

Oil and Gas Opportunities in Alaska

State of Alaska
Department of Natural Resources
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May 2005



Alaska Department of
**Natural
Resources**

Table of Contents

Page No.

• Alaska Petroleum Potential	3
• North Slope	10
• Cook Inlet	18
• Alaska Peninsula	24
• Alaska's Gas Potential	29
• Natural Gas Pipeline	30
• Unlocking Alaska's Natural Gas Hydrates: A Major New Domestic Resource	37
• Alaska's Oil and Gas Leasing Programs	48
• Exploration Incentive Credits and Royalty Incentives	56
• Permitting Oil and Gas Projects in Alaska	67
• Royalties and Tax Revenues - "Alaska As Landlord"	72
• Access to Facilities and Pipelines in Alaska	82
• Sources of Alaska Geological, Geophysical, Well Data and Information	86

Alaska Petroleum Potential

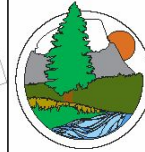
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Alaska's Oil and Gas Basins





ALASKA
DEPARTMENT OF
NATURAL RESOURCES
DIVISION OF OIL AND GAS
MARK MYERS, DIRECTOR

2005-2009

North Slope Sales

- Foothills Area-wide May
- Area-wide Oct

Beaufort Sea Sales

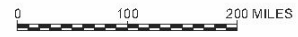
- Area-wide Oct

Cook Inlet Sales

- Area-wide May

Alaska Peninsula Sales

- Area-wide Oct



Base Map: Albers Equal-Area Conic Projection, 1927 North American Datum, Clarke 1866 ellipsoid with a central meridian of 154°, origin latitude of 50°, northern parallel of 65°, southern parallel of 55°.
 This map is for informational purposes only. Jan. '05

Alaska Reserves and Production

- **28% of total U.S. oil reserves (2003)**
 - 6.9 BBO remaining in producing fields
- **17% of total U.S. gas reserves (2003)**
 - 37.5 trillion cubic feet of gas
- **19% of total U.S. oil production (2003)**
 - 0.97 million barrels of oil per day
- **Cumulative State Production through 2003**
 - 15.3 billion barrels of oil
 - 11.6 trillion cubic feet of gas (net production)

Sources: All data are from U.S. Crude Oil, Natural Gas, and NGL Reserves, 2004 Annual Report, U.S.D.O.E.-E.I.A. and from Department of Natural Resources, Division of Oil and Gas, 2004 Annual Report.

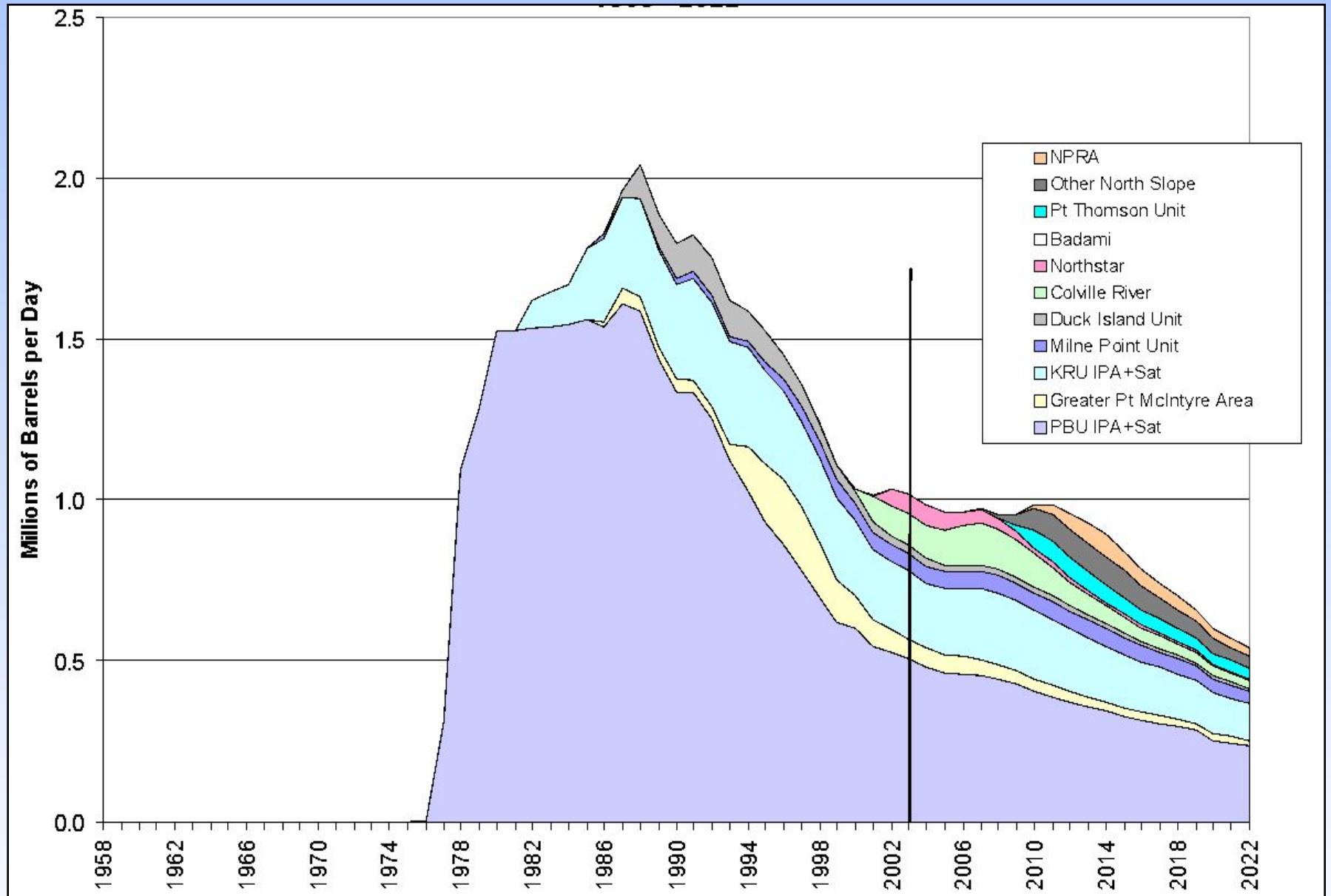
Estimated Mean Undiscovered Recoverable Oil Resources and Gross Acreage Evaluated

REGION	AREA	BARRELS (Billion)	ACRES (Million)
STATE LANDS			
	North Slope (Onshore & Offshore)	4.0	14.70
	Cook Inlet & Kenai Peninsula	0.97	4.00
	Alaska Peninsula/Bristol Basin	0.30	5.00
	Subtotal State	5.2	23.70
FEDERAL LANDS			
		7	
	NPR-A	10.60	23.00
	ANWR Coastal Plain	10.40	1.50
	Beaufort Sea OCS Planning Area	3.00	9.80
	Subtotal Federal	24.00	34.30
TOTAL		29.2	58.00

Sources: U.S. Geological Survey and U.S. Minerals Management Service reports, 1995-2005.

Historic and Projected Oil Production

1969-2022



Wood Mackenzie Study

- Alaska ranked in top 25 percent for discovery size (99 MMBOE).
- Alaska ranked in top half for commercial success rate (18 percent) and reserves recovered (918 MMBOE).
- Alaska ranked in top quartile of “post-take development and full cycle NPV/BOE” (\$2.14/BOE).
- Alaska ranked in top third of “absolute full cycle value created” (\$1.97 B).

Source: Petroleum News, February 20, 2005

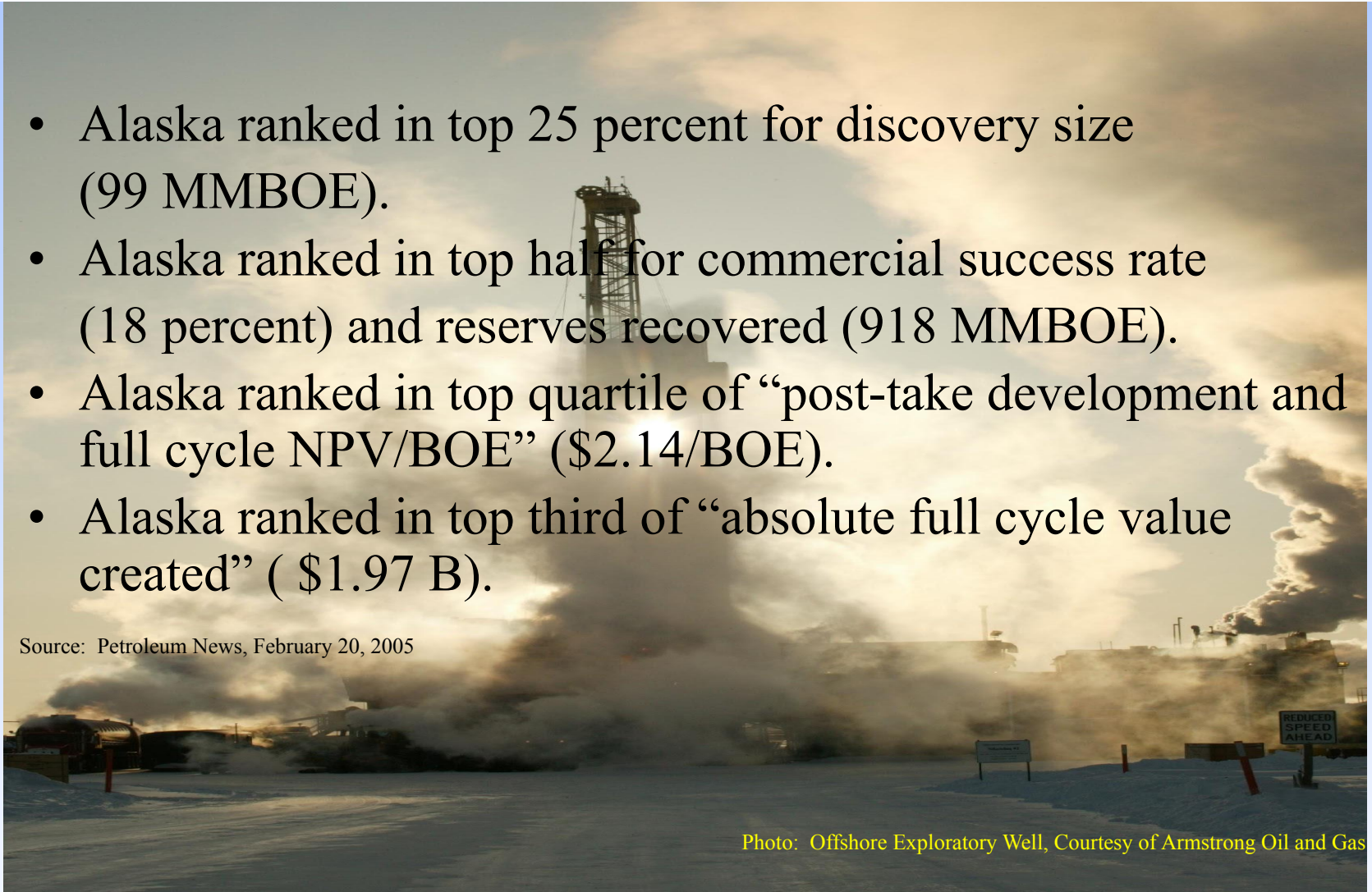
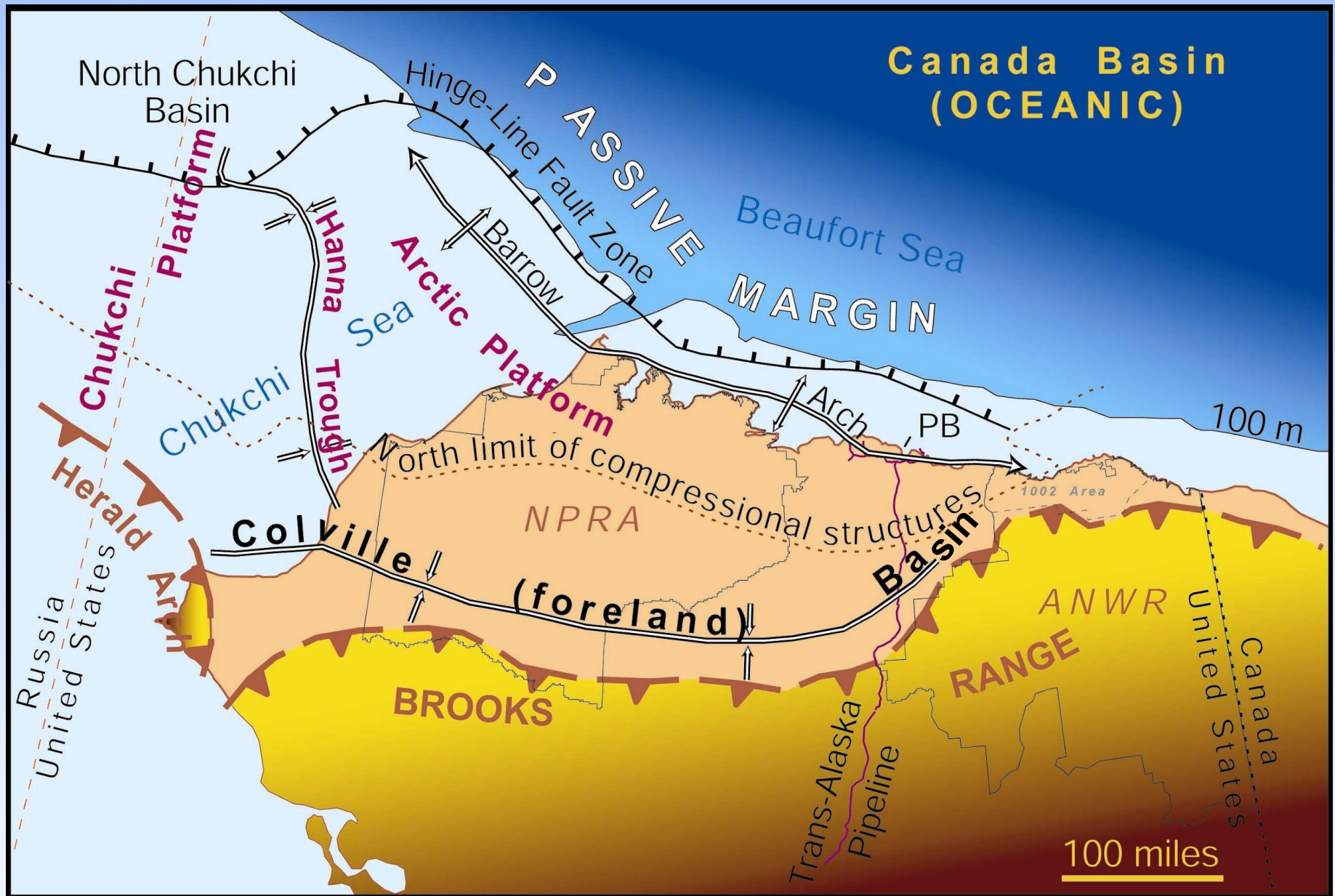
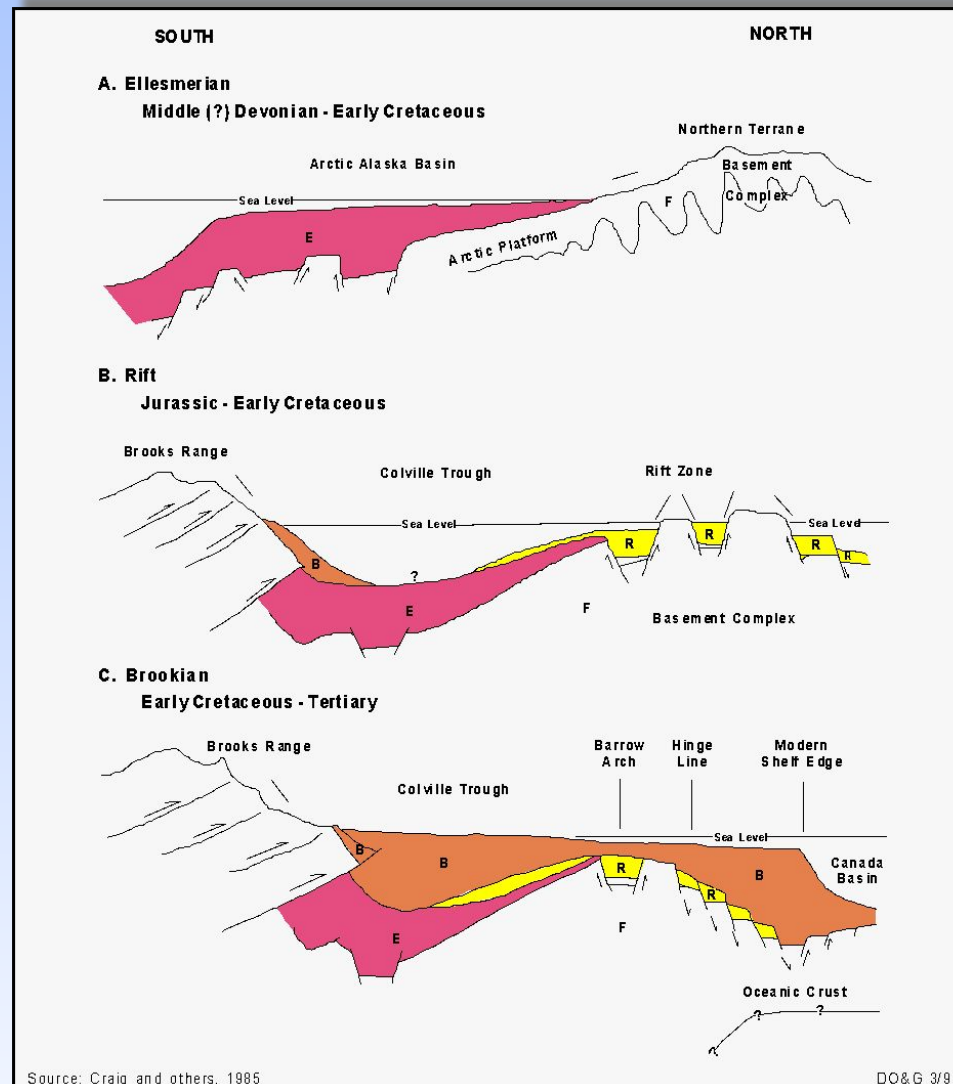


