(1) 730
(2) 732

EXPLORATION SERVICES CO., INC.

ALASKA OFFICE - POST OFFICE BOX 1611 - ANCHORAGE, ALASKA 99501 (907) 272-2419

August 4, 1975

Director (732)
Bureau of Land Management
Washington, D.C. 20240

Gentlemen:

RE: Proposed Lease Sale (39)
Oil and Gas on the Outer Continental Shelf, Gulf of Alaska

This letter is submitted for your consideration relative to proposed lease sale (39).

Exploration Services Co., Inc. has conducted extensive coring operations in the proposed lease sale area during the months of June, July and August of 1971 and again during the months of June and September of 1973. Our operations were conducted in a safe and efficient manner and at no time did the situation arise where there was any danger of creating an environmental hazard or was our crew or vessel at any time in danger as a result of the elements.

Our basic purpose in the Northeastern Gulf of Alaska was to acquire environmental, engineering and geological data for the petroleum industry as it relates to evaluation of the potential and possible hazards related to operating in the area. Through our efforts, the Industry gained a significant amount of information which should place them in a position of operating in a safe and efficient manner in the area.

During the 1971 operations 19 oil companies participated in the project and have this information available to them. During our 1973 operations in the Gulf of Alaska 11 oil companies participated and again have this information available to them.

Due to business commitments, we are unable to present this testimony at the hearings in Anchorage, Alaska, and are hopeful that this submittal will be considered as a part of your findings on the proposed lease sale.

Very truly yours,

B. C. Osborn
President

BCO/mlh

RECEIVED
AUG 7 1975
DIVISION OF MINERALS
ENVIRONMENTAL ASSESSMENT

R & M CONSULTANTS, INC.

ANCHORAGE
FAIRBANKS
JUNEAU

THREE EES PROF. BLDG. • 6-1/2 MILE GLACIER HWY. • P. O. BOX 1786 • JUNEAU, ALASKA 99801 • TELEPHONE 907-789-0880 • TELEX 090-35419

ALASKA OCS OFFICE
ALASKA
AUG 25 1975

August 15, 1975

U.S. Department of Interior
Bureau of Land Management
Alaska Outer Continental Shelf Office
800 A Street
P.O. Box 1159
Anchorage, Alaska 99501

Gentlemen:

On August 13, 1975, continuence of public hearings were to be conducted at the ballroom of the Anchorage Westward Hotel. During the evening of August 13, 1975, our Chamber of Commerce, represented by Malcolm A. Menzies, was to give verbal testimony. His time schedule is shown on the attached agenda which was anticipated to begin at 6:45 PM. Mr. Menzies arrived at the Anchorage Westward Hotel at 6:30 PM after flying from Juneau to participate. Upon arriving at the Anchorage Westward Hotel we found that the hearing had been completed with no formal acknowledgement by your committee. We feel this was an unfair and unjustified act by your committee. We are submitting a draft of the informal statement that Mr. Menzies was to make at said hearing. We will also submit a more formal statement in writing to your office prior to the expiration date of August 29, 1975.

Sincerely,

Malcolm A. Menzies
Juneau Chamber of Commerce

MAM:emm

Attachment

R & M CONSULTANTS, INC.

ANCHORAGE
FAIRBANKS
JUNEAU

THREE ~~EES PROF. BLDG. • 6-1/2 MILE GLACIER HWY. • P. O. BOX 1786 • JUNEAU, ALASKA 99801 • TELEPHONE 907/789-7580 • TELEX 090-35419

ALASKA OCS OFFICE
ANCHORAGE, ALASKA
AUG 22 12 45 PM '75

August 12, 1975

U.S. Department of Interior
Bureau of Land Management
Outer Continental Shelf Office
800 A Street
P.O. Box 1159
Anchorage , Alaska 99510

Re: Prpoposed Lease Sale (#39)
Oil & Gas on the Alaska Outer Continental Shelf
Gulf of Alaska
Public Hearings - August 12th & 13th, 1975

Gentlemen:

As a member of the Board of Directors, Greater Juneau Chamber of Commerce, City & Borough of Juneau, Alaska, I wish to start our public testimony in a positive light. Our body totally favors, and is in support of,the OCS proposed leasing to be conducted during late Fall-early Winter, 1975. To amplify and expand the Juneau Chamber of Commerce's position, a formal written statement will be submitted prior to the closing date of such submittals of August 29, 1975. Hopefully, to amplify this formal written statement, and to render some meaningful constructive criticisms concerning the Northern Gulf of Alaska Environmental Impact Statement, this testimony is submitted. As Laymen within the Juneau Chamber of Commerce, we cannot fully render an in-depth, meaningful constructive crtique of the Environmental Impact Statement. On the surface the volumes of data submitted appear quite complete, well prepared and well documented with the possible exception that our coastal community and its possible relative, long term substantial impact on OCS has been omitted. Whether this omission is planned or ignored we cannot determine. We are laymen with respect to the oil industry and cannot comment on the many and various aspects of the technical and support data within the draft Environmental Impact Statement. As far as energy needs in the United States, and in particular Juneau, are concerned, we only have to examine the damage rendered to our schools by the fuel shortage two short winters past. The fuel shortage and our community's effort to conserve energy (in co-operation with our government's request) has placed grim reminders in our public school systems by damage done through this conservation attitude and lack of energy resources which affected the public buildings considerably. Therefore, as a community we support natural resources development, and in particular, Outer Continental Shelf development.

Although technical expertise cannot be given by ourselves, as previously stated, we can address that portion of the statement (Environmental Impact) entitled "Social & Economic Environment of the Northern Gulf of Alaska Coast." Within this portion of the statement Juneau was wrongfully omitted. Geographically, the citizens of our community are as close or closer than other communities which were reviewed and discussed within this portion of the Environmental Impact Statement. As all are aware, Juneau presently is losing, or is about to lose, its prime source of economic endeavor, and that is government.

We are a community seeking economice deversification in an aggressive manner. Whether we will have or will not have a meaningful role in OCS activities, we will not change our endeavors to seek economic diversification. We feel there will be a role for Juneau within substantial long-term on-shore OCS impact. Your ability to ignore a community which presently has proper and adequate planning and zoning, vast industrial area at our Municipal Airport, and also within our harbor (Gastineau Channel), ignore established transportation systems, adequate school facilities, a housing vacancy factor, cultural activities etc., that would absorb much on-shore long range impact that other communities may fear or possibly welcome, but cannot financially support is indeed questionable. Granted, many think only of Anchorage as an access for on-shore support yet our community has many, if not all, of the advantages of Anchorage, and also has them on what many describe as a more pleasing scale.

In a reverse situation the oil industry sponsered studies by the Gulf of Alaska Operators Committee. They considered Juneau and the possible OCS on-shore impact of our community in their study. The study I refer to is: "An Economic and Social Impact Study of Oil-Related Activities in the Gulf of Alaska". Why, gentlemen and ladies, can industry be considerate of a community that seeks economic diversification and has plans that can be implemented, and further welcomes new industry, when the Federal Government cannot? This question, gentlemen, must be answered and it must be answered within that portion of the Environmental Impact Statement related to the "Economic and Social Impact of Oil-Related Activities in the Gulf of Alaska..

The shortness of this tesimony should not be considered as our community's lack of interest in OCS activities. On the contrary, we demand that your draft Environmental Impact Statement be revised to include the availability of on-shore resources that can support valid OCS activities in the Gulf of Alaska by Juneau.

Sincerely,

Malcolm A. Menzies
Juneau Chamber of Commerce

MAM:emm

HEADQUARTERS

ALASKA MINERS ASSOCIATION, INC.

PRESIDENT
Wm. L. Waugaman
270 Illinois Street
Fairbanks, Alaska 99701
Phone 456-5005

VICE-PRESIDENT
Charles Herbert
1435 Inlet Pl.
Anchorage, Alaska 99501

SECRETARY
Dr. Ernest N. Wolf
P.O. Box 80989
College, Alaska 99701
Phone 479-2156

TREASURER
Gene Yurkovich
P.O. Box 3018
Fairbanks, Alaska 99701

AUG 12 4 46 PM '75

August 7, 1975

Director (732) Bureau Land Mgt
Washington,
D.C. 20240

Dear Sir;

Attached is a statement by the Alaska Miners Association regarding off shore drilling in Alaska waters which we are submitting for the record.

Our Association is statewide and represents in excess of seven hundred members.

Sincerily,

William I Waugaman
President
Alaska Miners Assoc.

WIW/flh

My name is W. I. Waugaman. I am President of the Alaska Miners Association, which has more than 700 members. Until assuming my present position, I was General Manager of Usibelli Coal Mine. My active mining experience in Alaska goes back to 1939. I served as a State Senator in 1967-68.

My views are straight forward--the mineral resources of Alaska and the Alaska OCS should be developed. I support the proposed oil and gas lease sale in the Gulf of Alaska.

Your announcement of hearings stated that you wish to develop all views on five specific points.

On the first, the environmental impact of the lease sale, my view is that it would be minimal. The oil industry has an enviable record offshore. It is my derstanding that in the drilling of thousands of wells offshore, there have been few blowouts and that of these, there was only one incident where oil went ashore. That was in Santa Barbara, of course. To me, this is an excellent record.

The second point has to do with the environmental effects which cannot be avoided if the lease sale is held. The thing that occurs to me is that there would be platforms in the Gulf. This raises concerns about fishing and shipping--but these things have apparently been worked out in other areas where offshore platforms are found.

As to the third point, alternatives to the proposed action, frankly, I see none. I'm convinced the United States needs the oil and if the rest of the country gets hurt, Alaska is bound to be affected. Any longings I might have for the good old days certainly don't include the economic situation of the country in the 1930's. I'm for economic development--and I believe most Alaskans are.

Your fourth point has to do with trade-offs. Do we get the oil and gas out and take a chance on messing up other uses of the Gulf? At least that is how I

read your statement. My view is that we are not in an either/or situation. We can have both. Let's produce the oil and protect the environment.

The fifth point asks if any irreversible or irretrievable commitments of resources would be involved in the sale. Well, certainly, we would be committing to use up the oil and gas. But, we have no other option because other sources of energy are just not available. And sources such as the sun and the tides and others cannot be perfected for many years.

My support of the lease sale is, I believe, support for the country, this state, and the miners that I represent.

I believe that economic development in this state--which for the time being means oil and gas development--is essential to miners. And miners are important, because the production of hard rock base minerals is going to be the backbone of the state's economy somewhere down the road.

The hard rock minerals are here and the nation is going to need them. I will support any reasonable measure that contributes to the miner's capability to get our minerals to market.

Let me give an example of how something done by the oil industry may be of considerable value to miners. This is the building of roads. Placer mines along the route of the trans-Alaska pipeline may now prove to be economical ventures because miners will be able to get in and out by truck rather than by aircraft. Lack of transportation facilities is one of the major problems facing the mining industry in Alaska.

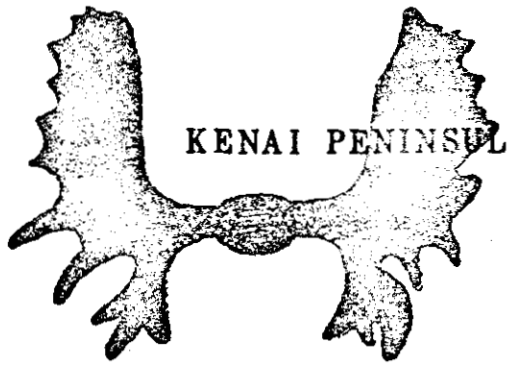
Aside from my interest in mining--although this also affects miners--I am appalled at the quadrupling in the price of foreign oil and the effect of that on the nation's economy. Our nation is so geared that a reduction in oil and gas supplies would hold those at the bottom down and throw some who have gained a better way of life back down to start all over again. To permit this is foolish.

Our country still has considerable oil and gas. I believe we should let the oil companies go out and find it. And I hope they find enough to permit the country to stay afloat if the Mideast countries decide to place another oil embargo on us.

In closing, let me state my own personal alarm at the trend in our state government. The present administration is, I believe, anti-development. The environmentalists on the Governor's staff will no doubt speak to you in terms of orderly, cautious development. The record suggests no development. If this trend continues, I believe all Alaskans will be hurt. I also believe that the State's resources can be developed with due regard for the environment. I believe the Federal government's resources off our shore line can be developed safely, also.

Again, I urge the timely sale of oil and gas leases in the Gulf of Alaska.

Pres.



KENAI PENINSULA CONSERVATION SOCIETY
P.O. BOX 563
SOLDOTNA
ALASKA 99669

4 August, 1975

Alaska OCS Office 279-4578
117 W. Fireweed Lane
Anchorage, Alaska

CONFIRMATION COPY - NIGHT LETTER

Kenai Peninsula Conservation Society requests testify, 8-12-75.

Failing appearance, Society protests this wire OCS leasing schedule because adequate knowledge of area unavailable. Operational information elsewhere not necessarily transferable Alaska Gulf.

Rushing leasing, poor developmental, economic, social, environmental policy.

Recent Gulf studies appear designed support pre-determined leasing decision regardless consequences.

JAMES E. FISHER
President

cc: Mike Gravel

P RT OF SEATTLE
P. O. BOX 1209 / SEATTLE, WASHINGTON 98111

Mr. Edward Hoffmann, Manager
Alaska OCS Office
P. O. Box 1159
Anchorage, Alaska 99510

Statement By Merle Adlum, President,. Port of Seattle Commission for the record of the Anchorage hearing, August 4, 1975 concerning the proposed Northern Gulf of Alaska Lease Sale:

Seattle has been serving Alaska since Alaska firmly established us as its southern seaport during the Alaska Gold Rush of the 1890's. Construction of the Alyeska Oil Pipeline has further emphasized Seattle as Alaska's primary "lower 48" seaport, as well as establishing Alaska as Seattle's most important trade partner. The expertise we can contribute to this hearing is to assure all concerned that transportation facilities needed to equip northern Gulf of Alaska oil operations, from the lower 48 states, will be adequate. Alaskan transportation is our business and we have been working hard and steady to develop shipping facilities which will be able to meet any contingencies of the expanding Alaska economy. Even a project of the magnitude of the Alaska pipeline has not strained our service capability to Alaska. In the past five years, no less than eight major maritime facilities, costing over 18 million dollars, have been purchased, renovated or expanded in the Seattle harbor to meet Alaska's fast growing maritime shipping needs. Furthermore, air cargo and air passenger facilities have been greatly expanded at Seattle-Tacoma International Airport, much of which is to accommodate increasing Alaskan business.

Marine transportation facilities in Seattle which serve Alaska include rail barge, container ship, container barge, ocean-going liner and contract barge, roll-on/roll-off (container ship) and ferries of the Alaska Marine Highway. These shipping operations serve diverse Alaskan shipping facilities ranging from modern accommodations such as those of the Port of Anchorage to relatively primitive accommodations at Prudhoe Bay on the North Slope coast of the Arctic Ocean.

We have reviewed the Environmental Impact Statement of the proposed Northern Gulf of Alaska oil and gas lease and find it complete for transportation aspects within the northern Gulf of Alaska. However, it does not specifically include the excellent and varied transportation services which are available to the area from harbor locations in Puget Sound. At the present time, southeast Alaska is primarily served by Puget Sound shippers. Prince William Sound and Anchorage's Cook Inlet is also well served by numerous types of

scheduled and unscheduled shipping services from Seattle. Northern Gulf of Alaska waters, being in between, can have added transportation service from Seattle as demand requires, and with relatively little need for additional investment in port facilities. Based upon our experience with the Alyeska Pipeline project and years of accommodating Alaska's shipping needs, the additional 6,280 workers projected for the 1985 hypothetical "high" of Valdez, Cordova, Seward and Yakutat (page 572), could be easily served with existing or anticipated transportation improvements from Seattle. Furthermore, the shipping needs of the "net" baseline population increase of 11,487 (page 592), for Anchorage and North Alaskan Gulf communities, can also be accommodated with little additional shipping facility capacity.

We would like to go on record as being in favor of approval of the proposed northern Gulf of Alaska oil and gas lease. We feel we are well prepared to adequately accommodate the anticipated additional external shipping needs of the area, when, and if, oil and gas offshore exploration and/or development occurs.

Sincerely,

Merle D. Adlum
President
Port of Seattle Commission

August 1, 1975

2/09

Box 2025
Anchorage, Alaska 99510
August 12th, 1975

Hearing Officer
Alaska Outer Continental Shelf Office
U.S. Department of the Interior
Bureau of Land Management
800 "A" Street
Anchorage, Alaska 99501

Sir:

The Alaska Chapter of the Sierra Club wishes to advise that we plan to file a written comment on your Draft Environmental Impact Statement on Proposed Oil and Gas Leasing in the Northern Gulf of Alaska before the September 1 deadline. We will not, however, be making an oral statement at the public hearings being held on that subject in Anchorage on August 12th and 13th.

Sincerely,

Gerald R. Brookman

Gerald R. Brookman
First Vice-Chairman (Acting Chairman)
Alaska Chapter, the Sierra Club

Box 2025
Anchorage, Alaska 99510
August 12th, 1975

Hearing Officer
Alaska Outer Continental Shelf Office
U.S. Department of the Interior
Bureau of Land Management
800 "A" Street
Anchorage, Alaska 99501

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Sincerely,

Gerald R. Brookman

Gerald R. Brookman
First Vice-Chairman (Acting Chairman)
Alaska Chapter, the Sierra Club

Box 2025
Anchorage, Alaska 99510
August 12th, 1975

Hearing Officer
Alaska Outer Continental Shelf Office
U.S. Department of the Interior
Bureau of Land Management
800 "A" Street
Anchorage, Alaska 99501

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Sincerely,

Gerald R. Brookman

Gerald R. Brookman
First Vice-Chairman (Acting Chairman)
Alaska Chapter, the Sierra Club

BRISTOL BAY NATIVE CORPORATION

P. O. BOX 237
ILLINGHAM, ALASKA 99576
PHONE (907) 842-3070

447 EAST FIFTH AVE.
ANCHORAGE, ALASKA 99501
PHONE (907) 277-9511

August 14, 1975

Mr. Edward J. Hoffmann, Manager
Alaska Outer Continental Shelf Office
U.S. Department of Interior, BLM
P.O. Box 1159
Anchorage, Alaska 99501

Dear Mr. Hoffmann:

We respectfully request that this letter be included as part of the record of the August 12 & 13, 1975 hearings regarding a possible oil and gas lease sale offshore in the Northern Gulf of Alaska.

Bristol Bay Native Corporation is familiar with the time and background leading up to the announcement of a sale, as well as the draft Environmental Impact Statement on the proposed sale. Although we naturally would like for Alaska to share in the revenue from the sale, we see no good reasons, political, environmental, or otherwise that should delay the proposed sale. We support the sale as announced, as well as additional sales in the Gulf of Alaska and Cook Inlet, in order to provide the necessary lead time for the proper research and planning prior to any future sales in the Bering Sea - Bristol Bay region.

Thank you for the opportunity to submit this letter as part of the record supporting a Gulf of Alaska OCS Sale as scheduled.

Yours Very Truly,

BRISTOL BAY NATIVE CORPORATION

Harold H. Samuelsen

Harold H. Samuelsen
President

kn

ALASKA CONSERVATION SOCIETY

UPPER COOK INLET
CHAPTER
BOX 3395
ANCHORAGE, ALASKA
99501

STATEMENT OF THE UPPER COOK INLET CHAPTER OF THE ALASKA CONSERVATION SOCIETY AT THE HEARINGS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE OUTER CONTINENTAL SHELF PROPOSED OIL AND GAS LEASING IN THE NORTHERN GULF OF ALASKA - Aug. 13, 1975
Anchorage, Alaska

Gentlemen:

My name is Virginia dal Piaz. I am testifying for the Upper Cook Inlet Chapter, is the largest chapter of the statewide Alaska Conservation Society. We are dedicated to securing the wise use, protection, and preservation of the scenic, scientific, recreational, wildlife and wilderness values of Alaska. We offer this testimony with the full expectation that it will be listened to and weighed carefully along with the other statements taken at these proceedings.

We would like to go on record, as we have done previously, as being opposed to the proposed oil and gas leases in the Northern Gulf of Alaska at this time. The CEQ has listed this area as the last area that should be leased due to weather, oceanographic problems, and lack of sufficient data on drilling in such a subarctic environment. The draft EIS contains mostly a compilation of the known scientific data, which is not a great amount; for example population data on marine mammals, fish, etc. from too few counts. This study is a necessary beginning, but the impact on these animals and their habitat is poorly documented, and thus needs more evaluation.

In fact, on pg. 341 under III ENVIRONMENTAL EMPACTS OF PROPOSED ACTION it states:

"Much of the impact data on which this section was based, was generalized, incomplete, and not specific to the Gulf of Alaska".

With such a statement prefacing the impact section, what are we to conclude??? Obviously, much more research and data need to be collected specifically on the Northern Gulf of Alaska if a studied and intelligent decision is to be made. At the very least, this proposed lease sale should be delayed at a minimum of ½ to 2 years as Gov. Hammond suggested at the hearings in Yacatat last week, to allow time to rectify this deficiency. How can the Department make a decision with such insufficient information??? Or, has the decision already been made???

We wish to go on record as fully supporting the State Adm. position to delay the proposed sale to gather more information and allow the state at least some time to plan for impact. After all, we are presently staggering under the impact of the Trans-Alaska pipeline land construction! And now with the proposed OCS leases breathing down our necks, it seems as if the fedaral government and the oil companies are thinking of Alaska only as a "giant socket" for the nation to plug into regardless of the state's needs and wishes.

It is obvious throughout the whole statement that insufficent data exists specifically on the Northern Gulf of Alaska. For example, on pg. 116 it states:

"Almost no work exists on zooplankton of bays and esturaries of the Gulf of Alaska".

And then several pages later, it lists almost all species as feeding on plankton! As these organisms are one of the basic components of the marine food chain, we suggest that not looking into the effects of chronic oil spillage on zooplankton, indeed not even knowing what is there, is a significant omission.

As another very important example, on pg. 100, under the discussion of "primary production" the statement is made that"studies of primary production for the northern coastal region of the Gulf do not exist in the current literature" and goes on to say all estimates are based on data from the Northeast Pacifie and from general knowledge of production in coastal zones. We submit the pages following that statement of estimates and species of phytoplankton are meaningless. At best, they are educated guesses. And such guesses should not be acceptable to the American people, particularly as a basis for making a decision which could forever destroy renewable food resources for a onetime extraction of a nonrenewable resource.

There is also insufficient data on climatological conditions and physical oceanography. Such factors as wind,fog, and precipitation are very severe in the Gulf and very adverse conditions for humans to be working under. Currents, tidal changes, and wave action will have enormous effects on drilling platforms and subsea units. Does the technology really exist, or is the industry extrapolating from other, not truly comparable areas??? It is entirely possible that the physical conditions of the Gulf of Alaska may be so hazardous that the cost of extracting energy in the form of oil and gas from this area is far greater than the value received.

A very important point not addressed in the EIS is the lack of a cohesive national energy plan. Until there is such a plan delineating energy reserves as to location and amount, what is the purpose of rushing in and leasing large tracts under this "energy sulf-sufficiency" banner??? In the name of action and doing something visable? We think a more democratic position would be to enlist the help of Congress and the people in determining just what is the "national interest" where do we want to go for energy to run our economy and society?? Oil and gas? Solar? Geothermal?

Alternative C - WITHDRAW THE SALE gives a viable and presently available alternative: that is energy conservation. If people can still get cheap energy (petroleum products) the incentive to conserve or decrease use is not there. The only way usage will be decreased is if the source of energy is <u>not</u> there. Nowhere in the statement is there documented proof for the <u>need</u> for more oil, in fact, it states (pg. 753) that "energy conservation offers the only option for matching energy requirements to available supply. The goals of national self-sufficiency and conservation of natural resources are best achieved through energy conservation". In other words, we already have enough if conservation measures were initiated. In the face of the enormous waste in our system, why even think of leasing the OCS off the Gulf of Alaska before first getting the "house in order"?

According to our information, the only slightly comparable area in the world for offshore drilling is the North Sea. Yet the statement continually pulls from data and experience in the Gulf of Mexico. And both the North Sea and the Gulf of Mexico have land areas on three sides - the Gulf of Alaska faces the open ocean.

In the Baldwin"s book, <u>Onshore Planning for Offshore Oil</u>, (literature cited pg. 620) several important observations are made:

1. Pg. 163 - "Unlike large oil spills which may occur once offshore oil activity begins, onshore support development will certainly occur; furthermore when offshore fields are depleted, the social, economic, and

environmental changes will remain. Ecological and economic impacts are particularly profound when oil facilitites are attracted to previously undeveloped areas... these developments make local economy entirely dependent on oil and thus vulnerable to the boom-and-bust cycle of the offshore industry".

2. Pg. 168 - "Oil companies, contractors, pipe layers and other support activities seek to minimize cost and maximize profits. They are likely to choose sites for their operations because of their own needs, not those of communities themselves".

Has the oil industry solved problems in areas where it has come in, or has it just created them? We believe the benefits of economic expansion do not outweigh the detriments to the environment and social/cultural impact on Alaskan life.

We are in a period of profound transition and rethinking of our energy usage and extraction from the earth. If it is to be believed, we are in an energy crisis. The medical definition of crisis means the turning point in an illness - the illness here being our addiction to oil. A crisis means whether or not the patient will recover or die. We will undoubtedly go through withdrawal. Will this country be able to survive on much lower levels of energy consumption? Luckily, we still have plenty of warning to reverse this addition if we act soon. It would be wise to stop seeking new answers in old solutions to our energy problems. Does it make sense to destroy our environment which gives us life , to perpetuate our wasteful way of living?

Finally, in the words of the statement itself, this whole operation has a "relatively high aesthetic degradation potential". The impact of the project has nothing but adverse effects upon fish and wildlife, coastal land use, and the economics of Alaska - another boom-and-bust to further unstabilize our state economy. Our state's most valuable natural resources such as scenery, wildlife, etc. are renewable. Should these be sacrificed for a finite, nonrenewable resource? How many tourists will come to Alaska to see oil rigs and pipelines? As the statement says (pg. 570) "the reaction of a tourist to an oil slick is unknown..."

Alaska is more important as she is to this nation, both aestheically and culturally.

In conclusion, we have several questions for the Interior Dept. to answer on the proposed lease:

1. What in depth studies have been done concerning interaction between marine traffic from the OCS activity and the supertankers from the Trans-Alaska pipeline?

What regulations will the USCG set up? They have been asked to comment on the impact statement and apparently were not consulted during the statement preparation.

2. Why can't the leases be delayed for ½ to 2 years (pg. 746) to allow for completion of all environmental baseline data to meet the Department's own objectives? (Pg. 747)
3. How much consideration is being given the proposal that the government do drilling, etc. before leasing to the oil companies? The federal government could do its own detailed seismic studies and exploratory drilling prior to leasing rather than relying on private industry to discover after leasing how extensive these publically owned resources are. The OCS areas belong to all the people of the US and they should have access to this information.
4. What about the fact that the probability of waves being over 8 ft. is 50% in DJFM, 20% in AM, 25% in JJAS and 40% in OND (Pg. 745) that there is "presently no known method of containment or cleanup that is effective in turbulent seas where wave heights exceed 8 ft" (pg.668)????? What good are contingency plans then????
5. Why should we accept a continuous level of chronic "unavoidable" oil spills? By the statements own admission they don't know the long term effects of oil pollution on the seas or life in the seas. What effect will this have upon the food chain?
6. No national energy policy, elucidated by the people and Congress with public input exists and why are these leases being offered without such a plan??? How and who is saying this leasing is in the "national interest"? What is the national interest? There are no elected officials involved in making this decision! No natural checks and balances in this issue - one person the Sec. of Interior - will make this decision.
7. What is the availability of trained technical personnel for operating and building drilling rigs or subsea units for the Gulf of Alaska waters?
8. How is Interior planning on working with the State that currently has no coastal zone management act? Who will have jurisdiction for wastewater discharge, etc.?? EPA? USCG? The state?
9. What is the critical point at which oil cannot be absorbed or elimated by living organisms? Research on this very important point is incomplete. (see The Frail Ocean, Marks).
10. What is the environmental cost (irretrivable losses) compared to economic benefits? Where is the analysis of how much energy will be used to get out the oil and gas in the lease area? What will be the net gain in energy to our country????

Manager, Alaska Outer Continental Shelf Office

P.O. Box 1159

Anchorage, Alaska 99510

Betty Varney

Cape Yakataga, Alaska 99560

15 August, 1975

Dear Sir:

I would like to express my views on the development of the offshore resources in the Gulf of Alaska. First as a concerned citizen and resident of Cape Yakataga, Alaska and, secondly as a business woman whose income is principally derived from oil and oil related industries.

Our Gulf is beautiful, virgin and really too splendid for me to put into words. I do not know this just from reading magazines, seeing pictures or watching television; Cape Yakataga is a part of me, I live it daily. My love for the beauty of nature is great enough to endure the many hardships of living in remote Alaska. Few environmentalists can say that! I will stay here as long as I am strong enough to take it and then I will quit like so many others. Why? Because no few individuals can settle these vast Alaskan regions by themselves. We must develop, grow and settle; it is unrealistic to think any other way. We can no longer just live off of the land by trapping or mining. We must develop our other natural resources to give us jobs and provide a living to those who want to live where they choose. One industry will open the door to others. If it is the oil industry in the Gulf, so be it. Yes, I am honest enough to say my income comes from the oil industry as does millions of other American. The oil industry is the largest and the most powerful industry in these United States, who could be more capable of developing the Gulf of Alaska? We Americans must relie on our own country, our own technology to develop this much needed source of energy. We must start developing it right now while there is still time to do it carefully and properly.

When I first came to Cape Yakataga the very thought of an oil well within a thousand miles made me ill. Since then I've seen the oil companies in action here, I've talked with their geologists, I've talked with their crews, I've studied and read to educate myself on whats going on in the oil industry. I have seen the time and money spent by the oil companie to make sure that things go right. I have faith that they will not destroy my beautiful Cape Yakataga home.

Sincerely,

Betty Varney

Betty Varney

written only

ALASKA AERONAUTICAL INDUSTRIES, INC.

ALASKA'S COMMUTER AIRLINE

C FICATED ALL WEATHER
AIR TAXI & CHARTER SERVICE

GENERAL OFFICES
Airport Annex - Box 6067
Anchorage, Alaska 99502
Phone (907) - 277-6882

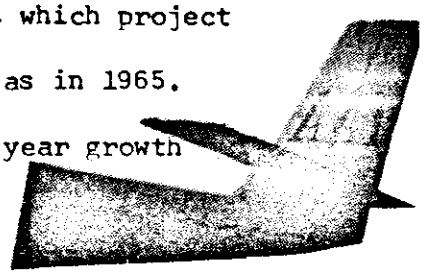
Good morning, Gentlemen. My name is Douglas Haynes of Alaska Aeronautical Industries, Inc. AAI is a small scheduled airline serving the Cook Inlet basin area. The oil industry is, perhaps, the major user of our service.

We do not serve the area from Seward to Yakutat, however, the coastal communities expected to receive the greatest amount of activity from future exploration and development in the northern Gulf of Alaska. I point out the connection because the AAI operation would be considerably smaller without the revenue from the oil industry and it is very unlikely that some of the points we serve would have scheduled service were it not for that revenue base.

Now the air taxi operators in Alaska are, for the most part, doing a fine job and I don't want to sound like I am criticizing them. But their operating costs are high and, consequently, travel in those parts of Alaska where there is no scheduled air carrier can be a problem and is certainly relatively expensive. So a lot of our customers are benefiting from the oil industry activity here, whether they realize it or not.

I am sure the same situation will be the case, if and when oil production and development comes in the Gulf Coast area. Cordova, Valdez and Yakutat have scheduled service now, of course. But increased competition and frequency of flights is almost inevitable.

Now I would also like to comment on the national aspect of this situation. I have recently been shown figures of the U. S. Bureau of Mines which project the U. S. will be using at least twince as much energy in 2000 as in 1965. That low estimate is based on a very conservative 2 per cent a year growth rate.



At four per cent the demand would be the energy equivalent of about 40 billion barrels of oil per year in 2000.*

While other energy sources will certainly meet a large share of that future demand, there will obviously be need for large amounts of oil and gas for fuel, lubricants and petrochemicals. With other countries showing a natural concern about preserving sufficient reserves to meet their long term requirements, the United States can't rely on those sources. Domestic reserves must be found.

That means starting exploration of Outer Continental Shelf areas, such as the Fulf of Alaska, as soon as possible. It must be kept in mind that intensive exploration under the waters of the Gulf of Mexico began some 25 years ago. That area appears to be just now peaking in oil and gas production.

Thank you, Mr. Chairman.

# # #

*BOM Data Source: An Energy Model for the United States, Distributed by National Technical Information Service

THE CITY WITH A FUTURE
THE VILLAGE WITH A PAST

KENAI CHAMBER OF COMMERCE

OFFICE IN THE BENCO BUILDING
PHONE 283-7989

P.O. BOX 497
KENAI, ALASKA 99611
OIL CAPITOL OF ALASKA

RESOLUTION OF

GREATER KENAI CHAMBER OF COMMERCE

WHEREAS the entire OCS leasing program is part of a national plan to increase oil and gas production and reduce reliance on foreign energy sources as soon as possible, and

WHEREAS consideration is being given by the Bureau of Land Management to proceed with leasing of OCS tracts in the Gulf of Alaska, and

WHEREAS the City of Kenai has had the unique experience of being a beneficiary of major onshore petroleum development in the State of Alaska, and

WHEREAS the impact of that development has been beneficial in improving property tax valuation in both petroleum and non-petroleum oriented properties, and

WHEREAS this increased valuation has permitted our City to grow and provide all the services we enjoy today, and

WHEREAS this growth has occurred without significant detriment to our environment, and

WHEREAS we have previously submitted testimony before the Council of Environmental Quality Hearings on "Outer Continental Shelf and Gulf of Alaska Exploration & Development" in Anchorage, Alaska, on September 27, 1973 (copy of that testimony attached hereto as part of this resolution), and

NOW, THEREFORE, be it resolved that the Board of Directors of the Greater Kenai Chamber of Commerce supports prompt leasing of the OCS tracts in the Gulf of Alaska by the Bureau of Land Management, and urges the Federal Government to do everything possible to expedite rapid exploration of and early production of any oil and gas that may be found on the offshore lands leased.

PASSED AND APPROVED THIS FIRST DAY OF AUGUST, 1975

G. E. Day, President
Greater Kenai Chamber of Commerce

KENAI CHAMBER OF COMMERCE

TESTIMONY OF

OSCAR L. THOMAS, DIRECTOR

BEFORE THE

COUNCIL OF ENVIRONMENTAL QUALITY

HEARINGS ON

OUTER CONTINENTAL SHELF AND GULF OF ALASKA EXPLORATION AND DEVELOPMENT

ANCHORAGE, ALASKA

SEPTEMBER 27, 1973

My name is Oscar L. Thomas. I am a Director and past President of the Kenai Chamber of Commerce. I am also Vice President and General Manager of Kenai Utility Service Corporation, a natural gas distribution company operating in Kenai Alaska. I appear today on behalf of the Kenai Chamber of Commerce and its President, Mr. Richard Stetler.

The Council has indicated a desire for information on specific topics in its consideration of the advisability of oil and gas exploration and development in the Gulf of Alaska. Of these, "Potential Effects of Onshore Development" is the issue to which we will speak today. We are, perhaps, uniquely qualified to testify on this matter. To date we are the only Alaskan community to have experienced the impact of major onshore petroleum development. The City of Kenai lies geographically in the midst of Alaskas' only currently productive reserves, exclusive of Pt. Barrow with its minimal amounts of natural gas production. To our immediate south lies the Kalifonski Gas Field supplying natural gas for domestic consumption to the Kenai Peninsula and the City of Anchorage, as well as far larger quantities of gas to two huge processing plants which convert the commodity for export. Contiguous to our easterly city limits we have the Beaver Creek Field which has recently become productive of oil, and where we understand continuing development is taking place. To our north and northeast we have the Swanson River Field, another onshore development that gave the industry its beginnings here in ~~1959.~~ 1957. Further north and northwest the fourteen Cook Inlet offshore platforms pump the production from several hundred wells to onshore sites for processing and shipment. These sites are located just a few miles from downtown Kenai. They include the Collier-Carbon and Chemical Plant, Phillips Petroleum Gas Liquification Plant, Standard Oil Refinery and Tesoro Refinery. We feel that the experience of our community in its relationship with the development outlined herein should establish our credentials to address ourselves to the subject at hand.

In sharing with the Council our interpretations of what has actually occurred on the Kenai Peninsula as a result of petrochemical activities, we will touch mainly on the socio-economic results and environmental impact of these activities.

The Kenai Peninsula Borough was formed in ~~1965~~ 1964, about the same time that the oil and gas activities began to emerge as a major development. In comparing our economic picture at that time to our present outlook the difference is, broadly stated, as the difference between night and day. Through the courtesy of the Kenai Borough Assessor's office we have compiled the following statistics:

1. Total 1965 Real and Property Tax Valuation-$95,000,000.00. Of this amount, approximately $30,000,000.00 was directly related to oil and gas properties. These properties would include pipelines, refineries, processing plants, oil and gas fields, service company holdings and other petroleum-oriented properties. It is seen, then, that exclusive of the industry, the total Borough Tax valuation was $65,000,000.00

2. Total 1973 Real and Property Tax valuation-$575,000,000.00. Of this amount, approximately $405,000,000.00 is related to oil and gas properties as defined above. We have then, a 1350% increase in petroleum properties and a 290% increase in other properties for the eight year period.

3. In 1965 the Borough Tax Levy was at five mills. After eight years of spiraling inflation, eight years of constant expansion in the scope of Borough services to the people, our 1973 tax rate is - the same five mills. We wonder how other Alaskan communities have fared in this respect in this time period.

Along with this favorable tax position, which accrues to the benefit of all of us, there are other important considerations. In 1965 the City of Kenai was, quite frankly, a rather dreary little hamlet with a population of about 700. Among the social necessities that were either limited, sub-standard or non-existent were schools, fire and police protection, shopping facilities, churches, public works, hospital and other medical and dental facilities, housing, recreational facilities and year around employment opportunities. Here again, we see a dramatic change. Within the City of Kenai three new schools have been constructed; elementary, junior high and vocational training. Fully staffed and equipped fire and police departments are housed in a public safety building completed last year. A million dollar shopping mall, complete with super market, department store and a variety of consumer product and service shops, now sits in the center of Kenai alongside a five lane highway completed in 1972. The number of our churches has tripled. Water and sewer utilities have been and are continuing to be, installed throughout the city as well as a

natural gas distribution system. A sophisticated sewage treatment plant went into operation earlier this year, protecting Cook Inlet waters from the pollution of our domestic effluents. A well equipped medical center continues to expand as do dental facilities and related services. A wide variety of modern homes and apartments is now available in well kept subdivisions. Municipal parks, a racetrack, rifle range and other recreational needs are being provided or planned for. In neighboring Soldotna, eleven miles distant from us, a fine new hospital has been built along with a new community college as well as a modern office complex housing the Borough administration offices and those of our school district. Lastly, a serious, qualified job seeker is much more apt to find full time employment then he would have been in the days when seasonal salmon fishing was the only industry sustaining the community.

Gentlemen, we submit that all of these things have come to us solely as a result of onshore development on the Kenai Peninsula. They have come to us in an orderly, well thought out progression of events that have posed no serious problems with respect to either the social or ecological environment. As social needs have been expanded, so has the industry given to the community the affluency to meet them. As our awareness of the increasing need to protect our ecology becomes more and more acute, so does the industry respond with planning, technological advancements and a genuine will to provide the all important development of our resources while maintaining a good balance with nature. Dating back to the previously mentioned Swanson River discovery in 1959 we are aware of no significant damage to our air, our land or our waters that are attributable to petroleum industries. Had there been, and surely there may someday be, such damage there is a fitting perspective to consider. Our world population continues to increase at an almost unbelievable pace. There are tremendous demands being placed on the development of our natural resources. If there is a price to pay for such development let us recognize it. Let us make every effort at our disposal to minimize it. Then, let us proceed to do what we all know must be done.

In a very selfish sense we on the Kenai, are very sensitive to a certain environment-related potentiality. As local residents, and most assuredly the Anchorage population must be included here, we see our natural gas reserves being snapped up by outside markets more rapidly than they are developed. Alternative energy sources are not palatable to us. Winter temperatures in the area often drop to minus forty degrees fahrenheit and thermal inversion layers in our air are common. The combustion products of coal and oil, when used as heating fuels, can combine with automotive exhaust emissions and be trapped under such circumstances, polluting our air to a degree of extreme hazard to human well being. Our neighbors in Fairbanks can well testify to this. The development of petroleum resources in the Gulf of Alaska would tend to relieve the pressures on our local gas reserves, insuring us a continuing supply of natural gas for our own relatively small but ever increasing needs.

In summary, we have tried to illustrate that the onshore development of petroleum resources on our peninsula has provided us with widely varied benefits which far outweigh any negative factors. We do not advocate, nor would we stand for, the rape of our ecology. Most of us live here by choice and consider this land as ours. We intend to protect it. We have seen the performance of the petroleum industry over a span of years and are satisfied with that performance. We consider ourselves fortunate to have the industry active in our midst. We see no reason why the experience in our area with onshore development cannot be duplicated anywhere in Alaska, or for that matter, in the world.

The Kenai Chamber of Commerce appreciates very much the opportunity to appear before this Council. We respectfully submit that the Council on Environmental Quality should recommend to the President of the United States that petroleum exploration in the Gulf of Alaska should proceed as soon as possible.

written only

STATEMENT OF R. DEAN ALLEN PREPARED FOR PUBLIC HEARING ON THE PROPOSED LEASE SALE (#39) OF OIL AND GAS ON THE OUTER CONTINENTAL SHELF - IN THE GULF OF ALASKA AUGUST 12, 1975, ANCHORAGE, ALASKA.

My name is R. Dean Allen. I have lived in Alaska for almost ten years. I am a former manager of petroleum engineering in Alaska for a major oil company. Since 1969, I have been an entrepeneur involved in supplying food & housekeeping and operations & maintenance services to the petroleum industry in Cook Inlet and at Prudhoe Bay. These service copmanies are frequently allied with Alaskan Native corporations created under the Land Claims Settlement Act. Our work force of almost 100 is predominantly Alaskan.

With a background such as mine it must come as no surprise that I favor OCS leasing in the Gulf of Alaska, and at the earliest date possible. My 23 years in the petroleum industry has in large part been centered around exploration and development projects. I am keenly aware of the time lag from lease sale to fully developed oil production. Exploration cycle time almost always exceeds five years and usually is closer to ten years. At a time when our Nation's developed oil supply is not meeting critical energy demands, it makes a great deal of sense to open up exploration to those vast unexplored areas beneath the sea.

I have followed ocean technological advancements since my first exposure to offshore development in the mid-fifties. The techniques and procedures for safe offshore exploration and production of petroleum are already largely developed. The vast majority of work done offshore has resulted in no disasters of any kind. The few accidents that have occured have resulted in little permanent damage to the enviroment. I have confidence the industry is ready for the Gulf of Alaska.

The positive impact of oil industry efforts in the Gulf of Alaska should follow a well traveled path of industry involvement in the communities with which they come in contact. Individuals directly employed by the industry receive incomes substantially above average in the State. A large share of the incomes is spent on goods and services within Alaskan communities creating secondary effects of increased employement and incomes in support industries. Taxes on increased personal incomes are revenues to the State. Onshore facilities are tax bases for tax-empowered entities - borough or city. These taxes are used in providing community health and social services and public facilities, often times where none may ever exist without the revenues from oil. The petroleum industry has consistently supported local charities, educational institutions and community hospitals. They provide leaders of proven capability who voluntaryily spend many hours and contribute many thousands of dollars every year to community projects.

As a supplier of labor and other services in Alaska I can make the following observations from experience. The opportunites for local employment on a long term basis occur mainly with production activity. The producing platforms require a permanent work force of mechanics, electricians, production operators, crane operators, welders, cooks and an assortment of unskilled helpers. These positions are usually given to qualified locally-based personnel on a preference basis. Training for some of the jobs is afforded by the contractor or by the oil company. Other jobs require skills common to serveral industries which may be locally available, but under-utilized by the communities. Commonly, work schedules are such as to provide ample time to participate in personal pursuits currently being enjoyed by the local work force. Most production employees on remote Alaskan oil operations work one week on and one week off.

For those employees not hired locally, the oil companies have provided long distance rotation from more populated areas, such as Anchorage and Fairbanks. Thus,

although, undoubtedly some permanent influx may be expected into coastal communities, this impact is not as great as might be expected. Prudhoe Bay, for example, has only a handful of "permanent" residents. The rest are rotated from communities as close as Barrow and as far away as Anchorage. Where facilities are needed to house and feed workers, temporary camps are erected which have their own sewers, water and utilities, thus limiting to some extent the impact of even the temporary surge of workers on the local community. Transportation and communication facilities initially are usually overtaxed when the industry activity concentrates in a locale, but these systems are quickly expanded leaving in the wake of activity a much improved condition for those remaining to enjoy the life style they choose.

