

SCOMM

1 44:5

ALASKA STATE LEGISLATURE

Rep. Vic Kohring
Chair
Rep. Ralph Samuels
Vice Chair
Rep. Lesil McGuire
Rep. Norm Rokeberg
Rep. Nancy Dahlstrom
Rep. Beth Kerrtula
Rep. Berta Gardner



Alaska State Capitol
Juneau, Alaska 99801-1182
Room 24
(907) 465-4899
Fax (907) 465-3818
[Charisse Millett@legis.state.ak.us](mailto:Charisse_Millett@legis.state.ak.us)

HOUSE SPECIAL COMMITTEE ON OIL & GAS

STATE CAPITOL, RESOURCES ROOM # 124

Committee Schedule Announcement
House Special Committee on Oil & Gas
Tuesday, March 1st and Thursday, March 3rd, 2005
Ramona Barnes room #124 5:00pm

Tuesday March 1st, 2005

- + Overview, Alaska Oil and Gas Conservation Commission, Dan Seamount.
- + Governor's appointment of Dan Seamount to Alaska Oil and Gas Conservation Commission.

= Bills previously heard

Thursday March 3rd, 2005

- + Overview, BP – Viscous Oil 101
Mr. Don Dunham, Assets Manger, GKA & Point Thomson
Mr. Chris West, Viscous Oil Technology Team Leader

= Bills previously heard

*First Hearing in First Committee of Referral

+Teleconferenced

=Bills previously heard/scheduled



Official Business

Alaska State Legislature

House of Representatives

Office of the Chief Clerk

State Capitol, Room 216
Juneau, AK 99801-1182
Phone: (907) 465-3725
Fax: (907) 465-5334

MEMORANDUM

Date: February 16, 2005

To: Representative Kohring, Chair
House Special Committee on Oil and Gas

From: Suzi Lowell *SL*
Chief Clerk

Subject: Governor's Appointment

Speaker Harris referred the following Governor's appointment to the House Special Committee on Oil and Gas and the Resources Committee.

Alaska Oil and Gas Conservation Commission
Mr. Daniel Seamount of Anchorage
Appointed: 1/13/2000 Reappointed: 1/11/2005
Term Expires: 3/1/2011

The resume and committee report are attached for your use.

Attachments as noted

RESUME

APR 1 OIL & GAS CONSERVATION
COMMISSION 1/6

DANIEL TAYLOR SEAMOUNT Jr.

Home Address

23747 Hilltop Dr.
Chugiak, AK 99567
WK. 279-1433

OCCUPATIONAL GOAL: Geologist

WORK EXPERIENCE:

Union Oil Co. of Cal. 2/8/93 to present
P.O. Box 196247, Anchorage, AK 99519-6247

Title: Senior Advising Geologist

Duties: For last year have worked regional exploration and specific prospects in Cook Inlet. Prospect areas have included North Middle Ground Shoal, Sunfish, Redoubt Shoal, coal bed methane, South Cook Inlet, Susitna Basin and west side. Utilized Atlas's WDS well log system and Landmark's Stratworks, Petroworks, and Seisworks packages. For 3 1/2 years prior, was project manager and Team leader of a group which exploited development, exploration, and business opportunities in Cook Inlet and Alaska North Slope. Heavily involved in planning and budgeting wells, forming partnerships, facilities construction & re-mediation, and safety and environmental projects. Made numerous written and oral presentations to management and partners to update them on project progress and presented to state agencies (DNR & AOGCC) to form units, drilling PA's, and Plan of Operations. Provided geological input on well bore disposal of platform effluent. Presently working on plan of operations for Matanuska Valley Coal Bed Methane project. Also worked on Kuparuk and Endicott Fields on North Slope.

Union Oil Co. of Cal. 5/16/88 to 2/8/93
3300 N. Butler, Farmington, NM 87401
P.O. Box 2620, Casper, WY 82602-2620

Titles: District Development Geologist: 8/89 to present
Geologist: 5/88 to 8/89

Duties: Supervised and worked development and exploration geology of UNOCAL operated properties in the San Juan, Paradox, and Piceance Basins. Exploited tight sandstone reservoirs (27 wells), coal seam gas (57 wells), and conventional sandstone and carbonate oil and gas reservoirs. Horizontal, deviated, and vertical well bores were utilized. Additional work included managing geological contractors, progress reporting of drilling programs and field mapping. Also assisted in exploration projects in the Green River & DJ Basins. Presented San Juan Dakota reservoir characterization results to NM State O&G Comm. in approval process of tight gas sands designation. Worked with Utah O&G Comm. in forming Lisbon Field Unit.

Presented to numerous potential partners and was on a team which sold Unocal's alternative fuel tax credit to outside investors.

Marathon Oil Co., 7/13/81 to 5/16/88
P.O. Box 120, Casper, WY 82602

Titles: Staff Geologist: 1986 to 1988
Project Supervisor: 1984 to 1986
Geologist: 1981 to 1984

Duties: Oil and gas prospecting in the D-J Basin (one Paleozoic discovery), the Green River Basin (assisted in two Moxa Arch Frontier and Dakota gas discoveries and one sub-economic oil well), the Las Animas Arch (a number of Morrow Prospects on hold), and the central Kansas uplift (Pennsylvanian basal ss and Lansing- Kansas City Fm.). Work included regional & local mapping of structures, thickness, and facies of Rocky Mountain petroleum reservoirs and presentation of prospects to management. Was expert witness in Nebraska lawsuit between Marathon and KN Energy.

Chevron U.S.A. Inc., 8/18/73 to 1/3/79

2525 N. Chester, Oildale, CA 93308 (10/75 to 1/79)
575 Market St., San Francisco, CA 94105 (8/73 to 10/75)

Titles: **Geologic Assistant: 1975-1979**

Computer Analyst : 1973-1975

Duties: *Utilized geologic and geophysical computer programs. Performed well site work and prospect generation in California onshore and offshore.*

Institute of Geophysics and Planetary Physics, 1/3/79 to 7/13/81

University of Ca, Earth Science Dept. Riverside, CA 92521

Title: **Research Associate (half time while finishing MS)**

Duties: *Assisted research scientists in geothermal, seismic, and earthquake studies. Also, supervised the drilling of heat flow test holes.*

EDUCATION:

M.S. - Geology, 6/81, University of CA, Riverside, CA.

Emphasis on geothermal development and exploration. Thesis titled, " Well Log Study of the Hydrothermally Altered Sediments of Cerro Prieto Geothermal Field, Baja California, Mexico".

B.S. - Geology, 5/73, University of CA, Riverside

INTERESTS

Backpacking

Fishing

Hiking

Hunting

Skiing

Wild Life Viewing

Alaska Oil and Gas Conservation Commission (AOGCC)



AOGCC Program Overview

Presentation to House Oil & Gas
by

Dan Seamount, AOGCC
Commissioner

March 1, 2005



Alpine Oil Field

Alaska Oil and Gas Conservation Commission (AOGCC)



Alpine Oil Field



AOGCC Program Overview

Presentation to House Oil & Gas

by

Dan Seamourd, AOGCC
Commissioner

March 1, 2005

Alaska Oil and Gas Conservation Commission (AOGCC)



Mission

Protect the public interest in oil and gas resources and protect underground supplies of drinking water.