Photo: Offshore Exploratory Well, Courtesy of Armstrong Oil and Gas

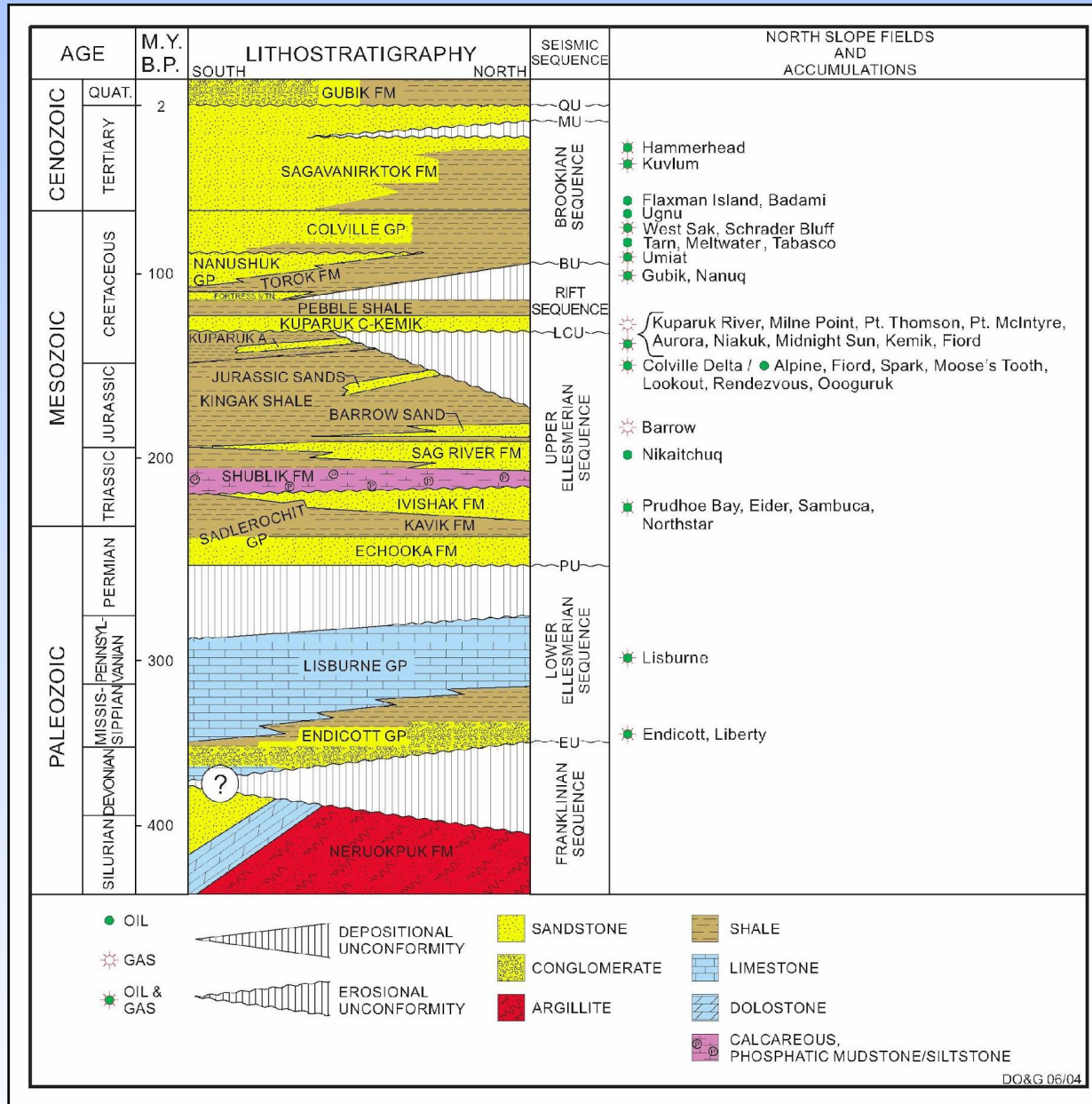
North Slope

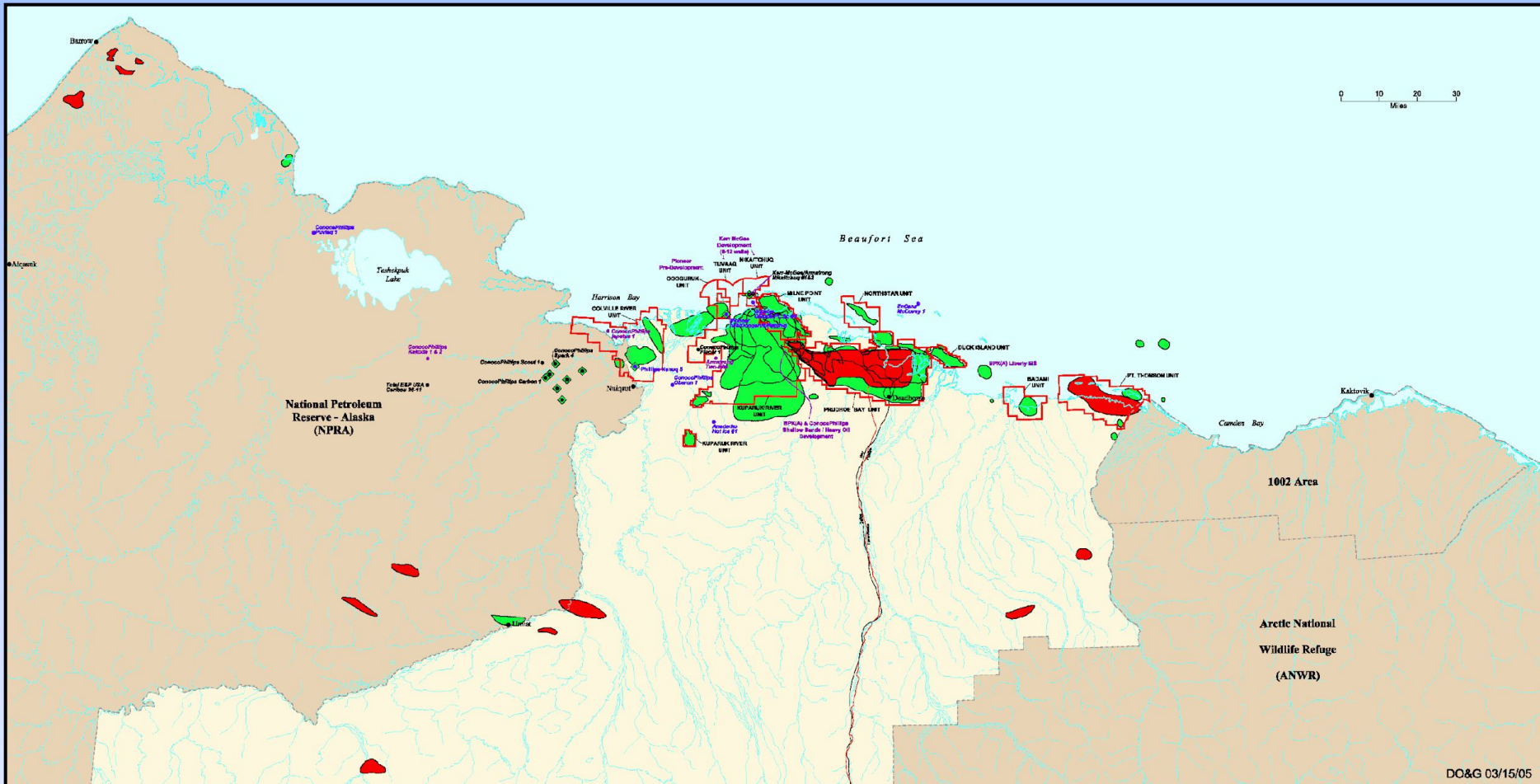


Generalized Geologic Evolution of Northern Alaska

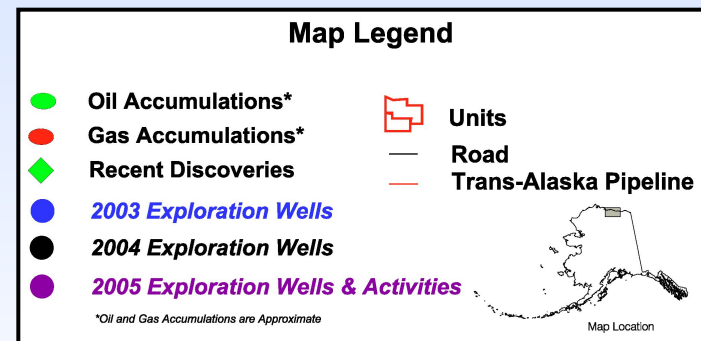


Generalized North Slope stratigraphic column displaying oil and gas reservoirs and associated accumulations





North Slope Oil & Gas Activities & Discoveries March 2005



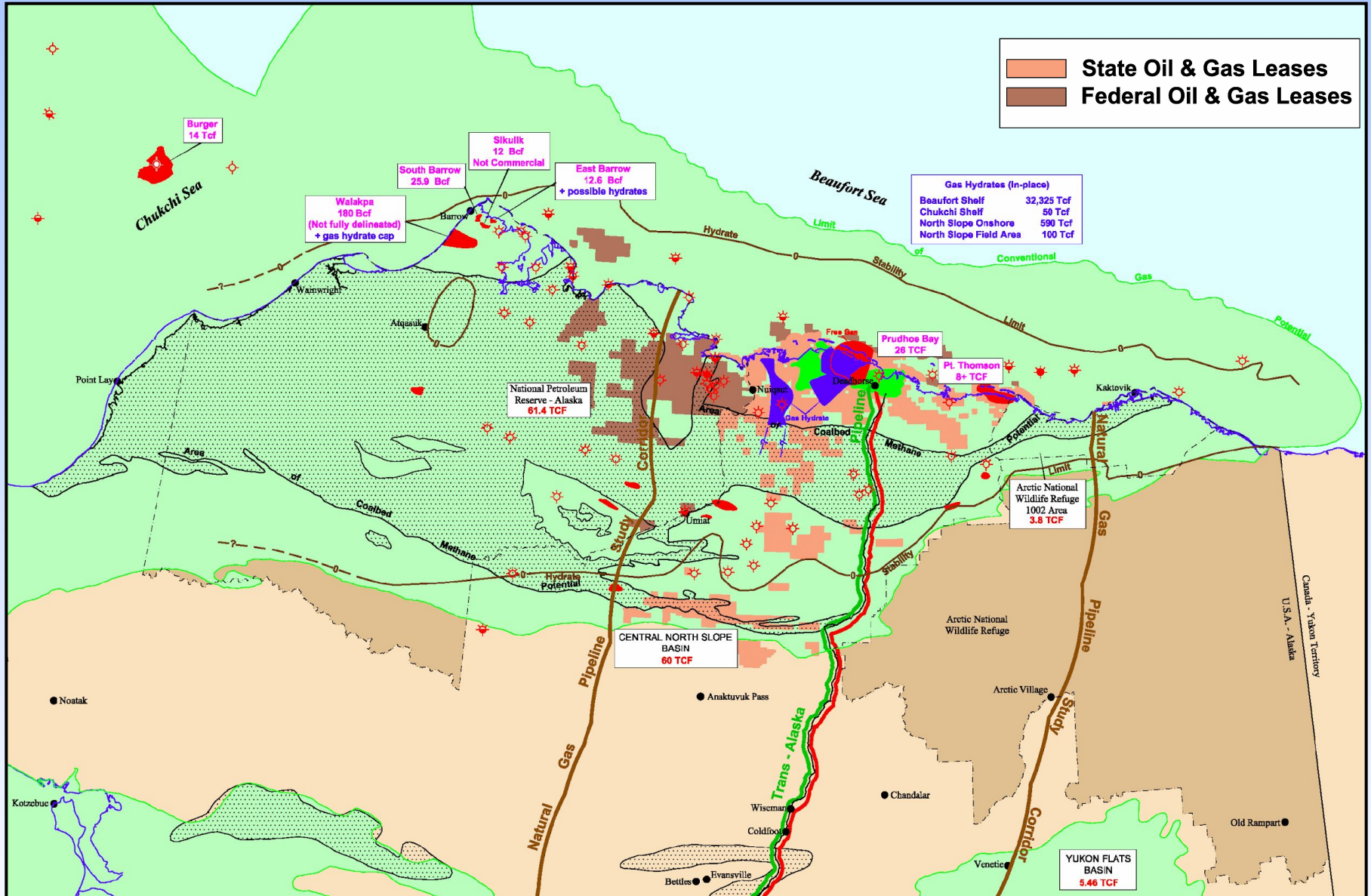
North Slope Development Activities

2004-2005

Project Name	Status	Expected Start-Up Date	Estimated Reserves or Expected Production
PBU Oil Rim - field gas offtake expansion w/ increases miscible injectant for EOR	Projects Underway	2003-2004	10,000-15,000 BOPD
PBU Pt.McIntyre PM2 to GC1 Project	Pt. McIntyre PM2 production to GC1	Mar-04	8,000 - 10,000 BOPD increase
PBU Borealis	Development continuing/PA expansion submitted second quarter 2004	Producing	35,000 BOPD
Shallow Sands/ Heavy Oil (West Sak/Schrader Bluff)	Development continuing	Producing	1.0 - 1.5BBO recoverable 140MBOPD by 2010 (est) 30,000+ BOPD New
KRU Palm (DS-3S)	Development continuing	2002 (Nov.)	35 MMBO 16,000 bbls. oil/day
CRU Fiord	Technical studies, permitting, EIS or EA	2006	10,000-20,000 BOPD
CRU Nanuq	Technical studies, permitting, EIS or EA	2006	10,000-20,000 BOPD
CRU ACX-1: Various Facility Expansion Projects: Upgrades to Oil & Gas Processing Capacity; Produced Water System and Handling. Seawater Injection System	Projects Underway	4th Qtr 2004	5,000 - 10,000 BOPD increment
CRU ACX-2: Further capacity increases to Oil Processing & Seawater Injection Systems	Planning / Some Early Acceleration	3rd Qtr 2005	25,000 - 30,000 BOPD increment
Nikaitchuk/Tuvaak Development	Planning 6-10 development wells	2004-05	Not disclosed
Point Thomson	Begin development drilling by June 2006, must have 7 wells & approved PA by June 2008	2008	75,000 bbls. condensate/day
Liberty Development	EIS for artificial drilling/development island	2007	120MMBO recoverable (est)

North Slope, Alaska

Oil & Gas Potential with Leasing Activity



Estimates of Technically Recoverable Oil Federal Lands - Alaska North Slope



NPRA

Oil Volumes (BBO)

F95 Mean F05

6.7 10.6 15

ANWR

Oil Volumes (BBO)

F95 Mean F05

1002 Area (Federal Part) 4.2 7.7 11.8

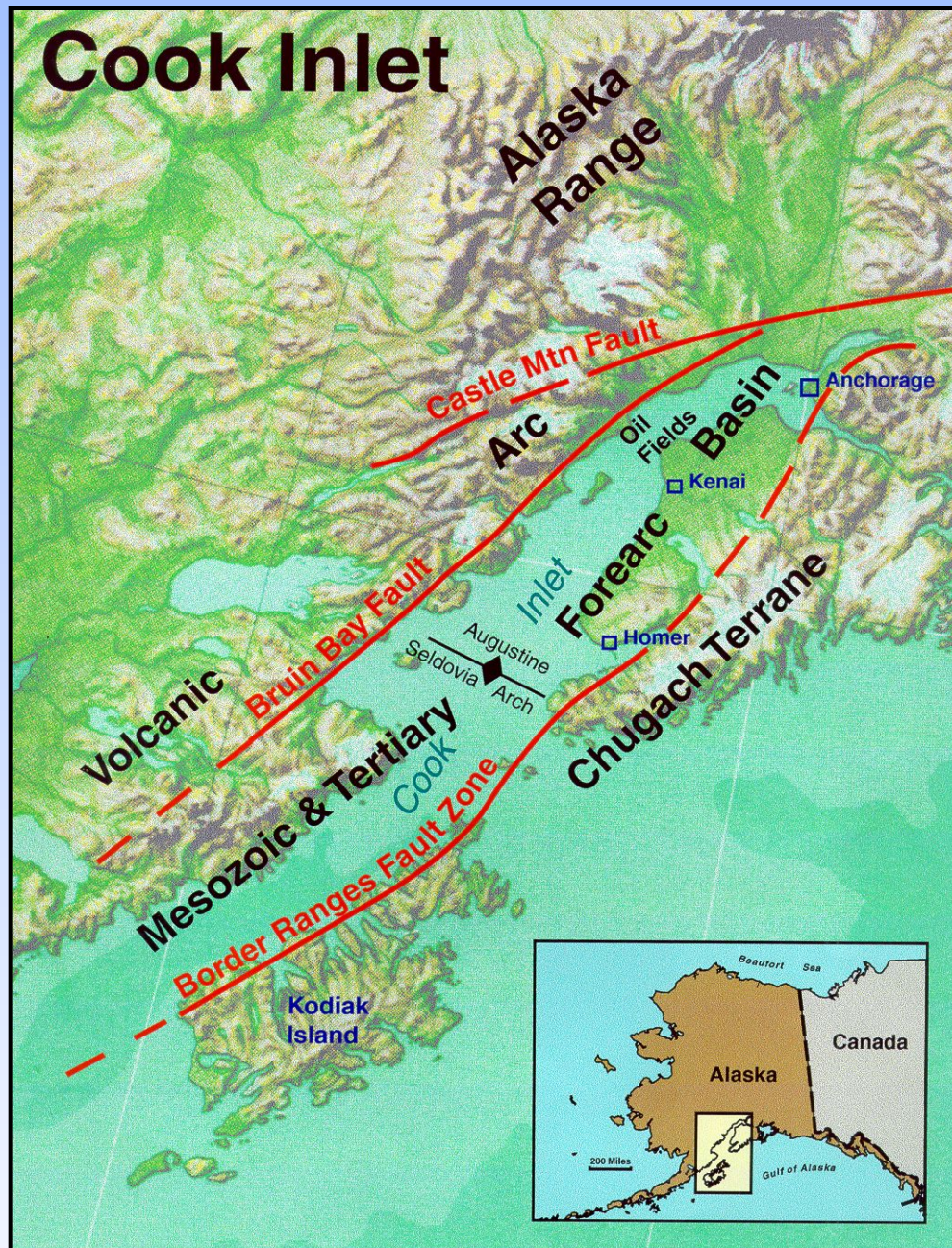
Entire Assessment Area* 5.7 10.4 16.0

*(includes Native Lands & State Waters)