It is my intention to offer our companies' capabilities in support of the petroleum industry's efforts in the Gulf of Alaska, and it is my plan to include the people of affected areas in the opportunity. This will consist of the offer of jobs to local residents and joint venture efforts with the Native village and regional corporations where feasible. We pledge to assist local communities in planning for and coping with the impacts of such oil activity in their area, if they wish our help.

written only

ANCHORAGE, ALASKA August 12, 1975

STATEMENT OF RAYMOND I. PETERSEN, PRESIDENT, WIEN AIR ALASKA, INC. BEFORE THE U. S. DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT, HEARING ON PROPOSED OIL AND GAS LEASING ON THE OUTER CONTINENTAL SHELF, NORTHERN GULF OF ALASKA.

Although Wien can expect little direct benefit from Northeastern Gulf of Alaska oil activity, a socioeconomic study made by Mathematical Sciences Northwest, Inc. for the oil industry indicates a major development there would have the greatest population impact in Anchorage where Wien operates. The Anchorage area population would increase by several thousand, while coastal communities would receive only a few hundred new residents, the study concluded.

Every business in Alaska, including Wien, now doing business with the oil industry must plan future growth and capital investment on the assumption there will be a continuing and orderly program of exploration and development in Alaska by the industry. To unduly delay the Gulf of Alaska activity will disrupt this orderly expansion and could lead to over-investment which would probably be economically disastrous for some small companies.

The air transportation industry is a large oil consumer and many Alaskans are nearly totally dependent on air carriers for their needs. Should another international crisis lead to an acute fuel shortage in the future, Alaska might have trouble getting the fuel it needs if the rest of the nation felt that Alaskan oil reserves were being held by selfish interests.

The main arguments against the development in the gulf is that pollution will damage and perhaps destroy the fisheries, that the way of life in coastal communities will be destroyed, that shoreside facilities will be a cost burden to the State for which it will receive no benefits, and that a state coastal zone management law

is necessary to permit better state control of the activity. In my opinion there is no scientific evidence anywhere in the world, including Cook Inlet, to support the first. Anyone who has visited Alaska villages on a recurring basis should know that the "way of life" is undergoing constant evolution and the Native Claims Settlement is having a far greater impact than any single commercial activity could.

When I came to Alaska in 1934 there was an estimated 30,000 Eskimos, Indians and Aleuts in the territory. The balance of the total 60,000 population were Caucasian and other. Today I understand there are 75,000 natives and the population is increasing rapidly due to improved health services in recent years. The life style of these people today is a far cry from their igloo dwelling subsistence living style of their parents and grandparents. The old fish-burner powered transporation and seal oil lamp heating has been replaced by petroleum products. There is no turning back!

The Air Transport Association has recently released figures showing the scheduled airline industry incurs costs of $1.4 million per day for each cent that the price of fuel increases. In the case of my company, Wien Air Alaska, a one cent increase at present consumption costs the airline a quarter of a million dollars a year. Total increase in Wien's costs for the year 1975 over '74, will be close to $4 million.

The point I am trying to make is the necessity to find vast quantities of oil within andoffshore of the United States of America. Only with an adequate supply of petroleum can the market system really work. The oil companies are highly competitive and given

the opportunity through exploration can and will reduce the price of petroleum products, or at the very least hold it under inflationary conditions.

As for the third argument, any shoreside facilities are subject to state taxation and it will be the responsibility of the Department of Revenue to see that actual costs are recovered by that means. Finally, state officials, have stated that state laws now exist to achieve adequate control over any coastal activities. A coastal zone management law would simply streamline the administration and, theoretically, give the State some say-so over the activities of federal agencies. Emphasis should be put on the word "theoretical", however. Those same agencies would have to first approve any state CZM plan calling for this exercise of state authority.

I wish to conclude by urging oil exploration in all areas under the U. S. flag as expeditiously as possible, taking into proper account environmental necessities.

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letter only

Tenneco Oil
A Tenneco Company

Tenneco Building
P.O. Box 2511
Houston, Texas 77001
(713) 229-2131

August 12, 1975

Mr. Edward Hoffman, Manager
Alaska Outer Continental Shelf Office
Bureau of Land Management
P. O. Box 1159
Anchorage, AK 99501

Re: Public Hearing - Draft Environmental Impact Statement
Gulf of Alaska - Proposed OCS Lease Sale No. 39

Dear Mr. Hoffman:

Reference is made to the public hearing which you are holding in Anchorage August 12 and 13, concerning the environmental impact which a possible sale of oil and gas leases on the Outer Continental Shelf of the Northern Gulf of Alaska might have upon the adjoining land, the people of the great State of Alaska and this nation as a whole.

Tenneco Oil Company feels this sale and others that have been proposed in the frontier areas of the Outer Continental Shelf should be held. We know of no other domestic region within this industry's reach that offers the reserve potential to solve this nation's immediate and critical energy shortage. Given the opportunity by making leases available, with reasonable incentives and minimum restraints, the petroleum industry can and will, safely, explore for these potential reserves.

For me to offer further testimony in support of the foregoing statements, it would only be a redundancy to the testimony you will hear and witness today as will be presented by the Gulf of Alaska Operators Committee. Tenneco Oil Company is a participating member of this committee and fully endorses the testimony which they will present to your panel today.

In the interest of conserving the panel's time, we respectfully ask that our statements and endorsement of the Gulf of Alaska Operators Committee's testimony be entered into your record of these proceedings.

Yours very truly,

Jack Morris

Jack Morris
Land Manager-Frontier Projects
North America

JM:pb

written only

POLAR AIRWAYS, INC.
2600 EAST FIFTH AVENUE
ANCHORAGE, ALASKA 99501
PHONE 279-5555

STATEMENT REGARDING OUTER CONTINENTAL SHELF LEASING

Thank you, Mr. Chairman.

I am Dr. Royce Morgan, President of Polar Airways, Inc., a Certificated Scheduled Air Carrier operating in this state. I endorse the Interior Department's plan for accelerated OCS leasing that would permit a sale in the Northeast Gulf of Alaska late this year.

I find several good reasons for proceeding. There are several in the Aviation business who have applied for operating rights at Yakutat who believe that revenue would come to their busi - nesses by serving the oil industry there.

The future of Polar Airways is predicated to a great extent on continued economic development by the oil industry. But so is the entire state of Alaska's future to a large extent. It is estimated that a majority of Alaska's revenue in the near future will be derived from the oil industry.

In the first chapter of the first book of the Bible, " God said, ' Be fruitful, and multiply, and replenish the earth, and subdue it' ". I believe orderly development of our natural resources is in line with God's plan for man and the earth. I would hope that development of the petroleum resources in the Gulf of Alaska is part of that orderly sequence of activity.

Thank you, Mr. Chairman.

Royce H. Morgan

Royce H. Morgan M.D.
President
POLAR AIRWAYS, INC.

S C Sandusky
Manager Anchorage Division
Production US & Canada

ALASKA OCS OFFICE
ANCHORAGE, ALASKA

Marathon Oil Company

P.O Box 2380
Anchorage, Alaska 99510
Telephone 907/274 1511

RECEIVED
AUG 25 1975
ENVIRONMENTAL ASSESSMENT

August 22, 1975

Director (732)
Bureau of Land Management
Washington, D.C. 20240

Dear Sir:

Proposed OCS Lease Sale #39, Gulf of Alaska

Marathon Oil Company wishes to add its support to the testimony presented by the petroleum industry through the Gulf of Alaska Operators Committee at the hearing held in Anchorage August 12 and 13 concerning the Draft Environmental Impact Statement for the referenced sale.

In addition, we believe the testimony of Mr. R. W. Bybee and others, with regard to delay of the sale, deserves special attention. Advocates of such delay state they need time for social-economic impact planning. We concur with Mr. Bybee's judgment that many of the essential ingredients of the final planning process are now imponderables (e.g., number of fields and their location, number and location of pipelines, nature and location of required auxiliary facilities, number of people needed in the operation, and the time schedule) and that hard data concerning these items will become available progressively during the long lead time between a sale and production. We believe that anticipatory planning can and should go forward so that when real data are available, implementation will be orderly, but that delay will serve no useful purpose.

There are also some who cite the need for baseline studies as reasons for delay. We do not believe that such studies will supply information that would affect the decision making process except, perhaps, to support a sale. For example, it is generally recognized that the Gulf is or borders a substantial fishery. Knowing the exact magnitude of that fishery in terms of fish counts and so forth would not materially add to hard data based on historical catches nor to the resulting need for enlightened regulations governing

operations. On the other hand, if the baseline studies found limited fishing or negligible habitat in or adjacent to the sale area, leasing should proceed and the delay would have been for nought. However, we do believe that data-gathering opportunities provided by the long lead time will assist in developing the necessary regulations and operational plans and techniques to protect the environmental conditions actually found to exist.

Accordingly, Marathon urges that the sale be held as scheduled.

Yours very truly,

S. C. Sandusky

Alaska State Legislature

SENATOR
ROBERT H. ZIEGLER, SR.
P. O. BOX 979
KETCHIKAN ALASKA 99901

POUCH V
JUNEAU, ALASKA 99811

ALASKA OCS OFFICE
ANCHORAGE, ALASKA
SEP 3 11 18 AM '75

CHAIRMAN
JUDICIARY

MEMBER
COMMERCE
LEGISLATIVE COUNCIL

Senate

RECEIVED
AUG 25 1975
DIVISION OF MINERALS
ENVIRONMENTAL ASSESSMENT

August 21, 1975

Director (732)
Bureau of Land Management
Department of the Interior
Washington, D. C. 20240

Re: Proposed Lease Sale (#39)
Outer Continental Shelf/Gulf of Alaska

Dear Sir:

My name is Robert H. Ziegler, Sr. I am a partner in the law firm of Ziegler, Ziegler and Cloudy in Ketchikan, Alaska, past president of the Alaska Bar Association and an 11-year member of the Alaska State Senate, representing District A. I would like to submit the following to you in support of the captioned lease sale.

Beyond a doubt, the national energy situation is grave and will probably get worse before it gets better. Out national efforts to develop alternate energy sources should be redoutled. Even so, there will be a continuing need over a number of years to rely on fossil fuels to stay even, much less gain. Much of our fuel requirements must still be met by oil and gas which, as I understand it, will be found largely in the offshore areas. I therefore urge that the proposed oil and gas lease sale in the Gulf of Alaska be held.

From news accounts, I gather that in the hearings held August 12th and 13th ofthis year in Anchorage, the major point of disagreement was not whether or not the sale should be held, but, rather, when the sale would be held. My views on this matter are reflected by the lead editorial published in the Anchorage Daily Times on August 7, 1975, a copy of which is attached for the record.

Those who doubt the oil industry's ability to operate safely in the Gulf of Alaska are, I believe, a shrinking minority. However, from news accounts available to me, representatives of that minority appeared at your hearings. The view I hold on that matter is reflected well in another Anchorage Times editorial. This editorial, published on August 14th, is also attached for the record.

Another concern growing out of your hearings is the matter of lifestyles in Alaska. Rather than detail my thoughts on that subject, I will endorse the article by Max Brewer, printed in the Anchorage Times on August 3, 1975. A copy of that article is attached for the record.

I do have one reservation about the timing of the lease sale in the Gulf. As a Senator in Alaska, I am well aware of the state's need for revenues. Our annual budget is now in the $600 million range. Half of this will come from the oil industry. It is my firm conviction that most taxpayers in Alaska--including the oil industry--should not be burdened with additional taxation. Therefore, the financial assistance needed by the State of Alaska and its coastal communities to cope with the initial impact of oil and gas development in the Gulf of Alaska should be met by the Federal government. An equitable revenue sharing system should be enacted by Congress to provide such funds.

While revenue sharing is needed in Alaska, the national need for additional oil and gas supplies is greater and, therefore, I support the lease sale in the Gulf without qualification. At the same time, it cannot be emphasized too strongly that to proceed without a revenue sharing plan would be unfair to Alaskans.

I urge both revenue sharing and the lease sale--in that order.

Thank you for allowing me to make this statement for the record.

Very truly yours,

Robert H. Ziegler, Sr.

RHZ/pkz

enc.

EDITORIAL PAGE

Anchorage Daily Times

ROBERT B. ATWOOD
Editor and Publisher

WILLIAM J. TOBIN
Associate Editor
And General Manager

CLINTON T. ANDREWS JR.
Managing Editor

Drilling In The Gulf

PLENTY OF KNOW-HOW

IMPRESSIVE technical and scientific data supports the oil industry's argument that petroleum exploration and development can safely take place on the Outer Continental Shelf in the Gulf of Alaska.

Against this array of information, only fuzzy and vague allegations expressing a fear that the job cannot be done have been offered to counter federal plans to stage an offshore lease sale in December.

The different viewpoints were expressed here this week in testimony before an Interior Department panel soliciting comment on a draft environmental impact statement on OCS operations.

By any fair assessment, the pro-development forces were by far more informed, prepared and backgrounded than were those who spoke in favor of delaying the lease program.

THE OIL industry was represented at the hearing by a contingent of experts who have been busy for years with all sorts of studies relating to development off the Alaska coast. Working under a jointly sponsored project known as the Gulf of Alaska Operators Committee, the industry has assembled some of the best technical experts in the world to determine what the risks and potential might be.

Nothing in the findings, said Howard Slack of Atlantic Richfield, "would preclude operations" in the Gulf.

John H. Silcox of Standard Oil of California pointed out there has been "a mass of documented data," some of which has been grossly ignored by those who conjure up visions of environmental destruction.

Yet in the face of this testimony and the back-up data, state officials denied that proper biological and technical research has been done and said it would have to be done after the leasing.

Furthermore, the state contended that it was caught by surprise when a lease sale was announced -- as though hit by a bolt from the blue.

THE FACT is that it has been known for years that a Gulf of Alaska lease sale would be forthcoming.

That's why the industry formed the Gulf of Alaska Operators Committee some years ago, and that's why all of this biological and technical data is in hand — even if the state would like to pretend it doesn't exist.

It's true, unfortunately, that the state may not be prepared. But is not true to suggest that the industry has been deficient. It hasn't.

Instead, it has the technical know-how and ability to proceed.

If Outer Continental Shelf development is blocked [illegible] will be for political reasons, not technical ones. And to contend otherwise simply doesn't match up with the facts.

August 3, 1975, Anchorage Sunday Times

Preservation of Lifestyles

By Max Brewer

RECENTLY there has been much discussion about the subjects of the quality of life and of the preservation of lifestyles in Alaska. A basic assumption appears to be that the preservation of the existing Alaskan lifestyle is desirable and that it should be maintained at all costs. Indirectly, the assumption seems to be that the existing quality of life, if not quite as desirable as it was 20 years ago, is good and that it is what most of the people want.

THE QUALITY of life is an illusive and ill-defined phrase generally meaning something different to each beholder. The discussions of the subject are carried out by restricted groups talking to like-minded individuals. There generally is little public involvement in the discussions other than reading about them in the news media.

Because they are complex, could be controversial, or might cloud the issue, the questions of whose quality of life and whose lifestyles might be affected are rarely discussed in detail.

IT IS ONLY human nature for those whose lifestyles already are confortable or enjoyable and whose jobs are secure, to want to preserve the status quo. It also is natural that they might fear change or to fear that any change would automatically be bad. Paradoxically, these fears do not fit with the pioneering

remote people exist throughout Alaska, although the starkness of their situation can best be realized through observations made in a native community over a period of time.

IT IS discouraging to know of schools that have been constructed but for which there is no money for school books even two and three years later. It is disheartening to know of schools not having money for hot lunch programs, when these lunches are counted on to build up the youngsters physical condition during the winter months. It is even worse to know that many of the youngsters, even the little ones, hadn't had breakfast and were too hungry to study.

An uncomfortable feeling also is conjured up knowing that some schools have unheated bathrooms; some even have no bathrooms and youngsters use the willows. Sometimes that can be difficult when there are no willows as can be the case in western and northern Alaska.

In any event the experience is far more exhilarating, if not numbing, at 50 below with a sharp breeze, than the vacationer experiences during the summer when all he has to worry about is having a can of insect repellent to keep away the mosquitoes and biting flies.

A SHOCKING experience can be had when a doctor comes begging for penicillin

While water usage of over about 100 gallons per day, in the absence of industrial uses, usually indicates an inadequate or inefficient system, usage of under 50 gallons per day per person not only indicates an inadequate system but also a health hazard.

Disposal of untreated sewage to the waters of the state and more particularly the land surfaces of the state poses extreme health hazards. It also causes deterioration of the environment, particularly where populations are concentrated and especially in areas where permafrost is a problem.

Such deterioration will continue and will grow until communities and the state not only have the money to construct the required facilities but, even more importantly, the money to operate the facilities once they are constructed. Unfortunately such funding is nowhere in sight, even after completion of the pipeline.

THE QUALITY of remote housing in much of Alaska is grossly inadequate for even reasonably healthful conditions to prevail. Unfortunately, the housing is usually designed for maximum consumption of very expensive energy. This occurs even though we know how to build, with no increase in cost, for much better energy conservation, while at the same time providing additional comfort.

It does not engender confidence to hear young natives complain about our construction of "instant slums" and "drafty and leaky crackerboxes". It doesn't even give an impression that they have any confidence that people know what they are talking about when they talk about the quality of life.

It does, however, help explain some of their frustrations and their desire to

THE NEED FOR these compromises, or the consequences of no compromises, is not being discussed today. Perhaps we also need to discuss the quality of survival. Perhaps we need to candidly discuss which lifestyles we wish to preserve, wherever possible, and which lifestyles that we want to change for the better as soon as possible.

Whatever we do, let us look at the whole picture of the quality of life and not kid ourselves. We might even consider holding our quality of life conferences at Bethel, in winter, and at Barrow, during the summer.

Max Brewer, trained as a scientist, is former commissioner of environmental conservation. He is now living in Juneau and is a consultant on environmental and Arctic problems.

EDITORIAL PAGE

Anchorage Daily News

ROBERT B. ATWOOD
Editor and Publisher

WILLIAM J. TOBIN
Associate Editor
And General Manager

CLINTON T. ANDREWS JR.
Managing Editor

OCS Hearings

ONE-SIDED TESTIMONY

A CURIOUS double standard is demonstrated by officials of Alaska who tell a group of visiting congressmen that the state doesn't want offshore oil development now, and may file suit in an effort to block a Gulf of Alaska lease sale if the federal government proceeds with plans to put undersea acreage up for lease.

The biggest gun on hand to shoot down federal offshore planning, during the course of a hearing Tuesday at Yakutat, was Gov. Jay Hammond.

His opposition to leasing on the Outer Continental Shelf represented the official administration position. But it is safe to say that he did not speak for all Alaskans when he argued for at least a two-year delay in the lease offering now scheduled for in December.

Instead, he voiced an administrative philosophy which puts environmental considerations above all others and which reflects an attitude that growth is bad, no-growth is good.

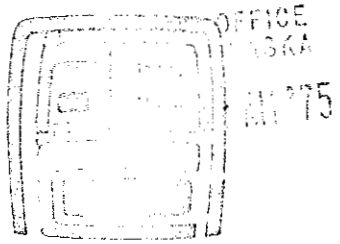
THE GOVERNOR, of course, has a legitimate interest in seeing that environmental considerations studies, preliminary seismic work and other assignments be carried out without some advance preparation?

THE MAYOR of Yakutat, Larry Powell, complained to the committee that his town isn't prepared for this sort of thing. It has no zoning ordinances, he said.

Surely he doesn't want the oil industry to be responsible for local ordinances. For several years it has been obvious that Yakutat would be a center of activities should federal leases be sold offshore. The town has had ample time to be looking into zoning and other matters that are the obligation of any community, with outside assistance available when it is needed.

It's no criticism of a town of 540 people to say that it lacks the governmental sophistication of a major metropolitan area or that it may lack the skills necessary to cope completely with demands that will arise in connection with sudden industrial growth.

But the state administration has such skills and it should lend a positive hand in a case such as this.



ALASKA
BANK OF COMMERCE

MAIN OFFICE: POUCH 7012, ANCHORAGE, ALASKA 99510 • FORMERLY MATANUSKA VALLEY BANK

August 25, 1975

Director 732
Bureau of Land Management
Washington, D.C. 20240

Subject: Proposed Lease Sale #39
Gulf of Alaska

My name is Albert Swalling, a 45-year resident of the State of Alaska. Address: 2601 Marston Drive, Anchorage, Alaska 99503. I welcome the opportunity to present my views on the proposed sale referenced above.

I hold no claim to fame or expertise as a gas or oil specialist. However, so that you may better evaluate my views, the following is a list of some of the exposure I have had in energy and environmental fields:

Chairman: "North Commission", a study group created by the Alaska Legislature to study, promote, and develop the human and physical resources of Northern Alaska, 1967-1971.

Member: Alaska International Rail & Highway Commission, 1958-1960.

Chairman: Environmental Committee, Alaska Chapter-Associated General Contractors of America, 1972.

Chairman: Environmental Committee, Associated General Contractors of America, Washington, D.C.

Chairman: Energy Crisis Committee, Alaska Chapter-Associated General Contractors of America, 1973.

Member: Fuel and Energy Committee, Associated General Contractors of America, Washington, D.C., 1973-1974.

Member: Fuel and Material Shortage Committee, Associated General Contractors of America, Washington, D.C., 1974-Present.

Member: Governor's Pipeline Commission, State of Alaska, 1970-1971.

Member: Board of Directors, Alaska Pipeline Company, 1963-1972.

Member: Board of Director, Anchorage Natural Gas Company, 1960-1972.

Member: Board of Directors, Alaska Interstate Company, 1968-1972.

President and Chairman: Suntrana Mining Company, Healy, Alaska (Coal), 1953-1966.

President: Swalling Construction Company (Heavy, Marine and Industrial Contractor), 1947-Present.

President: Alaska Bank of Commerce, 1967-1975.

Chairman: Alaska Bank of Commerce, 1967-Present.

Since the announcement of the proposed lease there has been a very active program by the state administration and environmental groups to postpone the sale on the basis that additional time is needed for proper planning so as to lessen the impact on the affected communities. I believe some of these people are sincere, but for the most it is a repeat performance of unending delay tactics.

The sale must be held in order that the search may begin. There is no assurance that either oil or gas in economic quanities will be discovered. The actual initial prospecting will have very little impact on the State as a whole or the particular communities involved.

In a national energy crisis, such as we are now experiencing, an inventory must be taken of our known reserves, and the only sure method of proving a reserve is to drill for it.

Many words have been spoken and printed to the effect that we need more time to plan and prepare for the activity in the gulf. Among the several items mentioned are housing, utilities, staging areas, schools, and motel and hotel accommodations. It is obvious to me that unless the field or fields are discovered we will have no need for these facilities. You show me the mortgage loan officer that would finance, say, 200 living units in Yakatat at this stage, and I'll point to the man heading for early retirement or the school board asking for funds for 20 class rooms on the strength of an unknown, maybe need.

Another item mentioned in opposition to the gulf sale is that when Alyeska comes on full stream there will be a surplus of product on the West Coast and will result in a depressed market, thereby seriously effecting the monetary return to both the federal and state from a royalty standpoint. At this point in time the State has no royalty claim to O.C.S., but it is argued that it could effect the market for Prudhoe and Cook Inlet production. My best information is that this problem has been anticipated and is well on the way of being solved.

My conclusion is that the sale should proceed, exploration should be expedited, the field or fields inventoried, and when this has been accomplished and the need established, the necessary facilities can be provided by both the private and the public sector within their areas of normal responsibility.

A. C. Swalling
Chairman of the Board

to support a positive decision by the Department of the Interior to conduct this sale.

OCS Importance

The impact of the Arab embargo led to the development of a widely held view that this nation must regain a reasonable level of energy self-sufficiency. We currently import 6 million barrels per day of crude oil and petroleum products and the figure is steadily rising. Our dependence on imports adversely affects the nation's security and economic stability. We are no longer assured an adequate supply of fuels for national defense and our foreign policy is undoubtedly weakened by the threat of an embargo that can cripple our industries and seriously affect our life style. Aside from the uncertainty of supply, costs of large volumes of imported oil will adversely affect the nation's balance of payments causing an intolerable drain on the economy.

In developing plans to improve the nation's energy self-sufficiency, all available alternatives must be investigated. It is a generally accepted premise that the nation cannot achieve this goal by relying solely on reducing our level of energy consumption through a no energy growth economy and energy conservation measures. A no-growth economy is not a viable alternative. We must find new reserves to replace the 3 billion barrels

of oil and 22 trillion cubic feet of natural gas consumed from our existing reserves each year just to keep the present situation from worsening. Furthermore, some increase in energy use is necessary to supply the needs of a growing population even if we do no more than maintain our current standard of living. Energy conservation is an extremely important step toward reaching the goal of energy self-sufficiency. There is much room for improvement in the use of energy and conservation should be a part of our national energy program. However, energy conservation by itself will not be enough.

Any effective plan for achieving a reasonable level of energy self-sufficiency must include development of all of the nation's energy resources. We are indeed fortunate that the present energy shortage is caused by an inadequate development of supplies rather than by depletion of our energy resources. This nation has an abundance of energy resources in a wide variety of forms and simply needs to take the steps necessary to enable these resources to be explored, developed and brought to market.

The nation's most significant energy resources are nuclear and fossil fuels. Nuclear energy has tremendous potential, but it has faced lengthy delays due to environmental objections. It cannot be a substantial factor in our nation's energy supplies for the next

10 to 15 years because of the long lead times in nuclear plant construction. Domestic coal and oil shale resources are extremely large and can be processed into oil and gas to meet the market demands now supplied by conventional sources. However, it does not appear that these resources will make a significant contribution to the nation's energy supplies for many years due to the economic and physical limitations of constructing mines and converting the production into gas and liquid forms. There are also similar limitations to mining coal, converting equipment to burn it in its natural form and cleaning the stack gas to meet air pollution standards. Clearly for at least the next 10 to 15 years there are no alternatives to conventional oil and gas for major new supplies of domestic energy.

In reviewing the alternatives with regard to development of the nation's conventional oil and gas resources, it is apparent that the historical onshore producing areas alone no longer have the potential to supply the nation's petroleum needs. Even the Gulf of Mexico has undoubtedly passed its peak for new discoveries. In our opinion, the nation's greatest potential for new discoveries of conventional oil and gas lies in the remaining Outer Continental Shelf areas of Alaska, California and the Atlantic Coast. To evaluate this potential and achieve the goal of improved energy self-sufficiency the nation

must make all of these offshore areas available for exploration and development through an accelerated leasing program.

Gulf of Alaska Resource Evaluation

In 1974 the Bureau of Land Management requested that the petroleum industry prepare rankings of the 17 Outer Continental Shelf areas of the United States by order or resource potential and environmental concerns. In addition to responding to this request Atlantic Richfield Company ranked these areas by leasing preference. This ranking reflected the combined considerations of resource potential, possible environmental impacts, and operating capabilities that might affect the timing for delivery to market of any reserves found. At that time we assigned the Gulf of Alaska the highest resource potential and the highest preference for leasing of all the OCS areas. We continue to hold that view.

Industry's interest in the Gulf of Alaska and assessment of its potential is based on numerous geological and geophysical studies conducted by individual companies and groups. In an effort to further evaluate the potential of the Gulf of Alaska, Atlantic Richfield together with three other companies recently obtained approval from the U. S. Geological Survey to drill a stratigraphic test in the area. This well has been spudded at a

location some 18 miles offshore in a spot intentionally selected where oil and gas are not expected to be found. Other companies have been invited to participate in this data acquisition program by sharing in the cost of the well. There are now 26 companies participating in the program.

The proprietary geological and geophysical data and interpretative studies developed in the presale exploration programs of the various companies interested in the Gulf of Alaska will be used in evaluating the prospective tracts. Independent evaluations prepared by the different companies combined with competitive bidding in the lease sale will ensure the Government a fair market value for these public resources. Some concern has been expressed publicly that the Government does not receive a fair share of the proceeds from reserves found in OCS areas. An often overlooked fact is that the Government under the present system receives not only the amount paid in bonuses but also 1/6 royalty and income taxes on the industry's profits. Our studies indicate that considering the risks involved in the exploratory ventures of the Outer Continental Shelf and the time value of money the Government receives about 80% of the gross profits from OCS production.

Physical Environment

Weather and sea conditions are a major factor in conducting offshore exploration, development and producing operations. Since the Gulf of Alaska is generally noted as being a very stormy area, the industry has sponsored numerous programs to assess its physical environment. These programs include on site measurements of present conditions and hindcast studies from records of past conditions in the Gulf of Alaska to develop extensive information on wave heights, tides, winds, currents and water temperature. It is necessary to study not only the normal conditions of the Gulf of Alaska, but also to determine conditions that exist during peak storm periods. These extreme or rare occurring storm conditions provide the design criteria for installations that must sustain the maximum forces encountered in a storm.

Studies of the Gulf of Alaska indicate that weather and sea conditions are no harsher than those encountered in other areas in which the industry has operated. In fact, the Gulf of Alaska is very much like portions of the North Sea, especially with respect to wind and wave conditions. Furthermore, extreme wind conditions in the Gulf of Alaska are no harsher than those in the Gulf of Mexico during a hurricane and the water currents and tides are not as severe as those in the Cook Inlet. The most important point from this comparison, however, is that the industry

has faced similar weather and sea conditions in other areas and has successfully dealt with the problems of operating in a similar environment.

Public concern has been expressed with regard to the effects of earthquakes on operations conducted in the Gulf of Alaska. An earthquake could cause faulting of the surface sediments and loss of soil stability resulting in damage to offshore facilities installed in the effected area. Geological hazards of this type caused by earthquake activity can be reduced considerably by utilizing geophysical techniques. Seismic data shows that the danger of a fault rupturing surface sediments in the Gulf of Alaska is extremely low. There has been no evidence discovered of fault displacements in recent sediments on a majority of the structures. Seafloor topography as well as the thickness and contortion history of the overburden have been studied by seismic mapping to determine the potential loss of overburden stability. Such studies in the Gulf of Alaska indicate that the possibility of mass wasting of unconsolidated sediments over most of the area is very remote. The knowledge gained from these studies and from later detailed surveys that will be conducted in selecting specific sites for exploratory drilling or construction of production platforms will enable the industry to minimize the risks of encountering unstable seafloor conditions.

Technological Assessment

Although industry has not previously operated in the Gulf of Alaska and the environment is known to be harsh, we are confident that present technology will enable operations to be conducted safely in this area. Two of the main conditions that make the Gulf of Alaska a harsh environment are the frequent storms and the threat of earthquakes. We have experience in other areas, notably the North Sea, where operations have been successfully conducted under similar storm conditions. The threat of earthquakes can be dealt with by selecting locations for drilling and construction of offshore facilities to avoid areas with unstable seafloor conditions and by applying existing structural design techniques evaluated both in offshore platforms and other types of structures to reduce the risk of failure to an acceptable level.

The experience gained in designing equipment for the North Sea together with the extensive data gathered on the physical environment of the Gulf of Alaska has prepared the industry exceptionally well for operations in this new area. In over a decade of activities in the North Sea during which almost a thousand wells have been drilled, drilling rigs and production facilities as well as support equipment, such as supply boats and helicopters, have been steadily improved and successfully tested in severe operating conditions. For example, the latest

generation of semisubmersible drilling rigs used in the North Sea have safely withstood waves of almost 100 feet. These wave heights are comparable to the extreme waves expected in the Gulf of Alaska.

The experience of oil industry and related support personnel in the North Sea provides a bank of trained manpower uniquely qualified for operations in the similar environment of the Gulf of Alaska. Experience in the North Sea has also led to the development of operating procedures in drilling and producing activities that provide increased safety and efficiency over earlier procedures. This knowledge of improved procedures can be transferred to the Gulf of Alaska. Industry has also learned that the best procedures for safe and efficient operations vary with the severity of weather and sea conditions. Advances in reliable weather forecasting now allows offshore operators to make needed changes in their activities before bad weather reaches the area.

With regard to the adequacy of present technology in protecting against the threat of earthquakes in the Gulf of Alaska, we have already discussed the techniques used in selecting sites for drilling and construction where seafloor stability is not expected to be affected. In locations where the foundations remain stable, the main threat of an earthquake to offshore structures is the force of the shock waves. Platforms installed in the

Cook Inlet and on the California Coast have been designed to withstand these shock forces. Earthquakes have occurred in both areas with no structural damage to the platforms. Although the shock intensity was not as severe as may be experienced in the future either in these areas or the Gulf of Alaska, the experience does provide some indication that platforms can be designed to withstand earthquakes. In addition, structural engineers are experienced in designing other types of structures to withstand earthquake forces and are able to evaluate their design techniques by studying the performance of structures that have been exposed to severe earthquakes. These experts advise that the present technology is adequate for the design of offshore platforms and facilities to withstand these forces with an acceptable level of reliability.

Environmental Considerations

The Gulf of Alaska supports a sizable fishing industry and it is natural that the entry of a new industry into these waters would be viewed with some concern. However, the history of 25 years of operations in the Gulf of Mexico offers substantial evidence that the petroleum industry has the ability and desire to conduct its activities compatibly with fishing, shipping, and other offshore industries. Our relationship in the Gulf of Mexico has been excellent not only with other industries

but also with the adjacent states and onshore communities. Although petroleum related activities arising from the proposed northern Gulf of Alaska lease sale may accelerate the growth of several coastal towns any adverse socio-economic impacts on the majority of the people in the area should be offset by improved job opportunities and higher income. We firmly believe that petroleum operations can be conducted in the Gulf of Alaska with no significant long term environmental impact or adverse effects on other activities and adjacent areas.

Oceanographic studies, both physical and biological, have been or are now being conducted in the northern Gulf of Alaska. The most comprehensive is the one being done by NOAA in conjunction with the Bureau of Land Management. Atlantic Richfield Company, together with three other companies, has just completed an oceanographic survey at the drill site for the stratigraphic test well in the northern Gulf of Alaska. Although environmental studies in the Gulf of Alaska have accelerated in the past two to three years, oceanographic observations date back to 1778, the early 1920's, and continuously since the late 1940's.

The greatest environmental concern with regard to petroleum industry operations in offshore areas is undoubtedly the risk of an oil spill. The petroleum industry takes extensive protective measures in equipment

design, operating procedures, and training of personnel to prevent such an occurrence. The public is further assured of adequate industry measures to provide environmental protection and safety in offshore operations through the requirements of the U. S. Geological Survey's operating orders for OCS areas. Operating orders are now being developed specifically for the Gulf of Alaska based on knowledge gained by many years of industry operations in offshore areas under U. S. Geological Survey jurisdiction.

It is not possible to eliminate all risks of an oil spill regardless of how many safeguards are taken to prevent it. However, it is important that we keep this risk in its proper perspective. In the Gulf of Mexico and the California offshore the petroleum industry has drilled over 16,000 wells on the Outer Continental Shelf. While conducting these activities only four major spills have occurred and only one, the Santa Barbara Channel spill in 1969, caused appreciable short term environmental damage. To the best of our knowledge there is no evidence that even this spill had any permanent effect on the ecology. A National Academy of Sciences' study also helps to place offshore drilling and producing activities in the proper perspective with regard to the threat of pollution. Their study found that these offshore activities have historically caused less than 2% of the total oily discharges into the oceans.

Even though the risk of an oil spill from offshore exploration, development and production is relatively small protective measures are taken to contain and cleanup an accidental spill and minimize the threat of damage. The petroleum industry has established cooperative organizations, such as Clean Seas Inc. and Clean Gulf Associates, for containment and cleanup of spills in all offshore areas in which it operates. A similar organization, Gulf of Alaska Clean Up Cooperative, is now organized for the Gulf of Alaska and will provide oil spill clean up equipment and operating procedures before exploratory drilling and development begins. These cooperative organizations are adequately funded, equipped and manned by personnel trained to respond quickly and effectively in the event of a spill. In addition, the U. S. Coast Guard maintains a "strike team" that is alerted in the event of a spill in offshore waters. This team will take charge of containment and cleanup operations in any case where industry activities are not considered to be adequate.

Conclusions

Atlantic Richfield Company personnel have reviewed the draft Environmental Impact Statement prepared with respect to the proposed northern Gulf of Alaska lease sale (No. 39). In our opinion, this statement is adequate for a positive decision by the Bureau of Land Management to proceed with the proposed sale. We are also confident of the petroleum

industry's capability and determination to operate safely in the Gulf of Alaska. Considering the alternatives available with regard to meeting the nation's future energy needs, we believe it is vitally important for decisions to be made by the Government which will allow maximum development of the petroleum resources of the Outer Continental Shelf as promptly as possible. We respectfully urge a decision to proceed with the northern Gulf of Alaska lease sale (No. 39) as presently scheduled.

Comments with regard to the specific items in the draft Environmental Impact Statement are attached.

Sincerely yours,

J. P. Johnson

JPJ/nn

Attachment

Getty Oil Company

Post Office Box 1404, Houston, Texas 77001 · Telephone: (713) 228-9361

Mid-Continent Exploration and Production Division
H. E. Wendt, Offshore Manager

August 27, 1975

Director (732)
Bureau of Land Management
Washington, D. C. 20240

Dear Sir:

Re: Proposed Lease Sale No. 39
Outer Continental Shelf -
Gulf of Alaska

Please accept the attached statement as the views of Getty Oil Company on the proposed sale of oil and gas leases in the Gulf of Alaska, Sale No. 39.

Yours very truly,

H. E. WENDT

ERT/skf

Enclosure

DEPARTMENT OF THE INTERIOR

HEARING ON

ENVIRONMENTAL IMPACT STATEMENT
PROPOSED GULF OF ALASKA OCS LEASE SALE

AUGUST 12-13, 1975

WRITTEN COMMENTS OF

H. E. WENDT
ON BEHALF OF
GETTY OIL COMPANY

Getty Oil Company has reviewed and concurs in the presentation made by the Gulf of Alaska Operators Committee at the August 12-13, 1975, hearing held in Anchorage on the Environmental Impact Statement relative to the possibility of the Department of the Interior conducting an offshore lease sale in the Gulf of Alaska.

Getty Oil Company is confident that offshore drilling and production equipment and operating techniques have been developed to such mechanical excellence that exploration for and production of petroleum can be conducted in the Gulf of Alaska with minimum disturbance to indigenous ecological systems. Any damage that might occur would surely be temporary, and we believe that due consideration should be given to the fact that platforms, etc., will be of limited term - such as for forty years, as stated in the Environmental Impact Statement.

Of apparent concern to a number of those testifying at the hearing was the impact of offshore drilling and production operations on small communities on the Gulf of Alaska shore. Though some of the participants in the hearing suggested considerable delay to "study" the impact, may this company suggest that such consideration be entertained after the initial exploratory drilling. Exploratory drilling is usually done with rather minimum disturbance to shore installations and the rig crews rarely live in the small coastal towns. Crew work patterns of seven days on seven off or ten on ten off usually allow sufficient time for travel to their homes in a larger city. It is our opinion that there will be little impact on coastal towns for the first two or three years after a lease sale, and when platforms are installed and development drilling commenced the impact of boat traffic and supply operations will be gradual and will be absorbed without undue hardship on the local population.

Getty Oil Company speaks from long experience in offshore operations. This company began producing oil from platforms in the Pacific Ocean off southern California before World War II and commenced an exploration program in the Gulf of Mexico in 1946. Our offshore operations now consist of more than 500 oil and gas wells, over 100 production platforms and numerous support facilities. We are satisfied that our operation participation has been, from the start, a safety conscious and minimum pollution occurrence endeavor.

GREATER SITKA
Chamber of Commerce, Inc.

②732

ALASKA 200 OFFICE
ALASKA
AUG 22 12 46 PM '75

Director (732)
Bureau of Land Management
Washington, D.C. 20240

Gentlemen:

The Greater Sitka Chamber of Commerce on August 14, 1975 passed the following resolution for your consideration:

WHEREAS, there is an urgent need for energy fuels at the present time; and,

WHEREAS, we strongly feel that American dependence on foreign imported oil, and the attendant whims of foreign politics, should be reduced to o the lowest possible levels with all practical haste: and,

WHEREAS, the outer continental shelf of the Gulf of Alaska is expected to be a potentially rich source of oil, which is so badly needed by industry: and,

WHEREAS, due to the extensive environmental research already done, we feel that additional time, effort and money spent in such pursuits would be counterproductive:

THEREFORE, be it resolved that the Greater Sitka Chamber of Commerce hereby urges your agency to expedite such plans and arrangements as are necessary to the immediate beginning of exploration and development of the Gulf of Alaska outer continental shelf.

This the 14th day of August, 1975.

Lloyd R. Rice

Lloyd R. Rice, President

RECEIVED
1975
DIVISION OF ... ALS
ENVIRONMENTAL ASSESSMENT

POST OFFICE BOX 638 • SITKA, ALASKA 99835

Manager, Alaska Outer Continental Shelf Office
P.O. Box 1159
Anchorage, Alaska 99510

Richard W. Varney
Cape Yakataga, Alaska 99560
30 July, 1975

Dear Sir:

As a concerned resident of Cape Yakataga, I feel my sentiments regarding the forthcoming oil and gas lease sale should be made a part of the public record.

I strongly feel that the offshore tracts should be leased as soon as possible to prevent a future critical domestic oil shortage. By letting the offshore leases by this fall the various companies will have ample time to discover, drill, and define much needed crud oil reserves in an orderly manner.

The local economy at Cape Yakataga will benefit tremendously when the offshore oil land begins to be developed. Between Cordova and Yakutat lies an approximate 250 mile strip of timbered beach with virtually nc develppment. This area has historically been a living nightmare to pilots due to its isolated nature and unpredictable weather. The ly airstrip in the area is located at Cape Yakataga. The F.A.A. had, until recently, all but shut down their facilities at the runway. With the recent scientific studies taking place in the Gulf of Alaska (approximately 28 miles SSW of Cape Yakataga) already there have been improvements with the facilities at the airport. The F. A. A. in co-operation with the interested oil companies have and are in the precess of installing new navigational equipment and a lighting system. It is difficult to estimate the number of lives that could have been saved in the past if these safety devices had been installed then. Future lives will most assuredly be saved by the installation of this equipment. This is only the beginning, if the offshore lands are developed Cape Yakataga will enjoy an all weather, all instrument airport. The people ultimately benefitting will be the general public.

When the offshore leases are let, the oil companies will need communications. The present facilities at Cape Yakataga are incapable of handling the increased demand that l be placed on them after the leases are let. RCA Alaska Communications employs three ner (myself included) at the communications site. We and our families rely on added growt for continued existence at Cape Yakataga. Since the F.A.A. closed its doors four years

ago, Cape Yakataga has shrunk from a prosperous community of 30 to a hopeful 5. The offshore leases will definitely give the communications industry in Southeastern Alaska a shot in the arm.

With the possibility of offshore oil being developed producing an inexpensive scurce o power, I.E. mining, may be encouraged to develppe. (This area is rich in minerals). Cape Yakataga could concievably becomea very important city in Alaska. I for one feel that now is the time to start progressing towards that goal.

Simply stated, without tbe development of the offshore natural resources Cape Yakataga will atropy and die. On the other hand, with the letting of the leases one can look forward to a steady healthy economic development of the area.

Richard W. Varney

Richard W. Varney

ALASKA OCS OFFICE
ANCHORAGE, ALASKA
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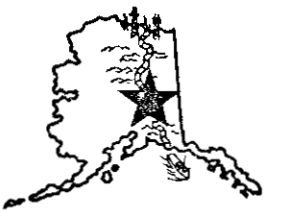
FIDC



DR. WILLIAM R. WOOD
EXECUTIVE VICE PRESIDENT

FAIRBANKS INDUSTRIAL DEVELOPMENT CORPORATION
Phone 907 452-5400 or 452-5752 619 Eleventh Avenue Fairbanks, Alaska 99701

August 28, 1975

Manager
Alaska Outer Continental Shelf Office
Bureau of Land Management
117 W. Fireweed Lane
Anchorage, Alaska

Dear Sir:

The attached written testimony concerning the "Proposed Lease Sale (#39) of Oil and Gas on the Outer Continental Shelf - in the Gulf of Alaska" is presented on behalf of the Fairbanks Industrial Development Corporation.

Sincerely yours,

Wm R. Wood

William R. Wood
Executive Vice President

WRW/kb
encl.

Written Testimony Concerning the "Proposed Lease Sale (#39) of Oil and Gas on the Outer Continental Shelf - In the Gulf of Alaska"

I am Dr. William R. Wood, President Emeritus of the University of Alaska, and currently Executive Vice President of the Fairbanks Industrial Development Corporation, a non-profit community service organization comprised of ninety-two professional and business member firms, representing major business, professional, industrial, and civic enterprises of Interior Alaska.

I am instructed by the Board of Directors of FIDC to urge the earliest feasible development of the potential oil and gas reserves on the Outer Continental Shelf in the Gulf of Alaska, and other Continental Shelf areas surrounding the State of Alaska, consistent with national needs and priorities in the development of essential energy supplies for the people of our nation and state.