The Alaska Oil and Gas Conservation Act requires conducting all oil and gas drilling, production and measuring operations to prevent physical resource waste, to promote greater ultimate recovery and to afford all owners of oil and gas rights an equal opportunity to recover their fair share of the resource.

Agenda

Introduction

AOGCC

- Oversight
- Clients
- Work Sites
- Organization
- Goals, Services, & Strategies
- Oil & Gas Activity and AOGCC Accountability

Some Major Issues

- Gas Line Oversight
- Offshore Cook Inlet Future

Oversight since 1955

Quasi-judicial State regulatory agency-
Mainly Sub-surface

Prevent physical waste of hydrocarbon resources

- Oversight for underground operations
- Regulate drilling and production for oil & gas

Promote greater ultimate recovery

Protect fresh water

- Manage Class II UIC program
- Ensure compliance of well construction

Protect correlative rights

- Jurisdiction over private and public lands
- Adjudicate disputes between resource owners



Amelia

w/ increased permits

*↑
eliminated
4 staff
last year*

Where Does AOGCC Fit In?

Issues	Oil Company (Regulated Community)	Land Owner (e.g. DNR DOG or Native Corporation)	ADEC (Exercises Police Powers of the State)	AOGCC (Exercises Police Powers of the State)
Ownership of Resource	Lessee of Oil & Gas Lease (Has Right to Drill and Produce)	Landlord & Lessor of Oil & Gas Lease	None Regulatory or Proprietary Mainly Surface & Air	None Regulatory Not Proprietary Mainly Sub-surface
Jurisdiction	Only on Lands Where They Have Right to Drill and Produce	Owns Land Only	State, Federal and Private Lands	State, Federal and Private Lands
Economics	Profit Oriented	Manages Owned Resources for Revenue & Other Values	Regulates to Protect environment	Regulates to Prevent Waste, Protect Correlative Rights & Promote Greater Recovery
Net SS Interest	Owne Majority of Production	Owne Minority of Production (Royalty Interest)	None Regulates Only	None Regulates Only

AOGCC generally regulates sub-surface activities.
AOGCC and other agencies have regulatory authority over most surface activities.

Oversight Strategy

Statewide Regulations (20 AAC 25) and Statute Title 31

Regulatory & Adjudicatory	Inspection
Two Reservoir Engineers Two Petroleum Engineers Two Petroleum Geologists Drilling Permits Sundry Permits Orders - Conservation, Injection, Aquifer Exemption Compliance Reviews Field Studies	One Engineer & 5 On-site Inspectors Well Control Equipment - Drilling and Production Metering Well Integrity Demonstrations Visual Equipment Checks Incident Investigations Other Inspections
Public Hearings and Open Meetings	

Where Does AOGCC Fit In?

Issues	Oil Company (Regulated Community)	Land Owner (e.g. DNR DOG or Native Corporation)	ADEC (Exercises Police Powers of the State)	AOGCC (Exercises Police Powers of the State)
Ownership of Resource	Lessee of Oil & Gas Lease. (Has Right to Drill and Produce)	Landlord & Lessor of Oil & Gas Lease	Role Is Regulatory, Not Proprietary- Mainly Surface & Air	Role Is Regulatory, Not Proprietary- Mainly Sub-surface
Jurisdiction	Only on Lands Where They Have Right to Drill and Produce	Owner's Land Only	State, Federal and Private Lands	State, Federal and Private Lands
Economics	Profit Oriented	Manages Owned Resources for Revenue & Other Values	Regulates to Protect environment	Regulates to Prevent Waste, Protect Correlative Rights, & Promote Greater Recovery
Net \$\$ Interest	Owens Majority of Production	Owens Minority of Production (Royalty Interest)	None- Regulates Only	None- Regulates Only

AOGCC generally regulates sub-surface activities.
ADEC and other agencies have regulatory authority over most surface activities.

Oversight Strategy

Statewide Regulations (20 AAC 25) and Statute Title 31

Regulatory & Adjudicatory

Two Reservoir Engineers,
Two Petroleum Engineers,
Two Petroleum Geologists

Drilling Permits

Sundry Permits

Orders

- Conservation, Injection,
Aquifer Exemption

Compliance Reviews

Field Studies

Inspection

One Engineer & 5 On-site
Inspectors

Well Control Equipment

- Drilling and Production

Metering

Well Integrity Demonstrations

Visual Equipment Checks

Incident Investigations

Other Inspections

Public Hearings and Open Meetings

PRINCIPAL CLIENTS

- Individual Alaskans
- Oil & Gas Industry (regulated Community)
- Alaska Department of Natural Resources
- Alaska Department of Revenue
- Alaska Department of Environmental Conservation
- U.S. Environmental Protection Agency
- U.S. Department of the Interior
 - Minerals Management Service
 - Bureau of Land Management
- U.S. Department of Energy
- Trade Organizations
- Other Interested Parties

OIL AND GAS OPERATORS AND OWNERS NORTH SLOPE

- | | |
|--------------------------------------|--|
| • ConocoPhillips Alaska Inc. |  |
| • BP Exploration (Alaska) Inc. | |
| • Anadarko Petroleum Corp. | |
| • ExxonMobil Alaska Production Inc. | |
| • Pioneer Natural Resources AK Inc. | |
| • Brooks Range Petroleum Corporation | |
| • Arctic Falcon Exploration LLC | |
| • ChevronTexaco | |
| • Local Alaska | |
| • Petro-Canada (Alaska) Inc. | |
| • Burlington Resources Inc. | • ASRC |
| • Shell Oil Company | • Kerr-McGee Oil and Gas Corporation |
| • Encana Oil and Gas (USA) Inc. | • Winstar Petroleum LLC |
| • North Slope Borough | • Ultrastar Exploration LLC |
| • Devon Energy Production Company | • Armstrong Alaska Inc. / Resources LLC |
| | • Alaska Venture Capital Group |
| | • U.S. Department of Energy |
| | • U.S. Department of Interior |
| | • U.S. Navy |
| | • Alaskan Grude Corporation |

OIL AND GAS OPERATORS AND OWNERS COOK INLET/MAT-SU VALLEY

Unocal Alaska
Forest Oil Corp
Marathon Oil Company
Phillips Alaska Inc /ConocoPhillips
XTO Energy Inc
Anadarko
Cook Inlet Region Inc
Aurora Gas LLC
Northstar Energy Group Inc
Pelican Hill Oil & Gas Inc
Alaska Crude Corporation
Prodigy Alaska, LLC
Escopeta Oil Company LLC
Gas-Pro Alaska, LLC
Trading Bay Oil and Gas, LLC
Herbaly Exploration, LLC



Grayling Platform

OTHER AREAS

Pioneer Natural Resources AK Inc
Andex Resources LLC
Cassandra Energy Corporation
Rutter & Wilbanks Corporation
Delphi International

