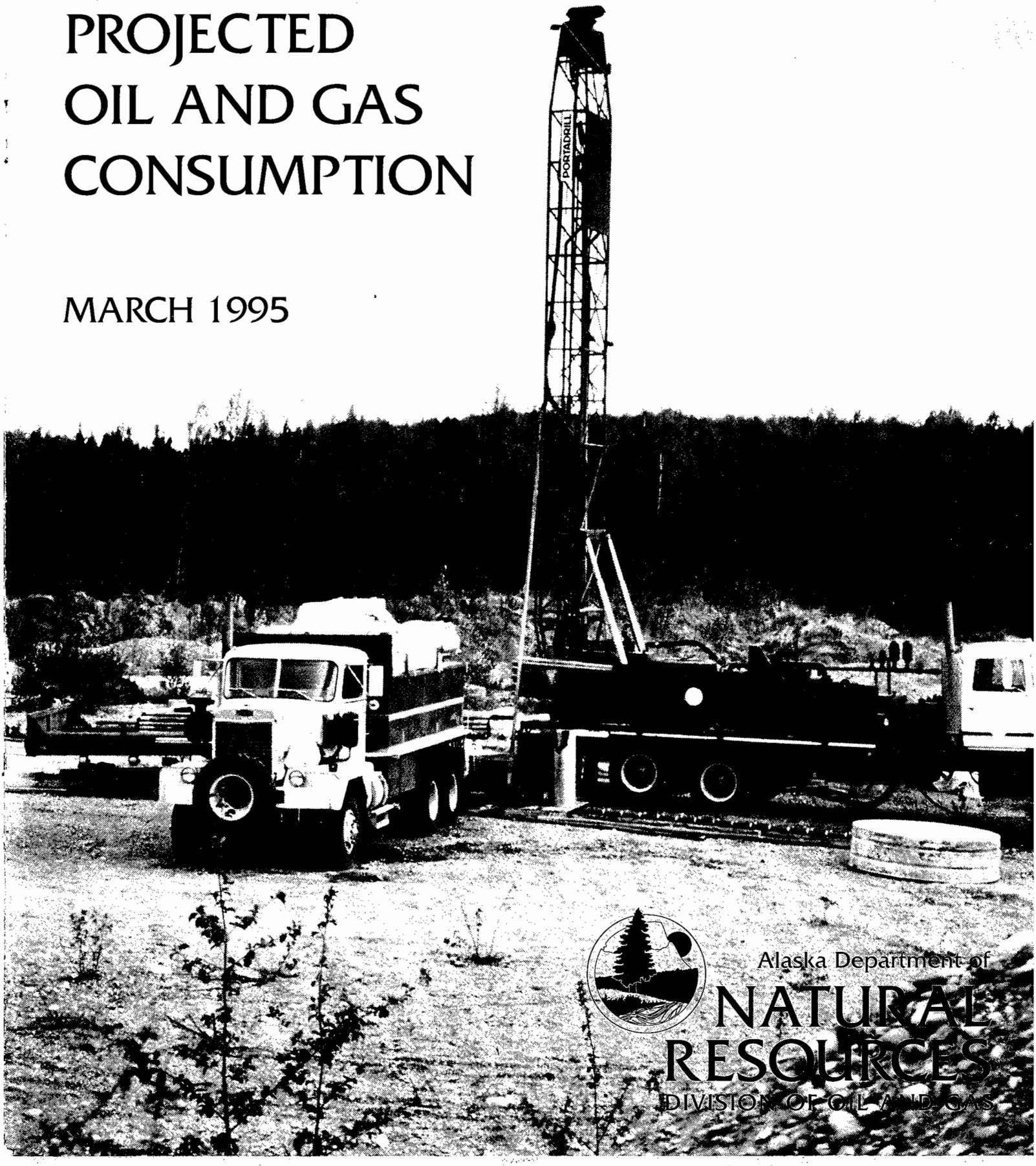
HISTORICAL AND PROJECTED OIL AND GAS CONSUMPTION

MARCH 1995



Alaska Department of
NATURAL RESOURCES
DIVISION OF OIL AND GAS

Cover Photo: Alaska Division of Oil and Gas,
Coal Bed Methane Core Hole near Wasilla
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STATE OF ALASKA

HISTORICAL AND PROJECTED OIL AND GAS CONSUMPTION

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ALASKA OIL AND GAS RESOURCE MANAGEMENT

Alaska's oil and gas resources are owned and administered by three agencies of the State of Alaska, by two agencies of 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 volume and value of oil and gas resources within proposed lease sale areas
- leases and licenses state land for oil and gas exploration and development
- sets the conditions under which state oil and gas leases may be developed
- monitors lease development for consistency with regulations and lease terms
- collects oil and gas royalty revenue
- administers royalty-in-kind contracts.
- approves and administers oil and gas unit agreements

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

- collects oil and gas severance taxes
- audits oil and gas 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.
- monitors production to insure that production is efficient and that oil and gas are not wasted
- protects correlative rights of lease and land 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 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 owned by Alaska Native Corporations.

1 RESERVES OF OIL AND NATURAL GAS

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 single 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, 1995. 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 1995 the field has produced 8.6 billion barrels and reserves are 3.4 billion. Much of this increase in projected ultimate recovery has been due to improved technology such as increased horizontal drilling, coiled tubing well workovers and enhanced oil recovery. Technology improvements, expansion of enhanced recovery operations and additional infill drilling may further increase future reserve estimates, but the main variable effecting future oil recovery likely will be the perceived future price of oil.

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

Oil: 6.4 billion barrels
Gas: 33.1 trillion cubic feet

North Slope fields hold 98% of the oil and 94% 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 also are on state land; Swanson River, Beaver Creek, Birch Hill, a portion of Beluga River and most of Kenai and Cannery Loop fields are the exceptions.

ROYALTY RESERVES

The state's royalty share of reserves are:

Oil: 826 million barrels
Gas: 4.1 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 1/1/95

OIL: MILLIONS OF BARRELS
GAS: BILLIONS OF CUBIC FEET

	OIL		GAS	
	Reserves	Royalty Share	Reserves	Royalty Share
NORTH SLOPE				
DEVELOPED				
East Barrow	–	–	6 [1]	0
Endicott	226 [2]	32	894 [1]	125
Kuparuk River	1,318 [2]	165	682 [1]	85
Kuparuk Other [3]	173 [2]	22	–	–
Lisburne	81 [2]	10	277 [1]	35
Milne Point	188 [2]	34	13	2
Niakuk/Alapah	61 [2]	8	33 [1]	4
Point McIntyre	405 [2]	49	300 [2]	37
Prudhoe Bay	3,432 [2]	429	26,000 [2]	3,250
Prudhoe Bay Other [4]	7 [2]	1	7 [1]	1
South Barrow	–	–	4 [1]	0
Walakpa	–	–	28 [1]	0
UNDEVELOPED				
North Star/Seal Island	180 [2]	36	–	–
Pt. Thomson/Flaxman Island	200 [2]	25	3,000 [2]	375
TOTAL	6,271	810	31,244	3,914
COOK INLET				
PROVEN AND DEVELOPED				
Beaver Creek	1 [1]	0	114 [1]	0
Beluga River	–	–	372 [1]	28
Cannery Loop	–	–	230 [1]	9
Granite Point	18 [2]	2	31 [1]	4
Ivan River, Lewis River, Pretty Creek, Stump Lake	–	–	120 [2]	15
Kenai	–	–	191 [1]	4
McArthur River	51 [2]	6	299 [1]	37
Middle Ground Shoal	22 [2]	3	15 [1]	2
North Cook Inlet	–	–	358 [1]	45
Sterling	–	–	23 [1]	3
Swanson River	13 [1]	0	43 [1]	0
Trading Bay	5 [2]	<1	29 [1]	4
West Fork	–	–	3 [1]	<1
West McArthur River	10 [2]	1	1 [1]	<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
Sunfish	25 [2]	3	–	–
West Foreland	–	–	20 [1]	0
TOTAL	145	16	1,887	152
STATE				
TOTAL	6,416	826	33,131	4,066

[1] Alaska Oil and Gas Conservation Commission, calculated as of 1/1/95.
[2] William Van Dyke, Division of Oil and Gas.
[3] West Sak, K–10, etc..
[4] North Prudhoe Bay State and West Beach.
Revised 02/29/95

2 PROJECTED PRODUCTION OF OIL

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 1994. DO&G estimates that the combined production from the presently operating and to-be-developed fields will rise slightly to 1.6 million barrels per day in 1995 then decline to 1.1 million barrels per day in 2000, and to 159 thousand barrels per day in 2015. The division expects that cumulative production during 1995-2015 will be 5.9 billion barrels.

Of note this year, BP is aggressively pursuing additional development at Milne·Point unit and at its Niakuk project. BP also is actively exploring for oil and gas east of Prudhoe Bay. The Prudhoe Bay owners have completed the second phase of the Gas Handling Expansion (GHX-II) project. Kuparuk River unit owners have agreed to pursue a large scale enhanced oil recovery project using a miscible injectant and Endicott and Point McIntyre operators are studying miscible injectants at those fields.

COOK INLET

Cook Inlet oil production peaked in 1970 at 230 thousand barrels per day and has subsequently declined to 42 thousand barrels per day in 1994. DO&G estimates that production will decline to 24 thousand barrels per day in 2000 and to 12 thousand per day in 2006. Cumulative production between 1995 and 2006 will be 107 thousand barrels.

Cook Inlet fields probably will continue to produce well into the next century, but DO&G projects the region's production only to 2006, a shorter span than for the North Slope, because regional production depends on economic factors which can not be reasonably estimated beyond then. The projection does not include production from Swanson River and Beaver Creek, because the state holds no leases in these fields, and does not include a production forecast for Sunfish, because of recent disappointing delineation results. Regional production will increase to 34 thousand barrels per day in 1997 then decrease to 12 thousand barrels per day in 2006, yielding a cumulative 107 million barrels between 1995 and 2006.

AVAILABLE ROYALTY OIL

The production forecast estimates that the state's royalty share of production will decline from 204 thousand barrels per day in 1995 to 148 thousand barrels per day in 2000, and to 20 thousand barrels per day in 2015. Between 1995 and 2015, cumulative North Slope royalty production will be 750 million barrels and Cook Inlet royalty production will be 13 million barrels, for a state total of 763 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 142 million barrels during their terms, which leaves at least 621 billion barrels in-value. The Tesoro contract expires in December 1995 and the Mapco contract expires in 2003. Petro Star and Tesoro have indicated that they will ask the state for new long term RIK contracts to begin in January 1996. As of mid-February 1995, no decision has been made concerning those requests.

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 21 years, assuming their respective ownerships remain constant (which they will not). Working interests of the Prudhoe Bay producers are based on 1994 offtake and working interests of the Lisburne Production Center producers are weighted averages of their interests in Lisburne, Pt. McIntyre, West 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

	Royalty Percent	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
PRODUCTION FORECAST [1]												
NORTH SLOPE												
Prudhoe Bay		980	921	857	788	717	646	581	523	471	423	381
Kuparuk		310	305	300	300	295	285	256	231	208	187	168
Point McIntyre		115	115	109	98	88	79	71	64	61	54	46
Endicott [2]		94	83	72	63	55	47	40	34	29	24	21
Milne Point [3]		30	40	40	45	50	45	40	36	33	30	27
Kuparuk Other [4]		–	–	–	–	–	6	21	27	25	26	35
Lisburne		20	20	20	18	15	13	10	10	10	10	10
Niakuk/Alapah		20	20	20	20	17	14	12	10	9	8	7
Prudhoe Bay Other [5]		3	3	2	2	2	2	2	1	1	1	–
TOTAL		1,572	1,507	1,420	1,334	1,239	1,137	1,033	936	847	763	695
COOK INLET [6]												
McArthur River		19	18	16	14	13	12	10	9	8	8	7
Middle Ground Shoal		8	7	7	7	6	5	5	4	4	3	3
Granite Point		7	7	6	5	5	4	4	3	3	3	2
West McArthur River		3	4	4	3	3	3	2	2	2	2	1
Trading Bay		2	2	2	1	1	1	1	1	1	1	1
TOTAL		38	38	34	30	27	24	22	20	18	16	14
STATE												
TOTAL		1,610	1,544	1,454	1,365	1,266	1,161	1,055	956	865	779	709
AVAILABLE ROYALTY OIL												
NORTH SLOPE												
Prudhoe Bay	12.50%	123	115	107	99	90	81	73	65	59	53	48
Kuparuk	12.50%	39	38	38	38	37	36	32	29	26	23	21
Point McIntyre	12.20%	14	14	13	12	11	10	9	8	7	7	6
Endicott [2]	14.00%	13	12	10	9	8	7	6	5	4	3	3
Milne Point [3]	18.00%	5	7	7	8	9	8	7	6	6	5	5
Kuparuk Other [4]	12.50%	–	–	–	–	–	1	3	3	3	3	4
Lisburne	12.50%	3	3	3	2	2	2	1	1	1	1	1
Niakuk/Alapah	12.50%	3	3	3	3	2	2	2	1	1	1	1
Prudhoe Bay Other [5]	12.50%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	–
TOTAL		199	191	181	170	158	145	132	119	108	97	89
COOK INLET [6]												
McArthur River	12.50%	2	2	2	2	2	1	1	1	1	1	1
Middle Ground Shoal	12.50%	1	1	1	1	1	1	1	1	<1	<1	<1
Granite Point	12.50%	1	1	1	1	1	1	<1	<1	<1	<1	<1
West McArthur River	12.50%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trading Bay	12.50%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TOTAL		5	5	4	4	3	3	3	2	2	2	2
STATE												
TOTAL		204	196	185	174	162	148	134	122	110	99	90
IN–KIND ROYALTY OIL SALES												
Mapco [7]		35	35	35	35	35	35	35	35	35	35	–
Tesoro [8]		39	–	–	–	–	–	–	–	–	–	–
TOTAL		74	35	35	35	35	35	35	35	35	35	–
IN–VALUE ROYALTY OIL												
TOTAL		130	161	150	139	127	113	99	87	75	64	90

Note: numbers may not sum to totals due to rounding.

[1] Includes oil, condensate, and NGL.
[2] Includes Sag Delta North.
[3] Includes Schrader Bluff.
[4] West Sak, K–10, et al..
[5] North Prudhoe Bay State and West Beach.
[6] Projection is not extended beyond 2006 because production is very sensitive to short term economics. Beaver Creek and Swanson River fields are not included because the state has no leases in either field.

[7] 35,000 BPD of Prudhoe royalty production. Contract expires December 2003.
[8] Maximum 27.2% of Prudhoe Bay Unit royalty production. Contract expires December 1995.
Revised 02/29/95

	Royalty Percent	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL (MBbl)
PRODUCTION FORECAST [1]												
NORTH SLOPE												
Prudhoe Bay		343	309	278	250	225	191	163	138	117	100	3,431,730
Kuparuk		143	122	103	88	75	63	54	46	39	33	1,318,015
Point McIntyre		39	33	28	24	21	17	15	12	11	9	404,785
Endicott [2]		18	16	13	10	–	–	–	–	–	–	225,935
Milne Point [3]		24	20	17	15	12	10	–	–	–	–	187,610
Kuparuk Other [4]		59	58	49	41	35	26	22	18	14	12	173,010
Lisburne		10	9	8	7	6	5	5	5	5	5	80,665
Niakuk/Alapah		6	5	–	–	–	–	–	–	–	–	61,320
Prudhoe Bay Other [5]		–	–	–	–	–	–	–	–	–	–	7,045
TOTAL		642	572	496	435	374	312	259	219	186	159	5,890,115
COOK INLET [6]												
McArthur River		6	–	–	–	–	–	–	–	–	–	50,808
Middle Ground Shoal		3	–	–	–	–	–	–	–	–	–	22,375
Granite Point		2	–	–	–	–	–	–	–	–	–	18,360
West McArthur River		1	–	–	–	–	–	–	–	–	–	10,257
Trading Bay		1	–	–	–	–	–	–	–	–	–	5,256
TOTAL		12	–	–	–	–	–	–	–	–	–	107,055
STATE												
TOTAL		654	572	496	435	374	312	259	219	186	159	5,997,169
AVAILABLE ROYALTY OIL												
NORTH SLOPE												
Prudhoe Bay	12.50%	43	39	35	31	28	24	20	17	15	13	428,966
Kuparuk	12.50%	18	15	13	11	9	8	7	6	5	4	164,752
Point McIntyre	12.20%	5	4	3	3	3	2	2	1	1	1	49,381
Endicott [2]	14.00%	3	2	2	1	–	–	–	–	–	–	31,631
Milne Point [3]	18.00%	4	4	3	3	2	2	–	–	–	–	33,770
Kuparuk Other [4]	12.50%	7	7	6	5	4	3	3	2	2	2	21,626
Lisburne	12.50%	1	1	1	1	1	1	1	1	1	1	10,083
Niakuk/Alapah	12.50%	1	1	–	–	–	–	–	–	–	–	7,665
Prudhoe Bay Other [5]	12.50%	–	–	–	–	–	–	–	–	–	–	881
TOTAL		82	73	63	55	47	39	32	27	23	20	748,754
COOK INLET [6]												
McArthur River	12.50%	1	–	–	–	–	–	–	–	–	–	6,351
Middle Ground Shoal	12.50%	<1	–	–	–	–	–	–	–	–	–	2,797
Granite Point	12.50%	<1	–	–	–	–	–	–	–	–	–	2,295
West McArthur River	12.50%	<1	–	–	–	–	–	–	–	–	–	1,282
Trading Bay	0	<1	–	–	–	–	–	–	–	–	–	657
TOTAL		2	–	–	–	–	–	–	–	–	–	13,382
STATE												
TOTAL		83	73	63	55	47	39	32	27	23	20	762,136
IN–KIND ROYALTY OIL SALES												
Mapco [7]		–	–	–	–	–	–	–	–	–	–	127,750
Tesoro [8]		–	–	–	–	–	–	–	–	–	–	14,088
TOTAL		–	–	–	–	–	–	–	–	–	–	141,838
IN–VALUE ROYALTY OIL												
TOTAL		83	73	63	55	47	39	32	27	23	20	620,298

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

THOUSANDS OF BARRELS PER DAY

	Working Interest	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
PRODUCTION FORECAST FOR NORTH SLOPE [1]												
Prudhoe Bay [2]		980	921	857	788	717	646	581	523	471	423	381
Amerada	0.54%	4	4	4	3	3	3	2	2	2	2	2
Arco	21.78%	258	243	226	208	189	170	153	138	124	111	100
BP	50.68%	417	392	365	336	305	275	247	223	201	180	162
Chevron	0.62%	6	6	5	5	5	4	4	3	3	3	2
Exxon	21.78%	258	243	226	208	189	170	153	138	124	111	100
LL&E	0.04%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Marathon	0.05%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mobil	1.89%	15	14	13	12	11	10	9	8	7	7	6
Phillips	1.88%	15	14	13	12	11	10	9	8	7	6	6
Shell	0.14%	1	1	1	1	1	1	1	1	1	0	0
Texaco	0.55%	4	4	4	3	3	3	2	2	2	2	2
Kuparuk		310	305	300	300	295	285	256	231	208	187	168
Arco	55.17%	171	168	166	166	163	157	141	127	115	103	93
BP	39.19%	121	120	118	118	116	112	100	91	82	73	66
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%	15	15	15	15	15	14	13	11	10	9	8
Lisburne Production Center [3]		158	158	151	138	122	108	95	85	81	73	63
Arco	29.55%	47	47	45	41	36	32	28	25	24	22	19
BP	35.01%	55	55	53	48	43	38	33	30	28	26	22
Exxon	35.44%	56	56	54	49	43	38	34	30	29	26	22
Endicott [4]		94	83	72	63	55	47	40	34	29	24	21
Amoco	10.49%	10	9	8	7	6	5	4	4	3	3	2
Arco	0.02%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BP	56.78%	53	47	41	36	31	27	23	19	16	14	12
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%	20	17	15	13	12	10	8	7	6	5	4
NANA	0.39%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Unocal	10.52%	10	9	8	7	6	5	4	4	3	3	2
Milne Point [5]		30	40	40	45	50	45	40	36	33	30	27
BP	90.40%	27	36	36	41	45	41	36	33	30	27	24
Oxy	9.60%	3	4	4	4	5	4	4	3	3	3	3
TOTAL		1,572	1,507	1,420	1,334	1,239	1,131	1,012	909	822	737	660