It is understood by the FIDC Board that careful consideration by those directly responsible will be given to protecting the ocean environment, as well as the coastal environment involved, and that every effort will be made at the national level to protect the economic interests of the people of Alaska, particularly in those Continental areas immediately impacted by any resource development efforts undertaken, including among other matters exploration, production, and processing of all non-renewable resources found on the Outer Continental Shelf in waters surrounding the State of Alaska.

It is the position of the Board of FIDC that mere exploitation of the Outer Continental Shelf by the national government or private enterprise cannot be adequately justified apart from careful consideration of the issues raised here. A common-sense gradual approach to development in the common interest of the people of Alaska, as well as of the nation, is advocated, rather than any extremist view at either end of the spectrum of possibilities.

FIDC is confident that this point of view is shared not only by member firms of our non-profit community service organization, but by a strong majority of the residents of the Interior Alaska. We have come to this conclusion after studying a mass of detail that has been made available from a variety of sources during the past several months.

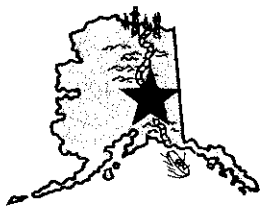
Move. Move now. Move now as a prudent person should who holds the interest of others at heart, as well as one's own future well-being.

Wm R. Wood

William R. Wood
Executive Vice President
Fairbanks Industrial Development
Corporation

August 28, 1975

ALASKA OCS OFFICE
ANCHORAGE, ALASKA
SEP 8 11 24 AM '75



FIDC

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Phone 907 452-5400 or 452-5752 · 619 Eleventh Avenue · Fairbanks, Alaska 99701

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Wm R. Wood

William R. Wood
Executive Vice President
Fairbanks Industrial Development
Corporation

August 28, 1975

Alaska Loggers Association, Inc.

BOX 425
KETCHIKAN, ALASKA 99901
Phone 225-6114

July 31, 1975

Manager, Alaska OCS office
Box 1159
Anchorage, Alaska 99510

Dear Sir:

Enclosed are four copies of an Alaska Loggers Association Resolution number 75-1 supporting OCS development in the Gulf of Alaska.

Also included are copies of the ALA people map, which provides information about Alaska Loggers Association and locates the members thruout the State.

Please direct the material to the proper people.

Sincerely,

Donald A. Bell
General Manager
ALASKA LOGGERS ASSOCIATION

DAB/mjs
Enc/
cc. James Campbell
R.L. Jernberg
Keith Arnold

ALASKA LOGGERS ASSOCIATION RESOLUTION 75-1

WHEREAS the Alaska Loggers Association, Inc., is a legally incorporated Alaska trade association with a membership of 91 regular members and 165 associate members, individuals and firms involved in Alaska's wood products industry, and

WHEREAS this industry ranks third in total employment in Alaska, and

WHEREAS the United States is now approximately 35 percent dependent on unreliable foreign sources for its oil and this dependence is still increasing, and

WHEREAS the wood products and petroleum production industries not only share the same producing areas harmoniously but also receive some mutual benefits through the resulting economic interaction, and

WHEREAS it is belief of the Directors of the Alaska Loggers Association, Inc., that a mutually cooperative development is desirable in the Gulf of Alaska region and that continued growth of both industries is in the best interests of the State and Nation; now, therefore, it is:

That Alaska Loggers Association, Inc., support prompt leasing of OCS petroleum exploration tracts in the Gulf of Alaska by the Department of Interior and urge local, state and federal government cooperation in fostering exploration

Approved this 25th day of July 1975.

James F. Campbell
President
Alaska Loggers Association Incorporated

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James F. Campbell
President
Alaska Loggers Association Incorporated

Greater
Juneau Chamber of Commerce

"SERVING ALASKA'S CAPITAL"

200 N. Franklin Street (907) 586-2201 Juneau, Alaska 99801

August 28, 1975

U. S. Department of Interior
Bureau of Land Management
Alaska Outer Continental Shelf Office
P. O. Box 1159
Anchorage, Alaska 99501

Gentlemen:

The Greater Juneau Chamber of Commerce has, since OCS became a household expression, been for the leasing and development of the oil and other resources of the Continental Shelf.

Juneau is more vibrant now than in the past and we do want to be evaluated with the other cities as a possible important cog in the development.

We are not "playing dead" and want the Alaska Outer Continental Shelf Office to know we are ready to help in whatever means you need.

Please keep us in mind.

The enclosed states our position and has been forwarded to the Bureau of Land Management in Washington, D. C. and to our Congressmen.

Sincerely,

Radder.

R. A. "Dutch" Derr
Executive Vice President

Enclosure

RAD:ew

A RESOLUTION

WHEREAS, the Board of Directors of the Greater Juneau Chamber of Commerce is a representative of the business community for the residents of the City and Borough of Juneau, Alaska.

WHEREAS, the future ability of Juneau to meet its service responsibilities to its constituent member is to a large extent dependent on healthy regional, state and national economy to which increased domestic oil production is essential and,

WHEREAS, the residents of the City and Borough of Juneau, Alaska are currently dependent primarily on state and federal government, tourism and related services as a source of revenue and,

WHEREAS, these industries are totally dependent on petroleum for its energy and,

WHEREAS, there is no evidence to indicate that Outer Continental Shelf leasing within the Gulf of Alaska and oil development is incompatible with these industries, we must totally support the proposed fall/winter, Gulf of Alaska, Outer Continental Shelf leasing.

WHEREAS, oil development holds a promise of a boarder industrial base and economic diversification for the residents of the City and Borough of Juneau and,

WHEREAS, such economical growth can be expected to result in a more fruitful lifestyle for the residents of the City and Borough of Juneau, it is therefore resolved that the Board of Directors of the Greater Juneau Chamber of Commerce support prompt leasing of OSC tracts in the Gulf of Alaska by the Bureau of Land Management.

WHEREAS, it is also desired that within the Draft Environmental Impact Statement, Outer Continental Shelf proposed gas and leasing in the northern Gulf of Alaska be broadened within its "Social and Economic Impact of the Northern Gulf of Alaska Coast" to include the City and Borough of Juneau relative to short and long term on-shore impact.

WHEREAS, Juneau is the only major community within the coastal Alaskan waters within a 200 mile radius of said lease sale that is not included within the Draft Environmental Impact Statement,

WHEREAS, Juneau is the only community within 175 miles of the impact area that has proper planning and zoning laws present to facilitate anticipated on-shore impact,

WHEREAS, the Board of Directors of the Greater Juneau Chamber of Commerce demands that the final Environmental Impact Statement include the assessment of what Juneau's potential impact on such long term leasing is.

Passed and Approved on August 25, 1975.

Signed _____

R.A. "Dutch" Derr
Vice President
Greater Juneau Chamber of Commerce

Greater
Juneau Chamber of Commerce
"SERVING ALASKA'S CAPITAL"
200 N. Franklin Street (907) 586-2201 Juneau, Alaska 99801

ALASKA OCS OFFICE
ANCHORAGE, ALASKA
SEP 3 11 14 AM '75

August 27, 1975

Director (732)
Bureau of Land Management
Washington, D. C. 20240

Dear Sir:

The enclosed is a much discussed resolution from the Greater Juneau Chamber of Commerce.

We are unanimous in our support of the Outer Continental Shelf leasing and oil development.

We are also desirous of being included in the "Social and Economic Impact of the Northern Gulf of Alaska Coast."

It is important that the Bureau of Land Management realizes that Juneau is a very vibrant community and that the Capital Move has made the people more aware of opportunities that are available to us.

Please don't write us off - keep us informed. We <u>are</u>, and may continue to be, the Capital of Alaska.

Sincerely,

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Executive Vice President

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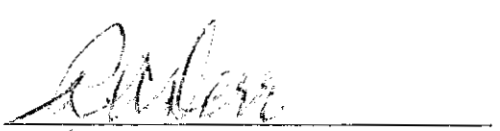
Passed and Approved on August 25, 1975.

Signed 

R.A. "Dutch" Derr
Vice President
Greater Juneau Chamber of Commerce

[illegible]

[illegible]

[illegible]
Anchorage, Alaska 99510
August 27, 1975

Bureau of Land Management
Alaska Outer Continental Shelf Office
Post Office Box 1159
Anchorage, Alaska 99510

Gentlemen:

The Alaska Chapter of the Sierra Club was unable to present oral testimony at the public hearings held here recently on proposed oil and gas leasing in the Northern Gulf of Alaska(Sale No. 39), as described in your Draft Environmental Impact Statement dated June 27, 1975. We are submitting this written statement in lieu of oral testimony, and request that it be made a part of the permanent hearing record.

We wish to state that we understand the importance of assuring an adequate supply of oil and gas, and other forms of energy for the United States in the years ahead. Sierra Club members are aware of the importance of energy resources to our country, and we realize the consequences of a shortfall of oil and gas to the American economy. We are as concerned as are other Americans, about the need for these resources; however, we believe that the natural environment, including the offshore areas, must be given adequate protection in the process of exploring for, and extracting oil and gas and other necessary resources.

We believe that the Draft E.I.S., while it no doubt represents a considerable amount of effort on the part of the Alaska O.C.S. staff, cannot be considered adequate in many respects because of the lack of sufficient baseline data. We believe that the studies presently under way should be completed, and their results completely analyzed, before any decision to hold an oil and gas lease sale in the Northern Gulf of Alaska is made. We estimate that a period of at least two years, and longer than this if necessary, will be required for this purpose. We believe, therefore, that any decision to hold a Northern Gulf of Alaska oil and gas lease sale before at least September of 1977 would be premature and unjustified, and we request that such a delay be made.

Regarding alternatives to the proposed sale, Section VIII of the Draft E.I.S., we believe that under Subsection B., "Delay Sale", all three considerations ("Until new equipment is available to provide increased environmental protection; pending completion of studies... and Pending completion of coastal zone and growth plans onshore) are valid, and are sufficiently important as to justify a delay in the sale until all three are satisfactory to the State of Alaska and to the Council on Environmental Quality.

[illegible] OF THE ALASKA CHAPTER, SIERRA CLUB - PAGE 1

We believe that the alternative of energy conservation would be adequate to cover any shortfalls in energy supply until the three considerations mentioned in the previous paragraph have been satisfied. We realize that although this alternative must be included in the Draft E.I.S., the authority to mandate it is not the B.L.M.'s, but rather is that of the Congress and the Federal Energy Administration. We do wish to point out that a number of authoritative studies have recently pointed out the practicality and necessity of this alternative. For instance, the Council on Environmental Quality's proposal, "A NATIONAL ENERGY CONSERVATION PROGRAM: THE HALF AND HALF PLAN", and the Ford Foundation's ENERGY POLICY STUDY both describe practical alternatives which should be given serious consideration.

The public hearings held here recently saw the oil industry and its supporters assure the B.L.M. that they have the capability to explore for and produce oil and gas in the Northern Gulf of Alaska with minimal risk to the environment. This is standard procedure; has anyone ever heard them admit that they might not be able to do so? We believe, however, that these people really can't be considered an unbiased, objective source of information, and we hope that you will take this into consideration when evaluating their testimony. We believe that the Council on Environmental Quality, which held hearings around the country, including Alaska, on "Project Independence", is a much more reliable and accurate source of information upon which to base a decision on outer continental shelf oil and gas leasing schedules. As you are no doubt aware, the C.E.Q., in April of last year, released its report on O.C.S. oil and gas leasing, and stated that such leasing in the waters off Alaska should be held last, after other areas have been leased. We certainly agree with the C.E.Q.'s recommendations, and urge that you give them the weight which they deserve.

We hope that this comment on the Draft E.I.S. is useful to your agency in drawing up its final Impact Statement. We appreciate the opportunity to submit our views, and want to thank you for receiving them.

I am, Sincerely,

Gerald R. Brookman
First Vice-Chairman, Alaska Chapter, Sierra Club
(Acting Chairman)

Mobil Oil Corporation

P.O. BOX 5444
DENVER, COLORADO 80217

H.J. FITZGEORGE
REGION VICE PRESIDENT

August 22, 1975

Mr. Edward Hoffman
Manager, Alaska Outer
Continental Shelf Office
Bureau of Land Management
P. O. Box 1159
Anchorage, Alaska 99501

Re: DRAFT ENVIRONMENTAL IMPACT STATEMENT
PROPOSED LEASE SALE (OCS No. 39)
OUTER CONTINENTAL SHELF SALE
OFFSHORE NORTHERN GULF OF ALASKA

Dear Mr. Hoffman:

Attached for inclusion in the record is Mobil Oil Corporation's written statement commenting on the draft Environmental Impact Statement which was the subject of the hearing beginning on August 12, 1975. We would appreciate it if you would include this written statement as part of the record of such hearing.

Very truly yours,

H. J. Fitzgeorge

MOBIL OIL CORPORATION STATEMENT

SUBMITTED TO THE
U.S. DEPARTMENT OF THE INTERIOR

REGARDING THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT
PROPOSED 1975 OCS OIL AND GAS LEASE SALE

NORTHERN GULF OF ALASKA
OCS SALE NO. 39

Mobil Oil Corporation has reviewed the Draft Environmental Statement relative to the proposal to offer acreage for oil and gas leasing on the Outer Continental Shelf in the Gulf of Alaska. It is a comprehensive study which provides a good basis for evaluation of the many issues which arise in connection with the proposed leasing.

Mobil would like to file some brief remarks focusing on that section of the Draft Environmental Statement which, in our view, is central to a decision as to whether the proposal should be implemented; namely, alternatives to this proposed action.

Fundamental to the evaluation of any alternative is an understanding of U.S. oil and gas consumption today and for the decade ahead.

Various supply and demand forecasts have been made in recent months. Mobil's forecast is this:

1. Even with vigorous conservation efforts, total U.S. energy consumption will grow with time as our population increases, as we continue to develop industrially, and as we strive to increase the standard of living for all Americans.

2. Oil and gas today supply more than three-fourths of our energy needs. Even with increasing use of alternative energy sources, Mobil projects that by 1985 oil and gas will still be providing about two-thirds of the energy consumed in this country, with the actual volume of "conventional" oil and gas required in 1985 exceeding current consumption by about 15%.

3. Along with this increased oil and gas consumption in 1985, there will be a substantial decrease in production from presently proved domestic oil and gas reserves. The 1974 production level of nearly 11 million barrels of oil and 60 billion cubic feet of gas per day from these reserves is projected to decline to about 5 million barrels of oil and 20 billion cubic feet of gas per day in 1985.

4. Converting gas to barrels of oil on the basis of energy content, this means that by 1985 the U.S. will be using about 32 million equivalent barrels [1] of "conventional" oil and gas per day, but we estimate the country will only be producing around 9 million equivalent barrels per day from presently proved reserves.

---

[1] Barrels of oil plus gas converted to barrels of oil on the basis of energy content. (5600 cubic feet of gas = 1 Bbl. of oil)

The projected gap of 23 million equivalent barrels per day by 1985 can only be filled by increased imports and increased domestic production. It is clearly in the best interests of this nation to strive toward increasing domestic production. Because of the exploration maturity of most onshore geologic provinces, Mobil Oil Corporation believes that the vast and little explored Outer Continental Shelf offers the largest potential for significant new oil and gas discoveries.

It is against this background that alternatives to the proposed sale must be assessed.

The first alternative is to simply withdraw the proposed sale as well as others in frontier OCS areas. This action can only increase imports.

Mobil is in favor of conservation to cut out waste, but as stated earlier, and as the Draft Environmental Statement points out, conservation will not halt the growth of our use of energy.

Secondly, even when synthetic and alternate energy sources are fully considered, the fact remains that by 1985 the U.S. will still require about 15% more conventional oil and gas than is used today. It should also be fully realized that each alternate energy source has its own peculiar set of environmental impacts. Finally, vastly increased oil imports will not only decrease the security of our future supply, but will further aggravate our balance of payments problem with a resulting unfavorable impact on the nation's economy.

Withdrawing this sale, or other frontier OCS sales, does not constitute a viable alternative if we are to work toward increasing the domestic oil and gas production the United States so vitally needs.

The second alternative to the proposed OCS sale would be to delay it pending development of new environmental protection technology, further impact studies, new OCS operating orders, and completion of onshore land use plans. In Mobil's view, delay for these reasons is not appropriate.

The industry's technology for environmental protection has been continuously improving and operating regulations and procedures have become more stringent. Significantly, there is no evidence that any past spill has had a permanent adverse effect on the environment. Further, industry has participated in development of advanced spill clean-up technology, and has established cooperative clean-up organizations in the areas where it now operates.

Delay of the proposed sale in order to make additional environmental impact studies might be justifiable if knowledge of the Gulf of Alaska borderland environment were meager. Knowledge is in fact substantial and additional study would probably not change the fundamental understanding of this environment or the impact of oil and gas operations on it.

Delay for the purpose of developing a new set of OCS operating orders would ignore the comprehensive and tested OCS orders which already exist. Furthermore, the Secretary of the Interior now has the authority to revise these orders at any time so far as they pertain to prevention of waste, conservation of natural resources, or protection of correlative rights.

Finally, we believe a delay in the proposed sale to allow completion of onshore land use plans is not necessary. Mobil endorses the concept of coordinated planning of production facilities, pipelines, and onshore facilities as new offshore producing areas are discovered and developed. Industry, working with federal and state government agencies, has the ability to do this planning in the time span that normally exists between initial discovery and development.

Significant drilling must take place before reserves and producing rates can be estimated so that production and transportation facilities can be properly designed. Mobil believes the time requirements inherent in progressing from exploration to field development afford adequate opportunity for full analysis and approval of final field development plans and transportation systems.

These timing considerations are especially important as they relate to the impact of future OCS production on our energy supply. The urgency for an early beginning is evident when we consider the time involved from initiation of an offshore lease sale to actual production of oil and gas from a given lease. Variations in rig availability, water depth, wind and wave conditions, platform fabrication capacity, and remoteness of an area all bear on lead time. We estimate for new leases this lead time typically will be in the range of from four to seven or more years. Development of new offshore areas must begin at the earliest possible time if production from these areas is to make a significant contribution to our supplies in the next decade.

Another alternative to the proposed sale which we feel deserves comment is exploration of the OCS by government drilling prior to a sale. Mobil is opposed to this idea. We believe that the competitive forces present within the oil and gas industry have served and will continue to serve the public interest by inducing multiple conceptual approaches to exploration, divergent assessments of potential and risk, development of new technology, and high lease bonus prices which result in an economic necessity for expeditious development of new production. Certainly, the environmental impact of government exploration should not be less than that of industry exploration.

In summary, Mobil believes the United States must proceed with leasing in frontier OCS areas now if we are to strive toward establishing the secure future energy supply this country must have. Also, Mobil is confident that this can be done with full regard for establishing a proper balance between environmental protection and development of a much needed resource.

REPRESENTATIVE
M. F. "MIKE" BEIRNE
P. O. BOX 4-1539
ANCHORAGE, ALASKA 99509
PHONE (907) 272-1445
POUCH V STATE CAPITOL
JUNEAU, ALASKA 99801
PHONE BARANOF HOTEL
(907) 586-2660

Alaska State Legislature

House of Representatives

COMMITTEES
STATE AFFAIRS
LABOR AND MANAGEMENT

July 25,1975

The Bureau of Land Management
Alaska Outer Continental Shelf Office
800 "A" Street
Anchorage, Alaska 99501

Gentlemen:

I strongly support the exploration and development of our outer continental shelf areas. I expect to be present at, and to give testimony at the August 12- 13 hearings to be held in Anchorage.

There is no question that America must have immediate exploration and development of the outer continental shelf. Proper environmental safeguards are proper and necessary. These safeguards however should be reasonable in every respect so that we do not add to the cost of living. Certainly we consumers ultimately must pay any and all bills, and all costs related to these safeguards, as well as for the exploration, developing and marketing of our petroleum resources.

Sincerely yours,

M.F. "Mike" Beirne
Alaska State House of
Representatives

mfb:bp

cc: Senator Ted Stevens
Senator Mike Gravel
Congressman Don Young

Dear President Ford,

I feel the Dept. of Interior has gone too far when it proposes to lease millions of acres of Alaskan sea to the oil companies. Who gave the Dept. or the oil companies the right to murder extraordinary numbers of marine organisms that wil ~~ll~~ no doubt perish in unavoidable oil spills--unavoidable because of the conditions present in the Gulf of Alaska. How can the oil companies say that they can operate in a sea area that has ninety foot waves, 100 mile per hour winds, and earthquakes measuring 6.8 on the Richter scale?

It is evident from the facts that the Dept. of Interior and the oil companies realize that spills--massive spills,will occur, but they dont care as long as it brings in oil and money. You must be aware that that ~~s~~ is a very shallow view. Their value system is faulty if they think oil is more valuable than the environment We can learn to live with less oil,we must, but we can not survive without the ocean; it is the central key to life on Earth.

In view of the above, I urge you to halt the Dept. of Interiors plan to lease Alaskan seas to the oil companies before it is too late.

Sincerely,
Jennifer Malvin

Jennifer Malvin

Please write To

612 N. ARDEN DR.
BEVERLY HILLS, CALIF
90210

U. S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

HEARING ON PROPOSED LEASING IN THE GULF OF ALASKA

Ladies and Gentlemen:

I am Joe W. Tyson, Senior Scientist for the Gulf Universities Research Consortium (GURC), now Houston, Texas. I am appearing today on behalf of GURC at the request of the Gulf of Alaska Operators Committee.

As some of you may know, GURC is a research oriented organization which counts in its membership 20 universities with interests in the Gulf of Mexico.

During 1972-1974, GURC, at the request of a number of companies, initiated its Offshore Ecology Investigation to answer the deceptively simple question; "what is the measureable impact of drilling for oil, and later producing it on the estuarine and marine environment of the Louisiana outer continental shelf, the nation's greatest offshore oil producing region?" After an intensive study costing more than 1½ million dollars, the conclusion reached by GURC is that the drilling and subsequent production of petroleum products off of Louisiana has had no major lasting adverse affects on the marine environment and may even have been beneficial to some life forms. SLIDE #1

In appearing here today, I fully realize that the Gulf

STATEMENT OF

CLAYTON D. McAULIFFE
CHEVRON OIL FIELD RESEARCH COMPANY

VICE-CHAIRMAN, ENVIRONMENT AND BIOLOGY
STANDING COMMITTEE
GULF OF ALASKA OPERATORS' COMMITTEE

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

on

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12-13, 1975

GULF OF ALASKA OPERATORS COMMITTEE

Statement of Clayton D. McAuliffe,
Chevron Oil Field Research Company

OFFSHORE SALE ENVIRONMENTAL HEARING

Anchorage, Alaska

I am Clayton McAuliffe, Senior Research Associate, with Chevron Oil Field Research Company, La Habra, California. I received my doctorate in Soil Science with minors in Physical Chemistry and Plant Physiology from Cornell University, and was a professor at Cornell University and North Carolina State University for 8 years before joining Chevron Oil Field Research Company 19 years ago.

I am a member of the American Chemical Society, The Soil Science Society of America, the American Society of Agronomy, a member and Fellow of the American Association for the Advancement of Science, the Society of Petroleum Engineers and several honorary societies. I have published over 40 papers covering a variety of subjects in scientific journals and I have a number of U. S. and foreign patents.

For over five years I have devoted my time almost exclusively to a study of petroleum in the marine environment. I assisted in the planning and coordinated the extensive chemical and biological studies conducted during and following the 1970 Chevron oil spill in the Gulf of Mexico. I performed a similar function following the collision of the tankers in San Francisco Bay in 1971. I served on the Steering Committee of the National Academy of

Sciences Panel on Inputs, Fates, and Effects of Petroleum in the Marine Environment which resulted in the recent NAS publication "Petroleum in the Marine Environment". For the past four years I have been associated with the American Petroleum Institute's Committee on Fate and Effects of Oil in the Environment. I have also served on various other environmental and science advisory committees.

INTRODUCTON

Today I will review what happened to crude oil during a major oil spill as revealed by studies during and following the Chevron Gulf Coast spill and relate these results to the northern Gulf of Alaska to predict what would happen to the oil in the unlikely event that a major spill should occur. Before undertaking this I'd like to review some general observations concerning offshore crude oil spills.

As shown in Slide 1, the probability of a major oil spill is low. There have been only three major spills from offshore production platforms in the drilling of approximately 19,000 wells in the U.S. offshore.

Based upon the amount of oil discharged during these three major spills, it is predicted that if a major spill occurs in the Gulf of Alaska, it probably will range from 20,000 to 100,000 barrels.

Based upon past experience, a major oil discharge from an offshore platform may last for several weeks and possibly for a month or two.

During the period of oil discharge, it is obvious that the highest concentrations of oil will always be at the point of discharge.

To date the amount of oil discharged to the marine environment from offshore spills has been less than 2% that of the total petroleum input (National Academy of Sciences, 1975). As offshore production increases, the amount of oil discharged may increase, but probably will remain a small fraction compared with total input to the oceans. It may even become less because of improved drilling practices, and the employment of fail-safe valves in the oil wells.

As will be discussed in other testimony, the only documented adverse effects from major crude oil spills have been to some species of intertidal organisms when oil stranded on the shore (Straughan, 1971), and to sea birds if they were present. Therefore, efforts should be made to reduce the stranding of oil to an absolute minimum. I will later in my testimony make comments concerning a method for minimizing possible impacts of oil.

Some publications which have treated the issue of movement of oil spills have not given adequate recognition to the numerous changes which oil undergoes when discharged to the marine environment. Indeed, some studies on the subject have as a major assumption, the proposition that once oil is spilled, it will continue to drift around the ocean essentially unchanged for 50 or even 100 days. This assumption is clearly a false one, and it leads to unrealistic oil spill trajectories and hypothesezed adverse impacts of the oil.

I wish to devote the major portion of my testimony to the numerous changes oil undergoes before discussing possible oil spills and oil spill trajectories in the proposed lease areas of the northern Gulf of Alaska.

Although laboratory studies, visual observation of small oil spills at sea, and oil spill models provide some information, the extrapolation of the results of these studies to a major spill situation is largely speculation. I believe that the best prediction of what might happen in the event of a major spill in the Gulf of Alaska is to extrapolate observed results from a major crude oil spill (McAuliffe et al, 1975) with proper modifications for the different environment in the northern Gulf of Alaska.

When oil is discharged to the marine environment, it undergoes a number of rapid physical changes including spreading, dispersion, evaporation, solution, sedimentation, and emulsification. Beginning immediately, but proceeding at slower rates, are other crude oil alterations including biodegradation, photo-oxidation, and incorporation by marine organisms other than bacteria.

Of the three major offshore platform spills, chemical and biological studies were conducted only for the Santa Barbara and Chevron Gulf of Mexico spills. The Chevron study was one of the most comprehensive and diagnostic investigations ever made of an offshore crude oil spill. We believe that reference to this investigation and to the summary paper published in the Proceedings of the 1975 Conference on Prevention and Control of Oil Pollution held in San Francisco in March would be useful to the BLM in connection with the preparation of the final environmental impact statement.

MAIN PASS BLOCK 41 OIL SPILL

Chevron production platform C, Main Pass Block 41 Oil Field, located 11 miles east of the Mississippi River Delta in 40 ft of water, caught fire February 10, 1970. On March 10 the fire was successfully extinguished and oil was discharged until March 31 when the last wells were brought under control. During this three-week period, an estimated 35,000 to 65,000 bbls of crude oil was discharged. Assuming the higher value, the initial rate of discharge was approximately 6,000 B/D, decreasing to 1,500 B/D during the final week. As a safety precaution during the fire and oil spill, 2,006 bbls of chemical dispersants were mixed in water and sprayed on the platform and surrounding water surface. The addition of chemical dispersants (surfactants) breaks the oil into small droplets which do not stick to each other, but mix into water. An everyday example of an emulsion is cream. It is an emulsion of butterfat in water and it disperses when added to coffee.

Slide 2 shows the Mississippi River Delta region and the location of the Main Pass Block 41 C Platform. Shown on the slide is a composite of the surface oil slick during the three-week period of oil discharge. On most days the slick was about six to nine miles in length and 1.0 to 1.5 miles wide. On two days, with relatively calm weather, the surface slick was observed 40 miles to the south and on another day it extended a similar distance to the east.

Appreciable amounts of oil were emulsified by the dispersants. This emulsified plume extended no more than 1.0 to 1.5 miles from the platform which would be within the small circle drawn around the platform on the map.

During the last five days of the spill, water samples were collected in the immediate vicinity of the platform and outward at distances up to 30 miles. Water samples were collected from near-surface, mid-depth, and near-bottom. On three days, water samples were collected in the emulsified oil plume in areas which visually had the highest concentrations of oil-in-water emulsion in the near-surface waters.

Following the spill a large number of bottom sediment samples were collected for hydrocarbon and benthic organism analysis throughout the study area extending north as far as northern Chandeleur Sound and south around the Mississippi River Delta.

For a year following the spill, a large number of trawls collected fish, shrimp, and crabs. The trawls were made principally between the platform and the delta in order to intercept shrimp that would have migrated through the oil spill area.

Water, sediment, benthic, and trawl samples were appropriately analyzed and the next slides show what happened to the oil. Based upon the crude oil composition and verified by gas chromatographic analysis of oil samples collected from the water surface (Slide 3), between 25 and 30% of the oil evaporated into the atmosphere during the first 24 hours. Between 10 and 20% of the oil was

skimmed from the water surface even though the recovery devices were far less efficient than those which are available now, more than 5 years later.

Hydrocarbons dissolved in the water column were found only in the platform vicinity in the emulsified oil plume. All other waters contained dissolved hydrocarbons in concentrations of less than one part per billion (ppb). The dissolved hydrocarbons were low-molecular weight (less than 10 carbon atoms in the molecule) with about one-half the dissolved constituents being low-molecular weight aromatic hydrocarbons--benzene, toluene, xylenes, and trimethylbenzenes. These low-molecular weight aromatic hydrocarbons are considered to be toxic to biological life. Note, (Slide 3) that the dissolved hydrocarbon concentrations at the platform ranged from .02 to 0.2 ppm decreasing to 0.002 ppm (2 ppb) at approximately one mile. On one day, dissolved hydrocarbons were observed in mid-depth and near-bottom waters near the platform in the 2 to 5 ppb range. From the dimensions of the emulsified oil plume, the dissolved hydrocarbon concentrations in the water, the rate of oil discharge, and water current, it was possible to calculate the amount of oil that dissolved in water. The amount dissolved averaged 0.15% during the first two hours. Because the emulsion droplets were small, the rate of solution would have been rapid initially and than decreased with time. Therefore, it is estimated that less than 1% of the oil dissolved the first day.

Slide 4 summarizes what happened to portions of the oil. The concentrations of oil in the emulsion plume ranged from 2 to 60 ppm at the platform and decreased to 1 ppm at one mile. The oil was not found in mid-depth (20 ft) samples under the emulsion plume, showing that emulsified oil was only in the near-surface waters. Again, knowing the dimensions of the emulsion plume, concentrations, and flow rates, it was possible to calculate that from 10 to 50% of the oil was emulsified.

Analysis of numerous sediment samples by gas chromatography documented that crude oil settled to the bottom only within a five-mile radius of the platform. The concentrations for the C_{12}-C_{33} hydrocarbon fraction measured by gas chromatography and for total oil are shown ranging from 125 to 625 mg/l for the highest values with mean values of 31 and 151 mg/l of sediment.

To obtain an adequate amount of sediment for oil analysis, the top 1.5 inch interval of 2.0 inch diameter cores was extracted. The next lower 1.5 inch core interval analyzed did not contain Main Pass Block 41 crude oil, thereby showing that the sedimented oil was found only in upper 1.5 inches of sediment.

The remaining oil, not accounted for, is thought to have dispersed throughout the water column and possibly sedimented. It was diluted to such low concentrations as to be immeasurable.

In addition to these weathering processes, biodegradation was occuring.

Slide 5 compares the gas chromatogram for oil collected from the water's surface about 0.5 mile from the platform with chromatograms of oil in sediment samples located near the platform. The top

chromatogram of the partially weathered oil (loss of hydrocarbons below normal C_{13}) has marked normal alkane peaks sticking up like fingers and numbered from 13 through 35. Hydrocarbon oxidizing bacteria, found in all marine waters, apparently started to biodegrade the oil immediately as shown in the bottom 2 chromatograms. The normal alkane peaks are much reduced in the oil extracted from a sediment sample collected 2 miles south of the platform one week after the spill, and they are essentially gone from the oil in the sediment sample taken one month after the spill 3 miles south of the platform. The small normal alkane peaks visible in the bottom chromatogram in the C_{27}-C_{35} region are of biogenic origin.

Additional evidence of weathering is shown in Slide 6. Oil from Main Pass Block 41 identified by gas chromatography was measured at three locations after the spill and ranged from 50 to 125 ppm. Samples collected at these same locations (within 10 to 15 ft by accurate Raydist navigation) 11 months later had oil contents from 3 to 6 mg/l (ppm). These concentrations are approximately equal to background values for sediments from this part of the Mississippi Delta.

Although my testimony is principally to document what happened to the oil discharged during the Chevron spill, I do wish to make a few comments about the observed effects of the oil discharge on marine life.

We have just shown that the concentrations of dissolved hydrocarbons and oil emulsified in the water column were relatively low and diluted very rapidly. With a current of 0.5 knot, the

concentrations became less than 1 ppb at the end of a two-hour period one mile from the platform. Thus, even planktonic organisms moving with the water containing emulsified oil were subjected to low hydrocarbon concentrations for a very short period of time - short compared with bioassay tests which are normally conducted for 4 days. Bioassay data cited by the draft EIS and in Marine Bioassays Workshop Proceedings, 1974, show that much higher concentrations of oil and dispersed oil are required to cause half-kill of test organisms, including eggs, larvae, and juvenile stages.

Bioassay tests using six different species of organisms were conducted with Main Pass Block 41 crude oil and the two dispersants used during the oil discharge period. The concentrations of oil and emulsified oil required to cause one half-kill were much higher than the concentrations measured in the sea water at the time of the spill, and the exposure time was 4 days. These data would predict no measurable effect from the oil and emulsified oil on marine life. This conclusion was confirmed because no dead or distressed organisms were observed during the spill. Divers were under the platform on several occasions and observed fish, shrimp, and other marine life with no evidence of distress.

Planktonic organisms were exposed to low concentrations of oil for a short period of time and mobile organisms can leave the area, but benthic organisms living on and in the bottom sediments are sedentary. They were subjected to possible effects from the oil for the entire discharge period. Over 550 species of benthic organisms were identified in 233 benthic samples throughout the

study area. Within seasonal variations, bottom sediment type, and possibly other environmental parameters, it was not possible to measure an effect of the spilled oil on these benthic organisms. There was no correlation of number of species or number of individuals or other biological parameters with the hydrocarbon contents of sediment samples within a 10-mile radius of the platform. It is within this area that an effect, if one were to occur, would be expected from sedimented oil. This lack of correlation strongly suggests a lack of significant effect of oil on the benthic organisms.

The extensive trawl samples showed no alteration in the annual life cycle of commercially important shrimp. Blue crabs were observed throughout the study area, and the number of species of fish collected in the trawl samples in the study area were comparable to a previous survey conducted by the Louisiana Estuarine Inventory conducted along the entire coast of Louisiana.

I have attached a reprint of the paper summarizing the Chevron Chemical and Biological investigations to my testimony.

EXTRAPOLATION OF CHEVRON GULF SPILL RESULTS TO NORTHERN GULF OF ALASKA

Statements have been made that it is not possible to extrapolate the results of a study from one area to another. To a certain extent this is true, but good estimates can be made from such an extrapolation. Such an evaluation is much better than merely stating that we don't know what to expect in a new exploration area such as the northern Gulf of Alaska.

Life of a Surface Slick

During the Main Pass Block 41 spill, oil on the water's surface which left the platform in one direction on a given day, followed by a change in the wind which carried the oil in a different direction the next day, revealed that first day's slick could not be found on the second day. Details of individual slicks are given by Murray et al, 1970, and Murray, 1975. The fact that the slick extended on most days a maximum of six to nine miles from the platform with a 0.5 knot current indicates a maximum life of oil on the surface of 12 to 18 hours.

The discharge of this same crude oil to the waters of the northern Gulf of Alaska would probably show a somewhat longer life, but not to an appreciable extent. The University of Alaska study (Kinney et al, 1969) in the Cook Inlet indicated the half-life of a crude oil spill was less than one day with complete disappearance after four to five days. A similar observation was made, even in the winter time, for the spill that occurred at the Drift River terminal. The oil moved throughout portions of the Cook Inlet quickly, but was not observed to persist.

The Main Pass Block 41 crude oil was 34° API gravity. Cook Inlet crude oils have API gravities ranging from 35° to 45° and crude oils from the Katella oil field measure 41-45° API. If similar oils are discovered in the northern Gulf of Alaska, the rates of weathering and dispersion should be at least as rapid as

observed in the Cook Inlet. Because of higher winds and waves, the weathering and dispersion may be more rapid.

Evaporation

The rate of oil evaporation would be somewhat slower in the northern Gulf of Alaska as compared with warmer waters due to the lower vapor pressure of the hydrocarbons. If the temperature was 10°C lower, the rate of evaporation would be approximately one-half. The average water temperature during the Chevron spill was 15°C. The northern Gulf of Alaska water temperatures range from 4 to 14°C while nearshore waters range from 9 to 12°C. The maximum water temperature difference comparing the Chevron spill with the coldest northern Gulf of Alaska water would be about 10°C and sometimes less. Therefore, the maximum decrease in evaporation rate would be approximately one-half that observed for the Gulf of Mexico spill. However, the higher average wind velocities would increase the rate of evaporation in the Gulf of Alaska as compared with the Gulf of Mexico. The rate of evaporation increases linerally with wind speed. Higher winds would partially compensate for lower water temperatures and if wind velocity was twice that in the Gulf of Mexico, wind would completely compensate for water temperatures 10°C lower.

Dissolved Hydrocarbons

The rate of solution of hydrocarbons from a similar oil into the Alaskan Gulf water column would be somewhat slower than in the Gulf of Mexico because a similar oil would have a lower

viscosity due to lower water temperatures. The transfer of the hydrocarbons to water would be at a lower rate. In both the Gulf Coast and the Gulf of Alaska, hydrocarbons that do dissolve will either biodegrade or evaporate back into the atmosphere. Low molecular weight aromatic hydrocarbons have the highest hydrocarbon solubilities in water, but are still relatively insoluble. Because there is no reservoir of these hydrocarbons in the atmosphere, they evaporate from the water column into the atmosphere (McAuliffe, 1974). The rate of evaporation of soluble hydrocarbons from oil greatly exceeds the rate of their solution into water (McAuliffe et al, 1975; Harrison et al, 1975).

Biodegradation

Biodegradation rates in cold waters are slower than in warmer waters. However, we believe that the rate of biodegradation set forth in the draft Environmental Impact Statement is understated, because it is based upon the reduction in rate which occurs in chemical reactions (i.e., rate reduced one-half for each 10°C lowering of temperature). In preparing the final EIS, the BLM may wish to consider the following material. Slide 7 shows studies which have been conducted using Prudhoe Bay crude oil in Prudhoe Bay waters. Atlas (1973) found that in three days the percentage degradation at 5°C was 21% whereas at 25°C it was 39%. Atlas tested a 20°C temperature difference, but the rate of biodegradation at 5°C was less than one-half the rate at 25°C. In five weeks, 60% of the oil was lost and when Atlas added

nitrogren and phosphorous as nutrients to the water, 80% of the oil biodegraded in five weeks. ZoBell (1973) using Prudhoe Bay crude oil found 61% biodegradation in ten weeks even with the water at -1.1°C (below freezing).

The information just discussed suggests that the half-life of a crude oil spill in the Gulf of Alaska would be of the order of one day and with complete loss of oil from the surface by five days. Thus, any appreciable stranding of oil would not occur in a period exceeding three days, and the slick life might be less.

The draft Environmental Statement discusses oil spill trajectories in the northern Gulf of Alaska and recognizes in its initial statement dispersion, weathering, and biodegradation processes. However, it then discusses proposed trajectories and continues to give probabilities of stranding for long periods of time, up to 88 days for average times and no limit for maximum times. Slide 8 shows the approximate location of the Sites 3 and 4 estimated from figures in the CEQ report and the draft EIS. Site 3 is about 20 miles from shore. Site 4 is 60 miles from Montague Island and a similar distance from the Copper River Delta. At the bottom of the figure are listed the minimum and average times in days for oil to strand from these sites as calculated in the CEQ report. Only in the winter and fall at Site 3 is there an indication of oil stranding after a minimum three day period; the average times are very much longer.

Based upon the weathering and dispersion of the oil which we have previously discussed, there is little likelihood of significant quantities of oil from even a major spill stranding on the coastline

from these representative sites in the two major proposed lease areas.

Also shown on Slide 8 is a possible location for a "worst case" situation postulated in the draft EIS - a 100,000 bbl spill over 61 days 4 miles from shore with the oil driven continually ashore by wind. Until oil in commercial quantities has been discovered, possible spill locations and oil spill trajectories are only conjecture.

The use of meterological and oceanographic data is helpful in predicting oil spill trajectories. The Gulf of Alaska Operator's Committee is calculating spill trajectories from a number of sites throughout the lease area based upon past meteorological information. The Operator's Committee also is currently obtaining additional meteorological and oceanographic information from which spill trajectory calculations can be made. These data will be incorporated into oil spill contingency plans.

There are certain areas which are more subject to impact than others. For example, oil discharged within three or four miles of shore is likely to strand. Water currents (geostrophic) are consistently to the west, and winds are predominately from the east and southeast. The probability of oil coming ashore east of a possible spill location is very remote. In the eastern portion of the lease area a spill close to shore or to Kayak Island would likely strand.

The western lease area, however, is sufficiently far from shore that it is unlikely appreciable quantities of oil would strand. If oil did strand, it would probably do so on Montague Island or on Middleton Island.

RISK ANALYSIS

The draft EIS undertakes a "Proximity Evaluation and Summary Risk Analysis" which recognizes the dispersion and weathering of spilled oil, but does not compensate for them. The analysis uses the shortest distance to shore or environmentally sensitive areas from each lease tract, and the movement of oil at a constant speed of 0.4 mile per hour. The analysis also does not consider current and wind directions or velocities. The evaluation concludes that 100 blocks have a high potential risk for three types of impacts, 168 for two impacts, 56 for one impact, and that only six blocks would not have an environmental impact. These six tracts are located closest to the Copper River Delta.

In preparing the final EIS, the BLM should consider the weathering and dispersion of oil that we have discussed in this statement and referenced in the scientific literature, and to use spill trajectories suggested by meterological and oceanographic data to obtain a more meaningful analysis of possible adverse environmental impacts from a possible oil spill from each lease tract. The BLM might also consider the use of dispersants to minimize possible adverse effects in their risk analysis.

ADVANTAGES OF USING DISPERSANTS

Major crude oil spills have had documented adverse environmental effects only if oil stranded in the intertidal zone, or to birds if they were present at the time of the spill. Thus, methods of

minimizing oil adherence to feathers or preventing the stranding of oil ashore would be beneficial. Emulsification of the oil is such a method. I have already discussed the use of dispersants during the Chevron Gulf Coast spill and the demonstrated lack of adverse effects on the marine environment.

The use of oil dispersants received adverse publicity at the time of the Torrey Canyon spill. However, the dispersants and their formulation in toxic solvents as well as improper use in the intertidal zone, resulted in the adverse environmental effects; the intertidal zones have subsequently recovered. This adverse publicity resulted in the U.S. Environmental Protection Agency banning the use of dispersants in this country other than for safety reasons. Other countries and scientists in other countries recognized the advantageous use of surfactants, and dispersants are used to disperse oil (Marine Pollution Bulletin, 1975; Canevari, 1969, 1971, 1973, 1975; McAuliffe et al, 1975).

Slide 9 documents some of the advantages of using dispersants. First and foremost is the rapid dilution which occurs with emulsification. The dispersed oil mixes downward in near surface water and removes oil from the water's surface. The bulk of the oil is removed from most of the wind's influence and the oil does not travel as far as a surface slick (Chevron spill, 1 mile vs 6-9 miles average distances). The life of the surface oil slick would be reduced and significant amounts of oil are not likely to reach shore or move to biologically sensitive areas after one day.

Emulsification greatly lessens the tendency of oil to stick to itself and to solid surfaces. It, therefore, would lessen bird kill, although not eliminate it because not all oil can be emulsified and some remains on the surface. It would reduce the tendency of oil to adhere to solid particles (silt) in the water and therefore lessen the amount of oil that would sediment (Canevari, 1971; McAuliffe, 1973). It would particularly lessen the sedimentation of oil if the situation existed where surface oil met turbid water from the mouth of a river for example. Without emulsification, the oil might sink and be concentrated in the sediments at the zone where the oil met the turbid water.

If emulsified oil should strand in the intertidal zone, it would have very much less tendency to adhere to sand, rocks, or other solid surfaces. Emulsified oil would be in low concentrations and eliminate smothering of marine life in the intertidal zone which may occur with non-dispersed crude oil which has lost light components at sea. The emulsion would have a tendency to wash back out with receding tide and subsequent tides.

Emulsification would accelerate biodegradation by presenting a larger surface area to volume of oil. It likewise would accelerate physical weathering such as evaporation and solution with those soluble constituents dissolved in the water column subsequently either biodegrading or evaporating into the atmosphere.