May 11, 2009

Prepared for the House Oil & Gas Committee

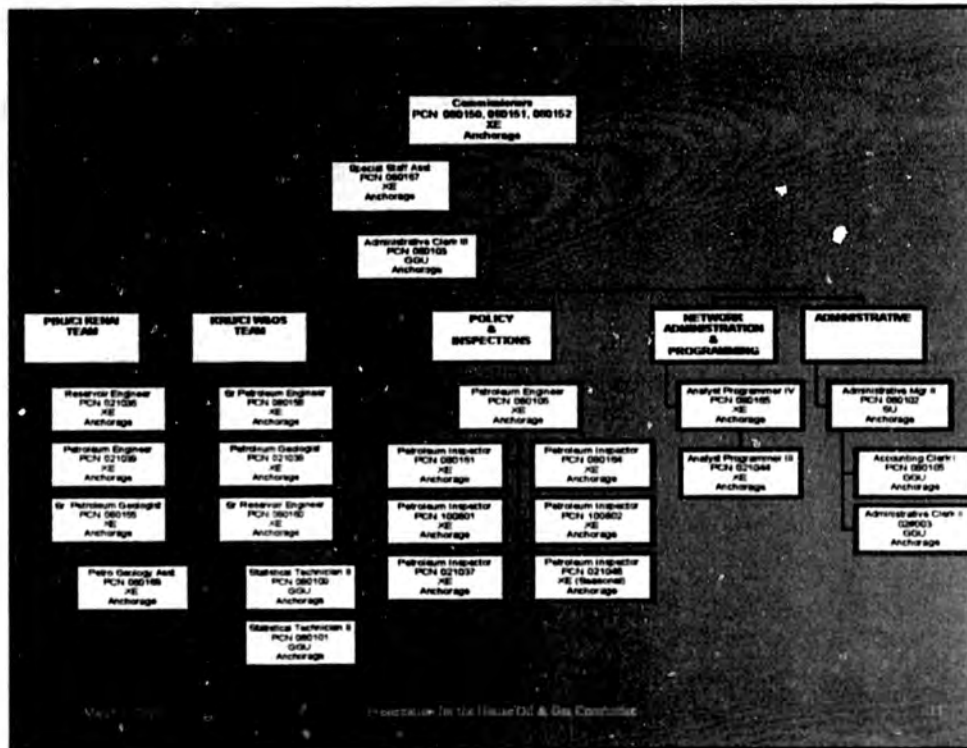
Work Sites



Courtesy of the Anchorage Convention & Visitors Bureau

May 11, 2009

Prepared for the House Oil & Gas Committee



Organization –

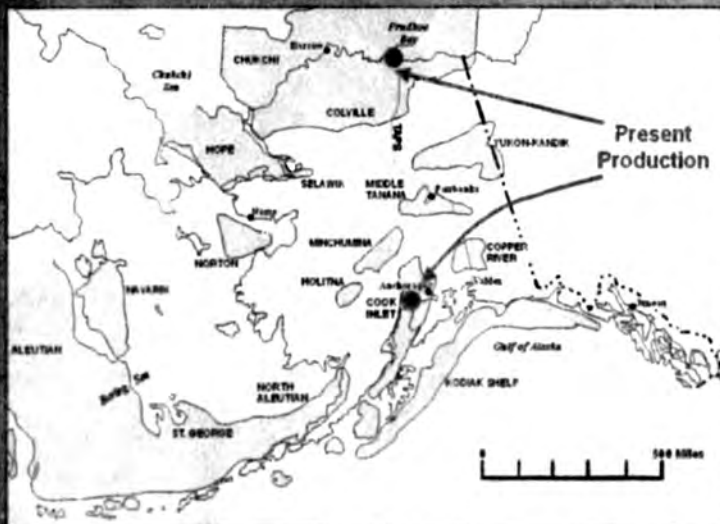
“WEST TEAM”
KRU/CI W & OS Decision



Cook Inlet
Geographic
Delineation of
Decisions Teams



Alaska Oil and Gas Basins



Alaska has huge exploration potential in many lightly explored basins

AOGCC Goals and Strategies

PREVENT PHYSICAL WASTE OF THE RESOURCE

Inspect well drilling and well control equipment to ensure all wells are drilled and operated using best engineering practices and in compliance with approved regulations and procedures - **Inspections**

Ensure minimal gas waste due to unnecessary flaring and venting from producing wells - **Inspections, Reporting**

Quickly adjudicate permits for drilling and sundry well work to ensure that wells are constructed, maintained and operated in compliance with regulations, orders and procedures - **Permitting**

Work with industry and public to ensure that development plans maximize recoverable reserves - **Field Studies**



AOGCC Goals and Strategies (cont.)

ADMINISTER ALASKA'S UNDERGROUND INJECTION CONTROL (UIC) & ANNULAR WASTE DISPOSAL PROGRAMS

Protecting Alaska's Underground Sources of Drinking Water is a Primary Responsibility of AOGCC

Provide engineering and geological review of all applications for Enhanced Oil Recovery (EOR) & underground disposal of drilling wastes - **Inspections**

Provide engineering and geological review of all applications to ensure injection wells comply with all regulations - **Permitting**

AOGCC Goals and Strategies (Continued)

PROTECT CORRELATIVE RIGHTS

Provide all owners of oil and gas rights the opportunity to recover their fair share of the resource through well spacing regulations, permit review, and pooling authority. – **Field Studies & Orders**

