0.000
Sold [1]	121.72	123.72	130.94	130.509	140.717	143.710	152.437	164.300	168.106	162.201	178.082	185.913
Power generation	16.529	19.253	21.752	22.801	25.461	27.628	28.717	29.883	33.166	33.526	33.632	34.943
Public [6]	9.980	12.780	15.683	17.117	19.619	22.204	23.717	24.757	28.180	28.763	29.071	30.113
Military [7]	6.55	6.47	6.07	5.684	5.842	5.424	5.000	5.126	4.986	4.763	4.561	4.830
Gas Utilities	10.238	13.099	14.757	15.128	12.092	12.551	12.683	13.454	14.045	15.521	15.778	19.025
Residential [7]	5.44	6.03	6.52	6.717	5.548	5.916	6.010	6.536	6.911	7.773	7.950	9.981
Commercial [7]	4.80	7.07	8.24	8.411	6.544	6.635	6.673	6.918	7.134	7.748	7.828	9.044
LNG [8]	63.24	59.87	60.99	61.870	64.777	63.509	66.912	60.874	64.111	54.844	68.823	64.438
Amonia–Urea [9]	19.49	20.58	20.64	22.100	23.888	24.257	28.620	48.879	51.657	54.699	53.836	55.220
Rental Gas [10]	ND	13.400	12.590	10.410	12.477	11.588	6.703	10.523	6.958	5.190	5.601	11.383
Other [5]	12.22	−2.485	0.21	−1.800	2.022	4.177	8.802	0.687	−1.831	−1.579	0.412	0.904
TOTAL	166.97	160.28	151.84	180.343	169.547	168.177	176.853	190.249	192.207	184.505	198.641	206.870
STATE												
Field Operations [1]	45.25	36.56	20.90	52.484	31.638	28.323	48.860	55.180	57.864	62.001	62.166	72.878
Vented and Flared	33.18	20.98	6.93	9.054	10.557	6.675	15.730	6.183	4.550	4.846	5.660	6.984
Used on Leases	10.96	14.86	12.42	41.401	17.962	18.424	29.966	35.054	38.123	43.575	44.592	52.725
Shrinkage	1.11	0.72	1.55	2.011	3.119	3.224	3.145	3.426	2.847	2.438	2.434	2.602
Other	0.00	0.00	0.00	0.018	0.000	0.000	0.019	10.517	12.344	11.142	9.480	10.567
Sold [1]	121.72	123.72	130.94	130.645	141.754	145.764	155.784	172.102	177.618	174.208	190.873	199.913
Power generation	16.53	19.25	21.75	22.80	25.46	27.63	28.72	30.10	33.40	33.76	33.95	35.35
Public [2][6]	9.98	12.78	15.68	17.12	19.62	22.20	23.72	24.98	28.42	29.00	29.39	30.52
Military [7]	6.55	6.47	6.07	5.68	5.84	5.42	5.00	5.13	4.99	4.76	4.56	4.83
Gas Utilities	10.24	13.10	14.76	15.128	12.092	12.551	12.683	13.745	14.362	15.921	16.213	19.564
Residential [2][7]	5.44	6.03	6.52	6.717	5.548	5.916	6.010	6.827	7.228	8.173	8.385	10.520
Commercial [7]	4.80	7.07	8.24	8.411	6.544	6.635	6.673	6.918	7.134	7.748	7.828	9.044
LNG [8]	63.24	59.87	60.99	61.870	64.777	63.509	66.912	60.874	64.111	54.844	68.823	64.438
Amonia–Urea [9]	19.49	20.58	20.64	22.100	23.888	24.257	28.620	48.879	51.657	54.699	53.836	55.220
Rental Gas [10]	ND	13.40	12.59	10.410	12.477	11.588	6.703	10.523	6.958	5.190	5.601	11.383
TAPS [3]	0.00	0.00	0.00	0.000	0.000	0.000	1.754	6.949	8.648	10.686	11.106	11.952
NGL [4]	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.215	0.381	0.424
Other [5]	12.22	−2.49	0.21	−1.80	2.02	4.18	8.80	1.03	−1.52	−1.11	0.97	1.59
TOTAL	166.967	160.277	151.837	183.129	173.392	174.087	204.644	227.282	235.482	236.209	253.039	272.791

[1] Alaska Oil and Gas Conservation Commission, "Report of Gas Disposition," monthly reports.
[2] Barrow Utilities and Electric Cooperative Inc..
[3] Royalty reports from Arco to Division of Oil and Gas, sales to TAPS from Prudhoe Bay and Kuparuk fields.
[4] Alaska Oil and Gas Conservation Commission, "Alaska Production Summary by Field and Pool", monthly reports.
[5] Calculated difference between "Sold" and sum of listed "Sold" items.
[6] 1971–1991: Alaska Energy Authority, "Alaska Electric Power Statistics, 1960–1991"
1992–93: Chugach Electric and Municipal Light & Power.
[7] Sum of sales from Beluga gas field in: Alaska Oil and Gas Conservation Commission, "Report of Gas Disposition" and
1971–82: Annual reports from Alaska Pipeline Co., ENSTAR and Kenai Utility Service Co. to Alaska Public Utilities Commission
1983–93: Enstar Natural Gas Co..
[8] 1971–74: Stanford Research Institute, "Natural Gas Demand and Supply to the Year 2000 in the Cook Inlet Basin of South Central Alaska," Nov. 1977.
1975–79: Sum of 1) production from Kenai and Beaver Creek gas fields in: Alaska Oil and Gas Conservation Commission, "Report of Gas Disposition," and 2) sales from North Cook Inlet gas field in Alaska Oil and Gas Conservaton Commission, "Kenai Gas Sales."
1980–88: Royalty reports from producers to Division of Oil and Gas.
1989–93: Phillips Petroleum Co..
[9] 1971–74: Stanford Research Institute, "Natural Gas Demand and Supply to the Year 2000 in the Cook Inlet Basin of South Central Alaska," Nov. 1977.
1975–79: Sum of 1) sales from Kenai and Beaver Creek gas fields to Collier Chemical in: Alaska Oil and Gas Conservation Commission, "Kenai Gas Sales," and 2) sales from McArthur River gas field in: Alaska Oil and Gas Conservation Commission, "Monthly Report of Gas Disposition."
1980–88: Royalty reports from producers to Division of Oil and Gas.
1989–93: Unocal Corp..
[10] 1972–1990: Royalty reports from Unocal to Division of Oil and Gas, item: Swanson River Rental Gas.
1991–93: Unocal Corp..
02/02/94

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993 Est.
NORTH SLOPE											
Field Operations [1]	58.210	74.732	91.388	101.722	138.581	192.846	172.625	169.343	183.711	196.055	208.153
Vented and Flared	2.524	5.814	3.437	5.802	12.952	5.747	6.792	8.753	6.795	10.092	20.507
Used on Lease	44.837	53.884	70.683	71.338	109.127	132.245	136.576	137.981	154.038	160.902	162.465
Shrinkage	0.000	0.000	0.000	0.000	0.000	40.759	9.678	1.099	1.547	1.940	1.992
Other	10.849	15.034	17.268	24.582	16.502	14.095	19.579	21.510	21.331	23.121	23.189
Sold [1]	14.589	15.088	20.089	20.001	42.719	48.287	39.546	37.067	45.475	48.402	45.301
Power generation [2]	0.482	0.480	0.486	0.559	0.544	0.620	0.620	0.644	0.667	0.721	0.676
Gas Utilities [2]	0.407	0.508	0.453	0.486	0.493	0.519	0.484	0.495	0.486	0.530	0.506
TAPS [3]	13.277	12.856	14.381	15.166	16.624	17.855	16.147	14.543	15.349	14.583	12.130
NGL [4]	0.264	0.269	0.693	1.103	13.837	17.821	15.987	15.399	20.221	22.794	22.629
Other [5]	0.159	0.975	4.076	2.687	11.221	11.472	6.308	5.986	8.752	9.774	9.360
TOTAL	72.799	89.820	111.477	121.723	181.300	241.133	212.171	206.410	229.186	244.457	253.454
COOK INLET											
Field Operations [1]	19.380	22.468	18.637	18.408	18.529	19.143	19.353	15.570	20.256	21.014	20.137
Vented and Flared	2.560	3.260	2.893	3.095	2.746	3.244	2.940	2.214	3.900	4.088	3.592
Used on Leases	14.056	14.597	13.971	13.845	14.651	14.636	14.317	12.260	14.476	14.970	14.055
Shrinkage	2.726	2.657	1.773	1.468	1.130	1.263	2.096	1.064	1.843	1.956	1.415
Other	0.038	1.954	0.000	0.000	0.002	0.000	0.000	0.032	0.037	0.000	1.075
Sold [1]	192.578	192.752	199.311	174.563	177.660	177.471	185.767	194.877	186.366	187.233	176.058
Power generation	36.143	35.909	38.724	38.774	36.240	36.854	37.933	38.858	35.329	33.504	32.044
Public [6]	31.547	31.571	34.194	34.243	31.583	32.038	32.917	33.918	30.629	28.549	27.360
Military [7]	4.596	4.338	4.530	4.531	4.657	4.816	5.016	4.940	4.700	4.955	4.684
Gas Utilities	19.111	20.903	24.419	23.235	23.063	23.249	25.238	25.892	24.700	25.946	24.241
Residential [7]	10.202	10.999	12.445	11.935	12.027	12.292	13.564	13.968	13.440	14.333	13.235
Commercial [7]	8.909	9.904	11.974	11.300	11.036	10.957	11.674	11.924	11.260	11.613	11.006
LNG [8]	67.729	65.882	65.177	61.906	60.879	63.325	64.354	63.916	65.494	66.218	67.238
Amonia–Urea [9]	50.338	50.083	50.688	35.733	45.230	41.882	54.495	54.495	54.750	55.000	56.600
Rental Gas [10]	12.698	18.362	21.532	14.785	16.733	8.722	6.705	3.182	3.683	3.719	0.000
Other [5]	6.559	1.613	−1.229	0.130	−4.485	3.439	−2.958	8.534	2.410	2.846	−4.065
TOTAL	211.958	215.220	217.948	192.971	196.189	196.614	205.120	210.447	206.622	208.247	196.195
STATE											
Field Operations [1]	77.590	97.200	110.025	120.130	157.110	211.989	191.978	184.913	203.967	217.069	228.290
Vented and Flared	5.084	9.074	6.330	8.897	15.698	8.991	9.732	10.967	10.695	14.180	24.099
Used on Leases	58.893	68.481	84.654	85.183	123.778	146.881	150.893	150.241	168.514	175.872	176.520
Shrinkage	2.726	2.657	1.773	1.468	1.130	42.022	11.774	2.163	3.390	3.896	3.407
Other	10.887	16.988	17.268	24.582	16.504	14.095	19.579	21.542	21.368	23.121	24.264
Sold [1]	207.167	207.840	219.400	194.564	220.379	225.758	225.313	231.944	231.841	235.635	221.359
Power generation	36.63	36.39	39.21	39.33	36.78	37.47	38.55	39.50	36.00	34.225	32.720
Public [2][6]	32.03	32.05	34.68	34.80	32.13	32.66	33.54	34.56	31.30	29.270	28.036
Military [7]	4.60	4.34	4.53	4.53	4.66	4.82	5.02	4.94	4.70	4.955	4.684
Gas Utilities	19.518	21.411	24.872	23.721	23.556	23.768	25.722	26.387	25.186	26.476	24.747
Residential [2][7]	10.609	11.507	12.898	12.421	12.520	12.811	14.048	14.463	13.926	14.863	13.741
Commercial [7]	8.909	9.904	11.974	11.300	11.036	10.957	11.674	11.924	11.260	11.613	11.006
LNG [8]	67.729	65.882	65.177	61.906	60.879	63.325	64.354	63.916	65.494	66.218	67.238
Amonia–Urea [9]	50.338	50.083	50.688	35.733	45.230	41.882	54.495	54.495	54.750	55.000	56.600
Rental Gas [10]	12.698	18.362	21.532	14.785	16.733	8.722	6.705	3.182	3.683	3.719	0.000
TAPS [3]	13.277	12.856	14.381	15.166	16.624	17.855	16.147	14.543	15.349	14.583	12.130
NGL [4]	0.264	0.269	0.693	1.103	13.837	17.821	15.987	15.399	20.221	22.794	22.629
Other [5]	6.72	2.59	2.85	2.82	6.74	14.91	3.35	14.52	11.16	12.620	5.295
TOTAL	284.757	305.040	329.425	314.694	377.489	437.747	417.291	416.857	435.808	452.704	449.649