Cook Inlet

Cook Inlet Basin

Regional Geological Setting

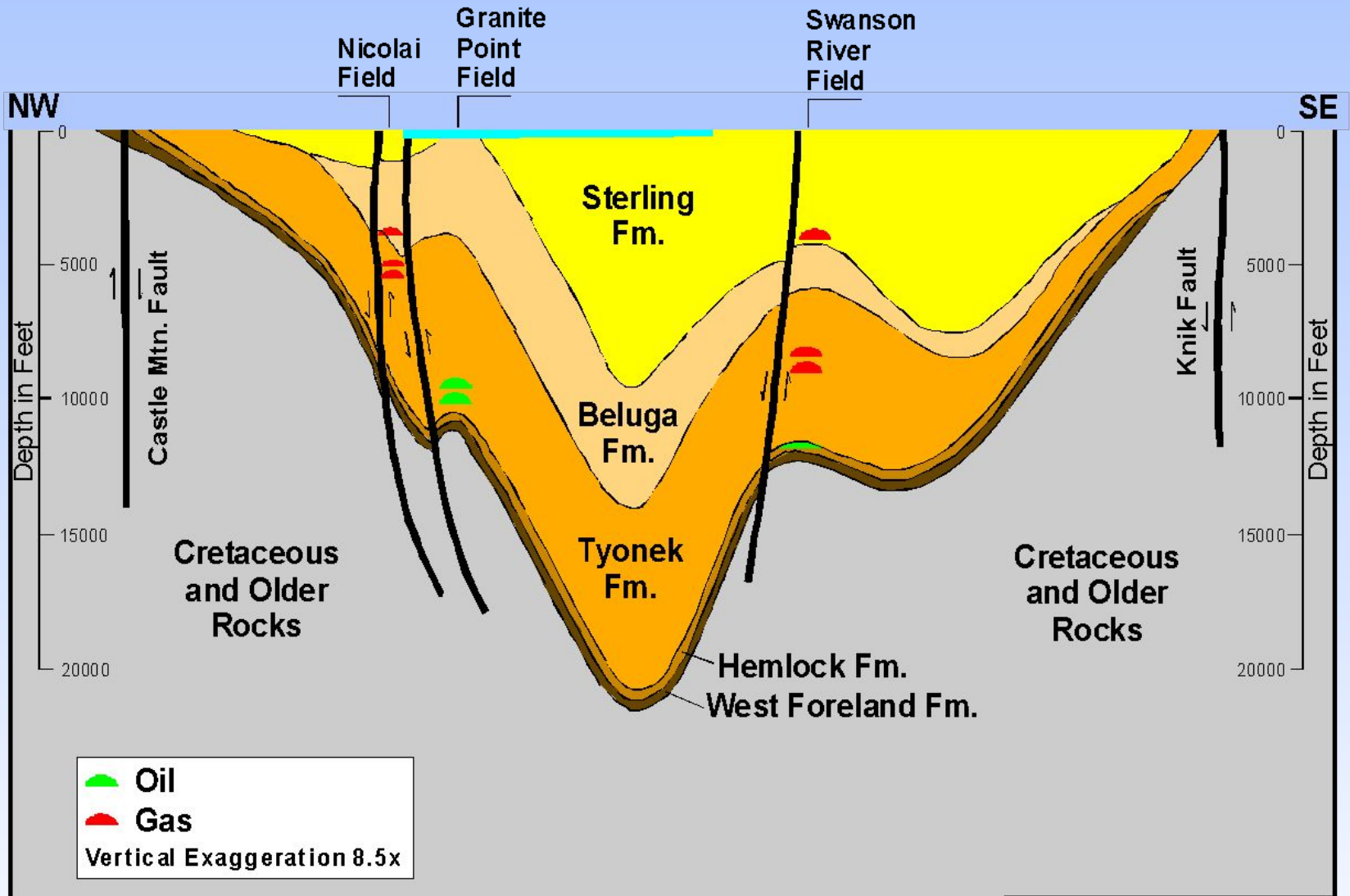


Source: Swensen, 1997, Intro. To Tertiary Tectonics and Sedimentation in the Cook Inlet Basin.

tjr 00

Cook Inlet Basin

Generalized Geological Cross Section



mep 98

Cook Inlet Development Activities

2004-2005

- Cosmopolitan Unit – Conoco Phillips (Oil discovered in 1967 by Penzoil)
 - Hansen #1 well P&Aed, Forest reported successful results, no word from Conoco Phillips yet
 - Hansen #1A well completed as oil producer, test production is being trucked to Nikisiki refinery.
- Iliamna Prospect – Pelican Hill
 - Iliamna #1 drilled and suspended, now converting to disposal well
- Kasilof Unit – Marathon (Gas)
 - Unit approved in October 2002
 - Kasilof South #1 and #1L drilled, evaluating
- Middle Ground Shoals Field – Unocal & XTO
 - While XTO continues operations at two platforms, Unocal has ceased operations at this field and placed its two platforms (Dillon and Baker) in lighthouse mode.
 - Decision on “decommissioning” platforms still to come
 - XTO drilling C31-26RD in progress
- Nicolai Creek Unit – Aurora Gas
 - NCU #3 production of gas ended March 2004
 - NCU #2, 1B, 9 completed, producing gas since November 2003
- Nikolaevsk Unit – Unocal
 - Red #1 drilled, results confidential. First of a 5-year 3 well commitment
 - Results Confidential
- Ninilchik Unit – Marathon
 - G.O. #1 well completed as gas well, tested at 11.2 MMCF/D from one zone
 - G.O. #2 well completed as gas well, tested at 11.9 MMCF/D from three zones between 8,048 and 9,440 ft. (MD).
 - Falls Creek #1RD completed as gas well, tested at 6.8 MMCF/D from a depth of 8,714 ft. (<D).
 - Susan Dionne #3 (SDPA) completed as gas well; Falls Creek #3 (FCPA) active, no details available.
 - Abalone #1 well drilled in 2003 at north end of unit, not completed, currently shut down, no other details available.
 - Plans to drill Susan Dionne #2 (SDPA), Ninilchik State #1 (GOPA).
 - Production started at GOPA in Septmeber 2003, currently about 15 MMCF/D rate.

MMCF/D = million cubic feet per day

Cook Inlet Development Activities

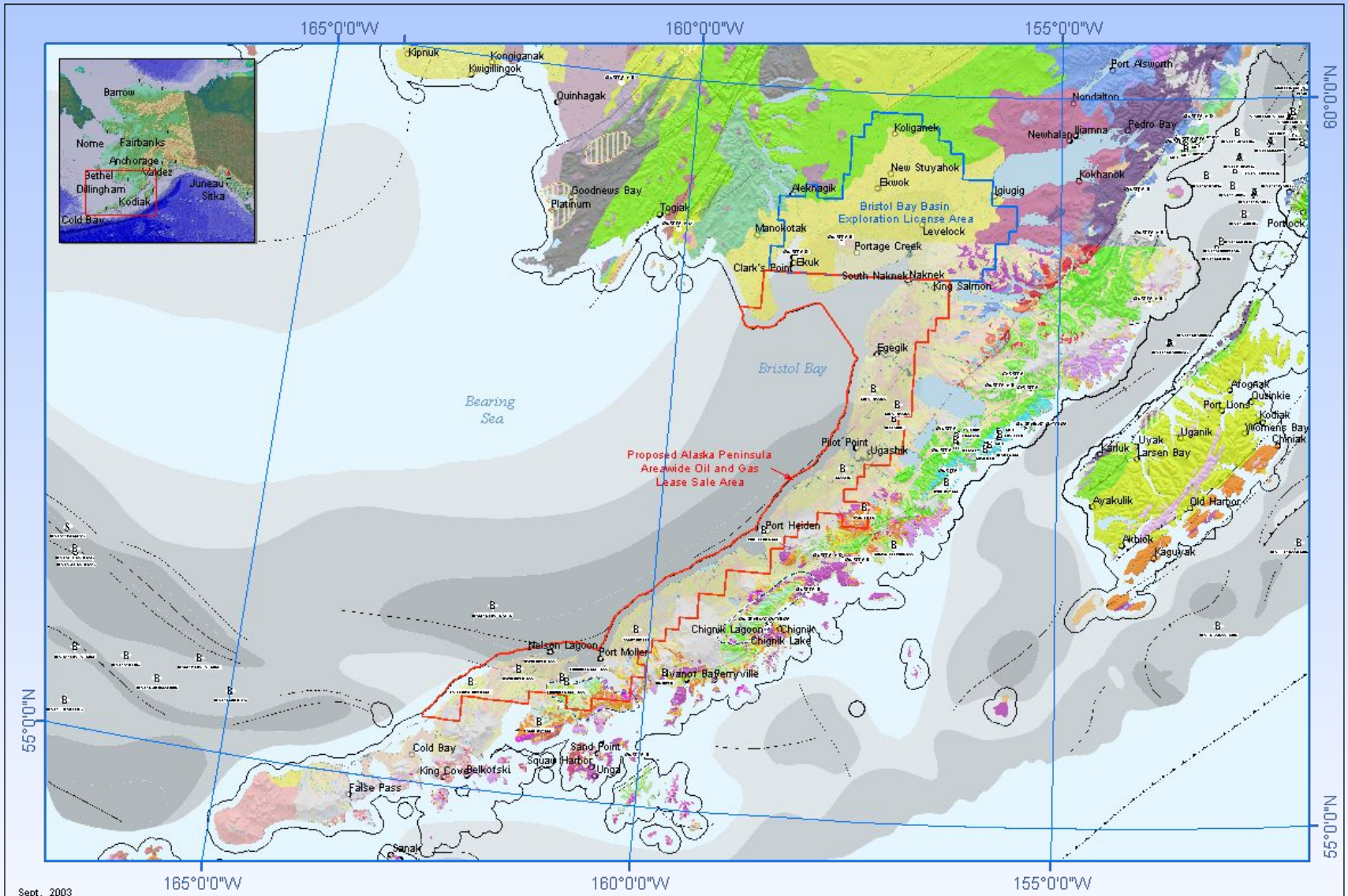
2004-2005

- North Fork Unit and Deep Creek Unit – Unocal
 - Unit getting renewed interest from small investor group
 - Non-binding pipeline contract with ENSTAR signed in September 2003
 - Development drilling will begin 2005
- Redoubt Unit – Forest Oil (Oil discovered in 1968 by Pan Am)
 - Production began Dec. 9, 2002
 - Recent drilling results indicate field is more complicated than previously thought; reserves probably to be reduced
 - Waterflood most likely to come online soon (end of 2005?)
 - RU#3 well began producing fuel gas on 7/28/2003
- South Ninilchik Unit and Deep Creek Unit – Unocal
 - Pearl #1 and Deep Creek NNA #1 wells completed as gas producers in 2002, Unocal reported disappointing results.
 - Nine wells drilled to date, two more in progress. Some of these wells have been successful, some not.
 - Unocal built gas pipeline connecting Happy Valley pad to KKPL. Start-up Nov. 1, 2004.
- Three Mile Creek Unit
 - Unit approved March 26, 2004.
 - Objective is Beluga Formation gas zones bypassed by early opener.
 - Additional 2-D seismic acquired
 - Three mile Creek #1 well drilled
- Trading Bay Unit/McArthur River Field – Unocal
 - T.B.U. #K-13 came on production at 7,100 BOPD, highest rate of any well in Cook Inlet
 - Unit and PA expansions approved to bring boundaries into agreement with producing areas

BOPD = barrels of oil per day; MMBO = millions of barrels of oil

Alaska Peninsula

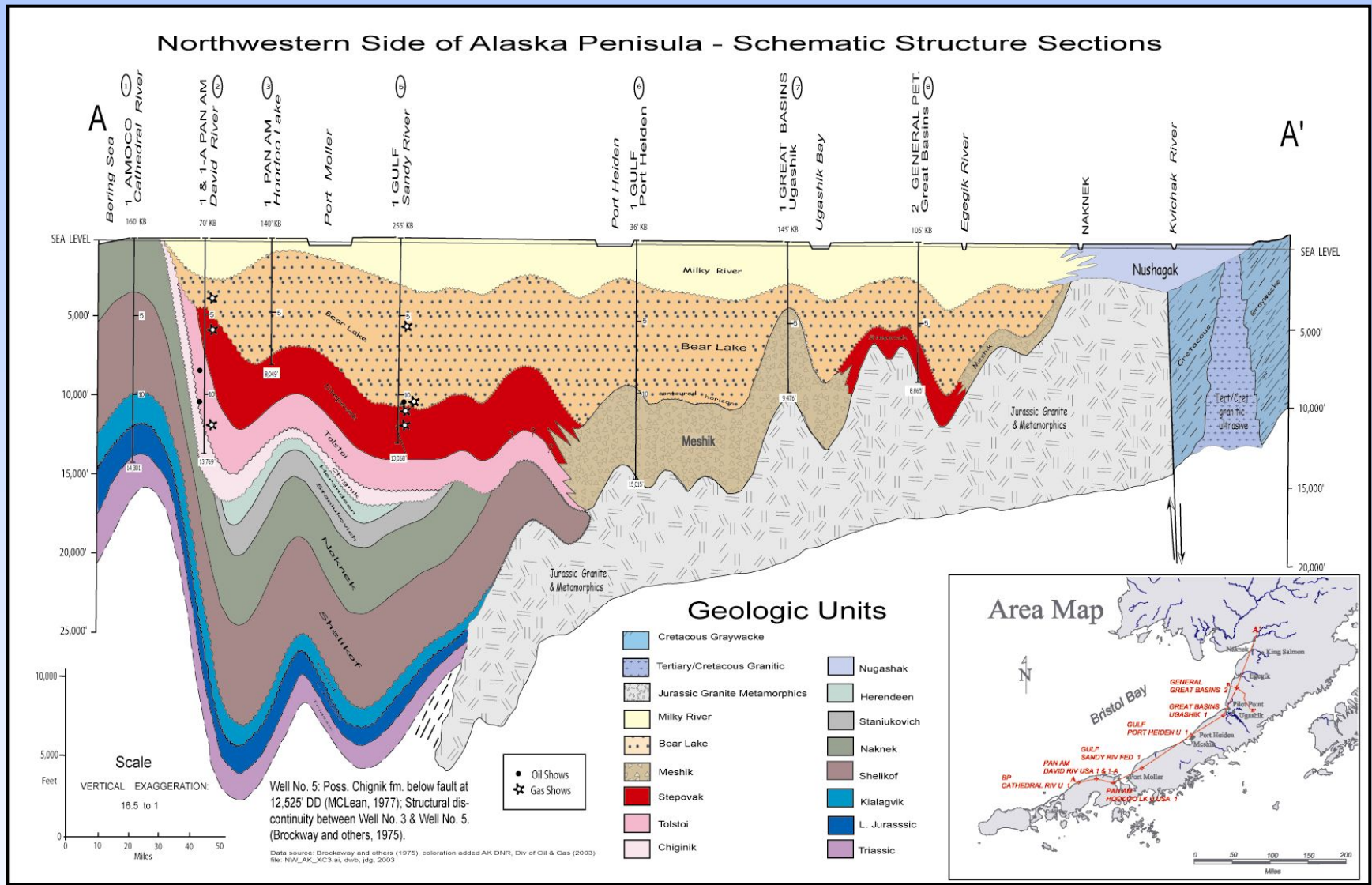
Alaska Peninsula Geologic Map



Sept. 2003

dwb 09/03

Alaska Peninsula Geologic Cross Section



Alaska Peninsula/ Bristol Bay Basin Hydrocarbon Potential

- **Numerous oil seeps are present along the southern half of the Alaska Peninsula.**
- **26 wells have been drilled onshore since 1903, the latest being the Amoco Becharof #1 in 1985. One offshore stratigraphic test was drilled in 1983, the ARCO North Aleutian COST Well #1.**
- **The northern half of the Alaska Peninsula is a low relief coastal plain underlain by a thick sequence (18,000+ feet) of Tertiary strata that is contiguous with the Bristol Bay Basin to the north. Here the setting is very good for both structural and stratigraphic traps as well as the likelihood of encountering good to locally excellent reservoir quality rocks.**

Alaska Peninsula/ Bristol Bay Basin Hydrocarbon Potential (cont.)