WHEN NECESSARY, ADJUDICATE DISPUTES BETWEEN OWNERS

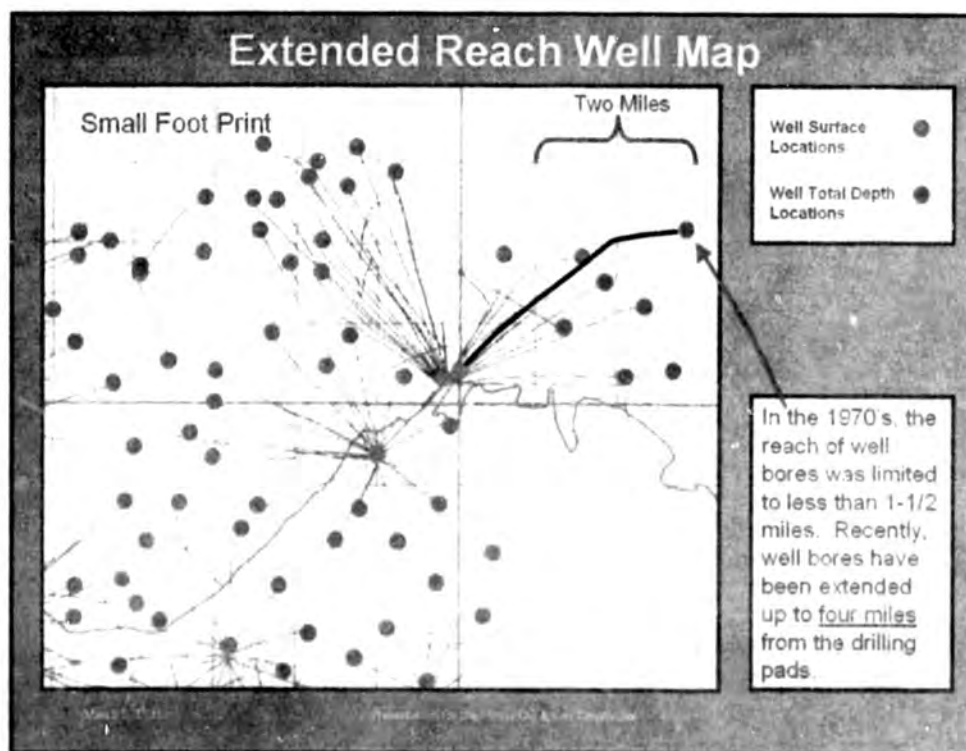
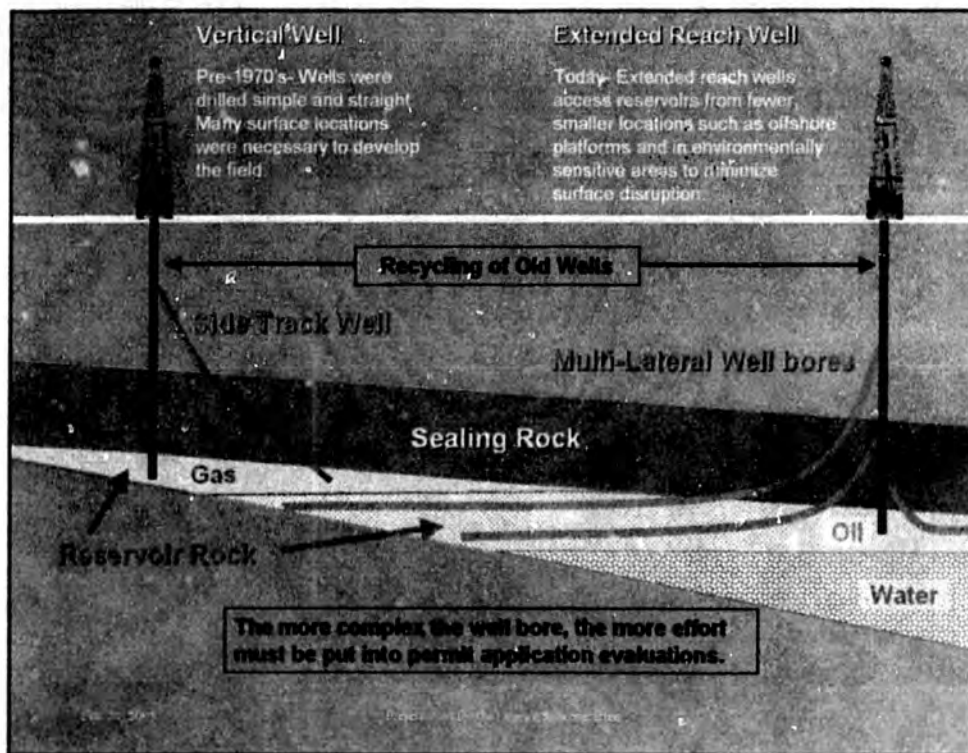
Provide a public forum to resolve disputes that are within the Commission's jurisdiction. – **Adjudicatory Hearings**



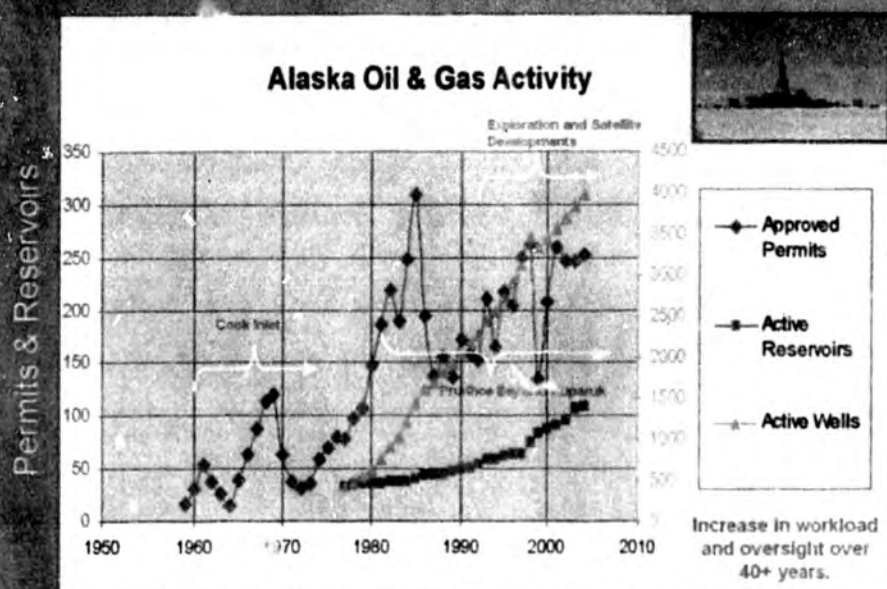
AOGCC PRIMARY SERVICES

Regulate, monitor, and inspect all subsurface activities directly related to oil and gas exploration and production including the design and integrity of wells, well control procedures and equipment, reservoir management plans and proposed underground injection programs.

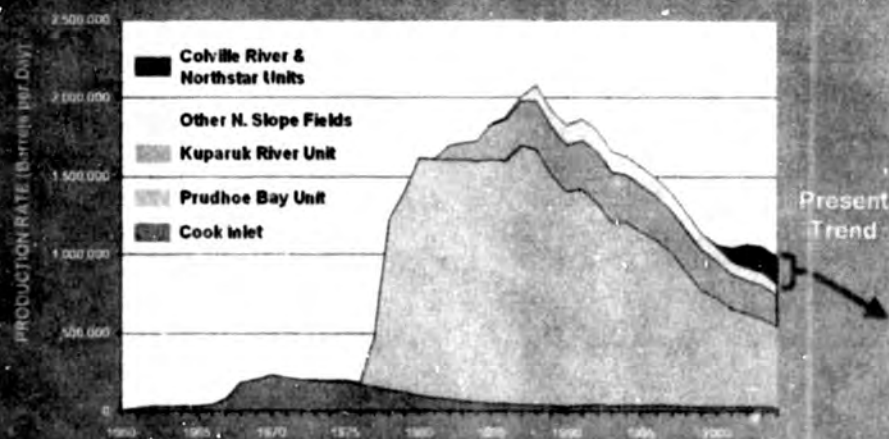
- Hold hearings and open meetings.
- Issue pool rules and other conservation orders.
- Approve and monitor plans for reservoir development and enhanced oil recovery.
- Approve permits for initial drilling, re-drilling, sidetracking, and remedial well operations. This includes the evaluation and approval of proposed designs for drilling fluids, well control, casing, cementing and well completion operations.
- Inspect drill rigs and wells to insure compliance with AOGCC regulations.
- Witness safety valve, mechanical integrity, and blowout preventer tests.
- Witness meter-proving, calibration, and oil quality tests.
- Implement well spacing rules.
- Monitor production rates, injection well patterns, gas/oil/water ratios, and pressure maintenance efforts.
- Monitor and evaluate gas flaring.
- Collect and maintain all statewide oil and gas production records.
- Collect and maintain all well history files and well log records.
- Administer Alaska's Underground Injection Control (UIC) program and the annular waste disposal program.
- Conduct public outreach programs.