FIGURE 6-1 - CONSUMPTION OF NORTH SLOPE GAS

BILLIONS OF CUBIC FEET PER YEAR

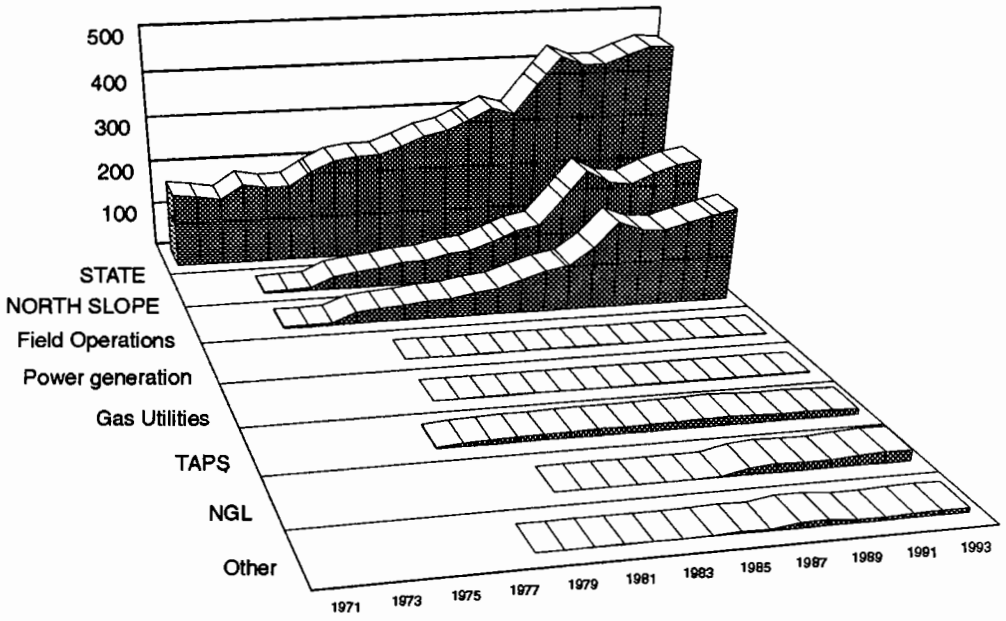
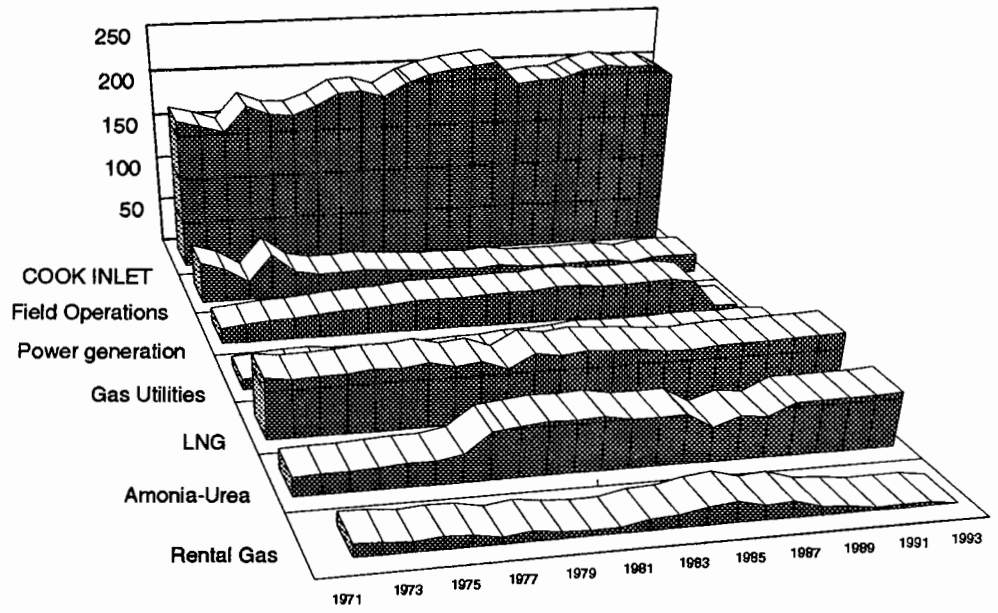
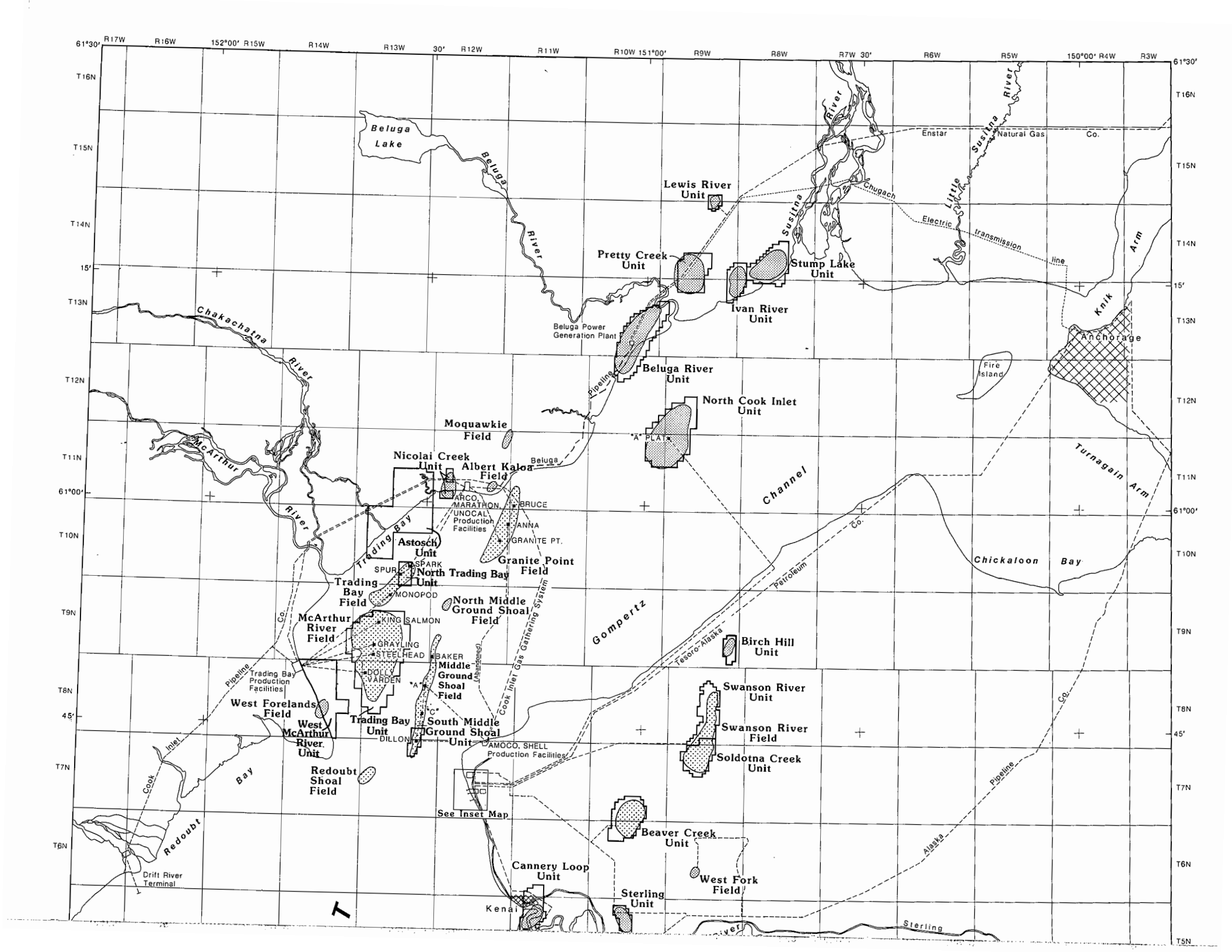


FIGURE 6-2 CONSUMPTION OF COOK INLET GAS

BILLIONS OF CUBIC FEET PER YEAR

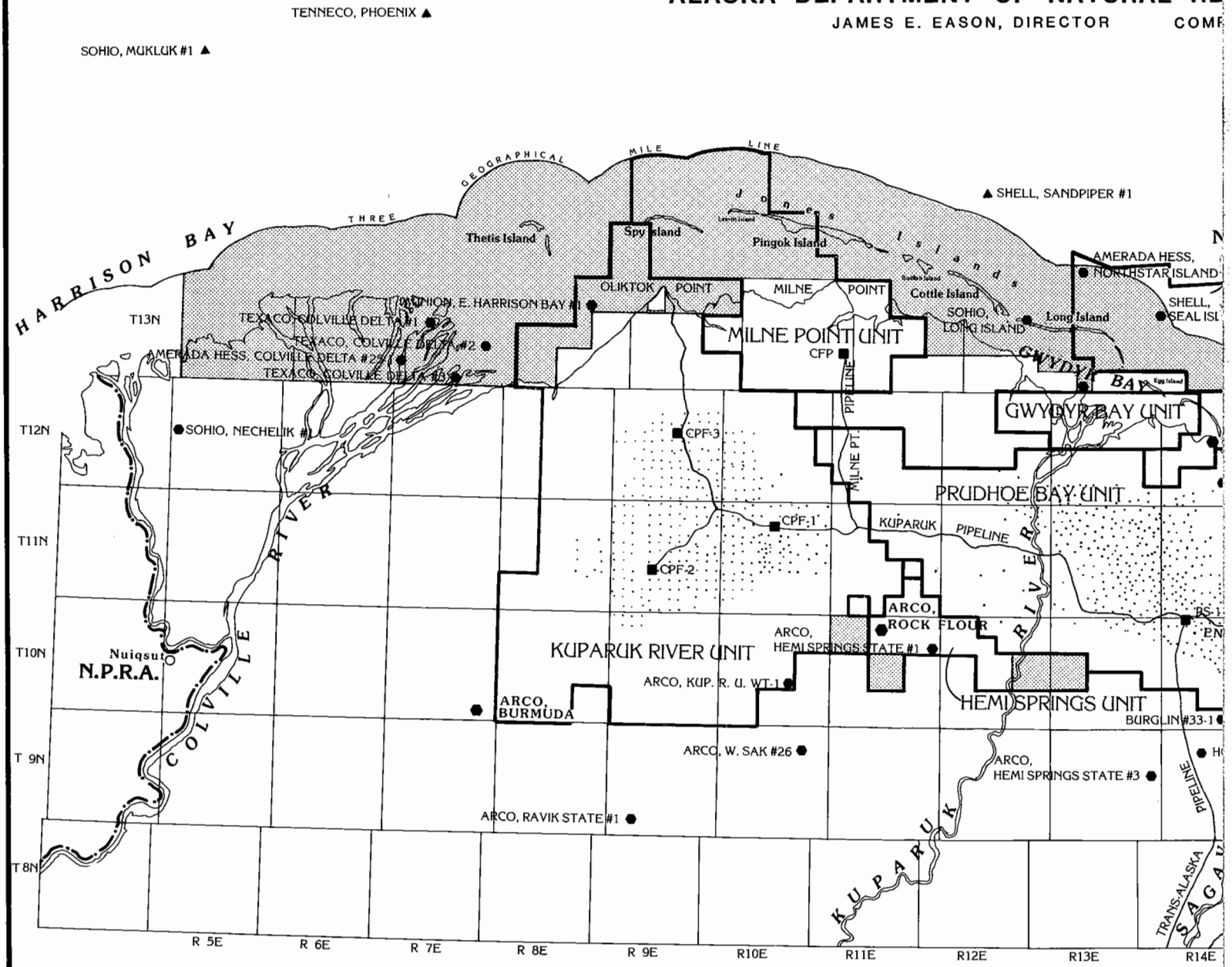



Beluga Lake
Beluga River
Lewis River Unit
Pretty Creek Unit
Stump Lake Unit
Ivan River Unit
Susitna River
Little Susitna River
Chugach Electric transmission line
Enstar Natural Gas Co.
Knik Arm
Anchorage
Fire Island
Beluga Power Generation Plant
Beluga River Unit
Pipeline
North Cook Inlet Unit
"A" PLAT.
Moquawkie Field
Nicolai Creek Unit
Albert Kaloa Field
Beluga
Chakachatna River
McArthur River
Trading Bay
ARCO, MARATHON, UNOCAL Production Facilities
BRUCE
ANNA
GRANITE PT.
Granite Point Field
Astosch Unit
SPARK
SPUR
North Trading Bay Unit
Trading Bay Field
MONOPOD
North Middle Ground Shoal Field
McArthur River Field
KING SALMON
GRAYLING
STEELHEAD
DOLLY VARDEN
BAKER
Middle Ground Shoal Field
(Abandoned)
Cook Inlet Gas Gathering System
Channel
Gompertz
Turnagain Arm
Chickaloon Bay
Petroleum Co.
Tesoro-Alaska Pipeline Co.
Birch Hill Unit
Swanson River Unit
Swanson River Field
Soldotna Creek Unit
Trading Bay Production Facilities
West Foreland Field
West McArthur River Unit
Trading Bay Unit
South Middle Ground Shoal Unit
DILLON
AMOCO, SHELL Production Facilities
Redoubt Shoal Field
Cook Inlet
Bay
See Inset Map
Beaver Creek Unit
West Fork Field
Cannery Loop Unit
Sterling Unit
Kenai
Drift River Terminal
Redoubt
Alaska Pipeline Co.
Sterling
R17W
R16W
152°00'
R15W
R14W
R13W
30'
R12W
R11W
R10W
151°00'
R9W
R8W
R7W
30'
R6W
R5W
150°00'
R4W
R3W
T16N
T15N
T14N
T13N
T12N
T11N
T10N
T9N
T8N
T7N
T6N
T5N
61°30'
61°00'
15'
45'

NORTH SLOP

ALASKA DEPARTMENT OF NATURAL RE

JAMES E. EASON, DIRECTOR COMP



EXPLA

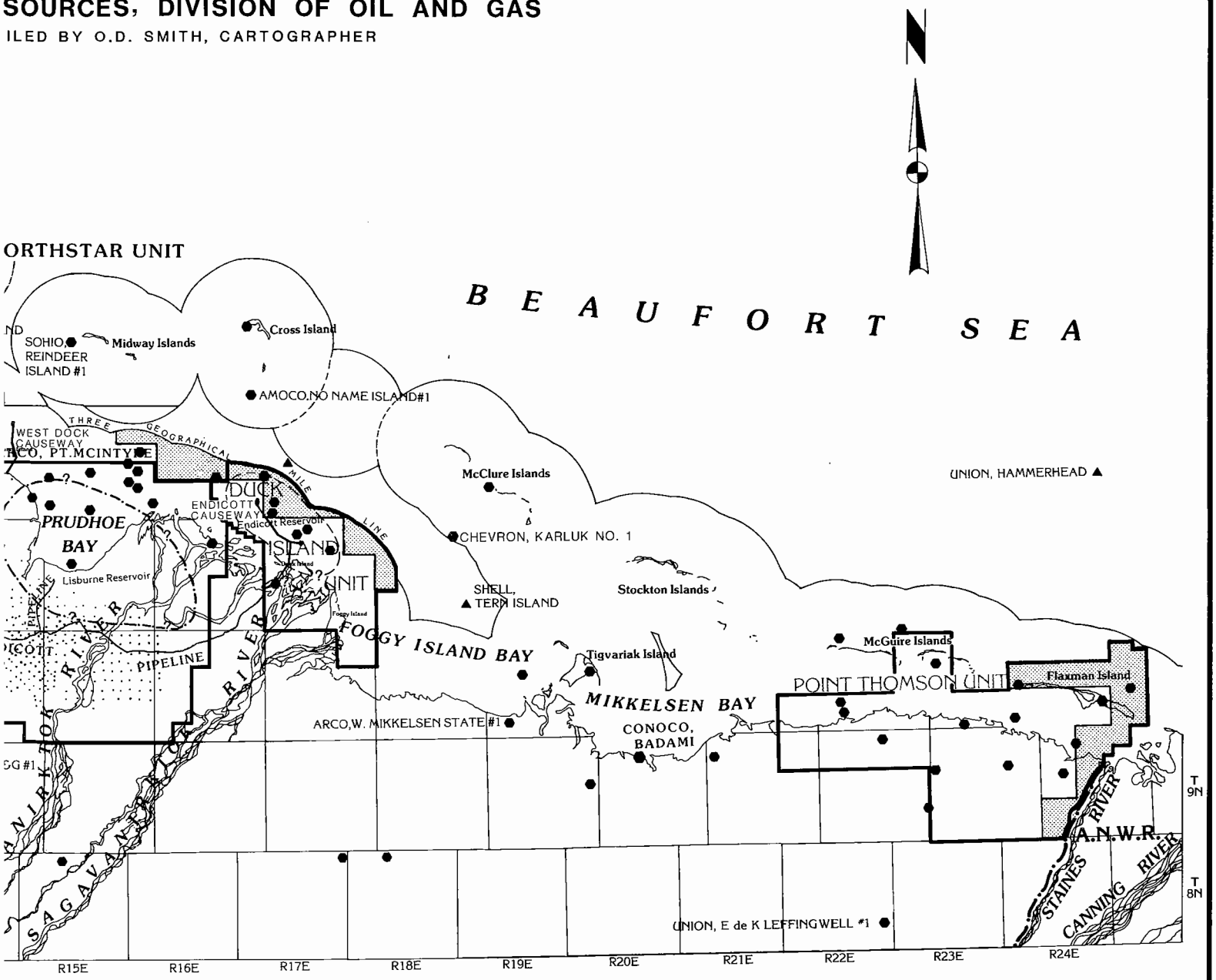
Pump Station #1	PS-1
Central Production Facility	CPF
Selected State Exploratory Wells	●
Approximate limits of the Endicott Reservoir	--?----?--
Development Oil Wells	

BASE MAP : Transposed From U.T.M. Projection By U.S.G.S.