- Reservoir quality should be considered the highest risk as rocks derived from volcanic and plutonic source areas may give rise to pore plugging cements and clays.**
- Oil and gas shows are evident in many of the wells. No commercial flow of oil has been proven to date.**
- Hydrocarbon source rocks of Tertiary age appear to be largely gas prone. Deeper Mesozoic strata may have both gas and oil generating potential.**
- Seismic control on the Alaska Peninsula is largely poor and archaic. Latest technology in seismic acquisition and processing is needed to further define prospects.**

Alaska's Gas Potential

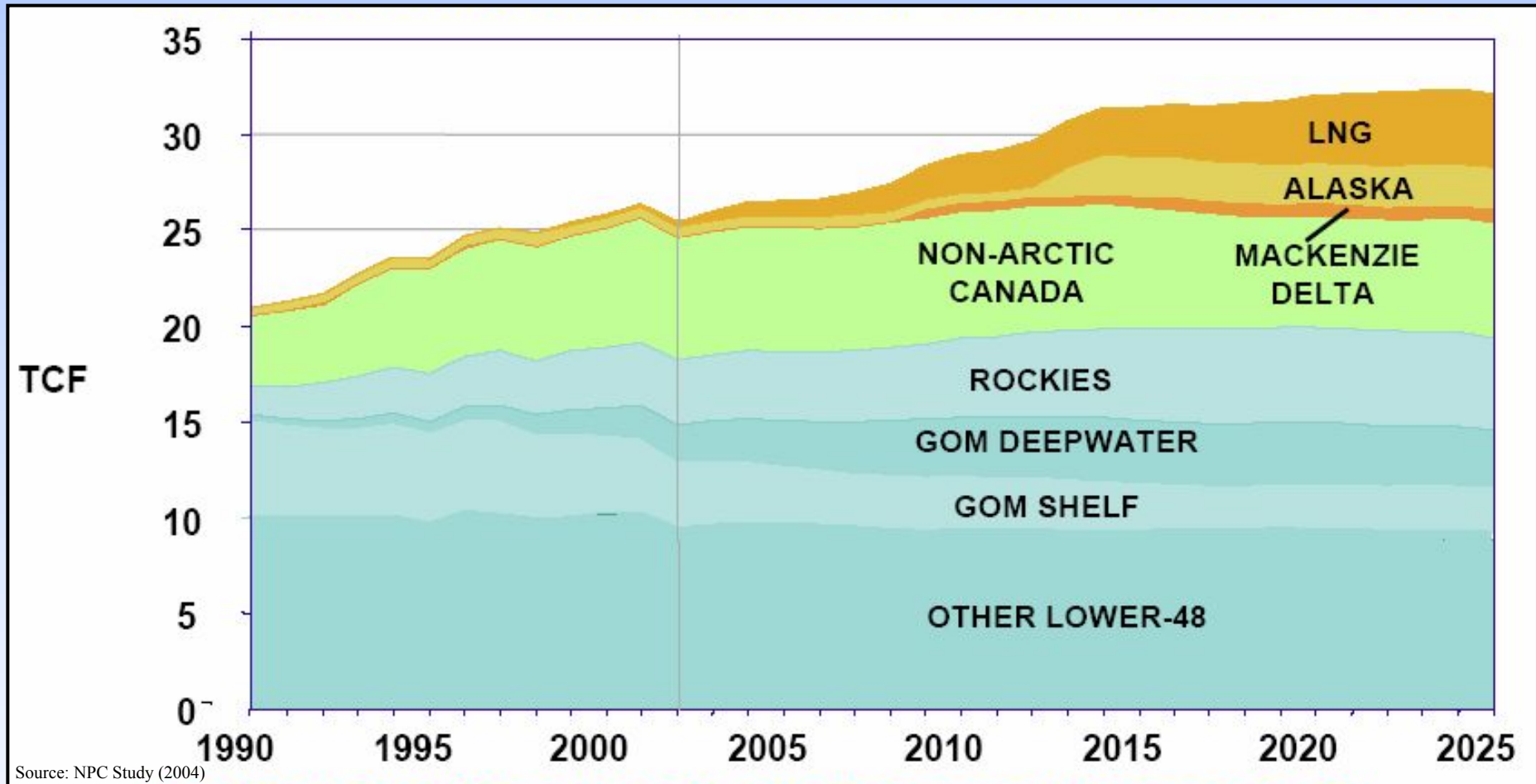
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Natural Gas Pipeline

Projected North American Gas Demand and Supply



Source: NPC Study (2004)

wen/mep 03/05

Mean Value, Total Natural Gas Reserve and Resource Base for Gas Pipeline Supply Report

All Values Trillions of Cubic Feet (TCF)
Alaska Division of Oil and Gas (01/12/05)

BASIN	KNOWN RESERVES	RISKED UNDISCOVERED CONVENTIONALLY RECOVERABLE RESOURCE	RISKED UNDISCOVERED CONVENTIONALLY RECOVERABLE DEEP GAS RESOURCE ²	GAS HYDRATES IN PLACE RESOURCE ⁶	COALBED METHANE IN PLACE RESOURCE	BASIN TOTAL
NORTH ALASKA (onshore)	35.000 ¹	119.200 ⁸	17.700 ²	590.000 ⁶	800.000 ⁷	1,544.20
NORTH ALASKA (Beaufort shelf) ²	0.000	32.070	N/A	32,325.000 ³	N/A	32,357.070
NORTH ALASKA (Chukchi shelf) ²	0.000	60.110	N/A	50.000 ³	N/A	110.110
CENTRAL ALASKA ⁴	0.000	2.760	N/A	N/A	N/A	2.760
YUKON FLATS ⁹	0.000	5.460	N/A	N/A	N/A	5.460
KANDIK ⁵	0.000	0.116	N/A		N/A	0.116
NENANA/TANANA	0.000	N/A	N/A	N/A	N/A	N/A
COPPER RIVER	0.000	N/A	N/A	N/A	N/A	N/A
TOTAL BY GAS TYPE	35.000¹	219.71	17.700²	32,965.000	800.000⁷	34,019.71

6

6 jrc 05/05

After Craig, J., and Sherwood, K., Prospects for development of Alaska natural gas: a review as of January 2001, Minerals Management Service, Alaska Region. tbl. 9, p. 76.

Modified to include only North and Central Alaska basins and updated to include new information as footnoted.

N/A = Not Assessed

¹ Current estimate of known "stranded" recoverable North Slope conventional gas reserves in Prudhoe Bay, Point Thomson and smaller fields.

² Subcategory of and included in "Undiscovered Technically Recoverable Conventional Reserves". Represents Basin Deep or Basin Centered component > 15,000' depth.

³ Craig and Sherwood arbitrarily split offshore hydrate resource estimates between Beaufort and Chukchi Sea shelves. Total North Alaska offshore gas hydrate potential remains 32,375 tcf.

⁴ 1995 National Assessment of United States Oil and Gas Resources, U.S. Geological Survey, Open File Report, Digital Data Series-30, pub. 1995. For all central Alaska basins except the Kandik Basin. Other basins not evaluated individually.

^{4,5} Geological Survey of Canada estimated mean undiscovered gas in place ~ 0.489 - 0.800 TCF. Alaska component estimated as 0.116 Tcf.

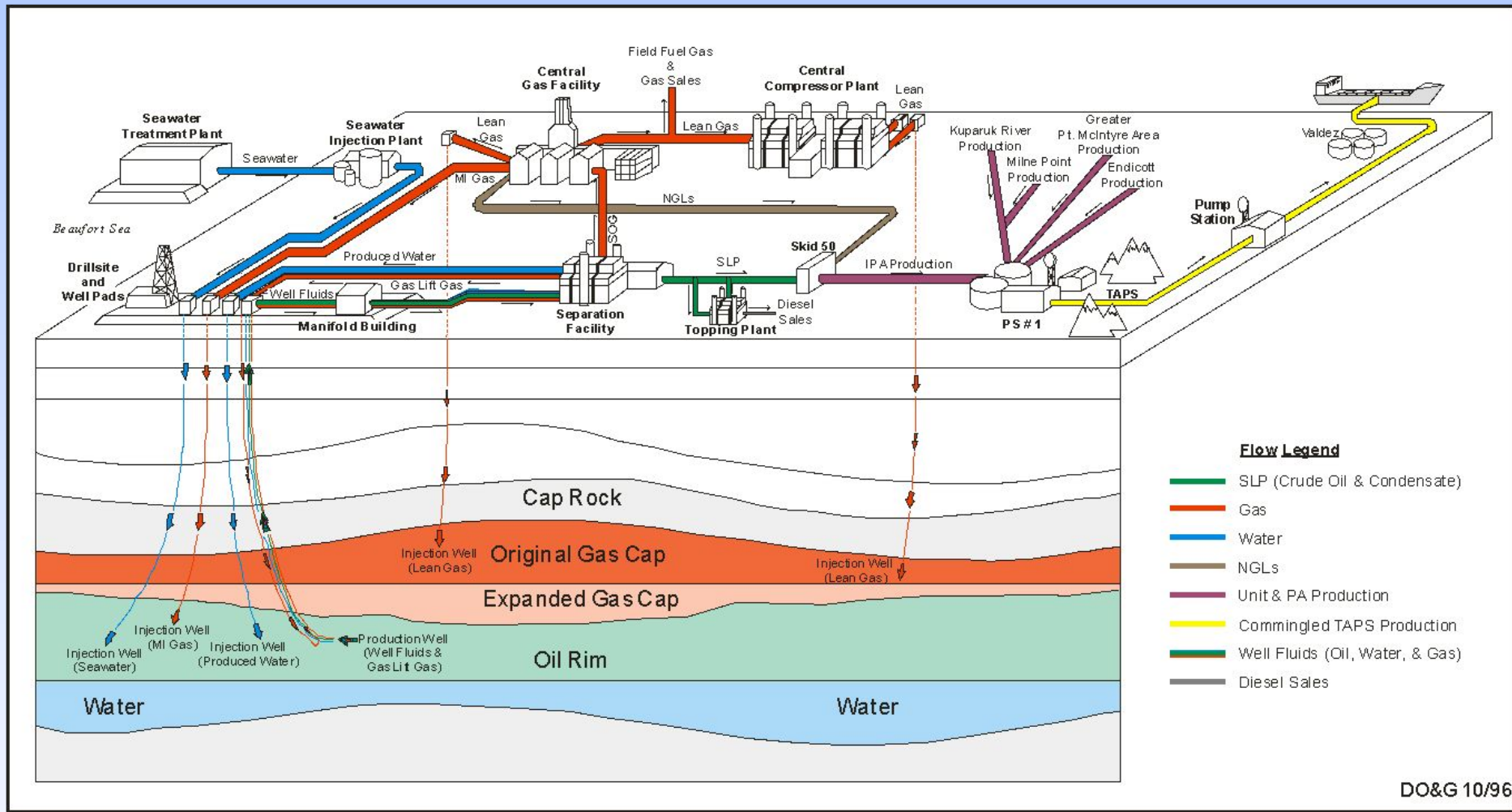
⁶ Collett, personal communication, 11/26/04.

⁷ Barker, C.E., Clough, J.G., Roberts, S.B., and Fisk, R., Coalbed methane in Northern Alaska: potential resources for rural use and added supply for the proposed trans-Alaska gas pipeline; AAPG-SPEM Joint Technical Conference, Anchorage, AK, May 2002.

⁸ Includes nonassociated and associated gas. State and Native lands are estimated to be approximately 37.5 TCF and are included in this total.

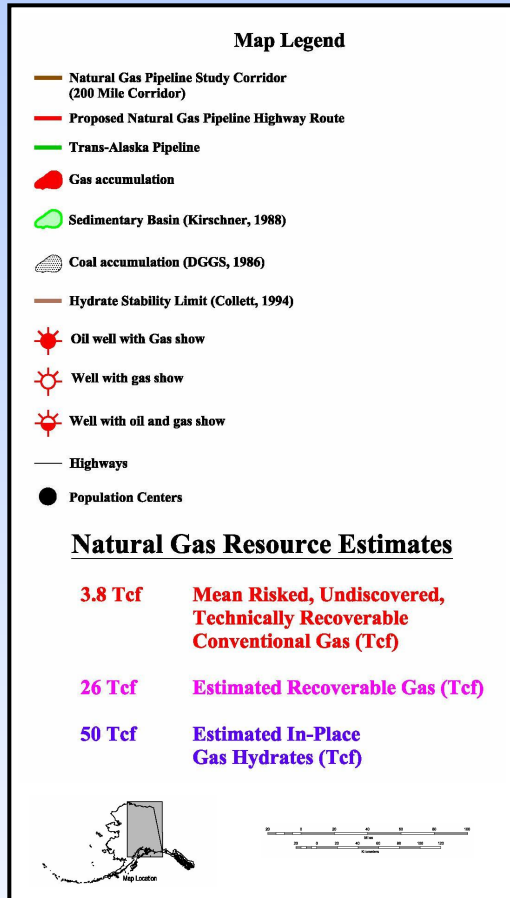
⁹ Oil and Gas Assessment of Yukon Flats, East-Central Alaska, 2004, USGS Fact Sheet 2004-3121, December 2004.

Prudhoe Bay Production & TAPS Schematic

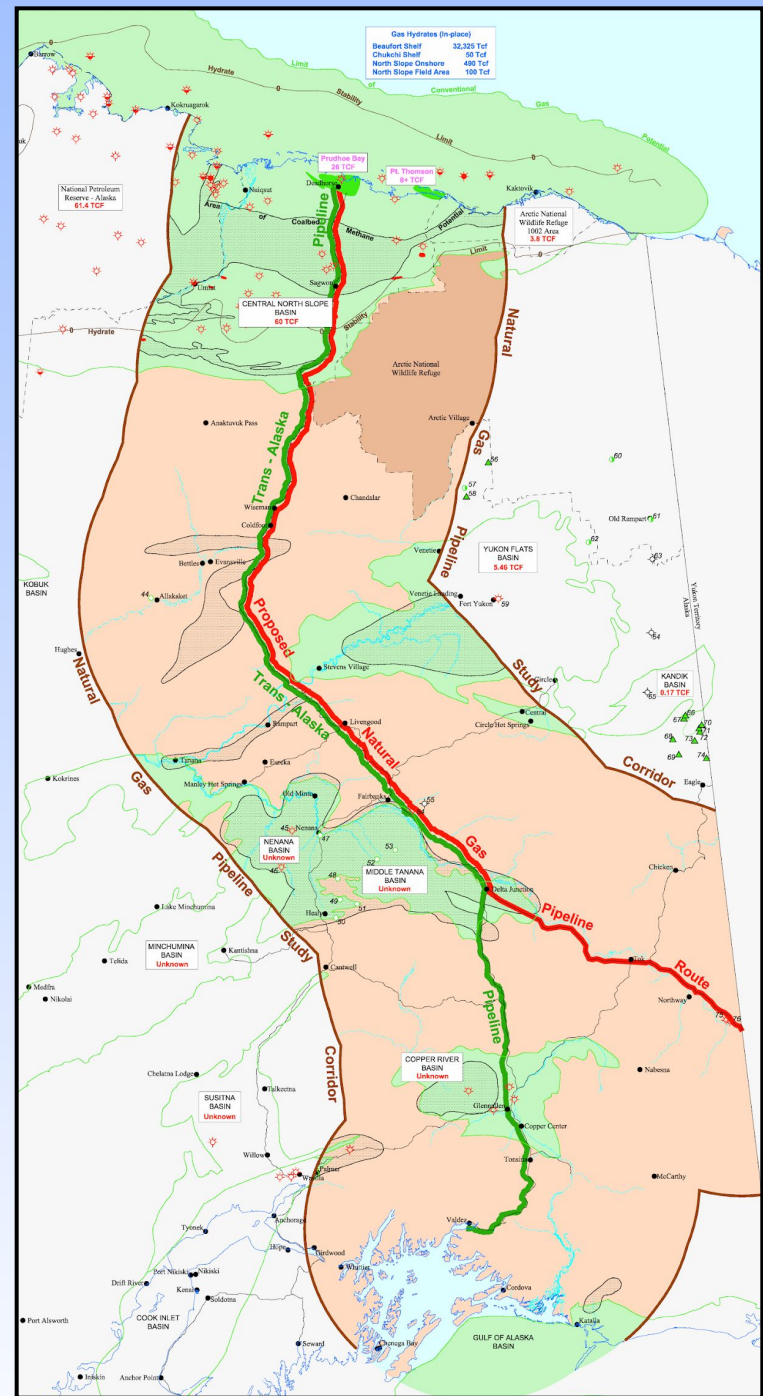


DO&G 10/96

Natural Gas Pipeline Supply Study



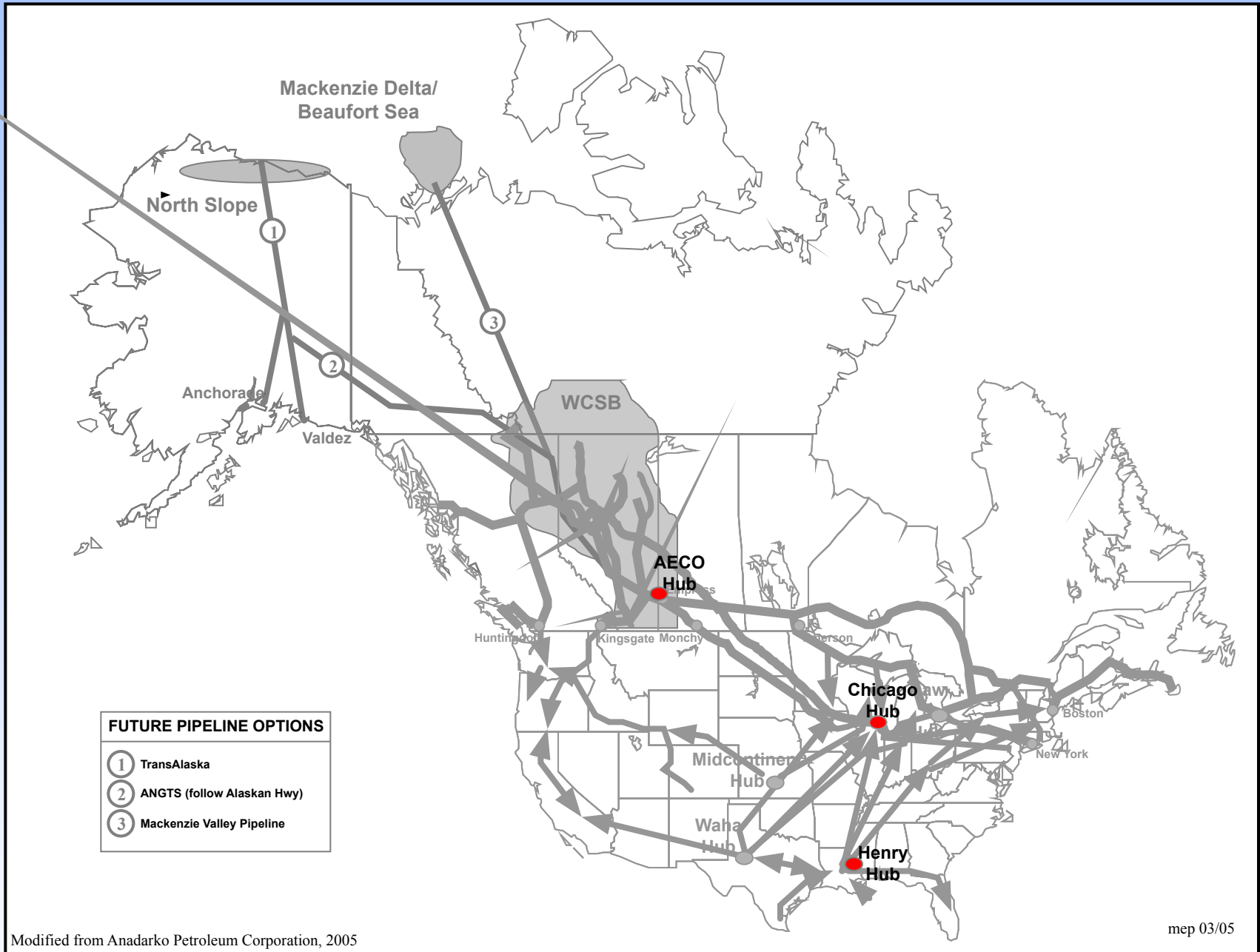
DO&G 03/05



Useful Life of a Gas Pipeline

	<u>Reserves (Tcf)</u>	<u>Project Life (Years)</u>	
		<u>Pipeline Capacity BCF/Day</u> <u>(4.5)</u>	<u>(5.6)</u>
Known Resources	33	20.1	16.1
	36	21.9	17.6
	40	24.36	19.6
Undiscovered Resources	60	36.5	29.4
	100	61.5	48.9
	150	91.3	73.4

