ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672
4861 HRES ANWR GENERAL

433

decisions of the U.S. government regarding revenue sharing, leasing, ownership, and development on the coastal plain; and

WHEREAS Alaska's economy is in bad condition, with high unemployment, property foreclosures, and shrinking investment;

BE IT RESOLVED that the Alaska State Legislature adopts the following consensus points on management of the coastal plain, and strongly urges Congress to act on them:

(1) the U.S. Congress should open the coastal plain to environmentally responsible oil and gas exploration, development, and production under the authority of the Mineral Leasing Act of 1920;

(2) the U.S. Congress should provide for maximum participation and job opportunity for Alaska residents in coastal plain exploration and development; and

(3) the U.S. Congress should carefully review any legislative or administrative proposal that ~~would~~ diverge from established oil and gas law or policy, and ~~should treat Alaskans fairly and equally~~.

Send copies to ...

SJR 7. 125
Saved text BU

DRAFT

JOINT RESOLUTION

WHEREAS in 1980 the U.S. Congress suspended the operation of the Mineral Leasing Act of 1920 on the coastal plain of the Arctic National Wildlife Refuge to allow for the study of management alternatives; and

WHEREAS the coastal plain has been found to have the best potential for onshore oil and gas discoveries in the United States; and

WHEREAS Congress recognized the environmental importance of the coastal plain by placing it in the national wildlife refuge system in 1980, and the wildlife and habitat deserve a high standard of protection should oil exploration and development proceed;

WHEREAS exploration and development of oil and gas on the coastal plain could reduce the nation's trade deficit, increase energy security, prevent erosion of our oil and gas industry, improve the national and state economies, and occur with full environmental protection and safeguards; and

WHEREAS the people of Alaska deserve to be treated equally and fairly in the legislative and administrative

decisions of the U.S. government, regarding revenue sharing, leasing, ownership, and development on the coastal plain; and

WHEREAS Alaska's economy is in bad condition, with high unemployment, property foreclosures, and shrinking investment;

BE IT RESOLVED that the Alaska State Legislature adopts the following consensus points on management of the coastal plain, and strongly urges Congress to act on them:

(1) the U.S. Congress should open the coastal plain to environmentally responsible oil and gas exploration, development, and production under the authority of the Mineral Leasing Act of 1920;

(2) the U.S. Congress should provide for maximum participation and job opportunity for Alaska residents in coastal plain exploration and development; and

(3) the U.S. Congress should carefully review any legislative or administrative proposal that would diverge from established oil and gas law or policy, and should treat Alaskans fairly and equally.

Send copies to ...

file - ANWR - Resolution
Sam
my draft that
I handed around
Ned
(Loghill / Swope / A
387 ff)

DRAFT

JOINT RESOLUTION

ARCTIC NATIONAL WILDLIFE REFUGE
EXPLORATION AND DEVELOPMENT

WHEREAS in 1980 the U.S. Congress suspended the operation of the Mineral Leasing Act of 1920 on the coastal plain of the Arctic National Wildlife Refuge to allow for study of management alternatives; and

WHEREAS the coastal plain has the best potential for onshore oil and gas discoveries in the United States; and

WHEREAS exploration and development of hydrocarbons in the Arctic Refuge could reduce the nation's trade deficit, increase energy security, prevent continued erosion of our oil and gas industry, improve the national and state economies, and occur with full environmental protection and safeguards;

BE IT RESOLVED that the Alaska State Legislature finds that the State of Alaska supports opening the coastal plain of the Arctic National Wildlife Refuge to environmentally responsible oil and gas exploration, development, and production.

COPIES of this resolution shall be sent to the Honorable Ronald Reagan, President of the United States; the Honorable George Bush, Vice-President of the United States and President of the Senate; the Honorable Jim Wright, Speaker of the House of Representatives; the Honorable Robert Byrd, Senate Majority Leader; and to members of the Alaska congressional delegation.

PROPOSED RESOLUTION NO. LE-14

URGING THE FEDERAL GOVERNMENT TO ENCOURAGE THE PRUDENT USE OF DOMESTIC ENERGY RESOURCES

(Introduced by the Land and Energy Committee)

WHEREAS, in 1986 the United States' reliance on imported oil increased to thirty-seven percent, the highest percentage in seven years, and while the United States' demand for oil increased at a rate of two percent per year, exploration and production capacity has been crippled by predatory pricing on the world oil market; and

WHEREAS, national energy security depends on the development and transportation of domestic oil and gas resources ~~to replace~~ depleted U.S. reserves; and the United States must prepare to develop domestic resources if it is to prevent overwhelming dependence on foreign energy sources in the 21st century; and

WHEREAS, natural gas consistently provided one-fourth of the United States' energy mix since the late 1960's; and

WHEREAS, the nation's current level of dependence on foreign energy sources poses a threat to the national energy security, balance of trade, and the general economic well-being of the United States. This is partly a result of constrained natural gas pipeline capacity in the northeastern U.S., unused capacity in the Western States, and the inability to transport natural gas from the North Slope of Alaska to wherever markets may be economically found; and

WHEREAS, a large proportion of the nation's undiscovered oil and gas deposits are likely to be found offshore on the outer continental shelf where exploration and development is risky and capital intensive. The risks in high cost, high potential areas, such as the deep water outer continental shelf and Alaskan arctic waters, are unacceptable because of current world market conditions and federal tax structures;

NOW, THEREFORE, BE IT RESOLVED that the Western Legislative Conference of the Council of State Governments encourages Congress, Administrative and Executive Branch Agencies to develop a consistent federal policy maximizing the efficient, environmentally sound exploration, development, and production of domestic energy resources, including:

Approval of exploration, development, and production of oil and gas resources located in the non-wilderness areas of the Arctic National Wildlife Refuge;

Expedited timely review of open-access pipeline applications under the Federal Energy Regulatory Commission Order 436 with resolution of take or pay issue in the final rule as mandated by the Washington, D.C. Court of Appeals;

Options to make available unused pipeline capacity and encourage new domestic capacity through projects to stimulate enhanced oil recovery;

Action to ensure that foreign gas producers and gas transporters do not undercut domestic producers through government subsidies;

Incentives and tax credits to encourage oil and gas exploration and development in high cost areas;

Approval of construction of a gas transportation system to bring Alaska North Slope natural gas to world markets; and

Consider the formation of a Pan American Energy Alliance to provide reciprocal aid among the U.S., Canada, Mexico, Venezuela, and other American nations to counter future disruptions in the world oil market.

Consensus + alternative

Introduced: 5/5/87
Referred: Resources

5-1159A

IN THE SENATE BY COGHILL

SENATE BILL NO. 289

IN THE LEGISLATURE OF THE STATE OF ALASKA

FIFTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act establishing the Arctic National Wildlife Refuge Policy Council; and providing for an effective date."

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

* Section 1. FINDINGS. The legislature finds that

(1) state policy supports ~~the recommendation to the United States Congress by the Secretary of the United States Department of the Interior to open the coastal plain of~~ opening the Arctic National Wildlife Refuge to oil and gas exploration, development, and production under the Mineral Leasing Act of 1920;

(2) the long term effects that Congressional action will have on the citizens of Alaska requires that the state properly monitor the federal public process through a special ad hoc group established for that purpose.

* Sec. 2. ARCTIC NATIONAL WILDLIFE REFUGE POLICY COUNCIL. (a) The Arctic National Wildlife Refuge Policy Council is established and consists of the governor, the commissioner of natural resources, one person appointed by the governor, the president of the senate, the chairman of the senate resources committee, one person appointed by the president of the senate, the speaker of the house of representatives, the chairman of the house resources committee, and one person appointed by the speaker of the house of representatives.

(b) The Arctic National Wildlife Refuge Policy Council shall seek to achieve a consensus in the state on issues relating to the Arctic National Wildlife Refuge and advocate those positions before the Congress and other forums that the council considers desirable.

DRAFT FOUR 5/13/87

ANWR Resolution

WHEREAS, the U.S. Congress has reserved the right to permit further exploration for, and development of, oil and gas within the coastal plain of the Arctic National Wildlife Refuge; and

WHEREAS, the U.S. Department of the Interior, the State of Alaska, and the oil industry consider the coastal plain to have the highest potential for discovery of very large oil and gas accumulations in North America; and

WHEREAS, the nation will benefit from oil and gas exploration and development on the North Slope, because the trade deficit can be reduced, employment created, and energy security enhanced;

WHEREAS, the biological and recreational resources of the Arctic Refuge are highly valuable and protection of them with adequate development safeguards is in the national and Alaskan interest;

WHEREAS, a decision to permit oil and gas exploration, development, and production on the coastal plain will

facilitate the development of other highly prospective lands on the North Slope, extending the economic life of the Trans-Alaska pipeline and reducing tariffs which are expected to balloon in about twenty years; and

WHEREAS, any development of oil and gas in the Arctic National Wildlife Refuge should and will be subject to strict environmental safeguards, including those protecting water, land, air, and important wildlife habitat which supports subsistence resources used by Alaska and Yukon residents; and

WHEREAS, the permanent protection of large areas of Arctic Alaska is assured by park, reserve, and refuge designations encompassing over 35 million acres of federal land in arctic areas;

WHEREAS, land trades with private corporations, as proposed by the Interior Department, need further review and discussion by Alaskans and Congress before a consensus policy can be reached; and

WHEREAS, Congress may consider reducing the State of Alaska's existing entitlement to oil and gas revenues within the Refuge, even though this might violate the Statehood compact, discriminate against Alaska as compared to other states, and reverse decades-long policies of the federal

government regarding the management of public domain lands within the states;

WHEREAS, the State of Alaska is a vast and underserved state with basic needs for education, improvements, and public services. and any reduction in revenues is a serious matter for the state's citizens; and

WHEREAS, any development of coastal plain oil and gas resources can and should be conducted by Alaska corporations and workers, who have the expertise to bring the resources to market; and

WHEREAS, Alaska's oil and gas industry and employment have been severely affected by reduced activity in recent years, with broad implications for the Alaska economy as a whole;

BE IT THEREFORE RESOLVED that the Legislature of the State of Alaska adopts the following consensus points regarding management of the coastal plain of the Arctic National Wildlife Refuge:

1. Under the terms of the Mineral Leasing Act, the United States Congress should promptly open the coastal plain of the Arctic National Refuge to oil exploration, production, and transportation, directing the Department of

Interior to defer any leasing activity in the core caribou calving area for ten years to allow further study;

2. The U.S. Congress should require the protection of ANWR's environmental and subsistence resources, including wildlife habitat, air, and water, in the event of oil and gas development on the coastal plain;

3. In recognition of Alaska's economic situation and the need for long-term economic development in Alaska, the Congress should require that exploration and development activity in the Refuge shall be conducted by Alaska work forces.

BE IT FURTHER RESOLVED that copies of this resolution be sent to President Ronald Reagan, Secretary of the Interior Donald Hodel, Governor Steve Cowper, Senator Ted Stevens, Senator Frank Murkowski, Congressman Don Young, and all other members of the 100th Congress of the United States.

file - ANWR - resolution

COMMONWEALTH NORTH

TOWARD A CONSENSUS ON THE ARCTIC NATIONAL WILDLIFE REFUGE

A proposal by the Commonwealth North ANWR Committee

1. It is in the best interest of both Alaska and the nation to permit responsible oil and gas exploration and development of the Coastal Plain of ANWR.

   - Nationally, oil and natural gas imports have risen 37% from last year, contributing to the nation's $60 billion trade deficit and making the U.S. increasingly vulnerable to foreign oil suppliers.

   - ANWR is universally recognized as the most promising onshore oil and gas frontier in North America. At least 26 identified geological structures in ANWR have oil and gas potential which may rival Prudhoe Bay's giant field.

2. The Arctic Coastal Plain must be developed, as Prudhoe Bay has been, with utmost care for environmental and wildlife values.

   - Alaskans are rightfully proud of the record established on the North Slope whereby resource development and the care and protection of wildlife, including the Central Arctic Caribou herd, have gone hand in hand.

3. Time is of the essence. Congress must be encouraged to act.

   - The Secretary of the Interior, after a 5 year study by the U.S. Fish & Wildlife Service, has recommended to Congress that oil and gas exploration and development be allowed in ANWR's 1002H area (roughly 8% of the 18 million acre Refuge).

935 West Third Avenue / Anchorage, Alaska 99501 / 907-[illegible]-1414

- Once Congress gives the "go-ahead" and if oil is discovered, it will take approximately 10 years to produce ANWR oil.