	Royalty Percent											
AVAILABLE ROYALTY OIL												
Prudhoe Bay	12.50%	123	115	107	99	90	81	73	65	59	53	48
Kuparuk	12.50%	39	38	38	38	37	36	32	29	26	23	21
Endicott [4]	14.00%	13	12	10	9	8	7	6	5	4	3	3
Milne Point [5]	18.00%	5	7	7	8	9	8	7	6	6	5	5
Lisburne Production Center	11.69%	18	18	18	16	14	13	11	10	10	9	7
TOTAL		198	191	180	169	157	144	128	115	104	94	84
IN–KIND ROYALTY OIL SALES												
Mapco [6]		35	35	35	35	35	35	35	35	35	35	–
Tesoro [7]		38	–	–	–	–	–	–	–	–	–	–
TOTAL		73	35	35	35	35	35	35	35	35	35	–
IN–VALUE ROYALTY OIL												
TOTAL		125	156	145	134	122	109	93	80	69	59	84

Note: numbers may not sum to totals due to rounding.
[1] Includes oil, condensate, and NGL.
[2] Total offtake.
[3] Combined production from Lisburne, Pt. McIntyre, Niakuk/Alapah, North Prudhoe Bay State and West Beach.
[4] Includes Sag Delta North.
[5] Includes Schrader Bluff.
[6] 35,000 BPD of Prudhoe royalty production.
[7] Maximum 27.2% of Prudhoe Bay royalty production. Contract expires December 1995.
Revised 02/15/95

	Working Interest	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL (MBbl)
PRODUCTION FORECAST FOR NORTH SLOPE [1]												
Prudhoe Bay [2]		343	309	278	250	225	191	163	138	117	100	3,431,730
Amerada	0.54%	1	1	1	1	1	1	1	1	0	0	14,398
Arco	21.78%	90	81	73	66	59	50	43	36	31	26	904,137
BP	50.68%	146	132	118	106	96	81	69	59	50	43	1,461,599
Chevron	0.62%	2	2	2	2	1	1	1	1	1	1	21,646
Exxon	21.78%	90	81	73	66	59	50	43	36	31	26	904,067
LL&E	0.04%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,033
Marathon	0.05%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,336
Mobil	1.89%	5	5	4	4	3	3	3	2	2	2	52,788
Phillips	1.88%	5	5	4	4	3	3	2	2	2	2	52,330
Shell	0.14%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4,725
Texaco	0.55%	1	1	1	1	1	1	1	1	1	0	14,679
Kuparuk		143	122	103	88	75	63	54	46	39	33	1,318,015
Arco	55.17%	79	67	57	49	41	35	30	25	22	18	727,105
BP	39.19%.	56	48	40	34	29	25	21	18	15	13	516,556
Chevron	0.11%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1,431
Exxon	0.22%	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2,864
Mobil	0.36%	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4,808
Union	4.95%	7	6	5	4	4	3	3	2	2	2	65,250
Lisburne Production Center [3]		55	47	36	31	27	22	20	17	16	14	553,815
Arco	29.55%	16	14	11	9	8	7	6	5	5	4	163,652
BP	35.01%	19	16	13	11	9	8	7	6	6	5	193,890
Exxon	35.44%	19	17	13	11	10	8	7	6	6	5	196,272
Endicott [4]		18	16	13	10	–	–	–	–	–	–	225,935
Amoco	10.49%	2	2	1	1	–	–	–	–	–	–	23,710
Arco	0.02%	<1	<1	<1	<1	–	–	–	–	–	–	53
BP	56.78%	10	9	7	6	–	–	–	–	–	–	128,292
CIRI	0.65%	<1	<1	<1	<1	–	–	–	–	–	–	1,459
Doyon	0.13%	<1	<1	<1	<1	–	–	–	–	–	–	292
Exxon	21.02%	4	3	3	2	–	–	–	–	–	–	47,493
NANA	0.39%	<1	<1	<1	<1	–	–	–	–	–	–	875
Unocal	10.52%	2	2	1	1	–	–	–	–	–	–	23,762
Milne Point [5]		24	20	17	15	12	10	–	–	–	–	187,610
BP	90.40%	22	18	15	14	11	9	–	–	–	–	169,599
Oxy	9.60%	2	2	2	1	1	1	–	–	–	–	18,004
TOTAL		583	514	447	394	339	286	237	201	172	147	5,717,105

	Royalty Percent											
AVAILABLE ROYALTY OIL												
Prudhoe Bay [6]	12.50%	43	39	35	31	28	24	20	17	15	13	428,966
Kuparuk [6]	12.50%	18	15	13	11	9	8	7	6	5	4	164,752
Endicott [4][7]	14.00%	3	2	2	1	–	–	–	–	–	–	31,631
Milne Point [5][8]	18.00%	4	4	3	3	2	2	–	–	–	–	33,770
Lisburne Production Center	11.69%	6	5	4	4	3	3	2	2	2	2	64,796
TOTAL		74	65	57	50	43	36	29	25	21	18	723,915
IN–KIND ROYALTY OIL SALES												
Mapco [9]		–	–	–	–	–	–	–	–	–	–	127,750
Tesoro [10]		–	–	–	–	–	–	–	–	–	–	13,919
TOTAL		–	–	–	–	–	–	–	–	–	–	141,747
IN–VALUE ROYALTY OIL												
TOTAL		74	65	57	50	43	36	29	25	21	18	582,168