Proposed Northern Natural Gas Pipelines



Unlocking Alaska's Natural Gas Hydrates: A Major New Domestic Resource

**State of Alaska
Department of Natural Resources
Division of Oil and Gas**



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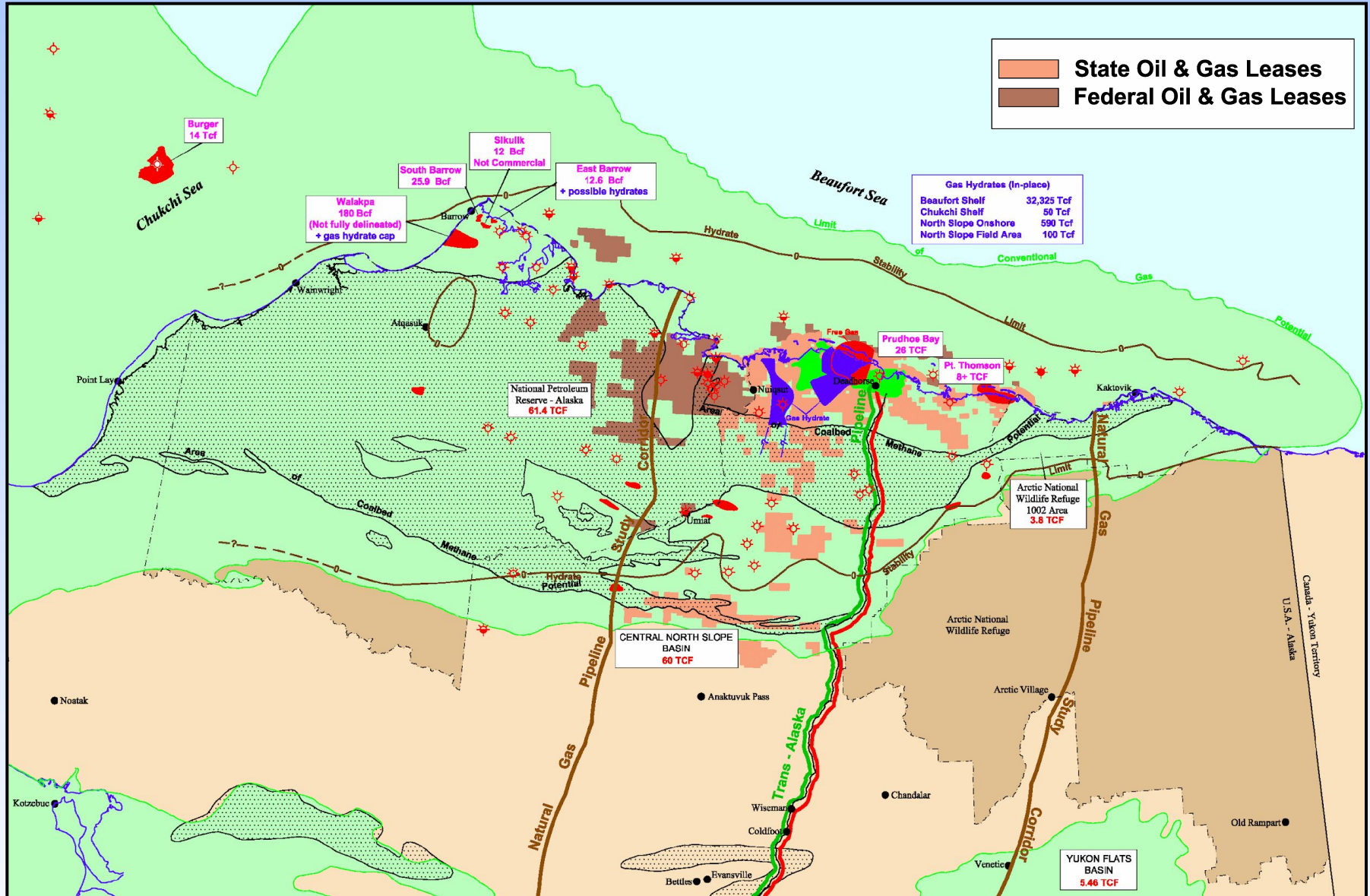
Federal Legislation Provides Project Substantial Benefits

- Regulatory streamlining
- Expedited judicial review
- Loan guarantees
- 7-year accelerated depreciation
- Investment tax credit for gas treatment plant

Resource Assessments

- **Alaska's gas can make a huge contribution to reducing our nations dependence on foreign sources of energy.**
- **Federal and state geologists believe that the 35 TCF of gas from Prudhoe Bay and Pt. Thomson is just the tip of the iceberg.**
- **North Slope and offshore conventional mean technically recoverable undiscovered resource potential exceeds 236 TCF.**
- **North Slope and offshore gas hydrate resource estimated in excess of 32,000 TCF, of which 529 TCF is estimated to be onshore.**
- **Gas hydrate resource in the Prudhoe/Kuparuk Milne Pt. field area alone is 100 TCF.**
- **Gas hydrates first confirmed in 1972 drilling, coring and testing in the northwest corner of the Prudhoe Bay field, 5 years prior to field start-up.**

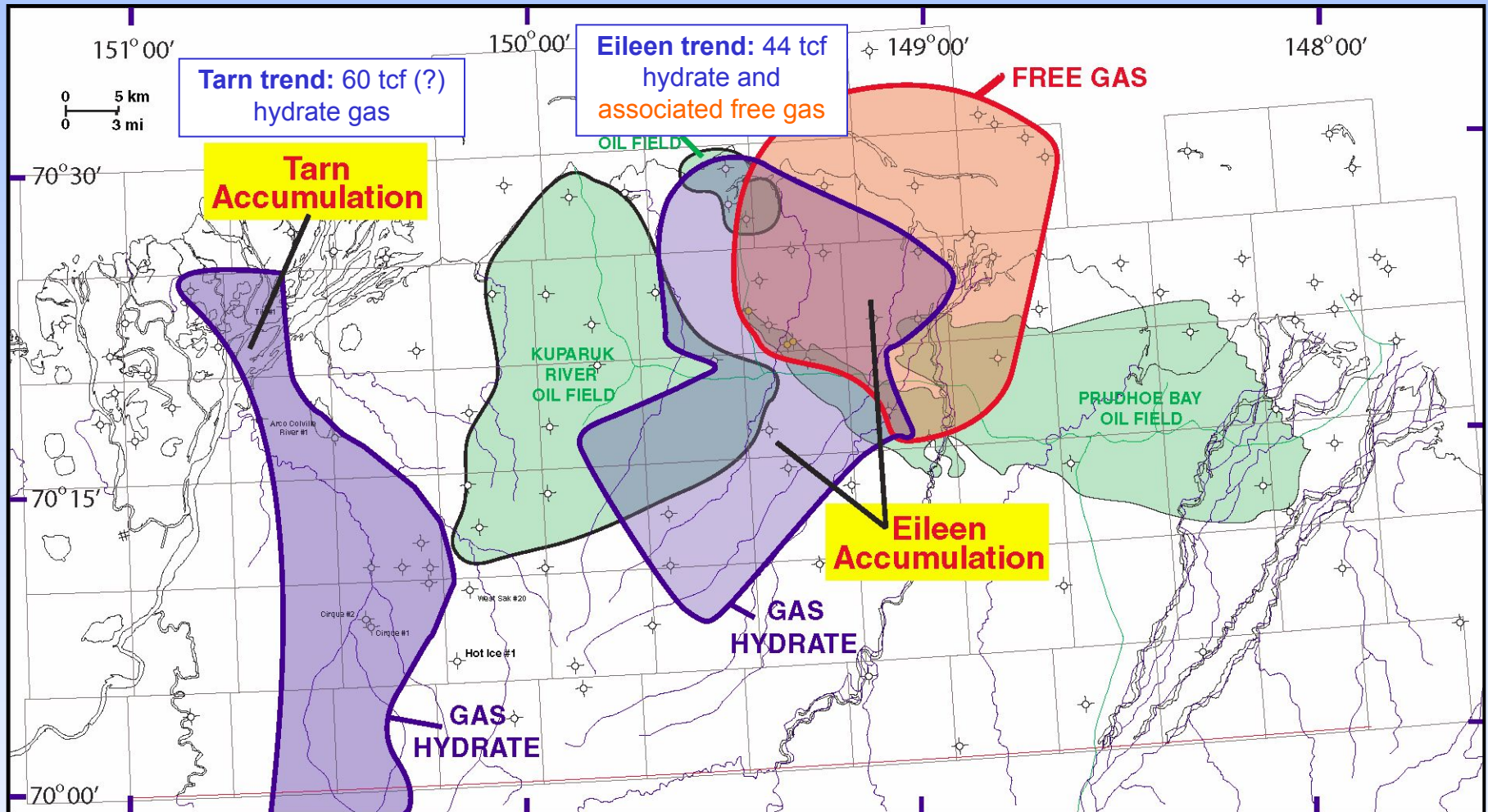
Gas Potential - North Slope Area with Oil & Gas Leasing Activity



Gas Hydrates

- commonly occur in Arctic regions and deep ocean continental margins.
- is a crystalline substance of water and methane composed of water.
- The solid water lattice accommodates gas molecules in a cage-like structure.
- One cu. ft. of methane hydrate will contain as much as 164 cu. ft. of gas.
- represent a large world wide resource, 500 to 1,200,000 tcf of gas.

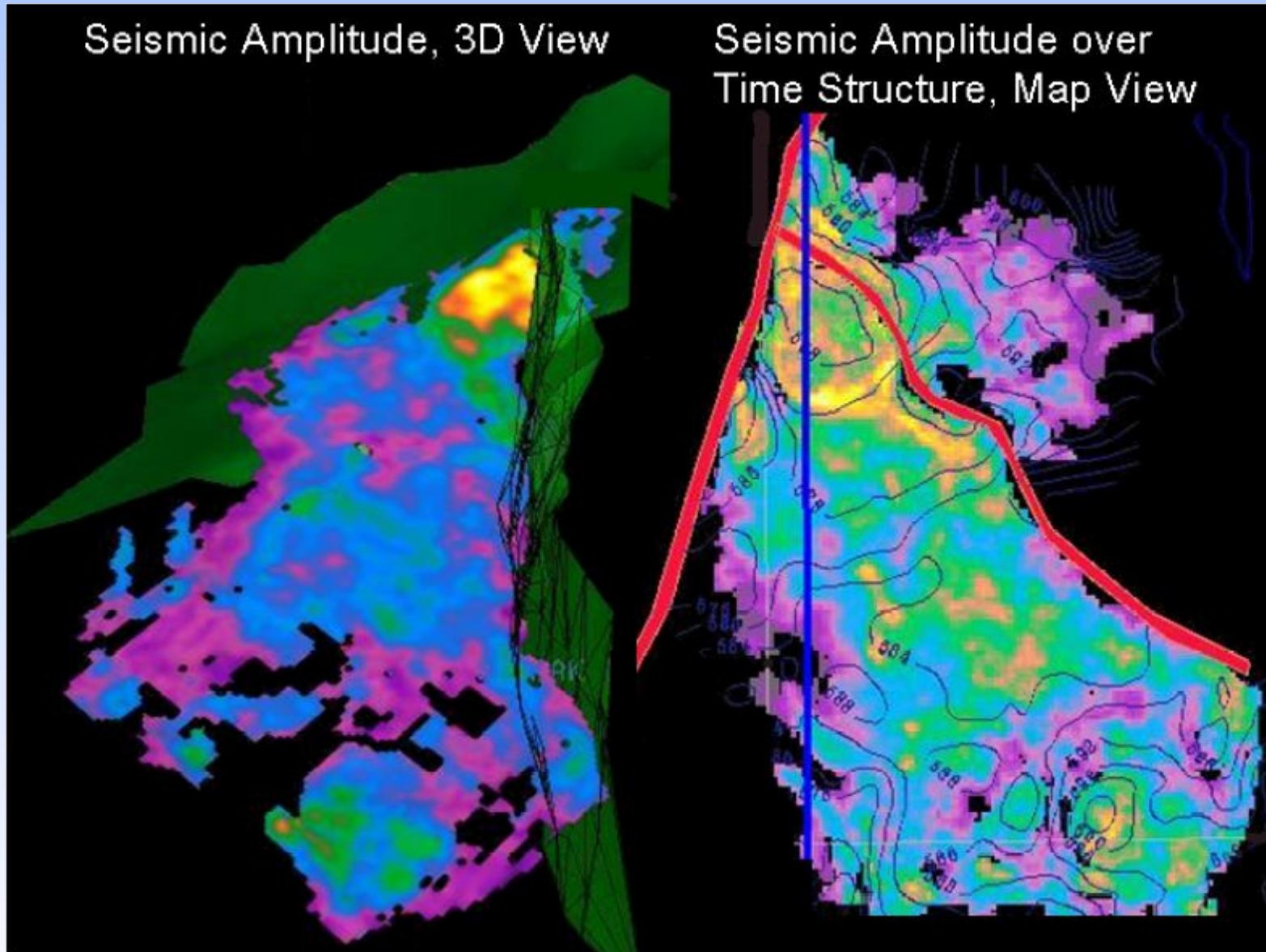
Known Gas Hydrate Accumulations



Known gas hydrate accumulations (blue) and hydrate-associated free gas accumulations (orange) in the vicinity of the major North Slope oil fields (green). The USGS estimates up to 100 tcf in place of hydrate in the Eileen and Tarn trends combined. From T.S. Collett, 10/01 and Hunter and Collett, (2004).

Modified from T.S. Collett, USGS Open File Report 2004-1452

Seismic amplitude of a gas hydrate prospect within the Milne Point Unit in 3-dimensional view (left) and in map view with time structure (right).

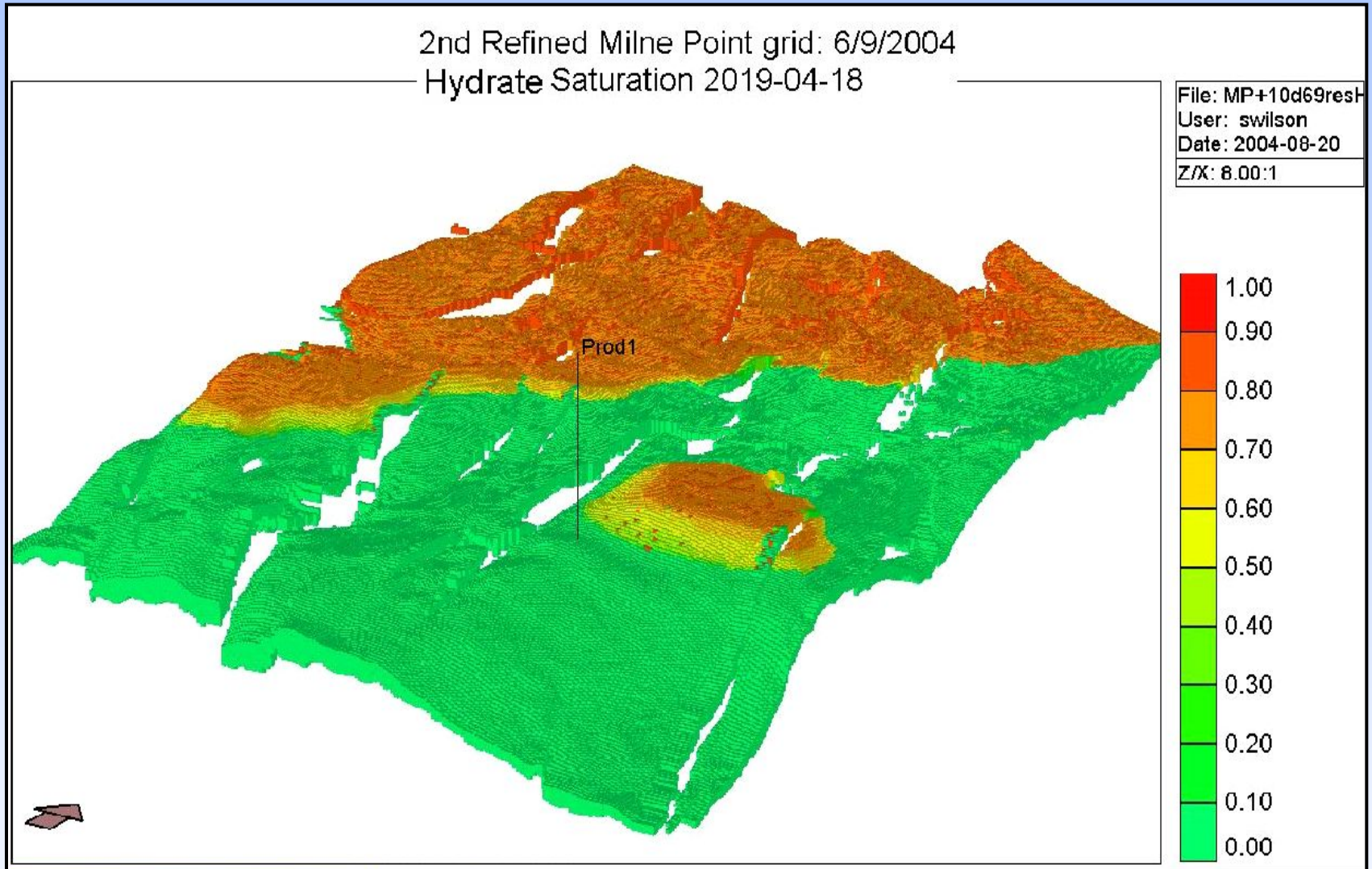


Warmer shades in shallowest corner of the fault-bounded reservoir compartment are interpreted to be gas hydrates, consistent with the estimated depth of the hydrate stability zone.