Activity

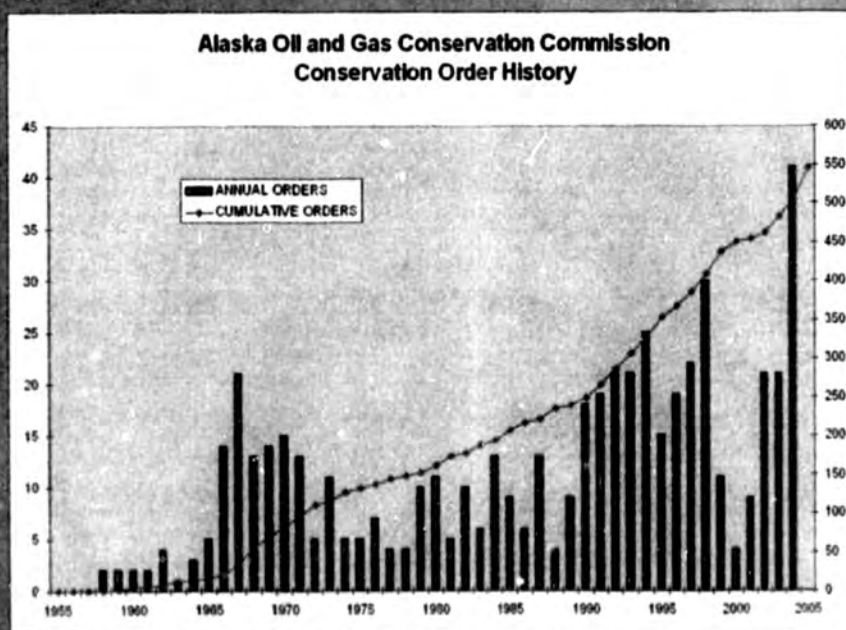
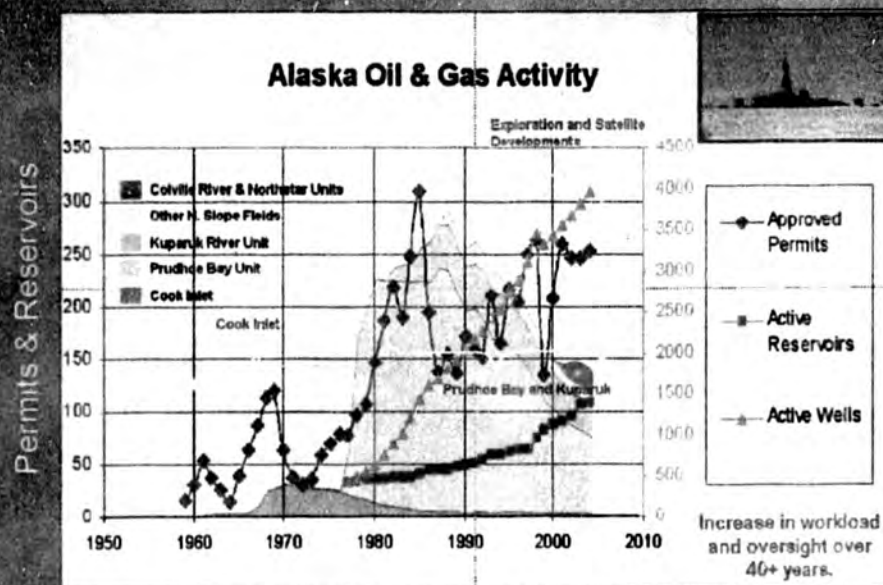


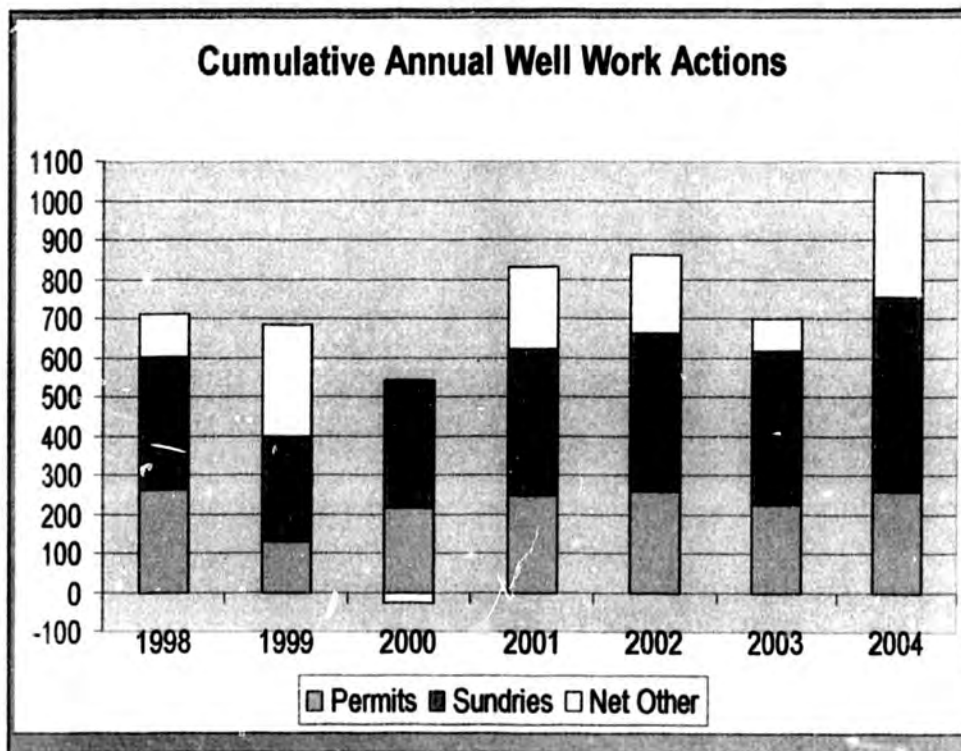
ALASKA'S DAILY OIL & NGL PRODUCTION RATE



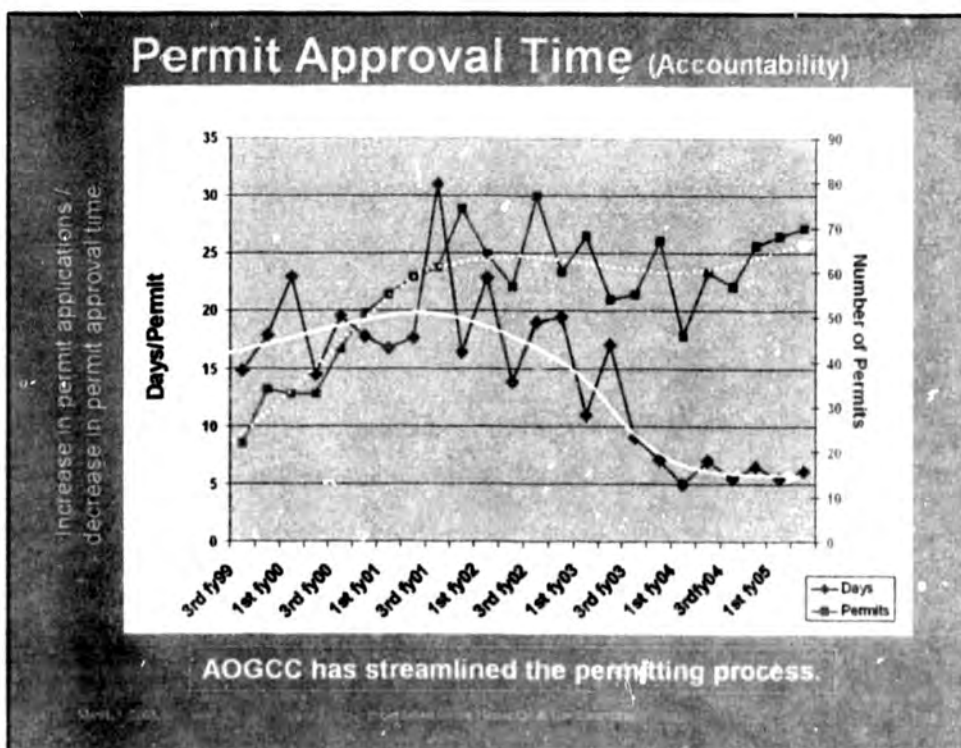
Last year, Alaska's daily oil and NGL production rate dropped by 6%