FIGURE 2A-1 - PROJECTED PRODUCTION OF STATE OIL

THOUSANDS OF BARRELS PER DAY

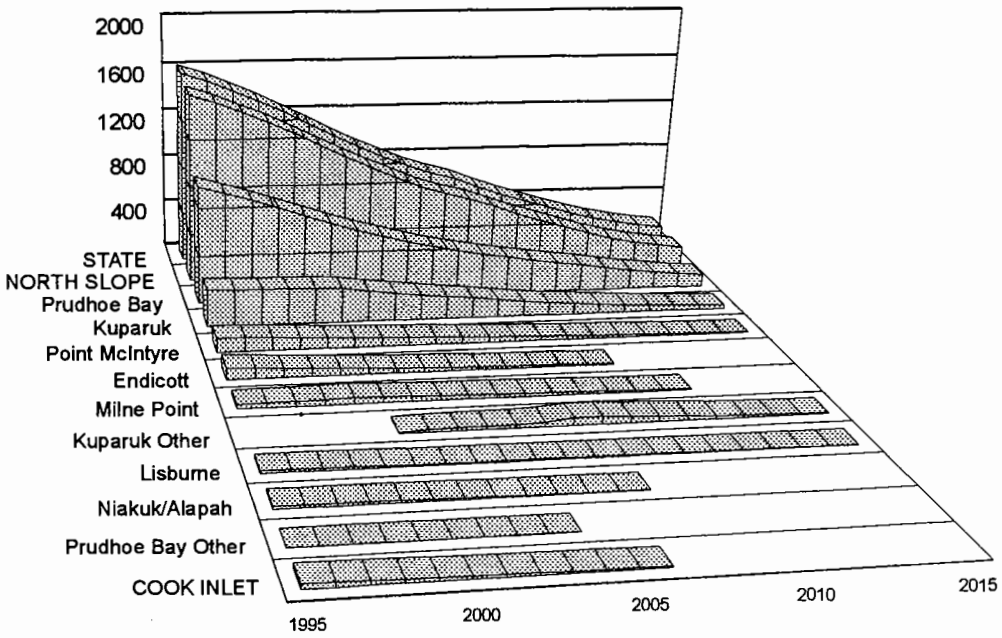


FIGURE 2A-2 - PROJECTED PRODUCTION OF COOK INLET OIL

THOUSANDS OF BARRELS PER DAY

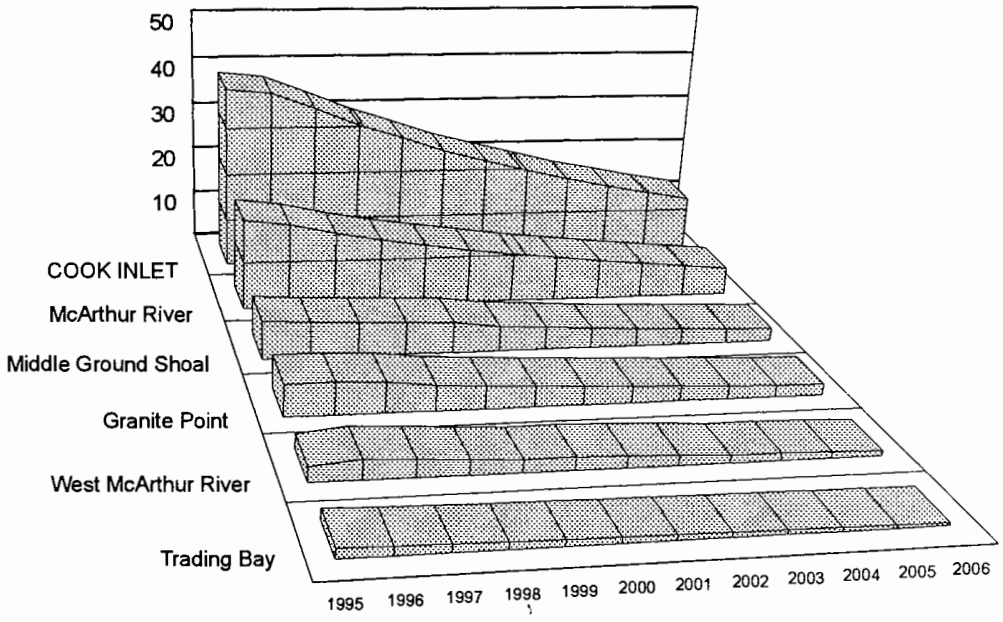


FIGURE 2A-3 - AVAILABLE STATE ROYALTY OIL

THOUSANDS OF BARRELS PER DAY

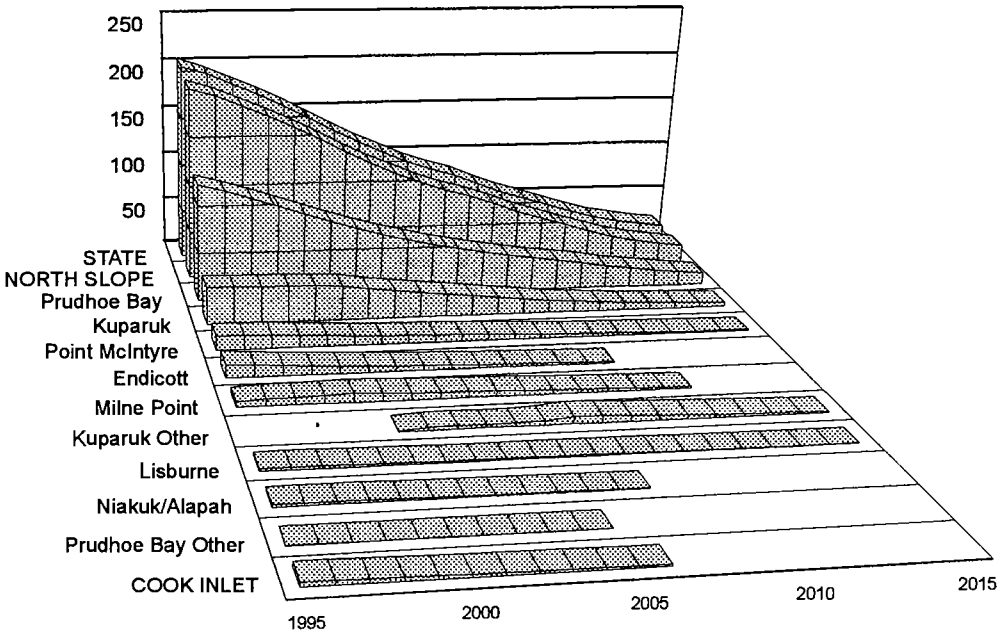


FIGURE 2A-4 - AVAILABLE COOK INLET ROYALTY OIL

THOUSANDS OF BARRELS PER DAY

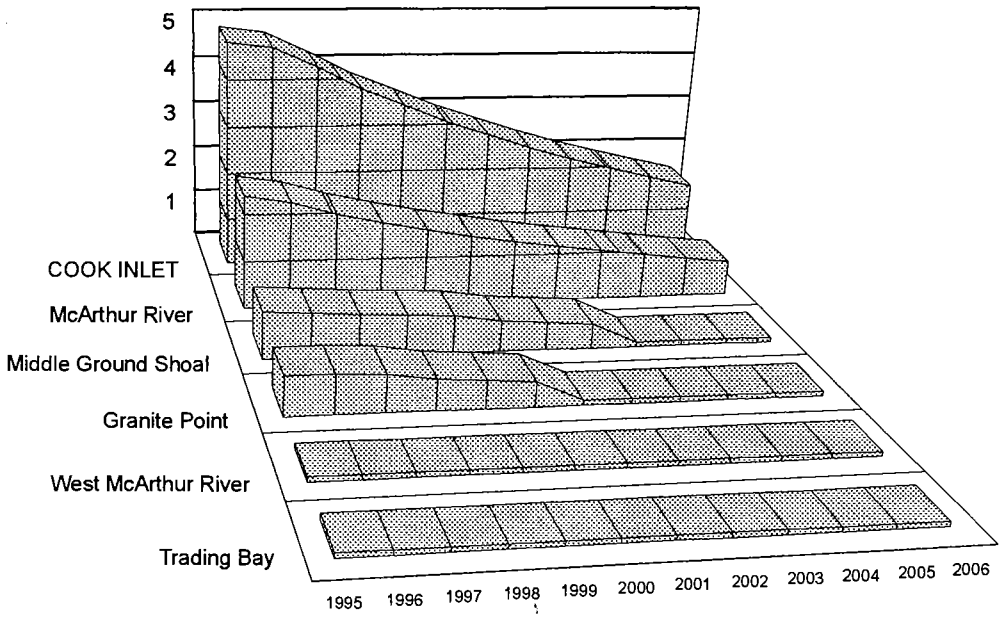


FIGURE 2A-5 - HISTORICAL AND PROJECTED PRODUCTION OF STATE OIL

MILLIONS OF BARRELS PER YEAR

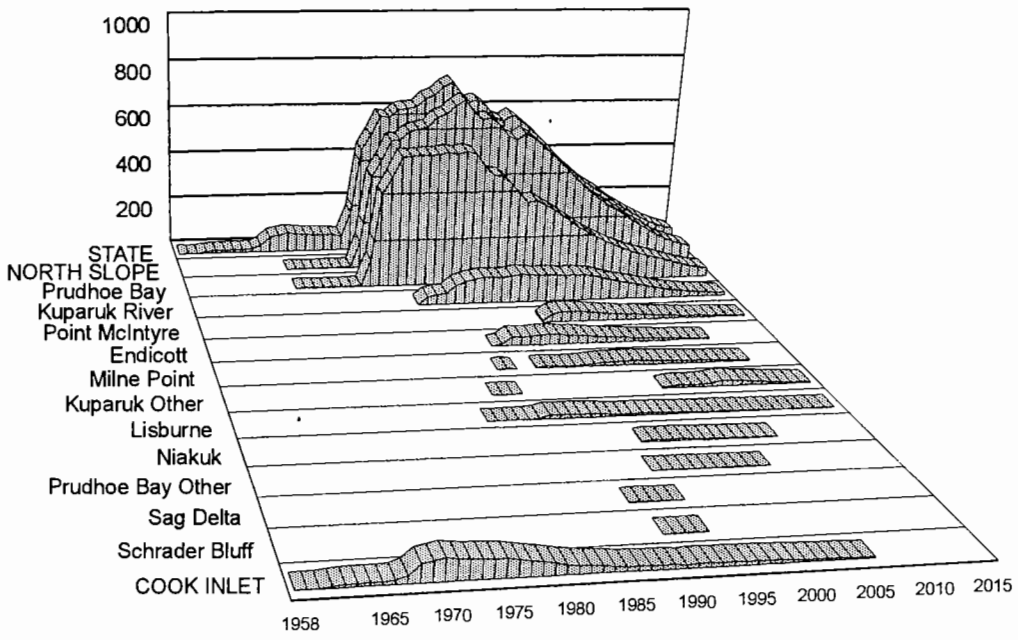


FIGURE 2A-6 - HISTORICAL AND PROJECTED PRODUCTION OF COOK INLET OIL

MILLIONS OF BARRELS PER YEAR

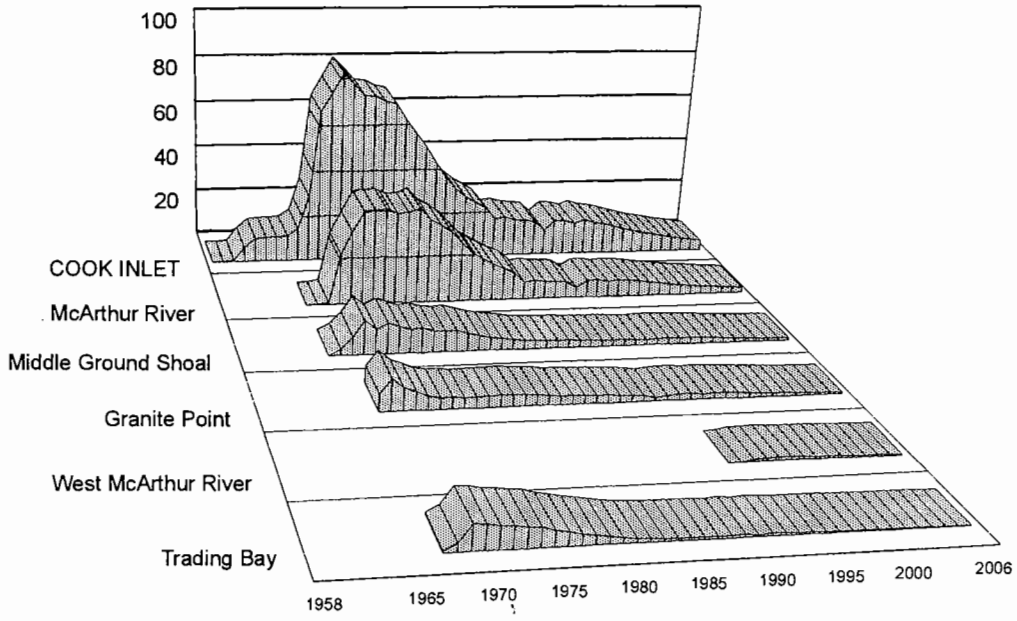


FIGURE 2A-7 - HISTORICAL AND PROJECTED PRODUCTION OF NORTH SLOPE OIL

MILLIONS OF BARRELS PER YEAR - LOG SCALE

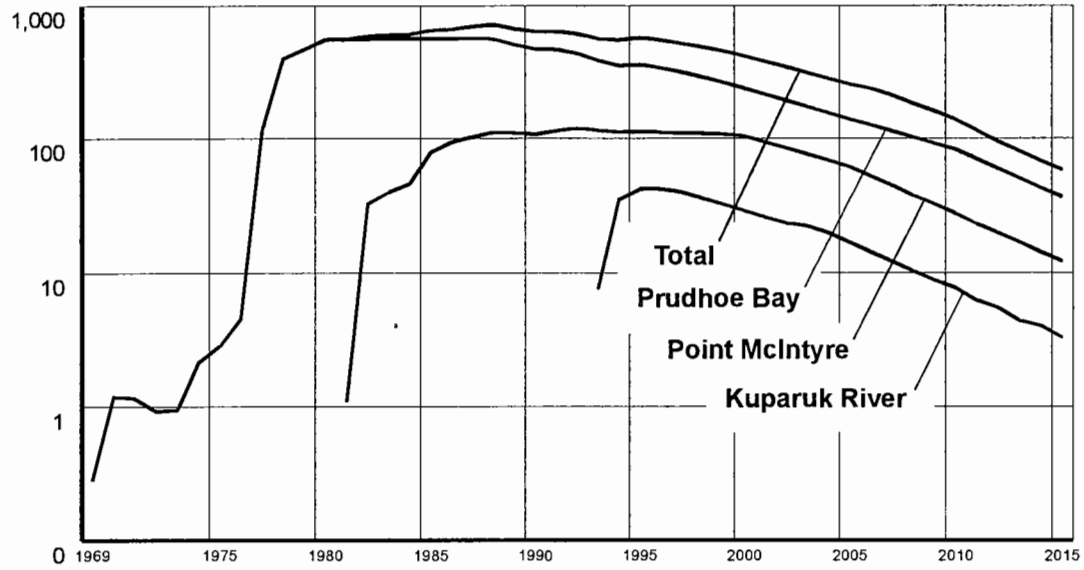
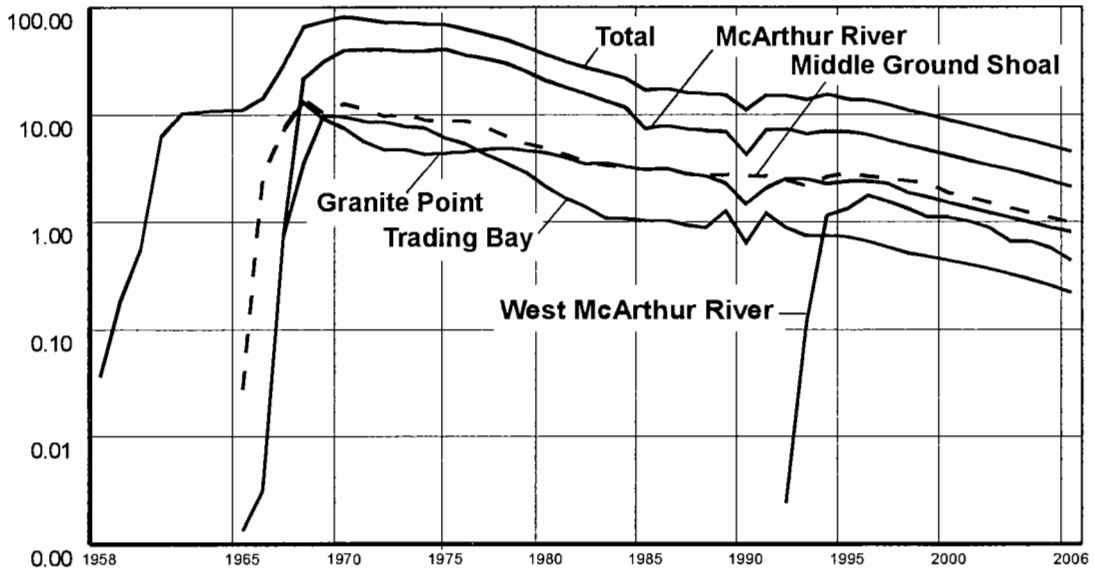


FIGURE 2A-8 - HISTORICAL AND PROJECTED PRODUCTION OF COOK INLET OIL

MILLIONS OF BARRELS PER YEAR - LOG SCALE



3 HISTORICAL PRODUCTION OF OIL

NORTH SLOPE

Prudhoe Bay field was the first commercial field discovered on the North Slope and the first to produce oil. Between its discovery in 1968 and the start of commercial production in 1977 when Alyeska Pipeline Co. completed the TAPS line between Valdez and Prudhoe Bay, 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) then declined to 549 million barrels per year (1.5 million barrels per day) by 194. North Slope fields produced 10.3 billion barrels by end of 1994, 84% of it from Prudhoe Bay, 11% from Kuparuk and 4% from the combined other pools.

From the beginning of Prudhoe Bay production in 1977, the water and natural gas dissolved in the crude oil have 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 to gas and oil to water decreased. As the produced gas volume approached the capacity of the facilities, the facilities became a production bottleneck. To alleviate this constriction the gas handling and water handling facilities were expanded in 1986, 1991 and again in 1993-1994.

Several small pools have somewhat offset the regional down trend. Milne Point production increased in late 1994 and is expected to increase in 1995 and 1996. Lisburne Production Center too substantially increased production in 1994. Of the three North Slope pools began production in 1993. Point McIntyre, by far the largest of the three, has produced considerably more than expected, 34.8 million barrels in 1994 and North Prudhoe Bay State and West Beach together produced 1.4 million barrels in 1994. Niakuk pool began producing in 1994, at an estimated rate of 5.1 million barrels per year.

COOK INLET

Companies first discovered commercial oil in Cook Inlet oil in 1957 at Swanson River and began producing from the field in 1959. Several significant fields were discovered nearby and brought to production between 1965 and 1972. Two fields, West McArthur River and Sunfish, were discovered in 1991. West McArthur River began production in 1993 and a pipeline was completed to Trading Bay Production Facility in 1994. Sunfish development remains uncertain. Regional production peaked in 1970 at 83 million barrels per year and subsequently has declined to 15.5 million barrels in 1994. By the end of 1994 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.

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 and the Petro Star refinery at Valdez.

NATURAL GAS LIQUIDS

Lessees of most North Slope fields and three Cook Inlet fields have reported NGL production 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 respective 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	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Kuparuk River	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Lisburne	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Milne Point	oil	–	–	–	–	–	–	–	–	–	–	–
Niakuk	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay State	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Point McIntyre	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	oil [1]	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Sag Delta	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	oil	–	–	–	–	–	–	–	–	–	–	–
West Beach	oil	–	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
West Sak	oil	–	–	–	–	–	–	–	–	–	–	–
TOTAL OIL [1]		–	–	–	–	–	–	–	–	–	–	–
TOTAL NGL		–	–	–	–	–	–	–	–	–	–	–
TOTAL INJECTION		–	–	–	–	–	–	–	–	–	–	–
TOTAL NET		–	–	–	–	–	–	–	–	–	–	–
COOK INLET												
Beaver Creek	oil	–	–	–	–	–	–	–	–	–	–	–
Cannery Loop	NGL	–	–	–	–	–	–	–	–	–	–	–
Granite Point	oil	–	–	–	–	–	–	–	0.002	–	7.052	13.131
Kenai	NGL	–	–	–	–	–	–	–	–	–	–	–
McArthur River	oil	–	–	–	–	–	–	–	0.001	0.003	0.749	21.782
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	0.001	0.003	0.749	21.782
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
	net	0.036	0.187	0.558	6.327	10.259	10.740	11.054	11.099	11.712	12.980	13.624
Trading Bay	oil	–	–	–	–	–	–	–	–	–	0.729	3.477
	NGL	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	0.729	3.477
West McArthur River	oil	–	–	–	–	–	–	–	–	–	–	–
TOTAL OIL		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 NET		0.036	0.187	0.558	6.327	10.259	10.740	11.054	11.131	14.364	28.913	66.150
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		–	–	–	–	–	–	–	–	–	–	–
TOTAL NET		0.036	0.187	0.558	6.327	10.259	10.740	11.054	11.131	14.364	28.913	66.150
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, 1994.

[1] Includes condensates.

[2] 1977–81: Alaska Oil and Gas Conservation Commission, "Statistical Report."
1982–94: Alyeska Pipeline Service Co.

[3] Prudhoe Bay annual production sums to 8,104.024 million barrels. Discrepancy with cumulative value is due to producer's recent revisions of 1977–1988 data.

Revised 02/15/95

	Type*	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
NORTH SLOPE											
Endicott	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Kuparuk River	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Lisburne	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Milne Point	oil	–	–	–	–	–	–	–	–	–	–
Niakuk	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay State	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Point McIntyre	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
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	–
	net	0.060	0.314	0.323	0.130	0.127	0.529	0.722	0.993	113.183	397.679
Sag Delta	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	oil	–	–	–	–	–	–	–	–	–	–
West Beach	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
West Sak	oil	–	–	–	–	–	–	–	–	–	–
TOTAL OIL [1]		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	–
TOTAL NET		0.060	0.314	0.323	0.130	0.127	0.529	0.722	0.993	113.183	397.679
COOK INLET											
Beaver Creek	oil	–	–	–	0.002	0.416	0.375	0.322	0.302	0.276	0.223
Cannery Loop	NGL										
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
	net	31.301	40.591	41.130	41.344	39.545	39.798	41.520	36.464	33.968	30.953
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
	net	13.221	12.471	11.543	8.908	10.163	9.861	8.843	7.681	6.066	4.935
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
	net	9.936	9.639	8.782	8.610	7.877	7.594	6.158	5.392	4.320	3.587
West McArthur River	oil	–	–	–	–	–	–	–	–	–	–
TOTAL OIL		74.038	82.415	77.628	72.640	72.196	70.074	69.111	62.404	56.095	50.132
TOTAL NGL		0.073	0.530	0.710	0.608	0.812	0.793	0.765	0.770	0.863	0.815
TOTAL NET		74.111	82.945	78.338	73.248	73.007	70.867	69.876	63.175	56.958	50.946
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	–
TOTAL NET		73.954	82.386	77.828	72.586	72.317	69.756	68.451	60.557	168.065	448.625
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

	Type*	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
NORTH SLOPE											
Endicott	oil	–	–	–	–	–	–	–	0.011	8.796	37.441
	NGL	–	–	–	–	–	–	–	–	0.003	0.492
	inj	–	–	–	–	–	–	–	0.007	0.014	–
	net	–	–	–	–	–	–	–	0.004	8.784	37.933
Kuparuk River	oil	–	–	1.092	32.406	39.876	46.169	78.926	93.900	102.448	110.891
	NGL	–	–	–	–	–	–	0.761	1.072	1.257	0.256
	net			1.092	32.406	39.876	46.169	79.687	94.972	103.705	111.146
Lisburne	oil	–	–	0.002	0.208	0.087	0.294	1.123	3.594	16.158	14.773
	NGL	–	–	–	–	–	–	–	–	0.458	1.008
	net			0.002	0.208	0.087	0.294	1.123	3.594	16.615	15.781
Milne Point	oil	–	–	–	–	–	–	0.704	4.709	0.040	–
Niakuk	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
North Prudhoe Bay State	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Point McIntyre	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	oil [1]	468.412	555.394	555.170	558.889	560.837	561.952	568.534	561.538	572.045	559.412
	NGL	–	0.254	0.450	0.500	0.311	0.317	0.056	0.230	14.610	19.274
	inj	–	–	–	–	–	–	–	–	–	–
	net	468.412	555.648	555.620	559.389	561.148	562.269	568.590	561.767	586.655	578.686
Sag Delta	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–
Schrader Bluff	oil	–	–	–	–	–	–	–	–	–	–
West Beach	oil	–	–	–	–	–	–	–	–	–	–
	NGL	–	–	–	–	–	–	–	–	–	–
	net										–
West Sak	oil	–	–	–	–	0.006	0.124	0.326	0.300	–	–
TOTAL OIL [1]		468.412	555.394	556.264	591.503	600.806	608.539	649.613	664.052	699.486	722.517
TOTAL NGL		–	0.254	0.450	0.500	0.311	0.317	0.817	1.302	16.328	21.029
TOTAL INJECTION		–	–	–	–	–	–	–	0.007	0.014	–
TOTAL NET		468.412	555.648	556.714	592.003	601.117	608.856	650.430	665.347	715.799	743.546
COOK INLET											
Beaver Creek	oil	0.211	0.214	0.180	0.182	0.170	0.159	0.146	0.158	0.185	0.141
Cannery Loop	NGL	–	–	–	–	–	–	–	–	–	–
Granite Point	oil	4.613	4.394	3.975	3.467	3.550	3.287	3.052	3.169	2.803	2.677
Kenai	NGL	<.001	–	–	–	–	–	–	–	–	–
McArthur River	oil	25.440	20.894	18.022	15.806	13.564	11.707	7.454	7.942	7.375	7.143
	NGL	0.541	0.412	0.484	0.449	0.332	0.317	0.194	0.228	0.196	0.162
	net	25.981	21.306	18.506	16.255	13.896	12.024	7.648	8.170	7.571	7.305
Middle Ground Shoal	oil	5.423	4.854	4.291	3.573	3.381	3.238	3.098	3.211	2.834	2.742
Redoubt Shoal	oil	–	–	–	–	–	–	–	–	–	–
Swanson River	oil	4.344	3.724	2.938	2.999	3.017	2.517	2.165	2.055	2.059	2.127
	NGL	0.080	0.064	0.048	0.048	0.045	0.039	0.026	0.054	0.030	0.033
	net	4.424	3.787	2.986	3.047	3.062	2.556	2.191	2.109	2.089	2.159
Trading Bay	oil	2.892	2.167	1.669	1.384	1.081	1.076	1.029	1.046	0.935	0.886
	NGL	0.014	0.006	0.005	0.002	0.004	0.005	0.004	0.002	0.001	<.001
	net	2.906	2.173	1.675	1.386	1.085	1.081	1.032	1.048	0.936	0.886
West McArthur River	oil	–	–	–	–	–	–	–	–	–	–
TOTAL OIL		42.923	36.247	31.075	27.411	24.763	21.985	16.944	17.580	16.191	15.716
TOTAL NGL		0.635	0.481	0.538	0.499	0.381	0.361	0.223	0.284	0.227	0.195
TOTAL NET		43.558	36.728	31.613	27.910	25.144	22.346	17.167	17.865	16.418	15.911
STATE											
TOTAL OIL [1]		511.335	591.641	587.339	618.914	625.569	630.524	666.557	681.625	715.662	738.233
TOTAL NGL		0.635	0.735	0.988	0.999	0.692	0.678	1.040	1.586	16.555	21.224
TOTAL INJECTION		–	–	–	–	–	–	–	0.007	0.014	–
TOTAL NET		511.970	592.376	588.327	619.912	626.261	631.201	667.597	683.205	732.203	759.457
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	743.302
Liftings at Valdez		464.394	548.895	547.026	583.370	592.319	596.588	643.512	603.028	700.878	736.047

	Type*	1989	1990	1991	1992	1993	1994 Est.	Cumulative Est. (MMBbl)	Reserves (MMBbl)	Field Depletion
NORTH SLOPE										
Endicott	oil	35.746	36.181	38.996	40.603	38.433	33.701	269.908		
	NGL	0.839	0.845	1.170	1.468	1.551	1.441	7.809		
	inj	–	–	–	–	–	–	0.021		
	net	36.584	37.026	40.165	42.071	39.984	35.142	277.696	226	55%
Kuparuk River	oil	109.770	107.206	113.571	118.506	115.166	111.434	1,181.282		
	NGL	–	–	–	–	–	–	3.346		
	net	109.770	107.206	113.571	118.506	115.166	111.434	1,184.628	1,318	47%
Lisburne	oil	13.737	14.669	13.315	12.466	8.473	7.057	106.321		
	NGL	1.093	1.204	1.337	1.516	1.322	0.981	8.919		
	net	14.830	15.873	14.651	13.982	9.795	8.038	115.240	81	59%
Milne Point	oil	3.715	6.624	6.701	5.820	5.704	5.470	39.488	188	17%
Niakuk	oil	–	–	–	–	–	3.436	3.436		
	NGL	–	–	–	–	–	0.027	0.027		
	net	–	–	–	–	–	3.463	3.463	61	5%
North Prudhoe Bay State	oil	–	–	–	–	0.420	0.629	1.049		
	NGL	–	–	–	–	0.015	0.025	0.040		
	net	–	–	–	–	0.435	0.654	1.089	3	27%
Point McIntyre	oil	–	–	–	–	7.519	34.755	42.275		
	NGL	–	–	–	–	0.075	0.508	0.583		
	net	–	–	–	–	7.594	35.263	42.858	405	10%
Prudhoe Bay	oil [1]	505.940	470.140	465.399	432.587	385.811	350.060	8,659.194 [3]		
	NGL	16.928	16.094	21.307	23.902	23.879	22.426	160.539		
	inj	–	–	–	–	–	–	13.013		
	net	522.869	486.235	486.706	456.489	409.690	372.486	8,806.720	3,432	72%
Sag Delta	oil	0.349	1.542	2.309	1.002	0.761	0.402	6.364		
	NGL	0.005	0.028	0.048	0.011	0.007	0.003	0.101		
	net	0.354	1.570	2.357	1.013	0.768	0.405	6.465	NA	
Schrader Bluff	oil	–	0.004	0.756	1.135	1.060	0.994	3.949	NA	
West Beach	oil	–	–	–	–	0.719	0.569	1.288		
	NGL	–	–	–	–	0.007	0.013	0.020		
	net	–	–	–	–	0.726	0.582	1.308	3	30%
West Sak	oil	–	–	–	–	–	–	0.755	NA	
TOTAL OIL [1]		669.258	636.366	641.048	612.119	564.066	548.507	10,315.309		
TOTAL NGL		18.864	18.171	23.861	26.897	26.856	25.424	181.384		
TOTAL INJECTION		–	–	–	–	–	–	13.034		
TOTAL NET		688.122	654.537	664.909	639.016	590.922	573.931	10,483.659		
COOK INLET										
Beaver Creek	oil	0.227	0.212	0.179	0.175	0.153	0.143	4.750	1	83%
Cannery Loop	NGL	–	–	–	–	–	–	<.001	NA	
Granite Point	oil	2.275	1.462	2.064	2.522	2.488	2.242	122.585	18	87%
Kenai	NGL	–	–	–	–	–	–	0.012	NA	
McArthur River	oil	6.955	4.265	7.250	7.397	6.635	7.061	568.394		
	NGL	–	–	–	–	–	–	8.979		
	net	6.955	4.265	7.250	7.397	6.635	7.061	577.373	51	92%
Middle Ground Shoal	oil	2.769	2.688	2.670	2.423	2.160	2.629	171.303	22	89%
Redoubt Shoal	oil	–	–	–	–	–	–	0.002	ND	
Swanson River	oil	1.875	1.878	1.962	1.773	1.576	1.673	220.199		
	NGL	0.024	0.019	0.023	0.019	0.018	0.022	1.341		
	net	1.899	1.897	1.985	1.792	1.594	1.695	221.540	13	94%
Trading Bay	oil	1.264	0.643	1.216	0.886	0.742	0.751	95.452		
	NGL	–	–	–	–	–	–	0.360		
	net	1.264	0.643	1.216	0.886	0.742	0.751	95.812	5	95%
West McArthur River	oil	–	–	–	0.002	0.098	0.946	1.048	10	9%
TOTAL OIL		15.366	11.147	15.340	15.178	13.852	15.445	1,183.733		
TOTAL NGL		0.024	0.019	0.023	0.019	0.018	0.022	10.692		
TOTAL NET		15.390	11.167	15.363	15.197	13.870	15.467	1,194.425		
STATE										
TOTAL OIL [1]		684.624	647.514	656.388	627.297	577.918	563.952	11,499.042		
TOTAL NGL		18.888	18.190	23.884	26.916	26.874	25.446	192.076		
TOTAL INJECTION		–	–	–	–	–	–	13.034		
TOTAL NET		703.513	665.704	680.272	654.213	604.792	589.398	11,678.084		
TAPS FLOW [2]										
Throughput at PS #1		688.062	654.551	665.175	639.390	591.220	592.316			
Liftings at Valdez		672.461	636.199	647.345	623.217	570.707	570.713			