4. Exchanges of public or privately owned inholdings in Federal Conservation System Units for leases in ANWR should be encouraged as part of an open, competitive bidding process.

5. The state should encourage a high level of Alaska hire and a fair wage during ANWR exploration and development.

6. The State of Alaska, with the Governor taking the lead, must mount a major educational campaign to inform Congress and the American people about ANWR.

   - The citizens of the State should be encouraged to participate in this campaign by rallying support among their friends and contacts across the nation.

RESOLUTION: Be it resolved that Commonwealth North will actively solicit support for this consensus from the Governor of Alaska, the state's congressional delegation, the state legislature, concerned interest groups and all citizens of the state.

The above resolution was approved by the Commonwealth North Board of Directors on June 2, 1987.

ANWR - resolution

June 11, 1987

Mr. V. M. Withington
2840 Pelican Drive
Anchorage, AK 99515

Dear Mr. Withington:

I am writing on behalf of Governor Cowper in response to your letter of June 4 regarding the exploration and development of ANWR.

Unfortunately, you have been seriously misinformed. I was personally involved in working with both the Senate and House Resources Committee in support of House Joint Resolution 7. With exception of the language pertaining to land exchanges, we were very supportive of the resolution.

Since your source of information is apparently not reliable, I would strongly encourage you to contact Representative Sam Cotton regarding the facts in this matter. You can also contact Ms. Becky Gay, Executive President of the Resource Development Council, or Mr. Al Fleetwood, Chairman of the Alaska Energy Coalition, who I worked closely with in support of this legislation during the final days of the legislative session.

Sincerely,

Rod Swope
Special Staff Assistant
to the Governor

cc: Representative Sam Cotton

Becky Gay
Resource Development Council

Al Fleetwood
Alaska Energy Coalition

RS:MW:tb 1016

June 4, 1987

V.M. Withington
2840 Pelican Dr
Anchorage, Alaska 99515

Steve Cowper, Governor
Office of the Governor
Third Floor, State Capital
P.O. Box A
Juneau, Alaska 99811

Dear Steve Cowper,

I understand that Senate passed resolutions supporting the exploration and development of ANWR have been (at your direction) held up in the House by Sam Cotton's House Resource Committee. I am sure that your must realize that presenting anything less than a united front on this subject to the U.S. Congress only serves to delay if not jeopardies the opening of ANWR to oil and gas exploration.

I have written you in the past promoting economic development in the state. Those resolutions promote broadening Alaska's economic base. I strongly urge you to rethink your position and promote the passage of the Senate passed resolutions supporting the exploration and development of ANWR.

Sincerely

V.M. Withington

From: GASCCAB --JDCVM1 Date and time 06/16/87 17:02:43
To: GASCMRW --JDCVM1 Michele Watts

From: Lynn Bartlett
Office of the Governor
465-3500
Subject: SJR-7: Pierce and ANWR

Rod-

At today's coalition meeting, Al Fleetwood read the letter you wrote to the guy (Wimpsey?) re the Governor blocking passage of SJR-7.

Drew Pierce was attending the meeting, and in the course of the discussion following the letter reading she said that the source of the rumor about the Governor's opposition to any ANWR resolution passage was Sam Cotten who told the House Resources Committee in the last hours of the session that the "third floor" was not interested in such a resolution.

I told her that you had worked with Cotten and his staff on getting an acceptable resolution passed, that we were opposed to the land swap concept, and that Cotten had told the coalition that Coghill refused Cotten's request to delete that section.

So the rumor marches on.

Also, Al Fleetwood wants to invite you officially to talk to the group. He said he would be happy to send you a letter if you like. ????

I'll send you a separate message on today's meeting, which was primarily a report by Roger Herrera on his Washington DC trip.

Ben

cc: GASCTMC --JDCVM1 GASCCLG --JDCVM1
Lynn

Ned,
Also, here's a copy of message from Ben Harding in our Wash D.C. office relating to this issue.
Rod

Ned Farquhar
c/o J. Katz
Governor's Office

November 16, 1987

Staffing Levels for
ADEC's North Slope
District Office

Larry Dietrick, Director
Division of Environmental Quality

As requested following are estimates of the Department's current and needed spending levels for North Slope activities. The North Slope is generally defined as the area north of the Brooks Range. Cost estimates in each category includes personnel, rotational travel, office supplies, sampling equipment, ground and air transportation, maintenance of a field office at Prudhoe Bay and training. Costs for legal support or clean-ups are not included. The needed funding level category is an estimate of what is necessary to carry out our real workload. As shown we currently have about half of the resources actually needed to carry out our workload under existing statutes.

The Needed Funding Level does not include resources necessary to conduct additional work for ANWR.

Current Funding Level

Staff	Total Estimated Dollar Cost
4.0 FTE Professional Staff	$315,000
.5	
4.5 Total Staff	

Needed Funding Level

Staff	Total Estimated Dollar Cost
8.0 FTE Professional Staff	$800,000
2.0 Clerical	
10.0 Total Staff	

Please contact me if you have any questions.

MEMORANDUM State of Alaska

TO: Jay Hogan
Director
Division of Budget Review

DATE: September 21, 1987

FILE NO:

TELEPHONE NO: 465-2600

FROM: Dennis D. Kelso
Commissioner
Department of Environmental Conservation

SUBJECT: Agency Budget Issues Memorandum (A-4)

I. Agency Goal

The Department of Environmental Conservation (DEC) is a technical and enforcement agency. Our fundamental goals are to protect the public health and the environment by preventing or responding to air, land or water pollution; assuring wholesome fish, meat, and dairy products for consumers; enforcing basic standards of sanitation for Alaskans and tourists in public facilities; and providing technical and financial assistance to municipalities and communities for water, sewer and solid waste facilities. The department is responsible for both fundamental health programs and the complex regulatory needs associated with advanced industrial development.

My approach is to emphasize a positive working relationship with regulated communities and the public while insisting on a technically competent approach to fulfilling our mandate. I believe that an effective DEC is essential to sound development in Alaska, so that needed permitting may be conducted in a timely fashion and so that the public may be confident that environmental impacts will be properly managed.

II. Key Policy Issues Facing the Department--Short-Term

Alaska has strong environmental and public health statutes and a strong commitment to providing sanitation facilities. The key challenge facing this department is to balance the job we are expected to do with the resources available to do it. Most programs are inadequately funded to uphold the legal responsibilities set out in the statutes. This has serious repercussions for this agency and the administration from policy, liability, and management perspectives.

This memorandum lays out the major areas of need for the agency.

Division of Environmental Quality

in question. It is essential that the laboratory be moved from the present facility.

A capital request of about $5.8 million will be proposed for a new laboratory.

Air Quality - We are responsible for permitting and monitoring sources of air pollution, monitoring ambient air quality, and developing strategies to address areas where federal standards are not met. A critical need is to develop a program to manage large scale burning to prevent health effects from smoke inhalation. Current staffing levels do not allow inspections of all stationary sources each year, issuance of permits within statutory time limits, compliance actions for all facilities not meeting standards, control of toxic air contaminants, or development of a management system for emissions from areawide burning.

Hazardous Waste - DEC currently operates under a cooperative agreement with EPA; the state does not yet have federal approval to manage this program. Additional demands are placed on the agency for FY 89 by the statutory requirement that the state assume the federal hazardous waste program and by the need for additional effort to find sites in-state for hazardous waste management facilities. Moreover, if the state is truly to assume responsibility for the program, a greater inspection and enforcement presence will be needed. Also, industry's need to obtain permits would not be met for five to ten years at the continuation level. There will likely also be increased needs for assistance to the regulated community.

Emergency Response - DEC has never had a budget for staff to respond to emergencies like the Cook Inlet oil spill and the chemical release from the tank car at Crown Point. Time spent in performing response activities comes from programs budgeted for other purposes. An emergency response capability should be planned and budgeted for. These responsibilities simply cannot be sandwiched in between and taken from all other agency functions. The result is inadequate response and the exposure of Alaskans to needless risks.

In addition, it will be necessary to request in the operating budget continuation of the reappropriation for the statewide emergency response commission to coordinate an emergency planning function between the state, local, and federal government levels; citizen groups, and affected industrial facilities.

site cleanups, and the workload that will result from recently-adopted regulations addressing the disposal of drilling wastes. There is no federal counterpart program.

<u>Site Investigation and Cleanup</u> - A large number of past improper disposal sites have been identified over the last two years. The department has addressed some of these--such as the Alaska Gold site in Nome and the Childs Equipment site in Deadhorse--by working with the owner or another party to achieve a cleanup. This approach saves the state considerable expense over the long term, because the state does not have to directly pay for remedial action and then attempt to recover costs. However, it requires substantial staff time to oversee or conduct any needed site investigations, identify needed cleanup actions, negotiate an agreement with the responsible party and oversee the cleanup operation. (At times, site investigations can be paid using Superfund dollars.) At least 120 known sites cannot be quickly addressed with existing staff. Roughly 40 new sites are being identified each year. Some sites receive considerable public concern. Staff time, except to the limited extent associated with the Oil and Hazardous Substances Release Response Fund, has never been budgeted for this purpose.

<u>Quality Assurance</u> - As the complexity of the agency's technical responsibilities has grown, a need for an in-house capability to address field sampling protocols and methods has become clear. This must be budgeted so that field sampling can achieve the results needed to address environmental and public health problems.

<u>Water Pollution Control</u> - DEC's programs to control water pollution from a variety of sources have limitations. We are not now able to work with the timber industry in monitoring and correcting non-point source problems. Disposal of sewage from homes in areas without sewer systems is being addressed to varying degrees around the state. In some areas, such as Ketchikan and Homer, improper sewage disposal has resulted in surface contamination.

<u>Placer Mining</u> - The Governor has requested a briefing on our progress in addressing his seven point plan for placer mining. His policy decisions in response to that briefing will determine what budget will be needed.

<u>Division of Environmental Health</u>

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

MEMORANDUM State of Alaska

TO: Jay Hogan
Director
Division of Budget Review

DATE: September 21, 1987

FILE NO:

TELEPHONE NO: 465-2600

FROM: Dennis D. Kelso
Commissioner
Department of Environmental Conservation

SUBJECT: Agency Budget Issues Memorandum (A-4)

I. Agency Goal

The Department of Environmental Conservation (DEC) is a technical and enforcement agency. Our fundamental goals are to protect the public health and the environment by preventing or responding to air, land or water pollution; assuring wholesome fish, meat, and dairy products for consumers; enforcing basic standards of sanitation for Alaskans and tourists in public facilities; and providing technical and financial assistance to municipalities and communities for water, sewer and solid waste facilities. The department is responsible for both fundamental health programs and the complex regulatory needs associated with advanced industrial development.

My approach is to emphasize a positive working relationship with regulated communities and the public while insisting on a technically competent approach to fulfilling our mandate. I believe that an effective DEC is essential to sound development in Alaska, so that needed permitting may be conducted in a timely fashion and so that the public may be confident that environmental impacts will be properly managed.

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Alaska has strong environmental and public health statutes and a strong commitment to providing sanitation facilities. The key challenge facing this department is to balance the job we are expected to do with the resources available to do it. Most programs are inadequately funded to uphold the legal responsibilities set out in the statutes. This has serious repercussions for this agency and the administration from policy, liability, and management perspectives.

This memorandum lays out the major areas of need for the agency.

Division of Environmental Quality

The Division of Environmental Quality (DEQ) has the broadest responsibilities for protection of public health and the environment. It is responsible for environmental programs ranging from disposal of sewage to regulation of toxic substances. These are the most technically complex programs in the agency. The sophistication of environmental programs dealing with hazardous waste, site cleanup, toxics, and complex chemicals in drinking water has increased tremendously over the last five years. Moreover, increased public awareness that Alaska has real environmental problems has led to increased demands on the agency.

The Division as a whole is extremely strapped. The staff available is far from adequate to carry out all responsibilities. One acute example is the solid waste program, solely a state responsibility, which is supposed to permit and oversee all solid waste disposal facilities in the state. It has the equivalent of six personnel statewide. As a result, only a small percentage of sites are getting the kind of attention they should. For others, disposal practices today will likely create sites that will require cleanup in the future, with associated drinking water and groundwater problems.

Another example is emergency response capability. The department has never had funding available to develop an emergency response capability. Instead, emergency response is accomplished by taking personnel from other programs.

Following is a brief discussion of the key needs.