Activity and Resource Recovery





All indicators point to a good future for A's economy



Key Challenges and Projects

- Determine the impacts of major gas sales upon ultimate hydrocarbon recovery from Prudhoe and Pt. Thomson reservoirs before gas sales off-take rates can be approved. - **Mitigation of oil losses**
- Facilitate expanded statewide exploration and development including NPRA and exploration licensing areas that are outside the North Slope and Cook Inlet. - **Increased production**
- Evaluate and respond to the need for a revised regulatory scheme to safely oversee new development of coal bed methane and shallow gas resources. - **Responsible development**
- Finalize AOGCC's Internet-based Well and Production Information System available to anyone in the world. - **Help increase investment in Alaska**

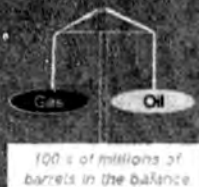
Key Challenges and Projects (continued)

- Maintain an active role to protect Alaska's UIC program. Take over responsibility for Class I injection wells from EPA. - **Faster permit decisions**
- Respond to changing conditions in mature oil fields to make certain operations are conducted in a safe and skillful manner while ensuring that recovery of oil and gas resources is maximized. - **Safer operations and less resource waste**
- Comprehensive review of natural gas production in Alaska and of all gas which is being flared, vented or otherwise not put to beneficial use. - **Less resource waste**
- Continue to evaluate ways to increase the AOGCC's efficiency. - **Reduce costs**

Alaska Oil and Gas Conservation
Commission
(AOGCC)



Reservoir Conservation
Challenges
Related to Gas Sales



Gas Reserves Ranking - AOGCC
Projections of Proven Reserves

Pool	Sales TCF
Prudhoe Oil Pool	22
Point Thomson	8
Lisburne/Pt. McIntyre	2
Other	3
Total	35

Note: Expected range of 28-39 TCF

House Bill 135

&

Senate Bill 98

Sec. 7. GAS PIPELINE. (a) The sum of \$1,200,000 is appropriated from the general fund to the Department of Administration, Alaska Oil and Gas Conservation Commission, for reservoir studies and depletion plan evaluations related to the state gas pipeline and to bringing North Slope natural gas to market.

AOGCC Gas Sales Evaluation – Resources

Budget

- Current 1 consultant on board (\$125/yr for 3-5 yrs)
- \$500M additional available in budget
- If PBU Owners don't provide timely necessary information:
 - Requested \$1.2MM for FY2006
 - Up to \$5 MM for next 3-5 years

If Owner Cooperation is Improved

- Lowered costs and time

In any case

We don't want to be the bottleneck but

We must perform proper technical analysis

Powers and Duties of Commission* Related to Major Gas Sales

- Prevent waste
- Ensure greater ultimate total hydrocarbon recovery (BOE's)

By

**Regulating the development of the
hydrocarbon reservoirs and the quantity and
rate of the production of oil and gas**

Ref. AS 31 05.030

Sections (b), (d)(9), (e)(1)(F) and (d)(5)

March 1, 2000

Division of Oil and Gas, Alaska Department of Natural Resources

Applicable Prudhoe Conservation Orders

Conservation Order 341D - Prudhoe Oil Pool

- Rule 9 - Maximum Gas Offtake Rate set at 2.7 billion standard cubic feet per day (BSCFD)

Written in 1977

Contemplated a 2 BCFD pipeline quality gas rate

Decisions and statements contemplated rule 9 changes and that development plans would undergo continual evaluation and be modified based on reservoir performance

Rule 12 - Prudhoe Bay Miscible Gas Project

Pilot approved 1983

1987 Large scale expansion approved

1992 Further expansion approved, GHX-2

Maintain reservoir pressure at minimum of 100 psi above minimum miscibility pressure

Require studies to mitigate pressure decline

- Rule 17 - Gas Cap Water Injection to mitigate reservoir pressure decline

Approved 12/2001, SJU 6/2002, 650 MGD max rate

March 1, 2005

Division of Oil and Gas, Alaska Department of Natural Resources

Reservoir Studies are complex and complicated.

Since the 1977 Analysis

Prudhoe has nearly 28 years of production history
Over 2170 wells have been drilled in the Prudhoe Pool
The reservoir has multiple depletion mechanisms -

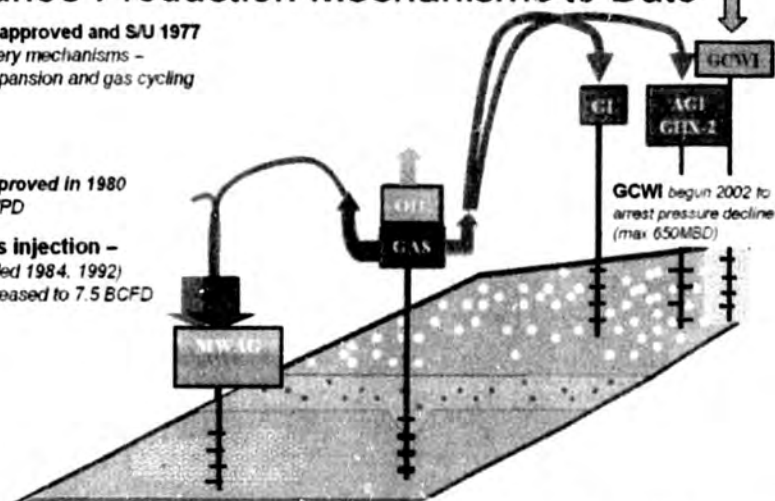
- Primary
 - Solution Gas Drive
 - Gas Cap Expansion
- Secondary (Pressure Maintenance)
 - Water Flood
 - Gas Injection
 - Gas Cap Water Injection
- Enhanced Recovery
 - Miscible Gas Injection

Prudhoe Production Mechanisms to Date

Pool Rules approved and S/U 1977
Major recovery mechanisms -
Gas Cap Expansion and gas cycling

Waterflood approved in 1980
Up to 2MM BWPD

Miscible gas injection -
1982, (expanded 1984, 1992)
GHX-2 GI increased to 7.5 BCFD



GCWI begun 2002 to
arrest pressure decline
(max 650MSD)

All mechanisms depend upon maintenance of reservoir pressure
Early gas withdrawal causes loss in reservoir energy resulting in loss of oil.
Normal practice, delay gas blowdown until end of oil productive life to maximize recovery

AOGCC Prudhoe Gas Sales Review Current Oil Operations

- **Ultimate oil recovery 13+ billion barrels** (black oil, condensate and NGLs)
- **Recovery to date 11.1 Billion Barrels**
(Compared to 1969-1977 estimates of 9 Billion Total Ultimate)
- **Gas cycling is responsible for significant oil recovery**

AOGCC Concerns about the Gas Line Project

- AOGCC has received no applications
- Contemplated Rates higher than approved by Rule 9 in 1977
- Rule 9 must be updated
 - because
- Commission needs to ensure that unnecessary waste of oil resources does not occur due to early gas withdrawal and high production rates.
 - ✓ Verify impact upon total hydrocarbon recovery (oil and gas)
 - ✓ Rule on depletion plans & mitigation of oil loss measures
- The Commission needs sufficient time for evaluation
 - ✓ Timing dependent upon cooperation by Owners
 - ✓ Cooperation level of Producers may not allow enough time

What are reservoir studies/Models?