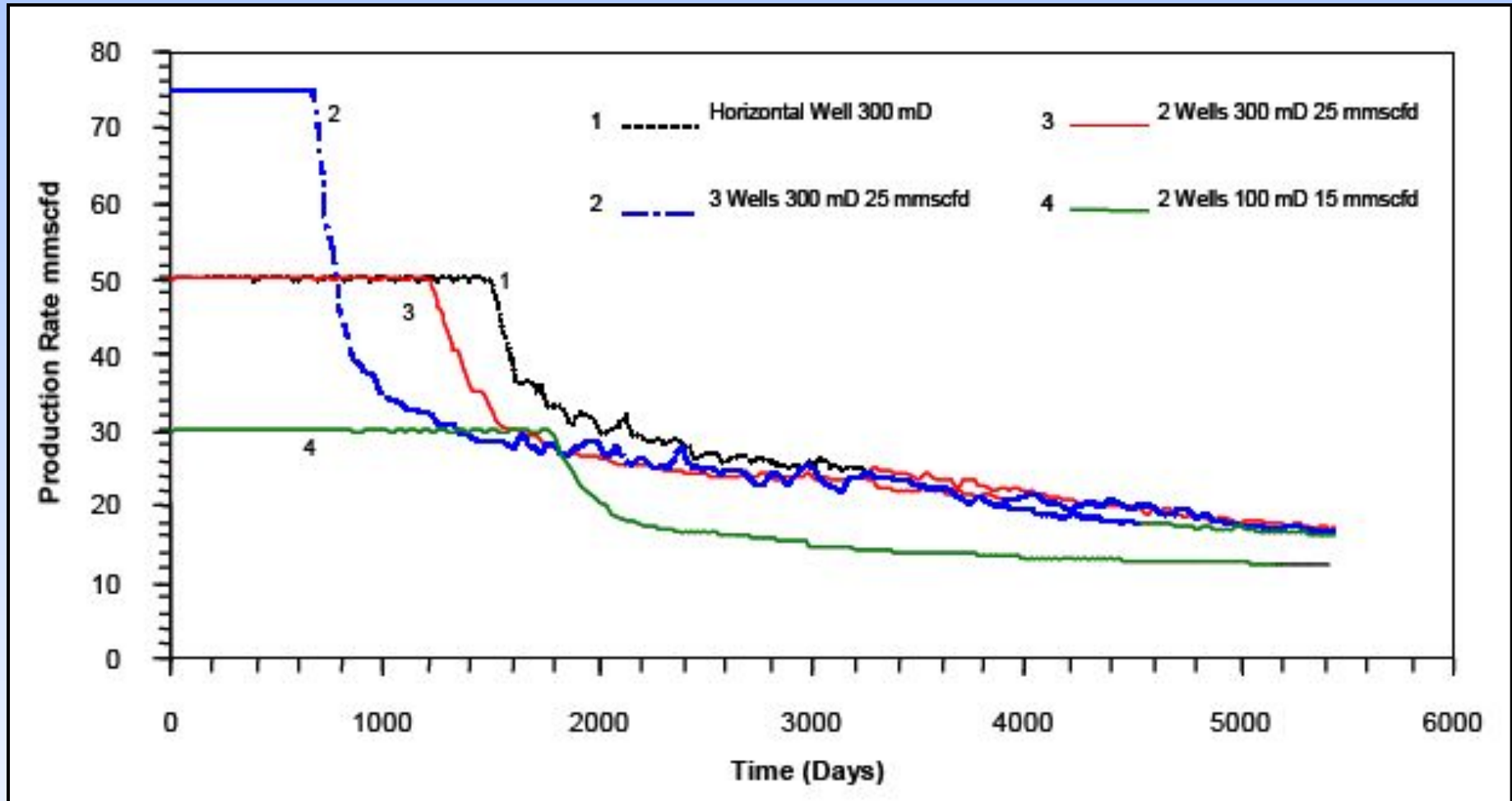
From Hunter (2004)

Milne Point Unit Reservoir Model

Gas hydrate cap (orange) overlying free gas (green) and a single vertical producing well.



Gas production profile from a schematic reservoir.



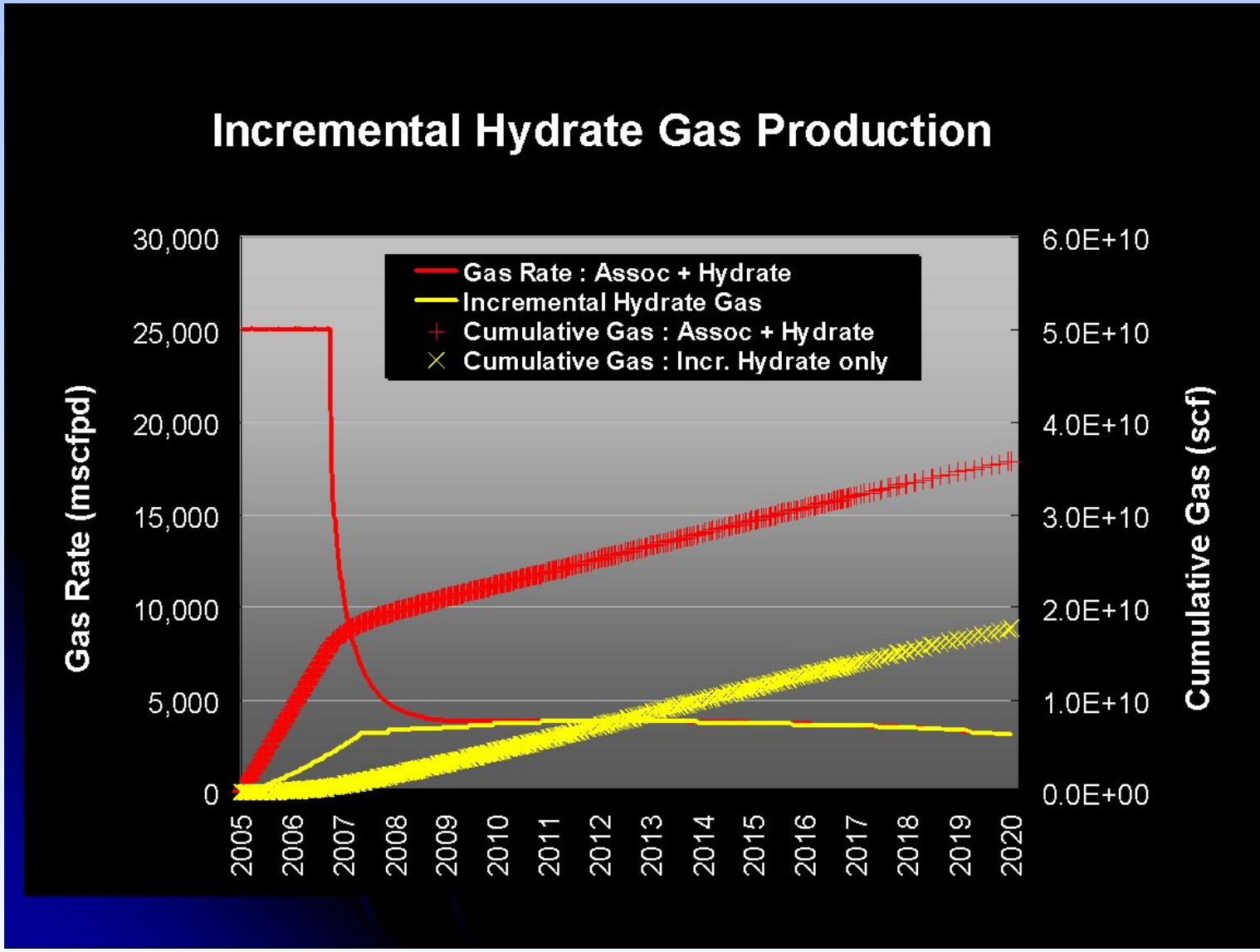
Cases 1, 2, and 3 compare offtake profile from the same reservoir using one horizontal, three vertical, and two vertical wells, respectively.

Note extended plateau for one horizontal compared to two vertical wells, and that total flow in all scenarios is virtually the same after 15 years.

Case 4 represents a lower permeability reservoir.

Originally from Howe and others (2004) cited by Hunter (2004)

Graph showing modeled contribution of hydrates to total production for the reservoir model in Milne Point Unit reservoir model



Production of original free gas constitutes all of the initial production; reservoir depressurization results in dissociation of overlying hydrates into free gas. In this particular simulation, dissociated hydrate gas accounts for nearly all production beyond the fifth year, and continues at a nearly constant rate for the next decade.

Methane Hydrate Research, Development and Field Operations -- Authorization Budget

	2006	2007	2008	2009	2010	Total Spending
North Slope Studies						
Seismic data processing and/or acquisition	4.00	2.00	-	-	-	6.00
Regional resource assessments	0.50	0.75	1.00	1.00	0.50	3.75
Prospect definition studies	1.00	1.00	1.00	0.75	0.50	4.25
Data Acquisition (wells of opportunity)						
Logs (3 ea, 2006 - 2009)	0.36	0.36	0.36	0.36	-	1.44
Core (1, for thermal studies)		0.50	0.50	-	-	1.00
Thermal stimulation research	0.50	0.50	0.50	1.00	1.00	3.50
Carbon dioxide replacement research	0.50	0.50	0.50	0.50	0.50	2.50
Test designs/site selection/planning/permitting/LL items	0.50	0.75	0.75	0.25	-	2.25
	7.36	6.36	4.61	3.86	2.50	24.69
North Slope Field Operations						
Test production of NS Hydrates from underlying free gas zone	-	3.00	4.56	4.56	2.00	14.12
Test direct production of NS Hydrates	-	-	-	6.38	5.48	11.86
	-	3.00	4.56	10.94	7.48	25.98
Total North Slope Spending	7.36	9.36	9.17	14.80	9.98	50.67
Gulf Coast and Other L-48 Studies	2.64	0.64	0.83	5.21	10.02	19.34
Total Spending	10.00	10.00	10.00	20.00	20.00	70.00

Average daily fully-loaded rig cost: \$35,000/day 45 days, RU, D&C, rig test = \$1.575 million
 Production testing costs: \$12,500/day 15,000 /day for direct production test (includes thermal costs)
 Incremental shallow logging costs: \$120,000/well

Test production of NS Hydrates from underlying free gas zone: - operations start mid-2007, w/ 45 days of rig work, prior to long-term production testing
 Test direct production of NS Hydrates: - operations start early-2009, w/ 45 days of rig work, prior to long-term production testing

Alaska's Oil and Gas Leasing Programs

**State of Alaska
Department of Natural Resources
Division of Oil and Gas**



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Areawide Oil & Gas Lease Sales

- **Annual lease sales**
 - **May: Cook Inlet & North Slope Foothills**
 - **October: North Slope & Beaufort Sea**
 - **Beginning in October 2005: Alaska Peninsula**
- **Leases up to 5,760 acres**
- **Maximum non-unitized acreage under lease**
 - **Offshore – 500,000 acres**
 - **Onshore – 750,000 acres**
- **Term of lease: up to 10 years**
- **\$1/acre annual rental, increasing annually by \$0.50/acre to maximum of \$3/acre for 5th and succeeding years**

ALASKA OIL AND GAS LEASING PROGRAM



DO&G 01/05

FIVE-YEAR OIL AND GAS LEASING PROGRAM PUBLIC NOTIFICATION SCHEDULE

January
2005



Proposed Sale Area & Date	2005												2006												2007												2008												2009											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
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A = Sale Added to Schedule.

C = Call for Comments.

Request for New Information Made Available Since Last Finding.

E = End of Comment Period.

P = Preliminary Best Interest Finding /

ACMP Consistency Analysis.

F = Final Finding.

F_S = Supplement to Final Finding and/or

Notice of Sale and Terms.

N = Notice of Sale and Terms

S = Sale.

Public Process =

C-E F_S

Revised 2/05

Visit our Website at "www.dnr.state.ak.us"

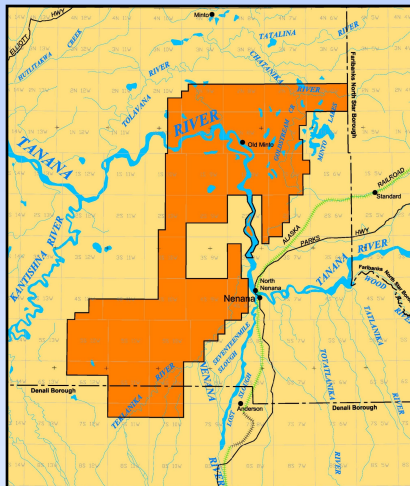
Exploration Licensing

- **Proposals accepted during month of April**
- **10,000 to 500,000 acres**
- **Maximum acreage under license: 2,000,000 acres**
- **Term of license: Up to 10 years**
- **Work commitment, expressed in \$\$**
- **No rental fees during term of license**
- **One-time \$1/acre licensing fee**
- **Right to convert to oil & gas leases**

Exploration Licensing Program

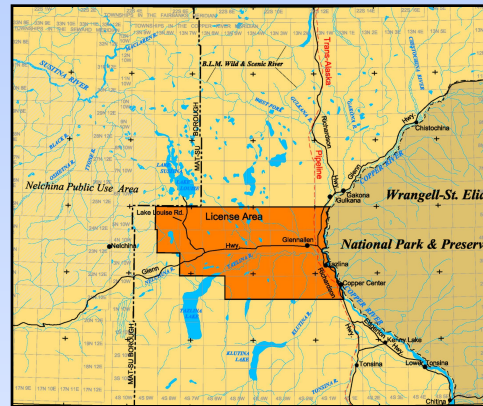
Issued Licenses

Nenana Basin



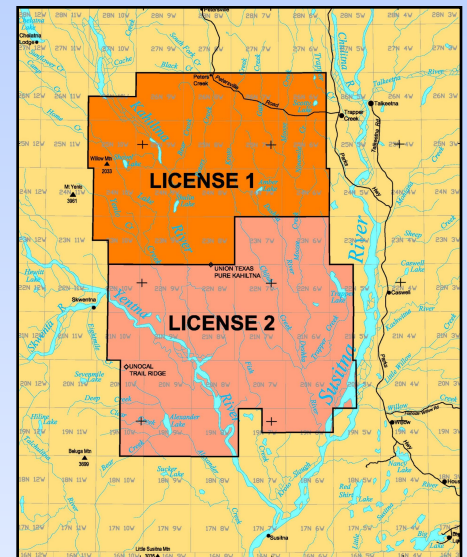
Nenana Basin: Issued
 Licensee: Andex Resources
 Size: 483,175 Acres

Copper River Basin



Copper River License: Issued
 Licensee: Forest Oil Corporation
 Size: 318,756.35 Acres

Susitna Basin

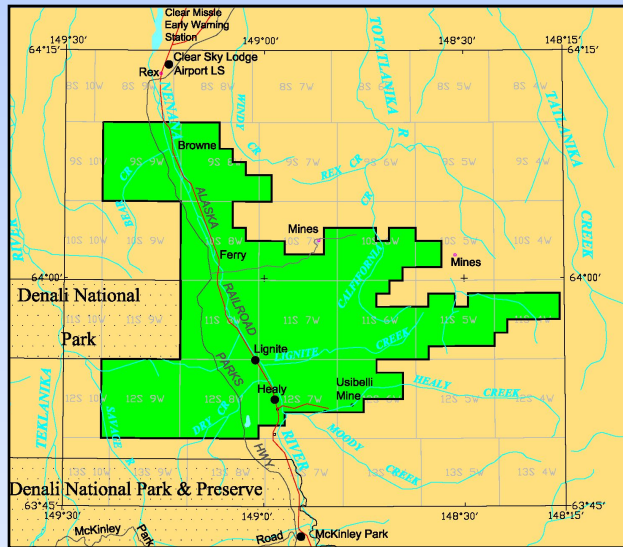


Susitna Basin License 1: Issued
 Licensee - Forest Oil Corp.
 386,207 Acres
Susitna Basin License 2: Issued
 Licensee - Forest Oil Corp.
 471,474 Acres

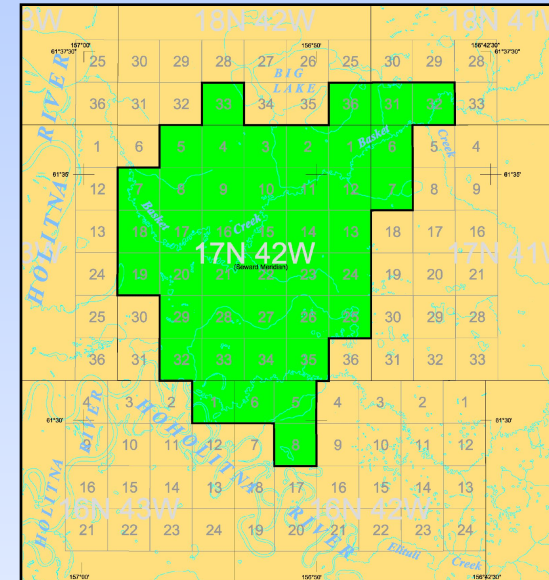
Exploration Licensing Program

Proposed Licenses

Proposed Healy Basin Exploration License Area



Proposed Holitna Basin Exploration License Area



Usibelli Coal Mine Inc. proposed a work commitment of \$500,000 with a 10 year term.

Solicitation of Competing Proposals ended Dec. 9 (none received).

Solicitation of Public Comments ended.

Preliminary Best Interest Finding (June/July).

Final Best Interest Finding (Fall 2005).

Holitna Energy Co. converted from Shallow Natural Gas applications (Under HB 531).

Solicitation of Public Comments (Ended Dec. 21).

Preliminary Best Interest Finding (May/June 2005).

Final Best Interest Finding (Fall 2005).

Independents in Alaska

Alaska Venture Capital Group, LLC

Alliance Energy, LLC

Anadarko Petroleum Corporation

Andex Resources, LLC

Armstrong Alaska, Inc

Aurora Gas, LLC

BBI, Inc.

Burlington Resources Alaska, Inc.

Cassandra Energy Corporation

Devon Energy Production Company

EnCana Oil and Gas (USA), Inc.

Evergreen Resources Alaska, Inc.

Forest Oil Corporation

Gas-Pro Alaska, LLC

Lapp Resources, Inc.

Murphy Exploration (Alaska), Inc

Northstar Energy Group, Inc.

Pioneer Natural Resources Alaska, Inc.

Pioneer Oil Company

Prodigy Alaska, LLC

Rutter & Wilbanks Corp.

Trading Bay Oil and Gas, LLC

Ultrastar Exploration, LLC

Union Oil Company of California

Winstar Petroleum, LLC

XTO Energy, Inc.

Exploration Incentive Credits and Royalty Incentives

**State of Alaska
Department of Natural Resources
Division of Oil and Gas**



Alaska Department of
**Natural
Resources**

Exploration Incentive Credit (EIC) Programs

Program I - AS 38.05.180(i) Oil and Gas Leasing

- **Restricted to oil and gas leases, shallow gas leases and unleased state lands that will be offered for leasing within two years of the activity.**
- **Maximum of 50% of allowable drilling costs on conventional oil and gas leases.**
- **Maximum of 50% of allowable geophysical program costs on unleased state lands during the two years immediately preceding inclusion of those lands in an announced lease sale. Information must be made public following the lease sale.**
- **Applicable to royalty and rental payments and taxes owed the state under AS 43.55.**
- **Credits may not exceed 50% of the payment toward which it is being applied.**
- **Credits may be assigned.**
- **Total drilling credits granted to-date: \$54.6 million**

Exploration Incentive Credit (EIC) Programs

Program II - AS 41.09.010 Exploration Incentive Credits

- **Program expires July 1, 2007.**
- **Restricted to unleased lands, lands under exploration license, and federal and private lands.**
- **Up to 50% of allowable costs for activities on state lands.**
- **Up to 25% of allowable costs for activities on federal and private lands.**
- **\$5 million maximum per project; \$30 million maximum for program.**
- **Applicable to geophysical work NOT subject to AS 38.05.180(i) and to exploratory and stratigraphic test wells.**
- **Applicable to bonus bids, royalties, rental payments, and taxes.**
- **Credits may be assigned.**
- **Drilling data confidentiality term cannot exceed the normal two-year term.**
- **Geophysical data may be shown, but not transferred, to interested third parties.**

Royalty Incentives

- **Royalty Reduction**

- as low as 5% if new production
- as low as 3% if producing or shut-in
- as low as 5% for oil production from CI platforms if production falls below specified levels

- **Discovery Royalty**

- CI only: 5% royalty for 10 yrs
- Pre-1969 leases statewide: 5% royalty for 10 yrs.