Emulsification might also increase oil oxidation by exposing more of the oil's surface to the sun relative to the volume of oil even through the oil is removed from the immediate water surface. Emulsified oil stays principally in near-surface waters as documented during the Chevron oil spill.

SUMMARY

In summary, we believe that the probability of a major oil spill in the proposed lease area is very low, and that the odds may be more favorable than past experience, because of improved drilling practices and fail-safe well control valves.

We have documented what happened to oil discharged during the Chevron Gulf of Mexico spill, and showed that there was no measureable effect on marine life.

We believe that results from the Gulf Coast spill can be used to predict what would happen to oil from a possible spill in the northern Gulf of Alaska.

We believe that dispersing spilled oil has many advantages.

We believe that considering changes that occur when oil is discharged to the water surface, the use of meteorological and oceanographic data is a general way to predict spill trajectories, and the use of dispersants, will greatly reduce the number of tracts from which a spill is predicted to have observed environmental impacts as summarized in the draft EIS.

It is our belief that exploration, production, and transportation of crude oil, if found, can be conducted in the northern Gulf of Alaska without significant adverse environmental impacts.

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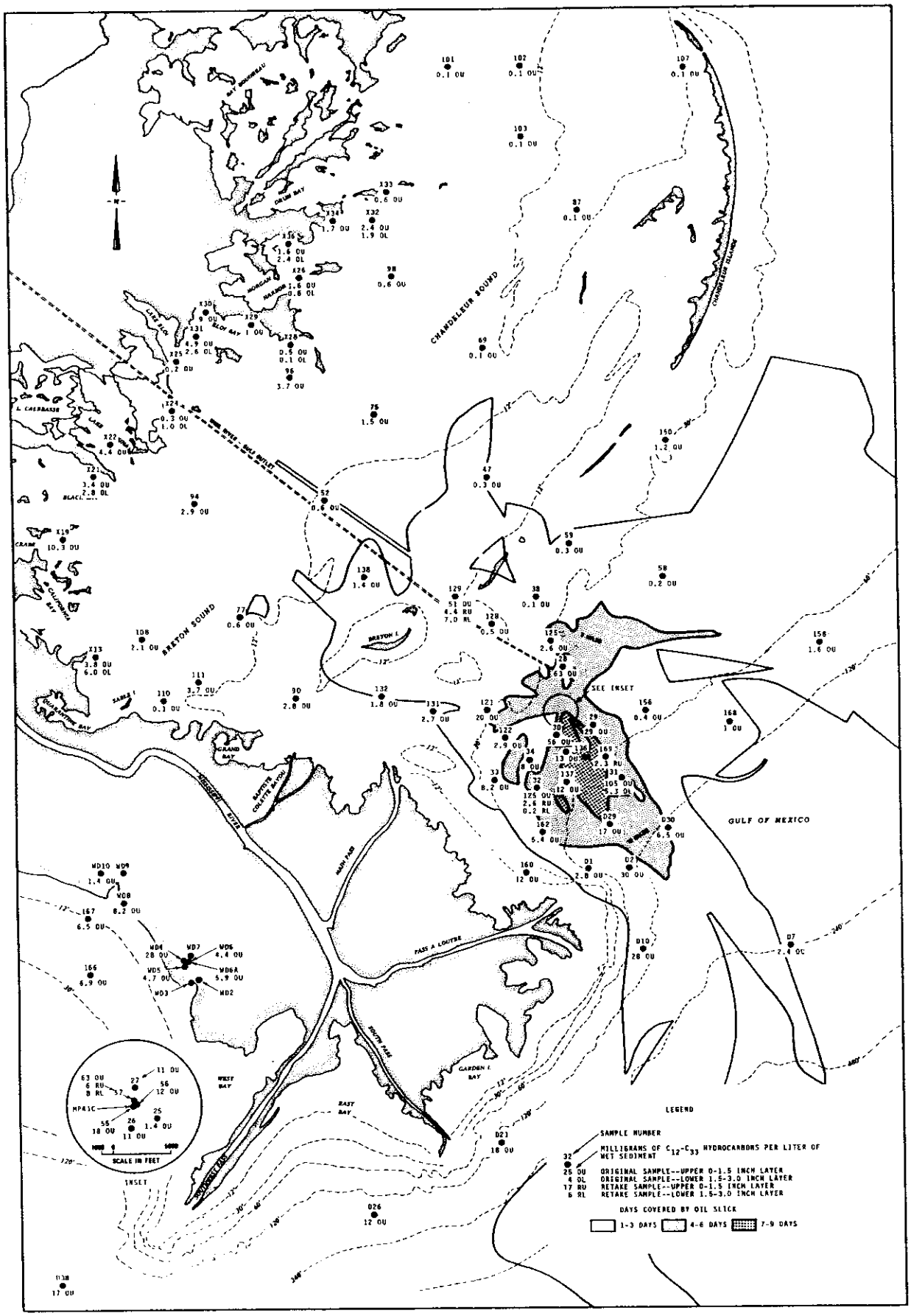
SLIDE 1

SOME GENERAL OBSERVATIONS CONCERNING OFFSHORE CRUDE OIL SPILLS

- THE PROBABILITY OF A MAJOR OIL SPILL IS LOW—ONLY 3 MAJOR SPILLS IN U.S. OFFSHORE WATERS.
- THE AMOUNT OF OIL LIKELY TO BE SPILLED – 20,000 TO 100,000 BARRELS.
- LENGTH OF SPILL – SEVERAL WEEKS TO SEVERAL MONTHS.
- HIGHEST CONCENTRATION OF CRUDE OIL WILL BE AT POINT OF SPILL.
- AMOUNT OF OIL FROM MAJOR OFFSHORE PLATFORM SPILLS HAS BEEN LESS THAN 2% OF TOTAL PETROLEUM INPUT.
- STUDIES OF MAJOR CRUDE OIL SPILLS HAVE DOCUMENTED ADVERSE EFFECTS ONLY ON SOME SPECIES OF INTERTIDAL ORGANISMS, AND TO BIRDS.
- OIL DISCHARGED TO THE MARINE ENVIRONMENT UNDERGOES A NUMBER OF PHYSICAL, CHEMICAL, AND BIOLOGICAL CHANGES.

SLIDE 2


CHANDELEUR SOUND
BRETON SOUND
GULF OF MEXICO
SEE INSET
SCALE IN FEET
INSET
LEGEND
SAMPLE NUMBER
MILLIGRAMS OF C_{12}-C_{33} HYDROCARBONS PER LITER OF WET SEDIMENT
25 OU ORIGINAL SAMPLE--UPPER 0-1.5 INCH LAYER
4 OL ORIGINAL SAMPLE--LOWER 1.5-3.0 INCH LAYER
17 RU RETAKE SAMPLE--UPPER 0-1.5 INCH LAYER
6 RL RETAKE SAMPLE--LOWER 1.5-3.0 INCH LAYER
DAYS COVERED BY OIL SLICK
1-3 DAYS
4-6 DAYS
7-9 DAYS

SLIDE 3

FATE OF DISCHARGED OIL

EVAPORATED 25–30% DURING FIRST 24 HOURS

RECOVERED 10–20% SKIMMED FROM WATER SURFACE

DISSOLVED IN WATER 0.15% IN 2 HOURS, ESTIMATED LESS THAN 1% IN 24 HOURS.

HIGHEST CONCENTRATION AT PLATFORM RANGED FROM 0.02 TO 0.2 ppm, DECREASING TO 0.002 ppm AT APPROXIMATELY 1 MILE.

SLIDE 4

FATE OF DISCHARGED OIL

EMULSIFIED IN WATER (OIL–IN–WATER EMULSION) 10–50%

HIGHEST CONCENTRATION OBSERVED ON 3 DAYS AT PLATFORM RANGED FROM 2 TO 60 ppm DECREASING TO 1 ppm AT 1 MILE.

SEDIMENTED LESS THAN 1% WAS FOUND IN BOTTOM SEDIMENTS WITHIN A 5 MILE RADIUS OF THE PLATFORM.

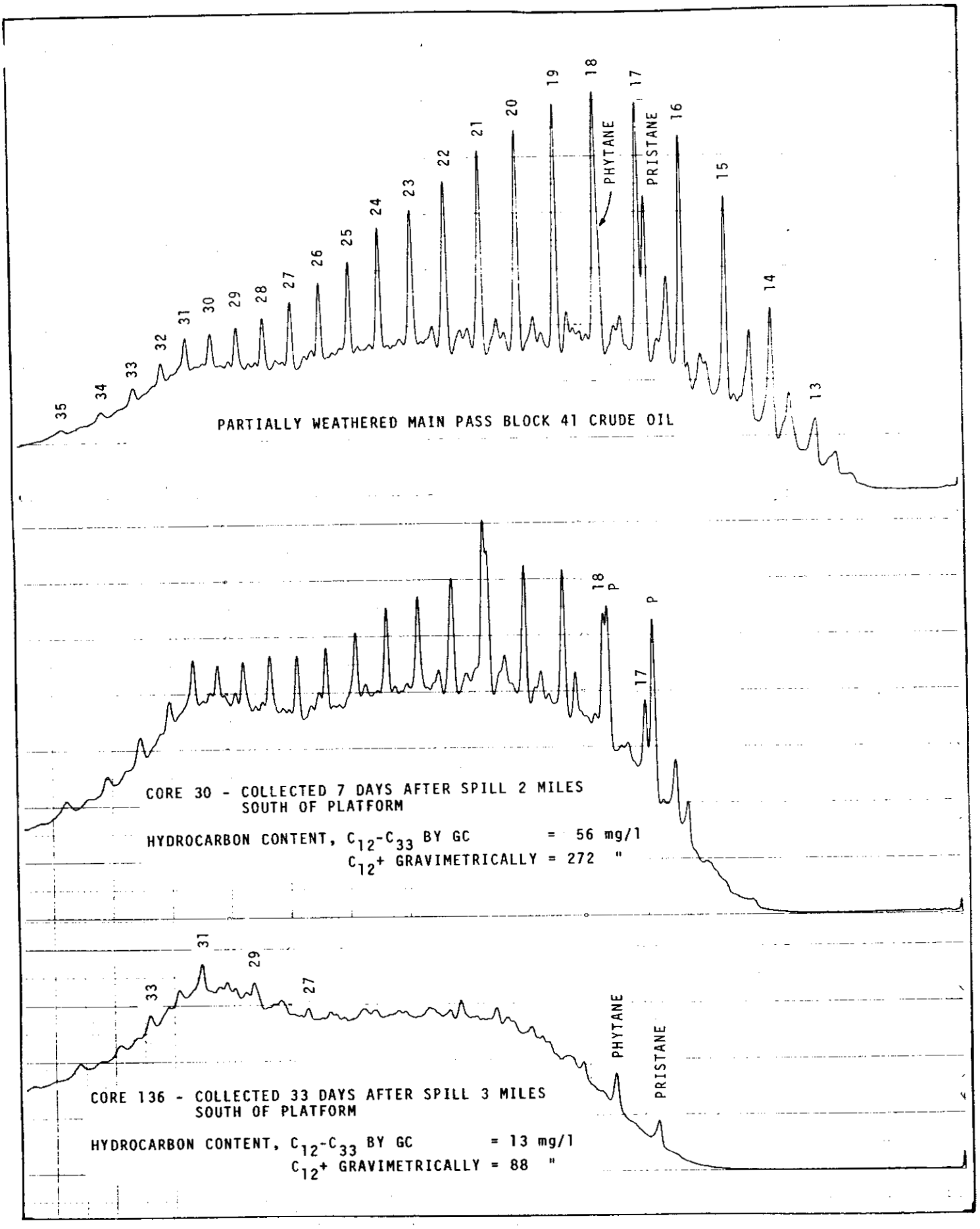
CONCENTRATIONS:

C_{12}–C_{33} FRACTION – HIGHEST, 125 mg/l; MEAN 31 mg/l

C_{12} PLUS FRACTION – HIGHEST, 624 mg/l; MEAN 151 mg/l

DISCHARGED OIL IN SEDIMENTS WAS RESTRICTED TO UPPER 1.5 INCHES

SLIDE 5


35
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25
24
23
22
21
20
19
18
PHYTANE
17
PRISTANE
16
15
14
13
PARTIALLY WEATHERED MAIN PASS BLOCK 41 CRUDE OIL
18
P
P
17
CORE 30 - COLLECTED 7 DAYS AFTER SPILL 2 MILES SOUTH OF PLATFORM
HYDROCARBON CONTENT, C_{12}-C_{33} BY GC = 56 mg/l
C_{12}^{+} GRAVIMETRICALLY = 272 "
31
29
33
27
PHYTANE
PRISTANE
CORE 136 - COLLECTED 33 DAYS AFTER SPILL 3 MILES SOUTH OF PLATFORM
HYDROCARBON CONTENT, C_{12}-C_{33} BY GC = 13 mg/l
C_{12}^{+} GRAVIMETRICALLY = 88 "

SLIDE 6

ADDITIONAL EVIDENCE OF WEATHERING

C_{12}–C_{33} HYDROCARBON FRACTION IN SEDIMENTS (CONCENTRATIONS IN mg/l)

AFTER SPILL	11 MONTHS LATER
125	2.5
63	6
51	4
	APPROXIMATELY BACKGROUND VALUES

LE 75–0774

SLIDE 7

CRUDE OIL BIOGRADATION

CRUDE OIL BIODEGRADATION RATES ARE APPRECIABLE AT ARCTIC TEMPERATURES, BUT NOT AS RAPID AS IN WARM WATERS.

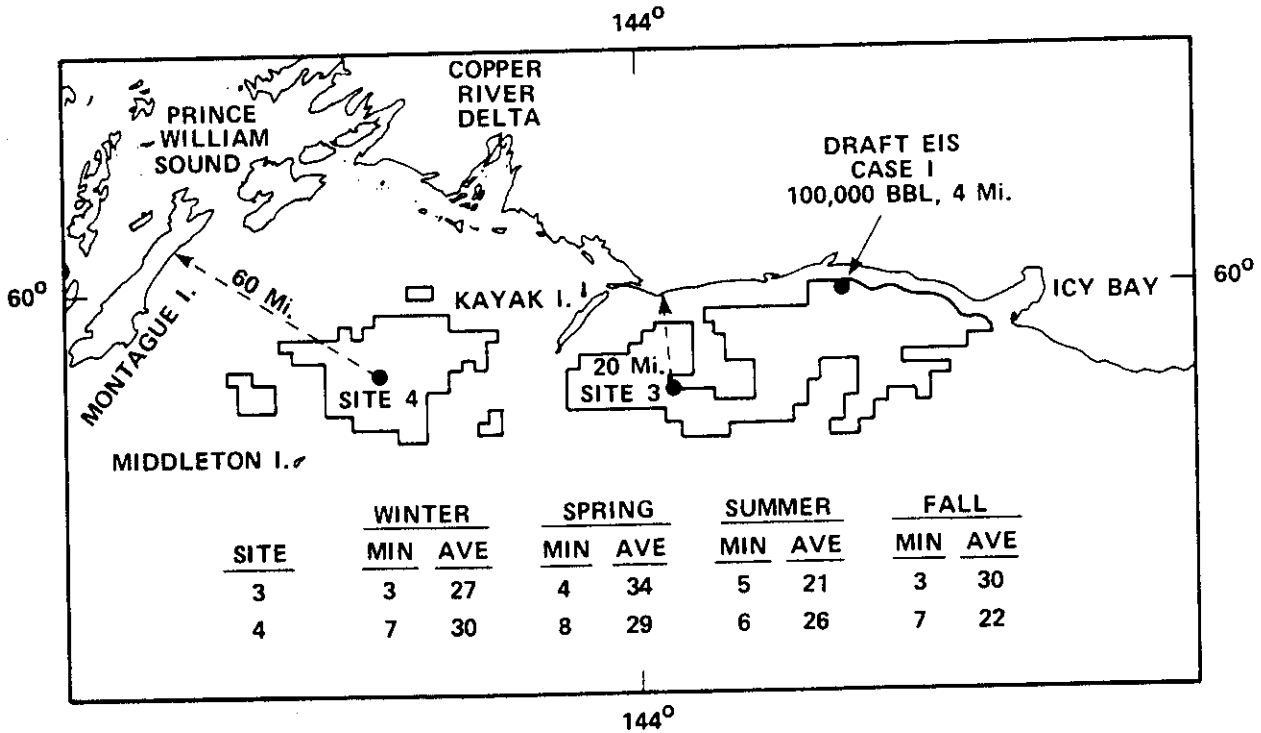
ATLAS FOUND THE FOLLOWING BIODEGRADATION RATES IN 3 DAYS FOR PRUDHOE BAY CRUDE OIL IN PRUDHOE BAY WATER.

5°C	21%
25°C	39%

IN 5 WEEKS 60% OF THE OIL WAS LOST. WITH NITROGEN AND PHOSPHORUS ADDED TO THE WATER, 80%.

ZOBELL FOUND 61% BIODEGRADATION IN 10 WEEKS AT −1.1°C.

SLIDE 8



SITE	WINTER		SPRING		SUMMER		FALL	
	MIN	AVE	MIN	AVE	MIN	AVE	MIN	AVE
3	3	27	4	34	5	21	3	30
4	7	30	8	29	6	26	7	22

LE 75–2859

SLIDE 9

ADVANTAGES OF USING DISPERSANTS (SURFACTANTS)

- RAPID DILUTION
- GREATLY REDUCES TENDENCY OF OIL TO "STICK" TO SOLID SURFACES
  - REDUCE BIRD KILL
  - REDUCE SEDIMENTATION
  - REDUCE AMOUNT OF OIL IN INTERTIDAL ZONE
- ACCELERATE BIODEGRADATION
- ACCELERATE PHOTO–OXIDATION
- ACCELERATE PHYSICAL WEATHERING
  - EVAPORATION
  - SOLUTION AND SUBSEQUENT EVAPORATION

BIOGRAPHICAL SKETCH

Clayton McAuliffe was born August 18, 1918, in Chappell, Nebraska. He received an A.B. degree in chemistry with high distinction from Nebraska Wesleyan University in 1941. He was a Frasch Foundation Fellow at the University of Minnesota where he obtained his M.S. degree in 1942. He was a Research Fellow at Cornell University, 1942-43 and 1946-48, and obtained his Ph.D. degree in soil science in 1948.

He was a Laboratory Assistant in inorganic chemistry 1939-40 and organic chemistry 1940-41 at Nebraska Wesleyan University. He was on the Manhattan Project as a Research Chemist with the Division of War Research, Columbia University, 1943-44, and with Union Carbide at Columbia and Oak Ridge, Tennessee, 1944-46. He was a consultant with the U. S. Department of Agriculture 1947-48, Research Associate at Cornell University 1948-50, and Research Associate Professor at North Carolina State University 1950-56. Since 1956 he has been with Chevron Oil Field Research Company, La Habra, California, where he is Senior Research Associate.

He has published 40+ papers in scientific journals on subjects such as petroleum in the marine environment, improving fluid flow through porous media to improve oil recovery, solubility of hydrocarbons in water, geochemistry in petroleum exploration, soil chemistry, radioisotopes and stable isotopes in soil-plant investigations, and stable isotopes in surface area measurements. He holds 20+ United States and foreign patents.

He is a member of the American Chemical Society, Society of Petroleum Engineers of AIME, American Society of Agronomy, Soil Science Society of America, and the American Association for the Advancement of Science. He is a member of Phi Kappa Phi, Sigma Xi, and Alpha Gamma Rho.

He is a Fellow of the American Association for the Advancement of Science and was Visiting Scientist Lecturer for the Soil Science Society of America, 1964-1967.

U. S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

HEARING ON PROPOSED LEASING IN THE GULF OF ALASKA

Ladies and Gentlemen:

I am Joe W. Tyson, Senior Scientist for the Gulf Universities Research Consortium (GURC), now Houston, Texas. I am appearing today on behalf of GURC at the request of the Gulf of Alaska Operators Committee.

As some of you may know, GURC is a research oriented organization which counts in its membership 20 universities with interests in the Gulf of Mexico.

During 1972-1974, GURC, at the request of a number of companies, initiated its Offshore Ecology Investigation to answer the deceptively simple question; "what is the measureable impact of drilling for oil, and later producing it on the estuarine and marine environment of the Louisiana outer continental shelf, the nation's greatest offshore oil producing region?" After an intensive study costing more than 1½ million dollars, the conclusion reached by GURC is that the drilling and subsequent production of petroleum products off of Louisiana has had no major lasting adverse affects on the marine environment and may even have been beneficial to some life forms. SLIDE #

In appearing here today, I fully realize that the Gulf

of Mexico is not the Gulf of Alaska, and that there are significant differences between the two areas. Nonetheless, we believe that the results of our studies must be given serious consideration whenever offshore leasing is proposed. This is because the GURC offshore oil investigation is by all odds the most thorough and comprehensive study of the environmental effects of offshore drilling and production yet undertaken.

Based upon the data analyses thus far, several general conclusions can be reached from this comprehensive Offshore Ecology Investigation:

1. It questions the universal necessity for conducting a "before-the-fact" baseline study to subsequently determine the environmental impact of this type of man's activity.
2. Natural phenomena such as seasonality, floods, upwellings, and turbid layers have much greater impact upon the ecosystem than do petroleum drilling and production activities.
3. Concentrations of all compounds of OEI interest which are in any way related to drilling or production are sufficiently low to present no known persistent biological hazards.
4. Every indication of good ecological health is present. The region of the sampling sites is

a highly productive one from the biological standpoint, more so than other regions thus far studied in the eastern and open Gulf of Mexico.

5. Timbalier Bay has not undergone significant ecological change as a result of petroleum drilling and production since just prior to 1952 when other more limited data was generated.

The accuracy of the conclusions reached on any such scientific study are, of course, dependent upon the validity of the procedures and the accuracy of various tests and measurements. Therefore, the procedures and equipment used in this study will be discussed in some detail in this presentation along with the most important of the factual data and results.

The biological, chemical and physical experiments to be performed were designated and sites were selected in Timbalier Bay, Louisiana, and in the offshore area to depths of about one hundred feet of water (shaded in red). Sampling stations adjacent to drilling or production platforms and control sample stations in areas where there has never been oil drilling or production are within the same region, thus making possible valid comparative studies. All sampling stations are located far enough from the Mississippi River mouth to uniformly minimize, but not eliminate, its impact.

SLIDE #6

SLIDE #7

A low elevation aerial oblique view of the region shows

the natural relationships between the Continental Shelf, the narrow beach, and the inner bay. SLIDE #8

Platforms, both for drilling and production, are quite dense in this region between Timbalier Island and Casse-tete Island. SLIDE #

This platform just west of Philo Brice Island in Timbalier Bay was one of the intensive sampling sites with sample stations being located in a radial pattern outward from the platform. SLIDE #

The density of platforms and wells offshore is somewhat less, than in the bay, although recent figures indicate there are some 2,650 platforms in the northern Gulf of Mexico. Because of the intensity of petroleum presence and production, there has been and is oil in this environment -- whether as a result of natural seeps, spills, or whether as a result of overboard discharge of brine containing a few parts per million of petroleum hydrocarbons or from other sources as city wastes, seagoing ships, sports boats, and the plants and animals living in the environment. SLIDE #1

A working platform makes many contributions to the environment in addition to its physical presence. You will note that among the potential contributions from the platform are nutrient (food) materials from treated sewage, garbage, brine containing small amounts of petroleum hydrocarbons, trace elements from corrosion protection devices, and other kinds of SLIDE #1

compounds as well as a habitat for plants and animals. The sampling program was designed to determine which of those are present and, if present, their locations and concentrations.

GURC scientists visited the platform and control sta- SLIDE # tions as indicated by this sample station map. Timbalier Bay had 224 stations, enough to allow any existing gradients to be established. There were 115 stations offshore and along transects or lines drawn from the platform and control sites to shore-based stations. All field equipment was regularly calibrated against available appropriate standards (both external and internal) to allow comparative correlations to be made from one field trip to the next. There were four seasonal 8-to-10-day trips each year for the two years by the group plus many other shorter trips by individual scientists. All of the sampling stations were occupied on each seasonal trip, as well as at other times by either the 23 scientists or some of the more than 30 graduate students involved in the program -- many of whom were diving scientists.

The largest number and volumes of samples collected SLIDE # were water samples taken at the surface, at mid-depths and very near bottom to determine oceanographic information such as salinity, temperature and nutrient and trace element chemistry. Fractions were analyzed for total carbon and organic carbon. For these kinds of analyses, relatively

small volumes of water are required; allowing utilization of the Sampling Bottle shown.

Large volume samples were required for the determination of the specific classes of hydrocarbons in the water mass. Therefore, this large volume sampler was used so enough water would be acquired to permit the detection and characterization of hydrocarbons. SLIDE #

Plankton nets were used in order that the mainly microscopic floating plant and animal life could be caught and studied. From samples captured by the Plankton nets the scientists were able to determine, as a function of carefully measured volume, the nature of the living things floating in the water, their diversity, their effective weight by species, and their hydrocarbon types and amounts. SLIDE #

The bottom grab sampler takes approximately 1/3 of a cubic yard of sediment each time it is lowered. These sediment samples were required for sediment analysis and to catch the bottom dwelling plants and animals (benthos). Some bottom grab samples as well as short sediment cores were collected by divers. SLIDE #2

Evidences of drill cuttings and muds were sought at every sampling station and were found by divers only once and in very small quantities near a platform leg. These cuttings could not be associated with an adverse impact. SLIDE #2

It was mentioned earlier that water samples were taken SLIDE #2

to allow for the determination of dissolved mineral nutrients. Nutrients enter the living processes in plants and animals and are, therefore, often early affected by materials introduced into the environment. The extent of dissolved mineral nutrients then is an indicator of environmental impact. Here, onboard scientists at the sampling station are splitting the water samples for chemical analysis.

Crude oil will float temporarily at the surface, form- SLIDE #2
ing a filmy sheen. To determine the quantities and fate of these petroleum hydrocarbons, it was necessary to sample the thin floating film. Project scientists developed this sampler that would allow them to take a reproducible standard sample and relate the results of chemical analyses to the volume and area that had been sampled.

The sampler was lifted aboard the research vessel where SLIDE #
the adsorbed oil and other materials were carefully washed into previously cleaned containers. Scrupulous care was taken to insure that no contaminants (such as lubricating oils) get into the sample during the transfer process.

In university laboratories, the biological samples were positively identified, counted and weighed so that compari- SLIDE #2
sons were possible from place to place on a seasonal basis.

Some of the laboratory activities required highly so- SLIDE #2
phisticated and massive equipment such as these views of hydrocarbon chemistry laboratories and gas chromatograph and

mass spectrometer equipment linked to computers. Such a link makes comparisons possible between samples collected during the project and calibrated standards and permits identification of separate compounds present. Furthermore, selected animals and some uppermost sediment samples were analyzed to determine their hydrocarbon content.

That active oil drilling and production operations do SLIDE # sometimes result in release of hydrocarbons is demonstrated by this infrared image showing drilling platforms and a temporary hydrocarbon sheen resulting from their activities. In the center of the view, a one molecule-thick layer of crude oil shows as a lighter blue area stretching between the two rigs. The reddish areas that you see below are marsh grasses onshore nearby as they appear on infrared film.

The occurrence of other fresh crude oil on the surface SLIDE #3 of the water gave the scientists an opportunity to conduct field studies on its behavior and fate in the marine environment, so this small floating patch was observed for several days.

After twenty-four hours, the appearance of the same oil had changed. Evaporation of some less complex hydrocarbons SLIDE #4 and microbial and chemical degradation of the oil was relatively advanced. It will be noted that the oil has begun to emulsify and clump.

In order to follow the process and rate of breakdown of the oil under more controlled conditions, experiments were SLIDE #5

conducted in the laboratory. Flasks were inoculated with both locally produced oil and bacteria found in the area. Here on the left, you will note that initially the oil is floating on the surface of the seawater with very few globules and very little clumping. On the right, 24 hours later, bacterial and chemical action has substantially degraded the crude oil; clumping is very far advanced; and much of the material has been converted by bacteria into foodstuffs and byproducts.

In order to better identify and count these bacteria, SLIDE #: seawater was placed on suitable materials in shallow plastic dishes using standard microbiological techniques. Here, particularly under the number 14, you see several small, white, glistening colonies of individual kinds of hydrocarbon-degrading bacteria isolated from the study area, and, in the same numbers, from other control areas in the Gulf of Mexico.

These experiments indicate that physical and bacterial processes rapidly degrade oil films with the result that there are extremely low amounts of hydrocarbons (average: 5 parts per billion) found in the water.

There was a definite lack of concentration or build-up of any specific hydrocarbon molecule. Similar results were shown by mass spectrometer analysis of the oil on the surface of the water and samples taken deeper in the water.

The major components of the Gulf of Mexico ecosystem SLIDE #1 are the phytoplankton, the mainly microscopic floating plants.

These are the primary producers of the sea that convert carbon dioxide, minerals, and water to starches and sugars, protoplasm and other chemical compounds by photosynthesis. They are eaten by the next level in the food web, the zooplankton which include numerous types of mainly microscopic animals The nekton are those free-swimming animals fonnd in the environment such as fish and squid. The benthos are the bottom dwellers, some attached and some capable of burrowing in the sediments.

Several aspects of the food cycle and ecosystem were studied in the Offshore Ecology Investigation. Some of the aspects studied were the total mass and diversity of living material present and the distributions of living plants and animals. The results of these investigations showed that there are no differences solely attributable to geographical location except for populations living on platform legs. In other words, except for increase in the populations of certain life forms, the presence of man and petroleum production has had no major effect on the total mass and diversity of living material. Because all life forms are sensitive to their environment, the seasonal changes in both temperature and chemical nature were studied in detail. By the end of the study, the project biologists were able to show that these seasonal variations were far more significant than any other variations, including proximity to oil producing areas.

One sensitive measure of the gross productivity of the SLIDE #3
phytoplankton community is the presence and amount of chlorophyll, the green substance of plants which allows conversion of simple compounds into complex food materials. It can be seen on the slide that there were significant seasonal changes in chlorophyll content reflecting the total populations of floating microscopic plants.

Associated with changes in this floating plant commu- SLIDE #3
nity were seasonal changes in the floating animal community, the zooplankton. It can be seen that these seasonal changes follow the seasonal change in chlorophyll.

The bottom dwelling community is of great import in SLIDE #3
the ecosystem. It is this community that receives the "rain" of food that sinks down from above. Many of the benthos are filter feeders that therefore take surrounding water through their bodies and remove particulate matter and phytoplankton from the water as food. Others obtain nutrients from sediment passed through the digestive tract. It will be noted that the seasonal changes in this community greatly exceeded the differences between a site of man's activity and a control site where there was no such activity.

Because the reef effect of platforms is so important, SLIDE #4
the study of the living things found on their legs deserves further attention. Every solid surface is colonized and becomes a reef. Platform legs here supported about 6½ pounds

of living things per square yard of surface area, more than any natural "surface" in the study area.

As one begins at the surface of the water and goes downward to the bottom of a platform leg, the simplest of plants, the algae, which are also near the bottom of the food web, grow only in shallower depths where light can penetrate. The net effect of the growth on platform legs is to increase the available food supply for animals higher in the food web because these plant materials are graced by smaller fish, snails and other animals which are fed upon, in turn, by the species sought by man. SLIDE #4

To investigate growth rates, the platform leg on the left, had been scraped to the bare metal some 45 days before the photograph was made. It is easily seen that recolonization is rapid. On the right, the large white patch is a colonial animal form called Bryzoa. SLIDE #4

Here, both barnacles and hydroids (other animal forms) are seen growing together. As colonization develops with time, there is both an increase in and a complexity of living things as well as an increasing competition for the available space. The hydroids are overgrowing the barnacles. SLIDE #4

From the fish catch, shrimp catch, and oyster harvest data shown plotted here with oil production through the years in this region of Louisiana, it can be seen that these catches of commercial importance have not decreased as oil production SLIDE #4

has increased; they have indeed increased. This is not to say that increase in catch is the result of industrial activity; however, it is certain that catches have not suffered while oil drilling and production have increased greatly during the same years.

"In conclusion, ladies and gentlemen, let me state that SLIDE #4 I appreciate the opportunity to appear before you today to report on the results of our Offshore Ecology Investigation. Based on this study and other less inclusive with which I am familiar, it appears that there are no significant long-term advsrse effects resulting from offshore petroleum operation. In light of this evidence, and considering the critical need for the energy resources of the Gulf of Alaska, all factors appear to argue in favor of the holding of the proposed sale.

Joe W. Tyson
SENIOR SCIENTIST
GULF UNIVERSITIES RESEARCH CONSORTIUM

STATEMENT OF

GUENTER M. CONRADUS
MATHEMATICAL SCIENCES NORTHWEST, INC.

CONSULTANT, GULF OF ALASKA OPERATORS' COMMITTEE

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

on

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12 - 13, 1975

My name is Guenter M. Conradus. I am employed by Mathematical Sciences Northwest of Bellevue, Washington as a Senior Economist.

In January of 1975, Mathematical Sciences Northwest, Inc. was requested by the Gulf of Alaska Operators Committee to undertake a study of the economic and social impacts which would be felt in Alaska as a whole and specifically in six coastal communities (Juneau, Yakutat, Cordova, Seward, Whittier, and Kodiak) as the result of likely exploration, development and production activities on the outer continental shelf in the Gulf of Alaska. I directed that study.

I had earlier directed a number of economic and social impact studies of, for example, the construction and operation of new or expanded oil terminal facilities in the Puget Sound waters of Washington (for the Oceanographic Institute of Washington) and the construction and operation of four nuclear power plants in the State of Washington (for the Washington Thermal Power Plant Site Evaluation Council).

Prior to returning to the private sector in 1972, I taught undergraduate and graduate economics at Occidental College and San Jose State University. I also taught at the University of California, Los Angeles and the University of Southern California, on a part-time basis.

Over the past twelve years, I have consulted for a number of public agencies and private corporations in matters relating to the economics of growth and change and resource taxation.

The study for the Gulf of Alaska Operators Committee was completed in May of 1975, and in the months of June and July members of the Gulf of Alaska Operators Committee and I briefed officials of the Alaska state government,

the Mayors and members of the Cities Councils of the cities of Yakutat and Cordova, the President and members of the Yak-tat Kwaan Native Corporation in Yakutat, the President of the Eyak Native Corporation, representatives of the Cordova fishermen's union, Alaska state legislators and their staff, and members of the news media.

Copies of the study have been made available to a large number of interested public and private bodies, among them the Alaska state government, state legislators, the Outer Continental Shelf Office of the Bureau of Land Management, the Federal Energy Administration, the Mayors of the six most likely impact communities, environmental groups, and representatives of the news media.

A summary of our study has been prepared by me and will be submitted for the record.

After the study was completed, I spent more than three weeks in England, Scotland, the Shetland Islands, and in Norway. I there talked with government officials, local and regional planners, academicians, fishermen and representatives of some of the oil companies which operate in the North Sea.

This is obviously not the place nor the time to comment at length on both my findings and the impressions I gathered.

The one overwhelming impression I brought back is that the local authorities, both at the city and county levels, with the active cooperation of the oil companies and their contractors, have been able to effectively plan for the onshore development related to support bases, platform construction sites, terminals, gas separation plants, pipelines, and tank farms, thereby minimizing any adverse social and economic effects.

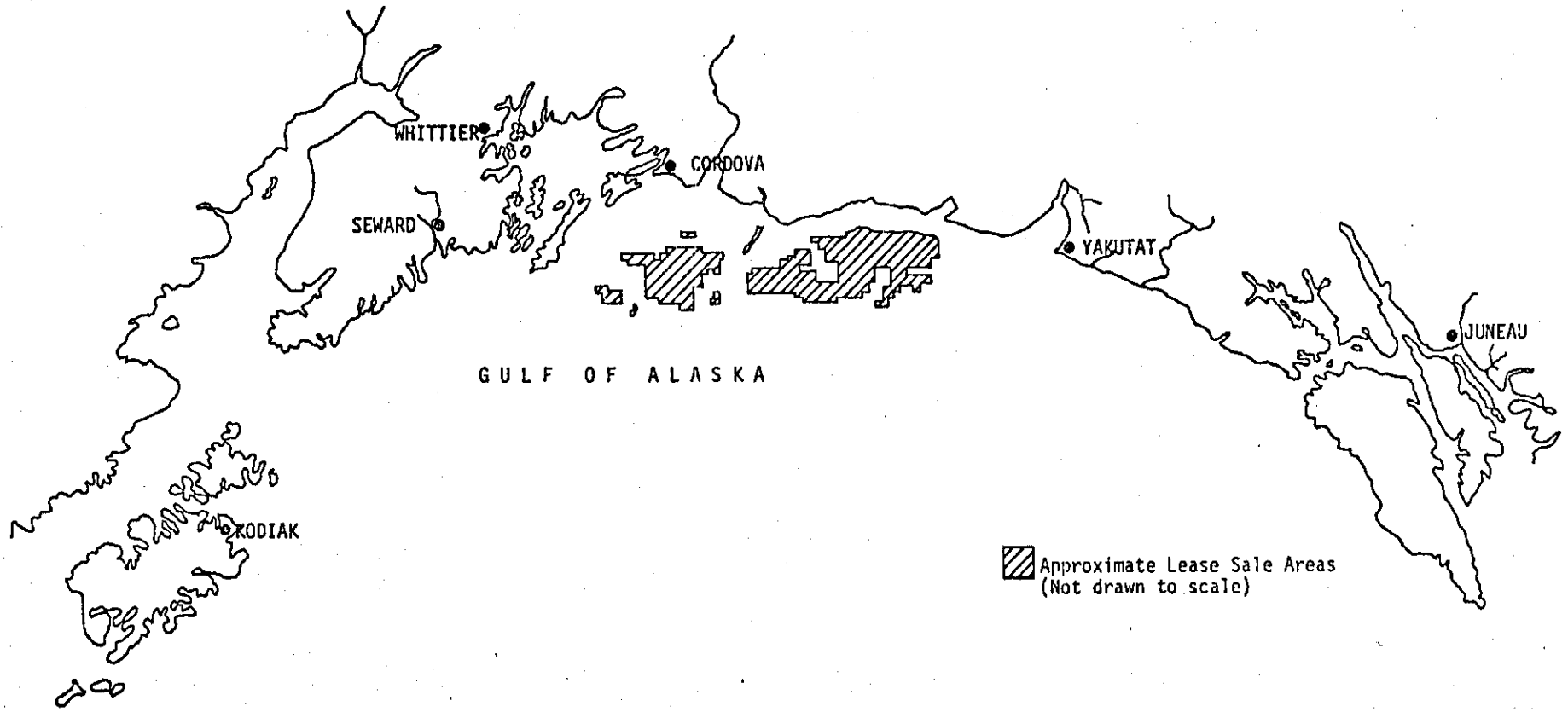
The Economic and Social Impact Study of Oil Related Activities in the Gulf of Alaska was undertaken by Mathematical Sciences Northwest, Inc. (MSNW) at the request of the Gulf of Alaska Operators Committee (GOAOC).

The study addresses the likely economic and social impacts of oil and/or gas exploration, development, and production activities following the first sale of leases on the outer continental shelf (OCS) in the Gulf of Alaska. The impact areas are the "Gulf of Alaska" and "Other Alaska". Within the "Gulf of Alaska" area which includes Anchorage, six coastal communities have been identified as potential primary impact sites, serving as onshore support bases for offshore activities or as transshipping points for the expected future hydrocarbon output of the yet to be discovered fields. The coastal communities are: Juneau, Yakutat, Cordova, Whittier, Seward and Kodiak. (See attached map). The study period is 1976 to 1985.

Since no one knows with any precision what the quantities of proven and recoverable reserves of oil and gas in the lease area are, and since the rate(s) of recovery are also unknown, certain assumptions had to be made. For the base case, the most important assumptions are:

- Exploration activities commence in 1976, leading to the discovery of the first field in 1977.
- A total of five fields will be discovered.
- Each field will ultimately support three production platforms, for a total of fifteen.
- The peak average daily production from all fields will sum to 550,000 barrels/day.

FIGURE I-1: IMPACT COMMUNITIES IN THE GULF OF ALASKA AND APPROXIMATE FIRST LEASE SALE AREAS



- Two pipelines will be constructed to transport the crude to two onshore transshipping terminals.

- Two permanent onshore bases will support the offshore activities during the exploration, development and production phases.

The economic impacts of the oil and gas related activities all emanate from the additional employment generated. Based on data supplied by the GOAOC, the direct employment was estimated to be 291 persons in 1976, the first year of activities, build up to a peak of 1,486 persons in 1980, and gradually decline to 886 persons in 1985.

The incremental onshore indirect and induced employment in such sectors as construction, wholesale and retail trade, finance, insurance, and real estate, and state and local government, for example, was also calculated. In fact, three calculations were made, using an employment multiplier of 2.0, 1.86, and 1.46 respectively. Given a multiplier of 1.86 (thought to be applicable to the geographic areas under consideration), the indirect and induced employment generated by the primary hydrocarbon activities will number 541 persons in 1976, 2,764 in 1980, and stabilize at 1,648 in 1985. Thus, the total employment generated and attributable to the new OCS activities in 1976, 1980, and 1985 sums to 832, 4,250, and 2,534 persons respectively.

While many of the workers who will be employed in the primary activities such as exploration and development drilling and the offshore construction of platforms are likely to be brought to Alaska from other parts of the United States, significant additional employment opportunities in the secondary

sectors will be created for Alaskan residents. Persons presently employed in the construction of the Alyeska pipeline, for example, will be able to transfer their skills to the construction of support bases and transshipping terminals as work on the pipeline winds down. Fishermen can operate supply boats in addition to or instead of their usual occupation (if the Alaskan Limited Entry Program prevents their continuing as fishermen). The induced onshore activities will not only offer additional employment opportunities but are also likely to offer jobs at different and higher skill levels.

In addition to using an economic base model to estimate the future employment (and population) effects, an input-output (I/O) model was constructed. The implementation of the I/O model on a computer permitted the calculating of the direct and indirect employment, income (wage), and output effects of a number of alternative oil development schemes, which differed from the basic assumption of a peak production of 550,000 barrels/day from five offshore fields. The nine basic alternatives which were considered ranged from unsuccessful exploration ending in 1980 without any further activities in the lease sale area, to the discovery of ten fields producing 1.5 million barrels/day and the construction and operation of 10 pipelines to shore and three onshore facilities. Using the I/O model also made it possible to make assumptions about the ability of the Alaskan economy to expand in real terms (15, 30, and 100 percent per year respectively), and to calculate the resulting employment, income, and output effects. Thus, in all, 28 separate oil development and real growth combinations were considered and their economic impacts calculated.

Assuming that from five offshore fields the peak production reaches 600,000 barrels/day, for example, the total (direct and indirect) additional

wage earned in the impact areas amounts to $9.6 million in 1976, peaking at $44.3 million in 1981, and stabilizes at $29.5 million in 1985. If the wage and salary incomes earned in the rest of Alaska are added ($5.0, $14.8, and $16.7 million in 1976, 1981, and 1985 respectively) the total direct and indirect incremental wage and salary payments to persons working in Alaska due to the oil and gas activities would amount to $14.6 million in 1976, $59.1 million in 1981, and would stabilize at $46.2 million in 1985.

The state's production of goods and services will, of course, also increase. Abstracting from the direct values of the oil related facilities and the oil itself, which are enormous, the value of the output of goods and services induced by the primary activities also increases significantly. It is estimated to be $22.9 million in 1976, $79.8 million in 1981, and $87.1 million in 1985.

The additional personal and corporate incomes earned, the value of the additional output of goods and services, and new plants and facilities will provide new state and local tax bases. Several factors made it impossible to estimate the tax revenues accruing to state and local governments. It was not clear what the effective rate of taxation of incomes earned by a temporary workforce would be. The definition of taxable corporate income earned from offshore activities and the effective rate of taxation applied to it were also unknown, as was the value of the onshore plant and equipment subject to state and local property taxation.

The additional economic activity induced by the hydrocarbon development and production not only creates additional employment but also causes the temporary and permanent populations of the impact communities and the rest of

Alaska to grow. A larger population requires an absolutely larger quantity of goods and services. Some of these will be supplied by the private sector. Others, however, require public investment. It is not only important to determine what the absolute quantities of goods and services (public and private) demanded will be, but the points in time when they must be available must also be known, in order to assure that the quantities and qualities of services available to the present population in the impact areas are not diminished by a sudden surge in the demand for them by an immigrant population.

Using the base case of peak petroleum production of 550,000 barrels/day once more, the maximum total population changes in Alaska (assuming all new jobs are filled by inmigrants), are 1,396 persons in 1976, peaking at 7,232 in 1980, and leveling off at 4,426 in 1985. This additional population will be distributed throughout Alaska however. The permanent OCS induced population increases in one or more coastal impact communities (most likely Yakutat and Cordova, because of their proximities to the lease areas), are estimated to be 59 persons in 1976, 700 in 1980, finally reaching 1,302 in 1985.

The assumptions underlying the estimates of the permanent population increases in the coastal communities are:

- 15 percent of the Alaskan component of the workforce employed during the exploration and development phases will live in the coastal communities.