FIGURE 3-1 - PRODUCTION OF STATE OIL

MILLIONS OF BARRELS PER YEAR

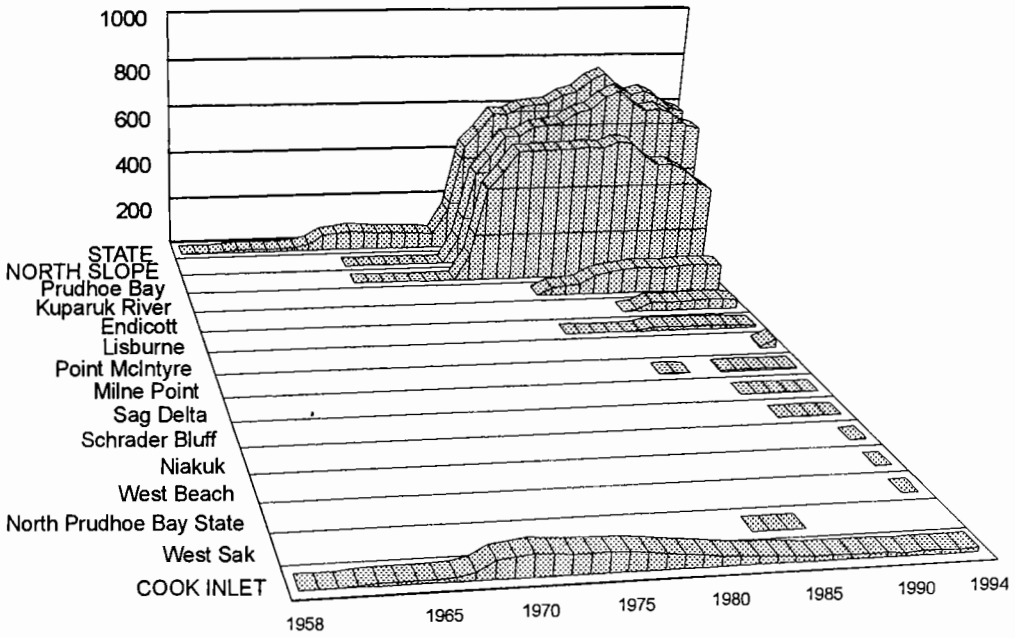
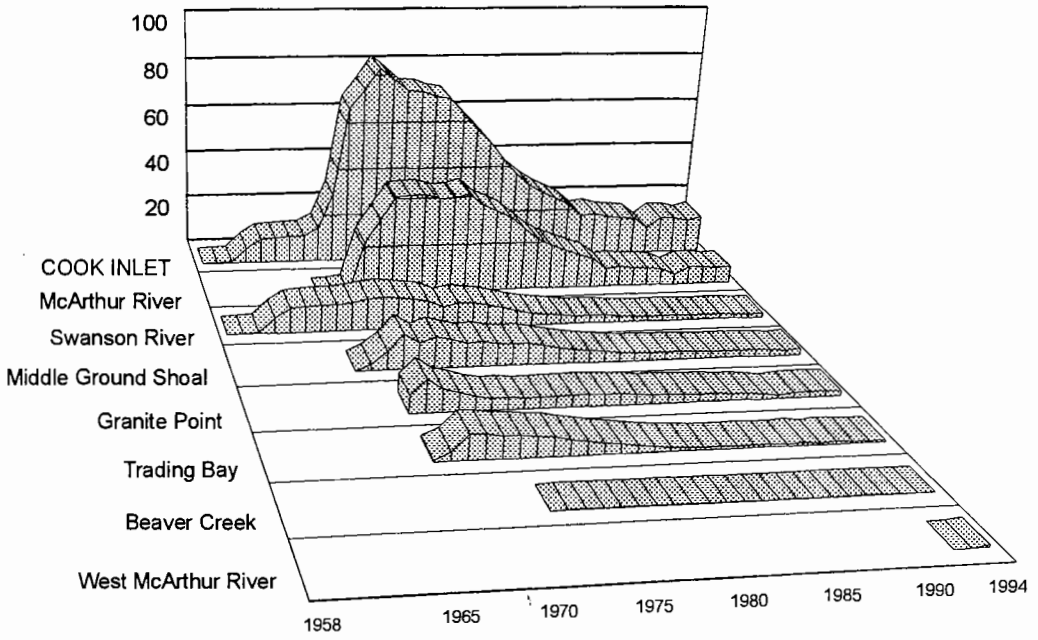


FIGURE 3-2 - PRODUCTION OF COOK INLET OIL

MILLIONS OF BARRELS PER YEAR



4 HISTORICAL PRODUCTION OF NATURAL GAS

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 at Prudhoe Bay and no gas, excluding NGLs, currently is marketed off of the North Slope. Most of the extracted gas is injected back into the reservoirs will be available for sale if and when a major market develops. Cook Inlet fields, however, lie near the Anchorage and Kenai commercial markets, the Unocal ammonia-urea plant, and the Phillips-Marathon LNG 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 still produces gas, along with two more recent fields, for Barrow's local use. The Prudhoe Bay oil field was discovered in 1968, and during the development of the field a small amount oil and gas was produced for fuel. Since TAPS was completed in 1977 and commercial oil production began, a large amount of dissolved gas has been produced along with the oil, then separated from it and injected back into the reservoir. 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. Net gas production has grown to 251 billion cubic feet in 1994 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 2.4 trillion cubic feet by the end of 1994. North Slope lessees report NGL production as natural gas production although the liquid NGLs are blended with crude oil and shipped down TAPS.

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 204 billion cubic feet per year in 1994. Cook Inlet fields have produced a cumulative net 4.7 trillion cubic feet by the end of 1994.

Since its early years, Swanson River's operators have enhanced the field's oil recovery by injecting the pool's casinghead gas back into the reservoir and by injecting additional gas bought or "rented" from other fields. In late 1992 the operator altered this program. Since then most of the casinghead gas has been injected into the reservoir but some of the produced gas has been sold off lease. No gas from outside sources is injected into the reservoir.

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	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Kuparuk River	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Lisburne	csg	–	–	–	–	–	–	–	–	–	–	–
	inj [1]	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Milne Point	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Niakuk	csg	–	–	–	–	–	–	–	–	–	–	–
N. Prudhoe Bay St.	csg	–	–	–	–	–	–	–	–	–	–	–
Point McIntyre	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Prudhoe Bay	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
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	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
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	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	4.890	10.036
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
	net	–	–	–	–	–	–	–	–	–	0.220	6.155
Middle Ground Shoal	csg	–	–	–	–	–	–	–	0.010	1.200	3.215	6.654
	dry	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	0.010	1.200	3.215	6.654
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	–	–	–	–	0.259	6.478	5.620	4.843	28.770	37.944	58.316
	net	0.006	0.027	0.119	1.293	1.813	1.168	1.556	1.129	(22.407)	(24.403)	(32.882)
Trading Bay	csg	–	–	–	–	–	–	–	0.001	0.315	0.722	2.961
	dry	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	0.001	0.315	0.722	2.961
West Fork	dry	–	–	–	–	–	–	–	–	–	–	–
West McArthur River	csg	–	–	–	–	–	–	–	–	–	–	–
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		–	–	–	–	0.259	6.478	5.620	4.843	28.770	37.944	58.316
TOTAL NET		0.006	0.027	0.137	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		–	–	–	–	0.259	6.478	5.620	4.843	28.770	37.944	58.316
TOTAL NET		0.124	0.159	0.309	1.680	3.495	4.543	6.494	7.700	13.201	25.124	42.039

	Type*	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
NORTH SLOPE												
East Barrow	dry	–	–	–	–	–	–	–	–	–	–	–
Endicott	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Kuparuk River	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Lisburne	csg	–	–	–	–	–	–	–	–	–	–	–
	inj [1]	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Milne Point	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
Niakuk	csg	–	–	–	–	–	–	–	–	–	–	–
N. Prudhoe Bay St.	csg	–	–	–	–	–	–	–	–	–	–	–
Point McIntyre	csg	–	–	–	–	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–	–	–	–	–
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
	net	0.243	1.037	0.889	0.658	0.699	2.022	3.046	5.077	26.818	36.111	42.339
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
	net	–	–	–	–	–	0.131	0.322	0.170	0.103	0.185	0.103
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	–	–	–	–	–	–	–	–	–	–	–
	net	8.043	9.211	7.753	5.773	4.518	3.265	3.390	3.205	3.634	3.851	3.287
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
	net	14.194	19.688	19.304	19.722	19.063	19.599	21.471	19.027	19.706	18.585	16.605
Middle Ground Shoal	csg	6.006	6.137	5.147	4.075	4.826	4.259	4.199	4.347	4.108	3.290	2.744
	dry	–	–	–	–	–	–	–	–	–	–	–
	net	6.006	6.137	5.147	4.075	4.826	4.259	4.199	4.347	4.108	3.290	2.744
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
	net	(26.459)	(22.743)	(7.323)	(8.692)	(13.415)	(5.924)	(7.311)	(11.852)	(11.368)	(7.623)	(4.002)
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	–	–	–	–	–	–	–	–	–	–	–
	net	7.119	7.156	9.097	5.668	3.539	3.312	2.613	2.473	2.890	2.427	1.708
West Fork	dry	–	–	–	–	–	–	–	–	–	0.052	0.770
West McArthur River	csg	–	–	–	–	–	–	–	–	–	–	–
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

	Type*	1980	1981	1982	1983	1984	1985	1986
NORTH SLOPE								
East Barrow	dry	–	0.037	0.717	0.689	0.693	0.632	0.589
Endicott	csg	–	–	–	–	–	–	0.196
	inj	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	0.196
Kuparuk River	csg	–	0.615	22.989	44.391	57.508	104.279	114.889
	inj	–	–	17.822	38.277	47.930	85.909	90.449
	net	–	0.615	5.166	6.114	9.578	18.370	24.440
Lisburne	csg	–	0.003	0.374	0.154	0.343	1.902	8.677
	inj [1]	–	–	–	–	–	–	–
	net	–	0.003	0.374	0.154	0.343	1.902	8.677
Milne Point	csg	–	–	–	–	–	0.253	1.644
	inj	–	–	–	–	–	–	0.197
	net	–	–	–	–	–	0.253	1.447
Niakuk	csg	–	–	–	–	–	–	–
N. Prudhoe Bay St.	csg	–	–	–	–	–	–	–
Point McIntyre	csg	–	–	–	–	–	–	–
	inj	–	–	–	–	–	–	–
	net	–	–	–	–	–	–	–
Prudhoe Bay	csg	597.148	647.768	756.884	818.993	846.674	936.613	970.290
	inj	546.509	595.106	697.813	754.044	768.899	846.786	882.883
	net	50.638	52.662	59.071	64.950	77.776	89.827	87.407
Sag Delta	csg	–	–	–	–	–	–	–
Schrader Bluff	csg	–	–	–	–	–	–	–
South Barrow	dry	1.027	1.009	0.532	0.541	0.650	0.678	0.589
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
TOTAL INJECTED		546.509	595.106	715.635	792.321	816.829	932.695	973.529
TOTAL NET		51.665	54.325	65.861	72.454	89.119	111.796	123.453
COOK INLET								
Albert Kaloa	dry	–	–	–	–	–	–	–
Beaver Creek	csg	0.091	0.080	0.082	0.092	0.101	0.094	0.078
	dry	0.090	0.137	0.308	8.252	9.234	10.833	17.694
	inj	0.029	0.020	0.037	0.031	–	–	–
	net	0.151	0.197	0.352	8.313	9.335	10.927	17.773
Beluga River	dry	17.002	17.248	18.653	18.084	19.833	22.571	25.357
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
	dry	–	–	–	–	–	–	–
	net	3.233	3.509	2.780	2.578	2.340	2.147	2.415
Ivan River	dry	–	–	–	–	–	–	–
Kenai	dry	98.846	105.800	115.913	112.978	110.109	115.843	82.471
Lewis River	dry	–	–	–	–	0.696	1.644	1.338
McArthur River	csg	8.043	7.651	7.521	6.444	5.834	4.073	4.397
	dry	7.547	7.555	8.719	7.931	9.242	6.603	9.163
	net	15.590	15.206	16.240	14.375	15.076	10.676	13.560
Middle Ground	csg	2.628	2.502	2.277	2.294	2.212	2.129	1.199
Shoal	dry	–	–	0.097	0.371	0.514	0.493	0.394
	net	2.628	2.502	2.374	2.665	2.726	2.622	1.593
Moquawkie	dry	–	–	–	–	–	–	–
Nicolai Creek	dry	–	–	–	–	–	–	–
North Cook Inlet	dry	41.540	49.486	45.368	47.877	46.981	45.819	43.838
North Fork	dry	–	–	–	–	–	–	–
Pretty Creek	dry	–	–	–	–	–	–	0.067
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
	dry	0.068	–	–	–	–	–	–
	inj	120.636	106.137	113.023	95.353	93.687	89.025	93.602
	net	(1.781)	(2.545)	(7.369)	2.155	3.023	3.079	1.481
Trading Bay	csg	1.448	1.232	1.221	0.915	0.940	1.115	0.994
	dry	0.104	0.192	0.411	0.631	0.626	0.417	0.385
	net	1.551	1.424	1.632	1.546	1.566	1.532	1.379
West Fork	dry	0.476	0.030	0.086	0.067	0.037	0.022	–
West McArthur River	csg	–	–	–	–	–	–	–
TOTAL GROSS		299.929	299.038	309.114	306.044	305.427	305.919	284.874
TOTAL INJECTED		120.636	106.137	113.023	95.353	93.687	89.025	93.602
TOTAL NET		179.293	192.901	196.092	210.692	211.739	216.894	191.272
STATE								
TOTAL GROSS		898.104	948.469	1,090.610	1,170.819	1,211.374	1,350.410	1,381.856
TOTAL INJECTED		667.146	701.243	828.658	887.674	910.516	1,021.720	1,067.130
TOTAL NET		230.958	247.226	261.952	283.145	300.858	328.690	314.725

	Type*	1987	1988	1989	1990	1991	1992	1993
NORTH SLOPE								
East Barrow	dry	0.590	0.661	0.475	0.488	0.583	0.439	0.259
Endicott	csg	8.237	34.834	41.197	42.490	60.246	97.047	120.116
	inj	5.615	28.023	33.033	35.523	51.136	85.082	100.682
	net	2.622	6.812	8.164	6.967	9.110	11.965	19.434
Kuparuk River	csg	125.089	119.883	107.519	116.579	123.207	122.767	120.599
	inj	89.191	87.906	83.323	91.273	95.982	96.625	94.339
	net	35.898	31.977	24.196	25.306	27.225	26.142	26.260
Lisburne	csg	64.906	94.670	104.746	107.592	124.360	154.457	131.590
	inj [1]	56.741	87.815	102.248	101.542	112.457	141.598	122.991
	net	8.164	6.855	2.498	6.049	11.903	12.859	8.599
Milne Point	csg	0.011	–	0.978	2.718	3.515	3.025	2.967
	inj	–	–	0.320	1.401	1.704	1.632	1.841
	net	0.011	–	0.658	1.318	1.811	1.393	1.126
Niakuk	csg	–	–	–	–	–	–	–
N. Prudhoe Bay St.	csg	–	–	–	–	–	–	1.102
Point McIntyre	csg	–	–	–	–	–	–	4.894
	inj	–	–	–	–	–	–	3.979
	net	–	–	–	–	–	–	0.915
Prudhoe Bay	csg	1,228.527	1,404.992	1,412.853	1,481.462	1,768.837	1,951.156	2,248.985 [2]
	inj	1,104.827	1,245.254	1,244.000	1,312.874	1,574.366	1,750.219	2,043.814 [2]
	net	123.699	159.738	168.853	168.589	194.471	200.937	205.171
Sag Delta	csg	–	–	0.236	1.416	2.347	0.703	0.529
Schrader Bluff	csg	–	–	–	–	0.244	0.536	0.518
South Barrow	dry	0.622	0.598	0.758	0.733	0.662	0.628	0.441
Walakpa	dry	–	–	–	–	–	0.252	0.585
West Beach	csg	–	–	–	–	–	–	0.587
West Sak	csg	–	–	–	–	–	–	–
TOTAL GROSS		1,427.982	1,655.639	1,668.761	1,753.478	2,084.001	2,331.010	2,633.172
TOTAL INJECTED		1,256.374	1,448.997	1,462.924	1,542.612	1,835.645	2,075.156	2,367.646
TOTAL NET		171.608	206.642	205.837	210.865	248.356	255.854	265.526
COOK INLET								
Albert Kaloa	dry	–	–	–	–	–	–	–
Beaver Creek	csg	0.053	0.039	0.064	0.058	0.049	0.048	0.042
	dry	15.475	14.307	12.257	12.416	10.354	7.320	6.294
	inj	–	–	–	–	–	–	–
	net	15.528	14.346	12.321	12.474	10.403	7.368	6.336
Beluga River	dry	23.971	25.586	30.126	39.512	38.494	36.534	31.739
Birch Hill	dry	–	–	–	–	–	–	–
Cannery Loop	dry	–	9.400	11.255	12.502	12.318	10.635	9.516
Falls Creek	dry	–	–	–	–	–	–	–
Granite Point	csg	2.431	2.543	2.251	1.431	1.586	2.246	2.435
	dry	–	–	–	–	–	–	0.009
	net	2.431	2.543	2.251	1.431	1.586	2.246	2.444
Ivan River	dry	–	–	–	0.676	2.132	1.774	8.238
Kenai	dry	90.014	76.299	65.706	38.393	25.581	24.187	23.826
Lewis River	dry	0.345	0.045	0.095	1.485	1.420	0.706	0.383
McArthur River	csg	3.393	4.120	4.317	2.559	5.121	5.175	4.107
	dry	9.884	12.603	26.683	48.897	56.075	64.895	58.406
	net	13.277	16.722	31.000	51.456	61.196	70.070	62.512
Middle Ground Shoal	csg	1.274	1.223	1.250	1.334	1.074	1.015	0.937
	dry	0.312	0.411	0.715	1.246	0.513	1.362	2.004
	net	1.586	1.635	1.965	2.579	1.587	2.377	2.941
Moquawkie	dry	–	–	–	–	–	–	–
Nicolai Creek	dry	–	–	–	–	–	–	–
North Cook Inlet	dry	42.889	44.989	45.287	45.014	44.695	44.411	45.529
North Fork	dry	–	–	–	–	–	–	–
Pretty Creek	dry	0.776	0.871	0.641	0.607	0.742	0.762	0.333
Redoubt Shoal	csg	–	–	–	–	–	–	–
Sterling	dry	–	–	–	–	–	–	0.007
Stump Lake	dry	–	–	–	0.528	1.608	1.504	0.778
Swanson River	csg	83.508	101.685	102.910	101.685	101.869	101.083	95.495
	dry	0.555	0.915	1.184	2.710	2.944	2.915	2.206
	inj	87.013	99.734	107.802	106.031	105.157	104.724	93.052
	net	(2.949)	2.866	(3.709)	(1.636)	(0.344)	(0.726)	4.649
Trading Bay	csg	0.991	1.120	1.291	0.465	0.944	0.705	0.619
	dry	0.443	0.191	0.141	0.003	–	–	–
	net	1.434	1.311	1.432	0.467	0.944	0.705	0.619
West Fork	dry	–	–	–	–	0.460	1.364	0.625
West McArthur River	csg	–	–	–	–	–	–	0.031
TOTAL GROSS		276.314	296.347	306.173	311.519	307.980	308.641	293.558
TOTAL INJECTED		87.013	99.734	107.802	106.031	105.157	104.724	93.052
TOTAL NET		189.302	196.614	198.370	205.488	202.823	203.917	200.506
STATE								
TOTAL GROSS		1,704.296	1,951.986	1,974.933	2,064.996	2,391.981	2,639.651	2,926.729
TOTAL INJECTED		1,343.387	1,548.731	1,570.726	1,648.643	1,940.802	2,179.880	2,460.698
TOTAL NET		360.909	403.255	404.207	416.353	451.179	459.771	466.031