E UNIT MAP

SOURCES, DIVISION OF OIL AND GAS

ILED BY O.D. SMITH, CARTOGRAPHER



IATION

Net Profit Share Leases

Central Facilities Pad — CFP

Selected Federal Exploratory Wells — ▲

Approximate limits of the Lisburne Reservoir

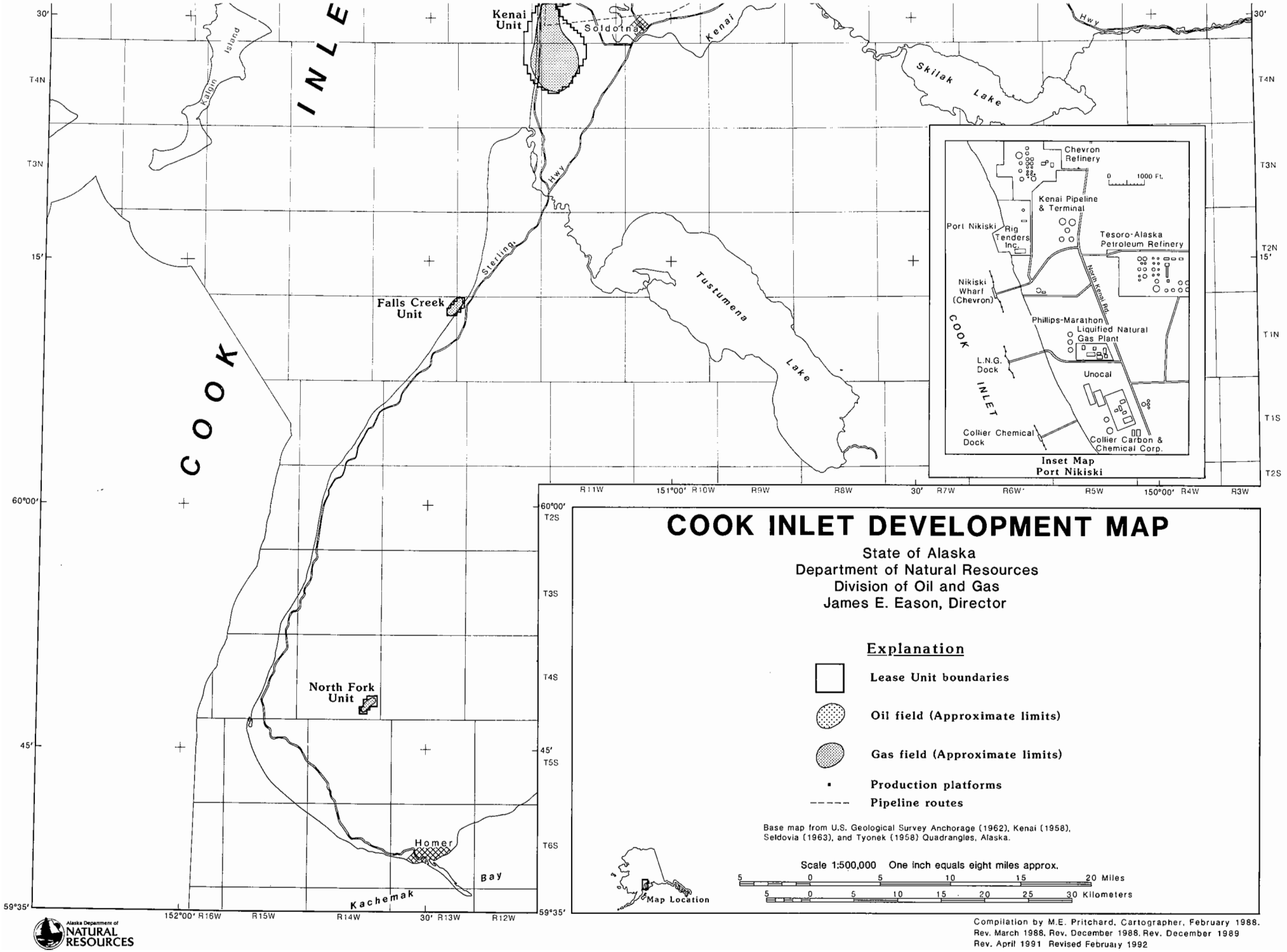
Oil and Gas Unit Boundaries

SCALE 1:500,000 One inch equals eight miles approx.

5 0 5 10 15 20 25 MILES

Original Scale 1:250,000, All Townships - Umiat Meridian.

FEBRUARY 1992



COOK INLET DEVELOPMENT MAP

State of Alaska
Department of Natural Resources
Division of Oil and Gas
James E. Eason, Director

Explanation

- Lease Unit boundaries
- Oil field (Approximate limits)
- Gas field (Approximate limits)
- Production platforms
- Pipeline routes

Base map from U.S. Geological Survey Anchorage (1962), Kenai (1958), Seldovia (1963), and Tyonek (1958) Quadrangles, Alaska.

Map Location

Scale 1:500,000 One inch equals eight miles approx.

5 0 5 10 15 20 Miles

5 0 5 10 15 20 25 30 Kilometers

Alaska Department of NATURAL RESOURCES

Compilation by M.E. Pritchard, Cartographer, February 1988.
Rev. March 1988, Rev. December 1988, Rev. December 1989
Rev. April 1991 Revised February 1992

7 PROJECTED CONSUMPTION OF OIL AND NATURAL GAS

Table 7A lists the projected consumption of oil by major end users from 1994 to 2010.

Table 7B lists the projected consumption of gas by major end users from 1994 to 2010.

The Institute of Social and Economic Research (ISER) prepared a forecast of statewide energy demand for the January 1987 edition of the "Historical and Projected Oil and Gas Consumption" report. This forecast was developed using the Energy Demand Model (ENDMOD), a computer spreadsheet that portrayed future oil and gas demand in Alaska for various end-uses. Future oil and gas demand was determined as a function of population and the availability of alternative energy sources. Last year, staff thoroughly recalibrated the model using a new ISER forecast of state and local population, new data on electrical generation and vehicle fuel use, and new assumptions about petroleum industry trends. This year we have retained the 1993 revision and updated the projected consumption total. A major conclusion to draw from the projection is that by 1997 the state will consume more fuel than can be refined from its royalty oil share alone, assuming that 60-70% of a barrel of crude can be refined to fuels.

Future consumption of oil and gas will not increase as fast as population because increased consumption for utility generation will be offset by reduced consumption by the oil and gas industry.

TABLE 7A – PROJECTED DEMAND FOR OIL

MILLIONS OF GALLONS PER YEAR

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
STATE										
Vehicle Transportation	1,485	1,511	1,539	1,571	1,601	1,632	1,659	1,682	1,704	1,730
Jet Fuel	733	752	773	795	818	841	862	884	904	927
Civilian Domestic	411	427	445	464	483	503	521	539	556	575
Military and International	322	325	328	331	335	338	341	345	348	352
Gasoline	256	258	259	262	263	264	265	264	264	264
Aviation	17	17	17	18	18	18	18	18	18	18
Highway	230	232	233	235	236	237	238	237	237	237
Marine	8	9	9	9	9	9	9	9	9	9
Diesel	496	501	507	514	520	527	532	534	536	539
Highway	285	286	288	290	291	293	294	293	292	292
Marine	211	215	219	224	229	234	238	241	244	247
Space Heat	131	133	134	135	135	138	140	140	141	142
Utility Generation	43	45	44	43	43	45	47	48	48	49
Industry	80	76	72	67	63	59	56	53	49	46
Pipeline Fuel	61	57	53	49	45	42	39	36	33	30
Electricity Generation	19	19	19	18	18	17	17	17	16	16
TOTAL	1,739	1,765	1,789	1,816	1,842	1,874	1,902	1,923	1,942	1,967

	2004	2005	2006	2007	2008	2009	2010	TOTAL	ANNUAL GROWTH
STATE									
Vehicle Transportation	1,756	1,785	1,815	1,851	1,891	1,931	1,973	29,116	0%
Jet Fuel	950	975	1,000	1,029	1,060	1,091	1,125	15,519	3%
Civilian Domestic	595	616	638	663	690	718	748	9,592	4%
Military and International	355	359	362	366	370	373	377	5,927	1%
Gasoline	263	263	264	265	267	269	270	4,480	1%
Aviation	18	18	18	19	19	19	19	307	1%
Highway	236	236	237	237	239	240	241	4,018	0%
Marine	9	9	9	9	9	10	10	154	1%
Diesel	543	547	551	557	564	571	578	9,117	1%
Highway	292	292	292	293	295	296	298	4,962	0%
Marine	251	255	259	264	269	275	280	4,155	2%
Space Heat	142	142	143	144	145	146	147	2,378	1%
Utility Generation	48	48	48	48	48	49	48	792	2%
Industry	44	41	39	37	36	33	32	883	–6%
Pipeline Fuel	28	26	24	22	21	19	18	603	–7%
Electricity Generation	16	15	15	15	15	14	14	280	–2%
TOTAL	1,990	2,016	2,045	2,080	2,120	2,159	2,200	33,169	1%

TABLE 7B – PROJECTED DEMAND FOR GAS

BILLION CUBIC FEET PER YEAR

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
STATE										
Vehicle Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Space Heat	27.3	27.3	27.6	27.7	27.7	27.0	27.5	27.5	27.6	27.6
Utility Generation	37.9	38.5	39.2	39.9	40.6	41.2	41.7	41.9	42.1	42.4
Industry	267.5	262.3	257.3	252.5	247.8	243.2	238.8	234.5	230.3	226.3
Ammonia–Urea Production	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5
Military Power Generation	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Petroleum Production	208.0	202.8	197.8	193.0	188.3	183.7	179.3	175.0	170.8	166.8
Pipeline Fuel	10.6	9.8	9.1	8.4	7.8	7.2	6.6	6.2	5.7	5.3
Miscellaneous	197.4	193.0	188.7	184.6	180.5	176.5	172.6	168.8	165.2	161.6
TOTAL	332.7	328.1	324.1	320.1	316.1	311.4	308.0	303.9	300.0	296.3

	2004	2005	2006	2007	2008	2009	2010	TOTAL	ANNUAL GROWTH
STATE									
Vehicle Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Space Heat	27.7	27.9	28.0	28.1	28.1	28.3	28.4	471	0%
Utility Generation	42.8	43.2	43.7	44.3	44.9	45.7	46.5	717	1%
Industry	222.4	218.6	214.9	211.3	207.9	204.5	201.2	3,941	–1%
Ammonia–Urea Production	54.5	54.5	54.5	54.5	54.5	54.5	54.5	927	0%
Military Power Generation	5.0	5.0	5.0	5.0	5.0	5.0	5.0	85	0%
Petroleum Production	162.9	159.1	155.4	151.8	148.4	145.0	141.7	2,930	–2%
Pipeline Fuel	4.9	4.5	4.2	3.9	3.6	3.3	3.0	104	–7%
Miscellaneous	158.0	154.6	151.3	148.0	144.8	141.7	138.6	2,826	–1%
TOTAL	292.9	289.7	286.6	283.7	280.9	278.5	276.1	5,129	–1%

01/31/94

8 ROYALTIES FROM OIL AND GAS

Table 8 lists the estimated 1993 state income from oil and gas royalties.

The state receives a minimum 12.5 % royalty on oil and gas produced from state land. 16% royalty and one Pt. McIntyre lease pays 16.6% royalty, but these leases produce such a small part of the overall North Slope production that they do not significantly affect the prevailing 12.5% figure.

In 1993 the state received a total of $872 million in royalties from its oil and gas resources.

TABLE 8 – ROYALTIES FROM OIL AND GAS, 1993

	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
OIL													
VOLUME: MILLIONS OF BARRELS													
ROYALTY DOLLARS, SETTLEMENTS AND REVISIONS: MILLIONS OF DOLLARS													
PRICE: DOLLARS PER BARREL													
NORTH SLOPE													
Volume [1]	6.656	5.928	6.604	6.192	6.310	5.919	5.698	6.151	5.695	6.477	6.498	6.541	74.669
Royalty Dollars [1]	$66.394	$63.995	$75.441	$75.516	$77.395	$67.260	$56.907	$60.345	$55.644	$64.475	$55.927	$42.237	$761.537
Price	$9.98	$10.79	$11.42	$12.20	$12.26	$11.36	$9.99	$9.81	$9.77	$9.95	$8.61	$6.46	
Settlements [2]	$0.305	$0.218	$0.239	$0.236	$0.245	$1.139	$3.531	$2.989	$0.216	$0.205	$40.620	$0.270	$50.212
Revisions [3]	($1.906)	($1.912)	$1.834	$0.214	$1.552	($0.270)	($1.960)	$0.653	$1.318	($0.545)	$1.578	($2.618)	($2.061)
COOK INLET													
Royalty Volume	0.136	0.118	0.136	0.130	0.135	0.128	0.123	0.109	0.119	0.125	0.122	0.134	1.515
Royalty Dollars [1]	$1.807	$1.618	$2.071	$2.080	$2.235	$1.970	$1.519	$1.304	$1.417	$1.620	$1.390	$1.121	$20.153
Price	$13.25	$13.69	$15.28	$16.05	$16.61	$15.36	$12.35	$11.94	$11.91	$12.98	$11.43	$8.33	
Revisions [3]	($0.004)	$0.000	$0.245	($0.005)	($0.075)	$0.001	($0.110)	$0.038	($0.001)	($0.110)	($0.004)	$0.016	$0.041
GAS													
VOLUME: BILLIONS OF CUBIC FEET													
ROYALTY DOLLARS AND REVISIONS: MILLIONS OF DOLLARS													
PRICE: DOLLARS PER THOUSAND CUBIC FEET													
NORTH SLOPE													
Volume	0.163	0.150	0.166	0.147	0.149	0.138	0.132	0.145	0.133	0.161	0.163	0.170	1.814
Royalty Dollars [1]	$0.123	$0.114	$0.127	$0.112	$0.111	$0.102	$0.097	$0.105	$0.097	$0.115	$0.118	$0.119	$1.342
Price	$0.76	$0.76	$0.77	$0.77	$0.75	$0.74	$0.73	$0.73	$0.73	$0.72	$0.73	$0.70	
Revisions [3]	$0.003	$0.008	$0.098	$0.000	($0.001)	$0.000	$0.001	$0.000	$0.000	$0.000	($0.001)	$0.169	$0.277
COOK INLET													
Volume	1.674	1.358	1.578	1.497	1.378	0.956	1.352	1.117	1.422	1.646	1.733	1.728	17.439
Royalty Dollars [1]	$2.543	$2.025	$2.421	$2.204	$1.988	$1.346	$1.838	$1.552	$1.998	$2.324	$2.410	$2.402	$25.052
Price	$1.52	$1.49	$1.53	$1.47	$1.44	$1.41	$1.36	$1.39	$1.41	$1.41	$1.39	$1.39	
Revisions [3]	$0.058	$0.011	$0.281	($0.049)	($0.138)	($0.105)	$0.248	($0.011)	$0.018	($0.125)	($0.056)	($0.065)	$0.068
FEDERAL [4]													
MILLIONS OF DOLLARS													
	$0.664	$0.651	$9.972	$0.658	$0.548	$0.501	$0.436	$0.365	$0.499	$0.489	$0.524	$0.392	$15.699
TOTAL ROYALTY PAYMENTS													
MILLIONS OF DOLLARS													
	$69.988	$66.730	$92.729	$80.966	$83.861	$71.944	$62.507	$67.340	$61.207	$68.449	********	$44.009	$872.237

[1] Includes RIV and RIK; prices and volumes are as reported by the lessees; includes field cost deductions reported by the lessees.
[2] Includes Tarrif Rate settlements, ANS settlement adjustments and RIK monthly settlement payments.
[3] Includes volume and price changes made to the royalty report.
[4] Includes the State's share of oil and gas royalties and rentals from Federal leases.
02/22/94

9 U.S. AND ALASKAN OIL PRODUCTION AND IMPORTS AND OIL AND GAS PRICES

Table 9 lists:

-oil production of Alaska and U.S. and oil imports from 1947 to 1992

-wellhead prices for U.S. and Alaskan oil from 1947 to 1991

-wellhead prices for U.S and Alaskan gas from 1947 to 1991.

Figure 9-1 graphs the production and import data from Table 9.

Figure 9-2 graphs wellhead oil price data from Table 9.

Figure 9-3 graphs wellhead gas price data from Table 9.