Douglas Laboratory - The Douglas Laboratory analyzes wastes and suspected hazardous substances for all DEC programs. The laboratory needs additional technical and support staff to perform the needed analyses quickly enough for the agency to address threats to the public health and the environment. Funds necessary to properly train staff are also essential. During the last year, the laboratory has designed and implemented quality assurance and safety programs to ensure that data are reliable and employees are safe. These essential tasks have taken resources from analytic work.

The laboratory is housed in a grossly substandard facility originally constructed in the 1930's to serve as a school. The move to this facility ten years ago was intended to be temporary. Physical space, layout, and ventilation are all inadequate. Structural problems with the building pose long-term liability threats to the state, as the safety of the building is

in question. It is essential that the laboratory be moved from the present facility.

A capital request of about $5.8 million will be proposed for a new laboratory.

Air Quality - We are responsible for permitting and monitoring sources of air pollution, monitoring ambient air quality, and developing strategies to address areas where federal standards are not met. A critical need is to develop a program to manage large scale burning to prevent health effects from smoke inhalation. Current staffing levels do not allow inspections of all stationary sources each year, issuance of permits within statutory time limits, compliance actions for all facilities not meeting standards, control of toxic air contaminants, or development of a management system for emissions from areawide burning.

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Emergency Response - DEC has never had a budget for staff to respond to emergencies like the Cook Inlet oil spill and the chemical release from the tank car at Crown Point. Time spent in performing response activities comes from programs budgeted for other purposes. An emergency response capability should be planned and budgeted for. These responsibilities simply cannot be sandwiched in between and taken from all other agency functions. The result is inadequate response and the exposure of Alaskans to needless risks.

In addition, it will be necessary to request in the operating budget continuation of the reappropriation for the statewide emergency response commission to coordinate an emergency planning function between the state, local, and federal government levels; citizen groups; and affected industrial facilities.

Drinking Water - Safe drinking water is essential to public health. In Alaska, responsibility for ensuring that providers of drinking water supply pure water is performed by the state. (In other states, this function rests with county health departments.) Alaska has more than 1600 water systems which require monitoring, proper operation, and safe design and construction. Many are in remote areas and operated by employees with minimal training. Alaska has the lowest rate of compliance with drinking water requirements in the nation.

We are only able to ensure that a portion of the monitoring needed to ensure safe water is done. Critical parameters simply have not received the necessary attention. Moreover, essential activities are plainly inadequate: surveys of drinking water systems to ensure integrity, review of plans for drinking water systems, follow-up to contaminated systems, training for operators, and technical assistance. Some systems are not addressed at all. The discrepancy between the needed level of effort and the state's capability at the continuation level will increase with the implementation of new standards for toxic compounds established under the federal Safe Drinking Water Act.

Oil Pollution Control - The oil pollution control program is responsible for ensuring that facilities storing or transporting large quantities of petroleum products have adequate facilities, plans to minimize the potential for oil spills and to respond to them when they do occur, and adequate resources to address spills. The program also addresses underground storage tanks in concert with the federal program. Originally, the program funding was adequate to meet the needs. However, funding has eroded by about fifty percent over the last eight years, and the number of facilities affected has increased. This has resulted in inadequate staffing to review oil spill contingency plans and to perform needed field work. (Lack of staff directly contributed to our ability to respond to the problem at the MAPCO refinery).

Solid Waste - The level of effort devoted to the solid waste program is far from what is required to provide sound disposal methods and to avoid creating environmental and health problems in the future. Of particular concern are the serious inadequacies in rural Alaska, increased demands from the disposal of [illegible] materials cleaned up as a result of Superfund or other

site cleanups, and the workload that will result from recently-adopted regulations addressing the disposal of drilling wastes. There is no federal counterpart program.

Site Investigation and Cleanup - A large number of past improper disposal sites have been identified over the last two years. The department has addressed some of these--such as the Alaska Gold site in Nome and the Childs Equipment site in Deadhorse--by working with the owner or another party to achieve a cleanup. This approach saves the state considerable expense over the long term, because the state does not have to directly pay for remedial action and then attempt to recover costs. However, it requires substantial staff time to oversee or conduct any needed site investigations, identify needed cleanup actions, negotiate an agreement with the responsible party and oversee the cleanup operation. (At times, site investigations can be paid using Superfund dollars.) At least 120 known sites cannot be quickly addressed with existing staff. Roughly 40 new sites are being identified each year. Some sites receive considerable public concern. Staff time, except to the limited extent associated with the Oil and Hazardous Substances Release Response Fund, has never been budgeted for this purpose.

Quality Assurance - As the complexity of the agency's technical responsibilities has grown, a need for an in-house capability to address field sampling protocols and methods has become clear. This must be budgeted so that field sampling can achieve the results needed to address environmental and public health problems.

Water Pollution Control - DEC's programs to control water pollution from a variety of sources have limitations. We are not now able to work with the timber industry in monitoring and correcting non-point source problems. Disposal of sewage from homes in areas without sewer systems is being addressed to varying degrees around the state. In some areas, such as Ketchikan and Homer, improper sewage disposal has resulted in surface contamination.

Placer Mining - The Governor has requested a briefing on our progress in addressing his seven point plan for placer mining. His policy decisions in response to that briefing will determine what budget will be needed.

Division of Environmental Health

The Division of Environmental Health (DEH) is responsible for inspection programs for the dairy, meat, seafood, and shellfish industries. It inspects public facilities and implements the pesticide program. The sanitation and shellfish programs are of most concern because of acute shortfall in program capacity.

Sanitation in public facilities - The sanitation program is responsible for inspecting public facilities to ensure that public health standards are met. In the Fairbanks area and the Matanuska Susitna Borough, inspection levels have declined to one inspection every two years. This is well below the minimum needed to enssure that public health can be protected. This has serious implications for the Alaskan public, as well as for the tourism industry.

The rest of the State falls below minimum inspection rates with approximately one inspection per year. In order to achieve even this level of inspection the sanitation component has excluded 1259 facilities from the regular inspection program and responds only in case of complaints. In another 526 public accommodations, the statutorily required inspection and permit processes are simply not implemented.

For purposes of comparison, the Municipality of Anchorage and the State of California inspect food service facilities four times per year and the State of Washington three to four times per year. The federal Food and Drug Administration (FDA) recommends a minimum of two inspections per year. The greater effectiveness of higher inspection rates is clearly demonstrated by contrasting the results of the state's program with those of the Municipality of Anchorage. In a city with a population base of 250,000 people and 1780 public facilities, there were no disease outbreaks in the last year. By contrast, in the Fairbanks and Matanuska-Susitna Borough areas, there were three disease outbreaks in tour groups, an outbreak in a pool/spa facility and one in a day care facility. The Municipality of Anchorage has 197 facilities per inspector in contrast to the state which has 435 per inspector and a greater geographical area to cover. The municipality spends $604,000 per year to conduct its inspection program versus the $920,000 the state expends for about 5000 facilities.

[illegible] constructed may be needed to keep community systems functioning [illegible] dollars. A program that would meet FDA's recommended minimum inspection level of twice per year would require nine

new positions at approximately $531,000. For the State to reach the more effective level of quarterly inspections, 15 new positions would be required at $884,000 per year.

Support of the Shellfish Industry - The shellfish industry is experiencing major growth. Under federal Food and Drug Administration regulations, shellfish cannot be sold in interstate commerce unless the state has a federally approved program for shellfish. This requires review and certification of harvest areas, supervision of the catch, and testing of product for paralytic shellfish poisoning (PSP.) Since 1985, the number of certified harvest areas has increased from 5 to 13. An additional 38 areas have been proposed and are in some stage of review. The department has only one position for all work associated with shellfish. The workload already exceeds the capacity of this one position. The federal program review confirms that the existing staff has reached full capacity. Additional resources are essential to allow more areas to be certified and eligible to participate in interstate commerce, thereby enabling this industry to develop.

In addition, growers have expressed strong interest in obtaining more laboratory facilities to test for paralytic shellfish poisoning (PSP). This is required before shellfish can be sold. The department has determined that it is possible to certify private laboratories for this purpose. The certification process would require limited additional resources.

C. Division of Facility Construction and Operation -

The Division provides technical and financial management of capital grants to communities for sanitation projects. Specialized assistance is available for villages. (The capital budget is addressed in the attachment.)

Core Programs - For the Division to accomplish its core program, funds are needed to allow staff working with rural villages to travel; timely auditing of projects and payment to communities; timely award of funds for projects, particularly to the Municipality of Anchorage; and timely implementation of the revolving loan fund.

Rural Water and Wastewater System Management - More assistance in managing projects after they are constructed may be needed to keep community systems functioning during the decline in available state dollars. This issue is being discussed at the Economic

Dislocation Task Force. Utility management assistance to communities would help them effectively run their utilities to reduce the potential for system failure resulting from lack of resources like fuel oil. This would ultimately save the state money. We will pursue this through the task force.

The Governor has asked that DEC determine what would be required to provide maintenance assistance to rural water and wastewater systems and to protect the state's investment. Several elements are needed to accomplish this on a statewide basis. The Legislature has also asked that we assess the need for remote maintenance workers statewide. This report is due on January 1. I would anticipate that the report, when completed, could result in a proposal for additional funding.

D. Administrative Services/Commissioner's Office

Budget reductions and new statutory responsibilities during recent years have led to erosion of administrative functions and the department's ability to inform the public. In order to support field operations and new programs, these functions have been cut so severely that the department's overall performance is impaired. In addition, funds are not available to address safety of our employees as they work in potentially risky areas as with hazardous materials, toxic substances, and site cleanup.

Administrative and Clerical Support - Two issues exist for administrative and support services within the agency. First is the need to budget administrative support commensurate with increases in programs. Second is the need to budget for clerical support commensurate with the needs of the professional staff. The urgency of these needs reflects prolonged losses from successive budget reductions.

Public Information - The Department addresses a large number of issues and implements a large number of requirements that interest and affect the public. Only a very low level of funding remains for the public information office. This has considerable effects on the ability of the agency to design and implement workable public participation programs and to help the public understand the issues affecting them.

Safety - The Department has no organized safety program, even though activities undertaken by the employees, particularly in field investigations and in working with hazardous materials, may pose substantial risks. The State also has increased responsibility to

employees, as a result of OSHA regulations and requirements under the federal Superfund bill. It is essential that a safety program be designed and implemented to minimize both risks to employees and liability of the State.

Underfunding of Personnel Costs - The budget process over the last several years has not allowed the full costs of authorized positions to be budgeted. This is due in large part to the failure to budget increases provided in union contracts. In all divisions, this has created chronic "underfunding." Needed positions are left vacant for extended periods to adjust for this shortfall. It would be advisable for your office to address this on a statewide basis.

III. Long Term Key Policy Issues Facing the Department -

A. Mariculture - The State's approach to mariculture could have a major impact on the budget. The department is working with the fisheries mini-cabinet on this issue. The development of mariculture would have substantial effects on the seafood program. A site certification process similar to that employed for shellfish growing areas would likely be needed. Monitoring of chemicals used in operations would be needed as would a regulatory approach to discharges.

B. Pesticides - The state is reviewing its pesticide program. New regulations will be proposed this fall. There is increasing public awareness of issues related to pesticide application and use. Additional effort may be needed in the future for this program.

C. Indoor Air Quality - Research is increasingly demonstrating that indoor air quality may have greater impacts on public health than previously thought. Especially in cold climates, where buildings are well sealed and insulated, levels of carbon monoxide and other pollutants may reach unacceptable levels. There is no state program to address this issue at present, but initiatives may be appropriate in the future.

D. Groundwater - Groundwater is a crucial water resource that has never received the kind of attention from environmental agencies that surface water has. National initiatives are being proposed for groundwater. Moreover, experience in Alaska is revealing that current programs do not provide a full measure of protection.

In FY 88, the State will prepare a strategy on how to address groundwater issues, based on analyses of current problems and the present regulatory structure. The approach will be to rely upon existing authorities to maximum extent. This may have implications for future budget years.

E. Risk Assessment - Increasingly, decisions on how to manage environmental problems are incorporating consideration of levels of risk actually posed to the public by various alternatives. The state has little current technical capacity to participate in risk assessments. This capacity may need to be developed in the future.

F. Hazardous Waste Disposal - The department is continuing with its process to identify possible sites for hazardous waste facilities. If a decision is made for the state to select and then operate a site, considerably more funds will be needed.