TABLE 4 – HISTORICAL GAS PRODUCTION

BILLIONS OF CUBIC FEET PER YEAR

	Type*	1994 Est.	Cumulative Est. (Bcf)	Reserves (Bcf)	Field Depletion
NORTH SLOPE					
East Barrow	dry	0.262	7.114	6	54%
Endicott	csg	114.921	519.281		
	inj	100.639	439.733		
	net	14.282	79.548	894	8%
Kuparuk River	csg	120.774	1,300.969		
	inj	93.757	1,012.783		
	net	27.017	288.186	682	30%
Lisburne	csg	100.476	894.249		
	inj [1]	96.953	822.346		
	net	3.522	71.903	277	21%
Milne Point	csg	3.430	18.542		
	inj	2.212	9.306		
	net	1.218	9.236	[2]	[2]
Niakuk	csg	2.470	2.470	33	7%
N. Prudhoe Bay St.	csg	2.173	3.275	4	45%
Point McIntyre	csg	35.951	40.844		
	inj	33.607	37.586		
	net	2.344	3.258	300	1%
Prudhoe Bay	csg	2,291.759	20,079.810		
	inj	2,095.032	18,221.201		
	net	196.728	1,858.609	26000	7%
Sag Delta	csg	0.258	5.489	NC	NC
Schrader Bluff	csg	0.535	1.832	NC	NC
South Barrow	dry	0.337	21.981	4	85%
Walakpa	dry	0.671	1.508	28	5%
West Beach	csg	1.195	1.783	3	37%
West Sak	csg	–	0.326	NC	NC
TOTAL GROSS		2,675.211	22,899.473 [4]		
TOTAL INJECTED		2,422.200	20,542.955		
TOTAL NET		253.011	2,356.518		
COOK INLET					
Albert Kaloa	dry	–	0.119	NC	NC
Beaver Creek	csg	0.039	1.769		
	dry	1.361	127.235		
	inj	–	0.551		
	net	1.401	128.453	114	53%
Beluga River	dry	32.282	487.450	372	57%
Birch Hill	dry	–	0.065	11	1%
Cannery Loop	dry	6.471	74.096	230	24%
Falls Creek	dry	–	0.019	13	0%
Granite Point	csg	2.107	106.896		
	dry	–	0.009		
	net	2.107	106.905	31	78%
Ivan River	dry	16.137	28.957	[4] 120	[4] 19%
Kenai	dry	18.567	2,097.639	191	92%
Lewis River	dry	0.258	8.415	[4]	[4]
McArthur River	csg	4.121	223.316		
	dry	39.631	440.733		
	net	43.751	664.049	299	69%
Middle Ground Shoal	csg	1.216	84.781		
	dry	2.022	10.455		
	net	3.238	95.236	15	86%
Moquawkie	dry	–	0.985	NC	NC
Nicolai Creek	dry	–	1.062	2	35%
North Cook Inlet	dry	50.226	1,140.448	358	76%
North Fork	dry	–	0.105	12	1%
Pretty Creek	dry	0.201	4.999	[5]	[5]
Redoubt Shoal	csg	–	<.001	NC	NC
Sterling	dry	0.151	2.246	23	9%
Stump Lake	dry	0.470	4.887	[5]	[5]
Swanson River	csg	121.126	2,478.710		
	dry	1.984	27.516		
	inj	95.645	2,728.343	[6]	
	net	27.466	(222.117)	43	NC
Trading Bay	csg	0.641	66.337		
	dry	–	3.543		
	net	0.641	69.880	29	71%
West Fork	dry	0.222	4.212	3	58%
West McArthur River	csg	0.219	0.251	1	20%
TOTAL GROSS		299.452	7,427.255		
TOTAL INJECTED		95.645	2,728.894		
TOTAL NET		203.807	4,698.361		
STATE					
TOTAL GROSS		2,974.663	30,326.728		
TOTAL INJECTED		2,517.844	23,271.849		
TOTAL NET		456.819	7,054.879		

Source: Alaska Oil and Gas Conservation Commission, "Alaska Production Summary by Field and Pool."

* dry = dry gas
csg = casinghead gas
inj = injected
net = dry + csg – inj

NC = Not Calculated

[1] Lisburne injection volumes include gas from Lisburne,Niakuk, North Prudhoe Bay State and West Beach.

[2] Alaska Oil and Gas Conservation Commission, "Report of Gas Disposition."

[3] Milne Point is assigned no gas reserves because most of its gas will be used for production fuel.

[4] North Slope "Total Gross" annual figures d the cumulative figure because recent revisions data are not included in this table.

[5] In this table the reserves and depletion of Ivan River, Lewis River, Pretty Creek, and Stump Lake are computed as a single reservoir and assigned to Ivan River.

[6] More gas was injected into the field than was produced, to maintain oil production.

Revised 02/15/95

FIGURE 4-1 - GROSS PRODUCTION OF NORTH SLOPE GAS

BILLIONS OF CUBIC FEET PER YEAR

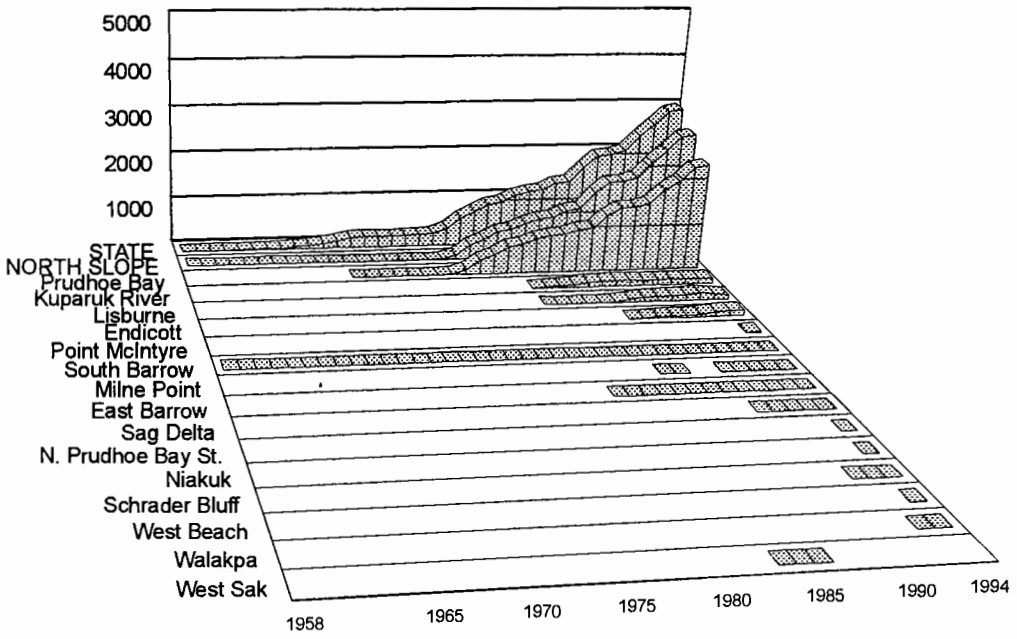


FIGURE 4-2 - GROSS PRODUCTION OF COOK INLET GAS

BILLIONS OF CUBIC FEET PER YEAR

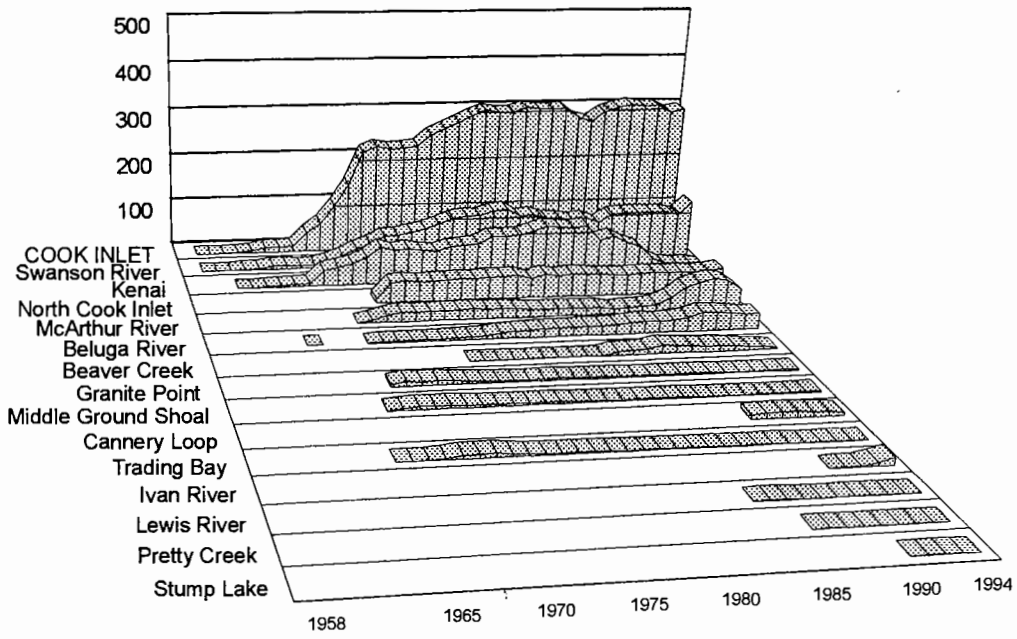


FIGURE 4-3 - NET PRODUCTION OF NORTH SLOPE GAS

BILLIONS OF CUBIC FEET PER YEAR

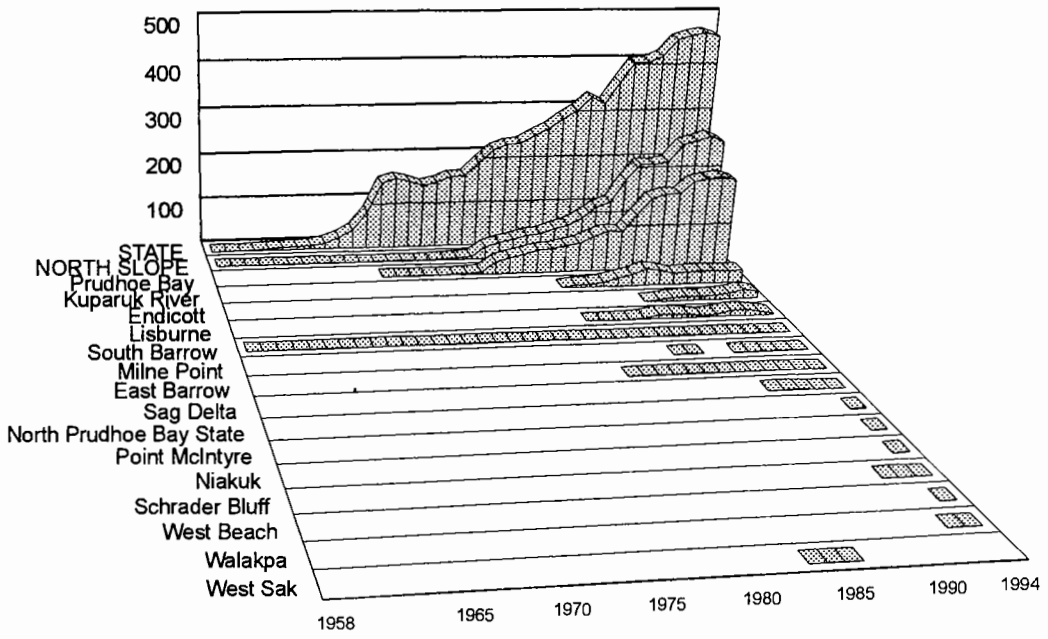
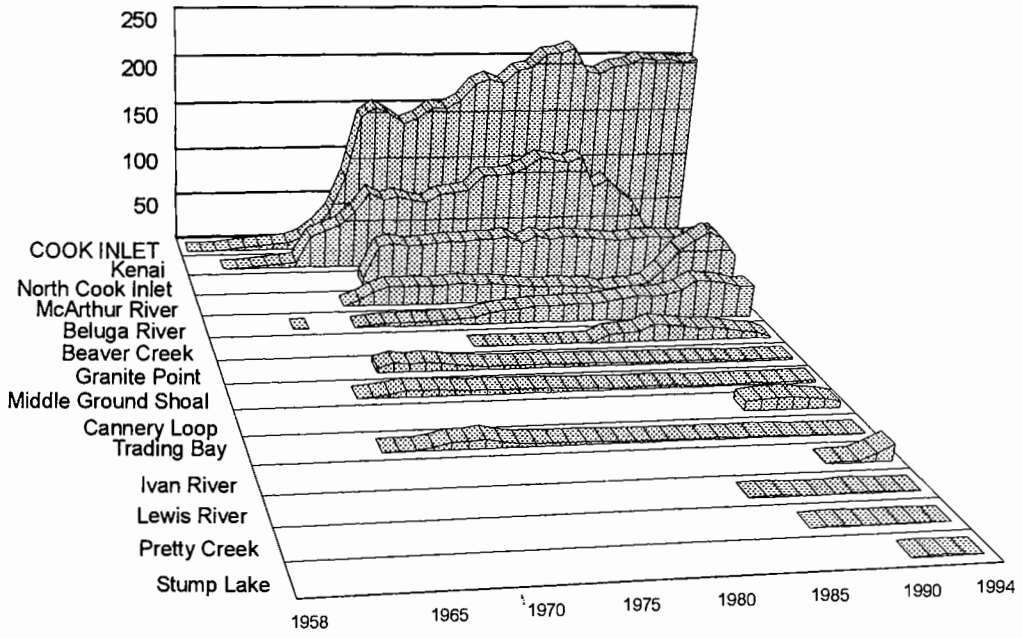


FIGURE 4-4 - NET PRODUCTION OF COOK INLET GAS

BILLIONS OF CUBIC FEET PER YEAR



5 HISTORICAL CONSUMPTION OF OIL

All of the oil consumed in Alaska is in the form of refined fuels, and no significant amount of crude oil has ever been consumed in the state for manufacturing or commercial use other than refining. Much of Alaska's fuel demand is supplied by four in-state refineries and five topping plants. 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 (DOR) 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 addition, Mapco exports some refined products. In 1994, after subtracting Other Diesel/Exported as Cargo from total fuel sales, Alaska consumed 1.5 billion gallons of fuel, including 680 million gallons of aviation jet fuel, 573 million gallons of diesel, and 246 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	1994 Est.
FUEL SALES									
Aviation Gas	17.815	18.492	19.314	19.309	20.807	19.555	20.228	18.831	20.307
Exempt	0.858	0.384	0.743	0.816	1.019	0.673	0.747	0.368	0.394
Taxable	16.957	18.108	18.571	18.493	19.788	18.882	19.481	18.463	19.913
Aviation Jet	592.620	644.477	684.910	682.239	873.336	716.737	753.220	745.482	680.164
Exempt	280.654	318.349	333.703	311.805	423.583	342.262	373.772	399.433	399.436
Taxable	311.966	326.128	351.207	370.434	449.753	374.475	379.448	346.049	280.728
Marine Gas	10.464	11.510	10.554	10.202	10.477	10.269	13.082	10.994	8.286
Exempt	0.291	0.183	0.075	0.194	0.239	0.607	0.144	0.459	0.142
Taxable	10.173	11.327	10.479	10.008	10.238	9.662	12.938	10.535	8.144
Marine Diesel	105.218	171.769	159.027	176.361	198.301	193.194	198.553	172.252	153.541
Exempt	10.097	83.120	43.828	28.636	15.701	14.852	10.512	10.026	7.035
Taxable	95.121	88.649	115.199	147.725	182.600	178.342	188.041	162.226	146.506
Other Gas	234.482	221.259	222.162	215.462	244.488	217.039	245.690	242.251	238.240
Exempt	21.558	17.541	15.040	15.445	9.331	7.811	13.304	16.291	8.823
Taxable	212.924	203.718	207.122	200.017	235.157	209.228	232.386	225.960	229.417
Other Diesel	897.970	843.045	858.228	956.127	843.652	756.671	655.217	626.939	419.380
Exempt	559.413	583.305	576.131	674.692	570.569	471.046	382.923	396.638	215.849
Taxable	338.557	259.740	282.097	281.435	273.083	285.625	272.294	230.301	203.531
TOTAL	1,858.569	1,910.552	1,954.195	2,059.700	2,191.061	1,913.465	1,885.990	1,816.749	1,519.918

Source: Alaska Department of Revenue, "Report of Motor Fuel Sold or Distributed in Alaska."
Revised 01/03/95