- 30 percent of the workforce employed during the production phase will live in the coastal communities.

- The employment multiplier is 1.86.
- The dependency ratio is 2.04.

Additional public services must be supplied to this population. Some public services will also have to be supplied to at least a percentage of the new temporary population which will reside in the impact areas during the exploration and development and construction phases. In addition, public services will have to be available to those new inmigrants who are drawn to the areas by the expectation of obtaining employment.

A major issue is housing. Assuming that 0.81 housing units are required per member of the permanent labor force (the 1970 Alaskan state-wide average), 23 additional housing units must be available in 1976, a total of 277 units in 1980, and 516 units in 1985. Since none of the coastal communities do at present have any appreciable number of vacancies, these housing units must be newly constructed, or that segment of the workforce which was assumed to take up permanent residence in the coastal communities will have to be transported to the sites from other Alaskan or lower 48 cities.

Other issues addressed are:

The permanent school population in the impact areas will also grow, from 8 students in 1976, 91 in 1980, to 160 in 1985. Depending upon the communities in which this school population finally settles, some, or possibly a significant amount of additional investment will have to be made in fixed facilities.

Because the communities have virtually no excess capacities, investments in a number of other public sectors will also be required. Additional water and sewage treatment as well as solid waste disposal facilities must be provided.

Since none of the communities are presently equipped to handle major medical problems of the existing population, medical facilities and staff must be added.

In order to assure the public safety, more peace officers and fire-fighters will be required and more equipment and facilities are likely to be demanded.

Additional social capital and professional manpower attracted to the impact sites are likely to benefit both the present resident as well as the newly attracted population.

In all of these public employment categories, wage rates may have to be increased above current levels if the public sector is to compete effectively in labor markets stimulated by the OCS induced activities.

The quantity and range of indoor recreational opportunities must be enlarged.

Finally, given the significant projected increases in the population of the likely coastal impact communities relative to their present sites, and assuming reliance on the automobile, the surface transportation, e.g. roads, parking lots, etc. must be expanded.

It is unlikely that the coastal impact communities, individually or collectively, have the fiscal resources to make the necessary public investments (well in advance of the time their output is actually demanded) to assure that no bottlenecks develop.

After the lease sale has taken place and the impact communities requiring additional public and private investment have been identified, federal, state, and private investment funds must become available. The

magnitudes of the necessary social and private investment programs are a function of the level of exploration activities and ultimately depends upon the discoveries made and the rate of production of oil and/or gas. Equally, if not more important than the availability of financial resources for public and private investment, will be the existence of local and state planning processes which allocate the investment resources. At present, neither the likely impact communities nor the state or federal agencies (in Alaska) appear to have any or adequate staff to effectively deal with the OCS related issues. Therefore, state and local planning agencies should be established to permit the rational planning of offshore and onshore developments and in advance of making the necessary public and private investments.

The OCS induced activities will bring about economic and social changes in Alaska. These changes will be more noticeable in the smaller coastal communities than, for example, in Anchorage or Juneau. Because some major activities, such as the construction of platforms, will not take place in Alaska (in the foreseeable future), the aggregate impacts in Alaska will be relatively smaller when compared with impacts observed in North Sea coastal communities of the United Kingdom or Norway.

Nevertheless, some individuals or firms may incur economic and social costs. It is likely, for example, that competition for labor among employers will push up wage rates, increasing the cost of production of public and private goods and services. Those individuals who, at present, have adequate incomes in the form of money and tranquility which affords them a certain "Lifestyle" may consider the reduction of the latter as both an economic

and a social cost, even if their money incomes increase. On the other hand, the likely economic benefits, both for Alaska and the U.S. as a whole, are significant. The expected value of the hydrocarbon output is enormous. The national importance of its physical availability is obvious. The macro-economic benefits for Alaska will take the form of increased long-run employment opportunities, increased wage and salary incomes, and an increased tax base. At the micro level, an increase in the size of local markets may increase both the quantity and quality of public and private goods available to all segments of the population.

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STATEMENT OF

WILLIAM F. GUSEY

COORDINATOR, ENVIRONMENT AND BIOLOGY

STANDING COMMITTEE

GULF OF ALASKA OPERATORS COMMITTEE

BEFORE THE HEARING OF

THE U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

ON

ENVIRONMENTAL IMPACT OF PROPOSED OIL AND GAS

LEASING-OUTER CONTINENTAL SHELF, GULF OF ALASKA

(OCS SALE NO. 39)

AUGUST 12-13, 1975

AT ANCHORAGE, ALASKA

Gentlemen:

My name is William F. Gusey. I am the Senior Staff Wildlife Specialist in the Environmental Affairs organization, Shell Oil Company, but am appearing here today as the Coordinator, Environment and Biology Standing Committee, Gulf of Alaska Operators Committee. A copy of my curriculum vitae is attached to my statement.

Within the Gulf of Alaska region, fish and wildlife resources are essential to the overall recreational program of the state and contribute substantially to the economy of the state. Time does not permit an adequate discussion of these resources at this point. However, we are submitting a detailed statement entitled, "Fish, Wildlife and Petroleum Production - The Gulf of Alaska," dated August, 1975. We ask that this statement and the following appendices be made a part of the record of this hearing.

Appendices 1 to 5, a 524 page document (2 volumes) describing the fish and wildlife resources of the Gulf of Alaska.

Appendices 6 to 8, a 227 page document of supplementary fish and wildlife data, which discusses existing petroleum industry experience and the resources of the Gulf of Mexico, Santa Barbara Channel and Cook Inlet; the National fishery situation from 1939 to 1974, as applicable to fishery trends where the petroleum industry currently is and is not operating; and Gulf of Alaska demersal fish and shellfish distribution and abundance data for the period 1950 to 1971.

On behalf of the Environment and Biology Committee of the Gulf of Alaska Operators Committee I want to express our appreciation for the generous responses we received to our many requests for data from many individuals in the Alaska Department of Fish and Game; National Marine Fisheries Service;

surfaces provided by oil platforms. Encrusting organism also thrive on these surfaces.(1)

Thus, the reef effect of offshore platforms, like other artificial reefs, is an ecological asset. The abundant fish around such structures is well known in the Santa Barbara Channel and in the Gulf of Mexico. These platforms serve as artificial reefs where major fish populations are concentrated. In the Gulf of Mexico this feature of platforms has been instrumental in the development of a substantial sport fishery off the Louisiana coast.(2) Whether or not this will be a measurable value in the Gulf of Alaska will be determined only on the basis of sport fishing demand.

In the Gulf of Alaska, we believe that mid- and upper-water pelagic fish will orient to platforms, some strongly, with numbers dictated by seasons and available food. Studies by the National Marine Fisheries Service (Klima 1970),(3) revealed that certain Gulf of Mexico open water species such as sardines, menhaden, and jacks were attracted in great numbers to small structures positioned about 50 feet below the surface. In excess of 10,000 fish were attracted in one day and upwards to 100,000 after only seven days.

Diver observations in the Gulf of Mexico indicate that commercial quantities estimated at up to 25 metric tons of fish were attracted to an artificial structure on one occasion, and, on six others, at least 5 metric tons were attracted during a 20-day study.(3) It is questionable that this will occur with strongly migratory fish such as salmon.

3. The effect of offshore platforms in reducing the fishable sea floor is yet to be examined, but in terms of fishery harvests, is probably statistically insignificant.

by the Bureau of Land Management for this Gulf of Alaska lease-sale. In addition, seal populations exist near several coastal locations which may be considered as potential crude oil terminal sites. These include populations at Yakutat Bay, Icy Bay, southern end of Kayak Island, and the northern end of Montague Island.(6)

Abandonment of harbor seal pups by their mothers is a common occurrence, particularly if they are disturbed by hunting or other activities of man, including aircraft and boat traffic. The seriousness of this reaction as a function of seal populations in the immediate vicinity of terminal sites cannot be fully evaluated at this time. Seals will vacate any shoreline area which is greatly modified by construction and followed by intense industrial activity. Measures to mitigate these effects will have to be determined on a site-by-site basis. On the other hand, seals may continue to occupy previously utilized beaches or rocks some distance removed but in the general area of a shore facility, i.e., one mile.

Steller Sea Lions

Significant sea lion concentrations have been identified at seven points along the perimeter of the area offered for an OCS lease sale.(5) Five of these concentrations are in the vicinity of sites which could be used as crude oil terminal sites. These include populations at Sitkagi Bluffs at Yakutat Bay, Kayak Island, Seal Rocks and Porpoise Rocks off Montague Island, and at Fountain Rock off Middleton Island.(6)

The existence of substantial sea lion populations along the California coast where there is extensive boat traffic supports our opinion that, in general, boat traffic will have little adverse effect on sea lions in the Gulf of Alaska. On the other hand, helicopter or other aircraft

that a high degree of curiosity will exist, following some initial avoidance of areas of human activity or machinery noise. We expect that these animals will find the water column beneath platforms excellent fishing grounds.

Influences on Birds

Twelve areas with major concentrations occur on the mainland or on offshore islands adjacent to the broad area offered for this OCS lease-sale.[5,8] In general, seabird populations will remain largely uninfluenced by offshore structures and oeprations. Canadian studies indicate minimal disturbance of several species of birds by helicopters; however, aircraft activity can be programmed to avoid nesting and colonial roosting in day-to-day traffic. It is not anticipated that boat activity accompanying OCS activities will pose any stress on seabird colonies.

Any production, storage or processing facilities constructed onshore should involve consideration of bird breeding and roosting and foraging sites in order to reduce the disturbance of such areas to a minimum. In some instances the conflicts may be obvious, such as a construction site in the immediate vicinity of a large breeding colony or eel grass bed, or less obvious, such as the filling of intertidal mud flats which may serve as a foraging areas for shorebirds.

Those species which tend to be most vulnerable to human disturbances are the colonial nesting species which nest in exposed sites. Adults frightened off nests leave their young vulnerable to exposure and predation. Knowledge of the sensitivity of these birds to such factors will lead to operational plans designed to limit or avoid any adverse effects on their populations.

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Bureau of Sport Fisheries & Wildlife, U.S. Department of the Interior, 1952-1964, and 1966-1968.

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Pesticides Regulation Division, U.S. Department of Agriculture, 1964-1966.

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Technical Advisory Group, Committee on Water Quality Criteria, Federal Water Pollution Control Administration (now Federal Water Quality Office), 1967-1968

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Alaska Department of Natural Resources, Drilling Permit Hearings,
Homer, Alaska, May 18, 1974.

STATEMENT OF

EDWARD W. MERTENS, CHAIRMAN

AMERICAN PETROLEUM INSTITUTE COMMITTEE ON

FATE AND EFFECTS OF OIL IN THE ENVIRONMENT

BEFORE

THE U.S. DEPARTMENT OF INTERIOR

BUREAU OF LAND MANAGEMENT HEARING

ON

ENVIRONMENTAL IMPACT OF PROPOSED OIL AND GAS

LEASING--OUTERCONTINENTAL SHELF, GULF OF ALASKA

(OCS SALE NO. 39)

AUGUST 12-13, 1975

ANCHORAGE, ALASKA

MR. CHAIRMAN:

My name is Edward Mertens. I am employed as a chemist by Chevron Research Company, a research subsidiary of the Standard Oil Company of California. During my career, which extends back to the close of World War II, I have held a number of scientific and research management assignments concerned with research work on the heavier fractions of crude oil and the many products derived from these fractions. I hold over 20 U.S. and foreign patents and have written a number of technical articles based on this work. These heavier fractions, incidentally, tend to persist longer after a typical oil spill.

Ten years ago my work began to involve the environmental and health aspects of these products. For the past six years, I have devoted full time to work on environmental problems. As the primary duty of my current assignment, I am Chairman of the American Petroleum Institute's Committee on the Fate and Effects of Oil in the Environment.

API initiated a comprehensive research program on the fate and biological effects of oil spills five years ago. The total cost of this program to the industry is well over a million dollars each year. I expect that this level of support will continue for at least the next several years.

Our program has already yielded a wealth of information. More than 40 papers either have been written or are in preparation by those investigators we have sponsored at

various universities and research organizations. Ultimately, this information will be an important contribution to the large body of literature pertaining to the fate and effects of oil in the marine environment.

Perhaps the most serious problem concerning the potential effects of oil on marine life was whether oil, once taken up by a marine organism, would be permanently retained by that organism and, if so, whether the oil would become concentrated as it moves up the food chain. If this were true, in time the oil would reach some member of the food chain that is used by the human race as part of its diet. Thus, it might constitute a threat to human health. This hypothesis has been advanced by literally scores of authors in their reports, reviews, environmental impact statements, research proposals, and similar writings that are concerned with the effects of oil on marine life. However, as my testimony today will show, these concerns have no valid scientific basis because extensive research shows that oil does not permanently enter the food chain.

This hypothesis is based largely on a study conducted by Blumer following a spill of No. 2 fuel oil in Buzzard's Bay, Massachusetts, in 1969[1] and his subsequent conclusions.[2] Blumer analyzed oysters exposed to this spill and found they had taken up oil fractions. He kept three of the exposed oysters--only three--in flowing seawater in his laboratory. One oyster was analyzed for its oil content after 72 days;

the other two after 180 days. Concerning this work he states, "Oysters that were removed from the polluted area and that were maintained in clean water for as long as six months retained the oil without change in composition or quantity. Thus, once contaminated, shellfish cannot cleanse themselves of oil pollution."[1]

My previous testimonies given at hearings sponsored by the Department of the Interior in Corpus Christi, Texas, last September[3] and in Beverly Hills, California, last February[4] cited nearly a dozen references[5-15] that refute Blumer's conclusion. Every reference reports that once an exposure to oil has passed, the amount of oil in the organism had either returned to, or closely approximates, the original background level. Release occurs rapidly at first, but in a few instances, as much as 6-8 weeks may be required before the last traces may no longer be detectable.[16,17] Further, this conclusion, namely, that oil is released quickly and either nearly or completely quantitatively, is corroborated by additional publications that have appeared in recent months.[17-23]

Even Blumer's data do not bear out his conclusion cited above. If one compares closely the concentration of oil he found in the oyster tissues after being held in the laboratory for six months[1] with the concentration of oil in the tissue found at the beginning of the depuration experiment,[24,25] the average content of oil per 100 grams of tissue are 3.8

and 6.9 milligrams, respectively. Even by his data, he shows a release of almost 50%, rather than none as he states in his conclusion. He claims that the oil quantities in the tissues before and after the experiment are in good agreement, especially if allowance is made for the apparent dilution of oil by growth of the oysters during the course of the experiment. His data show that the average gain in weight per animal was barely 5%. If the decline was attributed solely to dilution by growth, the average content of oil per 100 grams of tissue should have declined from 6.9 milligrams to 6.6 milligrams rather than 3.8 milligrams.

Thus, I am not aware of any reference in the literature--not even Blumer's work--that support his contention that oysters or any other marine organism retain whatever oil they have accumulated without change in composition or quantity once their exposure to oil has been terminated. On the contrary, every reference concerning uptake and depuration research that I have seen shows that marine organisms depurate once an oil spill episode or a simulated spill has passed. Indeed, this conclusion is shared by the Energy Policy Project of the Ford Foundation,[26] the National Academy of Sciences,[27] and the Marine Technology Society.[28]

These results which I have just summarized strongly refute the previously mentioned hypothesis which has been adopted widely by the critics of our industry. Since marine organisms subjected to an oil spill do not retain oil permanently,

we feel that it is highly unlikely that such contamination becomes concentrated by transfer from one trophic level to the next through the food chain. Thus, the possibility of transfer of harmful oil fractions by this mechanism so that they become a threat to human health becomes extremely remote or, more likely, nonexistent.

These latter conclusions are supported by research conducted both in the laboratory and in the field.

The question of magnification of hydrocarbon concentrations occurring from transfer up the food chain was investigated by Cox[7] and J. W. Anderson.[8] Neither investigator found any evidence of magnification. Their observations agree with those of Straughan, who found no evidence of biomagnification in her recently completed two-year study of the marine community exposed to the natural oil seeps near Santa Barbara.[29] Burns and Teal found no relation between the hydrocarbon content of an organism and its position in the food chain in their study of the Sargasso Sea community.[30] Thus, neither laboratory work nor field studies support the contention of the industry's critics that the concentration of oil increases as it progresses through the food chain.

Exposure at sublethal concentrations of oil has shown no effect on growth rate of marine organisms. This conclusion was reached by R. D. Anderson[6] and Cox[7] in their research on oysters and shrimp, respectively. Their conclusions agree

with those obtained by Mackin and Hopkins,[31] who found no difference in the growth rate between oysters growing in an area subjected to oil contamination and that of control oysters in an uncontaminated area. Nor did Straughan, in her work supported by API, find that the natural oil seeps near Santa Barbara affected the growth rate of marine organisms living in the area.[29] More recently, these results are confirmed by Battelle-Northwest studies at Lake Maracaibo, Venezuela. There they exposed lisa, a fish native to that area, for 11 weeks to Tia Juana Medium crude oil.[32] No effect on growth rate was observed. Since growth rate integrates many life processes and physiological factors, we are encouraged by those results. Part of our research program is directed toward studying more extensively the potential effects of exposure of marine life to sublethal concentrations.

It is widely believed by the public that whenever an oil spill of any reasonably large magnitude occurs, the aftermath is a major devastation of marine life. Further, the public is conditioned to believe that this devastation will persist for an extended period of time. Most of my remaining comments today will provide information that will show these beliefs are inaccurate insofar as all but the most severe spills are concerned.

A comprehensive survey of more than a hundred major spills that occurred throughout the world over a 12-year period (1960-1971) was made by Ottway.[33] An analysis of the data

from this survey revealed that birds represented the type of marine life most often significantly affected. In less than 25% of the spills were more than 50 birds involved. For other forms of marine life where damage could be described as extensive, the incidence was even less.[34] These levels are probably low because some of the spills may not have been adequately reported. Nevertheless, only a small number of spills, most notably the West Falmouth and the Tampico Maru spills, resulted in significant damage lasting a year or more. The latter spill, incidentally, occurred near Baja California in Mexico in 1957. Comparable damage resulted from the Torrey Canyon spill, but it is generally acknowledged that this damage resulted primarily from the use of improperly formulated dispersants applied in an improper manner rather than from the effect of the oil itself. All three of these spills occurred near shore.

On the other hand, spills from offshore platforms have been relatively rare. Of the 19,000 wells drilled in our continental waters over the past 25 years, only the Santa Barbara spill reached the beach in a quantity that required extensive cleanup. Its effect on marine life was slight and temporary.[35] Only two other significant platform spills have occurred.[36,37] Coincidentally, both of these were in the Gulf of Mexico in 1970. One of these was studied extensively to assess its environmental impact. Its damage

to marine life was inconsequential.[36] By all standards, this record of the offshore industry is impressive.

The factors that are responsible for the wide variations in the environmental effects of oils spills are identified by McAuliffe.[38]

He observes that three conditions are especially critical; and for a spill to have significant environmental damage, all three conditions must exist simultaneously. These conditions are:

1. The oil must be spilled into a confined body of water, such as a small bay. Thus, the volume of oil spilled is large with respect to the body of water being impacted.

2. The oil should be a refined oil, such as No. 2 fuel oil.

3. Storms or heavy surf must cause the spilled oil to be churned into the bottom sediments.

Indeed, all three conditions did exist in the case of the two spills, the West Falmouth and the Tampico Maru spills, in which significant damage attributed to the oil itself persisted beyond a year or two. In each case, the oil spill involved a No. 2 fuel oil, which was confined in a small area of shallow water for several days. Storms and/or heavy surf caused the oil to be churned into the bottom sediment.

In contrast, offshore platforms are almost without exception located in unconfined areas and in reasonably deep waters. Thus, the first condition outlined by McAuliffe can rarely be met. Secondly, a platform produces crude oil, which is substantially less toxic than most refined oils. Thirdly, in such deep waters, storms and heavy surf rarely, if ever, are able to churn oil into the sediments. Thus, the absence of all three factors minimizes the risk to the marine ecosystem.

Moreover, it must be remembered that since platforms are usually located well offshore, substantial changes in the character of the spilled crude oil will occur before it reaches the nearshore zone, which is the most biologically vulnerable area. Once oil is spilled, there is time for the lighter oil fractions to evaporate. Within a matter of hours, components of crude oil as heavy as gasoline have escaped into the atmosphere.[39,49] These fractions are generally acknowledged as the most toxic fractions. This conclusion is confirmed by work conducted by Battelle-Northwest at Lake Maracaibo, Venezuela. They demonstrated that after only two hours' weathering, the toxicity of the oil to shrimp had dropped substantially.[32] This drop correlated closely with an attendant drop in concentration of light aromatics in the water column.

There is time also for many of the components of the crude oil to be dispersed or, for some components, to be dissolved

in the water column. Subsequent dilution rapidly reduces their concentration to far below toxic levels. Further, their presence in the water column is often short-lived because many components partition readily from the water into the atmosphere.[41] And, finally, if a spill should threaten a nearshore zone or shoreline, there is time for cleanup equipment to be placed in operation.

The public has also expressed concern about chronic pollution of the oceans by oil that may occur from increased offshore drilling. They envision that the amount of oil entering the oceans will be substantial and that, consequently, the quantity and diversity of marine life will gradually diminish to a small fraction of the current level. My remaining comments today will point out that the day-to-day operation of additional offshore platforms will impose, at most, a very small incremental burden of oil to the oceans of our world.

Estimates of the quantities of oil that enter the oceans annually from various sources have been developed by the National Academy of Sciences.[27] Of the estimated six million metric tons that reach the oceans throughout the world each year, nearly 80% comes from river and urban runoff, municipal and industrial waste discharges, and marine transportation. About 10% comes from natural seeps and another 10% from atmospheric fallout. The contribution from offshore production is 1.3%.

Thus, the contribution of oil to marine waters from offshore production relative to the overall amount can be considered minimal if not negligible. With respect to the amount that comes from natural oil seeps, offshore production contributes only one-eighth as much. Significantly, even if we doubled the number of wells in our outercontinental waters, their total contribution to marine waters would be still a small fraction and would be only one-fourth of the amount that comes from natural oil seeps. This comparison is especially significant for the purposes of this hearing in view of the many natural seeps that are known to exist along the Gulf of Alaska shoreline.[42] Undoubtedly, many other seeps exist in the deeper waters of the Gulf that have not been observed.

In summary, we are convinced that oil poses far less of a threat to marine life than has been popularly believed. There is no evidence that oil is passed through the food chain and thereby becomes concentrated so that eventually it becomes a health hazard to man. Major oil spills from offshore platforms have been a rare occurrence to date. Those who oppose offshore drilling frequently express the fear that if a major spill should occur, it will have a devastating effect on marine life. This fear is unfounded, for out of more than 19,000 wells drilled in offshore waters so far, there has <u>never</u> been a spill where such devastating effects have taken place. Indeed, in only one spill has any

measurable damage occurred; and its extent was inconsequential. And, finally, even if we doubled the number of offshore wells, the added input of oil from such operations would add little more than 1% to the oil that now enters the marine waters annually.

Our Committee is convinced that by taking proper precautions that employ technology presently available, the added risk is extremely small. This conclusion is confirmed by the excellent record of the offshore industry since its beginning more than 25 years ago.

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STATEMENT OF

DR. DALE STRAUGHAN

BEFORE THE

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

ON

PROPOSED OIL AND GAS LEASING

ON THE

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12-13, 1975

STATEMENT FOR ENVIRONMENTAL HEARING FOR THE

PROPOSED GULF OF ALASKA LEASE SALE

DALE STRAUGHAN

My name is Dale Straughan and I am presently a Research Scientist at the Allan Hancock Foundation, University of Southern Califronia, Los Angeles.

I received my Ph.D. in Zoology at the University of Queensland in 1966. Since that time, I have worked at the James Cooke University of North Queensland, Hawaii Institute of Marine Biology, and Costa Rica before becoming a Visiting Assistant Professor in Biological Sciences and a Research Associate of the Allan Hancock Foundation of the University of Southern California in 1969.

Between February 1969 and February 1971, I was the Project Director of the Allan Hancock Foundation study to determine the biological and oceanographical effects of oil pollution following the Santa Barbara oil spill in January 1969. Since that time, I have studied the effects of oil on marine biota under both federal (Sea Grant College, Environmental Protection Agency and NOAA) and industrial (API, WOGA) auspices. This has included studies of variation in tolerance of field populations to oil pollution, effects of oil and detergents on survival of species and recolonization of intertidal substrates, the thermal effects of black crude oils in the upper intertidal zone, long term and sublethal effects of exposure to oil.

I HAVE ALSO TRAVELLED WIDELY TO OBSERVE THE EFFECTS OF OIL SPILLS--'TORREY CANYON' IN CORNWALL, 'FLORIDA' IN MASSACHUSETTS, 'TAMANO' IN MAINE, 'METULA' IN THE STRAITS OF MAGELLAN--AS WELL AS CALIFORNIA AND THE GULF OF MEXICO.

I AM A MEMBER OF THE NATIONAL ASSEMBLY OF ENGINEERING COMMITTEE ON SAFETY OF OUTER CONTINENTAL SHELF PETROLEUM OPERATIONS. THIS COMMITTEE WAS ESTABLISHED TO REVIEW THE U. S. GEOLOGICAL SURVEY PROGRAMS ON THE OUTER CONTINENTAL SHELF. I AM ALSO A MEMBER OF THE NATIONAL OFFSHORE OPERATORS ADVISORY COMMITTEE TO THE COAST GUARD. I HAVE ALSO SERVED AS AN OBSERVER FOR THE ENGINEERING COMMITTEE ON OCEANIC RESOURCES AT THE RECENT MEETING OF ICG FOR GIPME IN PARIS. I AM ALSO ASSISTING IN THE PREPARATION OF A PAPER FOR THE U. N. GROUP OF EXPERTS ON SCIENTIFIC ASPECTS ON MARINE POLLUTION.

I HAVE BEEN ASKED TO COMMENT TODAY BY THE GULF OF ALASKA OPERATORS COMMITTEE.

SOME HAVE EXPRESSED FEARS THAT THE PROPOSED DEVELOPMENT OF THE PETROLEUM RESOURCES OF THE GULF OF ALASKA WILL RESULT IN ENVIRONMENTAL DISRUPTION. ONE PARTICULAR CONCERN IS THE POSSIBILITY OF A LARGE OIL SPILL SUCH AS THE ONE WHICH OCCURRED IN THE SANTA BARBARA CHANNEL IN 1969 AND A SECOND IS THE FEAR OF "CHRONIC POLLUTION."

CERTAINLY EVERY REASONABLE SAFEGUARD MUST BE EMPLOYED TO PREVENT THE OCCURRENCE OF SUCH SPILLS AND ELIMINATION OF POSSIBLE CHRONIC POLLUTION SOURCES. HOWEVER, THERE CAN BE NO ABSOLUTE GUARANTEE THAT THERE WILL BE NO SPILLAGE OF OIL. THEREFORE, ONE MUST ADDRESS THESE PROBLEMS.

EXPERIENCE IN THE SANTA BARBARA AREA SHOULD PROVIDE SOME INSIGHT INTO THE EFFECTS OF OIL SPILLAGE IN THE GULF OF ALASKA. WHILE THE AREA IS COLDER THAN THE SANTA BARBARA CHANNEL, MANY OF THE SAME SPECIES RANGE THROUGH AND BEYOND BOTH AREAS. HENCE, DATA IS AVAILABLE ON THE SURVIVAL OF MANY OF THE SPECIES FOUND IN THE GULF OF ALASKA ON EXPOSURE TO BOTH LARGE DOSAGES OF OIL IN AN ACUTE POLLUTION SITUATION AND TO A CHRONIC EXPOSURE SITUATION.

FIRST OF ALL, I WOULD LIKE TO COMMENT ON THE RESULTS OF OUR WORK IN THE SANTA BARBARA CHANNEL DURING THE PERIOD AFTER THE 1969 SANTA BARBARA OIL SPILL. OUR INITIAL FINDINGS SHOWED A SIGNIFICANT MORTALITY IN BIRD POPULATIONS AND IN THE UPPER INTERTIDAL BARNACLE, CHTHAMALUS FISSUS. THERE WAS ALSO SOME DIE-OFF IN THE SURF GRASS, PHYLLOSPADIX AND THE ALGAE, HESPEROPHYCUS HARVEYANUS. NO REPORTS DEMONSTRATED DAMAGE TO POPULATIONS OF MARINE VERTEBRATES, FISH, SEALS, OR WHALES. FISH CATCH DATA AND A TRAWLING SURVEY BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME AS WELL AS ~~FISH-SPOTTING~~ DATA FROM THE BUREAU OF COMMERCIAL FISHERIES DID NOT INDICATE ANY DECREASE IN FISH POPULATIONS DUE TO THE OIL SPILL. A SURVEY OF GREY WHALE STRANDINGS DURING THE LAST DECADE DID NOT SUGGEST THAT FIVE (5) STRANDINGS IN THE MONTH AFTER THE OIL SPILL WAS INORDINATELY HIGH. THROUGH A PROGRAM OF TAGGING OF OILED (75% OF BODY COVERED BY OIL) AND UNOILED ELEPHANT SEALS, OVER A 13 MONTH PERIOD, B. LEBEOUF FOUND NO EVIDENCE OF IN-INCREASED MORTALITY AMONG OILED OVER THE UNOILED ANIMALS. THERE WAS ALSO NO PROOF OF AN INORDINATELY HIGH MORTALITY OF SEA LION PUPS AT SAN MIGUEL DUE TO OIL POLLUTION.

In February, 1971, the Allan Hancock Foundation issued a two-volume report on this research. I wish to point out that we tried to include all biological studies by other groups and agencies following the spill in this report. This included extensive surveys by the California Department of Fish and Game, Bureau of Commercial Fisheries, Dr. M. Neushal at the University of California at Santa Barbara, and Dr. Wheeler North from the California Institute of Technology among others. The reports of these surveys substantiated the findings by the Allan Hancock Foundation study. That is, that the biological damage was much less than predicted immediately after the spill and the area was recovering.

Recovery of the area started within seven (7) weeks of the oil spill. The barnacle, Balanus glandula, had settled on dry oil by that time. Between six and seven months after the spill, the California Department of Fish and Game reported "near normal quantities" of Hesperophycus while Phyllospadix was growing again in damaged areas of the Channel (A.H.F. Report 1:405). Chthamalus fissus was recorded settling on oiled substrates 10 months after the spill. In more recent experiments this species settled on substrates less than 10 weeks after they were soaked in oil. These experiments also showed that recolonization rates depend on the season of the year. Hence, recolonization by this species need not be delayed as long as 10 months. This work is reported in the Proceedings of the Conference on Prevention and Control of Oil Spills sponsored by API, EPA, and the Coast Guard in June, 1971.

ALTHOUGH COMPARABLE DATA TO THAT OBTAINED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME IN 1969, IS NOT AVAILABLE ON BIRD POPULATIONS FOR LATER YEARS, THE AUDUBON CHRISTMAS CENSUS FOR THE FOLLOWING YEARS (1969-1973) DID NOT REVEAL A LOSS OF BIRDS CORRELATED WITH THE OIL SPILL. THE DIFFICULTY WITH THESE DATA IS THAT THE LEVEL OF EFFORT IS PROBABLY STILL TOO LOW TO REGISTER CHANGES IN THE SANTA BARBARA AREA BECAUSE THE RESULTS ARE RELATED TO THE NUMBER OF OBSERVERS.

IN SUBSEQUENT ECOLOGICAL SURVEYS OF ROCKY SHORES AND SANDY BEACHES IN 1974, WE WERE UNABLE TO DEMONSTRATE DISRUPTION IN THE DISTRIBUTION AND ABUNDANCE OF INTERTIDAL SPECIES DUE TO THE SANTA BARBARA OIL SPILL. OUR CONCLUSIONS WERE THAT ANY DISRUPTION HAD BEEN OF A TEMPORARY NATURE.

AT THIS POINT, I WOULD LIKE TO TAKE EXCEPTION TO FIGURE 45 IN THE EIS WHICH HAS BEEN QUOTED DIRECTLY FROM THE CEQ REPORT. IN THIS FIGURE, CEQ EXTRAPOLATED FROM MY DATA, THAT IT TOOK 3 YEARS FOR OIL FROM THE SANTA BARBARA SPILL TO BE LOST FROM THE SANDY BEACHES. GOD KNOWS HOW THEY CAME TO THAT CONCLUSION! I CAN ONLY SPECULATE THAT THE CEQ WRITERS BELIEVED THAT BECAUSE I SURVEYED THE SANDY BEACHES 2 AND 3 YEARS AFTER THE OIL SPILL, THAT I HAD EVIDENCE THAT OIL FROM THE SANTA BARBARA OIL SPILL WAS STILL ON THOSE SANDY BEACHES. I HAVE NO EVIDENCE THAT OIL FROM THE SANTA BARBARA OIL SPILL WAS STILL ON A SANDY BEACH TWO OR THREE YEARS AFTER THE OIL SPILL. IN FACT, ALL OIL THAT WAS COLLECTED AND THAT COULD BE TRACED TO AN IDENTIFIABLE SOURCE, WAS DESIGNATED SEEP OIL.

ONE OF THE PROBLEMS OF ASCERTAINING POSSIBLE EFFECTS OF OIL POLLUTION IN A NEW AREA IS THAT OF PREDICTION WHEN SO MANY OF THE VARIABLES ARE UNKONWN. HERE ONE CAN ASSUME THAT OIL OFFSHORE FROM THE GULF OF ALASKA WOULD POSSIBLY BE SIMILAR TO THAT OBTAINED FROM NATURAL OIL SEEPAGE ALONG THE COAST. THE MAJOR PUBLICIZED SPILLAGES OF OIL IN COLD WATERS TO DATE, HAVE BEEN OF ARABIAN CRUDE OILS (E.G., "TORREY CANYON" AND "METULA"). THESE HAVE FORMED LARGE QUANTITIES OF CHOCOLATE MOUSSE--SOMETHING THAT HAS NOT BEEN OBSERVED IN THE SPILLAGE OF OILS ALONG THE WEST COAST OF NORTH AMERICA. THROUGH THE LARGE INCREASE IN VOLUME (CHOCOLATE MOUSSE MAY BE 1 OIL: 4 WATER), OIL IN THIS FORM MAY PHYSICALLY KILL MORE ANIMALS WITHOUT ANY REAL CHANGE IN CHEMICAL TOXICITY.

SAMPLES OF OIL FROM A FIELD NEAR THE GULF OF ALASKA WERE ANALYZED BY DR. TOM MEYERS. HE REPORTED THAT THIS WAS A FULL RANGE CRUDE CONTAINING VOLATILES AND THAT IT WAS REMARKABLY SIMILAR TO SAMPLES FROM PLATFORM A-21 IN THE SANTA BARBARA CHANNEL. THIS WAS BASED ON GAS CHROMATOGRAPHY IN THE C_{10} TO C_{35} RANGE.

TWO SERIES OF EXPERIMENTS HAVE BEEN CONDUCTED USING INTERTIDAL SNAILS (LITTORINA SCUTULATA) FROM SEWARD, ALASKA, SOUTHERN CANADA, AND SOUTHERN CALIFORNIA, AND SEVERAL TYPES OF PETROLEUM INCLUDING CRUDE OIL FROM THE GULF OF ALASKA AND SANTA BARBARA CRUDE OIL, TO DETERMINE POSSIBLE TOLERANCE DIFFERENCES IN FIELD POPULATIONS. L. SCUTULATA FROM ALASKA SURVIVED AS WELL, AND AT TIMES BETTER, THAN THOSE FROM THE SANTA BARBARA CHANNEL.

MORTALITIES FROM CRUDE OIL WERE LIMITED TO ANIMALS EXPOSED TO 29°C AND APPEAR TO BE A TEMPERATURE RATHER THAN AN OIL EFFECT. SUBLETHAL EFFECTS, INCLUDING ABILITY OF THE SNAILS TO REMAIN ATTACHED TO THE SUBSTRATE WERE ALSO CONSIDERED. IF THE SPECIES IS NOT ATTACHED TO THE SUBSTRATE, IT WILL BE WASHED AWAY AND ESSENTIALLY LOST FROM THE POPULATION. ATTACHMENT RATES OF ANIMALS FROM ALASKA ARE NOT SIGNIFICANTLY DIFFERENT FROM THOSE OF ANIMALS FROM THE SANTA BARBARA CHANNEL.

THE AVAILABLE DATA SUGGEST THAT THE EXPERIENCE IN THE SANTA BARBARA CHANNEL IS MORE RELEVANT TO THE GULF OF ALASKA. THAT IS, THE ENVIRONMENT WILL BE ABLE TO TOLERATE ISOLATED LARGE SPILLAGES OF OIL. HOWEVER, THE WORD ISOLATED MUST BE EMPHASIZED.

LET ME NOW ADDRESS THE SUBJECT OF "CHRONIC" POLLUTION BY PROVIDING SOME INFORMATION FROM A REPORT IN THE LAST DRAFT STAGE. THIS DEALS WITH WORK CONDUCTED OVER A TWO-YEAR PERIOD TO STUDY THE SUBLETHAL EFFECTS OF CHRONIC EXPOSURE TO OIL FROM NATURAL SEEPAGE AND INCLUDED BOTH INTERTIDAL AND SHALLOW SUBTIDAL SPECIES. IT WAS NOT DESIGNED AS A COMMUNITY STUDY, BUT AS A STUDY TO RELATE INDIVIDUAL SPECIES TO OIL. IT ALSO INCLUDED AN EXTENSIVE PROGRAM OF CHEMICAL ANALYSIS OF TISSUES AND SEDIMENTS.

SEVERAL MAJOR POINTS THAT EMERGED WERE THAT MARINE SPECIES CAN AND DO LIVE IN AREAS CHRONICALLY EXPOSED TO OIL. THIS INCLUDES BENTHIC SEDIMENTS. MOST OF THESE SPECIES HAVE PELAGIC LARVAL FORMS. THEREFORE, THIS CAN NOT BE REGARDED AS THE RESULTS OF NATURAL SELECTION OVER MANY GENERATIONS. THERE MAY INDEED BE AN INCREASE IN TOLERANCE TO OIL OF INDIVIDUALS THROUGH CHRONIC EXPOSURE AS WELL AS SELECTION OF THOSE MOST TOLERANT TO OIL FROM EACH GENERATION.

In general, the highest concentration of petroleum hydrocarbons in tissues were found in Mytilus californianus. Examination of the gonads indicated that the species was indeed breeding at Coal Oil Point and that oocytes and eggs appeared normal in the ovary. Likewise, a study of the early stages of larval development in sea urchins, Stronglycentrotus showed no detrimental effects even though the tissues of the parent animals contained petroleum hydrocarbons.

The area was also not populated with malformed organisms. This included a survey of encrusting bryozoans from the kelp canopy. Contrary to the observations of Powell, et al (1970), no hyperplasia of bryozoan ovicells was recorded. Could the effects observed by Powell be due to some other factor operating in their study such as creosote--a coal-tar derivative--which has a higher cancer producing potential than crude oil?

External presence of black oil, however, was associated with a reduction of the brooding rate in the stalked barnacle. Pollicipes polymerus. This appeared to be a termperature effect with the oil increasing the animal's body temperature. However, in Alaska where the species is nearer to the colder end of the range, such an increase in temperature may not be sufficient to reduce the brooding rate.

Others have surveyed production areas (GURC, California Fish and Game) and large ports (Milford Haven). Their data show that the industry has indeed been able to operate without large scale environmental disruption. All these operations, however, do require strict control by industrial operations to minimize contamination of the environment. The need for this continued control and quick response to an incident to maintain clean ports is continually emphasized by Captain Dudley, the Harbor Master at Milford Haven.

I BELIEVE THAT THE OIL INDUSTRY CAN OEPRATE WITHOUT CAUSING MAJOR ENVIRONMENTAL DISRUPTIONS. THOSE RISKS OF SHORT TERM DISRUPTION OF ISOLATED AREAS APPEAR SMALL WHEN COMPARED WITH THE GREATER WIDESPREAD BENEFITS THAT COULD BE GAINED FROM PRODUCTION OF THIS POTENTIAL ENERGY SOURCE.

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STATEMENT OF

DR. ALBERT H. LASDAY

VICE-CHAIRMAN, AMERICAN PETROLEUM INSTITUTE

COMMITTEE ON FATE AND EFFECTS

OF OIL IN THE ENVIRONMENT

BEFORE THE HEARING OF

THE U. S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

ON

ENVIRONMENTAL IMPACT OF PROPOSED OIL AND GAS

LEASING-OUTER CONTINENTAL SHELF, GULF OF ALASKA

(OCS SALE NO. 39)

AUGUST 12, 13, 1975

AT ANCHORAGE, ALASKA

I am Dr. Albert H. Lasday, a Coordinator in Texaco Inc.'s Environmental Protection Department. One of my responsibilities is to advise on and to coordinate the Company's world-wide activities in prevention and control of water pollution, including oil spills.

I also serve as Vice Chairman of the American Petroleum Institute's Committee on Fate and Effects of Oil in the Environment. One of the Committee's sub-units is its Task Force on Physical Transport of Oil, of which I serve as Chairman. This latter group is concerned primarily with sponsoring and supervising, on behalf of the API, research which seeks to describe quantitatively the fate of spilled oil.

For the past seven and one-half years I have been occupied exclusively with water pollution problems. For the initial three and one-half years of that period I was Supervisor of Research at a Texaco laboratory where my section worked on various studies of waste water treatment and oil spill recovery and cleanup. Moreover, I have served as Texaco's Environmental Protection Coordinator at three significant oil spills in which my Company was involved (none of them off-shore), so that I am knowledgeable of the environmental aspects of events attendant on the accidental and unexpected release of large amounts of oil.

Detailed written comments on the "Draft Environmental Impact Statement for the Proposed OCS Oil and Gas Lease Sale-Northern Gulf of Alaska" will be submitted by the Gulf of Alaska Operators Committee. However, I shall comment today on several salient points contained in that document, regarding some of the effects on the environment of crude oil, of oil and gas drilling, and of production-related fluids, including drilling muds, drill cuttings, and produced brine.

WEATHERING AND DISSIPATION OF SPILLED CRUDE

Regarding the crude oil category, it is important, insofar as effects on marine biota are concerned, to distinguish between fresh and weathered oil, as the fresh crude contains components which are present in lesser amounts or even absent after weathering. Regardless of its source, a fresh crude entering a particular place in the marine environment will be transported somewhere else by winds, waves, and currents. During the time of transport, the characteristics and toxicity of the fresh crude are greatly modified by the weathering processes of evaporation, dissolution, photo-oxidation, emulsification, and biodegradation. Further, the operative transport mechanisms remove various components of the oil into other reservoirs such as the atmosphere, the water column, and the sediments.

Thus, any possible toxicity effect of crude oil entering the marine environment is rapidly decreased and effects on marine life much reduced after only a few hours time. This greatly reduced toxicity occurs soon at the original site, say of a spill, and consequently is even further reduced at any distant site to which the crude may be transported, due to the action of weathering and dissipative factors. Dr. Clayton D. McAuliffe discusses this subject of the fate of a spilled oil extensively and in detail in his presentation.

EFFECTS OF SPILLED OIL ON PHYTOPLANKTON

The "Draft Environmental Impact Statement" discusses effects of oil on phytoplankton in several places, and principally on pages 422-431. It is argued that both acute and chronic effects

of oil would be harmful to the phytoplankton population, that the phytoplankton are the ultimate basis of the marine food chain, and thus that any disruption or harmful effects on them would sequentially and adversely involve higher trophic levels. It is my purpose to make available some additional and new information regarding the effects of oil on phytoplankton, and to base some differing conclusions thereon.

Work funded by the American Petroleum Institute (API) and conducted by Ray and Mills at Texas A & M University showed that phytoplankton exposed to the water-soluble fractions of several test oils evidenced reduced primary productivity.[1] However, they noted that once the exposure to oil was terminated, the phytoplankton resumed a normal growth rate within a few days. They conclude that once a spill episode has passed, only a few cells need survive to repopulate a given area rapidly. Recruitment from nearby unaffected areas also would act to restore a normal phytoplankton population quickly. For these reasons, they report that phytoplankton have a great "rebound" potential.

In still other work funded by API, Strand and co-workers at Battelle-Northwest Research Laboratories report that at concentrations of oil less than 1 ppm, oil stimulated the growth of phytoplankton.[2] Other investigators have reported similar observations in Alaska[3], France[4], Canada[5], and elsewhere.[6,7] Evidently at these low concentrations, oil serves as a nutrient.

Finally, The Gulf Universities Research Consortium (GURC) conducted an extensive environmental study[8] in the Gulf of Mexico utilizing control areas away from oil production, and study areas

with concentrated production activities. In his report to GURC[24], Dr. S. Z. El Sayed states, "There is no evidence to suggest that production or drilling activities .... have had any deleterious effect on phytoplankton communities in the off-shore waters ...." Thus, it is concluded that, insofar as phytoplankton are concerned, any adverse effect of crude oil is temporary and that the phytoplankton regenerate quickly after a spill.