- They are mathematical studies that model physical geology (rock properties) and engineering features (underground fluid movement and interactions) of a reservoir.

Models include a level of detail to realistically recreate reservoir oil & gas **performance history**.

When reservoir performance history is matched (calibrated), the model can be used to estimate future performance assuming various depletion plans.

March 1, 2008

Presented by: [illegible] & [illegible]

What is a depletion plan?

Depletion is the act of removing or producing oil and gas from a petroleum reservoir to sell or use for other beneficial purposes.

Depletion plans consist of the recovery methods that are implemented and applied to produce an oil or gas reservoir.

March 1, 2008

Presented by: [illegible] & [illegible]

What is a depletion plan? (cont'd)

Depletion Plans may consist of one or more of the following fluid drive and recovery mechanisms:

- Primary Depletion - Solution Gas Drive, Gas Cap Expansion
- Secondary Recovery - Pressure Maintenance by Immiscible Injection - Water Flood, Gas Injection
- Enhanced Recovery Methods - Miscible Gas Injection, CO₂ Injection, Polymer Injection, Others

Recovery Mechanisms may act in combination depending on the reservoir's characteristics. Designing a model's physical parameters, fluid parameters, fluid physics and production history is a massive undertaking.

AOGCC Gas Sales Review

August 2002 – May 2003

- AOGCC & Consultant reviewed results from Prudhoe Owners' large scale, complex reservoir models
- *Results were rough projections for gas line feasibility work done in 2002.*

AOGCC Prudhoe Gas Sales Review

Model Sensitivities

- Sales rate (2.9 to 4.3 BCFD)
- Sales timing (Start dates of 2010-2020)
- Options to mitigate oil loss including
 - Increased water injection,
 - CO2 Injection

AOGCC Prudhoe Gas Sales Review

Gas Sales Observations

- Gas sales will extend field life
- Projected reserves = 3.5 billion Barrels Oil Equivalent (BBOE)*
However...
- Early Gas sales will most likely impact oil recovery
 - ✓ Reservoir energy/pressure will decline
 - ✓ Hydrocarbon liquid loss may be 100's of million of barrels
 - ✓ Greatest liquid lost with earlier sales and higher offtake rates
 - ✓ The lowest recovery of gas may occur with later sales and lower offtake
- Total hydrocarbon recovery (BOE) may be less sensitive to rate & timing if Mitigation measures are implemented and assumptions of end of field life are made

* Barrels of Oil Equivalent; BOE - oil, gas, condensate, NGLs -
evaluated at 2050 assumed end of life

The AOGCC Plan - MGS

Hold hearings – (1st hearing Mar 3, 2005)

- ✓ Revisit Rule 9 of CO 341D – Validate 1977 off take rate

Draft revised Rule 9 & forward work plan

- ✓ Define interim work strategy to develop depletion plans (including mitigation measures)

Develop depletion plan

- ✓ Define long term plans that lead to gas sales, which:
 - Maximizes ultimate recovery
 - Defines initial rates/timing
 - Defines optimization and mitigation requirements

Conclusions

The State needs to base its decisions on updated reservoir studies

The studies will be complex, complicated, costly, will take several years to accomplish and require specialized expertise

The AOGCC must perform its evaluations in a timely manner to avoid impacts to commitments and schedules

- Earlier (1970's) decisions and statements contemplated gas offtake rule changes and that development plans would undergo continual evaluation and be modified based on reservoir performance

Conclusions (cont'd)

AOGCC must approve plans that will achieve maximum optimized recovery of oil and gas that will prevent waste.

There will be State, National and International interests and attention on this project.

It is imperative that 'We' as a State get it right.

As a responsible Agency, AOGCC must provide the Legislature and Administration their best Recommendations on issues of gas offtake and reservoir depletion.

Last Thoughts



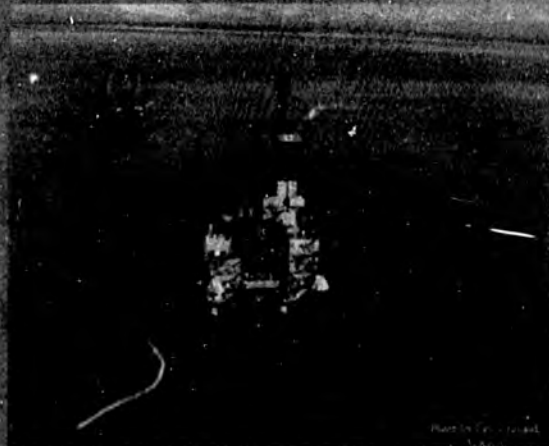
500 MMSTB (risked oil) =

- Less than 5% of total Prudhoe liquids produced so far
- Roughly 25% of the remaining liquids at Prudhoe Bay
- Roughly 100% of Alpine Oil Field reserves

3.5 BBOE (added Prudhoe recovery from MGS) =

- About 25% of total North Slope production to date
- Around 60% of remaining North Slope liquids (proven)
- 113% of total Kuparuk Oil Field reserves

Alaska Oil and Gas Conservation Commission (AOGCC)



Cook Inlet Oil and Gas
Offshore Conservation

March 7, 2008

Presented by the Alaska Oil and Gas Conservation Commission

Cook Inlet Lighthouse Platform Issues AOGCC Mainly Sub-surface

Prevent physical waste of hydrocarbon resources

- Oversight for underground operations
- Regulate drilling and production for oil & gas