TABLE 5B – ESTIMATED FUEL SOLD OR DISTRIBUTED IN ALASKA IN 1994

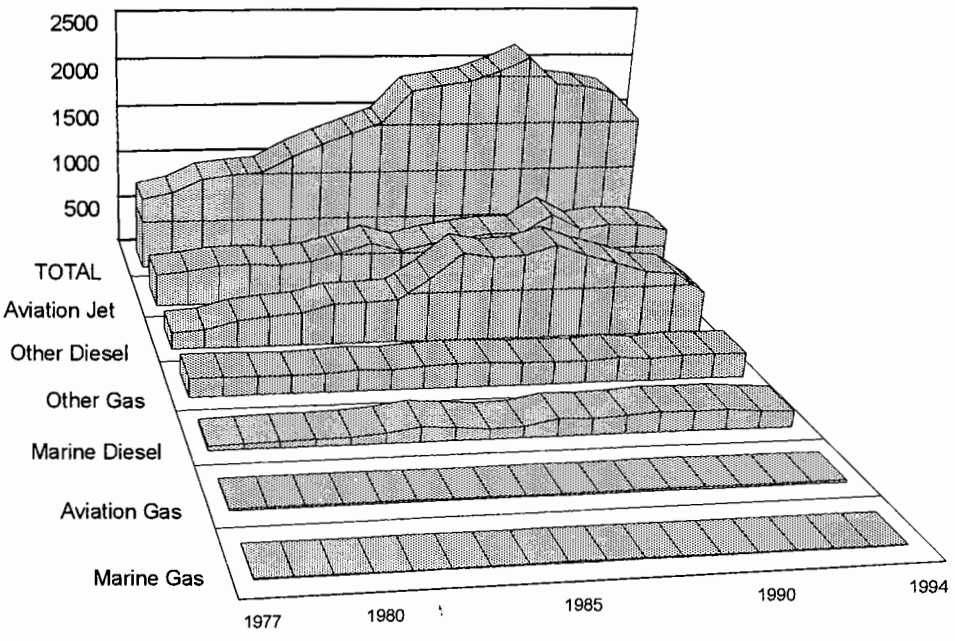
MILLIONS OF GALLONS PER YEAR

	Aviation Gas	Aviation Jet	Marine Gas	Marine Diesel	Other Gas	Other Diesel	TOTAL
EXEMPT							
Sold for heating use	–	0.075	–	–	0.009	137.752	137.837
Federal government	0.172	62.434	0.088	1.066	1.772	10.143	75.677
State/local government	0.198	0.081	0.045	5.827	3.466	15.403	25.020
Charitable institution	0.013	0.014	0.003	0.139	0.069	0.691	0.930
Pub. util./non–profit power assoc.	–	–	–	–	0.108	25.294	25.401
Exempt power plant	–	–	–	–	0.109	4.304	4.414
Jet fuel–foreign flights	–	239.834	–	–	–	–	239.834
Bonded jet fuel	–	108.110	–	–	–	–	108.110
Consigned to foreign countries	–	–	–	–	–	–	–
Exported as cargo	0.010	32.666	0.005	0.003	3.250	21.948	57.882
Gasohol	–	–	–	–	–	–	–
Actual losses	–	–	<.001	–	–	0.447	0.447
Other	–	(43.779)	0.001	–	0.040	(0.133)	(43.872)
TOTAL EXEMPT	0.394	399.436	0.142	7.035	8.823	215.849	631.680
TOTAL TAXABLE	19.913	280.728	8.144	146.506	229.417	203.531	888.240
TOTAL EXEMPT + TAXABLE	20.307	680.165	8.286	153.542	238.240	419.380	1,519.920

Source: Alaska Department of Revenue, "Report of Motor Fuel Sold Or Distributed in Alaska."
Revised 12/29/94

FIGURE 5A - HISTORICAL OIL CONSUMPTION

MILLIONS OF GALLONS PER YEAR



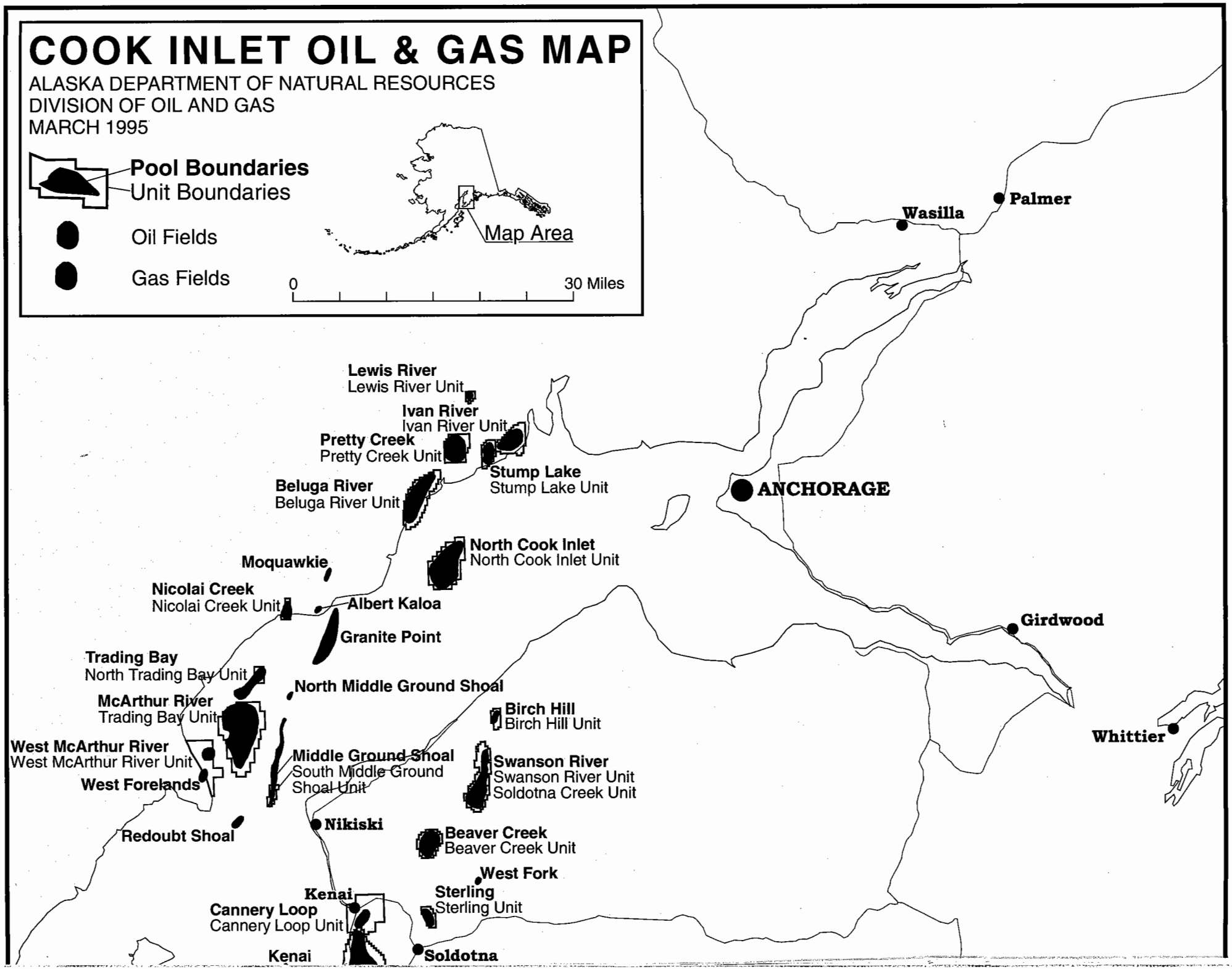
6 HISTORICAL CONSUMPTION OF NATURAL GAS

NORTH SLOPE

At present, the only market for North Slope gas is as fuel for oil production facilities and oil field related activities. Consequently, 91% of the extracted gas is injected back into the fields to maintain reservoir pressure and to conserve the gas resources. Of the estimated 253 billion cubic feet that were consumed in 1994, 82% went to field related activities of which the largest consumers were the gas handling and gas injection systems. A further 10% was reported as NGL and 4% 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 each year into Swanson River field to maintain oil reservoir pressure. Some of the Swanson River gas is now being produced and marketed off unit. Of an estimated 204 billion cubic feet consumed in 1994, 38% went to Phillips-Marathon's LNG plant for combined fuel use and product, 28% went to Union's ammonia-urea plant for both energy and feed stock, 16% to power generation, 13% to utility gas, and 10% to field operations.


COOK INLET OIL & GAS MAP
ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS
MARCH 1995
Pool Boundaries
Unit Boundaries
Oil Fields
Gas Fields
Map Area
0
30 Miles
Wasilla
Palmer
ANCHORAGE
Girdwood
Whittier
Lewis River
Lewis River Unit
Ivan River
Ivan River Unit
Pretty Creek
Pretty Creek Unit
Stump Lake
Stump Lake Unit
Beluga River
Beluga River Unit
North Cook Inlet
North Cook Inlet Unit
Moquawkie
Nicolai Creek
Nicolai Creek Unit
Albert Kaloa
Granite Point
Trading Bay
North Trading Bay Unit
North Middle Ground Shoal
McArthur River
Trading Bay Unit
Birch Hill
Birch Hill Unit
West McArthur River
West McArthur River Unit
West Forelands
Middle Ground Shoal
South Middle Ground
Shoal Unit
Swanson River
Swanson River Unit
Soldotna Creek Unit
Redoubt Shoal
Nikiski
Beaver Creek
Beaver Creek Unit
West Fork
Kenai
Sterling
Sterling Unit
Cannery Loop
Cannery Loop Unit
Kenai
Soldotna

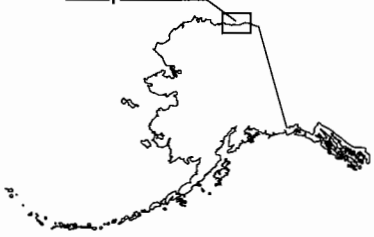
NORTH SLOPE OIL & GAS MAP

ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS
MARCH 1995

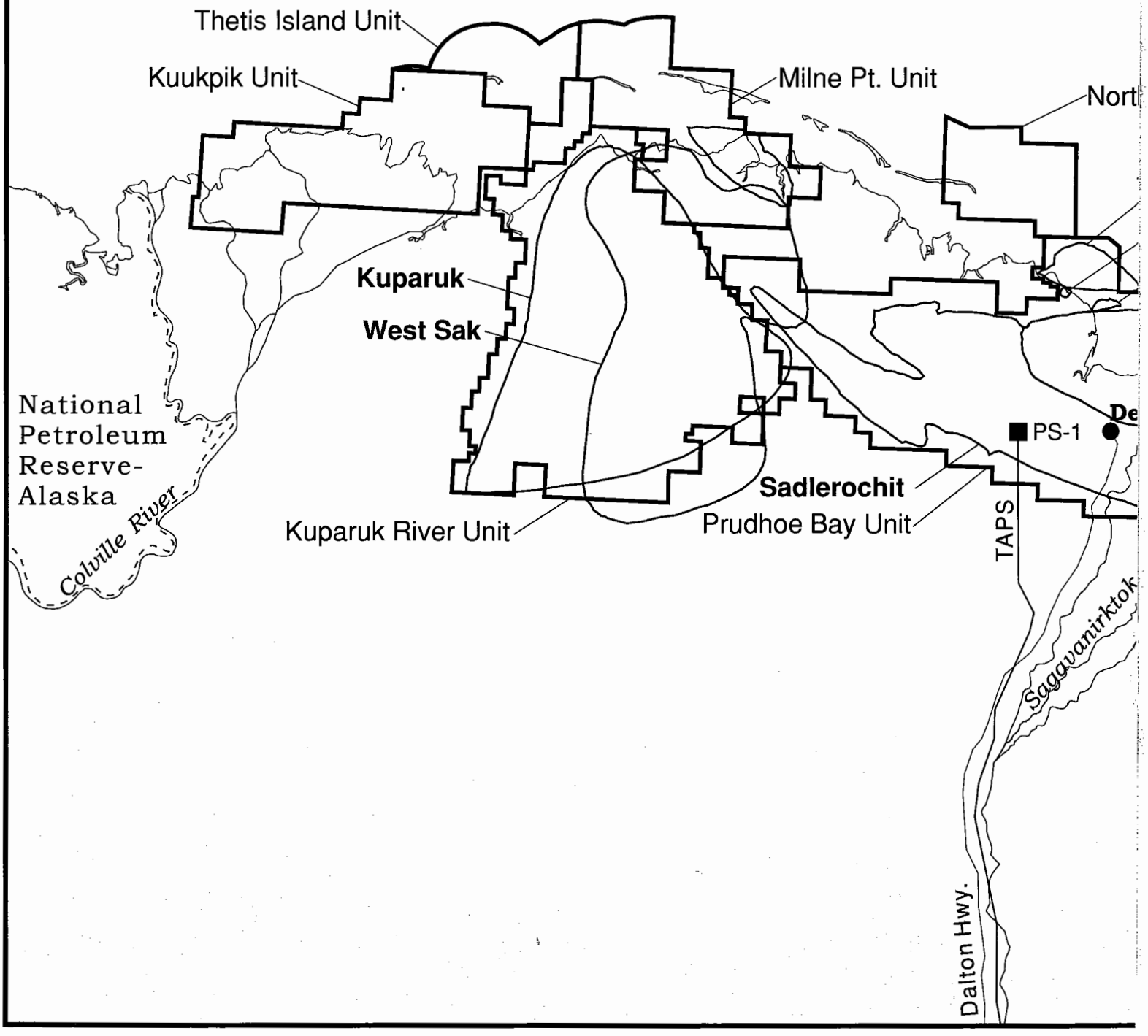
Pool Boundaries
Unit Boundaries

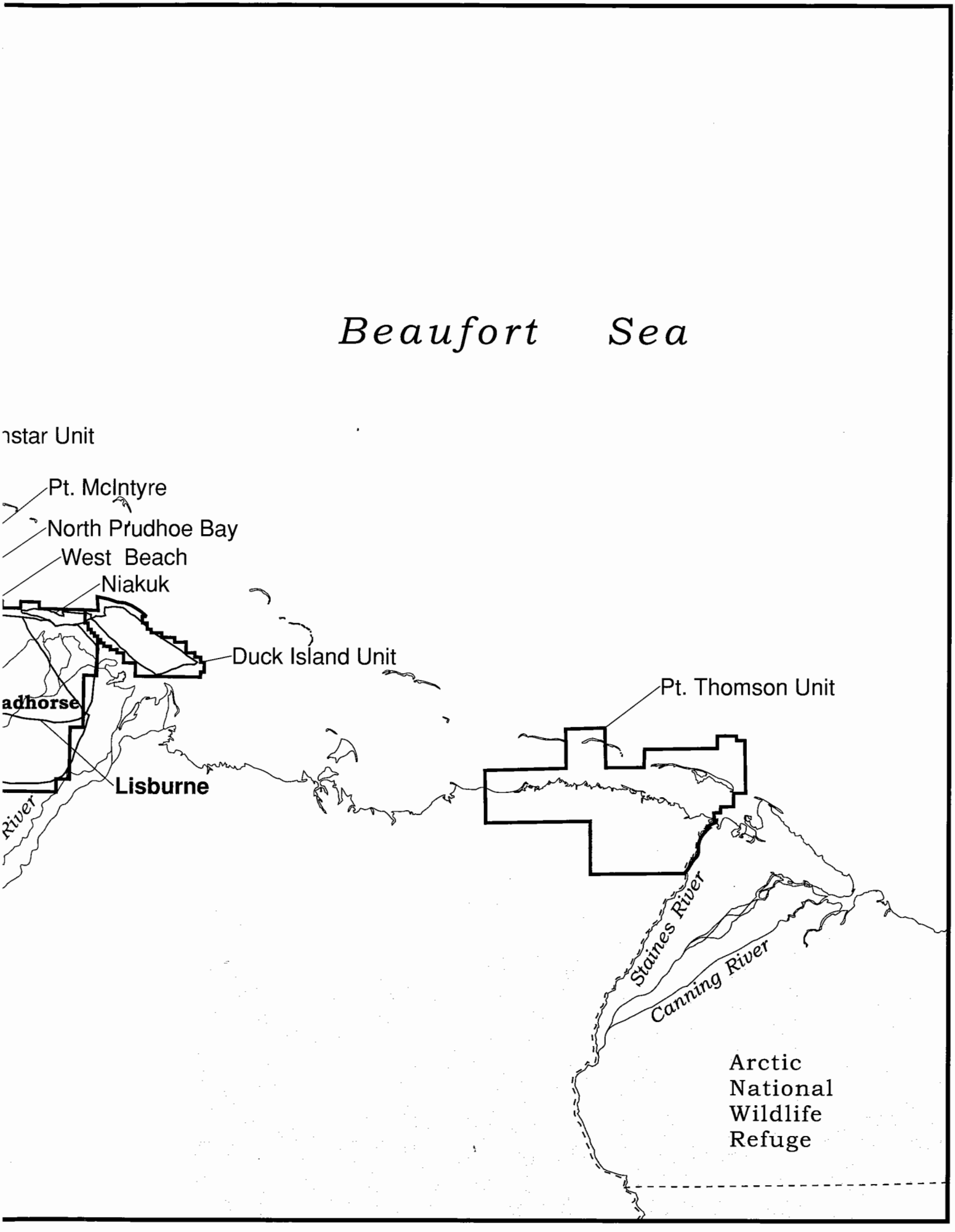
PS-1 ■ Pump Station #1

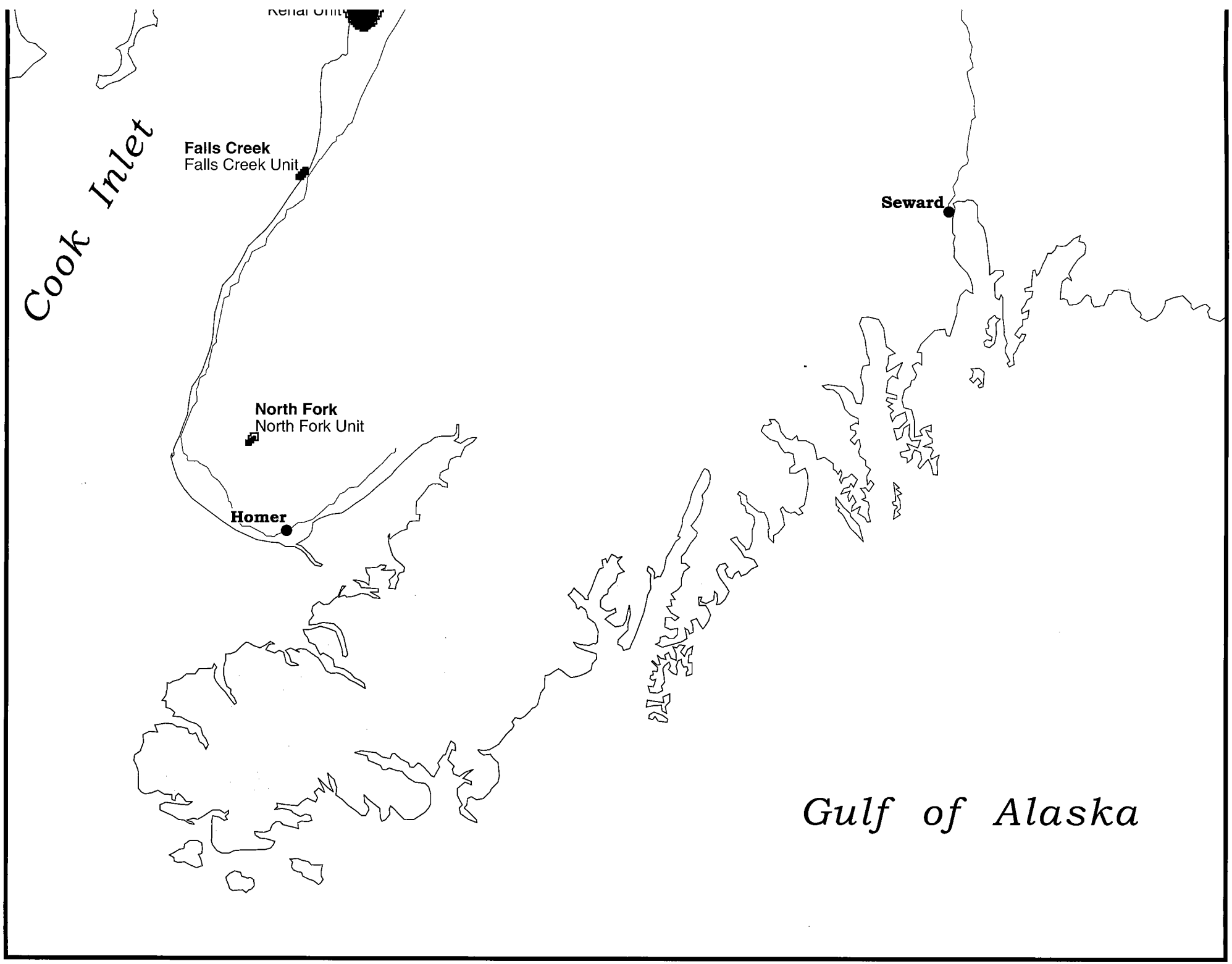
Map Area



0 25 Miles




Beaufort Sea
nstar Unit
Pt. McIntyre
North Prudhoe Bay
West Beach
Niakuk
Duck Island Unit
adhorse
Lisburne
River
Pt. Thomson Unit
Staines River
Canning River
Arctic
National
Wildlife
Refuge


Cook Inlet
Falls Creek
Falls Creek Unit
Seward
North Fork
North Fork Unit
Homer
Gulf of Alaska

7 PROJECTED CONSUMPTION OF OIL AND NATURAL GAS

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. The model estimated demand as a function of population and the availability of alternative energy sources. DO&G staff thoroughly recalibrated the mode for last year's edition of this report by 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 have adjusted the projected consumption total. A major conclusion to draw from the projection is that this year, for the first time, the state will consume more fuel than can be refined from its royalty oil share alone, assuming that 50% of a barrel of crude can be refined to fuels. Most Alaskan refineries and topping plants convert less than 50% of their feedstock into refined products, though exact data on refinery conversion is not available to the public. The state's royalty share of production alone has never been used to supply 100% of instate refining needs. Local refiners have always purchased some crude oil directly from the North Slope and Cook Inlet producers.