G. Assistance to Rural Sanitation Projects - As mentioned briefly under short term issues, the role of the state in providing technical operational and management assistance to small communities with sanitation projects is an important issue. Experience has shown that projects without maintenance assistance experience catastrophic failures that may destroy the state's investment. Experience is also showing that management assistance on how to run facilities as utilities can result in better operational resources. A policy decision on the role the state should play in these areas, to protect its multi-million dollar investment and the public, is needed.

H. Emergency Response Planning for Hazardous Materials Spills - In FY 88, the State will begin to address the requirements in the federal Superfund bill for local planning for emergency response. This may require additional resources in the future.

I. Quality Assurance - Increasing attention is being paid nationally to the accuracy of data generated by environmental agencies. States and EPA are reviewing and improving quality assurance and quality control procedures. The State has begun to address this issue. Further enhancements and improvements will be needed in future years.

J. Legal Assistance - Legal assistance available to the Department for legal actions, as well as administrative

and regulatory proceedings, must be adequate to support agency actions. This issue needs to be addressed.

K. Arctic National Wildlife Refuge - Additional resources would be needed to address any detailed environmental review on development associated with this area.

IV. Approximate Additional Funding Needed for Core Programs

A. Division of Environmental Quality

Douglas Laboratory Operations	750.0	
Quality Assurance	200.0	
Air Quality Control & Monitoring	1,400.0	
Hazardous Waste -		
Facility Siting and Regulation	860.0	
Emergency Response Capability	484.0	
Emergency Response Commission	94.0	
Drinking Water	1,200.0	
Oil Pollution Control	550.0	
Solid Waste	750.0	
Site Investigation/Cleanup	580.0	
Water Pollution Control	1,500.0	
Placer Mining	**	
Clerical and Contractual	500.0	
Subtotal		8,868,000

B. Division of Environmental Health

Environmental Sanitation	536.0	
Shellfish Program	68.0	
Subtotal		604,000

C. Facility Construction and Operation

Core Program Support	122.0	
Operational Assistance to Systems	**	
Subtotal		122,000

D. Administrative Services/Commissioner's Office

Administrative Support (Fiscal)	60.0
Clerical Support	40.0
Public Information	50.0
Safety Officer	80.0

Subtotal	230,000
TOTAL	9,824,000

** Policy decisions to be made in other forums will prescribe any budget needs here.

Attachments

cc: Janet Clarke
Amy D. Kyle
Division Directors

DDK/ADK/pc/mt
a4/a3

Advantage ... ty percent grant program ...

ATTACHMENT

CAPITAL BUDGET ISSUES

Three issues should be considered in the development of the capital budget and the appropriation process for the Facility Construction and Operation Division:

- Use of the Alaska Department of Environmental Conservation (DEC) grant programs as the funding mechanism for sanitation projects,
- Matching federal funds for the Alaska Clean Water Fund, and
- Funding for the Capital Improvement Project component in the operating budget.

Use of DEC grant programs -

The primary funding avenues to send state capital monies to local governments to meet their sanitation needs are:

1. Direct grants administered by the Department of Administration (AS 37.05).
2. Fifty percent Matching Construction Grants Program administered by DEC (AS 46.03).
3. Village Safe Water Program administered by DEC (AS 46.07).

During the last six years, $431,000,000 in State money has been appropriated for water, sewer, and solid waste projects. Approximately eighty percent has been in the form of direct grants (AS 37.05) and only twenty percent has been administered by DEC.

At a time when state revenues have declined, it is necessary for state capital dollars to be used to the greatest advantage of both the State and local governments. To fund sanitation utility development and to stretch the state's dollars and assure attention to the most pressing needs, the state should use the fifty percent Matching Grants and Village Safe Water programs.

Advantages of the fifty percent grant program include:

°Local participation in financing;
°Technical assistance;
°Payment scheduling;
°Project auditing;
°Local financial planning.

Advantages and services of the Village Safe Water Program include:

°Project planning;
°Technical assistance;
°Varying construction techniques (force account labor);
°Negotiating agreements;
°Financial accountability;

This approach is consistent with past policy of Governor Cowper. This will require local financial participation in projects (fifty percent Matching Grants Program), or if the community is not financially capable of paying a percentage, that the grant project go through a systematic process with direct assistance from VSW Program staff.

b. Alaska Clean Water Fund

With passage of SB 167, the Alaska Clean Water Fund was established. This revolving loan fund will be capitalized from both federal and State sources. The federal government is making money available to Alaska; however, the state must provide twenty percent match. The Department's FY 89 capital budget will contain a request for this necessary match. With state match, the fund could be as much as $83 million over an eight-year period.

c. CIP Component revenue

The capital budget request will propose necessary revenue to fund the CIP component in the Facility Construction and Operation Division. This division administers both the fifty percent Matching Grants Program and the Village Safe Water Program. The FY 89 capital budget proposal will request monies that will be the revenue source for the component.

[illegible] sections of the budget, even [illegible] current law

MEMORANDUM

State of Alaska

DEPARTMENT OF FISH AND GAME

TO: Robert Grogan
Associate Director
Division of Governmental
Coordination
Office of Management
and Budget

DATE: January 7, 1987

FILE NO:

TELEPHONE NO.: 465-4100

SUBJECT: 1002 Research

FROM: Don W. Collinsworth
Commissioner
Department of Fish and Game

As part of the state's decision on a position regarding oil and gas development in the ANWR 1002 area, the Governor has requested that the department determine if there is sufficient information on the effects of oil and gas development on fish and wildlife resources in ANWR for the state to recommend support for one of the alternatives in the draft 1002 report. The Governor expressed particular interest in the question about the effect of oil and gas development on use of the caribou core calving area by the Porcupine Caribou Herd (PCH), and the ultimate effects on the PCH if its use of the core calving area were adversely impacted.

The department has reviewed the available information and concludes that there are four principal types of fish and wildlife habitat in the 1002 area: the PCH core calving area; caribou coastal mosquito relief habitat; spring-fed fish overwintering areas; and snow goose staging areas, where development could result in a reduction in the respective fish or wildlife population. The department also concludes that there is sufficient information available for the department to recommend measures that will mitigate effects of oil development on most other fish and wildlife resources. Many of these measures and mitigation have been presented in the department's comments on the ANWR 1002 report (ref. memorandum from [illegible] to Grogan dated January 2, 1987). We should all fully understand that impacts on some fish and wildlife habitats will be unavoidable if oil and gas development in the 1002 area occurs.

With regard to spring-fed fish overwintering areas and snow goose staging areas, no further information is necessary. These fish overwintering areas are not numerous and are small areas in which oil and gas development should be prohibited. Snow geese are quite sensitive to disturbance, and virtually no mitigation other than prevention of any disturbance in their staging areas is possible. The department recognizes that excluding oil and gas development from the entire snow goose staging habitat would eliminate development of much of the 1002 area. Because a portion of the staging area corresponds to the core calving area of the PCH, protection of the latter area would also protect this portion of the snow goose staging habitat.

With regard to the core calving area, it is the professional judgement of many biologists based on experience with caribou in general and with the Central Arctic Herd (CAH) in the Prudhoe Bay/Kuparuk oilfields in particular, that development of the core calving area will result in the displacement of parturient caribou to other areas, and that such displacement may eventually result in a decline in the PCH. Moreover, at a November 1985 workshop sponsored by the U.S. Fish and Wildlife Service on the topic of the potential effects of oil development on caribou an ADGG the same conclusion was reached by most of the 14 agency and industry caribou biologists involved in the workshop. This conclusion was reached by inference drawn from other research. To be most conclusive, a research program should ideally be conducted on the PCH herself. It is the focus of national debate. One of the most conclusive ways to answer the question of what would happen if the core calving area is developed would be to allow development to proceed and to monitor the effects. However, this may result in the unacceptable outcome that mitigation is designed to prevent--i.e., displacement of calving caribou and a decline in the population on the 1002 area itself. It is for these reasons that information from other caribou herds, especially the CAH, has been used to make inferences about the PCH.

information to allow a decision regarding future development in the PCH core calving area, and to predict the effects of above ground pipelines on movements of large, mosquito-harassed groups. This research program should be coordinated with the U.S. Fish and Wildlife Service. Due to limited time allotted for development of this research program, all budget figures should be considered as rough approximations of cost. It should also be understood that even with the results of this research program, inferences will still have to be made based on professional judgment.

CORE CALVING RESEARCH NEEDS

A number of barren-ground caribou herds have been observed to concentrate in certain areas of their calving grounds over a number of years. Most biologists assume from this phenomenon that core calving areas are [illegible] by parturient caribou because [illegible] use of these areas confers some selective advantage. This assumption is to be examined in the following research program. Determining the effects of oil and gas development on use of the core calving area by the PCH involves testing two related working hypotheses: (1) that oil and gas development will result in displacement of parturient caribou from the core calving area, and (2) that such displacement will, over time, result in a decline in the PCH. Each working hypothesis is followed by a summary of a research proposal.

Hypothesis 1: [illegible] oil and gas development in the core calving area will result in [illegible] of parturient caribou.

Background: [illegible] the effects of oil facilities [illegible] has been made [illegible] Central [illegible] Kuparuk [illegible] results of [illegible] Milne Point road [illegible] approximately [illegible] levels of traffic. [illegible] Prudhoe Bay [illegible] development. It is generally [illegible] have declined [illegible] in response to development over the last ten years.

Research Approach: Based on the above discussion, the Department believes that the most [illegible] research program involves a [illegible] of long-term data [illegible] of caribou movements and [illegible] Kuparuk and Prudhoe Bay oilfields.

This case history research will consist of satellite and radio telemetry studies of caribou calving and postcalving movements and use of the Kuparuk and Prudhoe Bay areas, road surveys to identify areas of movement through the oil fields, and caribou use of habitat. Intensive aerial surveys during calving would be expanded to include the entire coastal plain between the Colville and Canning Rivers.

Budget: [illegible] years; $125,000

Hypothesis 2: Displacement of parturient caribou from the core calving area will, over a period of time result in a decline of the PCH.

Background: Biologists have attempted to explain the phenomenon of caribou repeatedly calving in higher densities in some portions of their calving areas than in others by relating differences between core and peripheral calving areas in terms of habitat characteristics (e.g., physiological, [illegible], or topographical), predation rates, traditional behavior, proximity to insect relief habitat, and various combinations of the above. The following research pathway is designed to provide more information regarding these different areas by comparing these aspects between core and peripheral calving areas, and by measuring the responses of caribou that use these areas. It is important to note that research on this hypothesis is the basis for answering the major question regarding the core calving area [illegible] this concept must be understood [illegible] studies to be [illegible] meaningful.

Research pathway: [illegible] the core and peripheral calving areas of the PCH.

1. Habitat characterization

   a. Vegetation
      - [illegible]
      - [illegible]
      - [illegible]
      - [illegible]

   b. Topography
      - slope
      - aspect
      - relief
      - drainage

c. Meteorology
-snow accumulation and snow melt
-weather

Budget: 5 years, $[illegible],000

3. Predator Distribution and Abundance

a. Aerial and terrestrial predator distribution

-predator densities in core vs. peripheral calving areas, [illegible], with intensive monitoring for 3-5 years, and periodic surveys for 5 years following

b. [illegible] predator range

[illegible] range in core vs. peripheral calving areas [illegible] of individual animals over time [illegible]

Budget: [illegible]

4. [illegible] of Caribou

a. Calf survival

[illegible]

b. [illegible]

[illegible]

Budget: [illegible]

c. [illegible]

[illegible] density of parturient caribou in core vs. peripheral calving areas

TESTIMONY

OF

TRUSTEES FOR ALASKA,

NATURAL RESOURCES DEFENSE COUNCIL

AND

NATIONAL WILDLIFE FEDERATION

Before the

Subcommittee on Water and Power Resources

Committee on Interior and Insular Affairs

U.S. House of Representatives

on

Environmental Issues Related to

Oil and Gas Development Activities on

Alaska's North Slope

October 8, 1987

Prepared by:

Robert W. Adler, Executive Director
Trustees for Alaska

Lisa Speer, Senior Project Scientist
Natural Resources Defense Council

Mr. Chairman and members of this Committee. My name is Robert W. Adler. I am the Executive Director of Trustees for Alaska, a nonprofit, public interest environmental law firm based in Anchorage, Alaska. With me today is Lisa Speer, Senior Project Scientist with the Natural Resources Defense Council (NRDC), a national environmental organization with approximately 70,000 members and supporters nationwide. Trustees, NRDC and the National Wildlife Federation (NWF) have had a longstanding interest and involvement in oil and gas development in Alaska, and in issues related to the Arctic National Wildlife Refuge.