TABLE 9 – U.S. AND ALASKAN OIL PRODUCTION AND IMPORTS AND OIL AND GAS PRICES

PRODUCTION AND IMPORTS: MILLIONS OF BARRELS PER YEAR
OIL PRICES: DOLLARS PER BARREL
GAS PRICES: CENTS PER THOUSAND CUBIC FEET

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
OIL PRODUCTION AND IMPORTS																
U.S.	1,857	2,020	1,841	1,973	2,247	2,289	2,357	2,315	2,484	2,617	2,616	2,449	2,574	2,574	2,621	2,676
Alaska													0	1	6	40
Imports	97	129	153	177	179	209	236	239	285	341	373	348	352	371	381	411
OIL PRICES																
U.S.	1.93	2.6	2.54	2.51	2.53	2.53	2.68	2.78	2.77	2.79	3.03	3.01	2.9	2.88	2.89	2.9
Alaska													1.58	2.2	2.79	3.04
GAS PRICES																
U.S.	6	6.5	6.3	6.5	7.3	7.8	9.2	10.1	10.4	10.8	11.3	11.9	12.9	14	15.1	15.5
Alaska												12	12	12.2	20.4	21.4

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
OIL PRODUCTION AND IMPORTS																
U.S.	2,752	2,786	2,848	3,027	3,215	3,329	3,371	3,517	3,453	3,455	3,360	3,202	3,056	2,976	3,009	3,178
Alaska	11	11	11	14	29	66	74	84	79	73	72	71	70	63	169	449
Imports	412	438	452	447	411	472	514	583	613	811	1,183	1,269	1,498	1,935	2,406	2,261
OIL PRICES																
U.S.	2.89	2.88	2.86	2.88	2.92	2.94	3.09	3.18	3.39	3.39	3.89	6.74	7.56	8.15	8.57	9
Alaska	3.04	3.04	3.06	3.06	3.13	2.82	2.9	3.01	3.24	3.23	3.62	4.92	5.22	5.03	6.14	5.23
GAS PRICES																
U.S.	15.8	15.4	15.6	15.7	16	16.4	16.7	17.1	18.2	18.6	21.6	30.4	44.5	58	79	90.5
Alaska	24.7	27.6	24.8	24.8	25	25.3	25.9	24.6	14.7	14.7	14.9	17	30.2	38.9	40.2	52.1

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
OIL PRODUCTION AND IMPORTS														
U.S.	3,121	3,146	3,128	3,156	3,171	3,249	3,274	3,168	3,047	2,979	2,778	2,684	2,707	2,624
Alaska	511	592	587	619	626	630	666	681	716	738	684	647	656	627
Imports	2,355	1,910	1,511	1,213	1,129	1,181	1,125	1,507	1,679	1,850	2,112	2,141	2,110	2,222
OIL PRICES														
U.S.	12.6	21.6	31.8	28.5	26.2	25.9	24.1	12.5	15.4	12.6	15.7	20	16.5	
Alaska	10.3	16.5	23.6	20.1	17.9	18.1	17.1	6.71	10.8	8.43	11.9	15.6	10.2	
GAS PRICES														
U.S.	118	159	198	246	259	266	251	194	167	169	169	171	164	
AK	51.8	73.2	62	63	73	73	74	50	94	127	136	138	148	

Source: American Petroleum Institute, "Basic Petroleum Data Book," v.13, n.3, September 1993.
02/04/94

FIGURE 9–1 – U.S. AND ALASKAN OIL PRODUCTION AND IMPORTS

BILLIONS OF BARRELS PER YEAR

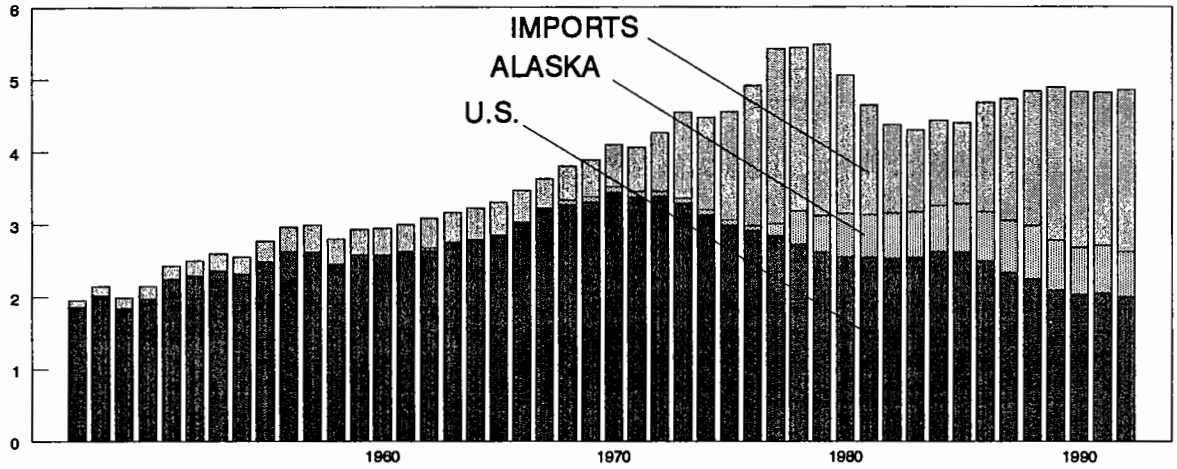


FIGURE 9–2 – U.S. AND ALASKAN OIL PRICES

DOLLARS PER BARREL

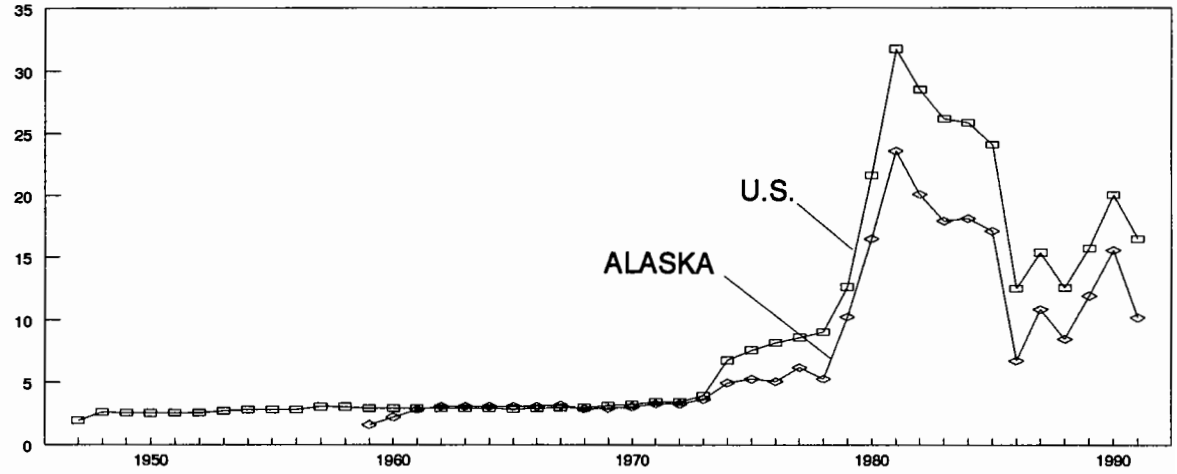
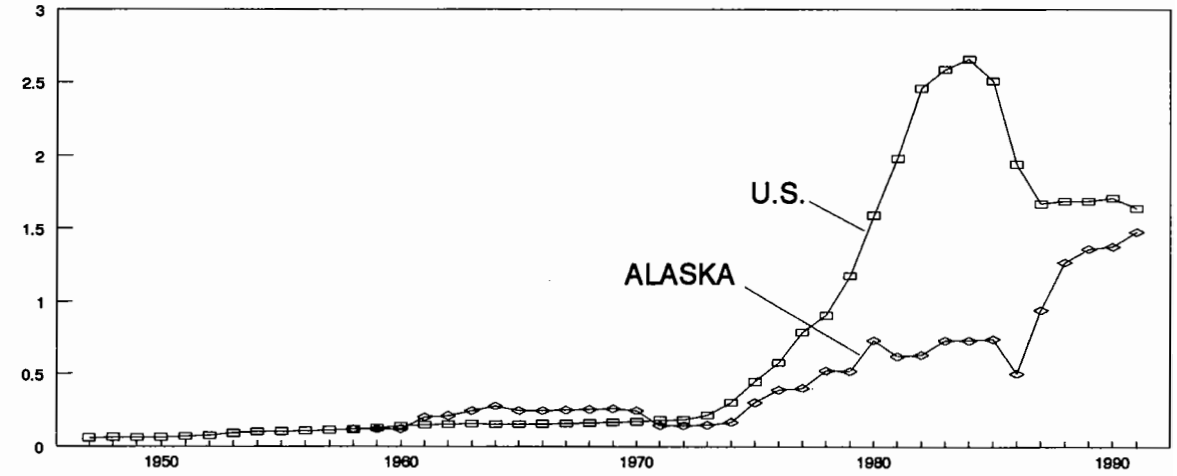


FIGURE 9–3 – U.S. AND ALASKAN GAS PRICES

DOLLARS PER THOUSAND CUBIC FEET



APPENDIX A
OIL AND GAS FIELD DATA

ALBERT KALOA (Gas)
Location Cook Inlet, west side, onshore
Operator CIRI
Production suspended
State of Alaska has no leases in this field

BADAMI
Location North Slope, onshore
Operator BP
Production exploration underway

BEAVER CREEK (Oil and Gas)
Location Cook Inlet, east side, onshore
Operator Marathon
Production began 1973
State of Alaska has no leases in this field

BELUGA RIVER (Gas)
Location Cook Inlet, west side, onshore
Operator Arco
Production began 1968

BIRCH HILL (Gas)
Location Cook Inlet, east side, onshore
Operator Arco
Production shut–in 1965
State of Alaska has no leases in this field

CANNERY LOOP (Gas)
Location Cook Inlet, east side, onshore
Operator Unocal
Production began 1988

CASCADE
Location North Slope, onshore
Operator BP
Production exploration underway

EAST BARROW (Gas)
Location North Slope, onshore, near Barrow
Operator North Slope Borough
Production began 1981
State of Alaska has no leases in this field.

EAST UMIAT (Gas)
Location North Slope, onshore
Operator UMC Petroleum
Production shut–in, no production

ENDICOTT (Oil and Gas)
Location North Slope, offshore
Operator BP
Production began 1987

FALLS CREEK (Gas)
Location Cook Inlet, east side, onshore
Operator Arco
Production shut–in 1961

GRANITE POINT (Oil and Gas)
Location Cook Inlet, west side, offshore
Operator Unocal
Production began 1967
Platforms Anna, Bruce, Granite Point

GWYDYR BAY (Oil)
Location North Slope, onshore and offshore
Operator none
Production unit terminated

HEMI SPRINGS (Oil)
Location North Slope, onshore
Operator none
Production unit terminated

IVAN RIVER (GAS)
Location Cook Inlet, west side, onshore
Operator Unocal
Production began 1990

KATALLA (Oil)
Location Gulf of Alaska
Production abandoned 1933

KAVIK (Gas)
Location North Slope, onshore
Operator Arco
Production shut–in

KEMIK (Gas)
Location North Slope, onshore
Operator BP
Production shut–in 1972

KENAI (Gas)
Location Cook Inlet, east side, onshore
Operator Unocal
Production began 1961

KUPARUK (Oil and Gas)
Location North Slope, onshore
Operator Arco
Production began 1981

KUUKPIK (Oil and Gas)
Location North Slope, onshore and offshore
Operator Arco
Production exploration underway

LEWIS RIVER (Gas)
Location Cook Inlet, west side, onshore
Operator Unocal
Production began 1984

LISBURNE (Oil and Gas)
Location North Slope, onshore
Operator Arco
Production began 1986

McARTHUR RIVER (Oil and Gas)
Location Cook Inlet, west side, offshore
Operator Unocal
Production began 1967
Platforms Grayling, King Salmon, Dolly Varden, Steelhead

MIDDLE GROUND SHOAL (Oil and Gas)
Location Cook Inlet, east side, offshore
Operator A and C platforms: Shell
Baker and Dillon platforms: Unocal
Production began 1967
Platforms A, Baker, C, Dillon,

MILNE POINT (Oil and Gas)
Location North Slope, onshore
Operator BP
Production began 1985, suspended 1/88 – 2/89

MOQUAWKIE (Gas)
Location Cook Inlet, west side, onshore
Operator CIRI
Production shut–in 1979

NIAKUK (Oil)
Location North Slope, offshore, Prudhoe Bay Unit
Operator BP
Production startup in 1994

NICOLAI CREEK (Gas)
Location Cook Inlet, west side, onshore and offshore
Operator Unocal
Production began 1968, now shut–in

NORTH COOK INLET (Gas)
Location Cook Inlet, mid channel, offshore
Operator Phillips
Production began 1970
Platform Phillips A

NORTH FORK (Gas)
Location Cook Inlet, east side, onshore
Operator Unocal
Production shut–in 1965

NORTH MIDDLE GROUND SHOAL (Gas)
Location Cook Inlet, offshore
Operator Shell and Unocal, one well each
Production abandoned

NORTH PRUDHOE BAY (Oil and Gas)
Location North Slope, onshore, Prudhoe Bay Unit
Operator Arco
Production began 1993

NORTH STAR (OIL and GAS)
Location North Slope, offshore
Operator Amerada–Hess
Production shut–in

POINT McINTYRE (Oil)
Location North Slope, offshore, Prudhoe Bay Unit
Operator Arco
Production began 1993

POINT THOMSON and FLAXMAN ISLAND (Oil and Gas)
Location North Slope, onshore and offshore
Operator Exxon
Production shut–in

PRETTY CREEK (Gas)
Location Cook Inlet, west side, onshore
Operator Unocal
Production began 1986

PRUDHOE BAY (Oil and Gas)
Location North Slope, onshore
Operator Western Operating Area: BP
Eastern Operating Area: Arco
Production began 1977

REDOUBT SHOAL (Oil)
Location Cook Inlet, west side, offshore
Operator Danco
Production abandoned

SAG DELTA (Oil)
Location North Slope, offshore, Duck Island Unit
Operator BP
Production began 1989

SCHRADER BLUFF (Oil)
Location North Slope, onshore, Milne Point Unit
Operator BP
Production began 1991

SOUTH BARROW (Gas)
Location North Slope, onshore, near Barrow
Operator North Slope Borough
Production began 1950
State of Alaska has no leases in this field.

STERLING (Gas)
Location Cook Inlet, east side, onshore
Operator Unocal
Production began 1962, shut–in 1986

STUMP LAKE (Gas)
Location Cook Inlet, west side, onshore
Operator Unocal
Production began 1990

SUNFISH
Location Cook Inlet, offshore
Operator Arco/Phillips
Production exploration underway

SWANSON RIVER (Oil and Gas)
Location Cook Inlet, east side, onshore
Operator Unocal
Production began 1958
State of Alaska has no leases in this field

THETIS ISLAND (Oil and Gas)
Location North Slope, offshore
Operator Exxon
Production exploration underway

TRADING BAY (Oil and Gas)
Location Cook Inlet, west side, offshore
Operator Marathon: Spur and Spark, Unocal: Monopod
Production began 1967
Platforms Monopod; Spark and Spur shut–in

UMIAT (Oil)
Location North Slope, onshore
Operator US Dpt. of Interior
Production shut–in

WALAKPA (Gas)
Location North Slope, onshore, near Barrow
Operator North Slope Borough
Production began 1992

WEST BEACH (Oil and Gas)
Location North Slope, onshore, Prudhoe Bay Unit
Operator Arco
Production began 1993

WEST FORELANDS (Gas)
Location Cook Inlet, west side, onshore and offshore
Operator Phillips
Production shut–in 1962

WEST FORK (Gas)
Location Cook Inlet, east side, onshore
Operator CIRI
Production began 1992

WEST McARTHUR RIVER (Oil and Gas)
Location Cook Inlet, west side, onshore
Operator Stewart Petroleum
Production began 1993

WEST SAK (Oil)
Location North Slope, onshore
Operator Arco
Production Pilot study, 1984 – 1986

APPENDIX B
LEASE DATA

NOTE: This table lists only those state leases that have ever produced oil or gas as of December 8, 1993.