Promote greater ultimate recovery

Protect fresh water

- Manage oil spills & leaks
- Establish and enforce safety standards

Protect non-hydrocarbon resources

- Identify and protect sensitive areas
- Establish and enforce safety standards

March 7, 2008

Presented by the Alaska Oil and Gas Conservation Commission

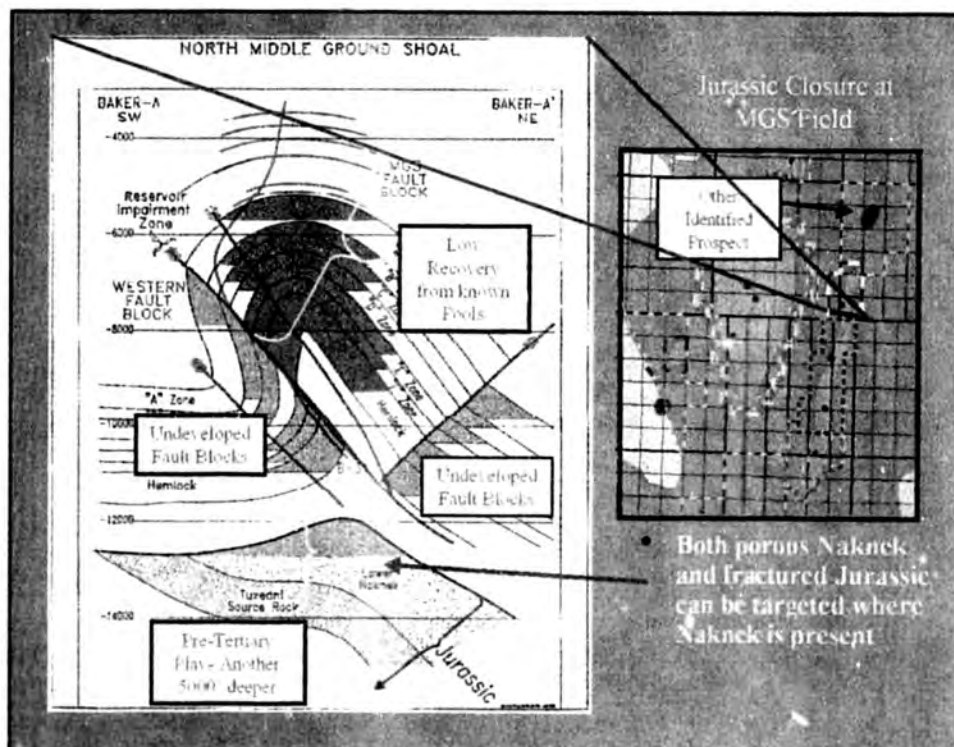
AOGCC and Future Cook Inlet

Remaining Offshore Oil & Gas Resource

- Un-recovered oil in Known Pools- low risk with new technology/oil price
- Undeveloped Fault Blocks- mod risk/mod potential
- Pre-Tertiary- high risk/high potential
- Other Identified Prospects accessible from Platforms- see industry

Source: AOGCC

Adapted from the AOGCC's 1998 Report



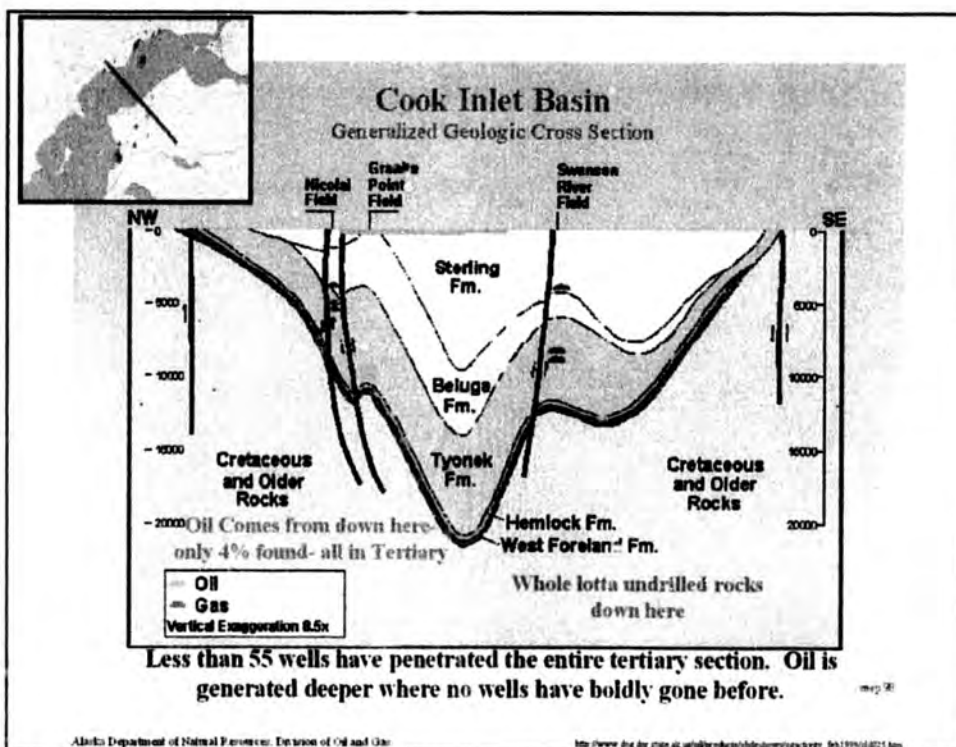
Cook Inlet Exploration



Exploration Immaturity

- Similar in size to
lower 48 Basins
- 14,000 sq mile Area
same as San Juan Basin
- 28,000+ Wells in
San Juan
- vs.
- 385 Exploration
Wells & 1000 Total
Wells

No 80's Drilling Boom

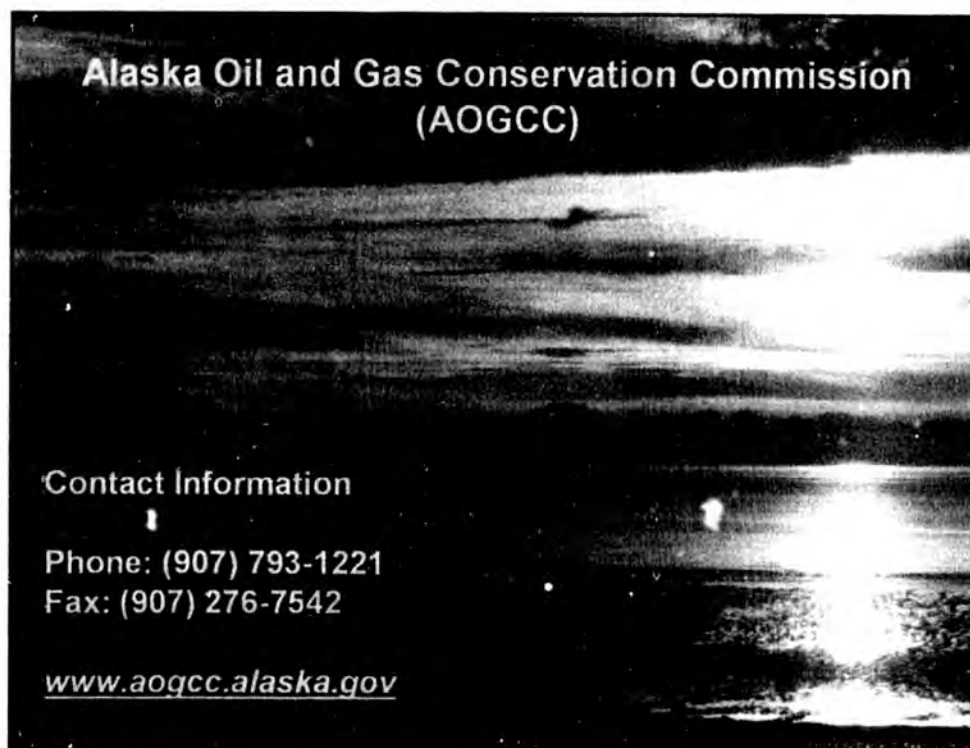




Use Platforms as Exploration Structures

- Re-enter Non-utilized well bores- Drill 5000' below known reservoirs where the Oil is generated
- Explore untested fault blocks
- Drill the other identified prospects within reach

• Incentivise re-development and exploration



**Alaska Oil and Gas Conservation Commission
(AOGCC)**

Contact Information

Phone: (907) 793-1221
Fax: (907) 276-7542

www.aogcc.alaska.gov