In July of this year, NRDC, Trustees, and NWF presented testimony before this Committee on the preliminary results of a major review that we are conducting regarding the environmental effects of oil and gas development on the North Slope of Alaska. Most of these impacts were not addressed adequately, and some were not addressed at all, in the Interior Department's Report to Congress and Legislative Environmental Impact Statement on oil and gas development in the Arctic Refuge.

Since that time, the Committee has had the opportunity to visit both Prudhoe Bay and the coastal plain of the Arctic National Wildlife Refuge. With your increased understanding of the nature and magnitude of development required for a major oilfield on the North Slope of Alaska, we would like to take this opportunity to elaborate upon some of the findings we presented to you in July, and to discuss them in light of responses recently raised by the oil industry.

To reiterate, the major conclusions of the NRDC/Trustees/NWF report on Prudhoe Bay are:

1) Industrialization of the North Slope related to oil and gas development has resulted in a wide range of environmental impacts, including pollution of the air and water and the destruction of substantial amounts of habitat.

2) The conduct of the oil and gas related industries on the North Slope has ranged from environmentally responsible to irresponsible, and in some instances has involved a serious disregard for environmental impacts. Hundreds of violations of state and federal regulatory controls designed to protect the environment have occurred. These range from minor infractions to at least one conviction on multiple criminal counts.

3) Existing environmental regulations as they are currently implemented and enforced have not provided adequate protection from significant environmental deterioration resulting from oil and gas activities.

4) The technology to achieve successful restoration of developed areas on the North Slope over the long term has not been effectively demonstrated for large scale projects.

5) Major data gaps exist on environmental impacts and compliance on the North Slope due to a systematic failure in monitoring on the part of the resource agencies. These gaps seem unlikely to be filled in the foreseeable future given the current level of monitoring activity.

A. Compliance Issues

The oil and gas industry responds to many of the serious potential environmental impacts of oil and gas development on the North Slope by pointing to the extensive regulatory system that is designed to prevent or to mitigate those impacts. As we noted in our July testimony, we believe the present regulatory system is not sufficient to protect the air, water and wildlife habitat of the North Slope. Even if these regulatory controls are tightened, they will only be effective if compliance with them is greatly improved. Our July testimony demonstrated just the opposite -- there has been widespread noncompliance with many aspects of the regulatory program designed to protect the North Slope environment.

A few of the most notable examples of the industry's failure to comply with environmental laws and regulations are:

1. Waste discharges to the tundra from fully one half of the drilling mud reserve pits that were dewatered in 1986 violated state effluent limits. In 1985 and 1984 the situation was even worse, with discharges from 85 percent and 100 percent of pits violating permit standards.

2. State records document between 400-600 reported spills of oil and other chemicals per year associated with oil development on the North Slope and the northern portion of the haul road.

3. In 1985, the only year for which the state has compiled black smoke reports in a data base, 150 black smoke incidents in violation of state air quality regulations were reported.

4. There have been a number of hazardous waste violations on the North Slope. In 1983, a major hazardous waste event occurred at the site of North Slope Salvage, Inc., which stored and disposed of drums from North Slope operators.[1] During the cleanup, over 58,000 gallons of contaminated liquids were recovered. Extensive soil and water contamination was documented and the site was determined to pose a "serious environmental and human health hazard."[2]

Nor is this an isolated incident of improper storage and disposal of hazardous substances. Of 29 hazardous waste inspections by EPA and DEC, 11 revealed violations.[3] ADEC has closed two unpermitted oily waste pits with histories of leaking and overtopping fluids.[4] Most recently, ADEC has discovered additional problems on Deadhorse lease tracts. For example, ADEC discovered more than 500 drums of unidentified petroleum liquids and several tons of other waste on a pad leased to Child's Equipment Services, which has filed for protection from creditors in U.S. Bankruptcy Court. Some of the drums were leaking.[5]

Notably, the industry has done little to respond to these charges. They have not attempted to explain the many violations that are revealed in state and federal agency files. More importantly, they have given no assurances that this violation history will improve in the Prudhoe Bay region, and that such violations will not be repeated in the Arctic National Wildlife Refuge.

In fact, rather than giving assurances that this past disregard for existing environmental standards will be corrected, the industry has continued to press for less stringent environmental protections on the North Slope. For example, in a letter written to the Alaska Office of Management and Budget in April of this year, the Alaska Oil and Gas Association attacked many of the regulations designed to protect the North Slope

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[1] ADEC, 1984. Report on the Occurrence, Discovery, and Cleanup of an Oil and Hazardous Substances Discharge at Lease Tract 57, Prudhoe Bay, Alaska.

[2] Clar, J.M., 1984. An Evaluation of the Environmental and Human Health Hazards of Chemicals found at North Slope Salvage, Inc. (prepared for ADEC).

[3] The results of most of these hazardous waste inspections are unavailable in the public record because they are pending review or compliance action.

[4] The Pingut Oily Waste Pit and Drill Site 1C.

[5] Anchorage Daily News, 7/19/87.

environment.[6] This hardly provides reasonable assurance that the industry is willing to improve its environmental compliance efforts on the North Slope.

B. Hazardous and Solid Waste

As reported in our July testimony before this Committee, tremendous quantities of solid and hazardous waste are generated in conjunction with oil and gas development and production on the North Slope of Alaska. To date, the industry has not demonstrated that it can dispose of these wastes in an environmentally acceptable manner.

Much of the waste material produced on the North Slope is the inevitable result of any major industrial undertaking of this magnitude. Solid waste generated by the oil industry includes wrecked vehicles, airplanes, used batteries, styrofoam pipeline insulation, tires, prefabricated scrap construction materials, large quantities of scrap metal, and over 10,000 used drums per year.[7] As an example, a three-year pipeline construction project can generate over 500 destroyed vehicles, 3,000 batteries, 10,000 tires, 20,000 tons of scrap construction materials, 6,000 tons of equipment components, thousands of used drums, thousands of cubic yards of various camp-related wastes, hundreds of prefabricated buildings, and large quantities of unused pipe.[8]

Perhaps more importantly, North Slope activities generate tremendous quantities of liquid industrial wastes, some of which are hazardous. A review of North Slope liquid wastes by ADEC documented the following volumes of wastes disposed of on the North Slope in 1986:[9]

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[6] Letter dated 4/2/87 from the Alaska Oil and Gas Association to the Alaska Office of Management and Budget.

[7] ADEC, 1987(a). Solid Waste Management Standards for Arctic and Subarctic Alaska, page 2.

[8] ADEC, 1986(a). Environmental Information Relative to Air and Water Quality, Solid Waste Disposal and Oil Spill Contingencies for the Arctic National Wildlife Refuge, page 25.

[9] ADEC, 1987(b). A Review of Liquid Waste Production and Disposal at Oilfield Facilities on the North Slope of Alaska.

1986 only well injxn?

Subsurface disposal		
Injected wastes - ARCO Pad 3	-	3,649,422 gallons
CPF 1&2 disposal wells	-	23,753,907 gallons
Annular injection	-	116,006,142 gallons
Surface disposal		
Reserve pit fluids to tundra	-	64,568,520 gallons
Road discharges	-	36,924,594 gallons
Excavation dewatering	-	369,500,000 gallons
Hydrostatic testing discharges	-	3,056,119 gallons
Domestic wastewater discharges	-	1,032,650 gallons
TOTAL		617,861,300 gallons

Many of these wastes have the potential to cause environmental degradation whether or not they are legally defined as hazardous. But the question of which North Slope wastes are hazardous is complicated by the fact that wastes uniquely associated with oil and gas exploration and development are currently exempt by law from classification as hazardous waste, whether or not the materials are in fact RCRA-hazardous. (RCRA §3001(b)(2)(A)).

Nevertheless, biennial hazardous waste generator reports on file at EPA indicate that large quantities of potentially hazardous waste are generated on the North Slope. Total volumes of wastes reported were 16,673,685 gallons in 1983 for all North Slope oilfields, and 166,669 gallons for the North Slope fields, not including ARCO Kuparuk, in 1985.[10]

As explained in the compliance history section above, the disposal of solid and hazardous waste materials on the North Slope has been problematic, and in many cases has resulted in direct contamination of land and water. Industry responds with excuses for several of the individual incidents. For example, problems documented at Deadhorse lease tracts are blamed on small, independent oilfield service companies. By bringing such lease tracts under direct oil company control, as has been done at Kuparuk, industry claims that such problems will be avoided. The oil companies also assert that no sites on the North Slope have actually been listed on the National Priority List for cleanup under the Superfund. Both ARCO and Standard now propose to dispose of hazardous wastes on the North Slope through deep

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[10] The Kuparuk report could not be located in EPA's files.

well injection,[11] a disposal technique they assert will reduce or eliminate hazardous waste problems.

We respond to each of these points below.

It is entirely disingenuous for the major oil companies to disclaim responsibility for the large volumes of wastes generated as a direct result of their profitmaking activities on the North Slope, regardless of the fact that, in the past, these wastes were transferred to smaller companies for handling. The industry will continue to generate significant quantities of hazardous and other liquid wastes on the North Slope, and will generate additional wastes if they are allowed to operate in the Arctic National Wildlife Refuge. These wastes will continue to be handled both by the major oil companies and by smaller, independent companies, whether or not support and production facilities are consolidated.

The overriding question is where and how these massive quantities of wastes will be disposed of if development is allowed in the refuge. The burden of proof is on the oil industry to demonstrate that they can permanently and successfully isolate these wastes from the fragile North Slope environment. To date, they have failed to make this showing. EPA is just beginning to review the industry's proposals for deep well injection of wastes, and there is no guarantee that this practice will be allowed.

In fact, there are serious potential problems with deep well injection of wastes. A study by NRDC of deep well injection of wastes around the country documents numerous cases in which underground injection wells have failed, resulting in extensive groundwater contamination.[12] Indeed, injection even of supposedly innocuous "brines" at oil and gas wells have resulted in significant problems; over one half of 32 oil and gas producing states reported groundwater contamination from underground brine disposal.[13] The Office of Technology Assessment agrees that underground injection poses a potential

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[11] ARCO engaged in deep well injection of hazardous and other wastes at Pad 3 from 1976 through 1985, when ARCO stopped accepting hazardous waste for injection at the facility, in part because it did not have "interim status," or authority to operate without a RCRA permit.

[12] Gordon and Bloom, Deeper Problems: Limits to Underground Injection as a Hazardous Waste Disposal Method (NRDC, 1986).

[13] Donald V. Feliciano, "Underground Injection of Wastes. Mini Brief Number MB83238," Congressional Research Service, Oct. 15, 1983, cited in Deeper Problems, supra.

threat to groundwater, and identified 8 possible contamination pathways.[14]

Nor has the oil industry demonstrated how it will dispose of the large quantities of nonhazardous wastes generated by North Slope oil and gas operations, including oily wastes. In fact, five supposedly nonhazardous waste disposal sites have been the subject of "preliminary assessments" under the Superfund Program.[15] The industry disclaims the importance of this by noting that none of these sites have actually been listed on the National Priority List (NPL) for Superfund cleanup. This claim is highly misleading. Due to the slow pace of the Superfund process in Alaska, none of the five sites have proceeded to the more detailed Site Assessment phase, which is necessary to determine the extent of contamination at any given site. But the five sites have been chosen for further evaluation:

1. ARCO Prudhoe Bay received a "medium" priority assessment.[16] The site allegedly contains 10,000 - 80,000 buried drums, some containing drilling muds, and has received "a substantial volume of industrial (oil drilling-related) wastes."[17] The preliminary assessment recommends that "the risk to nearby water resources should be further evaluated."[18]

2. Mukluk Dump - Prudhoe Bay (medium priority assessment) may include "small quantities" of hazardous materials, including drilling muds, mud additives, some heavy metals, and solvents. The preliminary assessment refers to the potential for leaching to the Sagavanirktok River, and potential contamination of a human drinking water source.[19]

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[14] Technologies and Management Strategies for Hazardous Waste Control, Office of Technology Assessment, U.S. Congress (1983), at 192, cited in Deeper Problems, supra.

[15] Preliminary Assessment of 45 Potential Hazardous Waste Sites in the State of Alaska. Tetra Tech, Inc. 1984.

[16] Four recommendation levels are possible in the Tetra Tech report:

None - no further action recommended
Low - inspection recommended on a time-available basis
Medium - inspection recommended on a scheduled basis
High - inspection recommended promptly.

[17] Id.

[18] Id.

[19] Id.