Lease/Tract		Participating Area % Oil	Participating Area % Gas	Royalty %	NPSL %	Owner	Ownership %
BELUGA							
17592		0.0000000	8.0024000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
17599		0.0000000	5.0210000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
17658		0.0000000	12.7251000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
21126		0.0000000	0.7855000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
21127		0.0000000	9.4019000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
21128		0.0000000	14.5560000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
21129		0.0000000	0.5803000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
58815	28	0.0000000	0.0162000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
58820	29	0.0000000	1.5889000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
58831	30	0.0000000	7.7629000	12.5		ARCO	33.3333333
						CHEVRON	33.3333333
						SHELL	33.3333334
CANNERY LOOP							
BELUGA							
002397	5A	0.0000000	5.1844565	12.5		CIRI	6.2500000
						MARATHON	50.0000000
						UNION	43.7500000
324602	4A	0.0000000	16.3008805	12.5		CIRI	9.3750000
						MARATHON	25.0000000
						UNION	65.6250000
324604	5B	0.0000000	0.1470714	12.5		CIRI	70.0000000
						UNION	30.0000000
359153	7	0.0000000	6.3585128	12.5		CIRI	33.3330000
						MARATHON	33.3330000
						UNION	33.3340000
364395	7C	0.0000000	1.8936392	12.5		CIRI	33.3330000
						MARATHON	33.3330000
						UNION	33.3340000
365454	12	0.0000000	0.4381660	16.7		CIRI	33.3330000
						MARATHON	33.3330000
						UNION	33.3340000
373302	14	0.0000000	3.9605254	12.5		CIRI	100.0000000
373302	19	0.0000000	0.1905070	12.5		CIRI	100.0000000
373302	20	0.0000000	0.4271166	12.5		CIRI	100.0000000
TYONEK DEEP							
002397	5A	0.0000000	5.4125000	12.5		CIRI	6.2500000
						MARATHON	50.0000000
						UNION	43.7500000
324602	4A	0.0000000	29.2068900	12.5		CIRI	9.3750000
						MARATHON	25.0000000

						UNION	65.6250000
359153	7	0.0000000	13.5137500	12.5		CIRI	33.3330000
						MARATHON	33.3330000
						UNION	33.3340000
UPPER TYONEK							
002397	5A	0.0000000	7.3449200	12.5		CIRI	6.2500000
						MARATHON	50.0000000
						UNION	43.7500000
324602	4A	0.0000000	29.8726200	12.5		CIRI	9.3750000
						MARATHON	25.0000000
						UNION	65.6250000
359153	7	0.0000000	13.5705700	12.5		CIRI	33.3330000
						MARATHON	33.3330000
						UNION	33.3340000
365454	12	0.0000000	1.3091500	16.7		CIRI	33.3330000
						MARATHON	33.3330000
						UNION	33.3340000
DUCK ISLAND UNIT							
ENDICOTT							
34633	13	26.7609000	26.7609000	12.5		BP	100.0000000
34634	12	0.0675000	0.0675000	12.5		BP	100.0000000
34636	14	5.2911000	5.2911000	12.5		BP	100.0000000
47502	1	22.3357000	22.3357000	12.5		AMOCO	25.0000000
						EXXON	50.0000000
						UNION	25.0000000
47503	2	19.6233000	19.6233000	12.5		AMOCO	25.0000000
						EXXON	50.0000000
						UNION	25.0000000
47504	3	0.0036000	0.0036000	12.5		EXXON	100.0000000
47505	4	0.0140000	0.0140000	12.5		EXXON	100.0000000
47506	5	0.0084000	0.0084000	12.5		AMOCO	50.0000000
						UNION	50.0000000
312828	15	25.8252000	25.8252000	20.0	79.5935000	BP	95.5000000
						CIRI	2.5000000
						DOYON	0.5000000
						NANA	1.5000000
312834	16	0.0703000	0.0703000	20.0	48.8703100	ARCO	33.3400000
						EXXON	33.3300000
						UNION	33.3300000
SAG DELTA							
34633	13	6.3656000	6.6356000	12.5		BP	100.0000000
312828	15	93.3644000	93.3644000	20.0		BP	95.5000000
						CIRI	2.5000000
						DOYON	0.5000000
GRANITE POINT							
GRANITE POINT 1							
18761		100.0000000	100.0000000	12.5		MOBIL	75.0000000
GRANITE POINT 2						UNION	25.0000000
DL 1/1/64 17586		100.0000000	100.0000000	12.5		UNION	100.0000000
17587		100.0000000	100.0000000	12.5		UNION	100.0000000
18742		100.0000000	100.0000000	12.5		UNION	100.0000000
IVAN RIVER							
17600	1	0.0000000	6.5064900	12.5		UNION	100.0000000
17600	1A	0.0000000	5.8516900	12.5		UNION	100.0000000
302282	6	0.0000000	3.4922500	12.5		UNION	100.0000000
302284	5	0.0000000	18.7468100	12.5		UNION	100.0000000
326058	7	0.0000000	10.4767400	62.2		UNION	100.0000000
32930	2	0.0000000	25.8426100	12.5		UNION	100.0000000
32930	2A	0.0000000	7.9348200	12.5		UNION	100.0000000
32930	2B	0.0000000	13.1103200	12.5		UNION	100.0000000
33637	3	0.0000000	8.4686900	12.5		UNION	100.0000000
33727	4	0.0000000	5.4212700	12.5		UNION	100.0000000
KENAI							
STERLING							
588	175	0.0000000	6.7607000	12.5		MARATHON	50.0000000
						UNION	50.0000000
593	176	0.0000000	7.4430000	12.5		MARATHON	50.0000000
						UNION	50.0000000

594	177	0.0000000	0.6717000	12.5	MARATHON	50.0000000
					UNION	50.0000000
2411	178	0.0000000	0.7608000	12.5	MARATHON	50.0000000
					UNION	50.0000000
308223	166	0.0000000	0.0083000	12.5	MARATHON	50.0000000
					UNION	50.0000000
324598	014	0.0000000	0.9065000	12.5	MARATHON	50.0000000
					UNION	50.0000000
KUPARUK RIVER						
25512	2	1.4735860	1.4735860	12.5	ARCO	50.0000000
					BP	50.0000000
25513	3	1.5236360	1.5264080	12.5	ARCO	50.0000000
					BP	50.0000000
25519	4	1.9116500	1.1938260	12.5	ARCO	50.0000000
					BP	50.0000000
25520	5	1.4607080	1.4633820	12.5	ARCO	50.0000000
					BP	50.0000000
25521	6	1.3352840	1.3377160	12.5	ARCO	50.0000000
					BP	50.0000000
25522	1	0.4698620	0.4707200	12.5	ARCO	50.0000000
					BP	50.0000000
25523	7	1.2821780	1.2845220	12.5	ARCO	50.0000000
					BP	50.0000000
25524	8	0.6061440	0.6073260	12.5	ARCO	50.0000000
					BP	50.0000000
25531	11	1.3929870	1.4118300	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25532	10	0.3695580	0.3745770	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25546	25	0.0096480	0.0097770	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25547	24	1.1384040	1.1537730	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25548	29	0.6795600	0.6886410	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25549	28	0.0217470	0.0220380	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25568	45	0.5314530	0.5386140	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25569	44	1.3048920	1.3224420	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25570	50	2.3393670	2.3709780	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25571	49	1.0792860	1.1120730	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25585	69	0.1280070	0.1297290	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25586	68	1.2058890	1.2221160	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25587	67	1.4199780	1.4390430	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25588	76	1.0910610	1.1056650	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25589	75	0.9073680	0.9195330	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25590	74	0.3004800	0.3045000	12.5	ARCO	33.3300000

					BP	33.3400000
					UNION	33.3300000
25603	90	0.0594180	0.0602130	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25604	89	0.3232440	0.3275640	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25605	88	0.3342240	0.3386940	12.5	ARCO	33.3300000
					BP	33.3400000
					UNION	33.3300000
25607	96	0.2166180	0.2166180	12.5	ARCO	50.0000000
					BP	33.3333330
					UNION	16.6666670
25608	95	0.1778400	0.1778400	12.5	ARCO	50.0000000
					BP	33.3333330
					UNION	16.6666670
25627	16	0.1184060	0.1186420	12.5	ARCO	50.0000000
					BP	50.0000000
25628	15	0.8091100	0.8106060	12.5	ARCO	50.0000000
					BP	50.0000000
25629	14	1.4903880	1.4931320	12.5	ARCO	50.0000000
					BP	50.0000000
25630	13	1.6485780	1.6516080	12.5	ARCO	50.0000000
					BP	50.0000000
25631	12	1.2009180	1.2031160	12.5	ARCO	50.0000000
					BP	50.0000000
25632	23	2.7594980	2.7649440	12.5	ARCO	50.0000000
					BP	50.0000000
25633	22	1.9153360	1.9189380	12.5	ARCO	50.0000000
					BP	50.0000000
25634	21	1.7157940	1.7190340	12.5	ARCO	50.0000000
					BP	50.0000000
25635	20	1.6856780	1.6889100	12.5	ARCO	50.0000000
					BP	50.0000000
25636	19	0.3644340	0.3651640	12.5	ARCO	50.0000000
					BP	50.0000000
25637	18	0.0000080	0.0000080	12.5	ARCO	50.0000000
					BP	50.0000000
25638	35	0.2902760	0.2915260	12.5	ARCO	100.0000000
25639	34	1.1359980	1.1407940	12.5	ARCO	100.0000000
25640	33	2.9568520	2.9628780	12.5	ARCO	50.0000000
					BP	50.0000000
25641	32	3.1257620	3.1319620	12.5	ARCO	50.0000000
					BP	50.0000000
25642	31	3.5743240	3.5814540	12.5	ARCO	50.0000000
					BP	50.0000000
25643	30	3.0342260	3.0403020	12.5	ARCO	50.0000000
					BP	50.0000000
25644	43	2.8728060	2.8784420	12.5	ARCO	50.0000000
					BP	50.0000000
25645	42	4.3588520	4.3676360	12.5	ARCO	50.0000000
					BP	50.0000000
25646	41	3.8375640	3.8452920	12.5	ARCO	50.0000000
					BP	50.0000000
25647	40	2.4399560	2.4501690	12.5	ARCO	100.0000000
25648	39	1.5166970	1.5230730	12.5	ARCO	100.0000000
25649	38	1.1124560	1.1172230	12.5	ARCO	100.0000000
25650	56	1.3828370	1.3887620	12.5	ARCO	100.0000000
25651	55	2.3755260	2.3854910	12.5	ARCO	100.0000000
25652	54	2.8477940	2.8533180	12.5	ARCO	50.0000000
					BP	50.0000000
25653	53	2.8243460	2.8298240	12.5	ARCO	50.0000000
					BP	50.0000000
25654	52	2.2380640	2.2423640	12.5	ARCO	50.0000000
					BP	50.0000000
25655	51	2.9259080	2.9315920	12.5	ARCO	50.0000000
					BP	50.0000000
25656	66	1.7669080	1.7701820	12.5	ARCO	50.0000000
					BP	50.0000000

25657	65	1.9730720	1.9766800	12.5		ARCO	50.0000000
						BP	50.0000000
25658	64	1.7151400	1.7182860	12.5		ARCO	50.0000000
						BP	50.0000000
25659	63	2.0741840	2.0512600	12.5		ARCO	50.0000000
						BP	50.0000000
25660	62	1.6401410	1.6471110	12.5		ARCO	100.0000000
25661	61	0.9257080	0.9296650	12.5		ARCO	100.0000000
25662	82	0.0341340	0.0341360	12.5		ARCO	50.0000000
						EXXON	50.0000000
25663	81	0.6849940	0.6877920	12.5		ARCO	100.0000000
25664	80	1.1201700	1.1249040	12.5		ARCO	100.0000000
25665	79	0.8569900	0.8587160	12.5		ARCO	50.0000000
						BP	50.0000000
25666	78	0.6524580	0.6536860	12.5		ARCO	50.0000000
						BP	50.0000000
25667	77	1.1007180	1.1027280	12.5		ARCO	50.0000000
						BP	50.0000000
25668	87	0.1838680	0.1842180	12.5		ARCO	50.0000000
						BP	50.0000000
25670	85	0.1036620	0.1036620	12.5		ARCO	50.0000000
						EXXON	50.0000000
25671	84	0.1425000	0.1424920	12.5		ARCO	50.0000000
						EXXON	50.0000000
28242	37	0.1226720	0.1226760	12.5		ARCO	50.0000000
						BP	50.0000000
28243	57	0.5124000	0.5124000	12.5		ARCO	32.9672400
						BP	17.0327600
						MOBIL	50.0000000
28244	58	0.0316320	0.0316340	12.5		ARCO	50.0000000
						EXXON	50.0000000
28248	60	0.1377010	0.1382940	12.5		ARCO	100.0000000
355023	122	0.5238680	0.5259540	12.5	30.0000000	ARCO	100.0000000
355024	123	0.0720740	0.0723610	12.5	30.0000000	ARCO	100.0000000
355030	124	0.0007270	0.0007300	12.5	30.0000000	ARCO	100.0000000
355032	125	0.1747880	0.1755130	12.5	30.0000000	ARCO	100.0000000
355501	126	0.0235130	0.0236150	12.5		ARCO	100.0000000
373301	122	0.2854090	0.2859290	12.5		ARCO	59.2286800
						BP	40.7713200
47449	36	0.2172000	0.2172000	12.5		CHEVRON	50.0000000
						MOBIL	50.0000000

LEWIS RIVER							
PARTICIPATING AREA 1							
58798		0.0000000	16.6670000	12.5		L PARTNER	100.0000000
58801		0.0000000	61.1110000	12.5		L PARTNER	100.0000000
58802		0.0000000	22.2220000	12.5		L PARTNER	100.0000000
PARTICIPATING AREA 2							
58798		0.0000000	76.1905000	12.5		L PARTNER	100.0000000
58801		0.0000000	14.2857000	12.5		L PARTNER	100.0000000
58802		0.0000000	9.5238000	12.5		L PARTNER	100.0000000

LISBURNE							
28277	25	0.0170000	0.0000000	12.5		BP	100.0000000
28280	44	0.0380000	0.0000000	12.5		BP	100.0000000
28285	59	0.0300000	0.0000000	12.5		BP	100.0000000
28299	26	0.1870000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000
28300	27	1.7170000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000
28301	28	2.4440000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000
28302	41	5.4180000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000
28303	42	2.2490000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000
28304	43	0.5380000	0.0000000	12.5		ARCO	50.0000000
28305	60	0.1450000	0.0000000	12.5		BP	100.0000000
28306	61	0.9190000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000
28307	62	3.5270000	0.0000000	12.5		ARCO	50.0000000
						EXXON	50.0000000