CHRONIC EXPOSURE OF MARINE LIFE TO SPILLED OIL

Another subject which is discussed in the "Draft Environmental Impact Statement" is that of the effects of long term, chronic exposure to crude oil. See, for example, the section expressing some of the more prevalent concerns, pages 395-404. Considerable speculation has also appeared both in the technical and in the popular literature on this subject. However, many comprehensive studies have been conducted or are in progress which show that such exposure is not harmful. The most extensive work has been done by the Gulf Universities Research Consortium.[8] The testimony of Mr. J. W. Tyson at this hearing reports that there have been no measurable adverse effects on marine life as a result of the off-shore oil operations in the Gulf of Mexico over the past 25 years or more.

A similar conclusion was reached by Battelle-Northwest Research Laboratories as a result of their three year study of Lake Maracaibo in Venezuela[9], which has been impacted by off-shore operations for several decades. Further evidence is provided by studies conducted by Dr. Dale Straughan on the effects of the natural oil seeps off Coal Oil Point, Santa Barbara, upon the marine

community. She finds that the chronic exposure to oil from the natural seeps does not affect the health of the local marine animals in any way. Neither their growth rates nor their reproductivity are affected. Moreover, she finds no evidence of abnormal growths.[10]

Continuing in the same vein are the results being reported by the Bermuda Biological Station for Research from their study for the API on the effects on marine life of weathered oil washing ashore on some of the Bermuda beaches. So far, after more than a year's study, the researchers find no effects of oil on subtidal and intertidal marine life, nor are any effects observed upon the life that is inhabiting the splash zone.[11]

As a final study of chronic exposure of the marine environment to crude oil, I wish to report on the work being done in the Santa Barbara channel under the direction of Dr. John D. Isaacs of the Scripps Institution of Oceanography. This project, also sponsored by the API, is developing a census of various types of marine life under and adjacent to platforms Hilda and Hazel in the Santa Barbara channel. This census will be compared with a similar one conducted immediately after these platforms were constructed in 1959 and 1960. At the time of construction, very little marine life inhabitated the area. Soon after construction, the fish population had grown to about 6,000 under each platform. The structures had become encrusted with sessile organisms, such as mussels and barnacles, but no marine life was present in or on the sterile drill cuttings deposited at the base of the platforms.[12]

Today the fish populations are estimated at more than 20,000 under each platform. The structures are heavily encrusted by sessile organisms. Also, the drill cutting piles have become a teeming community of benthic life.[13]

These studies provide graphic evidence that there are little, if any, adverse effects upon marine life from chronic exposure to crude oil. On the contrary, they provide good evidence that such off-shore platform structures provide an environment that increases the total biomass for their local area.

Except in confined bodies of water where, for example, sediments can become heavily contaminated, oil has a negligible effect upon marine life. Undoubtedly the major factors responsible for this condition are the very low solubility of oil in water and the rapid dilution which occurs. Most toxic levels of oil involve concentrations measured in the many parts per million range, up to hundreds of parts per million, whereas the concentration of oil in the natural environment lies in the parts per billion range. For example, scientists of the Bedford Institute in Nova Scotia have found hydrocarbon levels in the range of only 1 to 6 parts per billion in waters off the Canadian East Coast.[14,15] Tanker routes in the Atlantic Ocean contain only 2 to 20 parts per billion of hydrocarbon.[16] The hydrocarbon content of the water column affected by the natural seeps near Coal Oil Point at Santa Barbara is, at most, 16 parts per billion.[17] In the studies of the 1970 platform spill in the Gulf of Mexico, the concentrations of hydrocarbon were only 200 parts per billion at the platform and had dwindled to only 1 part per billion a mile away.[18] It is small wonder, therefore, that such low levels of exposure, especially in areas of open moving water, do not significantly affect marine life to any measurable degree.

LABORATORY BIOASSAY VS. REALISTIC CONDITIONS

Laboratory bioassay has been a primary investigative method from which have been derived the results and conclusions which are discussed in the "Draft Environmental Impact Statement," in the sections on the effects of oil on phytoplankton, and the long-term chronic exposure effects of oil. Because of the importance of the conclusions which have been based largely on laboratory bioassay testing, it is necessary to question the validity of that test procedure. Important observations concerning this were made at the API-sponsored Fate of Oil Symposium, May 29-30, 1974, in Washington, D.C. The several contractors conducting research for API on fate and effects of oil reviewed publicly the results they have obtained. A copy of the program is attached.

Significantly, each of the contractors emphasized that results from laboratory bioassay testing cannot be used as a direct measure of the toxic effects that may be expected in a "real world" circumstance. This is especially difficult with oil because it is for the most part insoluble in water. Therefore, a uniform distribution throughout the water is virtually never realized. In the case of oil, evaporation occurs; and, consequently, the lighter fractions are quickly removed. Moreover, in the "real world," dilution also occurs rapidly. In bioassay work, on the other hand, the concentration of a contaminant is held constant throughout the duration of the test, usually 96 hours. This is an unrealistically long time in the case of most spills in marine waters where the exposure time for a given local area is brief, often only a matter of hours, because the spilled oil is being moved by winds, waves, and currents.

Furthermore, the loss of fin fish is seldom observed in an oil spill in the marine environment even though a significant susceptibility is measured by laboratory bioassay work. This anomaly exists because in bioassay work the test fish is confined to a given volume of water, whereas, in marine waters, the fish can escape after evidently sensing the oil. This lack of correlation between bioassay work and field results is generally recognized. For example, the Marine Technology Society in April of this year conducted a workshop to assess this problem and to recommend needed research. Also, this deficiency was emphasized as a problem in a workshop sponsored last year by the Institute of Petroleum in England.[19]

As a result of the experiences of and conclusions reached by its contract research organizations, as well as by the observations of others, the API is placing maximum emphasis on field studies in its continuing sponsorship of research concerning the effects of oil. It is therefore recommended that any revisions to the "Draft Environmental Impact Statement" place increased emphasis on the results of field studies, and very cautiously evaluate the conclusions based on laboratory bioassay experiments.

EFFECTS OF DRILLING MUDS ON MARINE ORGANISMS

Drilling muds are identified in the "Draft Environmental Impact Statement" (pages 341-343, 417-418) as having possibly undesirable effects due to toxicity of some components and to turbidity. Let's now address ourselves to some additional information regarding drilling muds.

Drilling muds are complex mixtures of many different components. The toxicity of these components varies widely when tested individually. However, the most toxic components are used only sparingly in the formulation of the drilling muds. The low concentrations of such components in the muds are reflected in the high concentrations of mud in the receiving waters that are needed to produce a toxic effect.

This conclusion is illustrated by the work reported by Logan, Sprague, and Hicks of the University of Guelph in Ontario, Canada[20] and summarized by Falk and Lawrence.[21] Logan and coworkers determined by laboratory methods the LC50 (the lethal concentration of drilling mud in water needed to kill half of their test organisms) after an exposure of 96 hours. Their test organisms were lake chub and rainbow trout. The LC50's for a 96-hour exposure period ranged from 0.83% to 12.0%. Thus, since such high concentrations of drilling mud in water are required in order to demonstrate toxic effects, only moderate dilution, depending on the drilling mud being used, would be needed to render the mud non-toxic even for a 96-hour exposure period. The currents that normally exist around a platform would achieve this degree of dilution within a few feet of the point of discharge and within an elapsed time of only a few minutes. Thus, the effect of discharging drilling muds upon the health of a marine ecosystem can be considered negligible.[22] But one must bear in mind the limitations of laboratory bioassays, as discussed above.

The "Draft Environmental Impact Statement" expresses specific concern about the ferrochrome lignosulfonates and barite

used in the formulation of drilling muds. Logan et al[20] report the toxicity level of ferrochrome lignosulfonate to be about 1500 ppm, or about 0.15%. Since it is used sparingly in the formulation of drilling muds, its concentration in the water after discharge of the mud is very low and therefore non-toxic.

Further, the "Draft Environmental Impact Statement" states that an unknown factor is the toxicity to benthic organisms from barium compounds in drilling muds. While these compounds are a major component in drilling muds, Logan et al[20] report their toxicity to be extremely low, essentially zero. As observed above, the rapid dilution by seawater at the point of discharge of the mud renders components non-toxic almost instantaneously. F. T. Weiss[23] observed in his testimony before the Bureau of Land Management hearing in Los Angeles last May that these same barium compounds are the principal ingredients in the "barium enema" or "barium diet" used for X-ray examinations. While they may be unpleasant, they can hardly be considered as toxic materials!

EFFECTS OF PRODUCED WATER DISCHARGES

The discharge from producing platforms of formation waters is discussed in the "Draft Environmental Impact Statement" (for example, pages 342-5, 424) and it is concluded that the impact will not likely be significant, based on dilution of produced waters in the ocean water column, and the patchiness of phytoplankton production in the northern sector of the Gulf of Alaska. In support of that conclusion, it should be noted that an important component of discharged water from a producing platform is oil -- in the 10 to 50 parts per million range -- and as discussed above, chronic exposure of phytoplankton and other marine organisms to low levels

of crude oil is not harmful. In addition to minor amounts of entrained oil, some additional characteristics of produced water noted in the "Draft Environmental Impact Statement" are high salinity, and presence of various metals and non-metals.

Regarding salinity, the GURC study[8] previously mentioned reported salinity measurements at 180 sampling locations in the northern Gulf of Mexico. The observed levels were reported to be within normal ranges according to season of the year. Of course, dilution is the method of detoxification. Dr. J. F. Mackin[25] said, "This dilution in large water bodies and comparatively deep water is almost instantaneous, and dilutions of 1,000 parts of sea water to one of brine can be effected in even comparatively shallow water in distances of from 8 to 50 feet. In off-shore waters in the Gulf or elsewhere, there is no brine problem for that reason."

Various metals and non-metals present in produced water are listed in Table 45a, page 344 of the "Draft Environmental Impact Statement." In addition, trace amounts of other metals have been listed.[26] While all of the trace elements discovered in brines are present in sea water, some of the former could be discharged at higher concentrations. As previously discussed with respect to salinity, dilution would very rapidly, and in a very short distance, render harmless any brine discharge containing even an otherwise toxic concentration of a heavy metal.

SUMMARY AND CONCLUSIONS

In summary, the following conclusions have been stated in my testimony:

1. Any adverse effect of crude oil on phytoplankton is temporary as they regenerate and repopulate quickly after a spill.
2. Chronic exposure of marine life to low levels of petroleum hydrocarbons from crude oil entering the environment does not significantly affect the biota.
3. Laboratory bioassay testing does not simulate the "real world" in any reasonable fashion and, therefore, the results of such studies must be interpreted and applied with extreme caution. "Real world" field studies are a much preferred investigatory route for determining the effects of oil on marine flora and fauna.
4. Drilling muds may contain some additives which are toxic if concentrated; however, in actual practice, rapid dilution in the water column, should they be discharged, renders them negligibly harmful to marine life.
5. At time of discharge, ocean bottom areas covered with drill cuttings will be sterile, but a thriving benthic population will develop.
6. The discharge of formation waters into the ocean from producing platforms does not present any hazard to sea life forms in the water column near the platforms, due to the rapid dilution which occurs.

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PRELIMINARY PROGRAM AND INVITATION

SYMPOSIUM ON

FATE AND BIOLOGICAL EFFECTS OF OIL SPILLED IN THE MARINE ENVIRONMENT

Sheraton-Park Hotel, Washington, D.C.

May 29-30, 1974

Sponsored by

The American Petroleum Institute

SYMPOSIUM ON

FATE AND BIOLOGICAL EFFECTS

OF OIL SPILLED IN THE MARINE ENVIRONMENT

In 1971, after a careful evaluation of published documents on the fate of oil spills and their ecological/biological effects, the American Petroleum Institute determined that there was a dearth of scientific knowledge on this subject. It was found that the literature was frequently speculative, and contained little experimental evidence. Furthermore, many far-reaching questions of importance to the petroleum industry could not be answered for lack of factual information.

API then launched a comprehensive research program to get these answers. This program has grown during the past three years, and has begun to provide much scientific data on the fate and effects of oil.

To provide a forum for the presentation and discussion of these data by the scientists who are conducting the research, API has scheduled this symposium. It is the hope of API's Task Force on Fate of Oil that this symposium will promote objective evaluation of these projects and the information developed by them. The net result should be of benefit to the scientists involved, to API, and to all who share an interest in the area.

PROGRAM TOPICS AND SPEAKERS

Physical Transport of Spilled Oil

Dr. R. L. Kolpack
University of Southern California

Chemical Analysis for Oil in Water, Sediments, and Tissues

Dr. J. S. Warner
Battelle Memorial Institute
Columbus (Ohio) Laboratories

Biodegradation of Oil

Dr. Rita R. Colwell
University of Maryland

Dr. Leon Petrakis
Gulf Research & Development Co.

Effects of Oil on Phytoplankton

Dr. J. R. Vanderhorst
Battelle Memorial Institute
Pacific Northwest Laboratories

Dr. S. M. Ray
Texas A. & M. University

Toxicity of Oil to Marine Fauna (Flow-Through Bioassay Technique)

Dr. B. E. Vaughan
Battelle Memorial Institute
Pacific Northwest Laboratories

Toxicity of Oil to Marine Fauna (Static Bioassay Techniques)

Dr. J. W. Anderson
Texas A. & M. University

Avian Physiology Research

Dr. W. N. Holmes, Jr.
University of California at
Santa Barbara

Field Studies, Bermuda

Dr. C. D. Gebelein
Bermuda Biological Station for
Research

Field Studies, Santa Barbara

Dr. Dale Straughan
Allan Hancock Foundation
University of California

Field Studies, Buzzards Bay

Dr. A. D. Michael
Marine Biological Laboratory
Woods Hole, Massachusetts

Analytical Method for
Polynuclear Aromatics

Dr. R. A. Brown
Esso Research & Engineering Co.
Linden, New Jersey

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Direct requests for additional
Symposium information to:

Dr. J. R. Gould
Conference Coordinator
Fate and Effects Symposium
Suite 700
1629 K Street, N. W.
Washington, D. C. 20006
(202) 296-3018

GENERAL SYMPOSIUM INFORMATION

Registration: Attendance at this symposium is by invitation only. All invitees who wish to attend must register in advance. Please complete the enclosed registration card and return by April 10, 1974, with your check (made payable to American Petroleum Institute) to:

Fate and Effects Symposium
Suite 700
1629 K Street, N. W.
Washington, D. C. 20006

Your badge and meeting materials will be held for you at the Symposium Registration Desk (Cotillion Room Foyer, Sheraton-Park Hotel) which will be open as follows: Tuesday, May 28, 6:00 p.m.-8:00 p.m. and Wednesday, May 29, 8:00 a.m. - noon.

Only those who have registered in advance will be able to attend the symposium sessions.

Luncheon: A luncheon is scheduled for Wednesday, May 29, and is included in your registration fee.

Hotel Reservations: A block of rooms at the Sheraton-Park Hotel has been set aside for participants. To ensure confirmed reservations from this block, your request must be RECEIVED BY THE HOTEL no later than May 8, 1974. The hotel reservation card (enclosed) must be mailed as soon as possible to: Sheraton-Park Hotel, Washington, D. C. 20008. An advance deposit or written guarantee of payment is necessary to hold your room if arrival is scheduled after 6:00 p.m. Available accommodations are: Single Rooms $25.00; Double (Twin) Rooms $33.00.

Message Center: A Message Center will be in operation May 29 from 8:00 a.m. to 5:00 p.m. and May 30 from 8:00 a.m. to 1:00 p.m. Please suggest that callers who wish to reach you during these hours ask the hotel operator (202-265-2000) for the Fate and Effects Symposium Message Center. Please check the Message Board periodically.

Badges: Badges are required for admittance to all meetings. Please wear your badge at all times so you will not be delayed at the entrance to a meeting.

NOTES

STATEMENT OF

JESSE P. JOHNSON
MANAGER, SOUTH ALASKA DISTRICT

ATLANTIC RICHFIELD COMPANY

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING ON

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA

AUGUST 12-13, 1975

STATEMENT OF JESSE P. JOHNSON, ATLANTIC RICHFIELD COMPANY

OFFSHORE SALE ENVIRONMENTAL HEARING

ANCHORAGE, ALASKA

MY NAME IS JESSE JOHNSON, THE MANAGER OF ATLANTIC RICHFIELD COMPANY'S SOUTH ALASKA DISTRICT. I AM RESPONSIBLE FOR COMPANY OPERATIONS IN SOUTH ALASKA WHICH INCLUDE OUR OPERATIONS IN COOK INLET AND FUTURE COMPANY OPERATIONS IN THE GULF OF ALASKA. I REPRESENT MY COMPANY ON THE GULF OF ALASKA OPERATORS COMMITTEE.

OTHER TESTIMONY EMPHASIZES THAT MEASURES WILL BE TAKEN TO PREVENT OIL SPILLS. THESE MEASURES INCLUDE TRAINING TO REDUCE THE NUMBER OF HUMAN ERRORS, THE INSTALLATION OF SAFETY EQUIPMENT AND POLLUTION PREVENTION EQUIPMENT, AND IMPLEMENTING OPERATION AND INSPECTION PROCEDURES TO ENSURE PROPER FUNCTIONING OF THIS EQUIPMENT. ALTHOUGH WE ARE CONFIDENT THAT SUCH MEASURES WILL PREVENT OIL SPILLS, WE WILL TAKE ADDITIONAL PRECAUTIONS TO PREPARE FOR SUCH AN UNLIKELY EVENT BY PROVIDING PHYSICAL CONTAINMENT (OR SECONDARY CONTAINMENT) WHERE APPLICABLE. THESE MEASURES WOULD BE TAILORED TO THE PARTICULAR FACILITY AFTER A CAREFUL ASSESSMENT OF THE POSSIBILITY OF A DISCHARGE OF OIL.

IF A SPILL OCCURS, OUR IMMEDIATE OBJECTIVE WILL BE TO MINIMIZE ANY RESULTING DAMAGE. EQUIPMENT AND TECHNIQUES FOR DOING THIS HAVE BEEN DEVELOPED AND ARE THE SUBJECT OF MUCH CURRENT RESEARCH. BOTH THE INDUSTRY

AND THE GOVERNMENT HAVE FUNDED, AND ARE CONTINUING TO FUND, PROJECTS TO DEVELOP NEW AND IMPROVED SKIMMING DEVICES, CONTAINMENT BOOMS, AND DISPERSANTS. THE MOST THOROUGH AND CURRENT SINGLE REVIEW AND ASSESSMENT OF THE TECHNOLOGY RESULTING FROM SUCH RESEARCH CAN BE FOUND IN THE PUBLICATIONS OF THE CONFERENCE ON PREVENTION AND CONTROL OF OIL POLLUTION. THE MOST RECENT OF THESE CONFERENCES WAS HELD IN SAN FRANCISCO IN MARCH OF THIS YEAR. THESE CONFERENCES ARE JOINTLY SPONSORED BY THE ENVIRONMENTAL PROTECTION AGENCY, THE UNITES STATES COAST GUARD, AND THE AMERICAN PETROLEUM INSTITUTE.

IN ADDITION TO SUCH TECHNOLOGICAL ADVANCES, THE INDUSTRY IS WORKING IN ANOTHER AREA THAT I CONSIDER EQUALLY IMPORTANT, WHICH IS THE ABILITY TO APPLY TECHNOLOGY RAPIDLY AND EFFECTIVELY. THROUGH THE AUSPICES OF THE AMERICAN PETROLEUM INSTITUTE, AN OIL SPILL SUBCOMMITTEE IS BUILDING EXPERTISE WITHIN THE INDUSTRY. THE API CONTRACTED WITH TEXAS A & M UNIVERSITY TO DEVELOP AN OIL SPILL CONTROL SCHOOL. THE PURPOSE OF THE SCHOOL IS TO TRAIN INDUSTRY PERSONNEL IN SPILL PREVENTION, CONTROL, AND CLEAN-UP TECHNIQUES. A BROCHURE DESCRIBING THE TEXAS A & M SCHOOL IS BEING SUPPLIED WITH THIS STATEMENT FOR THE PERMANENT RECORD. THE SCHOOL BEGAN THIS YEAR, AND A MINIMUM OF 20 SESSIONS WILL BE OFFERED EACH YEAR. THE SCHOOL IS CONDUCTED INDEPENDENTLY OF THE API.

MUCH OF THE PROGRESS IN THE APPLICATION OF CLEAN-UP TECHNIQUES IS DUE TO THE FORMATION OF OIL SPILL COOPERATIVES. COOPERATIVES ENABLE THEIR

MEMBERS TO POOL THEIR RESOURCES, SUCH AS EQUIPMENT, MACHINERY, SUPPLIES AND PERSONNEL. THE COOPERATIVE ITSELF CAN OWN SPECIALIZED EQUIPMENT NOT OWNED BY INDIVIDUAL MEMBERS. SOME OF THESE ORGANIZATIONS PROVIDE THEIR OWN SCHOOLS FOR TRAINING AND DRILLS.

COOPERATIVES HAVE RANGED FROM AN EXCHANGE OF TELEPHONE NUMBERS AND PROMISES OF AID TO TODAY'S MORE SOPHISTICATED COOPERATIVES WHICH ARE COVERED BY WRITTEN AGREEMENTS. A 1972 SURVEY CONDUCTED BY THE AMERICAN PETROLEUM INSTITUTE REVEALED THAT THERE WERE 100 SUCH COOPERATIVES THEN IN EXISTENCE, SUCH AS IN THE LOS ANGELES AREA, HUMBOLT BAY, SAN FRANCISCO BAY, COLUMBIA RIVER AREA IN OREGON, PUGET SOUND AND COOK INLET, ALASKA. ABOUT HALF OF THESE GROUPS WERE COMPOSED OF PETROLEUM COMPANIES ONLY. HOWEVER, MEMBERSHIP IS NOT LIMITED TO PETROLEUM COMPANIES AND OTHERS IN NEED OF COOPERATIVE SERVICES CAN JOIN.

IN ALASKA, TERMINAL OPERATORS, OFFSHORE CRUDE OIL DRILLERS AND PRODUCERS, AND AN ONSHORE CRUDE OIL DRILLER AND PRODUCER, JOINED TOGETHER TO FORM THE COOK INLET OIL SPILL COOPERATIVE. THE EXPERIENCES OF THAT COOPERATIVE WILL BE INVALUABLE TO THE GULF OF ALASKA CLEAN-UP COOPERATIVE.

THE MOST IMPORTANT REASON FOR THE ORGANIZING OF AN OIL SPILL COOPERATIVE IS TO DEVELOP AN INTEGRATED RESPONSE PLAN UTILIZING THE LARGEST POSSIBLE POOL OF EXPERTISE, EQUIPMENT, AND MANPOWER. BY SO DOING, THE TOTAL INDUSTRY EXPERTISE IN A GIVEN AREA IS USED IN PROMOTING READINESS AND

EFFECTIVENESS IN OIL SPILL PREVENTION AND CLEAN-UP. THE EQUIPMENT IS AVAILABLE IN THREE GENERAL WAYS. FIRST, A COOPERATIVE MAINTAINS AN INVENTORY OF THE EQUIPMENT AND MATERIALS OWNED BY INDIVIDUAL MEMBERS. SECOND, A SIMILAR INVENTORY IS MAINTAINED LISTING EQUIPMENT AND MATERIALS AVAILABLE FROM OTHER SOURCES SUCH AS SUPPLIERS AND RENTAL FIRMS. THIRD, SPECIALIZED EQUIPMENT NOT NORMALLY OWNED BY INDIVIDUAL MEMBERS IS PURCHASED BY THE COOOPERATIVE. THE EQUIPMENT OWNED BY THE COOPERATIVE CAN BE MADE AVAILABLE TO NON-MEMBERS. THIS PROVISION CAN BE INCLUDED IN THE AGREEMENT. ALSO, ALL EQUIPMENT OWNED BY THE COOPERATIVE IS AVAILABLE TO THE UNITED STATES COAST GUARD. THE COAST GUARD TAKES CHARGE OF CLEANING UP SPILLS OF UNDETERMINED ORIGIN.

EFFORTS BY THE GULF OF ALASKA OPERATORS COMMITTEE HAVE RESULTED IN 24 COMPANIES COMMITTING TO THE GULF OF ALASKA CLEAN-UP COOPERATIVE. THE REPRESENTATIVES OF THESE COMPANIES MET ON AUGUST 8 AND TRANSACTED BUSINESS NECESSARY TO FORMALLY ORGANIZE AND APPOINT WORK COMMITTEES NECESSARY TO FULFILL THE RESPONSIBILITY OF PROVIDING EQUIPMENT, OPERATING PROCEDURES, AND TRAINING NECESSARY TO CLEAN UP AN OIL SPILL IN THE GULF OF ALASKA. A FIVE-MAN EXECUTIVE COMMITTEE, INCLUDING MYSELF AS CHAIRMAN OF THE CO-OP, WAS ELECTED. A LEGAL SUBCOMMITTEE WAS APPOINTED TO RECEIVE COMMENTS AND MAKE NECESSARY CHANGES IN THE DRAFT AGREEMENT WHICH IS BEING FILED WITH THIS STATEMENT. AN ENGINEERING COMMITTEE WAS APPOINTED TO REVIEW CLEAN-UP EQUIPMENT AND PROVIDE A RECOMMENDATION FOR OBTAINING SAME FOR

THE COOPERATIVE. INVENTORIES CARRIED BY SEVERAL EXISTING COOPERATIVES ARE BEING FILED WITH THIS STATEMENT AS EXAMPLES OF EQUIPMENT TO BE CONSIDERED. THE NEED FOR SPECIAL OR LARGER VERSIONS OF SKIMMING EQUIPMENT NOW BEING USED HAS BEEN REVIEWED BY THE GULF OF ALASKA OPERATORS COMMITTEE AND THE CO-OP ENGINEERING SUBCOMMITTEE WILL TAKE OVER THE RESPONSIBILITY OF OBSERVING THE TEST TANK MODEL STUDIES BY MARCO POLLUTION CONTROL. THIS WILL BE DONE TO DETERMINE A SUITABLE SELF-PROPELLED SKIMMING VESSEL FOR USE IN THE GULF OF ALASKA. THE MODEL TESTING OF TWO-HULL CONCEPTS WILL BE COMPLETED THE END OF THIS MONTH (AUGUST) AND A REPORT WITH RECOMMENDATIONS WILL BE COMPLETED THE END OF SEPTEMBER. THE GULF OF ALASKA CLEAN-UP COOPERATIVE IS EXPECTED TO COMMIT FOR ENGINEERING DESIGN AND DRAWINGS AND THEN FOR THE CONSTRUCTION OF THE OPEN OCEAN SKIMMING VESSEL. WHEN BUILT, THIS SKIMMER, TO OUR KNOWLEDGE, WOULD BE THE LARGEST SUCH VESSEL IN OPERATION IN OCS WATERS.

THE OPEN OCEAN SKIMMING VESSEL IS THE TYPE OF SPECIALIZED EQUIPMENT OWNED OR CONTRACTED FOR BY A COOPERATIVE. IN ADDITION, THE COOPERATIVE WILL PROVIDE FOR CONTAINMENT BOOMS, SORBENT MATERIALS, SURFACE TENSION MODIFIERS TO RETARD THE NATURAL TENDENCY OF OIL TO SPREAD RAPIDLY ON THE WATER SURFACE, AND THE EQUIPMENT TO DEPLOY AND USE THESE MATERIALS. THE COOPERATIVE, OR THE COMPANIES OPERATING SHORE-SIDE SUPPLY BASES, WILL PROVIDE OIL SPILL CONTAINMENT AND CLEAN-UP EQUIPMENT FOR SPILLS WHICH MAY OCCUR AT THESE BASES. AT THE PRESENT TIME, SHORE-SIDE SUPPLY BASES ARE PLANNED AT YAKUTAT AND CORDOVA.

I WILL NOW SHOW SOME SLIDES DEPICTING SOME OF THIS EQUIPMENT. PHOTOGRAPHS DEPICTING THIS EQUIPMENT ARE BEING SUPPLIED FOR THE PERMANENT RECORD. (SEE ATTACHMENT "A" FOR DESCRIPTIONS.)

IN SUMMARY, PRECAUTIONS WILL BE TAKEN TO PREVENT OIL SPILLS AND, IN THE UNLIKELY EVENT A SPILL DOES OCCUR, CONTINGENCY PLANS AND A COOPERATIVE WILL BE IN EFFECT TO RESPOND PROMPTLY AND THOROUGHLY. INITIALLY THE PLANS AND EQUIPMENT WILL BE THOSE NECESSARY DURING EXPLORATORY DRILLING OPERATIONS. EXPANSION OF THE CO-OP WILL OCCUR, IF AND WHEN COMMERCIAL PRODUCTION IS ESTABLISHED, TO INCLUDE PRODUCTION PLATFORMS, OFFSHORE AND/OR ONSHORE CRUDE OIL SHIPPING TERMINALS, PIPELINES, SHORE-SIDE SUPPLY BASES, AND ALL SUCH ACTIVITIES DEVELOPED TO PRODUCE CRUDE OIL AND GAS IN THE GULF OF ALASKA.

ATTACHMENT "A"

SLIDE NUMBER	DESCRIPTION
1.	Open Ocean Skimmer. Conceptual outboard profile of Marco Class VI Catamaran ship to be model tested for the GOAOC.

Length O. A.:	108' -0"
Beam O. A.:	40' -0"
Displacement:	300 Long Tons
Sweep Width	
Free:	28'
With Water Spray Boom:	60'
Oil Slops Capacity:	1000 Barrels
Horsepower:	1500 to 2200
Range:	3250 Miles @ 13 Knots
	2300 Miles @ 14 Knots
Crew Accommodations:	7 (5 required)

2. Open Ocean Skimmer. Conceptual outboard board profile of Marco Class IV reversible ship. Combination monohull-Catamaran Marco design to be model tested for the GOAOC.

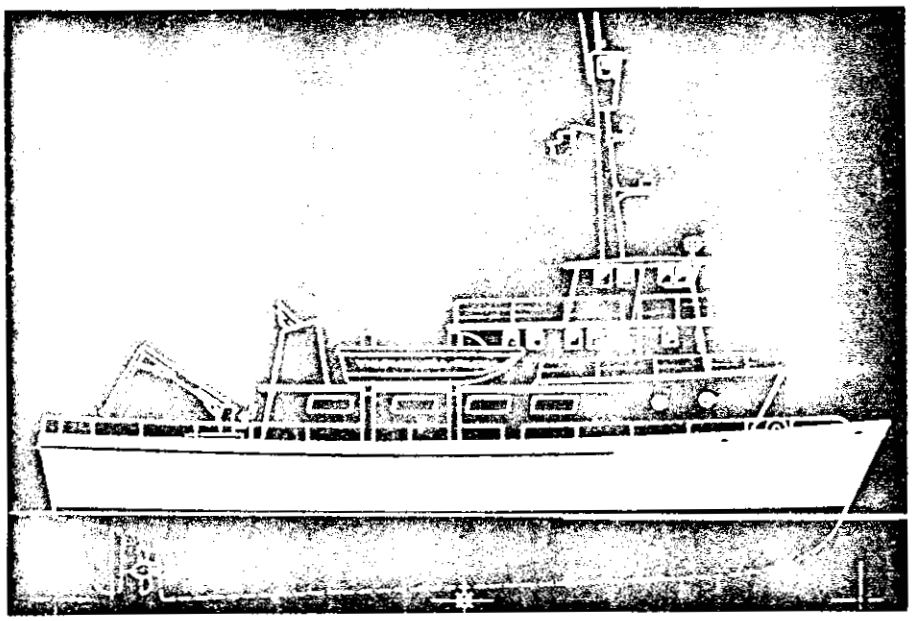
Length:	106' -0"
Beam O. A.:	30' -0"
Displacement:	275 Long Tons
Sweep Width	
Free:	20'
With Water Spray Boom:	50'
Oil Slops Capacity:	1000 Barrels
Horsepower:	850
Range:	4000 Miles @ 12 Knots
Crew Accommodations:	7 (5 required)

3. Catamaran Harbor and Bay Skimmer. Profile of Marco Class III skimmer in use in San Francisco Bay Area by Clean Bay, Inc. Experience gained with this skimmer will be used in the design of the skimmers in Slides 1 and 2.

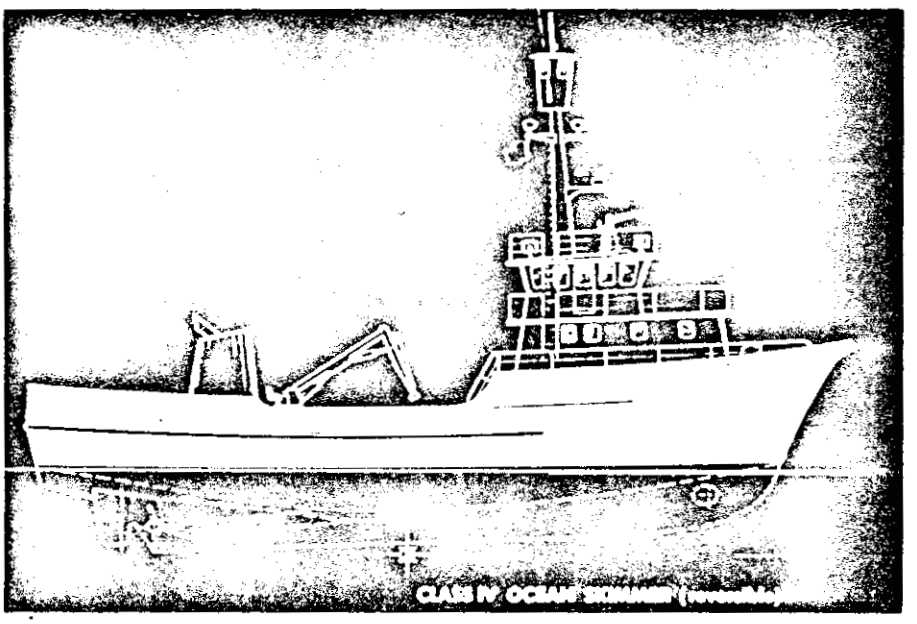
4. Catamaran Harbor and Bay Skimmer. Bow view of Marco Class III skimmer in use by Clean Bay, Inc. in the San Francisco Bay Area by Clean Bay, Inc. showing water spray booms. The water spray booms increase the sweep width from 16' (free) to 45'.

5. Vikoma Sea Pack Containment Boom. Fast response containment boom. The containment boom and inflation equipment are contained in a 23 foot boat hull. Boom lengths up to 1600 feet. Transportable by air or highway and can be towed on the water at speeds up to 4 knots. Boom is deployed from boat hull at the spill site.

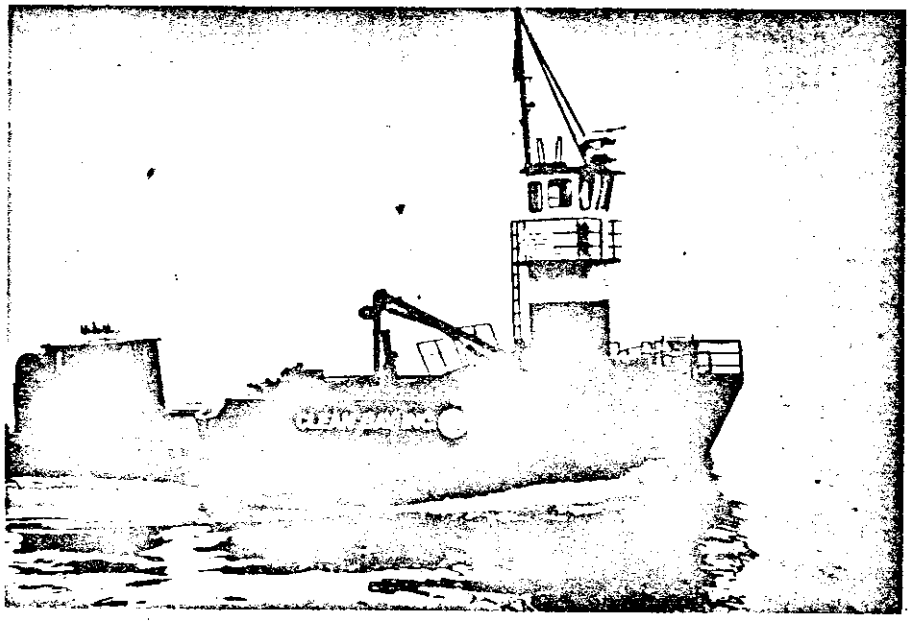
SLIDE NUMBER	DESCRIPTION
6.	Vikoma Sea Pack Containment Boom. Boom deployed.
7.	Vikoma Sea Pack Containment Boom. Boom deployed.
8.	Containment Boom in Storage Trailer. Fabric reinforced plastic skirt boom with plastic foam floats. Trailer stows 1000 feet of boom, floating type oil skimmers and pump. Air and highway transportable.
9.	Containment Boom Deployed. Boom in Slide 8. deployed.
10.	Floating Skimmers. Skimmers of the type stowed in trailer in Slide 8. Skimmers are effective in shallow water to 3" depth for use along shore lines. Floats keep hose on the water.
11.	Containment Boom in Storage Boxes. Fabric reinforced plastic boom with plastic foam floats. Open ocean boom. Each box contains 100 feet of boom.
12.	Containment Boom Deployed. Boom in previous slide deployed.
13.	Sorbent Boom. Preferentially absorbs oil and repels water. Absorbs crude oils, fuel oils, and lubricating oils.
14.	Sorbent Boom Deployed.
15.	Sorbent Sheets. Preferentially absorb oil and repel water. Absorb crude oil, fuel oils, and lubricating oils.