3. Mukluk Freight Lines (medium priority assessment) has been a storage site for a large number of industrial chemicals, and survey results indicated that some chemicals were leaking from drums or escaping from damaged and weathered sacks. The assessment also indicated that the site had insufficient structures for groundwater protection.[20]

4. North Slope Borough Landfill (medium priority assessment) accepts wastes from a large number of entities on the North Slope, and is currently the only operating landfill at Prudhoe Bay. The assessment refers to possible previous disposal of "oils, heavy metals and solvents," and recommends that the "risk to nearby water sources ... be further evaluated."[21]

5. Sand Dunes Landfill (medium priority assessment) also served as a major waste disposal site for North Slope oil and gas activities. Like the other landfills, this site may have received drilling muds, mud additives, heavy metals, solvents, and other hazardous materials. Previous EPA surveys mention potential leaching to the nearby river and possible contamination of potable water.[22]

These problems with sites that have been used for solid and liquid waste disposal in the past underscore the serious waste disposal problems that will be presented should oil and gas development be allowed in the Arctic National Wildlife Refuge. To date, neither the oil industry nor the Interior Department have presented a satisfactory plan for how these massive quantities of wastes will be handled in a national wildlife refuge, without posing a long-term contamination threat to the land and water resources of the refuge.

C. Reserve Pits

Built directly on the tundra, reserve pits are designed to contain drilling mud and other wastes with gravel dikes. Individual reserve pits on the North Slope can contain up to 13 million gallons of waste materials. Drilling wastes may contain toxic components such as heavy metals, hydrocarbons, and

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[20] Id. Standard claims that this site was incorrectly included in the preliminary assessments, and that an EPA official has recommended removal from the program. Standard Oil, 1987. Oil and Gas Development in the Arctic National Wildlife Refuge 1002 Area; Issues Raised by Environmental Groups During Testimony Before Congress, page 16.

[21] Id.

[22] Id.

additives in varying amounts. Many of these components are toxic to a variety of organisms. Disposal of accumulated drilling wastes and contaminated fluids which exceed reserve pit capacities is a major problem on the North Slope.

Despite a number of regulations and permit stipulation requiring reserve pits which store drilling wastes to be impermeable, numerous leaking pits have been documented. Waste fluids also escape due to overtopping or breaching of reserve pit walls. Drilling wastes are disposed of by pumping reserve pit fluids directly onto the tundra, spreading them on gravel roads which are not designed to be impermeable, and injecting them underground. In 1986, 64 million gallons of drilling waste fluids were discharged directly to the tundra from reserve pits and an additional 37 million gallons were applied to roads.[23]

In response to testimony presented by NRDC, Trustees and NWF in July, the oil industry has argued that reserve pit fluids are not RCRA-hazardous but instead are "generally innocuous,"[24] that new state solid waste regulations will effectively deal with the problem of leaking reserve pits, that state-of-the-art disposal practices have reduced or eliminated altogether the need for reserve pits, that underground injection poses no threat of environmental harm, and that a U.S. Fish and Wildlife Service study of reserve pit fluids we cited was only a draft and is technically flawed.

We address each of these points below.

In a study mandated by §8002(m) of the Resource Conservation and Recovery Act (RCRA), EPA is presently evaluating whether or not petroleum extraction waste should be regulated as hazardous. EPA has not yet determined what percentage of drilling and production waste is RCRA-hazardous; it is thus impossible to confirm industry's assertions that these wastes are not RCRA-hazardous. However, even if such liquids were not hazardous as defined by RCRA, they can in no event be termed "innocuous." Common types of pollutants found in reserve pits include salts, additives, oil and grease, and dissolved heavy metals,[25] many of

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[23] See pages 4-7 of NRDC/Trustees/NWF testimony presented before this Committee on July 21, 1987.

[24] Standard Oil, 1987, supra.

[25] EPA, 1987 in prep. Management of Wastes from Oil Exploration, Development and Production, August, 1987, page III-13.

which are toxic to a variety of organisms.[26] Pit fluid analyses performed by numerous investigators, including the industry, show concentrations of half a dozen metals at levels that exceed EPA's acute and/or chronic toxicity level for aquatic life.

The FWS study of reserve pit fluids, referred to as a "draft" by the industry, has been finalized and is now going to press.[27] The study found that reserve pits are the most likely source of metal and hydrocarbon contaminants that are spreading through tundra wetlands and that are associated with reduced biological diversity and abundance in associated tundra ponds. Presumably, the U.S. Fish and Wildlife Service, which is the expert agency in these matters, did not reach this conclusion lightly.

After years of opposition by the oil industry, the Alaska Department of Environmental Conservation developed new solid waste regulations which went into effect in September of this year. These regulations will require that new reserve pits be designed not to leak. While industry has begun to submit new designs for reserve pits, these designs have yet to be proven effective, the numerous existing leaking pits have yet to be corrected, and the effects of long-term open pits have yet to be determined. While some of these designs rely on lining reserve pits, the technological feasibility of using liners in arctic conditions has yet to be demonstrated.

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[26] See, e.g.,:

- U.S. Environmental Protection Agency, 1987 in prep. Waste from the Exploration, Development and Production of Crude Oil, Natural Gas, and Geothermal Energy, Interim Report. April 30, 1987.
- Strosher, M.T., W.E. Younkin and D.L. Johnson, 1980. Environmental Assessment of the Terrestrial Disposal of Waste Drilling Muds in Alberta: Chemistry of Sump Fluids and Effects on Vegetation and Soils. A Report prepared for the Canadian Petroleum Association, December, 1980.
- Land, Bernard, 1974. Toxicity of Drilling Fluids to Aquatic Biological Systems, A Literature Review. Environment Canada, Fisheries and Marine Service Report 487.
- U.S. Department of the Interior, 1987. Final Coastal Plain Resource Assessment, Arctic National Wildlife Refuge.

[27] West, R.L. and E. Snyder-Conn, 1987 in press. Effects of Prudhoe Bay Reserve Pit Fluids on Water Quality and Macroinvertebrates of Arctic Tundra Ponds in Alaska. Only after a Freedom of Information Act Request and a subsequent appeal was Trustees able to obtain a copy of the final U.S. Fish and Wildlife Service study.

The other solution to problems posed by reserve pits proposed by the industry, underground injection, is not without its problems, as discussed above. These problems can be expected to be aggravated in the case of annular injection, where waste is disposed down the outside, as opposed to the inside, of the well casing, thereby increasing the opportunity for wastes to escape.

Industry claims that volumes of drilling wastes requiring disposal in reserve pits can be dramatically reduced or eliminated altogether and point to the Endicott project offshore Prudhoe Bay in the Beaufort Sea. While it is true that industry does not need to use reserve pits at Endicott, this is because Standard dumps some 4,600 tons of drilling mud and 31,700 barrels of cuttings per year from Endicott wells into the Beaufort Sea under an NPDES permit issued by EPA,[28] a practice which can entail very significant impacts to aquatic life. Thus, it is disingenuous for the industry to cite Endicott as evidence supporting the claim that it can eliminate reserve pits.

Industry also claims that it has reduced the use of chromium additives to drilling mud, which will reduce the heavy metal load in reserve pits. While it is true this may reduce the chromium content of muds disposed of in reserve pits, levels of other metals, including lead, mercury, cadmium, copper, aluminum, nickel, zinc, and other mud contaminants will presumably remain unaffected. Moreover, metals are not the only problem related to reserve pit fluids. Polycyclic aromatic hydrocarbons, which can be toxic to aquatic life at the parts per billion level (ppb), are apparently migrating from reserve pits and are accumulating in tundra soils near pits. On the North Slope, "considerable amounts of hydrocarbons were found in the tundra soil hundreds of feet from reserve pits."[29]

In our July testimony, we noted that discharge permits issued by ADEC allow discharges of cadmium, copper, lead and mercury at levels that exceed EPA's acute and/or chronic toxicity criteria for the protection of freshwater aquatic life. In addition, ADEC's permit places no limits on reserve pit discharges for a number of other metals, which, based on data developed by the industry, occur in reserve pit fluids at concentrations that exceed EPA's acute and/or chronic toxicity

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[28] NPDES permit No. AK-003866-1. DMRs submitted to EPA by Standard indicate that in 1986, some 22,000 barrels of mud and 31,700 barrels of cuttings were discharged into the ocean. Assumes a mud weight of 10 lbs/gallon.

[29] EPA, 1987 in prep., supra.

criteria.[30] The fact that millions of gallons of reserve pit liquids that may contain levels of metals that are acutely toxic to aquatic organisms raises very serious questions about the ability of existing state and federal regulatory controls in place to adequately protect the tundra ecosystem.

D. Air Pollution

Oil and gas facilities emit large amounts of air pollutants. For example, ADEC estimated of NO_x permitted to be emitted on the North Slope is greater than 90,000 tons, and that actual emissions are 70-90% of the permitted values[31] -- or 63,000-81,000 tons of NO_x. ARCO estimates that permitted NO_x emissions in the Prudhoe Bay region at 74,368 tons per year, with actual emissions "somewhat less" then those indicated.[32] This contrasts with Standard's assertion that Prudhoe Bay facilities emit only 20,000 tons per year.[33] By way of comparison, the Argonne National Lab estimates that Washington, D.C. emits approximately 23,000 tons of NO_x per year.[34]

The industry argues that although ambient concentrations of NO_x have doubled at Prudhoe Bay between 1980 and 1987, this is not a "significant change,"[35] and further imply that because ambient concentrations of air pollutants are below national standards, there is no environmental problem. While it is true that NO_x and SO_2 levels emitted by Prudhoe Bay facilities have not exceeded the NAAQS, arctic species are known to be more sensitive to air pollutants than are mid-latitude species which have been used to establish standards.[36] Moreover, ARCO's air quality monitoring data from Kuparuk indicates that average annual concentrations of NO_2 and SO_2 in 1986 -- the main precursors of acid deposition -- have increased as much as 3-10

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[30] See pages 6-7 of NRDC/Trustees/NWF July 21, 1987 testimony.

[31] ADEC, 1986(a), supra.

[32] ARCO, 1987. Air Issues on the North Slope of Alaska.

[33] Standard Oil, 1987, supra.

[34] Argonne National Laboratory, 1984. Estimated Monthly Emissions of SO_2 and NO_2 for the 48 Contiguous States, 1975-1984.

[35] Standard Oil, 1987, supra.

[36] ADEC, 1986(b). Response to ARCO's Comments on the Preliminary Air Quality Analysis for Kuparuk CPF-3, April 1986.

fold in certain areas over levels reported by the industry in 1980.[37]

These pollutants are of concern due to their potential to acidify the sensitive arctic tundra. The industry argues that because only 618 tons of SO_2 is permitted to be emitted on the North Slope, acidification should not be of concern. However, industry conveniently ignores the fact that NO_2 is also an acidifying pollutant, and that further SO_2 and NO_2 together have at least an additive effect, and usually more than additive effect.[38]

Moreover, EPA has raised concerns that acidification of tundra may result even if ambient air quality standards are being met. The Alaska Department of Environmental Conservation has noted that negative impacts have been known to effect lichen at concentrations at least as low as 39 ug/m^3 and that short term concentration are known to be more important to adverse effects than long term averages.[39] Maximum one hour SO_2 levels measured at the Kuparuk Field were 52 and 186 ug/m^3.[40] The U.S. Fish and Wildlife Service has alsc expressed concern about the short term and long term impacts of SO_2 on lichens, which are an important food source for North Slope caribou. The effects of NO_x and other pollutants on plant species which serve as caribou forage

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[37] In 1979-1980, ambient air monitoring was conducted to establish baseline data for the North Slope. Standard Oil, 1987 page 22. The following is a comparison of the annual average ambient concentration of NOx and SO2 measured as background for the North Slope in the 1979 and 1980 monitoring, and 1986 monitoring at the Kuparuk River "maximum impact" station.

	1979-1980	1986*	
		1st qtr	2nd qtr
NO_2 (annual average)	3.5**, 4.0**	11	19
SO_2 (annual average)	0.4**, 0.5**	3	5

From: ARCO, 1987, supra, pages 8-9.

* Includes monitoring data collected from June - December, 1986.
** Below the minimum detection limit of the analyzer.

[38] EPA, 1982. Air Quality Criteria for Oxides of Nitrogen. EPA-600/8-82-026, page 1-31.

[39] ADEC, 1986(b), supra.

[40] ARCO, 1987, supra., page 9.

are not known and there are no studies underway which evaluate potential effects.