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

TABLE 7A – PROJECTED DEMAND FOR OIL

MILLIONS OF GALLONS PER YEAR

	1995	1996	1997	1998	1999	2000	2001	2002	2003
STATE									
Vehicle Transportation	1,511	1,539	1,571	1,601	1,632	1,659	1,682	1,704	1,730
Jet Fuel	752	773	795	818	841	862	884	904	927
Civilian Domestic	427	445	464	483	503	521	539	556	575
Military and International	325	328	331	335	338	341	345	348	352
Gasoline	258	259	262	263	264	265	264	264	264
Aviation	17	17	18	18	18	18	18	18	18
Highway	232	233	235	236	237	238	237	237	237
Marine	9	9	9	9	9	9	9	9	9
Diesel	501	507	514	520	527	532	534	536	539
Highway	286	288	290	291	293	294	293	292	292
Marine	215	219	224	229	234	238	241	244	247
Space Heat	133	134	135	135	138	140	140	141	142
Utility Generation	45	44	43	43	45	47	48	48	49
Industry	76	72	67	63	59	56	53	49	46
Pipeline Fuel	57	53	49	45	42	39	36	33	30
Electricity Generation	19	19	18	18	17	17	17	16	16
TOTAL	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	27,631	0%
Jet Fuel	950	975	1,000	1,029	1,060	1,091	1,125	14,786	3%
Civilian Domestic	595	616	638	663	690	718	748	9,181	4%
Military and International	355	359	362	366	370	373	377	5,605	1%
Gasoline	263	263	264	265	267	269	270	4,224	1%
Aviation	18	18	18	19	19	19	19	290	1%
Highway	236	236	237	237	239	240	241	3,788	0%
Marine	9	9	9	9	9	10	10	146	1%
Diesel	543	547	551	557	564	571	578	8,621	1%
Highway	292	292	292	293	295	296	298	4,677	0%
Marine	251	255	259	264	269	275	280	3,944	2%
Space Heat	142	142	143	144	145	146	147	2,247	1%
Utility Generation	48	48	48	48	48	49	48	749	2%
Industry	44	41	39	37	36	33	32	803	−6%
Pipeline Fuel	28	26	24	22	21	19	18	542	−7%
Electricity Generation	16	15	15	15	15	14	14	261	−2%
TOTAL	1,990	2,016	2,045	2,080	2,120	2,159	2,200	31,430	1%

TABLE 7B – PROJECTED DEMAND FOR GAS

BILLION CUBIC FEET PER YEAR

	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
Space Heat	27.3	27.6	27.7	27.7	27.0	27.5	27.5	27.6	27.6
Utility Generation	38.5	39.2	39.9	40.6	41.2	41.7	41.9	42.1	42.4
Industry	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
Military Power Generation	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Petroleum Production	202.8	197.8	193.0	188.3	183.7	179.3	175.0	170.8	166.8
Pipeline Fuel	9.8	9.1	8.4	7.8	7.2	6.6	6.2	5.7	5.3
Miscellaneous	193.0	188.7	184.6	180.5	176.5	172.6	168.8	165.2	161.6
TOTAL	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	444	0%
Utility Generation	42.8	43.2	43.7	44.3	44.9	45.7	46.5	679	1%
Industry	222.4	218.6	214.9	211.3	207.9	204.5	201.2	3,674	−1%
Ammonia–Urea Production	54.5	54.5	54.5	54.5	54.5	54.5	54.5	872	0%
Military Power Generation	5.0	5.0	5.0	5.0	5.0	5.0	5.0	80	0%
Petroleum Production	162.9	159.1	155.4	151.8	148.4	145.0	141.7	2,722	−2%
Pipeline Fuel	4.9	4.5	4.2	3.9	3.6	3.3	3.0	94	−7%
Miscellaneous	158.0	154.6	151.3	148.0	144.8	141.7	138.6	2,629	−1%
TOTAL	292.9	289.7	286.6	283.7	280.9	278.5	276.1	4,796	−1%

Revised 01/20/95

8 ROYALTY IN-KIND VOLUMES

The state can take its royalty share of oil in kind (barrels) or in value (money). Over the years, the state has taken a portion of its royalty oil in kind (RIK) and sold it to third parties. Tables 8A and 8B show the RIK volumes that have been taken from 1979 to present.. The tables also list the purchasers of that oil. RIK sales prior to 1979 are not shown.

TABLE 8A – STATE RIK SALE VOLUMES BY FIELD

MILLIONS OF BARRELS PER YEAR

	1979	1980	1981	1982	1983	1984	1985	1986
PRUDHOE BAY								
Charter (Alpetco)	–	12.021	26.670	0.899	–	–	–	–
Mapco (North Pole)	0.447	5.976	8.808	9.632	11.724	13.093	13.261	13.168
Chevron	0.882	0.860	–	3.964	6.734	6.820	6.772	7.251
Tesoro	–	3.427	1.661	0.037	13.505	14.851	18.203	27.089
GVEA	–	–	0.398	0.765	1.208	1.871	1.929	1.881
ARCO Products	–	–	1.848	–	–	–	–	–
Oasis Petroleum	–	–	0.802	–	–	–	–	–
SOHIO	–	–	3.072	0.577	–	–	–	–
Shell (NP & Priority)	–	–	4.007	0.184	–	–	–	–
Union (NP & Priority)	–	–	3.695	0.634	–	–	–	–
Chevron 4	–	–	–	–	–	–	5.254	1.406
Texaco 2	–	–	–	–	–	–	10.030	2.343
US Refining	–	–	–	–	–	–	2.865	0.937
TOTAL	1.329	22.284	50.962	16.691	33.171	36.634	59.270	54.077
KUPARUK								
Chevron	–	–	–	–	–	–	2.729	0.497
Union	–	–	–	–	–	–	1.479	0.372
US Oil & Refining	–	–	–	–	–	–	0.916	0.993
Petro Star	–	–	–	–	–	–	–	0.083
Chevron	–	–	–	–	–	–	–	0.132
TOTAL	–	–	–	–	–	–	5.128	2.079
COOK INLET								
Tesoro	4.850	4.094	3.561	3.065	2.719	2.432	1.383	–
Chinese Petroleum	–	–	–	–	–	–	–	–
TOTAL	4.850	4.094	3.561	3.065	2.719	2.432	1.383	–

TABLE 8B – STATE RIK SALE VOLUMES BY SALE TYPE

MILLIONS OF BARRELS PER YEAR

	1979	1980	1981	1982	1983	1984	1985	1986
LONG TERM RIK VOLUMES – PRUDHOE BAY								
Charter (Alpetco)	–	12.021	26.670	0.899	–	–	–	–
Mapco (North Pole)	0.447	5.976	8.808	9.632	11.724	13.093	13.261	13.168
Chevron	0.882	0.860	–	3.964	6.734	6.820	6.772	7.251
Tesoro	–	2.550	0.801	0.037	13.505	14.851	18.203	27.089
GVEA	–	–	0.398	0.765	1.208	1.871	1.929	1.881
TOTAL	1.329	21.407	36.677	15.296	33.171	36.634	40.165	49.391
LONG TERM RIK VOLUMES – KUPARUK								
Petro Star	–	–	–	–	–	–	–	0.083
Chevron	–	–	–	–	–	–	–	0.132
TOTAL	–	–	–	–	–	–	–	0.215
LONG AND SHORT TERM RIK VOLUMES – COOK INLET								
Tesoro	4.850	4.094	3.561	3.065	2.719	2.432	1.383	–
Chinese Petroleum	–	–	–	–	–	–	–	–
TOTAL	4.850	4.094	3.561	3.065	2.719	2.432	1.383	–
1984 1 YEAR COMPETITIVE RIK PURCHASERS – PRUDHOE BAY								
Chevron 4	–	–	–	–	–	–	4.298	1.406
Texaco 2	–	–	–	–	–	–	7.163	2.343
US Oil Ref	–	–	–	–	–	–	2.865	0.937
TOTAL	–	–	–	–	–	–	14.326	4.687
1984 6 MONTH COMPETITIVE RIK PURCHASERS – PRUDHOE BAY								
Texaco 1	–	–	–	–	–	–	2.867	–
Chevron 5	–	–	–	–	–	–	0.956	–
SOHIO	–	–	–	–	–	–	0.956	–
TOTAL	–	–	–	–	–	–	4.779	–
1984 6 MONTH COMPETITIVE PURCHASERS – KUPARUK								
Chevron 6	–	–	–	–	–	–	1.136	–
Chevron 7	–	–	–	–	–	–	1.136	–
Union 2	–	–	–	–	–	–	1.136	–
Chevron 8	–	–	–	–	–	–	0.458	0.497
US Oil & Ref	–	–	–	–	–	–	0.916	0.993
Union 3	–	–	–	–	–	–	0.343	0.372
TOTAL	–	–	–	–	–	–	5.123	1.862
SHORT TERM RIK VOLUMES – PRUDHOE BAY								
Tesoro	–	0.877	0.860	–	–	–	–	–
ARCO Products	–	–	1.848	–	–	–	–	–
Oasis Petroleum	–	–	0.802	–	–	–	–	–
SOHIO	–	–	3.072	0.577	–	–	–	–
Shell (NP & Priority)	–	–	4.007	0.184	–	–	–	–
Union (NP & Priority)	–	–	3.695	0.634	–	–	–	–
TOTAL	–	0.877	14.284	1.395	–	–	–	–

	1987	1988	1989	1990	1991	1992	1993	1994	TOTAL
PRUDHOE BAY									
Charter (Alpetco)	–	–	–	–	–	–	–	–	39.589
Mapco (North Pole)	14.095	13.815	12.529	12.735	11.183	6.285	9.086	10.785	166.623
Chevron	7.094	6.450	6.014	4.040	–	–	–	–	56.882
Tesoro	28.858	28.601	25.685	20.480	15.336	14.412	9.814	9.346	231.308
GVEA	2.014	1.982	1.785	1.670	1.671	0.802	–	–	17.975
ARCO Products	–	–	–	–	–	–	–	–	1.848
Oasis Petroleum	–	–	–	–	–	–	–	–	0.802
SOHIO	–	–	–	–	–	–	–	–	4.605
Shell (NP & Priority)	–	–	–	–	–	–	–	–	4.191
Union (NP & Priority)	–	–	–	–	–	–	–	–	4.329
Chevron 4	–	–	–	–	–	–	–	–	6.660
Texaco 2	–	–	–	–	–	–	–	–	12.374
US Refining	–	–	–	–	–	–	–	–	3.803
TOTAL	52.060	50.848	46.013	38.927	28.190	21.499	18.901	20.131	550.988
KUPARUK									
Chevron	–	–	–	–	–	–	–	–	3.225
Union	–	–	–	–	–	–	–	–	1.851
US Oil & Refining	–	–	–	–	–	–	–	–	1.909
Petro Star	1.012	1.080	1.065	1.041	1.103	0.191	–	–	5.574
Chevron	1.612	1.733	1.704	1.666	1.765	–	–	–	8.611
TOTAL	2.626	2.815	2.771	2.709	2.871	0.191	–	–	21.171
COOK INLET									
Tesoro	–	–	–	–	–	–	–	–	22.104
Chinese Petroleum	0.615	0.800	1.274	0.567	0.331	–	–	–	3.587
TOTAL	0.615	0.800	1.274	0.567	0.331	–	–	–	25.691

	1987	1988	1989	1990	1991	1992	1993	1994	TOTAL
LONG TERM RIK VOLUMES – PRUDHOE BAY									
Charter (Alpetco)	–	–	–	–	–	–	–	–	39.589
Mapco (North Pole)	14.095	13.815	12.529	12.735	11.183	6.285	9.086	10.785	166.623
Chevron	7.094	6.450	6.014	4.040	–	–	–	–	56.882
Tesoro	28.858	28.601	25.685	20.480	15.336	14.412	9.814	9.346	229.571
GVEA	2.014	1.982	1.785	1.670	1.671	0.802	–	–	17.975
TOTAL	52.060	50.848	46.013	38.927	28.190	21.499	18.901	20.131	510.640
LONG TERM RIK VOLUMES – KUPARUK									
Petro Star	1.012	1.080	1.065	1.041	1.103	0.191	–	–	5.574
Chevron	1.612	1.733	1.704	1.666	1.765	–	–	–	8.611
TOTAL	2.624	2.812	2.769	2.707	2.868	0.191	–	–	14.185
LONG AND SHORT TERM RIK VOLUMES – COOK INLET									
Tesoro	–	–	–	–	–	–	–	–	22.104
Chinese Petroleum	0.615	0.800	1.274	0.567	0.331	–	–	–	3.587
TOTAL	0.615	0.800	1.274	0.567	0.331	–	–	–	25.691
1984 1 YEAR COMPETITIVE RIK PURCHASERS – PRUDHOE BAY									
Chevron 4	–	–	–	–	–	–	–	–	5.704
Texaco 2	–	–	–	–	–	–	–	–	9.507
US Oil Ref	–	–	–	–	–	–	–	–	3.803
TOTAL	–	–	–	–	–	–	–	–	19.013
1984 6 MONTH COMPETITIVE RIK PURCHASERS – PRUDHOE BAY									
Texaco 1	–	–	–	–	–	–	–	–	2.867
Chevron 5	–	–	–	–	–	–	–	–	0.956
SOHIO	–	–	–	–	–	–	–	–	0.956
TOTAL	–	–	–	–	–	–	–	–	4.779
1984 6 MONTH COMPETITIVE PURCHASERS – KUPARUK									
Chevron 6	–	–	–	–	–	–	–	–	1.136
Chevron 7	–	–	–	–	–	–	–	–	1.136
Union 2	–	–	–	–	–	–	–	–	1.136
Chevron 8	–	–	–	–	–	–	–	–	0.954
US Oil & Ref	–	–	–	–	–	–	–	–	1.909
Union 3	–	–	–	–	–	–	–	–	0.716
TOTAL	–	–	–	–	–	–	–	–	6.985
SHORT TERM RIK VOLUMES – PRUDHOE BAY									
Tesoro	–	–	–	–	–	–	–	–	1.737
ARCO Products	–	–	–	–	–	–	–	–	1.848
Oasis Petroleum	–	–	–	–	–	–	–	–	0.802
SOHIO	–	–	–	–	–	–	–	–	3.650
Shell (NP & Priority)	–	–	–	–	–	–	–	–	4.191
Union (NP & Priority)	–	–	–	–	–	–	–	–	4.329
TOTAL	–	–	–	–	–	–	–	–	16.557

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

TABLE 9 – U.S. AND ALASKAN OIL PRODUCTION, 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	1993
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	2,625	2,499
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	2,472
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	20.0	16.5	16.0	14.2
Alaska	10.3	16.5	23.6	20.1	17.9	18.1	17.1	6.7	10.8	8.4	11.9	15.6	10.2	10.9	
GAS PRICES															
U.S.	118	159	198	246	259	266	251	194	167	169	169	171	164	186	197
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 1994.
Revised 02/23/95

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 Union
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 Marathon
Production began 1988

CASCADE (Oil)
Location North Slope, onshore
Operator BP
Production development pending

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
State of Alaska has no leases in this field.

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
State of Alaska has no leases in this field

KAVIK (Gas)
Location North Slope, onshore
Operator Arco
Production shut–in
State of Alaska has no leases in this field

KEMIK (Gas)
Location North Slope, onshore
Operator BP
Production shut–in 1972
State of Alaska has no leases in this field

KENAI (Gas)
Location Cook Inlet, east side, onshore
Operator Marathon
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
State of Alaska has no leases in this field.

NIAKUK (Oil)
Location North Slope, offshore, Prudhoe Bay Unit
Operator and Arco
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 BP
Production drilling islands abandoned

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 Marathon
Production began 1962, shut–in 1986, resumed 1994

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
State of Alaska has no leases in this field

WALAKPA (Gas)
Location North Slope, onshore, near Barrow
Operator North Slope Borough
Production began 1992
State of Alaska has no leases in this field

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 November 14, 1994.