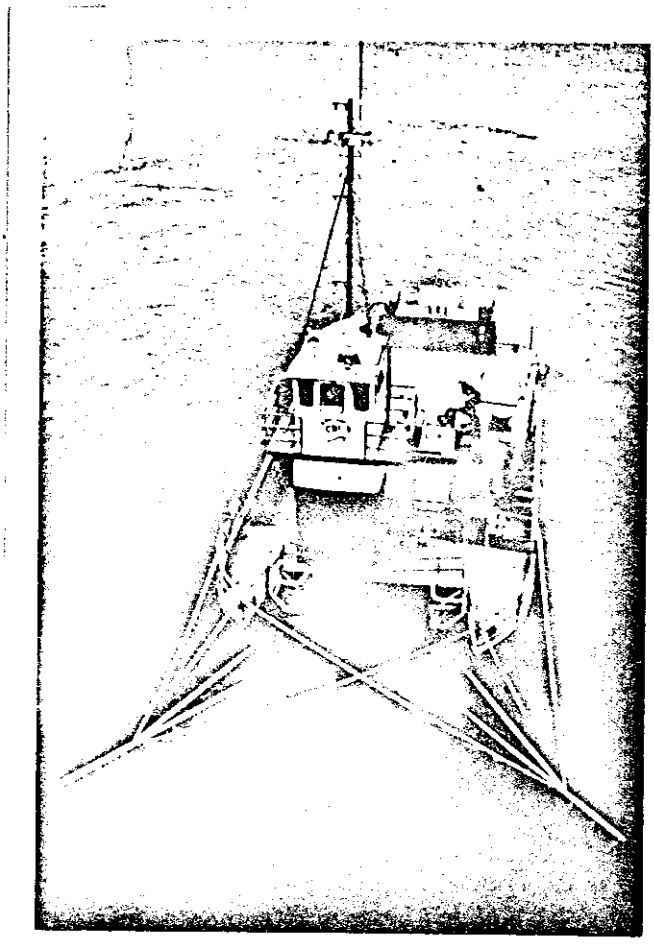
SLIDE - PHOTO 1.
OPEN OCEAN SKIMMER



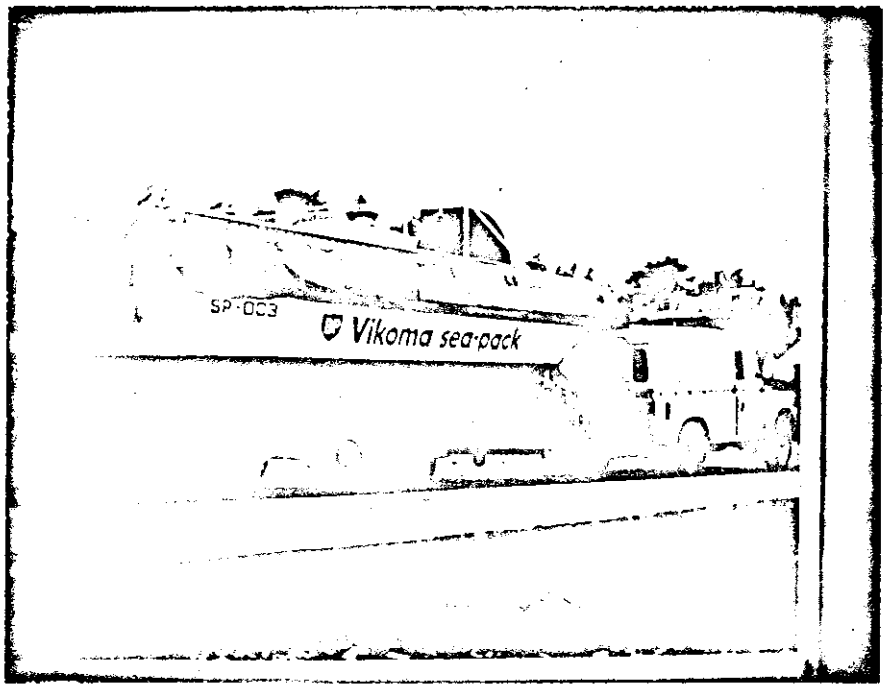
SLIDE - PHOTO 2.
OPEN OCEAN SKIMMER



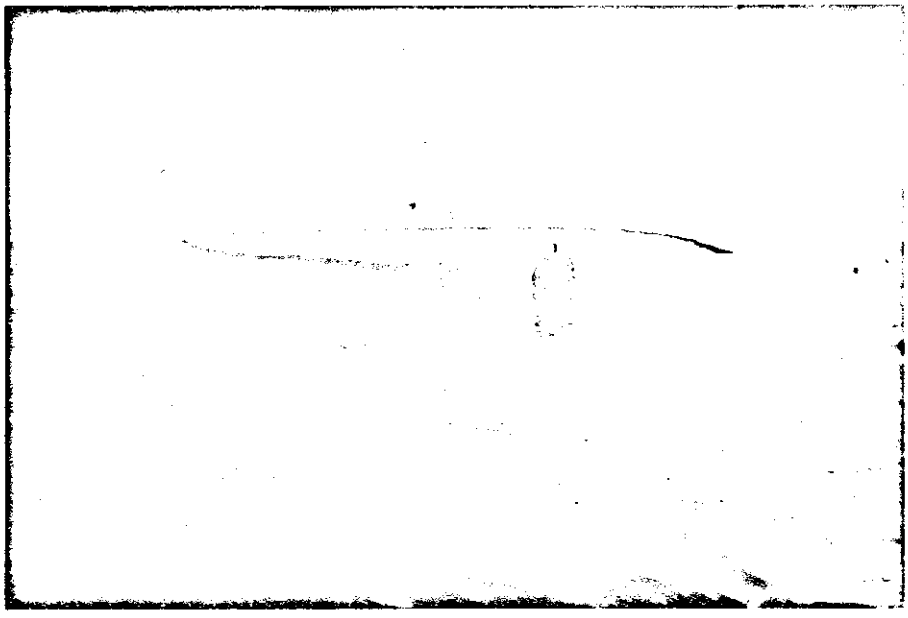
SLIDE - PHOTO 3.
CATAMARAN HARBOR AND BAY SKIMMER



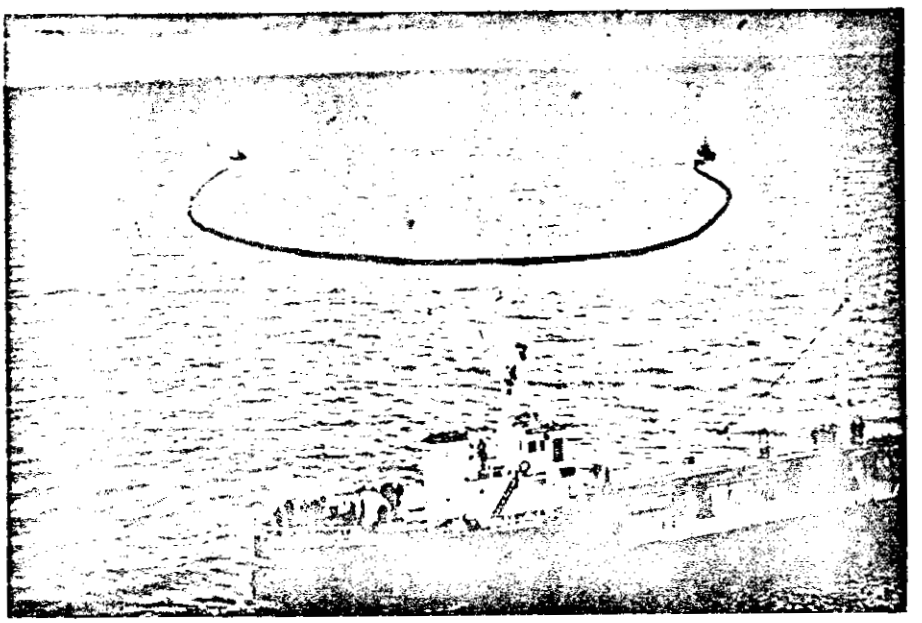
SLIDE - PHOTO 4.
CATAMARAN HARBOR
AND BAY SKIMMER



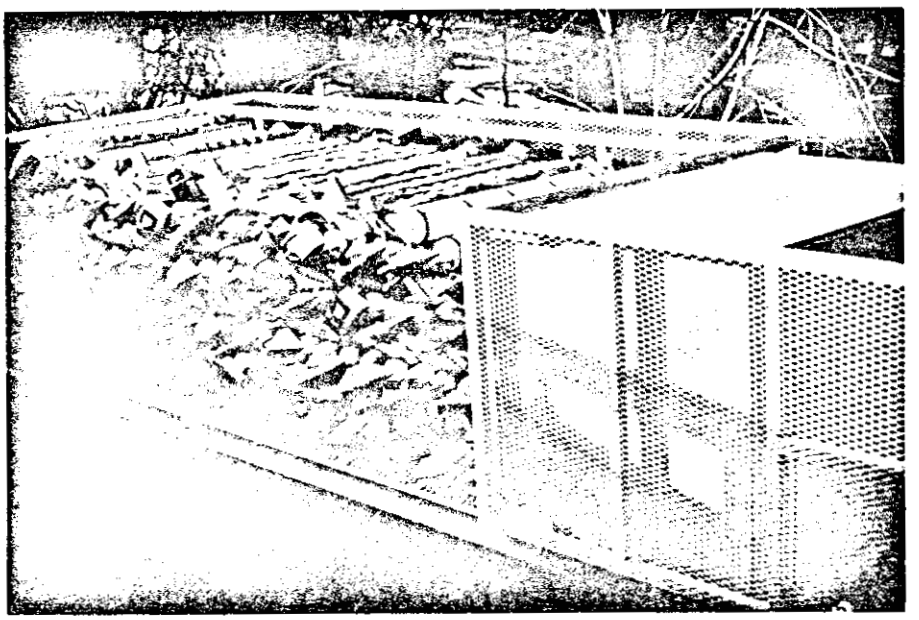
SLIDE - PHOTO 5.
VIKOMA SEA PACK CONTAINMENT BOOM



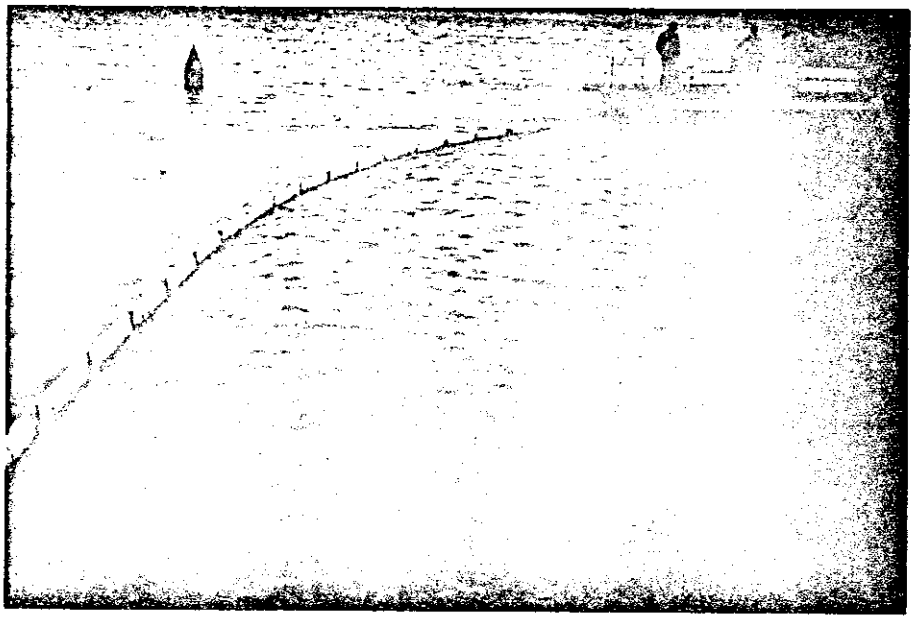
SLIDE - PHOTO 6.
VIKOMA SEA PACK CONTAINMENT BOOM



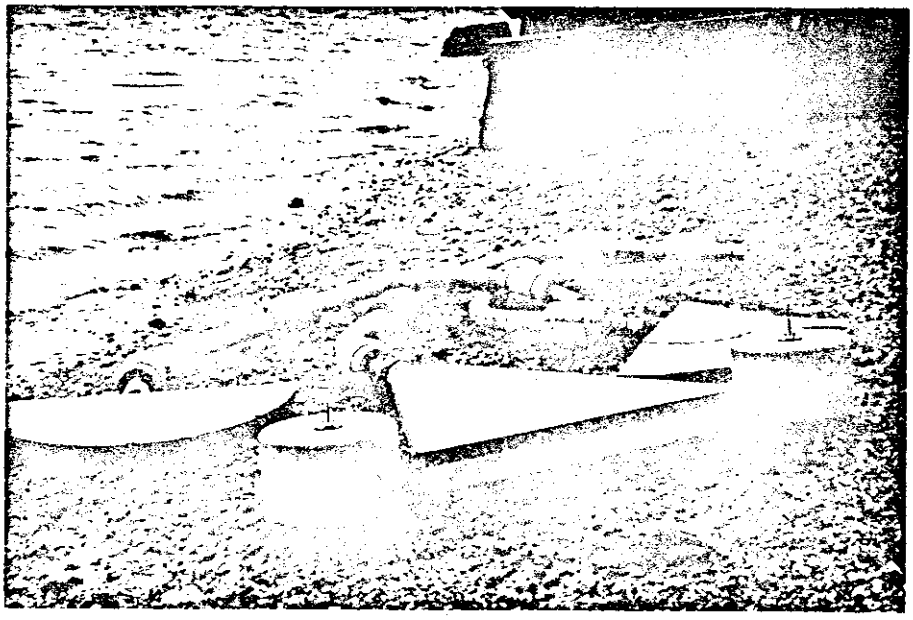
SLIDE - PHOTO 7.
VIKOMA SEA PACK CONTAINMENT BOOM



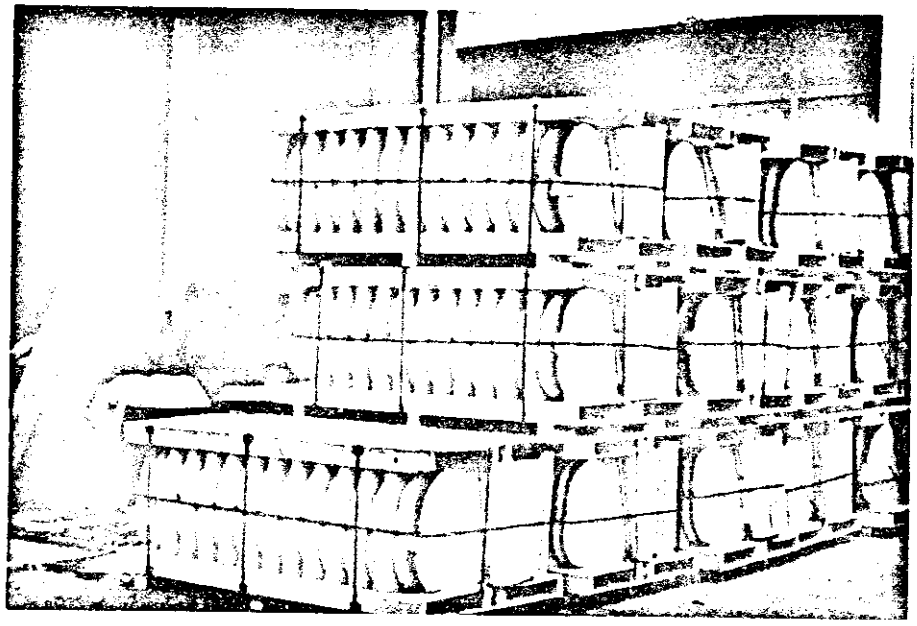
SLIDE - PHOTO 8.
CONTAINMENT BOOM IN STORAGE TRAILER



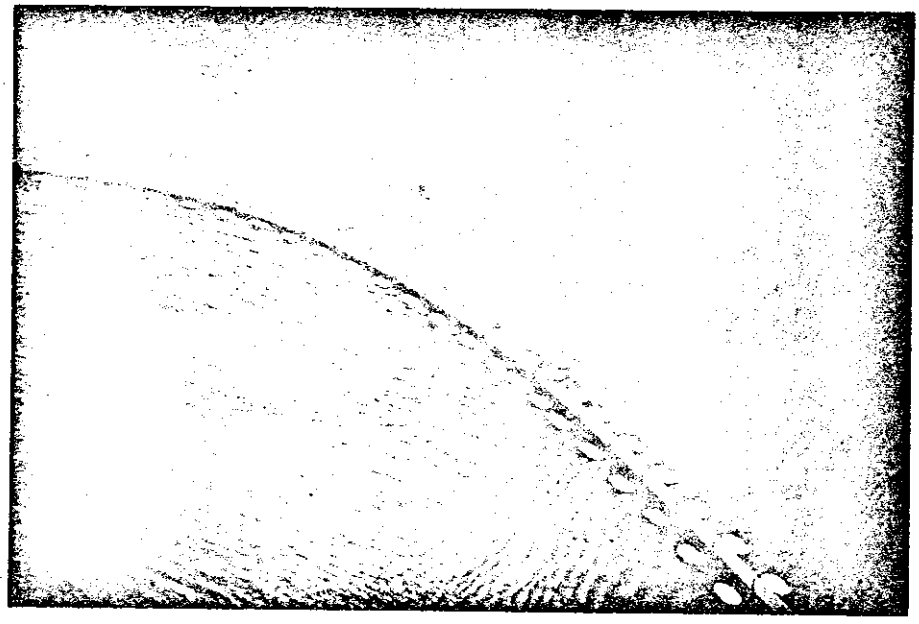
SLIDE - PHOTO 9.
CONTAINMENT BOOM DEPLOYED



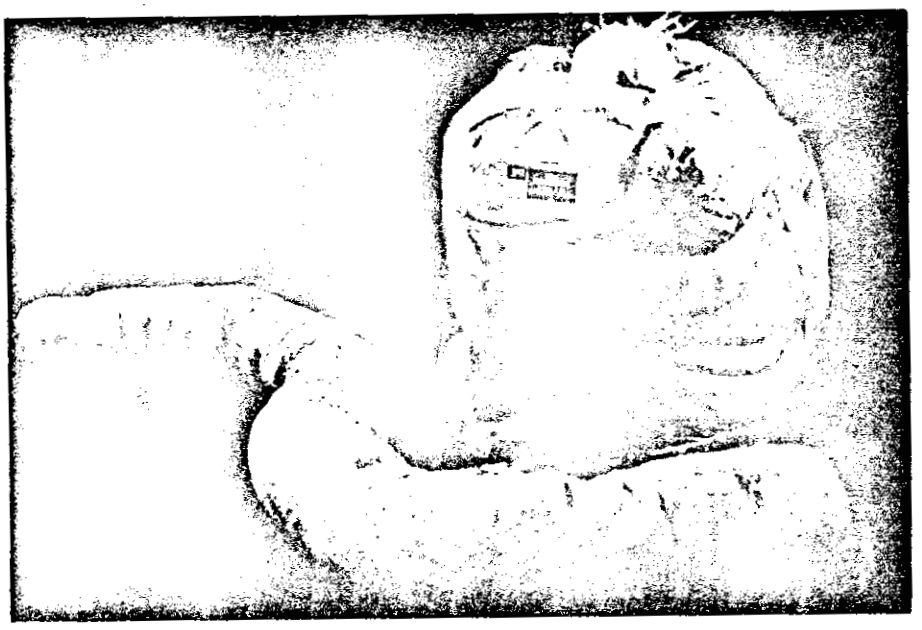
SLIDE - PHOTO 10.
FLOATING SKIMMERS



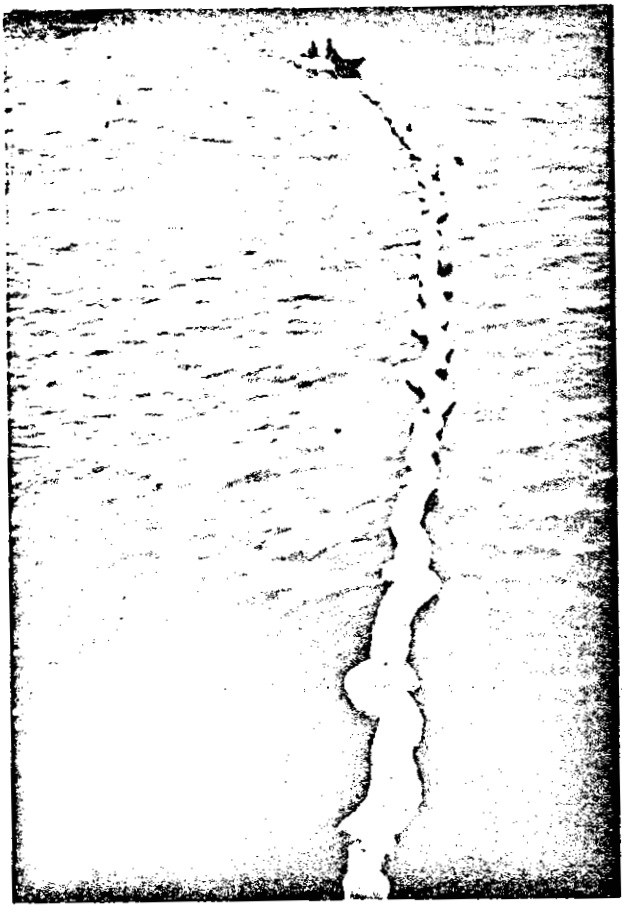
SLIDE - PHOTO 11.
CONTAINMENT BOOM IN STORAGE BOXES



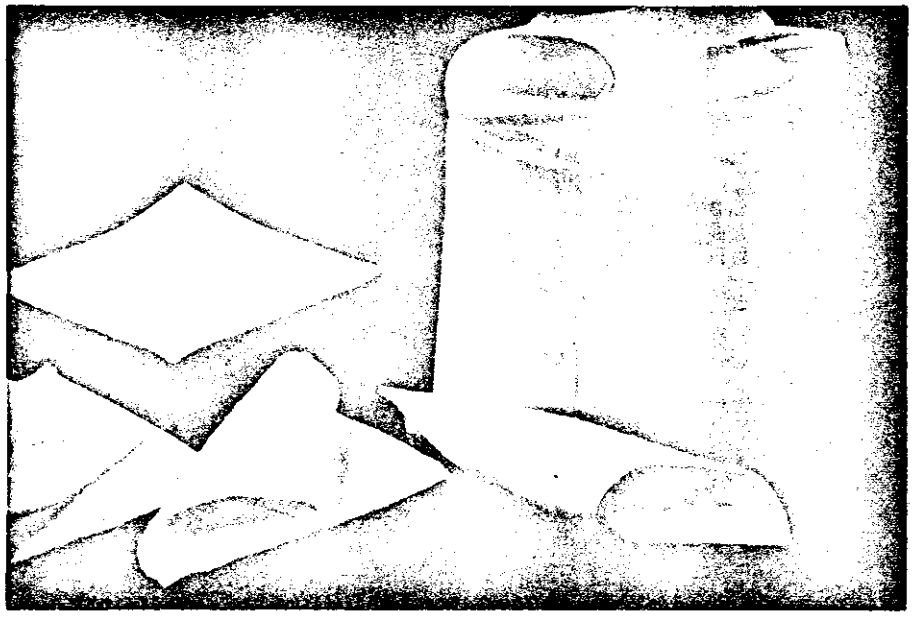
SLIDE - PHOTO 12.
CONTAINMENT BOOM DEPLOYED



SLIDE - PHOTO 13.
SORBENT BOOM



SLIDE - PHOTO 14.
SORBENT BOOM DEPLOYED



SLIDE - PHOTO 15.
SORBENT SHEETS

ATTACHMENT "B"

Inventory of Equipment

Clean Gulf Associates

A. Fast Response Open Sea and Bay Skimmer System

This is a portable system designed for boat mounting. It consists in part of a floating oil boom, skimmer, outrigger, pump and storage tanks. The system is designed to provide equipment capable of fast response to emergency spill situations.

I. A. For use as immediate response system for offshore spills in accordance with 12-hour response provisions contained in lease agreements for certain offshore tracts recently acquired by member companies.

B. Locations

1. One complete system located at Venice.

2. One complete system located at Intracoastal City.

C. For use on boats of 65 feet or larger in the utility or work boat class. (See page 2 for details.)

D. Maximum recovery capability with both tanks is 360 barrels fluid.

E. For general use in seas up to 3-4 feet and water depths greater than 6-8 feet; specific use will depend on individual spill situations.

II. Equipment consists of six packages

A. Primary skid (23' x 7 1/2') containing:

One 180 barrel tank (Coast Guard approved)
One Lister SR 2 Diesel Engine
One Gorman-Rupp 4 x 4, 500 GPM pump
One outrigger for oil boom
One stern davit for launch and recovery of skimmer

B. Auxiliary skid (23' x 5 1/2') containing:

One 180 barrel tank (Coast Guard approved)

C. One Don Wilson skimmer (triangular 9' x 9' x 10')

D. One lot of Bennett oil boom sections - consisting of three 5 foot sections, nine 10 foot sections and one 15 foot section.

E. One lot of 4" hose lines - One 40' length; one 20' length; two 10' lengths.

F. One tool box complete with miscellaneous tools, shackles and other items essential for launch, recovery and maintenance.

B. HIGH VOLUME OPEN SEA SKIMMER SYSTEM

Central to this system is a barge specially modified to carry, deploy, and retrieve all components of a boom and skimmer system (except tugs) as shown in DWG No. CGA Hoss-1. The barge is constructed with a skimmer ramp and boom stingers on the aft-end. Launching and retrieval of these components are facilitated by a ballast system on the aft-end of the barge. Launching and retrieving of the skimmer and boom occur with the barge in the ballasted mode. The barge is de-ballasted for skimming.

The barge is towed to the worksite. The lead end of the barge is reversed, and two other tugs attach to the lead ends of boom to assist in deployment. With the booms and skimmer deployed, and booms spread, as in DWG No. CGA Hoss-1, the system is towed through the oil to be picked up into the mouth of the skimmer. Oil entering the skimmer is picked up and pumped to the separation and storage tanks located on the barge.

1. Use and Design Criteria

   a. Equipment - Intergrated system consisting of Bennett Offshore Booms, Union Oil Type Skimmer and 52' x 160' x 12' barge. See DWG Nos. CGA Hoss-1 & 2.

   b. Personnel - 14 to 16 including a superintendent, leadman and mechanic when deploying or retrieving boom and skimmer.

   c. Auxillary Equipment (supplied by Operator) - 1 - 1200 hp tug to transport barge and control on location.
      2 - 600 hp tugs to drag boom while skimming.

   d. Design Criteria

      (1) 36" draft approximately 12' water depth required while ballasted

      (2) Approximately 4 knots maximum towing speed with all components on barge

      (3) 5 foot maximum sea for skimming operations

      (4) Approximately 1 knot current relative to barge movement for skimming operations

      (5) U. S. Coast Guard Certified Vessel Class - unmanned barge

      (6) Fuel supply - 3 days on barge. 4 - 250 gallon diesel fuels are located on the barge above the boomracks (Refer to DWG No. CGA Hoss-2)

(7) Personnel quarters - none

e. Location - Halliburton dock at Grand Isle, Louisiana

2. Equipment List (see DWG No. CGA Hoss 2 & 3)

a. Air compressor - 1 Ingersoll Rand-600 ft.^{3}/min @115 psi. Prime mover-GM, V-6, 210 HP @1700 rpm, diesel engine; battery started.

b. Separation and storage tanks - 4 - 500 bbls., primary tanks with 380 bbls. behind Weir on each tank (shown in black on DWG No. CGA Hoss- 2).

c. Generator - 2 - 25 KW w/Lister air cooled, HR-3 diesels rated at 37.5 HP at 1800 rpm.

d. Lighting system (see DWG No. CGA Hoss-3)

Barge service lights - 1000 watt, mercury vapor lights are pole-mounted on each side of the barge. 400 watt, mercury vapor lights are located on each side of the barge under the superstructure near the skimmer. Smaller cage protected lights are abundantly distributed along all walkways, boom racks, work areas and sheds.

Navigational Lights

Running lights are located on each side of the barge bow.

Working lights are pole mounted above the storage tanks on the barge bow. The three lights (uppermost-red, middle-clear, bottom-red) are the international markings for a dredge. Use the bottom red light only if offloading oil at night. A red flag hoisted to the bottom light indicates offloading oil during daylight hours.

Anchor and stern lights (both clear lens) are located on the stern above the superstructure, over the skimmer.

e. Winch system (see DWG Nos. CGA Hoss-2 & 3)

Air powered - position 1 winches are used to assist in raising and lowering the stinger and stabilizing the skimmer during launch and retrieval. Position 3 winches are used in retrieving the boom.
Position 4 winches are used to help deploy, connect and disconnect the boom and skimmer during launch and retrieval.
Position 5 winches (DWG No. 3) are used to raise and lower the stinger.
Position 6 winch is used to control the skimmer suction and return hoses during launch and retrieval.
Position 7 winch is used to launch and retrieve the skimmer.
Position 8 winches are used to control boom launch and retrieval.

Hand winches -

Position 2 winches (DWG No. 2) located on the front end of the skimmer are used for connecting and disconnecting the boom to the skimmer during launch and retrieval. Although not shown in the drawings, hand winches are located near the piping headers, at each side of the aft end of the skimmer ramp, at the forward end of the skimmer and in the middle of each stinger to assist in boom launch and retrieval.

f. Pumps (see DWG No. CGA Hoss-2)

2 - 2000 gpm centrifugal (pumps P-A and P-B; 40-60' head) 8" x 8" powered by GM 271 diesel engines rated 65 HP at 2000 rpm; hydraulic started. Hand pump hydraulic system to 2500-3000 psi before starting the engines.

g. Piping system (see DWG Nos. CGA Hoss-4, 5, & 6)

Ballast (DWG No. 4) - Take suction through sea chest valve to 38.4' x 52' x 12' hull tank compartment inlets designated as A, B, C, and D.

Manifold (DWG No. 5) - Pump lines from the skimmer to the storage and separation tanks are 8". The overflow line carrying separated water from the tanks back to the skimmer is 10".

Transfer (DWG No. 6) - Transfer lines from primary to secondary separation tanks are 6".

h. Booms - 2 - 500' sections Bennett Offshore Boom (see DWG No. CGA Hoss-6-A)

i. Skimmer - Union Oil Type (see DWG No. CGA Hoss-7)

j. Communications system - 5 fm radio handsets and 2 megaphones

3. Operational Procedure

a. Deployment (total time approximately 6 hours)

(1) Position barge; use lead tugs to assist.

(2) Ballasting Barge - Approximately 1½ hours @ max. pump speed. Check ballast manifold; make sure proper valves are opened or closed. Don't leave seacock open. Ballast until the sea just meets the forward end of the barge.

NOTE: All engine oil is series 3-30 wt.
Air compressor oil is DEXRON hydraulic transmission oil.
All air motors on winches use SAE 20 oil with a viscosity of 250/350 SUS at 1000°F., a carbon residual of 0.3% and a neutralization No. 0.1.

C. Shallow Water Skimmer System, Grand Isle Unit

GENERAL DESCRIPTION

This unit is a self-contained shallow-water skimmer. The vessel is 24' long by 11'-4" wide by 9'-10" high and is propelled by two 125 hp Johnson outboard engines. It weighs 9000 lbs. and can be transported on a Lowboy truck. The unit is basically a floating API separator and the basic skimming mechanism is that employed in the High Volume Open Sea Skimmer System. Four 10 bbl. storage tanks are built into the hull. The vessel draws 8" of water with the hull tanks empty and 20" with all four filled. Two pumps are manifolded so that one can be used for skimming, the other for offloading, jetting oil from beneath docks, etc. Metal outrigger booms allow the vessel to sweep an area up to 20' wide. Connection points are provided for attaching commercial booms if a wider sweep is desired. The metal booms fold in to form a bow for travel. Maximum travel speed is five miles per hour. The maximum skimming speed is from one to two miles per hour.

In order to increase the oil handling capacity of the system and provide a means of transferring the oil from the skimmer to shore without shutting down the skimming operation, two 50 bbl. floating separation and storage units are available for use with the skimmer. The floating units can be moved to and from the location by conventional shallow water boats or a lugger. These units are 18' long by 11' wide by 3' high. The units weigh 8000 lbs. each and both can be transported on a flat bed truck.

DESIGN CAPABILITIES

1. Self-propelled by two 125 hp outboard engines.

2. For mobile skimming in calm shallow water bays and inland protected waters. Can maneuver to chase spills in shallow waters.

3. When deployed with conventional shallow water booms this unit can remain stationary to pick up spills moving under the influence of tides or winds.

4. Can be used in water depths as shallow as 12" for short periods. Vessel draws 8" of water empty and 20" when all four 10 bbl. storage tanks are full.

5. Effective skimming is limited to use in wave heights of one foot or less. It is not suited for use in open Gulf waters or very choppy inland waters.

TRUCK TRANSPORTABLE

1. Dimensions, 24' long by 11'-4" wide, 9'-10" high, weight is 9000 lbs.

D. Auxiliary Shallow Water Skimmers and Boom

Several individual pieces of equipment are provided for skimming oil which is contained by inshore boom, isolated in dead end canals, at dockside or other areas accessible from boat, barge or on foot. Two Parker Oil Hawgs will be kept at Grand Isle. Two Swiss Olea III type skimmers will be maintained at Venice. Intracoastal City will have one skimmer of each type. Drawings CGA Aux. 1 and 2 show the application of these units.

Parker Oil Hawg Skimmer
200 GPM Diesel Driven, Skid Mounted, Centrifugal Pump

Design Capabilities

1. Works well with any grade of oil ranging from Distillates through Cold Bunker C.

2. Is fully controllable from ashore, or from a boat or barge.

3. Eliminates the hazards of a power source on the skimmer.

4. Is easily cleared of trash.

5. Has inherent stability.

6. Will skim oil at the full capacity of the pump where the oil depth will allow.

7. Can be operated by unskilled personnel.

8. Limited to calm, shallow water, inland canals, docks, rivers, etc.

   Not to be used until the oil layer is reduced to one-half inch or less.

Location

1. Grand Isle, La. - Two oil Hawg skimmers

2. Intracoastal City - One oil Hawg skimmer

3. Can be hauled by truck or boat.

Personnel Required

1. Two-man crew is required.

2. No training necessary.

Note: Only one pump is available at each Base. The units are designed to be run by an air compressor or hydraulic pump. No air compressor is supplied. Each unit can be driven by rental air compressors supplying from 20 to 80 SCFM at 100 psi.

D. Auxiliary Shallow Water Skimmers and Boom (continued)

Swiss Olea III Skimmers
200 GPM Diesel Driven, Skid Mounted, Centrifugal Pump

Design Capabilities

1. Works with any grade of oil.
2. Is fully controllable from ashore, or from a boat or barge.
3. Stable floating.
4. Can be operated by unskilled personnel.
5. Limited to calm, shallow water, inland canals, docks, rivers, etc.

Location

1. Venice, La. - Two Swiss skimmers.
2. Intracoastal City - One Swiss skimmer.
3. Can be hauled by truck or boat.

Personnel Required

1. Two-man crew is required.
2. No training necessary.

Note: Only one pump available at each location.

D. Auxiliary Shallow Water Skimmers and Boom (continued)

Inshore Boom

Available both at Grand Isle and at Venice are 1,000 feet of 36 inch Bennett Inshore boom. This is on pallets mounted for helicopter transport. An anchor system is included.

1. This boom can be deployed in relatively calm waters to control oil movement into undesirable areas.

2. It can be used in conjunction with the auxiliary skimmers listed prior.

3. Can be transported on pallets of approximately 500 feet each by helicopters of Bell 204 size or larger. Weight of each skid is approximately 2,500 pounds. It may also be transported by truck or barge.

   PHI helicopter personnel are familiar with the loads and can advise on its movement by helicopter.

4. It will usually be deployed by a crew boat, by pulling off a pallet positioned on the beach, or from a barge by anchoring boom and pulling barge out from under it.

5. This boom is similar though not as large as that employed in the HVOSS system. (Figure CGA Aux. 3)

6. Personnel requirement to deploy is four roustabouts and a pusher.

E. Helicopter Spray System - HUSS Unit

GENERAL DESCRIPTION

The HUSS (Helicopter Underslung Spray System) unit is a helicopter supported spray unit such as those used for crop spraying. The unit is used to spray surface collecting agents or dispersants. The unit is a self-contained tank and pump unit with the spray nozzles mounted below the tank. The tank has an 84 gallon capacity. The spray is controlled from a control box that is mounted on the cyclic stick of the helicopter. The detailed brochure titled SHELL OIL HERDER which is included herein shows the HUSS equipment mounted under a helicopter in the application section. This brochure also contains information for using this surface active agent in containing oil spills, while recovery procedures are in effect. Handling and application recommendations are also included. It is emphasized here that the using member company is required to obtain authority from the Federal On-Scene Coordinator and the appropriate regulatory agencies, federal, state and local, before any chemicals can be used.

DESIGN CAPABILITIES

1. Used to spray collecting agent, Oil Herder*, or dispersant.

2. Tank has 84 gallon capacity.

3. Application of chemicals

   a. Apply Oil Herder in a fine stream at a rate of 2 gallons per mile of slick perimeter.

   b. Apply dispersant in a spray, 84 gallons of dispersant will cover 1,000,000 sq. ft.

4. Recommended flying speeds

   a. Flying to and from slick - 50 MPH
   b. Spraying speed - 30-40 MPH

5. One hour is required to get unit ready.

   a. Mount control box in 47G or 206 helicopter.
   b. Fill unit with collecting agent or dispersant, get pump ready, mount the unit, etc.

LOCATION

1. Grand Isle, La. - one complete unit

2. Venice, La. - one complete unit

*Shell Trademark

HELICOPTER UNDERSLUNG SPRAY SYSTEM (HUSS)
LIST OF SPARE PARTS INCLUDED WITH UNIT

No.	Description	Manufacturer's Name & Part No.
1	Motorized Gate Valve With Teflon Seals	Whittaker 18-30V 103437
2	Spark Plugs	Champion CJ-6
1 Set	Points	Wico X 14270C
1	Condenser	Wico X 16329
1	Pump Seal	Homelite 62694
1	2 Pc. Trailer Connection	Echlin TC6206-7 or Substitute
80	Tee Jet Tips No. 8002	Spraying Systems Tee-Jet
80	Tee Jet Tips No. 8006	Spraying Systems Tee-Jet
10	Diaphragms For Nozzles	Spraying Systems Fairprene
6	Nozzles, c/w Caps & 50 Mesh Screens	Spraying Systems #8360
16	Aluminum Blanks For Nozzles	Spraying Systems
2	1/4" Drain Cocks	Paulin Co. or Substitute
1	Pressure Switch	Stewart-Warner (Hobbs) M-4009-15
1	1/4" Pipe Plug	-
10 Ft.	2 - 5 Ft. Lengths - Nylon Starter Cord	-

EQUIPMENT

Water Fowl Rehabilitation

1. Scare Away Propane Guns

A. The following equipment is available to deter waterfowl:

48 automatic propane bird scare-away guns complete with regulators and tank (in carrying case) (12 guns per case)

B. The automatic propane guns are designed to scare waterfowl away from an oil spill. Their range is about 1/3 mile. This spacing or closer should be used for initial operations. Experience may dictate a closer spacing if birds are observed in the area.

C. The automatic propane guns are located as follows:

__24__ propane guns are located at Grand Isle

__24__ propane guns are located at Venice

The scare-away guns can be mobilized by filling the propane tanks, installing a flint and transporting to the spill location. Each propane tank holds 5 gallons of propane. Carrying cases have been built for 12 propane tanks and 12 guns. The barrels have been removed for ease of transportation.

D. In operation the guns are spaced about 1/3 mile apart in the contaminated area. They operate completely automatic. The tank of propane will last for 2 to 4 weeks depending on the frequency of the shots. Initially a 3 to 5 minute shot frequency should be used.

E. The scare-away guns are lightweight, portable and may be deployed by trucks, boats or helicopter. Twelve complete guns have been packaged to be deployed at one time by helicopter. This is the quickest and easiest way to deploy the propane guns. The only routine servicing required is replacing the flint, corrosion protection and filling the propane tank.

The flint in the ignitor requires replacement about once each week. At this frequency the unit should be protected from corrosion by spraying with a silicone lubricant like WD-40. This weekly maintenance can be performed by two men plus transportation.

F. Operation of the propane guns will not require training of personnel. Each member company should appoint one supervisor to observe operation of the scare-away gun. This would include filling the propane tank, replacing the flint, adjusting the firing frequency and placing the gun in operation.

2. Fast Response Waterfowl Rehabilitation Station

A. The following equipment and materials are available to rehabilitate waterfowl should they become oil soaked.

1. Portable Fast Response Waterfowl Rehabilitation Station.
(An inventory of rescue and rehabilitation materials is tabulated by Table WF-1)

B. The portable waterfowl rehabilitation station is designed for fast response to rehabilitate contaminated waterfowl. The portable station provides the facilities to transport birds to the most convenient bird-care center shown on the map Figure WF-2. The station can be moved by trailer or boat and includes the necessary materials to clean and rehabilitate birds. State and Federal approval must be obtained to collect and rehabilitate waterfowl. The following should be contacted.

Federal Bureau of Sport Fisheries and Wildlife
Fred Williams or Jack Frost - (404) 526-5100 - Atlanta, Ga.
and David Hall (504) 527-2611, Ext. 6139 or 527-6139 - New Orleans, La.

Louisiana Wildlife and Fisheries Commission
Dr, J. Burton Angelle (504) 527-5126 - New Orleans, La.

C. The fast response rehabilitation station is located at Grand Isle.

D. Detailed instructions on collecting, transporting, cleaning, and rehabilitation of water fowl are included in API booklet "Operations Rescue" (WF-3). A comprehensive list of equipment, supplies, and personnel requirements for a large scale rehabilitation center is included in the paper "Implementation of Operations Rescue" by Bill Ayers and Phil Stanton (WF-4).

E. The fast response rehabilitation station will require the following operating personnel depending on the number of birds involved:

1 to 2 Trained Supervisors
2 to 8 Bird Cleaners and Attendants

If a large number of waterfowl are contaminated it will be necessary to immediately implement "Operations Rescue" (WF-5)

INVENTORY

RESCUE AND REHABILITATION MATERIALS

1 First Aid Kit
12 Clear Goggles
Box Rubber Bands
Box Cotton Swabs
2 Tubes A & D Dintment
2 Folding Tables
50# Rags
1 Card File Holder w/cards
1 Wheelbarrow
1# Boric Acid Powder
1 Roll Visqueen Plastic Sheeting
12 Aprons
1 Tool Chest
1 Socket Set (WSB-14)
1 Wrench Set (7)
2 Steel Tapes
12 Chick Feeders
6 Hose Nozzles (Garden)
4 Scrub Brushes
6 25' ∅ 5/8" Garden Hose
1 Post Hole Digger
1 Bird Banding Set of Assorted Pliers and Bands (Numbered)
2 Drums Polycomplex A-11
1 S & R Shovel
2 8# Sledge Hammers
1 Roll Bailing Wire
24 Pair Rubber Gloves
2 5 Gallon Water Coolers
2 BR22 Flash Lights w/Batteries
12 Cans Misquito Spray
24 Bars Soap
12 Bottles Hand Lotion
5 Packages Freezer Bags
2 20 Gallon Garbage Cans
2 Garden Rakes
6 #3 Galvanized Tubs
1 Jumbo Galvanized Water Trough
12 Handled Fish Nets
6 8 Quart Buckets
1 lb #8 Galvanized Nails
1 lb #12 Galvanized Nails
1 lb #16 Galvanized Nails
1 Roll, 600', 1/4" Polypropylene Rope
1 Hand Saw

Table WF-1

3-25-74

1 16 oz. Hammer
1 24" Wrecking Bar
2 Pair 410 Snips
2 Pair 210 Pliers
2 Aluminum Scoops
1 Pitch Fork
1 IBI Shovel
2 Roll 2" x 5' Fence Wire (Poultry), 300'
50 Fence Posts
2 Wall Thermometers
6 30" Mirror Nets
12 Timbers, 4" x 6" x 8'
1 Case Single Fold Paper Towels
4 Rolls, 2" Duct Tape
2 Ø 48 Quart Ice Chests
12 Bottles Murine eye wash
12 Ø 1 Quart Mason Jars
3 Deck Brushes w/Handles
3 25' Water Resistant Extension Cards

G. Miscellaneous Material Inventory

The following list of material will be maintained at location indicated.

Quantity	Nomenclature	Location
200 pads	Polyurethane Foam	Venice Grand Isle
2 drums	Oil Herder	Venice (z) Grand Isle

(z) For use with Helicopter Underslung Spray System

H. Portable Foam Generation Equipment

These five skid, helicopter transportable packages for generating polyurethane foam will be maintained at Grand Isle, Venice and Intracoastal City. The equipment is available as of August 13, 1973.

Basic equipment is on skids as follows:

1. Mixing equipment.
2. Chemical barrels - foam constituants.
3. Compressor - to provide air for process.
4. Wringer - to squeeze used foam for reuse.
5. Incinerator - to burn foam after use (Grand Isle only).

An expanded section on operating instructions will be supplied at a later date.

ATTACHMENT "C"

Inventory of Equipment

Clean Seas, Inc.

2700 - RESOURCES

This section lists a great majority of the items of containment and cleanup equipment, materials, and services plus support equipment and services, that might be needed in coping with a major oil spill. Most of the member companies have also stockpiled various types of oil spill cleanup equipment that would be made available.

The following sub-sections contain:

2701 - Inventory of Clean Seas Owned Equipment

2702 - Absorbents - Collecting Agents

2703 - Aircraft - Helicopters - Fixed Wings

2704 - Booms

2705 - Chemicals - Dispersants

2706 - Contractors - Manpower - Beach Cleanup

2707 - Disposal Sites - Oil & Oil Soaked Trash

2708 - Divers - Underwater Welding

2709 - Heavy Equipment - Trucks, Cranes, Bulldozers, Graders

2710 - Marine Equipment - Boats, Barges, Tugs

2711 - Skimmers

2712 - Trailer Rentals

2713 - Special Services and Supplies

Revised 9-74
Replaces 5-74

2701 CLEAN SEAS - INVENTORY OF OWNED EQUIPMENT

MATERIAL AND/OR EQUIPMENT	STORAGE AREA	QUANTITIES	REMARKS	CONTACTS
2701.01 Mark II Skimmer System				
1. Mark II Skimmer	CSI Yard - Carpinteria	2	All grades of oil can be recovered at rates up to 200 gallons per minute in light to moderate sea state	(805)963-3488 (805)684-4719
2. 80 Barrel Vacuum Tank	" " "	1		
3. Suction Hoses - 3"	" " "	150'		
2701.02 CSI Skimmer System				
1. Skimmer 45'x 17'x 6'	Anchored - S.B. Harbor	1	The system is capable of recovering all grades of oil from light to bunker fuel at rates up to 2000 gallons per minute. It will operate successfully in moderate sea states, 20-K winds and towing speeds up to 1 1/2 K.	See above
2. 30" Kepner Sea Curtain Boom	On Skimmer	480'		
3. 100 Bbl. Tanks	CSI Yard - Carpinteria	2		
4. Oil and Water Pumps	" " "	3		
2701.03 Sea Dragon System				
1. Sea Dragon Skimmer 45'x 26'x 8'	Anchored - S.B. Harbor	1	Heavy duty, moderate volume skimmer(45' long and with a 26' beam). The system will recover all grades of oil and large amounts of solid materials. It is operable in a moderate sea state and winds up to 25 K.	See above
2701.04 Bottom Tension Boom				
1. 4'x 13' floats, 8'curtain	CSI Yard - Carpinteria	1000'	Use as containment boom in heavy seas. Curtain in 250' lengths on spools. B-T line in 500' lengths on spools. Booms can be used in 500' lengths or multiples of 500'.	See above
2701.05 Floating Weir Skimmers	CSI Yard - Carpinteria	3	6' diameter floating weirs with air driven Acme-type pumps. Use in conjunction with B-T Boom or may be used independently. Will not handle debris. Handles most oils.	See above

Revised 9-74
Replaces 5-74

2701 CLEAN SEAS - INVENTORY OF OWNED EQUIPMENT

MATERIAL AND/OR EQUIPMENT	STORAGE AREA	QUANTITIES	REMARKS	CONTACTS
2701.06 Medusa Skimmer	CSI Yard - Carpinteria	1	10' diameter, gasoline engine drive. Handles light oil in calm waters only. No debris	(805)963-3488 (805)684-4719
2701.07 Vikoma Seapack Assembly	CSI Yard - Carpinteria	1	Immediate response containment boom. The 23' hull containing 1600' of inflatable seaboom can be towed to the oil slick at high speed. The boom can be fully operational within 12 minutes of arrival onsite.	See above
2701.08 Kepner Sea Curtain				
1. 480' (240'per unit)	CSI Yard - Carpinteria	480'		See above
2. 2000' 8"x12"(400'per unit)	" "	2000'		
3. 2000' 16"x12"(200'per unit)	" "	2000'		
2701.09 Barge - Tide Mar VII	Anchored offshore Santa Barbara	1	160'x39'x13' Tank Barge, 7800 bbl. capacity in 10 tanks. Has 6 diesel driven pumps and 2 diesel driven 50 KW generators.	See above
2701.10 Absorbent-Collecting Agent				
1. Strickite NOT Licensed	CSI Yard - Carpinteria	142-35lb.bags	Good sorbent for all grades of oil.	See above
2. Shell Oil Herder Licensed	CSI Yard - Carpinteria	8-5 gal.cans	Good sorbent for all grades of oil.	See above
2701.11 Boat (work)	Santa Barbara Harbor Marina #1, Slip #19	1	19' Larson Fiber Glass with 125HP Johnson motor. Not safe in adverse weather.	See above

Revised 9-74
Replaces 5-74

2701 CLEAN SEAS - INVENTO... OF OWNED EQUIPMENT

MATERIAL AND/OR EQUIPMENT	STORAGE AREA	QUANTITIES	REMARKS	CONTACTS
2701.12 Chemicals				
1. Gold Crew (Dispersant)	CSI Yard - Carpinteria	4-55gal drum	Good cleaning agent and dispersant. Not licensed.	(805)963-3488 (805)684-4719
2701.13 Compressor	CSI Yard - Carpinteria	1	Gardner-Denver 600 cfm rotary diesel engine driven.	See above
2701.14 Radio System				
1. Repeater-Motorola	Santa Ynez Peak	1	49.04/48.62 - 45 watts	-----
2. Santa Barbara base	St. Barbara office	1	49.04/48.62 43 "	-----
3. Carpinteria base	CSI Yard - Carpinteria	1	49.04/48.62 - 50 "	-----
4. Portable base	" " "	1	49.04/48.62 - 48 "	-----
5. Portable - Handie Talkie	" " "	13	49.04/48.62 - 5 "	-----
6. Mobile	1971 Ford	1	49.04/48.62 & 48.66/49.42 - 50 "	-----
2701.15 Wilden M-15 Pump	CSI Yard - Carpinteria	2	For use on the MK-II Skimmers and miscellaneous pump requirements.	
2701.16 Flat storage tanks 100 bbl.	CSI Yard - Carpinteria	4	Used with MK-II Skimmers or other systems.	

Revised 9-74
Replaces 5-74

ATTACHMENT "D"

Inventory of Equipment

Clean Bay, Inc.

801 CBI CLEANUP EQUIPMENT AND MATERIALS

1. MOBILE HEADQUARTERS TRAILER

8' x 25' Office Trailer w/tandem axle

Callout Procedure

Gulf Oil Company-California will provide a driver and vehicle to deliver the trailer at any time to a location as directed by Clean Bay Inc. or a member company. Union Oil Company will provide a vehicle and driver for backup service.

Calls should be placed in the order shown below. Union Oil Co. should not be called unless Gulf is unable to furnish a driver. All Gulf members should be exhausted first.

Calling Procedure

1. Shift Foreman (415) 758-4840
   Gulf Oil Company-Calif. Ext. 268

   Shift Foreman will notify a driver to deliver the CBI trailer to the requested site.

2. Bulk Shift Foreman (415) 799-2478
   Union Oil Company 799-4411

   Shift Foreman will notify a driver to pick up the CBI trailer at Gulf and deliver it to the requested site.