Industry has responded with claims that North Slope lichens are not affected by industrial air pollution, in part because the North Slope is a desert and all precipitation, including acid precipitation, is low. While the North Slope's annual precipitation is low and comparable to desert regions, acid precipitation is not the only process by which acidifying substances can be added to water or land. Dew, frost, frequent fogs and dry deposition through gravitational sedimentation of particles, impaction of aerosols, and adsorption of gases contribute to acidifying effects.

E. Land and Habitat Impacts

Sixty million cubic yards of gravel have been used to construct facilities including over 300 miles of roads and 5,500 acres of gravel pads in the Prudhoe Bay area. Pads and roads are used to support facilities such as drilling sites, housing, and other facilities. Open gravel mines cover approximately an additional 720 acres. An additional 3,400 acres of habitat have been flooded due to the impounding of roads and pads in one of the region's oilfields alone.

The industry claims that only a small percentage of the oilfield are affected by development by only counting land surface which has been directly covered by oil facilities. However, the oilfields sprawl over a large area with development and support facilities connected by roads, pipelines, and transmission lines. While a relatively small amount of the total area affected by oil development is actually covered by gravel fill, additional habitat is altered by oilfield activities, as is demonstrated by the avoidance of maternal groups of caribou of pipelines, roads and other facilities, particularly during calving. An Alaska Department of Fish and Game researcher has concluded that:

> even if the amount of direct habitat loss (i.e., vegetation covered by gravel were an order of magnitude larger it would be of minor significance when compared with the amount of habitat that would become unavailable because caribou avoid developments.[41]

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[41] Shideler, Richard T., 1986. Impacts of Human Developments and Land Use on Caribou: A Literature Review, Vol. 2. Impacts of Oil and Gas Development on the Central Arctic Herd, Technical Report #86-3. Alaska Department of Fish and Game, Division of Habitat.

The habitat within the oilfield may also be altered by flooding caused by impoundments associated with roads, dust which coats vegetation and changes snowmelt patterns, fragmentation of habitat, and human disturbance.

While recent evidence indicates that a few small sites have been the subject of revegetation efforts, no large scale, long term rehabilitation efforts have been attempted, much less demonstrated effective. In addition, there is no assurance that monies have been set aside for what industry predicts to be astronomically high costs of restoration. For example, a letter from the Alaska Oil and Gas Association (AOGA) dated 4/3/87 to the Alaska Office of Management and Budget, claims that removal of facilities constructed for exploratory drilling and rehabilitation of the site will cost 1.5 to 2 times the original construction costs. While industry claims that all sites are still in use and so not available for restoration, state records show that 326 wells have been plugged and abandoned on the North Slope.[42] Presumably, a few of these lie within the Prudhoe Bay area.

F. Implications for the ANWR Decision

The issue of whether a core calving ground exists within the Arctic National Wildlife Refuge, and the magnitude of impacts of oil and gas development on the Porcupine Caribou Herd has consumed the vast majority of attention in this debate. Most people agree that there will be impacts on wildlife as a result of major oil and gas development in the coastal plain. Even the section 1002 report, which recommends full oil and gas leasing in the area, acknowledges that some of these impacts will be major. Only the precise magnitude of the impacts can seriously be debated.

While not wishing to minimize the critical importance of these issues, the NRDC/Trustees/NWF study, as well as critiques of the section 1002 report by CRS, EPA, and other entities, indicate that the chronic, long-range threats to the integrity of the Arctic National Wildlife Refuge include other far more subtle, less press-worthy, but equally serious issues. The following fundamental questions deserve attention by this Committee. Yet most of them were either not considered or received only cursory treatment in the section 1002 report.

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[42] Alaska Oil and Gas Conservation Commission printout, 5/21/87.

1. How would the massive quantities of drilling and production wastes in the Arctic National Wildlife Refuge be handled? Even assuming that the growing, pervasive pollution of tundra wetlands and ponds that has been allowed in the Prudhoe Bay area is acceptable (an assertion we strongly disagree with), such impacts clearly are not consistent with the purposes of a National Wildlife Refuge.

2. What would be the long-range, cumulative impacts of large numbers of spills of oil, diesel, and other substances on the environment of the coastal plain? While many individual spills are small, some spills at Prudhoe Bay have exceeded hundreds of thousands of gallons, and the total volumes from large numbers of "small" spills can be great.

3. What would be the effects of numerous, high visible black smoke incidents on the wilderness and other values of adjacent areas of the Arctic National Wildlife Refuge that have already been designated wilderness? Would such events in combination with other air pollution generated by oil facilities result in long-term visibility impairment?

4. What would be the long-range, chronic effects of acidification from NO_x and SO_x emissions on tundra vegetation within the coastal plain, and what would the effect be on lichen and other food sources for wildlife?

5. The Interior 1002 Report focused heavily on the "net" acreage of oil facilities, e.g. how many acres would actually be covered by roads, drilling pads, etc. They did not, as noted by CRS and other commenters, evaluate many of the secondary effects of these facilities, including indirect habitat modification via ponding, and behavioral impacts. Would habitat alteration in the coastal plain exceed what Interior predicts based solely on the physical number of acres actually affected?

6. Given the lack of substantial successful reclamation over the long-term of oil facilities at Prudhoe Bay, what assurance is there that the Arctic National Wildlife Refuge would be restored to its natural state, or close thereto, when development is over? Given the paucity of bonding requirements, even if reclamation is technologically feasible, who would pay for such work if irresponsible operators abandon sites, as has occurred in the Prudhoe Bay region?

7. How would hazardous wastes be handled, transported and disposed of? ARCO and Standard Alaska have pending permit applications fir deep well injection of hazardous wastes at Prudhoe Bay. Would similar hazardous waste disposal permits be required for the Arctic National Wildlife Refuge, and is this appropriate for a National Wildlife Refuge? What are the likely

long term problems associated with deep well injection in this region?

8. How and where would the massive quantities of other solid wastes be disposed in the coastal plain? A large number of landfills have been used at Prudhoe Bay, some of which are being considered for the Superfund program. Would the same be true in the Arctic National Wildlife Refuge?

9. Where would the massive quantities of water and gravel necessary to support oil and gas development in the arctic come from, particularly given the acknowledged shortage of freshwater sources in the Refuge? Both EPA and CRS criticized Interior for their lack of sufficient analysis of this issue.

Thank you for the opportunity to present our views.

CORRECTION

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DINNER AT 6:00

4 COURSES

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$20.00

2/HGVS:

Judy has bn very opp'd to land trades
called out Eason & Hawkins to come up w/ a pos'n
Gov's up - Tom - Judy too -

has Sam outlined agenda? yes

- 7(i) - has to come out - CIRI & Koniag don't
intend to share - sfc est. only for subsfc. -
this issue must be understood
- subs'c easement on ANCSA lands - now in
Appx I - pres'vs only Native use - value
[redacted] State AG thinks it violates state
rights
- rescission - shdn't ask for it on State
lands? now defined to inc. O/R and
35% - poor public policy - major
issue in Congress - only supp'd by
Koniag now - CIRI opposes.
- haven't adeq'ly resp'd to state ~~cont~~
comments on contract & stips -
→ as recently as today
- revised contract did no good -
- the maneuvering has affected state
interests - fr. 260 / 800,000

Cinder R ~~Ugashik~~ - 550k Ugashik | Innoko.
Tetlin.
Ak Pen. Herendeen Bay
YK Delta
Togiak
Koyukuk

Tugudak 80 S.
Kodiak ~25k

2/12 Gos

- impl'n of BBAP, ANILCA record -
- won't lot in NPS
- Koniag argument re 5% of acreage
  poss'y only 5-10 k acres might go, but
  cd be very valuable -

  Chevron / SOHIO
  don't hv KIC well but will pick
  whatever they ~~want~~ Chevron want
  what is usefulness of KIC well?

→ - 26 strxrs id'd -
  1002 - see middle part on strxrs -
  Alt'v D. -
- planning not to trade core calving area.
- 15/20 trax per partic.?
- intend to lease ~~navigable / eg. footage.~~ submgd lands hv not bn meandered on ~~A~~ANCSA trade lands. 3-5%
  7 rivers on coastal plain will qz. them.
- drainage - DOI prop's drainage off any tract - want a rozg. ~~[illegible]~~ don't want, it subj. to Min'l Lsg Act.

2/11 John Dobel:

- bulk of land wd be leased - % unclr. now -
- USFWS doesn't know some of subsfc info. -
- identific'n of tracts not poss. yet.
- app'l → value for exchange hasn't bn decided yet - being done at Dept'l levels
- timeline - wd hv. to be cons. w/ 1002
  no agmts till the report goes to Congress
  earliest this summer -
  not nearing final.
- terms of agmt - O/R subj; reserv/exceptions: 7(i);
- might hv. agmt on some terms but they're always subj. to discr + Δ.
- legal analysis - hv auth'y?
  not for devt
  do hv. auth'y to pursue exchanges under ANILCA - 1302(h)
- state's interests? - how serve USFWS interest?
- ASRC?

1

assume ANWR is avail for leg, + state's int's are prot'd in the process

? → Tract slxn after 1002, after Cong'l app'l?

why?

may jeopardize Cong'l app'l?

may threaten state int'ts?

trades during study period?

DOI - poss'y of US Cong. being pissed esp. in secret.

tract slxn must await

knowledge of wh. ANWR lands are avail

what spec. stips etc. on ea. tract

what access rights on ANWR lands?

app'd value?

conflict resol'n

nature of subsfc rights

SECRECY

How value tracts w/ uncty of access etc?

why accel'd dec'n mkg by DOI?

? → there are defined structures in ANWR. Where are they? ASRC? trade lands?

can't reliably forecast rev. impx of trades - don't know where they are

→ local hire

Secrecy

CIRI arguments —

1) ANCSA corp's will only benefit w/ ANWR opening (true? legal? 22(g), 1431)

2) Secrecy

- objectivity is quite

- offensive, preemption of public/corp'l prerog'v

ASRC/CIRI bkgd. — 2 bad trades.

benefit one part of Ak to detriment of others?

small acreage = worthless argument

hi-grading by some corp's

bias in preselxn proc's.

inflxn of ANCSA land values

Old Harbor + Texaco - 35,000 acres
Birch Horton

DOI - eventually the exchange will be perceived to be in public interest

→ all parties are involved bec. they expect/wish to participate - DOI? State?

while state has exp'd reserv's, still a partic't

state exp'd to keep things conf'l?!?

tract selxn 3/24

tract selxn agmt to be signed by all parties

- constitutes endorsement?

HELL YES!

Horn will appv value on Mar 6.
ANWR tract nom'n may to pantz's on Feb 23.
Pantz's mark may, nominate by Mar 20,
DOI sends back w/ all nom'n on Mar 23
"constraints pol'y" by DOI. -
→ DOI will offer lands the state claims under navig/eq. footoy.
State will id'y these bef. the tract s/km.
ea partic ≤ 15 tracts — poss 20
final tract s/km map the day bef.
the selkms —
can show conflx and of time? poss'y of Antitrust V, sl'n —
"conflict resol'n remains arb'y"
- Horn may choose
USFWS acq'n prio.
comp'v bidding
lottery
might get written s/km/conflict criteria
JEEZUS!
cd DOI collect value for poss appl'n to future lease sales?
gen'l will follow Kondos contract format

very few State comments hv bn incorp'd.
contract still doesn't deal w/ state / fed'l
jurisdnal issues.
rescission - tract-by-tract (prev.s hi-grading)
1.5% fed'l roy'y
65% of land back
10 yrs to rescind
subs'c easement

NLG - tract s/ctn not well defined
s/ctn prios unduly locked in
rescission is objectnbl

OH - term'n clause timing

Akh - recission
Doyon - conflict resol'n -
partial tract excl'n unnec
drainage
AOGCC/DOI overlap
termination fee
roy'y calc'ns unclr

Koniag drainage
unitiz'n
convyc proc's - warranty?

State - tract s/ctn vs 1002
insuff subsfc int
jurisdcn
state title claims
arb'y conflict resol'n

any remg conc'ns → DOI by Feb 19

→ rev'd draft contract Feb 23

state pol'y calls

do we want rescission

pub. use easemts on trade lands

subs'c

drainage –

state submgd lands

Horn – late Apr. >> likely than Mar 24

for trust clos

Horn – acknowledges that state O/R roy'y

wd come out of fed'l ~~sta~~ lands –

Refuges wd suffer –

Horn will det. values by

1. FMV app'l

2 USFWS acq'n prio

3. transact'n benefits –

4 cong'l comparables.