Production Tax (ELF) - AS 43.55

- **15% X Non-Royalty Production X ELF X Gross Value at Wellhead**
- **ELF: Factor between 0 and 1.**
 - **1 – Very BIG fields**
Prudhoe Bay: 450,000 barrels/day
 - **1 – Very PRODUCTIVE fields**
Alpine and Northstar: over 4,000 barrels/well/day
 - **All other fields are close to 0.**
150,000 barrels/day fields with low productivity
2,000 barrels/well/day fields with low volume

Exploration Tax Credits - AS 43.55.025

- **Production Tax Credit.**
- **Effective for exploration well and seismic and geophysical exploration activities conducted July 1, 2003, through June 30, 2007, except those included in a unit plan of development or plan of exploration on May 13, 2003.**
- **Applicable only to production occurring on or after July 1, 2004.**
- **Applicable to all unleased and leased state, federal and private land within the state.**
- **Credit is transferable.**
- **Exploration well tax credits:**
 - **20% if the bottom hole location is 3 or more miles from the bottom hole location of a preexisting completed, suspended or plugged and abandoned oil or gas well that was spud more than 150 days, but less than 35 years, prior to spud date of the eligible exploration well.**
 - **20% if the bottom hole location is 25 or more miles from the boundary as of July 1, 2003, of any unit under a plan of development.**
 - **40% if both conditions are met.**
- **Seismic exploration tax credits:**
 - **40% of eligible costs for those portions of activities outside of units under plan of development or plan of exploration.**
 - **Seismic data submitted to state will be held confidential for 10 years and 30 days following activity completion date.**

Gas Exploration and Development Tax Credit

- AS 43.20.043

- **Income Tax Credit.**
- **Applicable only to exploration for and development of gas resources and reserves south of 68° North latitude.**
- **May not be used in conjunction with any other tax credit or royalty modification.**
- **Allows a tax credit for 10% of the cost of qualified capital investments made after June 30, 2003.**
- **Total allowable yearly tax credit may not exceed 50% of the taxpayer's total tax liability and shall be determined before application of any other credits allowable under AS 43.20.**
- **Expires January 1, 2013.**
- **Unused tax credit may be carried forward.**

Alaska State Taxes

- **Production Tax and Conservation Surcharge, AS 43.55**
- **Income Tax, AS 43.20**
- **Property Tax, AS 43.56**

Property Tax - AS 43.56

- **20 mills.**
- **Credit for any local assessment.**
- **Evaluation for Exploration property “is the estimated price that the property would bring in an open market and under the then prevailing conditions in a sale between a willing seller and a willing buyer both conversant with the property and with prevailing price levels.”**
- **Assessed as of January 1.**
- **Due in June.**
- **Also applies to production and pipeline properties.**

Income Tax - AS 43.20

- **Sliding scale up to 9.5% on \$100,000 of income.**
- **Start with Federal taxable income.**
- **Three-factor Alaska apportionment to arrive at Alaska income.**
 - **Payroll, property and sales.**
 - **Once a producer, modified apportionment.**
 - **Production replaces payroll.**
- **Unitary group.**

Production Tax - AS 43.55

- **15% X Non-Royalty Production X ELF X Gross Value at Wellhead**
- **12.25% for first 5 years of commercial production**
- **Gross value at wellhead is market value at destination**
less transportation costs to point of production
 - **tankering costs**
 - **TAPS**
 - **quality bank**
 - **upstream pipelines**

Permitting Oil and Gas Projects in Alaska

**State of Alaska
Department of Natural Resources
Division of Oil and Gas**



Alaska Department of
**Natural
Resources**

Permit Streamlining Accomplishments

- Significantly revised the Alaska Coastal Management Program
- Re-organized permitting agencies and consolidated responsibilities within the Department of Natural Resources (DNR)
- Created large project permit office in the DNR
- Clarified rules and procedures for Oil Spill Contingency Planning
- Created Permit-by-Rule Air Quality Permitting

Measure of Progress

- One Independent went from lease issuance to permits in hand for a North Slope off-shore well in 3 months.
 - Lease issued: August 12, 2002
 - Permits Obtained: August 20, 2002 – November 15, 2002
 - Ice Road Started: January 14, 2003
 - First Well Spud: February 25, 2003

Permitting Contacts

- Department of Natural Resources
 - Division of Oil and Gas
 - Patrick Galvin, (907)269-8775
 - psg@dnr.state.ak.us
 - Steve Schmitz, (907)269-8777
 - ss@dnr.state.ak.us
 - Alaska Coastal Management Program
 - Ben Greene, (907)257-1351
 - bgreene@jpo.doi.gov

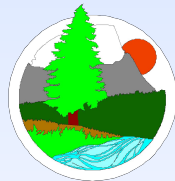
Permitting Contacts

- Department of Environmental Conservation
 - Oil Spill Contingency Planning
 - Bill Hutmacher (907) 269-3054
 - Bill_hutmacher@dec.state.ak.us
 - Air Quality Permitting
 - Jim Baumgartner (907) 465-5108
 - jim_baumgartner@dec.state.ak.us

Royalties and Tax Revenues

"Alaska As Landlord"

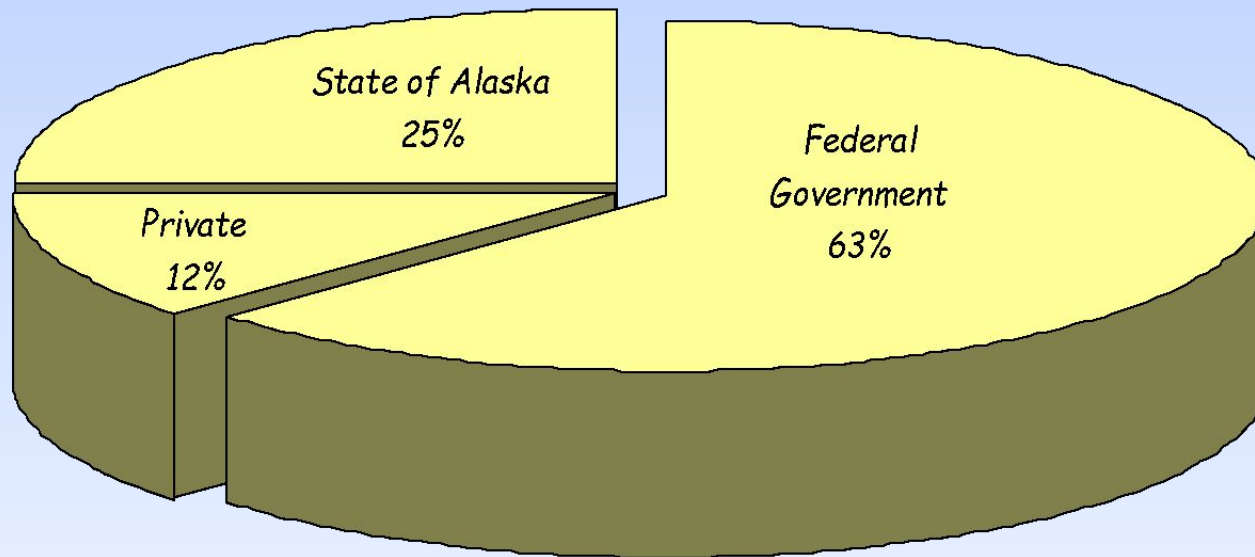
State of Alaska
Department of Natural Resources
Division of Oil and Gas



Alaska Department of
**Natural
Resources**

Alaska Land Ownership

ALASKA: 570,000 Square Miles
1.48 Million Square Kilometers
365 Million Acres



Majority of known petroleum reserves are on state-owned lands
About 30% of proven U.S. oil reserves are located in Alaska

Calculation of Alaska Royalty and Tax Revenues

		Prudhoe e Bay	Milne Point
	West Coast Destination Value	\$ 25.00	\$ 25.00
–	Marine Transportation Cost	1.25	1.25
–	Pipeline Tariffs	2.70	2.91
+	Quality Bank Payments	0.31	(0.29)
–	Royalty Field Cost Deduction	0.83	-
=	Royalty or Severance Tax Value	\$ 20.53	\$ 20.55
x	Royalty or Severance Tax Barrels	28,105	2,500
=	Royalty or Severance Tax Revenues	\$ 576,995.65	\$ 51,375.00

Royalty is a Contract Right

FORM NO. DL-1
REVISED OCT., 1963

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

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40. DRILLING OPERATIONS. As used in this lease "drilling operations" mean any work or actual operations undertaken or commenced in good faith for the purpose of carrying out any of the rights, privileges or duties of Lessee under this lease, followed diligently and in due course by the construction of a road or derrick and/or other necessary structures for the drilling of an oil or gas well, and by the actual operation of drilling in the ground. Any such work or operations preliminary to drilling in the ground may be undertaken either on said land or in the vicinity of said land in any order Lessee shall see fit.

41. ACTUAL DRILLING. As used in this lease, "actual drilling" means any and all operations necessary or convenient to the drilling of a well in the ground after the first drilling or spudding with equipment of sufficient size and capacity to drill to the total depth proposed for the well.

42. RULES AND REGULATIONS. As used in this lease "regulations" mean the applicable and valid oil and gas leasing regulations of the Commissioner of the Department of Natural Resources in effect on the effective date of this lease unless otherwise specified.

43. INTERPRETATION. As used in this lease words which are defined in the regulations have the meaning assigned by such definition except where the context clearly requires a different meaning. The paragraph headings are not a part of this lease and are inserted only for convenience.

44. NOTICES. Any notice required or permitted under this lease shall be in writing and shall be given by registered or certified mail, return receipt requested, addressed as follows:

To Lessor:

Director, Division of Lands
State of Alaska
344 Sixth Avenue
Anchorage, Alaska

To Lessee:

SINCLAIR OIL & GAS COMPANY
P. O. Box 521, Tulsa, Oklahoma 74102

Any such notice shall be deemed given when delivered to the foregoing address. Either party may change the address to which such notices are to be sent, by a notice given in accordance with this paragraph.

45. HEIRS AND ASSIGNS. Subject to the other provisions of this lease, the covenants, conditions, and agreements contained in this lease shall extend to and be binding upon the heirs, executors, administrators, successors, or assigns of Lessor and Lessee.

46. WILDLIFE STIPULATIONS. This lease is subject to such stipulations as are attached.

IN WITNESS WHEREOF the parties have executed this lease effective as of the First day of February, 1965.

SINCLAIR OIL & GAS COMPANY

By W. H. Schenck Vice President

STATE OF ALASKA

Attest Carl L. Bantler Asst. Secretary

BP EXPLORATION COMPANY (ALASKA) INC.

By W. D. ... Vice President

By Janice C. Brabbin

By ... Secretary

Title Minerals Officer LESSOR

LESSEE

THE UNITED STATES OF AMERICA }
STATE OF ALASKA }

.55

This certifies that on the 27th day of January, 1965, before me, a notary public in and for the State of Alaska, duly commissioned and sworn, personally appeared Norris C. Bakke, Jr. to me known and known to me to be the person described in and who executed the foregoing lease on behalf of the State of Alaska as Director of the Division of Lands, Department of Natural Resources, or his authorized agent. The said Norris C. Bakke, Jr. executed said lease in my presence and, after being duly sworn according to law, stated to me under oath that he is the Director of the Division of Lands, Department of Natural Resources, or his authorized agent, and has authority pursuant to law to execute the foregoing lease as such Director, or authorized agent, on behalf of the State of Alaska, acting through the Division of Lands, Department of Natural Resources and that he executed the same freely and voluntarily as the free and voluntary act and deed of the said State of Alaska and for the Division of Lands, Department of Natural Resources.

WITNESS my hand and official seal of the day and year in this certificate above written.

Alberta V. Spradler Notary Public in and for Alaska. My Commission expires June 7, 1967

Royalty is a Contract Right

- The lease is a bilateral agreement between the state and the lessee
 - The lease grants exclusive right to the oil and gas resource to the lessee
 - The lessee promises to develop the resource expeditiously
 - The state retains a royalty interest in the oil and resource
- The royalty is the share of production retained by the state in the lease
 - When the state sells the lease, only the lessee's working interest is offered.
 - The lessee values the lease based on the economic viability of the working interest.
 - The royalty share and the bid price for the lease is the “economic rent” captured by the state.

Royalty is a Contract Right

- **The lease cannot be changed unilaterally by the state or the lessee.**
- **Modification of the lease royalty rates ex post is not a tool available to implement fiscal policy.**

The Royalty Share

- The royalty share is not:
 - an entitlement to a share in the profits
 - burdened by a share in the costs of production
- The royalty share is set by statute at a minimum of 12.5%
 - Many offshore Beaufort Sea leases are set at 16-2/3%
 - Some leases have sliding scale percentages based on price or gross revenues
 - The lease royalty rate may be reduced under special circumstances

The Royalty Share

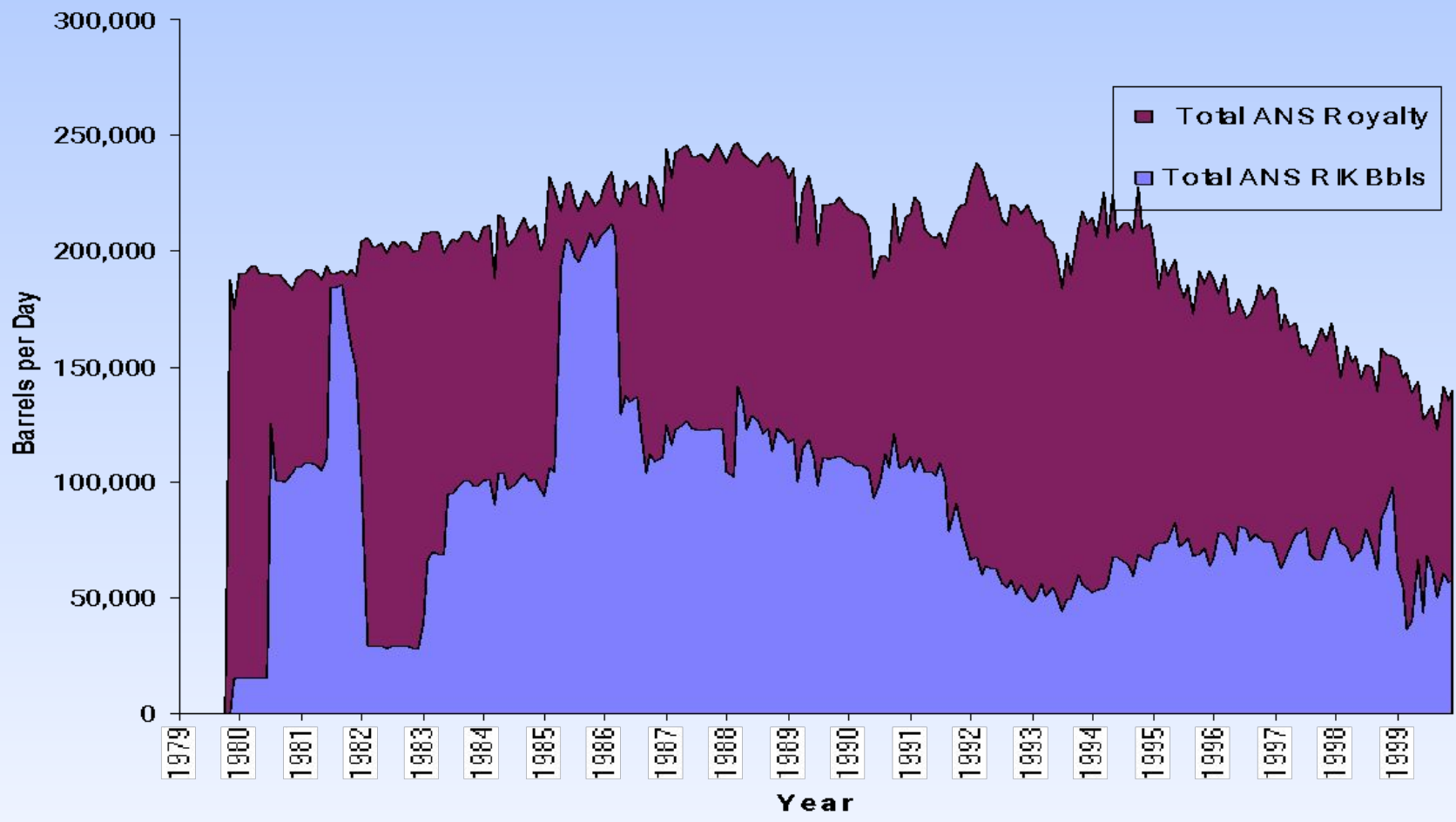
- The state may take its royalty share in kind or in value
 - When the state takes its Royalty-in-kind (RIK), it takes physical possession of the production and it may sell its royalty share to someone else.
 - The state must take its oil and gas royalty share in kind unless the DNR commissioner determines that the taking in-value would be in the best interests of the state.