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
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							
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

MCARTHUR RIVER					
HEMLOCK					
17579	12.9480000	12.9480000	12.5	UNOCAL	100.0000000
17594	28.6480000	28.6480000	12.5	MARATHON	50.0000000
				UNION	50.0000000
17602	3.7000000	3.7000000	12.5	UNOCAL	100.0000000
18716	2.6730000	2.6730000	12.5	UNOCAL	100.0000000
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	UNOCAL	100.0000000
18772	9.2490000	9.2490000	12.5	UNOCAL	100.0000000
18777	4.6010000	4.6010000	12.5	UNOCAL	100.0000000
21068	0.9250000	0.9250000	12.5	UNOCAL	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
GRAYLING						
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 UNIT						
18744	1	6.896552	6.896552	12.5	UNION	100.0000000
18746		93.103448	93.103448	12.5	UNION	100.0000000
MILNE POINT						
KUPARUK PARTICIPATING AREA						
25509	10	19.1591700	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25515	12	0.0318600	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25516	4	2.1954400	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25518	9	1.0321500	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
28231	8	4.6163400	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
315848	4A	0.1559000	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
47433	2	6.7060846	0.0000000	20.0	BPXA	26.8100030
					BPXO	73.1899970
47433	2A	0.9176854	0.0000000	12.5	OXY	100.0000000
47434	3	29.9919507	0.0000000	20.0	BPXA	26.8100030
					BPXO	73.1899970
47434	3A	4.10420993	0.0000000	12.5	OXY	100.0000000
47437	5	21.3708886	0.0000000	20.0	BPXA	26.8100030
					BPXO	73.1899970
47437	5A	2.9244714	0.0000000	12.5	OXY	100.0000000
47438	6	5.9760546	0.0000000	20.0	BPXA	26.8100030
					BPXO	73.1899970
47438	6A	0.8177854		12.5	OXY	100.0000000
SCHRADER BLUFF						
25509	10	1.0053900	0.0000000	12.5	BPXA	26.8100000

					BPXO	64.3800000
					OXY	8.8100000
25514	11	4.9181500	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25515	12	10.3360400	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25516	4	6.3159600	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25518	9	19.0431900	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
25906	14	25.6086200	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
28231	8	5.0879600	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
315848	4A	6.3159600	0.0000000	12.5	BPXA	26.8100000
					BPXO	64.3800000
					OXY	8.8100000
47432	1	0.0090363		20.0	BPXA	29.4001535
					BPXO	70.5998465
47432	1A	0.0008737		12.5	OXY	100
47433	2	1.3448800	0.0000000	20.0	BPXA	29.4001535
					BPXO	70.5998465
47433	2A	0.1184839	0	12.5	OXY	100
47434	3	3.2386800	0.0000000	20.0	BPXA	29.4001535
					BPXO	70.5998465
47434	3A	0.2853277	0	12.5	OXY	100
47437	5	13.3041900	0.0000000	20.0	BPXA	29.4001535
					BPXO	70.5998465
47437	5A	1.1720991	0.0000000	12.5	OXY	100.0000000
47438	6	3.4210700	0.0000000	20.0	BPXA	29.4001535
					BPXO	70.5998465
47438	6A	0.3013963	0.0000000	12.5	OXY	100.0000000
NIAKUK						
34625	4	5.0700000	5.0700000	12.5	BPX	100.0000000
34630	31	40.5700000	40.5700000	12.5	BPX	100.0000000
34634	33	5.4600000	5.4600000	12.5	BPX	100.0000000
34635	32	48.9000000	48.9000000	12.5	BPX	100.0000000
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
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

NIAKUK PARTICIPATING AREA

34625	4	5.0700000	5.0700000	12.5	BPX	100.0000000
34630	31	40.5700000	40.5700000	12.5	BPX	100.0000000
34634	33	5.4600000	5.4600000	12.5	BPX	100.0000000
34635	32	48.9000000	48.9000000	12.5	BPX	100.0000000

OIL RIM PARTICIPATING AREA

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 PARTICIPATING AREA						
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

LISBURNE PARTICIPATING AREA

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
NORTH PRUDHOE BAY STATE PARTICIPATING AREA						
28297		100.0000000	100.0000000	5.0	ARCO	50.0000000
					EXXON	50.0000000
POINT McINTYRE PARTICIPATING AREA						
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	16.6	BP	100.0000000
WEST BEACH PARTICIPATING AREA						
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
STERLING						
2497	134	0.0000000	3.62829	12.5	DANCO	50.0000000
					MARATHON	50.0000000
320912	155	0.0000000	2.36118	12.5	DANCO	50.0000000
					MARATHON	50.0000000
324599	152	0.0000000	6.44737	12.5	DANCO	50.0000000
					MARATHON	50.0000000
OTHER		0.0000000	87.56316		DANCO	50.0000000
					MARATHON	50.0000000
STUMP LAKE						
17600	1	0.0000000	2.4424100	12.5	UNION	100.0000000
326059	17A	0.0000000	8.1967200	64.4	UNION	100.0000000
326060	17B	0.0000000	15.5737800	64.1	UNION	100.0000000
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 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				
ALYESKA	Topping plants along the TAPS pipeline, at Pump Stations 6, 8 and 10, distill fuel for the pipeline pumps.			
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	32,000 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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OPERATING REFINERIES IN THE U.S.

THOUSANDS OF BARRELS PER CALENDAR DAY

	No. Plants	Charge Capacity: Crude	Vac. Dist.	Therm. Ops.	Cat Crack	Cat Reform	Cat Hydro Crack	Cat Hydro Refin	Cat Hydro Treat	Production Capacity: Alk. Poly.	Aram. Isom.	Lubes	Asph.	Hydro. (MMcf)	Coke (t)
Alabama	3	130	38	12	–	26	–	26	46	–	7	–	20	12	350
Alaska	**6**	**272**	**23**	**28**	–	**12**	**9**	–	**12**	–	**6**	–	–	**13**	–
Arco, Kuparuk		**12**	–	**12**	–	–	–	–	–	–	–	–	–	–	–
Arco, Prudhoe Bay		**16**	–	**16**	–	–	–	–	–	–	–	–	–	–	–
Mapco, North Pole		**130**	–	–	–	–	–	–	–	–	–	–	–	–	–
Petrostar, North Pole		**12**	–	–	–	–	–	–	–	–	–	–	–	–	–
Petrostar, Valdez		**30**	–	–	–	–	–	–	–	–	–	–	–	–	–
Tesoro, Kenai		**72**	**16**	–	–	**12**	**9**	–	**12**	–	**4**	–	–	**13**	–
Arizona	1	6	2	–	–	–	–	–	–	–	–	–	1	–	–
Arkansas	3	61	31	–	18	12	–	–	32	5	6	–	9	2	–
California	24	1,916	1,092	487	612	448	382	355	1,111	119	51	29	56	1004	17,231
Colorado	2	80	29	–	27	19	–	–	44	3	–	–	8	–	–
Delaware	1	140	85	41	63	49	16	–	111	17	1	–	–	40	2,000
Georga	2	35	–	–	–	–	–	–	–	–	–	2	24	–	–
Hawaii	2	149	69	13	21	13	17	–	13	5	1	–	2	19	–
Illinois	7	967	377	106	347	274	58	–	617	91	30	5	52	73	5,876
Indiana	4	489	257	28	176	102	–	89	222	38	37	6	65	33	1,430
Kansas	4	285	105	104	95	79	3	44	195	30	45	–	2	–	2,128
Kentucky	2	219	89	57	97	43	–	39	173	13	21	8	29	–	–
Louisiana	18	2,330	973	306	871	457	153	141	1,160	209	103	37	47	187	14,145
Michigan	4	125	37	–	46	28	–	–	88	10	5	–	18	7	–
Minnesota	2	297	191	65	94	70	–	62	258	21	23	–	38	89	3,600
Mississippi	4	337	251	71	63	71	58	84	146	15	14	6	25	213	3,800
Montana	4	142	60	20	55	34	4	36	119	14	6	–	16	72	960
Nevada	1	7	6	–	–	–	–	–	–	–	–	–	1	–	–
New Jersey	6	598	249	31	261	76	–	146	146	30	18	8	69	30	1,227
New Mexico	3	96	19	–	35	28	–	13	48	13	4	–	6	–	–
North Dakota	1	58	–	–	25	12	–	–	18	4	5	–	–	–	–
Ohio	4	488	163	39	165	153	70	64	167	28	40	–	26	102	1,600
Oklahoma	7	404	114	28	139	96	5	25	204	34	38	7	17	62	1,260
Oregon	1	–	14	–	–	–	–	–	–	–	–	–	10	–	–
Pennsylvania	7	754	307	–	256	166	45	39	409	50	30	7	43	50	–
Tennessee	1	90	12	–	42	15	–	35	18	6	4	–	–	–	–
Texas	29	3,896	1,709	404	1,558	1,159	364	694	2,585	342	359	76	53	838	15,818
Utah	6	159	46	7	49	32	4	4	62	14	8	–	2	1	280
Virginia	1	53	27	15	26	11	–	–	26	2	–	–	–	–	730
Washington	7	561	256	74	123	124	50	20	215	29	4	–	15	80	3,500
West Virginia	1	10	5	–	–	3	4	–	4	–	–	4	–	1	–
Wisconsin	1	33	19	–	10	8	–	6	8	2	2	–	12	–	–
Wyoming	4	128	62	10	50	29	–	24	67	9	2	–	16	6	–

Source: Oil & Gas Journal, "Worldwide Refining," December 19, 1994, p. 56.
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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		ft^2	ac	mi^2	m^2	ha	km^2
1 ft^2	=	1	0.00002		0.0929		
1 ac	=	43560	1	0.0016	4046.86	0.40469	0.00405
1 mi^2	=	3E+07	640	1	2589990	258.999	2.58999
1 m^2	=	10.7639	0.00025		1	0.0001	1E−06
1 ha	=	107636	2.47105	0.00386	10000	1	0.01
1 km^2	=	1E+07	247.105	0.3861	1000000	100	1

VOLUME		ft^3	gal US	gal Imp	bbl	m^3
1 ft^3	=	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 m^3	=	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

APPENDIX F
DEFINITIONS OF STATUTORY TERMS

AS 38.05.183 states that oil and gas taken in-kind as the state's royalty share of production may not be sold or otherwise disposed of for export from the state until the Commissioner of Natural Resources determines that the royalty-in-kind oil or gas is surplus to the present and projected intrastate domestic and industrial needs for oil and gas.

The statute contains several key terms whose meaning must be resolved before an estimate can be make of oil and gas surplus to the state's needs. These key terms are: 1) "oil and gas," 2) "export," 3) "present," 4) "projected," 5) "domestic," 6) "industrial," 7) "intrastate," and 8) "how these needs are to be met." Each key term affects the size of the estimated demand for oil and gas in Alaska and consequently, the size of the projected surplus or deficit. The meaning of each term is discussed below.

Oil and Gas

Crude oil and natural gas are fluids containing hydrocarbon compounds produced from naturally occurring petroleum deposits. Typical crude oil contains several hundred chemical compounds. The lightest of these are gases at normal temperatures and pressure, described as "natural gas." The light fractions of the crude oil stream include both hydrocarbon and non-hydrocarbon gases, such as water, carbon dioxide, hydrogen sulfide, helium, or nitrogen. The principal hydrocarbons are methane (CH_4), ethane (C_2H_6), propane (C_3H_8), butanes (C_4H_{10}), and pentanes (C_5H_{12}). The gaseous component found most often and in largest volumes is, typically, methane. Heavier fractions of the crude stream are usually liquids. If a given hydrocarbon fraction is gaseous at reservoir temperatures and pressures, but is recoverable by condensation (cooling and pressure reduction), absorption, or other means, it is classified by the American Gas Association (AGA) as a natural gas liquid (NGL). Natural gas liquids include ethane if ethane is recovered from the gas stream as a liquid. A related term is liquefied petroleum gas (LPG), composed of hydrocarbons which liquefy under moderate pressure under normal temperatures. LPG usually refers to propane and butane. A second related term is condensate, which refers to LPG plus heavier NGL component (natural gasoline). The lightest hydrocarbon fraction is methane, which is almost never recovered as a liquid, and which makes up the bulk of pipeline gas. If a natural gas stream contains few hydrocarbons which are commercially recoverable as liquids, it is considered "dry gas" or "lean gas." The distinction between "wet" and "dry" is usually a legal one, which varies from state to state. "Crude oil" usually means the non-gaseous portion of the crude oil stream.

Natural gas may occur in reservoirs which are predominately gas-bearing or in reservoirs in which the gas is in contact with petroleum liquids. Non-associated gas is natural gas form a reservoir where the gas is neither in contact with nor dissolved in crude oil. Associated gas occurs in contact with crude oil, but is not dissolved in it. A gas cap on a crude oil reservoir is a typical example of associated gas. Dissolved gas in dissolved in petroleum liquids and is produced along with them. Dissolved and associated gases are usually good sources of NGL while non-associated gases are often "dry."

The distinction between natural gas and its NGL components is important to a study of the supply and demand of royalty oil and gas because natural gas liquids have a multitude of uses when separated from the gas stream. For example, propane is both produced in Alaska and sold in Alaska as bottled gas for residential, commercial, and limited transportation uses, while butane is used for blending in gasoline and military jet fuel and as a refinery fuel. In addition, Marathon Oil uses LPG to enrich crude oil at its Trading Bay facility. It ships the combined fluids to the Drift River terminal for export. Potential uses for NGL also include the enriching ("spiking") of pipeline gas and crop drying. Several years ago the Dow-Shell Petrochemical Group and Exxon studied the feasibility of utilizing the NGL contained in Prudhoe Bay natural gas as the basis for an Alaska petrochemicals industry. Since the state has the option of considering NGL separately from the gas stream,

two definitions of natural gas consumption and reserves are possible. One of these would consider natural gas liquids as part of the gas stream. The second definition would treat the markets for LPG and ethane separately from those for gas. This requires a separate estimate of LPG consumption and gas liquids reserves. In this report, demand for LPG and ethane is estimated separately from that for gas; however, no separate estimate is made of gas liquids reserves.

Export

Taken in context, this term appears to mean the direct physical shipment of oil and gas out of the state. However, when one considers the fact that much of Alaska's industrial use of oil and gas is processed directly for export markets, the meaning of export versus "intrastate" is not so obvious. For example, it appears that processing of gas into another product, e.g., anhydrous ammonia, would probably be an "industrial" use rather than "export" of gas, even though the ammonia is mostly exported. Liquification to change the phase of the gas is a less obvious case. The liquification of natural gas is considered a transportation process in this report. Still more troublesome is the use of gas and oil for transportation related to export. Is the gas and oil consumed in TAPS pipeline pump stations, for example, and "industrial" use in state? Or is it really "export" of that energy, since it is consumed in the exporting process? There is no reason why the state may not be approached in the future to commit royalty oil and gas to quasi-export uses. Indeed, ALPETCO (later, Alaska Oil Company) made a top dollar offer for royalty oil ultimately destined (as petrochemical products) for out-of-state markets. Though they made the offer, they did not make payments in full. Also, the state once committed royalty gas to the El Paso gas pipeline proposal for export of Prudhoe Bay gas, which involved liquification. Neither proposal was clearly for in-state industrial use. In this report, industrial demand is treated with multiple definitions as outlined later in the chapter to show how different definition of "export" after the estimate of total consumption in Alaska.

Present

The problem here is that the term "present" may mean "later year" consumption, "average recent year" consumption, "weather-adjusted" consumption, or "worst case" consumption. In the residential and commercial sector particularly, each definition gives a somewhat different answer because of the variability of weather.

The "worst case" consumption calculation case result in considerable higher gas consumption than the most recent year, if the most recent year happens to have been a relatively warm one. While it is not correct forecasting procedure to make long run forecasts of intrastate residential consumption of natural gas which assume worst case forecasts for every year, it may be prudent in practice to reserve part of the State's gas and oil supply for bad weather, For forecasting, variability of weather makes the picking of a starting value for consumption is based on average weather years. For the remainder of the state, trended per capita consumption is used, which approximates average weather conditions.

Projected

This is a very difficult concept, since many different projections of consumption would be possible even if it were possible to agree on a single concept defining consumption. Rates of economic development, population growth, and relative energy prices are key features of any consumption forecast, but assumptions concerning any of these variables are necessarily controversial. This report describes a range of possible consumption figures under precisely articulated definitions of consumption and varying paces of economic, population, and fuel price growth.

Domestic

Domestic consumption appears to mean Alaska residential consumption. As we saw above under the subheading "present", it is not at all obvious which definition of domestic consumption is the most appropriate, even when the identity of the customer is not in dispute. Some multi-family residential use may be described as "commercial", obscuring the definition of the customer and causing forecasting problems for natural gas. The definition of "domestic" considered in this report includes multi-family residential in "residential" or "domestic" use.

Industrial

As described above, "industrial" energy use has a number of potential definitions. Since one intent of giving in-state industrial needs priority over export uses of royalty oil and gas seems to encourage in-state economic activity, a day-to-day working definition of this industrial priority is

that the royalty reserves be the largest potential economic impact in Alaska. For forecasting purposes, however, it is difficult to say which markets will prove to be of the most economic benefit to the state. As a compromise, we will adopt four alternative definitions of "industrial" in the study.

The four alternative definitions of industrial use of oil and gas used in this report are outlined below, beginning with the most.restrictive and moving to the most liberal.

Definition 1: Industrial use consists of any consumption of natural gas, petroleum, or their products in combustion (except that required to export oil or gas); or the chemical transformation of natural gas, petroleum, or their products from refineries, as well as uses which merely change the physical form of the product (gas conditioning or liquidization) for export, or which move the product to an export market (pipeline fuel, fuel used on lease, shrinkage, injection, vented and flared gas).

Definition 2: Industrial use consists of; any consumption of natural gas, petroleum, or their products in combustion (except in oil and gas production and transportation); or the chemical transformation of natural gas, petroleum, or their products. This definition counts feedstocks for petrochemical plants and refineries as industrial consumption. It also counts energy consumed by an LNG facility as industrial consumption. It excludes the feedstocks of LNG plants; and fuel consumption by conditioning plants, pump stations, fuel used on lease, shrinkage, injection and flared gas.

Definition 3: Industrial use consists of any consumption of natural gas, crude oil, or their products in combustion (except in oil and gas transport and extraction) or their chemical transformation into refined products. This definition permits the feedstocks of refineries to be counted as industrial consumption. It excludes fuels used in pump stations, in conditioning plants, fuel used on lease and gas shrinkage, injection, or venting.

Definition 4: Industrial use consists of any use of natural gas, crude oil, or their products in combustion, or their transformation into chemically different products. This definition permits feedstocks of refineries to be counted as industrial consumption, as well as energy consumption in conditioning plants an pump stations. It excludes injected gas, which is ultimately recoverable for other uses, and LNG processing, which is considered an export. Definition 4 will be used for the purposes of this report.

None of the four definitions treats industrial use (including transportation) to include gas injected to enhance oil recovery, since in theory this gas remains part of the ultimately recoverable gas reserves of the state. Thus, it is not "consumed."

Intrastate

It is unclear what is meant by intrastate consumption. Some used, such as combustion of oil and gas products in fixed capital facilities in Alaska, are reasonably easy to categorize as intrastate, There are several uses in transportation which are not obviously within Alaska. These categories include in fuel burned in marine vessels such as cargo vessels, ferries, and fishing boats, and fuel burned in international interstate air travel. There are multiple ways to approach the definition of this consumption. The first is a sales definition: the fuel used in transportation which is sold in Alaska. The second approach is to base consumption on fuel used in Alaska or related to Alaska's economy and population, regardless of the point of sale. This results in three logical definitions, described below:

Definition 1: Intrastate consumption in transportation includes all sales of fuels to motor vehicles, airplanes, and vessels in Alaska, including bonded fuels. It excludes fuel consumed by motor vessels which was purchased in other states, and fuel consumed by airlines between Alaska locations unless the fuel was sold in Alaska. It also excludes out of state military fuel purchases.

Definition 2: Intrastate consumption includes fuel consumed by motor vessels, airlines, and vehicles engaged in Alaskan economic activity. It includes use of fuel by American fishing boats

in Alaskan waters regardless of where the fuel was purchased, use of fuel purchased in Washington State by Alaska State ferries, and fuel consumed by ships and aircraft involved in Alaska trade. It excludes sales to aircraft on international flights (bonded and unbonded), but includes military out of state purchases.

Definition 3: The final definition is a compromise between the first two. It includes all fuel purchased within the state, plus military uses, but excludes fuel purchased out of state except for military uses.

The basis definitions in this report is the third definition. By excluding bonded and exempt jet fuel, the report also approximates Definition 2. Lack of data on out-state purchases by the military makes Definition 1 impractical.

How These Needs Are To Be Met

Any analysis of how the oil and gas needs of the intrastate domestic and industrial sector are to be met could include several sources of supply: state royalty oil and gas, in-state oil and gas reserves under other ownership, probable extensions of proven reserves, and imports of crude oil, petroleum products, and (in theory) natural gas.

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