Feb 2 8

Ted Stepherson	BLM	D.C.
Jim Wilkens	AK1	
Jim Mery	Doyon	
Arthur Lazarus	"	
Bill Tinne	Koniag	
Mark Kindree	NLC	
Eric Lascheven		
Walt Ebell	Old Hbr	
Paul Kenton	DOI/Solicitor	
Sharon Allender	"	
Wm H. Garner	Old Hr/Birch Htn	
Paul Powell	AK1	
Ralph Eluska	"	
Martha Vick		
Gary Gustafson	DNR	
Joe Okonski(?)	Old Harbor/Birch Htn	
Art Kennedy	Koniag	
Vince Gross	Koniag	
Bob Wright	Doyon	
Alan Mintz	ASRC	202-331-9400
Erich Kaarlela	BLM	
John Dobel	FWS	

[?]enter clause.
O/R royalty.
"stiff arm"

4. Koniag

126,000 acres avail

early 80's exchange for OCS chits -

passed Congress twice.

Koniag merger litigation - new admin -

ANWR seen as only Refuge prop'y that Koniag wd be int'd in

reluctant to go public - will want shareholders' approval - USDI
is a moving target on terms etc.

now need to get info out

Nov. 84 began disc'g w/ Horn -

1st state mtgs - Oct '86 - tog'r -

hv ben mtg w/ Katz whenever in D.C.

FWS saw most state lands as not worth owning.

State fought to keep lands out of Refuge System in ANILCA and
now is trying to put them in

22(g) - significant adverse impacts.-

Karluk River/Lk, Sturgeon R?

no rights of access.

shareholder int. in subdiv'n.

there's an argument that 22(g) cd be regarded as a taking +
did not allow claims stlmt.

MAI-type apprsl - then disc'd for 22(g)

agmts -

had disc'd w/ DOI for sev'l mos.

then had a draft, redid stips - FWS people didn't
know how to write O/G stips -

mostly agree w/ state's comments wh. wd. being implemented
anyway

same controls as any other fed'l lessee

NPR-A fed'l lease wd. subj. to state jurisdicn

reverter clause -

still being neg'd - DOI's posn was that it wanted a share
if there was a major find

Koniag puts up land, 35% of ~~fed~~ Koniag land is grant'd ~~to Koniag~~ to fed'l gov't +
w/in some time the Corp'n returns some acreage if it's dry.

reverter terminates if a prudent explorer
1.5% fed'l O/R
no state consult'n –
if DOI wants to impose a state O/R it shdn't come out of
the ~~[illegible]~~ federal share – shdn't come out of the ~~[illegible]~~ Corpins
share
state acreage involved – now 800k
timeline – tract slctn Mar 24
→ Congress by June 1 (after CZMA)
not int'd in admin'v exchange – ~~[illegible]~~ want Cong'l approvl.
3 or 4 yrs. adv'g fr. exchanges –
if ~~the~~ Cong. apprvs it also apprvs the stip'ns –
→ Uwe thx Parks land will hv. to be included eventually

2/5 S O/G - Katz

history of state's particip'n - involvement -
five or six pieces of ANWR policy
leg'n / trades / caribou agmt
4 committees - Hs Int, Hs MM+F, SEnNR, SEnv PW
no exxn exp'd till after submittal of 1002 rpt
state not much involved yet - waiting for a policy
need indep. advocacy ofc.
1002 - litig'n delayed the report
tmw the deadline
reg'n of land trades - DOI / ANCSA corp'ns
1. boilerplate exΔ agmt
2. tract selxn proc's
3. draft stips
does Stevens agree? → must be submitted to Congress for approval
state's pos'n: hv not yet taken a pos'n on the trades themselves. no def'v concl'n yet. are participatory to be constr'v -
caribou treaty gen'l mandates on habitat protxn -

Coghill: AS 38.50, 90/10
Betley: if we've bn involved we shdn't attack land trades
Katz: if the State doesn't supp. ANCSA land trades it can't put forward its own or stay at the neg'g table
[also has said the state didn't take a pos'n on trades yet]
Betley: need a resolution? how soon?
Katz: d-2 - consensus points - need a resolution early in the process - after subm'l of 1002 study (late March or early April) -
Coghill: is there an MOU on data exchange (seismic) - const'l duty to protect the people of Ak, rel. to 90/10 -
Katz: yes, an MOU exists reg'g seismic data &c. -

2/5 S O/G

Arloss: What role ed state role be in land trades? if we don't partic.?

Katz: litig'n later in process?

Betze: DOI sez it doesn't blv the trades need cong'l apprvl

Katz: DOI has prom'd that it won't do trades admin'ly even if it has such authy -

Betze: politics -

jewel of the year!!! Katz: coalition of groups supp'g opening - 30 members - conscious parallelism

1 - one school that believes trades are very imp't to opening ANWR ANCSA corp'ns are resp'd, able in Congress

2 - trades complicate an already diff. issue - ∴ trades are premature

2/4/87

Sam:

Re ANWR land exchanges

This issue is shaping up to be the key one in the Legislature's consideration of HJR 9. Addressing it openly and completely is one way to win on it.

The public has a lot of questions, as do legislators. For instance, where are the exchanges, how does Interior come up with subsurface appraisals, what do the agreements say (on 7(i) and reverter clauses, for instance)?

The Legislature/Resources Committee should be seen as having all the information and allowing all the affected parties to speak up before passing out language. This will certainly be a different approach from Stevens' pig-poke hardsell.

So in about two weeks, perhaps around February 18, I'd recommend having a Committee meeting on the topic of exchanges:

1. USDOI should come and explain what they're doing. What's in the agreements? Which lands are involved? Are the State's lands being seriously considered? Is it all legal?

2. The State should come and explain clearly what they want out of land exchanges. Cowper's "retreat into obscurity" at his press conference cannot last for long; he has to say whether or not he can live with the agreements under consideration by DOI. And we deserve to know how much he really knows about them.

3. The ANCSA corporations should bring their arguments into public. Can Huhndorf really convince people of the points in his telegram? Will he be as threatening in public? Are there good reasons for the state to endorse some of the trades?

4. The environmentalists and the State might share some common ground: we all want to retain public ownership, and preserve revenue streams (some of which might be dedicated to conservation purposes, according to Audubon's Anchorage people).

5. According to Drue the repubs might be willing to accept some kind of compromise language on land exchanges. This might help take some wind out of Stevens' sails.

6. This is the kind of oversight/review that Congress will conduct, but maybe too late. Elsewise no one else is going to be watching Interior closely enough.

I think you can address these issues without getting into a dogfight, and without addressing them you will not be able to develop a true consensus position. We'd need to start preparing pretty soon to be sure that DOI would come out here.

Ned

2/5 Martha - exchanges
- Feb 13 - public will know enough detail

- must hv agmt on terms of agmt by late Feb so that there can be tract sign in March
- contract wd be in the form that DOI wd present → Congress

- 7(i) - no mention of it in the latest draft

- no idea what % of land is sfc/subsfc - Village lands aren't subj. to 7(i) -
- they'd p/u a subsfc int. - defeasible fee int in o/g
: + access/reasonable use - ownership is o/g
- reverter clause: optional. cost is an overriding roy'y - 1.5%
\# - lands bool exc for value of what'd be rec'd (bonuses etc less expenses)
so no fed'l roy'y exc. w/ reverter

can rescind if can't get p'mits to drill or if w/in a period there's no show of o/g
appraisal process = consid done, not inc. in the exch agmt.
model isn't adeq. -
✓ - w/ Katz - U.S. DOI - Horn's ofc. -
Murkowski -
also inv. Stevens ofc. -
Martha will check - all corp'ns hv agmts -

Sam + Mike.

1) Governor originally proposed studying the core calving area for 7 years. After the great debate w/ Ted Stevens in D.C. (in June - "Who ~~is gov~~ represents the caribou?"), the Gov. has backed off some, saying basically that there needs to be special attention for the caribou but he's not convinced this is the only way.

2) There's a lot of controversy about whether/ where the core calving area is. This amendment doesn't say where it is. You'd probably want to refer to the draft 1002 study by Interior - the final obliterated reference to it. Was ~ 220,000 acres

3) This amendment goes further than anyone else does. Gov. Cowper wanted Congress to direct Interior to defer leasing for 7 years + then make a decision based on the data. So Gov. wanted Congress to open ~~it~~ the calving area but study + then have an administrative decision on leasing.

4) Industry says the caribou calve anywhere they want + will do it where people are. They call this a ~~caribou~~ calving concentration area.

5) Most of the data analysis seems to indicate (in my view alone) that the calving area has less potential for o + g than the rest of the area. But remember how Prudhoe Bay popped up where people didn't expect it - could be analogous.

6) Industry will say they can operate in the calving area, especially for the exploration phase which can be conducted in winter. Want to stage development of the calving area?

7) Congress (Senate Energy) doesn't seem to be headed this way - closing the calving grounds.

8) Some people say that the central herd has increased since Prudhoe/TAPS. I don't know whether the Prudhoe development affects central herd calving grounds.

9) The international treaty should provide adequate protection without additional core calving ground language.

5-0180Pd
Bannister

A M E N D M E N T

Offered in the HOUSE

By Adams

TO: HCS CSSJR 7(Resources)

Page 2, line 5, after "investment;":

Insert "and"

Page 2, following line 5:

Insert "WHEREAS the United States Department of the Interior is exploring a number of legislative proposals for the early oil and gas development of the coastal plain;"

Page 2, line 22, after "(43 U.S.C. 1653)":

Insert "; and be it

FURTHER RESOLVED that the Alaska State Legislature urges the state administration to be involved in all aspects of the Alaska National Wildlife Refuge oil and gas development process to ensure that the best interests of the state are protected"

STATE OF ALASKA
THE LEGISLATURE

POUCH Y STATE CAPITOL
JUNEAU ALASKA 99811
907 465 3800

LEGISLATIVE AFFAIRS AGENCY

MEMORANDUM February 15, 1988

SUBJECT: Compliance with Uniform Rule 49(5)

TO: Representative Mike Navarre

FROM: Theresa L. Bannister TB
Legislative Counsel

This memo accompanies the amendment that you have requested to change the resolve clause on page 2, at line 7, to refer to oil and gas exploration, development, and production in the coastal plain of ANWR. The accompanying amendment will bring HCS CSSJR 7 (Resources) into compliance with Uniform Rule 49(5) by bringing the resolution's content within its title.

If I may be of further assistance, please advise.

Enclosure

TLB:bb
wkb2/092

5-0180Pe
Bannister

A M E N D M E N T

Offered in the HOUSE

By Navarre

TO: HCS CSSJR 7(Resources)

Page 2, line 7, after "on":

Delete "management of the coastal plain"

Insert "oil and gas exploration, development, and production in the coastal plain of the Arctic National Wildlife Refuge"

2/15/88

No. 1

STATE OF ALASKA
1988 LEGISLATIVE SESSION

BILL VERSION: HCS SJR 7(RES)
PUBLISH DATE: HOUSE 2/1/88

FISCAL NOTE

72

REQUEST:

Revision Date: 1/28/88
Title: Oil & Gas Explor. and Dev. ANWR

Sponsor: Resources Committee
Requestor: House Resources Committee

Agency Affected: Natural Resources
BRU: Petroleum Management

Components:

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Jim Eason
Division: Oil and Gas
Phone: 465-2400
Date: 1/27/88

Approved by Commissioner: Judith M. Brady
Agency: Department of Natural Resources
Date: 1/27/88

Distribution (by preparer):
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

ASSUMPTIONS ON STATE REVENUE PROJECTIONS
FOR OWNERSHIP SCENARIOS

$10.00/bbl flat well head price rising with inflation.

Production and development scenario is a 3.5 Billion barrel discovery.

Royalty percentage is 12.5% irrespective of royalty owner.

Bonus Value of $600MM on the producing tracts.

Severance taxes under current law.

Two scenarios were developed and the states revenue from Bonuses, Royalty and Severance tax were calculated.

20% FEDERAL OWNERSHIP

Severance = (total sev. tax x 20% x 87.5%) + (total x 80%)
Royalty = total royalty x 20% x 50%
Bonus = total bonus x 20% x 50%

20% STATE OWNERSHIP

Severance = (total sev. tax x 20% x 87.5%) + (total x 80%)
Royalty = total royalty x 20%
Bonus = total bonus x 20%

These calculations do not take into account the impacts on State revenue of other taxes such as the AD Valorem tax or the Income tax