28308	73	0.2460000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28309	74	0.0890000	0.0000000	12.5	BP	100.0000000
28320	38	6.7190000	0.0000000	12.5	BP	100.0000000
28321	63	8.5540000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28322	64	10.0680000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28323	65	11.0800000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28324	70	4.3250000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28325	71	3.7180000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28326	72	1.9750000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28327	93	0.0400000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28328	92	0.0260000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28329	91	0.0190000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28337	36	0.6590000	0.0000000	12.5	BP	100.0000000
28338	37	0.8960000	0.0000000	12.5	BP	100.0000000
28339	66	3.1550000	0.0000000	12.5	BP	100.0000000
28339	66A	1.0830000	0.0000000	12.5	BP	100.0000000
28340	67	0.0300000	0.0000000	12.5	BP	100.0000000
28340	67A	0.2000000	0.0000000	12.5	BP	100.0000000
28342	114	0.5690000	0.0000000	12.5	BP	100.0000000
28343	69	2.4130000	0.0000000	12.5	BP	100.0000000
28343	69A	1.1160000	0.0000000	12.5	BP	100.0000000
28344	95	0.0250000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28345	94	0.1170000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34628	29	3.3300000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34629	30	3.5260000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34630	31	1.3770000	0.0000000	12.5	BP	100.0000000
34631	39	8.6100000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34632	40	7.3420000	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34634	33	0.6490000	0.0000000	12.5	BP	100.0000000
34635	32	0.8150000	0.0000000	12.5	BP	100.0000000

MCARTHUR RIVER						
HEMLOCK						
	17579	12.9480000	12.9480000	12.5	ARCO	100.0000000
	17594	28.6480000	28.6480000	12.5	MARATHON	50.0000000
					UNION	50.0000000
	17602	3.7000000	3.7000000	12.5	ARCO	100.0000000
	18716	2.6730000	2.6730000	12.5	ARCO	100.0000000
DL-1 24 1/61	18729	17.8330000	17.8330000	12.5	MARATHON	50.0000000
					UNION	50.0000000
	18730	16.6480000	16.6480000	12.5	MARATHON	50.0000000
					UNION	50.0000000
	18758	2.7750000	2.7750000	12.5	ARCO	100.0000000
	18772	9.2490000	9.2490000	12.5	ARCO	100.0000000
	18777	4.6010000	4.6010000	12.5	ARCO	100.0000000
	21068	0.9250000	0.9250000	12.5	ARCO	100.0000000
MIDDLE KENAI						
	17594	26.6700000	26.6700000	12.5	MARATHON	51.0000000
					UNION	49.0000000
	18729	34.8100000	34.8100000	12.5	MARATHON	51.0000000
					UNION	49.0000000
	18730	32.5900000	32.5900000	12.5	MARATHON	51.0000000
					UNION	49.0000000
	18772	5.9300000	5.9300000	12.5	MARATHON	51.0000000
					UNION	49.0000000

STEELHEAD						
17594	3	0.0000000	38.5542200	12.5	MARATHON	50.0000000
					UNION	50.0000000
18729	10	0.0000000	27.7108400	12.5	MARATHON	50.0000000
					UNION	50.0000000
18730	11	0.0000000	33.7349400	12.5	MARATHON	50.0000000
					UNION	50.0000000
STEELHEAD JURASSIC						
18730	11	100.0000000	100.0000000	12.5	MARATHON	50.0000000
					UNION	50.0000000
WEST FORELAND						
17594		30.2500000	30.2500000	12.5	MARATHON	51.0000000
					UNION	49.0000000
18729		29.4100000	29.4100000	12.5	MARATHON	51.0000000
					UNION	49.0000000
18730		33.6200000	33.6200000	12.5	MARATHON	51.0000000
					UNION	49.0000000
18772		6.7200000	6.7200000	12.5	MARATHON	51.0000000
					UNION	49.0000000

MIDDLE GROUND SHOAL

MIDDLE GROUND SHOAL 1						
17595		100.0000000	100.0000000	12.5	UNION	100.0000000
MIDDLE GROUND SHOAL 2						
18754		100.0000000	100.0000000	12.5	SHELL	100.0000000
MIDDLE GROUND SHOAL 3						
18756		100.0000000	100.0000000	12.5	SHELL	100.0000000
SOUTH MIDDLE GROUND SHOAL 1						
18744		6.8965520	6.8965520	12.5	UNION	100.0000000
18746		93.1034480	93.1034480	12.5	UNION	100.0000000
SOUTH MIDDLE GROUND SHOAL 2						
18746		100.0000000	100.0000000	12.5	UNION	100.0000000
SOUTH MIDDLE GROUND SHOAL UNIT						
18744	1	6.8965520	6.8965520	12.5	UNION	100.0000000
18746		93.1034480	93.1034480	12.5	UNION	100.0000000

MILNE POINT

NOTE: BP is acquiring Conoco's and Chevron's shares.

KUPARUK PARTICIPATING AREA						
25509	10	19.1591700	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25515	12	0.0318600	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25516	4	2.1954400	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25518	9	1.0321500	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
28231	8	4.6163400	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
315848	4A	0.1559000	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47433	2	7.6237700	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47434	3	34.0961600	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47437	5	24.2953700	0.0000000	20.0	CHEVRON	26.8100000

					CONOCO	64.3800000
					OXY	8.8100000
47438	6	6.7938400	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
SCHRADER BLUFF						
25509	10	1.0053900	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25514	11	4.9181500	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25515	12	10.3360400	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25516	4	6.3159600	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25518	9	19.0431900	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
25906	14	25.6086200	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
28231	8	5.0879600	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
315848	4A	6.3159600	0.0000000	12.5	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47432	1	0.0099100		20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47433	2	1.3448800	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47434	3	3.2386800	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47437	5	13.3041900	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
47438	6	3.4210700	0.0000000	20.0	CHEVRON	26.8100000
					CONOCO	64.3800000
					OXY	8.8100000
NORTH TRADING BAY						
17597		50.0000000	50.0000000	12.5	MARATHON	50.0000000
					UNION	50.0000000
18776		28.5700000	28.5700000	12.5	MARATHON	100.0000000
35431		21.4300000	21.4300000	12.5	MARATHON	100.0000000
NORTH COOK INLET						
17589	2	0.0000000	44.7324000	12.5	PHILLIPS	100.0000000
17590	3	0.0000000	6.5430000	12.5	PHILLIPS	100.0000000
18740	7	0.0000000	8.1787000	12.5	PHILLIPS	100.0000000
18741	8	0.0000000	6.5429000	12.5	PHILLIPS	100.0000000
37831	11	0.0000000	34.0030000	12.5	PHILLIPS	100.0000000
NORTH FORELAND						
17589		100.0000000	100.0000000	12.5	ARCO	60.0000000
					PHILLIPS	40.0000000
NORTH PRUDHOE BAY STATE						
28297		100.0000000	100.0000000	5.0	ARCO	50.0000000

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					EXXON	50.0000000
POINT McINTYRE						
28297	8	21.9000000	21.9000000	5.0	ARCO	50.0000000
					EXXON	50.0000000
28298	115	0.1000000	0.1000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34622	116	7.6000000	7.6000000	12.5	EXXON	100.0000000
34624	7	31.2000000	31.2000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34627	6	7.0000000	7.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
365548	117	32.2000000	32.2000000	12.5	BP	100.0000000
PRETTY CREEK						
58810	2	0.0000000	23.8984800	12.5	UNION	100.0000000
58813	4	0.0000000	20.8695700	12.5	UNION	100.0000000
58814	5	0.0000000	10.4347800	12.5	UNION	100.0000000
63047	10	0.0000000	6.0869600	16.7	UNION	100.0000000
63048	11	0.0000000	27.8260800	16.7	UNION	100.0000000
63049	12	0.0000000	10.4347800	16.7	UNION	100.0000000
Other			0.4493500		UNION	100.0000000
PRUDHOE BAY						
OIL RIM						
25637	16	0.0046309	0.0046309	12.5	ARCO	50.0000000
					BP	50.0000000
28238	19	0.0163822	0.0163822	12.5	ARCO	50.0000000
					EXXON	50.0000000
28239	18	0.0614364	0.0614364	12.5	ARCO	50.0000000
					EXXON	50.0000000
28240	50	0.0913318	0.0913318	12.5	ARCO	50.0000000
					EXXON	50.0000000
28241	51	0.0486990	0.0486990	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28244	52	0.0000124	0.0000124	12.5	ARCO	50.0000000
					EXXON	50.0000000
28245	53	0.1486696	0.1486696	12.5	ARCO	50.0000000
					EXXON	50.0000000
28246	82	0.0007026	0.0007026	12.5	ARCO	50.0000000
					EXXON	50.0000000
28257	22	1.7767068	1.7767068	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28258	21	0.4599204	0.4599204	12.5	ARCO	50.0000000
					EXXON	50.0000000
28259	20	0.0076616	0.0076616	12.5	ARCO	50.0000000
					EXXON	50.0000000
28260	47	1.4815529	1.4815529	12.5	BP	100.0000000
28261	48	0.0888936	0.0888936	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28262	54	0.2968897	0.2968897	12.5	CHEVRON	100.0000000
28262	54A	0.0772452	0.0772452	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
28263	55	0.1338160	0.1338160	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28263	55A	0.2071833	0.2071833	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
28264	79	0.1174944	0.1174944	12.5	ARCO	50.0000000
					EXXON	50.0000000
28265	84	0.0364292	0.0364292	12.5	ARCO	50.0000000
					EXXON	50.0000000
28275	112	0.0133022	0.0133022	12.5	ARCO	50.0000000
					EXXON	50.0000000
28276	113	0.0000864	0.0000864	12.5	ARCO	50.0000000
					EXXON	50.0000000
28277	25	0.8421396	0.8421396	12.5	BP	100.0000000
28278	24	1.0400165	1.0400165	12.5	BP	100.0000000

28279	23	1.2989359	1.2989359	12.5	BP	100.0000000
28280	44	3.8981682	3.8981682	12.5	BP	100.0000000
28281	45	3.3705436	3.3705436	12.5	BP	100.0000000
28282	46	3.0429668	3.0429668	12.5	BP	100.0000000
28283	57	1.5634829	1.5634829	12.5	BP	100.0000000
28284	58	3.3026290	3.3026290	12.5	BP	100.0000000
28285	59	3.9964449	3.9964449	12.5	BP	100.0000000
28286	76	2.6691922	2.6691922	12.5	BP	100.0000000
28287	77	1.2578240	1.2578240	12.5	BP	100.0000000
28288	78	0.3601455	0.3601455	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28289	85	0.1312435	0.1312435	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28290	105	0.0024590	0.0024590	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28299	26	0.9307902	0.9307902	12.5	ARCO	50.0000000
					EXXON	50.0000000
28300	27	1.0365258	1.0365258	12.5	ARCO	50.0000000
					EXXON	50.0000000
28302	41	0.3106250	0.3106250	12.5	ARCO	50.0000000
					EXXON	50.0000000
28303	42	1.9447402	1.9447402	12.5	ARCO	50.0000000
					EXXON	50.0000000
28304	43	3.2449752	3.2449752	12.5	ARCO	50.0000000
					EXXON	50.0000000
28305	60	3.6765194	3.6765194	12.5	BP	100.0000000
28306	61	2.9343182	2.9343182	12.5	ARCO	50.0000000
					EXXON	50.0000000
28307	62	1.8596860	1.8596860	12.5	ARCO	50.0000000
					EXXON	50.0000000
28308	73	3.9394274	3.9394274	12.5	ARCO	50.0000000
					EXXON	50.0000000
28309	74	3.8650657	3.8650657	12.5	BP	100.0000000
28310	75	3.9334322	3.9334322	12.5	BP	100.0000000
28311	90	3.6619111	3.6619111	12.5	BP	100.0000000
28312	89	2.8963363	2.8963363	12.5	BP	100.0000000
28313	8B	1.5538656	1.5538656	12.5	ARCO	50.0000000
					EXXON	50.0000000
28314	102	0.4588814	0.4588814	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28315	101	1.2192336	1.2192336	12.5	BP	100.0000000
28316	07A	0.0565330	0.0565330	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
28316	107	0.0088125	0.0088125	12.5	CHEVRON	100.0000000
28320	38	0.3566616	0.3566616	12.5	BP	100.0000000
28321	63	1.1125780	1.1125780	12.5	ARCO	50.0000000
					EXXON	50.0000000
28322	64	1.0995790	1.0995790	12.5	ARCO	50.0000000
					EXXON	50.0000000
28323	65	0.7714806	0.7714806	12.5	ARCO	50.0000000
					EXXON	50.0000000
28324	70	2.0837850	2.0837850	12.5	ARCO	50.0000000
					EXXON	50.0000000
28325	71	2.7773702	2.7773702	12.5	ARCO	50.0000000
					EXXON	50.0000000
28326	72	3.1133992	3.1133992	12.5	ARCO	50.0000000
					EXXON	50.0000000
28327	93	2.7730980	2.7730980	12.5	ARCO	50.0000000
					EXXON	50.0000000
28328	92	4.0900128	4.0900128	12.5	ARCO	50.0000000
					EXXON	50.0000000
28329	91	4.1555298	4.1555298	12.5	ARCO	50.0000000
					EXXON	50.0000000
28330	100	1.4812197	1.4812197	12.5	BP	100.0000000
28331	99	1.5486835	1.5486835	12.5	BP	100.0000000
28332	98	1.6240684	1.6240684	12.5	ARCO	50.0000000
					EXXON	50.0000000
28333	110	0.0691187	0.0691187	12.5	BP	100.0000000
28334	O9A	0.1303563	0.1303563	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334

					PHILLIPS	33.3333333
28334	109	0.0179622	0.0179622	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28335	108	0.0667905	0.0667905	12.5	BP	100.0000000
28339	66	0.0001956	0.0001956	12.5	BP	100.0000000
28343	69	0.1342393	0.1342393	12.5	BP	100.0000000
28345	94	0.5812244	0.5812244	12.5	ARCO	50.0000000
					EXXON	50.0000000
28346	97	0.2982834	0.2982834	12.5	ARCO	50.0000000
					EXXON	50.0000000
28349	111	0.0092138	0.0092138	12.5	BP	100.0000000
34631	39	0.2490770	0.2490770	12.5	ARCO	50.0000000
					EXXON	50.0000000
34632	40	0.1146214	0.1146214	12.5	ARCO	50.0000000
					EXXON	50.0000000
47446	15	0.0099777	0.0099777	12.5	CHEVRON	50.0000000
					MOBIL	50.0000000
47447	14	0.0049708	0.0049708	12.5	CHEVRON	50.0000000
					MOBIL	50.0000000
47448	10	0.0010848	0.0010848	12.5	MOBIL	66.6666667
					PHILLIPS	33.3333333
47449	17	0.0064355	0.0064355	12.5	CHEVRON	50.0000000
					MOBIL	50.0000000
47450	49	0.0468606	0.0468606	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47451	56	0.1902328	0.1902328	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47452	80	0.2232645	0.2232645	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47453	81	0.1144260	0.1144260	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47454	83	0.0200389	0.0200389	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47469	9	0.0307565	0.0307565	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
47471	86	0.3000685	0.3000685	12.5	AMERADA	27.0000000
					L L & E	13.2500000
					SHELL	29.2500000
					TEXACO	30.5000000
47472	87	0.8139925	0.8139925	12.5	AMERADA	50.0000000
					TEXACO	50.0000000
47475	103	0.1996175	0.1996175	12.5	AMERADA	25.0000000
					MARATHON	25.0000000
					SHELL	25.0000000
					TEXACO	25.0000000
47476	104	0.0028061	0.0028061	12.5	ARCO	50.0000000
					EXXON	50.0000000
80595	106	0.0000019	0.0000019	12.5	ARCO	50.0000000
					EXXON	50.0000000
GAS CAP						
25637	16	0.0046309	0.0003024	12.5	ARCO	50.0000000
					BP	50.0000000
28238	19	0.0163822	0.0061712	12.5	ARCO	50.0000000
					EXXON	50.0000000
28239	18	0.0614364	0.0913424	12.5	ARCO	50.0000000
					EXXON	50.0000000
28240	50	0.0913318	0.0496376	12.5	ARCO	50.0000000
					EXXON	50.0000000
28241	51	0.0486990	0.0399457	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28244	52	0.0000124	0.0000110	12.5	ARCO	50.0000000
					EXXON	50.0000000
28245	53	0.1486696	0.1805920	12.5	ARCO	50.0000000
					EXXON	50.0000000
28246	82	0.0007026	0.0003490	12.5	ARCO	50.0000000
					EXXON	50.0000000
28257	22	1.7767068	0.1101259	12.5	MOBIL	50.0000000