The Royalty Share

- Royalty-in-Value
 - When the state takes its royalty-in-value (RIV), the state has the right to a share of the value for which the production is sold.
 - When the state takes its royalty-in-value (RIV), the lessee is obligated to use due diligence to market the state's share.
- Royalty revenue to the state is calculated by multiplying the oil or gas price or value times the percentage rate specified in the lease times the total production from the lease

Royalty Oil Production and Total Royalty-In-Kind

Total ANS Royalty and RIK Sales
(includes New Mapco Contract)



Access to Facilities and Pipelines in Alaska

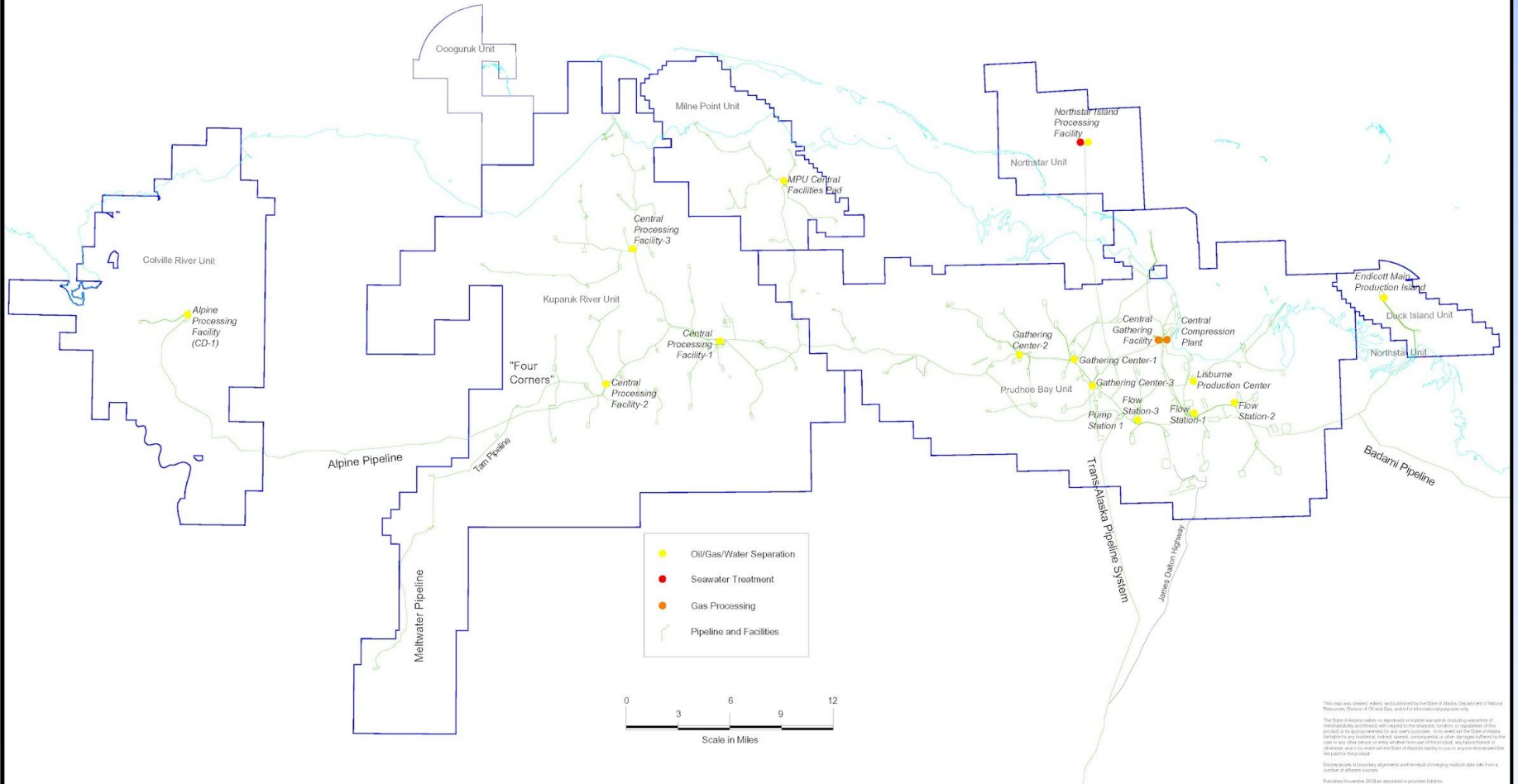
**State of Alaska
Department of Natural Resources
Division of Oil and Gas**

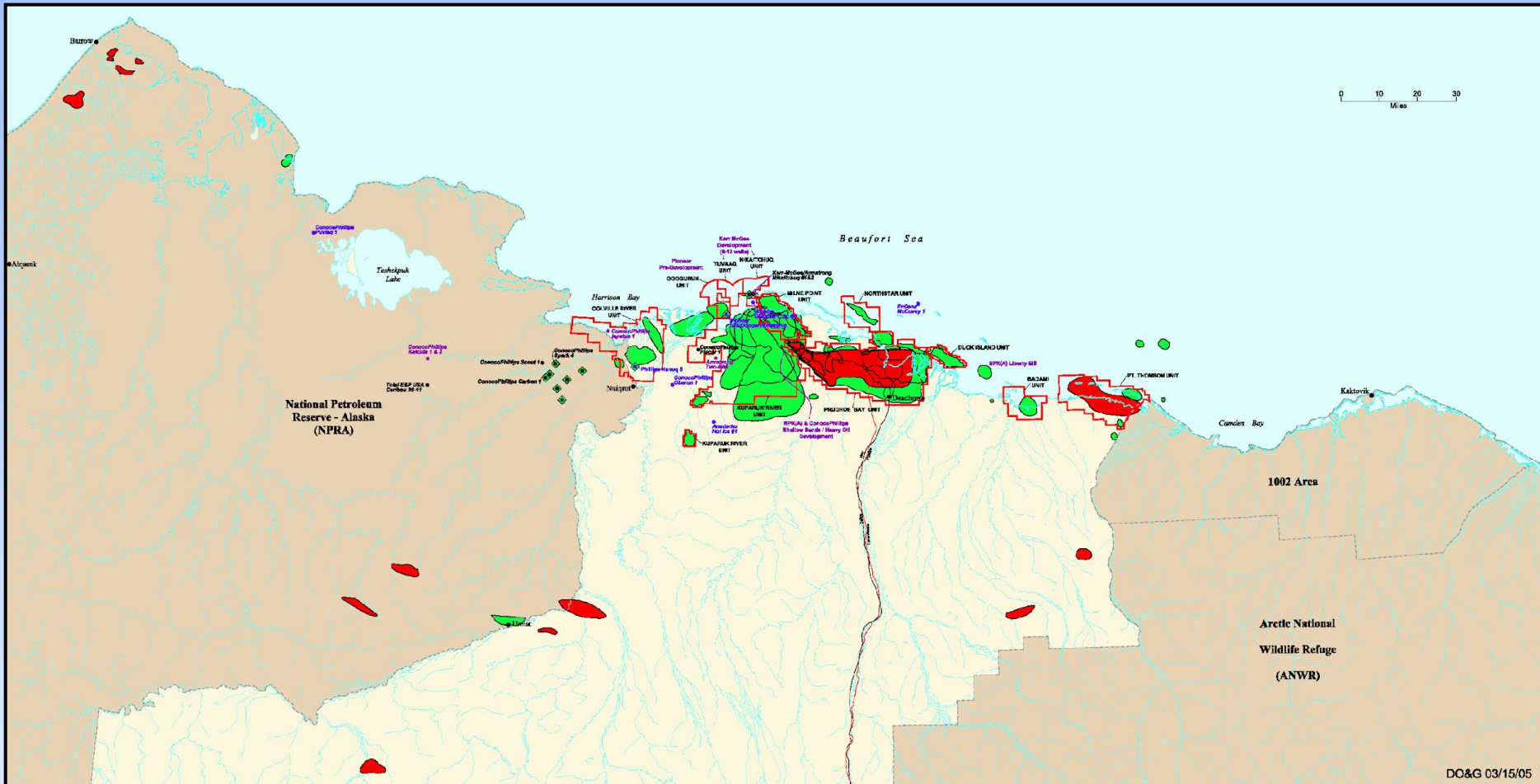


Alaska Department of
**Natural
Resources**

North Slope Units and Processing Facilities

Alaska Department of Natural Resources, Division of Oil & Gas
November 2003





North Slope Oil & Gas Activities & Discoveries March 2005

Map Legend

● Oil Accumulations*	Units
● Gas Accumulations*	Road
◆ Recent Discoveries	Trans-Alaska Pipeline
● 2003 Exploration Wells	
● 2004 Exploration Wells	
● 2005 Exploration Wells & Activities	


*Oil and Gas Accumulations are Approximate

Map Location

Cook Inlet Oil & Gas Activities & Discoveries

December 2004

Map Legend

-  Units
-  Oil Accumulations*
-  Gas Accumulations*
-  Recent Oil Discoveries
-  Recent Gas Discoveries
-  2004 Active and Proposed Exploration Wells
-  2003 Exploration Wells
-  Platforms
-  Road
-  Alaska Railroad



*Oil and Gas Accumulations are Approximate



Sources of Alaska Geological, Geophysical, Well Data and Information

**State of Alaska
Department of Natural Resources
Division of Oil and Gas**



Alaska Department of
**Natural
Resources**

Where to Get Exploration, Development and Production Data and Information

- Alaska Division of Oil and Gas, Anchorage, AK.
- Alaska Oil and Gas Conservation Commission, Anchorage, AK.
- Alaska Division of Geological and Geophysical Surveys, Fairbanks, AK.
- U.S. Geological Survey, Reston, VA and Menlo Park, CA.
- U.S. Bureau of Land Management, Anchorage, AK.
- U.S. Minerals Management Service, Anchorage, AK.
- Alaska Oil and Gas Association, Anchorage, AK.
- Geophysical Contractors (WesternGeco, PGS Onshore Inc., Fairweather Geophysical/Veritas DGC).
- Exploration Consultants
- Mapping Services

Alaska Division of Oil and Gas

550 West 7th Avenue, Suite 800

Anchorage, AK 99501-3510

(907) 269-8800

<http://www.dog.dnr.state.ak.us/oil/>

Information available on the Division's website includes:

- State oil and gas statutes and regulations.
- Leasing, licensing, unitization, incentive, and permitting programs.
- Unit notices and decisions.
- Unit maps.
- Annual Reports of state-wide production, production forecasts and reserve estimates at field level.
- Various publications, maps, graphics, lease and unit boundaries.

Alaska Division of Oil and Gas

550 West 7th Avenue, Suite 800

Anchorage, AK 99501-3510

(907) 269-8800

<http://www.dog.dnr.state.ak.us/oil/>

Information NOT available from the Division or on the Division's website includes:

- Geophysical data purchased or acquired under permit requirements are not disclosed without permission of the owner. Some exploration incentive credit programs allow third-party viewing in special instances, but prohibit distribution of data or copies of data without owner's prior permission.
- Several Department of Revenue Exploration Incentive Programs provide for disclosure of G&G data after 10 years.
- Well logs, well history, completion reports are not archived at or released through the Division of Oil and Gas. These are available only from the Alaska Oil and Gas Conservation Commission (AOGCC).

Alaska Oil and Gas Conservation Commission

333 West 7th Avenue, Suite 100

Anchorage, AK 99501

(907) 279-1433

www.aogcc.alaska.gov

- Oversees oil and gas drilling, development and production, reservoir depletion and metering operations on all lands subject to the state's police powers.
- Issues drilling permits, pool rules, conservation orders and conducts field inspection programs.
- Repository for data from all oil and gas wells drilled on lands under state's jurisdiction.
- Distribution agency for non-confidential well histories and well logs normally released 24 months following completion or abandonment.
- Publishes weekly, monthly and annual drilling reports.
- Publishes monthly and annual production reports tabulating monthly, yearly and cumulative production.

Data Integration

- E-Commerce at the Alaska Oil and Gas Conservation Commission
 - Well history/records
 - Well logs
 - Production data
 - Directional surveys
- Public Internet Access

Alaska Division of Geological and Geophysical Surveys

3354 College Road
Fairbanks, Alaska 99709
(907) 451-5000

<http://www.dggs.dnr.state.ak.us/>

- Among the Division's missions is determination of the potential of Alaskan land for production of metals, minerals, fuels and geothermal resources
- Major state-wide programs are mineral and energy resource appraisals and engineering geology investigations.
- Energy resource appraisal program includes continuation of the North Alaska field program consortium and Alaska Peninsula field programs.
- Numerous reports, most addressing hard-rock minerals and geohazards, are available on-line.
- Geologic Materials Center (GMC) in Eagle River is the public depository for non-confidential well cuttings and cores, thin sections, outcrop samples and analytical reports. Contact curator John Reeder at (907) 696-0079 or at john_reeder@dnr.state.ak.us for information.

U.S. Geological Survey

Alaska Energy Resources Program

Program Representatives:

Ken Bird, (650) 329-4907, kbird@usgs.gov

David Houseknecht, (703) 648-6466, dhouse@usgs.gov

Key USGS resource assessments and reports include:

- *1995 National Oil and Gas Assessment* is available on-line at:
<http://energy.cr.usgs.gov/oilgas/noga/index.htm>
- *U.S. Geological Survey 2002 Petroleum Resource Assessment of the National Petroleum Reserve in Alaska (NPR): Play Maps and Technically Recoverable Resource Estimates* is available at:
<http://wrgis.wr.usgs.gov/open-file/of02-207>
- *A Digital Atlas of Hydrocarbon Accumulations Within and Adjacent to the National Petroleum Reserve–Alaska (NPR)* is available at:
<http://geopubs.wr.usgs.gov/open-file/of02-071/>
- *The Oil and Gas Resource Potential of the Arctic National Wildlife Refuge 1002 Area, Alaska* is available at:
<http://energy.cr.usgs.gov/OF98-34/>
- Descriptions of and links to other USGS Alaska petroleum studies are at:
<http://energy.usgs.gov/alaskaoverview.html#pubslist>

U.S. Bureau of Land Management

Branch of Energy Minerals

222 West 7th Avenue, #13

Anchorage, AK 99513-7599

(907) 271-5960

<http://www.ak.blm.gov/ak940/index2.html>

- The Branch of Energy Minerals is responsible for the mineral leasing program and related functions, reservoir management, approval and inspection of drilling and production operations including oil and gas, geothermal, coal, and other energy minerals.
- Links to National Petroleum Reserve-Alaska information are available at:
[*http://www.ak.blm.gov/*](http://www.ak.blm.gov/)
- The BLM, Native corporations and state resource management agencies share joint management responsibilities for several producing units in the Cook Inlet/Kenai Peninsula area.

U.S. Minerals Management Service

Alaska OCS Regional Office

3801 Centerpoint Drive, Suite 500

Anchorage, AK 99503-5820

Phone: (907) 334-5820

Fax: (907) 334-5202

<http://www.mms.gov/alaska/>

- The mission of the Alaska Region of the USMMS is to manage the mineral resources of the Alaska Outer Continental Shelf in an environmentally sound and safe manner.
- Resumed Alaska OCS lease sale program with the Beaufort Sea Sale 186 in September 2003.
- Seven Alaska OCS sales are scheduled through May 2007.
- Shares management responsibilities with the State of Alaska for the Northstar and Cosmopolitan Units.
- Permits and oversees oil and gas drilling, development and production, reservoir depletion and metering operations on all offshore lands under federal jurisdiction.
- Permits all geological and geophysical exploration activities conducted on federally managed offshore lands and notices release of such data upon expiration of 25 and 50-year confidentiality terms.
- Several significant OCS resource assessment reports are available at:

<http://www.mms.gov/alaska/re/reports/rereport.htm>

Alaska Oil and Gas Association

121 W. Fireweed, Suite 207

Anchorage, AK 99503

(907) 272-1481

<http://www.aoga.org>

- AOGA is a trade association established for the purpose of fostering the long-term viability of the oil and gas industry in Alaska by providing a forum for communication and cooperation with its members, with the public and with local, state and federal governments.
- AOGA's members are companies which represent the majority of oil and gas exploration, production, refining, transportation and marketing activities in Alaska.
- A January 2001 report entitled *The Economic Impact of the Oil and Gas Industry on Alaska* is available on the website and is the first statewide study that accurately captures oil and gas industry employment and spending impacts.

Geophysical Contractors Presently Active in Alaska

Fairweather Geophysical/Veritas DGC

715 L Street

Anchorage, AK 99501

(907) 258-3446

PGS Onshore, Inc.

341 West Tudor Road, Suite 206

Anchorage, AK 99503

(907) 569-4049

Exploration Consultants

Petrotechnical Resources of Alaska (PRA)
3601 C Street, Suite 1378
Anchorage, AK 99503
(907) 272-1232

David M. Hite, Ph.D.
Consulting Petroleum Geologist
2250 Woodworth Circle
Anchorage, AK 99517
(907) 258-9059

Arlen Ehm
Geological Consultant
2420 Foxhall Drive
Anchorage, AK 99504
(907) 333-8880

Arctic Geoscience, Inc.
12100 Industry Way
Anchorage, AK 99515
(907) 522-4300

Terrasat
1413 West 31st Avenue
Anchorage, AK 99503
(907) 344-9370

ASRC Energy Services E&P Technology
3900 C Street, Suite 702
Anchorage, AK 99503
(907) 339-6200

Mapping Services

MAPMAKERS ALASKA
259 South Alaska Street
Palmer, AK 99645
(907) 745-3398

Excellent source for maps depicting land ownership, leasehold information, unit boundaries, key exploration well locations and related information.

Charter for Development of the Alaskan North Slope

- Proposed by BP and ARCO as a condition of merger and entered into with the State of Alaska on December 2, 1999.
- Intended to promote competition, diversity, corporate responsibility and renewed and expanded exploration, development and production of Alaskan North Slope (ANS) oil and gas.
- Addresses sale of ANS reserves and properties; marketing and sale of proprietary seismic and well data; facilities access; divestiture of TAPS and feeder line capacity to those buying production; sale of excessive tankerage; commitment to environmental requirements and charitable causes throughout the state; commitment to Alaska hire and Native recruitment.
- Complete text of the Charter is available on the Division's website at:
<http://www.gov.state.ak.us/bparco/FinalCharter1202.html>
- ARCO and BP seismic data are being brokered by WesternGeco, Houston, TX.

Independents in Alaska

Alaska Venture Capital Group, LLC

Alliance Energy, LLC

Anadarko Petroleum Corporation

Andex Resources, LLC

Armstrong Alaska, Inc

Aurora Gas, LLC

BBI, Inc.

Burlington Resources Alaska, Inc.

Cassandra Energy Corporation

Devon Energy Production Company

EnCana Oil and Gas (USA), Inc.

Evergreen Resources Alaska, Inc.

Forest Oil Corporation

Gas-Pro Alaska, LLC

Lapp Resources, Inc.

Murphy Exploration (Alaska), Inc

Northstar Energy Group, Inc.

Pioneer Natural Resources Alaska, Inc.

Pioneer Oil Company

Prodigy Alaska, LLC

Rutter & Wilbanks Corp.

Trading Bay Oil and Gas, LLC

Ultrastar Exploration, LLC

Union Oil Company of California

Winstar Petroleum, LLC

XTO Energy, Inc.