					PHILLIPS	50.0000000
28258	21	0.4599204	0.0000012	12.5	ARCO	50.0000000
					EXXON	50.0000000
28259	20	0.0076616	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28260	47	1.4815529	0.0777251	12.5	BP	100.0000000
28261	48	0.0888936	0.0005248	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28262	54	0.2968897	0.2995913	12.5	CHEVRON	100.0000000
28262	54A	0.0772452	0.1111367	12.5	CHEVRON	33.3333334
					MOBIL	33.3333333
					PHILLIPS	33.3333333
28263	55	0.1338160	0.0511793	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28263	55A	0.2071833	0.1539450	12.5	CHEVRON	33.3333334
					MOBIL	33.3333333
					PHILLIPS	33.3333333
28264	79	0.1174944	0.0120620	12.5	ARCO	50.0000000
					EXXON	50.0000000
28265	84	0.0364292	0.0003882	12.5	ARCO	50.0000000
					EXXON	50.0000000
28275	112	0.0133022	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28276	113	0.0000864	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28277	25	0.8421396	0.1111558	12.5	BP	100.0000000
28278	24	1.0400165	0.0331538	12.5	BP	100.0000000
28279	23	1.2989359	0.0190207	12.5	BP	100.0000000
28280	44	3.8981682	1.7631780	12.5	BP	100.0000000
28281	45	3.3705436	1.1061331	12.5	BP	100.0000000
28282	46	3.0429668	0.4341463	12.5	BP	100.0000000
28283	57	1.5634829	0.1013091	12.5	BP	100.0000000
28284	58	3.3026290	0.6687738	12.5	BP	100.0000000
28285	59	3.9964449	1.8633126	12.5	BP	100.0000000
28286	76	2.6691922	0.2432039	12.5	BP	100.0000000
28287	77	1.2578240	0.0132529	12.5	BP	100.0000000
28288	78	0.3601455	0.0000000	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28289	85	0.1312435	0.0000000	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28290	105	0.0024590	0.0000000	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28299	26	0.9307902	0.0668830	12.5	ARCO	50.0000000
					EXXON	50.0000000
28300	27	1.0365258	2.7462020	12.5	ARCO	50.0000000
					EXXON	50.0000000
28301	28	0.0000000	5.4070880	12.5	ARCO	50.0000000
					EXXON	50.0000000
28302	41	0.3106250	8.5730840	12.5	ARCO	50.0000000
					EXXON	50.0000000
28303	42	1.9447402	6.1308134	12.5	ARCO	50.0000000
					EXXON	50.0000000
28304	43	3.2449752	2.9898184	12.5	ARCO	50.0000000
					EXXON	50.0000000
28305	60	3.6765194	3.1854789	12.5	BP	100.0000000
28306	61	2.9343182	5.4649446	12.5	ARCO	50.0000000
					EXXON	50.0000000
28307	62	1.8596860	7.4776622	12.5	ARCO	50.0000000
					EXXON	50.0000000
28308	73	3.9394274	4.1071874	12.5	ARCO	50.0000000
					EXXON	50.0000000
28309	74	3.8650657	2.2068838	12.5	BP	100.0000000
28310	75	3.9334322	1.1675071	12.5	BP	100.0000000
28311	90	3.6619111	0.3709048	12.5	BP	100.0000000
28312	89	2.8963363	0.1007911	12.5	BP	100.0000000
28313	88	1.5538656	0.0066790	12.5	ARCO	50.0000000
					EXXON	50.0000000
28314	102	0.4588814	0.0000000	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28315	101	1.2192336	0.0000000	12.5	BP	100.0000000
28316	07A	0.0565330	0.0000000	12.5	CHEVRON	33.3333334
					MOBIL	33.3333333

					PHILLIPS	33.3333333
28316	107	0.0088125	0.0000000	12.5	CHEVRON	100.0000000
28320	38	0.3566616	0.3216998	12.5	BP	100.0000000
28321	63	1.1125780	7.2610510	12.5	ARCO	50.0000000
					EXXON	50.0000000
28322	64	1.0995790	4.2486128	12.5	ARCO	50.0000000
					EXXON	50.0000000
28323	65	0.7714806	0.4529448	12.5	ARCO	50.0000000
					EXXON	50.0000000
28324	70	2.0837850	0.3609044	12.5	ARCO	50.0000000
					EXXON	50.0000000
28325	71	2.7773702	3.3036918	12.5	ARCO	50.0000000
					EXXON	50.0000000
28326	72	3.1133992	5.0566434	12.5	ARCO	50.0000000
					EXXON	50.0000000
28327	93	2.7730980	0.0132526	12.5	ARCO	50.0000000
					EXXON	50.0000000
28328	92	4.0900128	0.7489948	12.5	ARCO	50.0000000
					EXXON	50.0000000
28329	91	4.1555298	0.7143628	12.5	ARCO	50.0000000
					EXXON	50.0000000
28330	100	1.4812197	0.0000000	12.5	BP	100.0000000
28331	99	1.5486835	0.0000000	12.5	BP	100.0000000
28332	98	1.6240684	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28333	110	0.0691187	0.0000000	12.5	BP	100.0000000
28334	O9A	0.1303563	0.0000000	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
28334	109	0.0179622	0.0000000	12.5	MOBIL	50.0000000
					PHILLIPS	50.0000000
28335	108	0.0667905	0.0000000	12.5	BP	100.0000000
28339	66	0.0001956	0.0000000	12.5	BP	100.0000000
28343	69	0.1342393	0.0000000	12.5	BP	100.0000000
28345	94	0.5812244	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28346	97	0.2982834	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
28349	111	0.0092138	0.0000000	12.5	BP	100.0000000
34628	29	0.0000000	4.9026960	12.5	ARCO	50.0000000
					EXXON	50.0000000
34629	30	0.0000000	2.3763262	12.5	ARCO	50.0000000
					EXXON	50.0000000
34630	31	0.0000000	0.0521132	12.5	BP	100.0000000
34631	39	0.2490770	4.4211250	12.5	ARCO	50.0000000
					EXXON	50.0000000
34632	40	0.1146214	7.9580580	12.5	ARCO	50.0000000
					EXXON	50.0000000
47446	15	0.0099777	0.0211926	12.5	CHEVRON	50.0000000
					MOBIL	50.0000000
47447	14	0.0049708	0.0011970	12.5	CHEVRON	50.0000000
					MOBIL	50.0000000
47448	10	0.0010848	0.0000000	12.5	MOBIL	66.6666667
					PHILLIPS	33.3333333
47449	17	0.0064355	0.0204696	12.5	CHEVRON	50.0000000
					MOBIL	50.0000000
47450	49	0.0468606	0.0193851	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47451	56	0.1902328	0.0042712	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47452	80	0.2232645	0.1575467	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47453	81	0.1144260	0.0384943	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47454	83	0.0200389	0.0013684	12.5	CHEVRON	33.3333333
					MOBIL	33.3333334
					PHILLIPS	33.3333333
47469	9	0.0307565	0.0000000	12.5	MOBIL	50.0000000

					PHILLIPS	50.0000000
47471	86	0.3000685	0.0000000	12.5	AMERADA	27.0000000
					L L & E	13.2500000
					SHELL	29.2500000
					TEXACO	30.5000000
47472	87	0.8139925	0.0000000	12.5	AMERADA	50.0000000
					TEXACO	50.0000000
47475	103	0.1996175	0.0000000	12.5	AMERADA	25.0000000
					MARATHON	25.0000000
					SHELL	25.0000000
					TEXACO	25.0000000
47476	104	0.0028061	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
80595	106	0.0000019	0.0000000	12.5	ARCO	50.0000000
					EXXON	50.0000000
STUMP LAKE						
17600	1	0.0000000	2.4424100	12.5	UNION	100.0000000
326059	17A	0.0000000	8.1967200	64.1	UNION	100.0000000
326060	17B	0.0000000	15.5737800	64.1	UNION	100.0000000
					UNION	95.4773900
58789	11	0.0000000	11.4754100	12.5	OXY	60.0000000
					UNION	40.0000000
58789	11A	0.0000000	9.8360700	12.5	OXY	100.0000000
58790	12	0.0000000	22.6442700	12.5	UNION	100.0000000
58791	13	0.0000000	18.8524600	12.5	OXY	10.0000000
					UNION	90.0000000
58792	14	0.0000000	3.2786800	12.5	UNION	100.0000000
58794	15	0.0000000	4.0983600	12.5	UNION	100.0000000
58795	16	0.0000000	3.6018400	12.5	OXY	10.0000000
					UNION	90.0000000
TRADING BAY						
MONOPOD A–15						
18731		100.0000000	100.0000000	12.5	MARATHON	50.0000000
					UNION	50.0000000
MONOPOD A–6						
18731		100.0000000	100.0000000	12.5	MARATHON	50.0000000
					UNION	50.0000000
MONOPOD NON–POOL						
18731		100.0000000	100.0000000	12.5	MARATHON	50.0000000
WEST BEACH						
28301	28	19.1460000	19.1460000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34624	7	12.7640000	12.7640000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34626	5	6.3820000	6.3820000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34627	6	24.4520000	24.4520000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34628	29	24.4920000	24.4920000	12.5	ARCO	50.0000000
					EXXON	50.0000000
34629	30	12.7640000	12.7640000	12.5	ARCO	50.0000000
					EXXON	50.0000000
WEST MCARTHUR RIVER						
359111		50.0000000		12.5	SSANGYONG	50.0000000
					STEWART	50.0000000
359112		50.0000000		12.5	SSANGYONG	50.0000000
					STEWART	50.0000000

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APPENDIX C
CRUDE OIL ANALYSES

COOK INLET	DRIFT RIVER	NIKISKI
CRUDE		
Gravity, °API @ 60 °F	35.3	34.6
Spec.Grav. @ 60 °F	0.8483	0.8519
Kin.Vis. @ 65 °F	6.94	7.34
@ 90 °F	6.77	7.17
@122 °F	3.39	3.55
Sulfur, wt%	0.09	0.10
Nitrogen wt%	0.13	0.14
Carbon wt%	86.83	87.09
Hydrogen wt%	12.81	12.80
Oxygen wt%	0.09	0.15
Sed. and water, vol%	0.05	0.1
Water, by dist., vol%	Nil	0.05
RVP, psi	7.5	7.85
Pour Pt, °F	0	−5
Flash Pt., PMCC, °F	<0	<0
BADGER DISTILATION		
C5 AND LIGHTER		
Yield, vol%	0.4	0.7
Composition		
Methane	0.02	Traces
Ethane	11.07	7.75
Propane	61.74	59.81
Iso−Butane	11.72	12.46
Normal Butane	13.00	16.83
Iso−Pentane	1.52	2.03
Normal Pentane	0.93	1.12
IBP − 120 °F		
Yield vol%	1.3	2.0
120 − 374 °F		
Yield vol%	31.4	29.5
Gravity, API @ 60 °F	59.3	57.2
374 − 440 °F		
Yield vol%	6.0	6.5
Gravity, API @ 60 °F	40.9	40.6
440 − 610 °F		
Yield vol%	17.6	15.7
Gravity, API @ 60 °F	35.3	35.5
610 + Resid		
Yield vol%	41.3	43.9
Gravity, API @ 60 °F	18.1	18.2
DISTILATION CURVE, VOL, %		
IBP	86	84
2%	131	120
4%	134	130
6%	140	145
8%	150	165
10%	163	195
12%	192	213
14%	211	219
16%	220	239
18%	240	254
20%	257	272
22%	273	292
24%	292	307
26%	309	324
28%	325	341
30%	340	361
32%	361	390
34%	395	420
36%	420	430
38%	430	440
40%	440	460
42%	455	475
44%	475	490
46%	495	510
48%	510	525
50%	525	540
52%	545	555
54%	601	−
56%	607	−

NORTH SLOPE (at VALDEZ)

	Nominal	Recalc.
API Gravity	27.40	27.48
Sp. Gravity	0.8905	0.8905
Wt.% S	1.1600	1.1600

LIGHT ENDS AND BTX ANALYSIS

	L.V.%	Wt.%
C1	0.0000	0.0000
C2	0.0200	0.0080
C3	0.2000	0.1140
IC4	0.2500	0.1531
NC4	0.1500	0.7547
TOTAL	1.6200	1.0348
IC5	0.1165	0.2923
NC5	0.9299	0.6592
C5 & Ltr.	2.9665	1.9842
IC6	0.5000	
NC6	1.3400	
C6 Olefins	0.0000	
MCP	0.5004	
Cyclo−Hexane	0.5400	
Benzene	0.0360	

	Paraffins	Olefins	Naphthenes	Aromatics
C7	1.5800	0.0000	1.5900	0.6300
C8	1.5600	0.0000	0.9970	0.6000
C9+	1.2875	0.0000	1.3544	0.1285

MOTOR FUEL BLENDING DATA

	Yield L.V.%	RON Clear	MON Clear	RVP PSI
NAPTHA, C5−200	6.5	69.3	68.3	7.5
NAPTHA, C5−400	21.9	62.2	58.7	2.9

Continued on next page

NORTH SLOPE (at VALDES), Continued
RESIDUUM

Range, IVT–FVT, °F	0–82	82–200	200–300	300–350	350–400	400–500	500–550
L.V.% of Crude	1.62	6.50	7.49	3.88	4.04	8.71	4.76
Wt.% of Crude	1.03	5.04	6.44	3.45	3.69	8.25	4.63
Spec.Gravity	0.5688	0.6903	0.7656	0.7924	0.8116	0.8430	0.8648
API Gravity	117.26	73.49	53.32	47.07	42.85	36.36	32.13
Sulpher, Wt.%	0.0000	0.0011	0.0025	0.0110	0.0178	0.1704	0.4256
Paraffins, L.V.%		69.62	41.26	35.99	38.26	60.09	62.40
Olefins, L.V.%		0	0	0	0	0	0
Naphthenes, L.V.%		27.35	42.76	44.02	41.84	27.00	20.92
Aromatics, L.V.%		3.03	15.98	19.99	19.89	12.91	16.68
N+2A, L.V.%		33.41	74.72	84.00	81.63	52.81	
Pour Point, °F		−219.3	162.7	−117.1	−101.9	−50.5	−16.7
Cloud Point, °F		207.8	−162.6	−115.5	−105.7	−44.6	12.0
Kin. Visc., 100 °F		0.30	0.45	0.80	1.21	1.81	3.07
Kin. Visc., 122 °F		0.24	0.35	0.67	1.09	1.48	2.38
Smoke Point, MM				16.44	15.60	14.23	13.00
Cetane Index			10.64	28.40	35.10	40.02	44.04
Carbon Resedue							
Rams, Wt.%							
Con, Wt.%							
Nitrogen							
Total Nitrogen, PPM						4.99	33.17
Basic Nitrogen, PPM							
Calc. Refractive Index		1.3868	1.4290	1.4437	1.4544	1.4721	1.4842
Aniline Point, °F				115.57	122.25	133.35	142.09
UOPK Factor		12.22	11.65	11.64	11.60	11.49	11.50
Neut. Number						0.03	0.04
Mercaptan Sulpher, PPM			6.8	4.9	4.1	3.6	2.8
Freeze Point, °F				−212.9	−168.5	−139.7	−88.9
Flash Point, °F						70.00	106.00
RON Clear				69.3	62.6	57.6	54.4
MON Clear				68.3	59.1	52.5	48.4
RVP, PSI				7.5	0.8	0.1	0.0
Iron							
Nickel							
Vanadium							

Range, IVT–FVT, °F	550–650	650–700	700–800	800–900	900–1050	650+	1050+
L.V.% of Crude	10.03	4.63	8.72	8.20	11.30	52.96	24.12
Wt.% of Crude	9.94	4.68	8.97	8.57	12.11	57.56	23.21
Spec.Gravity	0.8825	0.9005	0.9158	0.9307	0.9549	0.9674	1.0271
API Gravity	28.84	25.63	23.00	20.53	16.68	14.77	6.26
Sulpher, Wt.%	0.7481	1.0024	1.1974	1.3409	1.5883	1.8295	2.5467
Paraffins, L.V.%	45.31						
Olefins, L.V.%	0	0					
Naphthenes, L.V.%	22.45						
Aromatics, L.V.%	32.24						
N+2A, L.V.%							
Pour Point, °F	19.7	38.4	63.9	87.8	108.6		
Cloud Point, °F	12.1	50.1	69.6				
Kin. Visc., 100 °F	5.84	13.89	33.26	92.81	618.74	1503.14	11647220
Kin. Visc., 122 °F	4.27	9.18	19.74	48.28	253.29	556.10	1820244
Smoke Point, MM	11.82						
Cetane Index	44.95	42.07	35.77	22.15			
Carbon Resedue							
Rams, Wt.%		0.09	0.13	0.33	0.69	7.92	19.08
Con, Wt.%		0.05	0.03	0.33	0.86	7.93	19.16
Nitrogen							
Total Nitrogen, PPM	104.32	606.21	953.56	1121.11	1813.78	2977.06	5529.00
Basic Nitrogen, PPM	51.37	175.73	291.05	453.23	666.56		
Calc. Refractive Index	1.4940	1.5040	1.5124	1.5204	1.5339	1.5411	1.5764
Aniline Point, °F	150.45	160.28	167.48	174.98	181.21		
UOPK Factor	11.55	11.58	11.63	11.76	11.81	11.81	11.60
Neut. Number	0.06	0.07	0.07	0.12	0.32		
Mercaptan Sulpher, PPM	3.8	7.5					
Freeze Point, °F	−49.7	−19.5	17.9	45.5	64.7		
Flash Point, °F	160.00	232.00	263.00	348.00	376.00	443.00	524.00
RON Clear							
MON Clear							
RVP, PSI							
Iron		0.00	0.00	0.00	0.00	0.00	0.01
Nickel		0.00	0.00	0.00	0.00	0.04	0.08
Vanadium		0.00	0.00	0.00	0.00	0.18	0.38

APPENDIX D
ALASKA REFINERIES AND PROCESSING PLANTS

	Unit	Capacity	Products	Market Area
OIL REFINERIES				
ARCO, Kuparuk				
	Distillaton	12,000 Bbl/d	Arctic Heating Fuel/Diesel #2	Kuparuk
ARCO, Prudhoe Bay				
	Distillaton	15,000 Bbl/d	Arctic Heating Fuel/Diesel #2	Prudhoe Bay
MAPCO, North Pole 1977				
	Two crude units	116,000 Bbl/d combined	Gasoline, leaded	Alaska
			Gasoline	Alaska
			JP 4	Alaska
			Jet A	Alaska
			Diesel #1	Alaska
			Diesel #2	Alaska
			Diesel #4	Alaska
			Asphalt	Alaska
TESORO, Nikiski 1969				
	Crude	80,000 Bbl/d	Propane	Alaska
	Hydrocracker	9,000 Bbl/d	Gasoline	Alaska
	PowerFormer	12,000 Bbl/d	Gasoline, premium	Alaska
	PRIP	4,000 Bbl/d	Jet A	
	LPG	2,800 Bbl/d	Diesel #1	Alaska
	Hydrogen	13 MMcf/d	Diesel #2	Alaska
	Sulfur	15 T/d	Fuel Oil #6	export
			Sulfur	lower 48
PETROSTAR, VALDEZ 1992				
	Crude	30,000 Bbl/d	Jet A	Alaska
			Marine Diesel	Alaska
			Heating/Diesel #1	Alaska
			Heating/Diesel #2	Alaska
PETRO STAR, North Pole 1985				
	Crude	8,600 Bbl/d	Kerosine	Alaska
			Heating/Diesel #2	
GAS PROCESSING PLANTS				
PHILLIPS–MARATHON LNG PLANT, Nikiski 1969				
	LNG	235,000 Mcf/d	LNG	Japan 550,000 Bbl/10 days
UNOCAL CHEMICAL PLANT, Nikiski 1969				
	Two Ammonia units	1,300,000 T/yr combined	Anhydrous Ammonia	half of ammonia production is used to produce urea, other half is exported.
	Urea	1,200,000 T/yr	Urea prills and granules	West Coast and exported.

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SURVEY OF OPERATING REFINERIES IN THE U.S.

BARRELS PER CALENDAR DAY

	No. Plants	Charge Capacity					
		Crude	Vacuum Distil.	Thermal Ops.	Cat Cracking	Cat Re-forming	Cat Hydro-cracking
Alabama	3	125,450	40,300	12,000		27,200	
Alaska	**6**	**259,800**	**6,000**			**12,000**	**9,000**
ARCO, Kuparuk		**14,000**					
ARCO, Prudhoe Bay		**17,500**					
Mapco, North Pole		**122,000**	**6,000**				
Petro Star, North Pole		**8,000**					
Petro Star, Valdez		**26,300**					
Tesoro, Kenai		**72,000**				**12,000**	**9,000**
Arizona	1	5,710	2,000				
Arkansas	3	60,900	31,100		18,500	12,000	
California	25	1,945,545	1,094,030	461,630	610,800	476,850	385,050
Colorado	3	95,500	39,500	4,200	27,000	22,500	5,000
Delaware	1	140,000	90,250	40,500	63,000	48,600	16,200
Georga	2	35,500					
Hawaii	2	144,800	69,000	12,400	20,000	12,400	16,700
Illinois	7	920,850	373,600	120,010	344,900	269,820	56,900
Indiana	4	478,300	231,600	26,600	176,200	102,300	
Kansas	4	268,900	96,100	47,300	90,900	74,500	2,900
Kentucky	2	218,900	89,240	57,424	97,000	43,195	
Louisiana	18	2,305,876	937,270	321,900	845,615	462,565	160,740
Michigan	4	125,200	37,000		45,500	27,900	
Minnesota	2	285,600	183,040	52,200	71,810	51,595	
Mississippi	5	366,800	270,000	78,200	77,400	76,220	58,000
Montana	4	139,950	57,600	20,300	54,900	34,500	4,200
Nevada	1	7,000	6,000				
New Jersey	6	583,000	248,600	31,100	261,300	75,560	
New Mexico	3	95,800	19,000		34,700	28,300	
New York	1	41,850	27,000				
North Dakota	1	58,000			24,700	11,500	
Ohio	4	467,000	148,510	36,000	160,250	151,440	69,380
Oklahoma	7	409,000	114,175	28,700	139,200	95,900	5,000
Oregon	1		14,400				
Pennsylvania	7	754,400	307,425		230,500	192,988	45,000
Tennessee	1	75,000	12,000		38,000	14,000	
Texas	29	3,794,950	1,643,750	394,300	1,537,650	1,128,950	349,020
Utah	6	154,500	46,500	7,200	47,000	29,700	
Virginia	1	53,000	27,600	13,300	26,100	9,700	
Washington	7	546,775	252,825	73,000	117,800	123,200	50,000
West Virginia	2	15,500	6,600			4,650	4,300
Wisconsin	1	33,200	19,500		10,400	7,600	
Wyoming	4	129,000	60,300	9,500	50,350	28,975	

Source: Oil & Gas Journal, "Worldwide Refining," December 20, 1993, p. 50.
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	Charge Capacity		Production Capacity				Hydrogen	Coke
	Cat Hydro–refining	Cat Hydro–treating	Alky. Poly.	Aromatic Isomer–ization	Lubes	Asphalt	(MMcf/d)	(t/d)
Alabama	26,800	42,500		7,000		9,500	6.5	360
Alaska		**12,000**		**7,000**		**2,500**	**12.8**	
ARCO, Kuparuk								
ARCO, Prudhoe Bay								
Mapco, North Pole				**3,000**		**2,500**		
Petro Star, North Pole								
Petro Star, Valdez								
Tesoro, Kenai		**12,000**		**4,000**			**12.8**	
Arizona						1,160		
Arkansas		31,500	4,800	6,000	3,500	9,500	2.5	
California	367,600	1,069,300	108,460	16,060	29,420	59,820	1020.7	19,016
Colorado		48,000	3,400			8,500	6.0	195
Delaware		110,700	16,650				40.0	2,000
Georga					2,000	23,750		
Hawaii		13,500	5,000	1,200		2,250	18.9	
Illinois		619,120	89,500	30,410	5,000	52,440	73.4	5,816
Indiana	89,300	222,400	36,500	37,300	6,100	65,200	33.0	1,340
Kansas	40,000	197,700	28,400	43,925		2,300	7.0	2,108
Kentucky	39,200	172,505	12,610	21,340	8,245	29,100		
Louisiana	139,175	1,209,880	205,480	113,365	34,490	51,350	144.1	15,055
Michigan		71,200	9,500	5,100		18,000	6.7	
Minnesota	79,460	128,449	17,693	21,551		45,080	28.7	2,800
Mississippi	90,500	150,620	17,950	4,100	6,500	25,450	212.6	4,050
Montana	15,000	99,500	14,080	5,750		16,000	19.6	960
Nevada						1,000		
New Jersey	146,000	146,310	32,650	11,300	8,200	69,250	29.6	1,227
New Mexico		56,800	10,300	4,000		4,500		
New York						11,500		
North Dakota		18,100	4,200	4,800				
Ohio	67,310	163,995	27,900	40,005		25,640	72.0	1,600
Oklahoma	25,000	193,350	34,300	37,560	7,200	16,890	36.0	1,260
Oregon						10,350		
Pennsylvania	39,000	395,120	51,000	20,035	6,675	43,500	49.5	
Tennessee		62,000	6,000	4,000		3,500		
Texas	560,030	2,554,240	322,690	313,985	75,950	49,400	684.6	15,477
Utah		57,700	13,940	8,000		1,600		350
Virginia		25,200	2,500					650
Washington	20,000	205,050	29,700	3,550		14,700	80.0	3,460
West Virginia		3,800			4,300		1.2	
Wisconsin	5,500	8,500	1,500	1,900		12,500		
Wyoming	24,500	60,200	9,726	2,500		16,150	5.5	

APPENDIX E
CONVERSION FACTORS

ABBREVIATIONS

acre	ac
barrel	bbl
British thermal unit	btu
callory	cal
cubic foot	cf
thousand cubic feet	Mcf
million cubic feet	MMcf
billion cubic feet	Bcf
trillion cubic feet	Tcf
day	d
calendar day	cd
stream day	sd
foot	ft
gallon, U.S.	gal US
gallon, Imperial	gal Imp
hectar	ha
inch	in
kilogram	kg
kilolitre	kl
kilometer	km
litre	l
meter	m
mile	mi
nautical mile	naut mi
pound	lb
ton, Imperial	t Imp
ton, U.S.	t U.S.
tonne	tn

ACRONYMS

AOGCC	Alaska Oil and Gas Conservation Commission
API	American Petroleum Institute
DNR	Alaska Department of Natural Resources
DO&G	Division of Oil and Gas
DOR	Alaska Department of Revenue
ISER	Institute of Social and Economic Research
LNG	liquid natural gas
LPG	liquid petroleum gas
NGL	natural gas liquids
TAPS	Trans Alaska Pipeline System

LENGTH		ft	mi	naut mi	m	km
1 ft	=	1	0.00019	0.00016	0.3048	0.00305
1 mi	=	5280	1	0.8684	1609.34	1.60934
1 naut mi	=	6076.12	1.1516	1	1852	1.852
1 m	=	3.2808	0.00062	0.00054	1	1000
1 km	=	3280.8	0.62137	0.5396	0.001	1

AREA		ft²	ac	mi²	m²	ha	km²
1 ft²	=	1	0.00002		0.0929		
1 ac	=	43560	1	0.0016	4046.86	0.40469	0.00405
1 mi²	=	3E+07	640	1	2589990	258.999	2.58999
1 m²	=	10.7639	0.00025		1	0.0001	1E−06
1 ha	=	107636	2.47105	0.00386	10000	1	0.01
1 km²	=	1E+07	247.105	0.3861	1000000	100	1

VOLUME		ft³	gal US	gal Imp	bbl	m³
1 ft³	=	1	7.48052	6.22883	0.17811	0.02832
1 gal US	=	0.13368	1	0.83267	0.02381	0.00379
1 gal Imp	=	0.16054	1.20095	1	0.02859	0.00455
1 bbl	=	5.6146	42	34.9726	1	0.15899
1 m³	=	35.3147	264.172	219.969	6.28981	1

WEIGHT		lb	short t	long t	kg	tn
1 lb	=	1	0.0005	0.00037	0.45359	0.00045
1 short t	=	2000	1	0.89287	907.185	0.90719
1 long t	=	2240	1.12	1	1016.05	1.01605
1 kg	=	2.20462	0.0011	0.00098	1	0.001
1 tn	=	2204.62	1.10231	0.98421	1000	1

short ton: U.S.
long ton: U.K.
tonne: metric

CRUDE OIL WEIGHT

Based on average Arabian Light, 33.5 API.

	gal US	gal Imp	short t	long t	tn	bbl
1 gal US =	1	0.833		0.00319	0.00325	0.0238
1 gal Imp =	1.201	1		0.00383	0.00391	0.0286
1 short t =			1			6.65
1 long t =				1		
1 tn =	0.00031	0.00026			1	7.31
1 bbl =	42	35		0.134	0.136	1

WEIGHT EQIVALENTS OF PETROLEUM AND PETROLEUM PRODUCTS

	Average Gravity @60 °F	gal/lb	lb/gal	lb/bbl	bbl/ short t	bbl/ long t	bbl/ tn
crude oil, foreign	25.6	0.13333	7.500	315	6.349	7.111	6.998
crude oil, domestic	36.0	0.14217	7.034	295	6.770	7.582	7.463
gasoline and naptha	59.5	0.16215	6.167	259	7.721	8.648	8.511
kerosine	43.0	0.14812	6.751	284	7.053	7.900	7.775
fuel oil, distillate	31.3	0.13817	7.237	304	6.580	7.369	7.253
fuel oil, residual	18.0	0.12687	7.882	331	6.041	6.766	6.660
asphalt	5.6	0.11634	8.596	361	5.540	6.205	6.106
liquid petroleum gas	–	0.22104	4.524	190	10.526	11.789	11.603

APPROXIMATE HEAT CONTENTS OF FUELS AND PETROLEUM PRODUCTS

Million Btu per Barrel

asphalt	6.6
aviation gasoline	5.0
crude oil	5.8
fuel oil, distillate	5.8
fuel oil, residual	6.3
jet fuel, kerosene type	5.7
jet fuel, naptha type	5.4
kerosene	5.7
ethane	3.1
propane	3.8
butane	4.3
pentanes plus	4.6

VOLUME CONVERSIONS: LIQUID NATURAL GAS TO NATURAL GAS

LNG @ −260 °F	Natural Gas ft^3
1 lb	21.082
1 gal	79.814
1 ft^3	597.0
1 bbl	3,352
1 m^3	21,085
1 tn	46,477

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