A list of the equipment in the trailer follows:

801 CBI OIL SPILL CLEANUP EQUIPMENT AND MATERIALS

Mobile Headquarters Trailer

Equipment List

Quantity	Item
1	Intech Marine Base Station on Marine Channels 10,16, 18A & 22A
1	Motorola UHF Mobile Radio
1	Intech Scan Receiver on Marine Channels 10, 16, 18A, 22A & WXI
3 sets	Headphones, Superex and Motorola
10	1-Watt Motorola Handi-Talkies (Paksets)
2	4-Watt Motorola Handi-Talkies (Paksets)
1	Motorola Multi-Unit Portable Charger
1	Onan Trickle Charger
1	Onan Gasoline Generator
1	Sony Cassette Tape Recorder
1	Craftsman Multi-Band Receiver
2	Motorola Megaphones
2	McGill Trouble Lights
1	50' Extension Cord, McGill & Hubble
1	100' ITT Extension Cord
3	"Scare-Away" Noise Units/Propane Supply
Numerous	Hardhats
1	J-W Combustible Gas Indicator
18	Pint Sample Bottles
12	Hand Lanterns
Numerous	Hand Tools

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Mobile Headquarters Trailer

Equipment List (continued)

Quantity	Item
2 sets	U.S.G.S. Maps of CBI Area of Coverage
2 sets	Nautical Charts of CBI Area
Numerous	Road Maps
Numerous	Tide and Current
1	Petroleum Pipeline Map
6	Map Overlays, 36" x 48" Clear Plastic
Numerous	Telephone Books
1 pr.	Binoculars
1	Dymo 2300 Tapewriter Kit
1	Polaroid 430 Camera
Numerous	Stationary Supplies
12	Raincoats
1	Blanket
2 sets	Emergency Road Reflectors
27	Emergency Road Flares (15-min.)
4	Fire Extinguishers
1	First Aid Kit

2. M/V RECOVERER

202', 9,000 bbl. petroleum cargo tanker capable of acting as:

- Command ship
- Primary control for cleanup, skimming, or lightering operations
- Central receiving vessel for off-loading skimmers
- Central receiving vessel during lightering
- Communications center
- Central location for crew changes
- Supply ship
- Central repair and maintenance facility
- First aid center
- Storage, transport and/or deployment of:
  - Skimmers
  - Booms
  - Dispersants
  - Sorbents
- Vacuum pumping capacity. Two pumps at least 1200 BPH each

(See Tank Plan (801-5) and Operation Plan (801-6 - 801-9)

Callout Procedure

In order to call out the M/V Recoverer, calls should be made to one of the following in the order shown:

R. W. Norton, CBI	(415) 685-2800 (24-hr.)
R. E. Nichols, HT&B	(415) 398-1150 (office) 376-1998 (home)
Harbor Tug & Barge Co. Pier 41 - Dispatcher	(415) 982-1600 (24-hr.)

3. OIL CONTAINMENT BOOM

A - Kepner Sea Curtain Boom

2000' - 16" Float x 12" Curtain, 3/8" Chain weight in curtain

This boom is stored in two (2) 1000' sections complete with towing bridles; each 1000-ft. section in a 35' semi-trailer van at Royal Trucking Co. (address & phone below).

Each trailer has five sections, 200' each, of Kepner boom bolted together making a 1000' boom. The boom is packed for easy deployment. One end of the boom with towing bridle attached is at the rear door and ready to be pulled out by boat. A second towing bridle is located near rear door. The trailing end of the boom is free so the two booms can be bolted together for a 2000' boom or install the towing bridle for a 1000' boom.

NOTE: The boom trailers are not licensed. When boom is ordered out, a Trip Permit is required. A Trip Permit is obtained from the Department of Motor Vehicles for $5.00 per vehicle per trip. Royal Trucking Co. has a permit for each vehicle and they should be reminded to fill it out and handle according to instructions before moving each trailer-van.

Royal Trucking (415) 934-0190 or
1420 Royal Industrial Way 689-6441
Concord, CA 94520

Roy Querio (Home) (415) 939-6057

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Replaces 4/73

B - Submarine Engineering Associates

1600' - 36PFX Sea Boom, 12" Freeboard x 24" Draft with mooring plates, anchors and USN-SEALOC Adapters

This boom is stored in four (4), 25' x 8' x 4'5" containers in the CBI Warehouse, Royal Trucking yard, Concord, and can be obtained through CBI or Royal.

C - Pacific Pollution Control

500' - 24C Aquafence Boom, 12" Freeboard x 24" Draft

This boom is stored in five (5) fiberglass containers, 30" x 46" x 90" in the CBI Warehouse, Royal Trucking yard, Concord, and can be obtained through CBI or Royal.

D - Sayles Boom

2 - 100' sections, 36" Sayles Boom with towing attachments, stored on the M/V SPILL SPOILER to be used as diversion booms for the skimmer. Boom not to be removed from the vessel.

E - Vikoma Seapack & Seaboom

1600' - Ocean Boom, 27" Float x 17" Water Tube, stored in 23' boat on a trailer. Can be towed on road to launching site or boat can be towed on water at high speed.

VIKOMA stored at Merritt (415) 982-1600
Ship Repair Yard, Oakland (415) 893-7020

In order to call out the VIKOMA, calls should be made to one of the following in the order shown:

R. W. Norton, CBI	(415) 685-2800	(24 hr.)
R. E. Nichols, HT&B	(415) 398-1150	(office)
	376-1998	(home)
Harbor Tug & Barge Co. Pier 41-Dispatcher	(415) 982-1600	(24 hr.)

4. PUMPING EQUIPMENT

A - Tanker Lightering Equipment

1 - 40 HP air-cooled diesel engine prime mover mounted in a fiberglass container.

2 - 8" submersible turbine pumps, capacity of each pump is 1000 GPM through 1000' of 6" and 8" discharge hose.

1600' of 8" floating discharge hose

800' of 6" " " "

Accessory equipment for handling pump and driver.

Tanker lightering equipment is stored on board the M/V RECOVERER at Merritt Ship Repair Yard, Oakland, and is handled through the Harbor Tug and Barge Company.

Pier 41 - Dispatcher (415) 982-1600 (24 hr.)
Merritt Shipyard (415) 893-7020

B - Diaphram Pumps

2 - Wilden M15B Spark Free, Diaphram Pumps, 3" Kamlok inlet and outlet, compressed air driven, 150 GPM @ 100# air pressure.

These pumps with related air hose and fittings stored in CBI Warehouse at Royal Trucking Yard. Obtain through CBI.

(415) 685-2800 (24 hr.)

C - Oil Herder Helicopter Spray Pumping Unit

1 - Simplex Pumping Unit. Consists of a fiberglass bucket, 150 gal. capacity, 3 HP Briggs & Stratton gas engine and small gear pump, set at 1 GPM flow rate. Designed as helicopter undersling unit.

This pumping unit, plus 2 drums of Shell Oil Herder is temporarily stored at the CBI Warehouse in Concord (until contract is made with helicopter company). Obtain through CBI.

(415) 685-2800 (24 hr.)

5. SKIMMING EQUIPMENT

A - Marco Class III Oil Recovery System

1 - M/V SPILL SPOILER - A 57' x 24' jet propelled bay skimmer with 2-3' wide Martin-Marietta filterbelts and 90 bbls. onboard storage capacity. Capable of recovering all grades of oil and debris at oil recovery rates up to 1,000 GPM, in 3' to 4' waves.

Moored at Pier 41, San Francisco

Manned and operated by:

The Harbor Tug and Barge Company
24-hr. Dispatcher (415) 982-1600

B - Floating Weir Skimmers

2 - Exxon Floating Weir Skimmers for use in recovering fairly thick oil concentrated within a boom.

Each skimmer equipped with an air driven pump, 200' of Acme 4" discharge hose with hose floats and 150' of 1" Dayco air hose.

This equipment was designed to work in conjugation with a barge. An air compressor is required, min. size of 300 CFM, to handle both units. A davit or crane is necessary to deploy these units.

Skimmers are stored at CBI Warehouse at Royal Trucking and are available through CBI (24-hr.).

6. SORBENTS, TOOLS, ETC.

A - 35' Semi-Trailer Van - Sorbent Trailer

This van is stored at Royal Trucking Co. who furnish a tractor and driver to deliver the van as instructed by CBI on a 24-hr. basis.

NOTE: The Sorbent Trailer is not licensed. When sorbents are ordered, a Trip Permit is required following the same procedure as when calling out the boom trailers. (See 3-A, Page 801-10.)

Royal Trucking
1420 Royal Industrial Way
Concord, CA 94520

(415) 934-0190 or
689-6441

Roy Querio (Home) - (415) 939-6057

Inventory of Equipment & Supplies in Sorbent Trailer

(See following pages 801-15/16)

Sorbent Trailer Inventory

Quantity	Item
5	Ball Peen Hammers, 1¼# Channel lock or equal
6	10" Diamoloy crescent wrenches, or equal
2	30" MCC Bolt Cutters
36	½" Shackles w/screw pin, galv.
36	3/4" Shackles w/screw pin, galv.
24	5/8" x 1½" long machine bolts w/hex nuts
2	30" or larger tool box to store Items 1-7; Kennedy or equal
600 ft.	½" Manila rope (1 coil)
600 ft.	3/4" Manila rope (1 coil)
600 ft.	1" Manila rope (1 coil)
200 ft.	½" wire rope, 6 x 19, black
2	Morse model 85A drum carrier
2 sets	#52 Merrill drum lifter clamps
10	6' steel stakes
2	2 lb. rolls baling wire
2 pr.	Kline side-cut pliers
10 pr.	Heavy gloves; rubber lined gauntlet-type, work gloves, large size
12	Long-handle square point shovels
3	" " round point shovels
1	Sledge hammers - #8, long handle
1	Single bit axe
2	Ansul A-5, 5 lb. fire extinguisher, w/Foray dry chemical, or equal

Sorbent Trailer Inventory (cont.)

Quantity	Item
1	Standard Medical First-Aid kit
2	4-5 tine, long-handle pitchforks
17	Hoes
8	Long-handle sickles
14	Short-handle sickles
6	Garden type rakes
1	Chain Saw
1	8-point regular carpenter's saw
1	24" Pruning saw
2	30 gal. trash cans, galv. metal
2	Stanley razor blade knives
6	2-cell regular flashlights
10 rolls	3M Type, 100 rolls, 36" wide, 12 oz/yd^2, 3/8" thick
10 bales	3M Type 151 pads, 18" x 18" x 3/16"
8 rolls	Conwed Sorbent Blankets, 35" x 200' roll
12 ctns.	" " Pads, 17" x 17" x 1/4"
4 rolls	" " Rug, 40" x 300' roll
8 ctns.	" " Heavy duty boom, 10" x 8'

7. PORTABLE RADIO REPEATER TRAILER

This radio repeater trailer can be used in conjunction with the radio packsets in remote areas to improve communications. It contains a primary and secondary radio repeater and has two batteries which make the repeater independent for 48 hours. If available, 110 VAC should be connected to the self-contained battery charger.

Radio repeater trailer is stored at Royal Trucking. Obtain through CBI. The CBI car is equipped with towing attachment for towing trailer to desired location.

8. WORK BOAT

1 - 16' Boston Whaler w/40 HP Johnson outboard

This boat is primarily a ship-to-shore boat for the M/V RECOVERER but is available for oil spill work if the Recoverer is not in use.

To increase the flexibility of the boat, it is stored on a trailer in CBI warehouse at Royal Trucking and will be towed to the M/V Recoverer when needed or to other oil spill work.

A 1-7/8" ball is required for towing. An electrical plug with identified leads is with the trailer.

Towing and operating instructions on boat. (See also following Pages 801-18/19)

Both the CBI company car and R. E. Nichols' company car are fitted with towing gear to tow this boat and trailer to desired location.

9. WAREHOUSE INVENTORY

In addition to equipment and supplies listed, there are other items stored in the CBI Warehouse located at: Royal Trucking
1420 Royal Industrial Way
Concord, CA

Following is an inventory list of items available through Clean Bay Inc.:

Quantity	Item
1 roll	Plastic 20' x 100' x .006"
6 rolls	Conwed Rug, 40" x 300'
7 "	" Blanket, 35" x 200'
10 ctns.	" Pads, 17½" x 17½" x 1/4"
9 "	" Boom 10" x 8'
10 ea.	Empty Boom crates
1	Radio repeater trailer (Item No. 7)
1	Boston Whaler & trailer(Item No. 8)
5	Floatation boxes for lightering equipment (Equipment on M/V Recoverer)
2 boxes	Repair equipment for Kepner boom (Item No. 3-A)
2	Exxon skimmers w/air & discharge hoses (Item 5-B)
1	Skimmer (Skim, Inc.)
6	Boom towing cables
1 set	Fork lift extensions
2	15-men life rafts (inspection needed before use)
2 ctns.	Foam absorbent pads

Warehouse Inventory (cont.)

Quantity	Item
2	Wheelbarrows
2	Bbls Oil Herder (Partially full)
1	" Diesel oil (Partially full)
1	Pallet containing boxes of manual inserts
11	Pallets of 3" vacuum hose
2	" " 1¼" " "
7	" containing bags of sawdust
12	Pitchforks
6	Square-corner shovels
4	Round-corner shovels

10. EQUIPMENT UNDER LEASE TO CBI

Contractor: Marine Service, Inc.
305 First Street
Benicia, CA 94510

(707) 745-2949 (24-hr.)
J. L. Garske

Equipment located at Marine Service, Benicia:

2 Mark II Oil Skimmers
1 56' LCM Boat,"Sponge"

Equipment located at Shell Oil, Martinez:

1 Mark II Oil Skimmer

Equipment located at C&H Sugar Co. Wharf, Crockett:

2 Mark II Oil Skimmers
1 56' LCM Boat, "Squeegee"

ATTACHMENT "E"

Draft

Agreement for Alaskan Gulf Clean-Up Cooperative

AGREEMENT

FOR

ALASKAN GULF CLEAN-UP COOPERATIVE

THIS AGREEMENT shall be effective when made and entered into, by and between ten (10) or more parties which execute the original of this Agreement or a counterpart hereof or other instrument agreeing to become a party hereto, being hereinafter sometimes referred to collectively as "Participants."

W I T N E S S E T H

WHEREAS each of the parties hereto has an interest, both financial and civic, in the prompt and efficient removal of oil spills occurring on or in the public and private properties, beaches, harbors, and offshore islands and waters within the Area of Interest; and

WHEREAS, the parties desire to provide resources for and to develop, maintain, and improve the procedure among the parties for mutual assistance and cooperation in the control of oil spill emergencies occurring within the Area of Interest; and

WHEREAS, the parties desire to commit themselves to an efficient and effective clean-up organization, and in so doing, agree to investigate and acquire appropriate equipment and materials, and to develop training programs for personnel who will be involved in the clean-up of oil spills; and

WHEREAS, due to the magnitude of the anticipated risks and costs related to the acquisition or lease of materials and equipment, the parties deem it necessary to join together under the terms of this Agreement for the purpose of sharing said costs and risks and minimizing the individual expenses and investments related thereto;

NOW, THEREFORE, in consideration of the premises and of the mutual covenants and agreements of the parties hereto, hereinafter set forth, the parties do hereby mutually covenant and agree as follows:

ARTICLE I

AREA OF INTEREST

The primary operations of the parties shall be confined to the geopgraphical area described as:

> the public and private properties, including but not limited to beaches, harbors, inland waterways, and offshore islands and water along the coast of the State of Alaska, between and including Cape Fairweather on the east and Cape Clear on the west,

which area shall hereinafter be referred to as the "Area of Interest;" provided, however, that nothing herein shall preclude the parties from contracting or cooperating with persons or organizations in other geographical areas for the purposes set forth in the recitals above.

ARTICLE II

PARTICIPANTS

A. Qualifications. Persons, partnerships, companies, corporations or other entities which contemplate operating refineries, terminals, pipelines or other facilities for handling, storing, transporting, or manufacturing petroleum or liquid hydrocarbons or which drill for or produce petroleum or liquid hydrocarbons or which contemplate conducting operations related thereto within the Area of Interest and which pay the initial advance as well as any costs related to subsequent joinder and which pay costs and expenses incurred in operations hereunder in accordance with the Participation Formula described in Article VI shall be qualified for Participation herein.

B. Voting Rights. The number of votes of the Participants may be unequal, and shall be determined by the Participation Formula described in Article VI.

C. Admission of New Participants. New Participants shall be admitted upon a showing to the Representatives that such potential Participants are qualified for membership hereunder. Such new participation shall be effective upon receipt by the Executive Committee of the inital advance required by the Participation Formula described in Article VI and in the case of a partnership or corporation the filing of the written designation of representation by such Participant as required by Article III.

D. Voluntary Withdrawal or Expulsion

1. Voluntary Withdrawal from Participation. Article VI to the contrary notwithstanding any Participant may withdraw from participation by filing written notice thereof with the Executive Committee; and such withdrawal shall become effective immediately upon filing of said notice. Such Participant shall fully pay all costs and expenses due and payable from it pursuant to the terms of this Agreement and fully provide for all contingent obligations to the remaining Participants on the effective date of withdrawal. This shall include, but not be limited to, prepayment by the Participant of its proportionate share of all outstanding long term lease obligations entered into by the Participants. The withdrawal by a Participant under the provisions hereof shall not relieve such Participant of his proportionate share of any liability incurred by, or rights or claims existing against the Participants at the effective date of withdrawal. Such withdrawing Participant shall be given credit for the current value of his ownership interest as defined in Article VI.F in co-owned capital equipment, materials, and cash or other liquid assets. Said current value shall be determined on the basis of the original cost depreciated at a rate of twenty percent (20%) per annum. If Participant's credit exceeds his obligations hereunder, he shall be refunded the difference in cash upon withdrawal.

2. Expulsion from Participation. Any Participant may be expelled for failure to pay part or all of any costs and expenses properly attributable to such Participant or for failure to reimburse part or all of any expenses duly incurred

hereunder within 45 days of incurring of such obligation. Such expulsion may be imposed only by a vote of at least 75% of the remaining Participants' Representatives. Any Participant so expelled shall be given credit for the current value of his ownership interest as defined in Article VI.F in co-owned capital equipment, materials, and cash or other liquid assets. Said current value shall be determined on the basis of the original cost depreciated at a rate of twenty percent (20%) per annum. If Participants' credit exceeds his obligations hereunder, he shall be refunded the difference in cash upon withdrawal. Said Participant shall become immediately obligated for prepayment to the remaining Participants its proportionate share of all outstanding long term obligations entered into by the Participants. No expulsion shall relieve such expelled Participant from any obligation to the remaining Participants before its expulsion and shall not preclude the remaining Participants from taking any other action to effect the collection of costs and expenses properly due and owing.

E. Adjustment of Voting and Participation Upon Voluntary Withdrawal or Expulsion. The votes of the Participants and future participation as determined by Article VI shall be adjusted as of the effective date of withdrawal or expulsion of a Participant or the admission of a new Participant.

ARTICLE III

DELEGATION OF AUTHORITY

Every Participant shall file with the Executive Committee a duly authorized and executed instrument designating a Representative, and one or more alternates, who shall for all purposes hereof have full power and authority to represent such Participant in all matters relating to this Agreement and upon whom any other communications with respect to this Agreement may be given, delivered or served. The power and authority of such Representative shall continue until the Participant represented by him shall designate another Representative and shall notify the Executive Committee in writing of the name and address of such new Representative, or until the participation of the Participant is withdrawn or expelled in accordance with Article II.

ARTICLE IV

MEETINGS OF REPRESENTATIVES

A. The business and affairs of the Cooperative shall be managed by the Representatives except where specifically provided herein for a power to be exercised by another person or other persons.

B. Without limiting the general grant of power set out in Article IV.A, the Representatives may, from time to time and at any time, delegate authority hereunder to the Executive Committee, a Manager or such other person or persons as the Representatives may deem appropriate. Said delegation may be withdrawn or rescinded at any time; provided, however, that no action previously taken by such delegate shall be affected by the withdrawal or rescision. Notwithstanding any provision herein to the contrary the Representatives shall approve by vote as provided herein (and shall not delegate authority to approve) an annual budget of expenditures and any necessary supplemental budgets or authorizations for expenditures of sums exceeding the amount budgeted for each category, if any, set out in the annual budget.

C. Annual Meeting. The annual meeting of Representatives shall be held on the third Tuesday of September each year at 9:00 a.m. at the offices of the Manager, if any, or at such other time or place as the Representatives may from time to time designate.

D. Special Meetings. Special meetings of the Representatives may be called by the Chairman, the Vice Chairman, the Manager, or by any three (3) Representatives. Not less than five (5) days' written notice to all Representatives for special meetings is required. The notice shall state the purpose of the meeting.

E. Emergency Meetings. Emergency meetings of the Representatives may be called by the Chairman, the Vice Chairman, the Manager, or by any three (3) Representatives for purposes of resolving policy or financial problems in connection with any oil spill or spills by giving not less than twenty-four (24) hours' telegraphic or personal written notice.

F. Action by Consent. Any action which may be taken at a meeting of the Representatives may be taken without a meeting if approved by a writing signed by 75% of the weighted vote. Said writing shall be mailed to the Executive Committee within thirty (30) days of the date of the first signature to be effective. The Secretary-Treasurer shall promptly notify the Representatives of the action taken and shall file the writing in the Minutes of the organization.

G. Quorum. At least five (5) Representatives representing ownership of sixty-five percent (65%) of the total number of the votes must be present before business may be transacted, but a lesser number may adjourn the meeting from time to time until a quorum is obtained. Representatives present at a duly called or held meeting at which a quorum is present may continue to do business until adjournment notwithstanding the withdrawal of members leaving less than a quorum.

H. Vote. Unless otherwise specified, wherever in this Agreement any action is to be taken upon vote of the Representatives, approval or passage is to be by a majority of the votes present or a majority of the votes necessary for a quorum, whichever is greater. The number of Representatives present at a meeting shall be considered only for the purpose of determining whether there is a quorum.

The number of votes for each Representative shall be based upon the percentage participation as described in Article VI. The number of votes may change from time to time if and as the percentage participation changes.

ARTICLE V

EXECUTIVE COMMITTEE

A. Composition. The Executive Committee shall be composed of five (5) persons including the Chairman, the Vice Chairman, the Secretary-Treasurer and two additional members. The Manager, if any, shall attend meetings of the Executive Committee but shall not have the right to vote.

B. Election. The members of the Executive Committee shall be elected by a majority vote of the Representatives at their annual meeting. Vacancies occurring before the next annual meeting may be filled by the Representatives at a special meeting called for that purpose in accordance with the provisions of Article IV.D.

C. General Powers and Authority. The members of the Executive Committee shall have such powers and duties, individually or collectively, as expressly stated herein or as may be provided from time to time by resolution or other directive of the Representatives.

D. Meetings. The Executive Committee may act in any meeting called at any time by the Chairman or any other member of the Executive Committee. Committee action may also be taken without a convened meeting by vote or agreement, by telephone, wire or letter.

E. Voting. Each voting member of the Executive Committee shall have one vote. Action by the Committee shall require three (3) affirmative votes. If three (3) such votes cannot be obtained, the matter may be considered and acted upon by the Representatives.

F. Administrative Duties

1. Chairman and Vice Chairman. The Chairman, or in his absence, the Vice Chairman:

(a) shall preside at all meetings of the Representatives and the Executive Committee;

(b) shall sign all contracts, and other instruments in writing when authorized by the Representatives by special or general grant of authority;

(c) shall discharge all other duties that may be required of him by the Agreement or delegated to him by the Representatives.

2. Secretary-Treasurer. The Secretary-Treasurer:

(a) shall keep a record of the proceedings of all meetings (1) of the Representatives and (2) of the Executive Committee;

(b) shall countersign all documents whenever required;

(c) shall keep a record of the votes each Participant is entitled to;

(d) shall keep a current record containing the name and address of each Participant and its Representatives;

(e) shall serve all notices required by law or by this Agreement;

(f) shall keep accounts of all receipts and disbursements and deposit all moneys or other valuable effects in the name and to the credit of the Cooperative in such depository bank or banks as may be designated by the Representatives;

(g) shall present at the regular meeting of the Representatives, or whenever requried by them, accounts of all his transactions as Secretary-Treasurer and the financial condition of this joint undertaking, and discharge such additional duties as the Representatives may from time to time prescribe.

3. Manager. The Executive Committee may, within the power and authority it has hereunder, assign such duties and delegate such authority to the Manager, if any, as the Executive Committee deems necessary and appropriate. The Manager, if any, shall administer the joint activities of the Participants hereto subject to the direction of the Executive Committee.

G. Compensation. Except for the Manager, if any, no member of the Executive Committee shall be entitled to compensation. The compensation of the Manager, if any, shall be set by the Representatives.

H. Removal. The Chairman, Vice Chairman, Manager, if any, or Secretary-Treasurer may be removed at the pleasure of the Representatives, in accordance with Article IV.F., G. and H.

ARTICLE VI

OWNERSHIP OF ASSETS

FINANCES AND PARTICIPATION FORMULA

A. Advances and Budget. The Executive Committee shall, each year, prior to the annual meeting of Representatives, prepare and submit to the Representatives a budget for advances for operations for the following calendar year. Approval of the budget for the advances shall be by vote of the Representatives.

The budget for advances shall state an amount of money to be used for each of the following categories:

1. Day-to-day operations including but not limited to salaries, office expenses, and equipment and material lease and maintenance costs;

2. Investment in capital equipment and materials to be used in connection with clean-up activities.

Each Participant executing this Agreement on or before August 1, 1975 shall be deemed an original Participant and shall pay an initial advance of $25,000. Subsequent advances shall be determined in accordance with the balance of this Article VI.

Any party executing this Agreement after August 1, 1975, but prior to the first lease sale in the Area of Interest shall pay as a portion of its initial advance $25,000 plus its proportionate share, determined in accordance with B(1) below, of the current value of the original cost of all capital equipment and materials co-owned by the Participants. In addition, such party shall pay an additional sum equal to its proportionate share, determined in accordance with Paragraph B(1) hereunder, of the current value of all liquid assets co-owned by the Participants.

Within thirty (30) days following the award of leases at the first lease sale in the Area of Interest each original Participant to this Agreement who was not awarded a lease in said sale may withdraw from this Agreement and shall have refunded all advances and additional moneys paid by them to the cooperative less an amount equal to its share of the expenses incurred by the Cooperative hereunder during the period in which it was a Participant. A Participant who is admitted to the Cooperative after the effective date of this Agreement but prior to said lease sale who is not awarded a lease may also withdraw from this Agreement and shall have refunded all moneys paid by him to the cooperative, less $25,000, and less an amount equal to its share of the expenses incurred by the Cooperative hereunder during the period in which it was a Participant. The remaining Participants shall have their proportionate interests redetermined and allocated in accordance with Paragraph B(2) below.

Any party executing this Agreement subsequent to the first lease sale in the Area of Interest and the award of leases therein shall pay as a portion of its initial advance $25,000 plus one hundred fifty percent (150%) of its proportionate share of the actual cost of the capital equipment, and materials, and the current value of all liquid assets co-owned by the Participants. Such party shall also pay one hundred fifty percent (150%) of its proportionate share of the cumulative expense incurred by the Participants to the date of execution of this Agreement. Upon termination of this Agreement or withdrawal from same by such party the amount refundable shall be only that party's proportionate share of its current ownership interest, in accordance with Paragraph B below.

The preceding requirements for payment of a proportionate share of the initial advance and of the current value of all liquid assets will not be required when such entering party has purchased or otherwise acquired some portion of the assets or operating function of a Participant to this Agreement and by doing so assumes that Participant's interest. Those moneys paid in for an ownership in co-owned equipment and materials shall be refunded to the Participants in good standing in accordance with their ownership interest therein as set out in Paragraph B below.

B. Payments by Participants. Each of the Participants under this Agreement shall make payments as required to fund the budget in accordance with the following Participation Formulas:

1. Prior to Redetermination After First Lease Sale all expenditures shall be shared by each Participant on an equal basis.

2. Within ninety days (90) following the awarding of leases from the First Lease Sale the proportionate share of each Participant hereto shall be redetermined and reallocated on the basis of fifteen percent (15%) per capita and eighty-five percent (85%) acreage awarded in the first sale in the Area of Interest. Following any subsequent sale in the Area of Interest the proportionate share of each Participant shall be redetermined and reallocated on the basis of the Participation Formula then in effect.

The per capita share shall be divided equally among Participants. The acreage share shall be a Participant's fraction of leased acreage to the total leased acreage of all Participants.

Parties of Joint Interest may become Participants jointly or singly but in no instance can acreage be proportioned more than once.

3. Following the first calendar year in which twelve (12) rig months of drilling have occurred the proportionate share of each Participant hereto shall be redetermined and reallocated on the basis of ten percent (10%) per capita, ten percent (10%) acreage and eighty percent (80%) exposure risk. For the purposes of this Agreement, rig month is defined as each and every month a drilling rig or vessel is on location and working, including breakdown and maintenance time. A drill rig or vessel is considered on location at such time as the last anchor or leg is set in place at any proposed drilling site.

The basis for the per capita and acreage allocations shall be as described in subparagraph 3 above. The basis for the exposure risk shall be:

Activity	Units	Weighting Factor
Offshore Production and Pipelines	Barrels of HC Produced	1.0
Marine Transport (Crude & Products)	Barrels of HC Transferred	1.0
Onshore Pipelines	Barrels of HC Transferred	0.5
Exploration and Drilling	Rig Months	. 100,000 Development

All rates in B(3) above shall be tabulated from the preceding calendar year's operation.

For purposes of voting, each Participant shall be entitled to the same number of votes as its percentage interest rounded to the nearest 0.1% as determined by the applicable Participation Formulas.

Annually, prior to approval of the budget as described in Article VI.A, the Representatives shall determine the participation of each Participant according to the applicable Participation Formula. The initial yearly payment of each Participant will then be determined by relating the participation of each Participant to the budget.

C. Additional Requirements. Additional moneys may from time to time be added to and specified for any or all of the categories of advances referred to in Article VI.A by charge against the Participants in accordance with the applicable Participation Formula, but only on an affirmative vote of the Representatives in accordance with Article IV.F., G and H; provided, however, that any Participant who has given notice of withdrawal in accordance with Article II.D.1 shall not be required to advance additional money after date of such notice.

D. Payment of Advances. Payment of advances required to meet the cash call for the annual budget and any additional advances provided in this Article VI shall be made within thirty (30) days after call by the Secretary-Treasurer. Such call shall be for aggregate amounts not to exceed the amount determined by the Secretary-Treasurer to be sufficient to meet cash requirements for the ensuing thirty (30) days.

E. Authority to Expend Advances. The Executive Committee is authorized to expend the moneys received, subject to the condition that no moneys designated for use in any of the specified categories described in Article VI.A. may be used for the purposes described in any of the other categories specified in Article VI.A without an affirmative vote of the Representatives in accordance with Article IV.F., G and H. All expenditures within each of the specified categories shall be in accordance with the budget approved by the Representatives or in accordance with any instruction received from the Representatives.

F. Co-Ownership of Jointly Acquired Property. All capital equipment and materials or other real and personal property, tangible or intangible, acquired jointly by the Participants hereunder shall be co-owned as tenants-in-common. Each Participant's ownership interest therein shall be based upon and shall be equal to its participation under the applicable Participation Formula. Each Participant's ownership interest will accordingly be adjusted annually with the annual adjustments of the applicable Participation Formula. Such ownership interests may also be adjusted during the year with the addition of a new Participant or withdrawal or expulsion of an existing Participant.

G. Withdrawal Over Budget or Certain Expenditures. Any Participant voting against approval of the budget or against approval to make additional unbudgeted payments for acquisition or lease of capital equipment or materials or for the cost of cleaning up unidentified oil spills may withdraw, provided that such Participant exercises such right of withdrawal using the procedure described in Article II.D.1, within five (5) days after result of the vote is available to the Participant. Such resigning Participants shall be freed from any liability to the remaining Participants resulting from the aforesaid budget or additional unbudgeted payments, but shall, however, be subject to all other obligations imposed by Article II.D.1.

ARTICLE VII

CLEAN-UP POLICY

A. Oil Spills in the Area of Interest. Within the monetary limitations established from time to time and in accordance with the provisions of Article VI, it is the policy of the Participants to release co-owned and/or co-leased oil spill clean-up equipment and materials for use within the Area of Interest as follows:

1. Notice of Spill. In the event of an actual or threatened spill of liquid hydrocarbons by any Participant originating within the Area of Interest, and if such Participant desires to utilize the co-owned or co-leased equipment and materials, then such Participant shall promptly notify the Executive Committee Chairman, or if not available, any member of the Executive Committee. Such notification shall include the location and known nature and size of the spill, the required equipment and materials. Such notification may be oral, but shall be confirmed in writing as soon as practical.

2. Use by Participant. Upon receipt of the above notice, the Chairman or any member of the Executive Committee shall, without further approval of the Participants or their Representatives, release the requested equipment and material to the affected Participant. The affected Participant shall have the use of such equipment and material as may be required in containing and cleaning up such spill. During the time such equipment and material are thus committed, complete control thereof shall be in the affected Participant.

During such time the other Participants and Executive Committee shall not have any responsibility therefor, regardless of negligence. If such spill originates within the Area of Interest or, if such spill originates within such area but the containment and clean-up requires use of the equipment and material outside of the Area of Interest, the affected Participant may continue to use the equipment and material as required. The affected Participant shall return the equipment and material to as good a condition as when called into service subject to reasonable wear and tear, or at the discretion of the Executive Committee, shall pay to the Executive Committee an amount of money equal to the cost which would have been incurred in complying with such requirement. The other Participants and Executive Committee shall in no way be liable or responsible for the payment of any costs and expenses incurred by said Participant and the Participant affected by such spill shall indemnify said other Participants and the Executive Committee against all liability for such costs and expenses.

3. Multiple Use by Participants. If two or more spills affecting different Participants occur at the same time or require use of the same equipment and material in the containment or clean-up thereof and if all such spills occur in the Area of Interest, the Executive Committee shall decide in absence of agreement among the affected Participants which equipment hereunder shall be used for each spill. If, however, one such spill occurs in the Area of Interest and the other spill occurs outside the Area of Interest, the Participant affected

by the spill in the Area of Interest shall have the prior right to use such equipment and material as required, but may agree to the release of such equipment and material for use in connection with the other spill.

4. Use by Non-Participants. In the event of a request by any party who is not a Participant for the use of any equipment and material subject hereunder to contain and clean up a spill or threatened spill of liquid hydrocarbons, the Executive Committee may allow such use and determine the condition thereof, including the extent and location of such use. During the time such equipment and material are thus committed, complete control thereof and full responsibility therefor shall be in the Non-Participant subject to Article VII.A.5. During such time the Participants and Executive Committee shall not have any responsibility therefor, regardless of negligence. To compensate Participants for the cost and expenses incurred in providing and maintaining a continuing stockpile of equipment and material with expected early obsolesence and replacement and for the continuing expenses of maintaining standby services, the rate charged by the Executive Committee to a Non-Participant for the use of such equipment and material shall be an equitable rate established by the Executive Committee (subject to periodic review and change where justified), taking into consideration the continuing costs, amortization, cost of money and other pertinent factors. The Non-Participant shall be obligated to return the equipment and material to as good a condition as when called into service, or, at the discretion of the Executive Committee, shall pay to the Executive Committee an amount equal to the cost which would have been incurred in complying with such requirement. The Participants and Executive Committee shall in no way be liable or responsible for payment of any costs and expenses incurred by said Non-Participant, the Non-Participant affected by such spill shall indemnify said Participants against all liability for such costs and expenses.

5. Multiple Use by Participant and Non-Participant. In the event of concurring spills of liquid hydrocarbons by Participants and Non-Participants or unknown parties, the Participant affected shall have the prior right to use such equipment and material as are required, but may agree to the release of such equipment and material for use in connection with other spills.

6. Unidentified Spills. The Chairman or any member of the Executive Committee may, without approval of the Participants, release equipment and material for use in the clean-up of oil spills from unidentified sources within the Area of Interest only at the request and under the direction of the governmental agency having jurisdiction over the spill. Such usage shall comply with Article VII.A.4, 5 and 8 and Article XI.

7. Oil Spills Originating Outside of the Area of Interest. The Executive Committee may release equipment and material for use in the clean-up of oil spills originating outside of the Area of Interest. Such usage shall comply with Article VII.A.4, 5 and 8 and Article XI.

8. Charges for Use of Equipment and Material. Any charges provided for under this agreement to Participants or Non-Participants, other provisions hereof notwithstanding, shall be based on costs incurred, it being the intent of the Participants hereunder to provide such equipment and material on a non-profit basis.

ARTICLE VIII

INDEMNITY

A. Indemnity for Use. In the event of damage to, loss of, or consumption of any equipment and material subject hereunder, while committed to use by any Participant or Non-Participant in connection with any spill of liquid hydrocarbons by such Participant or Non-Participant, the affected Participant or Non-Participant shall be solely responsible and liable to the Participants for repairing or replacing such equipment and material or reimbursing the Participants for the costs thereof, and the affected Participant or Non-Participant shall indemnify all other Participants, subsequent Participants and the Executive Committee against all liability on account of such damage, loss or consumption.

B. Indemnity Agreements. Each Participant shall hold harmless and indemnify each other Participant or subsequent Participant, the Executive Committee, and the agents, servants and employees of the foregoing, against and for all liability, and costs incurred, including, but not limited to, attorneys' fees, expenses, claims, fines and damages which the affected parties suffer or sustain or become liable for by reason of any accidents, damages or injuries, either to the persons or property of the foregoing parties or to the person and/or property of any third party, including, but not limited to, federal and state governments and agencies thereof, in any matter arising out of or connected with the furnishing of equipment and materials hereunder to the indemnifying party. A like indemnity shall be obtained from a Non-Participant before such party can use the above-noted equipment and material as provided for in Article VII. The foregoing indemnity and hold harmless provisions by a Participant or Non-Participant shall be applicable whether or not the accident, damages, or injuries indemnified against were caused or contributed to in whole or in part by the negligence of the Participants, subsequent Participants, the Executive Committee or the members or subsequent members thereof, and the agents, servants, and employees of the foregoing. The party furnishing this indemnity further agrees that the parties to whom this indemnification and hold harmless provision extends shall have the right, but not the obligation, to tender the defense to the indemnifying party of any and all law suits arising out of or in any way connected with matters which are the subject of this indemnity and hold harmless provision, but that failure to tender any such law suit for defense shall in no way or wise release or relieve party furnishing this indemnity of his obligations hereunder. The party furnishing this indemnity also covenants and agrees that the indemnity and hold harmless provision granted to all the parties hereunder or subsequent parties hereunder shall not be limited, restricted or in any way affected by the amount of insurance by the party furnishing this indemnity.

ARTICLE IX

IMPLEMENTATION

To implement the purposes of this Agreement, and promptly after the effective date hereof, the Executive Committee shall appoint Committee(s) to evaluate the oil spill response capabilities required to contain and clean up potential oil spills which might occur within the Area of Interest. In evaluating the above the Committee(s) shall consider but not be limited to the following:

(1) entering into contracts and/or leases for the purchase or lease of appropriate oil spill capital equipment and materials; and

(2) entering into service contracts under which the contractor may (a) maintain such equipment and materials at specified locations; (b) furnish experienced operating personnel and provide training concerning use of such equipment and materials; (c) conduct sea trials of such equipment and material; and (d) furnish such other services as may be mutually agreed upon between the contractor and the Executive Committee; and

(3) providing for functions listed in IX(2) above by other means, such as response teams.

Immediately upon this Agreement becoming effective a Committee shall be appointed to develop and publish an Oil Spill Contingency Plan.

ARTICLE X

INDEPENDENT CLEAN-UP OPERATIONS

Nothing in this Agreement shall require or be construed as requiring any Participant to use co-owned or jointly leased materials and equipment or the services of the other Participants in connection with oil spill clean-up activities. Each Participant may, if it so desires, purchase or contract for its own clean-up equipment and materials, or engage any other person to assist it with the clean-up of oil spills, or may, as provided for in this Agreement, use co-owned or jointly leased clean-up equipment and materials and the services of the other Participants jointly with some other person or persons.

ARTICLE XI

INSURANCE

The Executive Committee shall secure and maintain in full force and effect, Alaska Workmen's Compensation Insurance and Employer's Liability Insurance, including coverage under the Longshoremen and Harbor Workers' Act and Outer Continental Shelf Act, and other insurance as required by the Participants. The Executive Committee shall also require any and all independent contractors performing work or services in connection with operations hereunder to provide adequate insurance coverage as required by Participants. In addition, the Executive Committee shall secure and maintain in full force and effect such other insurance as the Representatives may from time to time direct. The cost of all such insurance secured by the Executive Committee shall be deemed a normal cost of performing operations and shall be chargeable to the Participants in accordance with the Participation Formula. All insurance shall include the Alaskan Gulf Clean-Up Cooperative and the names of each Participant as a named insured. Such insurance shall contain a waiver of subrogation clause in favor of each of the Participants and Alaskan Gulf Clean-Up Cooperative.

ARTICLE XII

RELATIONSHIP OF THE PARTICIPANTS

It is expressly agreed that Participants hereto are engaged in a joint venture and that the relationship of the Participants is that of independent contractors and not as members of a partnership or association and that the duties, obligations and liabilities of the Participants are several and not joint or collective, and that nothing contained herein shall be construed to create or impose a partnership duty, obligation, or liability on any of the Participants. Participants shall share in accordance with the applicable Participation Formula as set forth in Article VI herein, all losses, claims, damages, judgments (and costs and expenses in connection therewith) or liabilities arising out of this Agreement.

No language in this Agreement shall in any way constitute a waiver of subrogation rights by the Participants for willful misconduct or gross negligence of the other Participants, subsequent Participants, the Executive Committee or the members or subsequent members thereof and the agents, servants and members of the foregoing.

Each Participant hereby elects to be excluded from the application of SUBCHAPTER K OF CHAPTER 1 of SUBTITLE A of the Internal Revenue Code of 1954, or such portion or portions thereof as may be permitted or authorized by the Secretary of the Treasury of the United States or his delegate insofar as such subchapter, or any portion or portions thereof, may be applicable to the Participants. If any present tax laws of any state contain provisions similar to those contained in the SUBCHAPTER of the Internal Revenue Code of 1954 above referred to under which a similar election is permitted, each Participant hereby elects to be excluded from the application of such laws. If requested by Operator, each Participant agrees to execute and join in such instruments as are necessary to make such elections effective.

ARTICLE XIII

MISCELLANEOUS

A. Contracts. The Representatives may authorize the Executive Committee or the Manager, if any, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the Participants and such authority may be general or confined to specific instances.

B. Checks, Drafts, or Orders for Payment. All checks, drafts, or orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Participants shall be signed by such Executive Committee members or in such manner as shall from time to time be determined by resolution of the Representatives. In the absence of such determination by the Representatives, such instruments shall be signed by the Secretary-Treasurer and countersigned by the Chairman, Vice Chairman or Manager.

C. Deposits. All funds shall be deposited from time to time to the credit of the Participants in such banks, trust companies or other depositories as the Representatives may select.

D. Gifts. The Executive Committee may accept on behalf of the Participants any grant, contribution, gift, bequest, or devise for the general purposes or for any special purpose of this Agreement.

E. Books and Records. The Secretary-Treasurer shall keep correct and complete books and records of accounts and shall also keep minutes of the proceedings of the Representatives and the Executive Committee and shall keep at the office of the Manager a record giving the names and addresses of the Participants, Representatives and Executive Committee. All books and records for purposes of this Agreement may be inspected by any Representatives for any proper purpose at any reasonable time.

ARTICLE XIV

AMENDMENTS

This Agreement may be amended only by majority vote of the Representatives. Such amendment may be made at any annual meeting or special meeting of Representatives at which time a quorum is present, provided that notice shall have been given that the amendment will be considered. This Agreement may also be amended in accordance with the procedure set forth in Article IV.F. Notwithstanding any other provision of this Agreement, the affirmative vote or written consent of seventy-five percent (75%) of the Representatives entitled to vote shall be necessary to amend Article II.D or Article VI.G, or this sentence. Notwithstanding any other provision of this Agreement, the affirmative vote or written consent of seventy-five percent (75%) of the total number of votes shall be necessary to amend Article VI of this Agreement or this sentence.

ARTICLE XV

TERMINATION OF AGREEMENT

A. Election by Participants. Participants may elect to terminate this Agreement by the vote of the Representatives representing seventy-five percent (75%) or more of the voting power at a meeting of the Representatives specially called for this purpose or by written consent of all Representatives without a meeting.

B. Disposition of Equipment. Upon the termination of this Agreement, the Participants shall have the first right to purchase, on a bid basis and at its onshore storage site in Alaska, the equipment purchased with funds of the Cooperative. In the event none of the Participants hereto desires to purchase said equipment, the Executive Committee or the Manager, on behalf of the Participants, shall have the right to sell same to third parties. In the event the equipment cannot be sold as above provided, it will be disposed of for its salvage value, if any. Costs for removing unsaleable equipment shall be borne equally by the Participants. Any monies received by the Executive Committee or the Manager through sale or other disposition of the equipment shall be distributed to the Participants in accordance with the applicable Participation Formula in Article VI.

ARTICLE XVI

SEPARABILITY

If any provision of this Agreement is found to be illegal under the laws of the United States or the State of Alaska or any subdivision thereof, the remainder of the Agreement shall not be affected.

ARTICLE XVII

EXECUTION

This Agreement may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as an original instrument and as if all of the parties to the aggregate counterparts had signed the same instrument. Any signature page of this Agreement may be detached by any party from any counterpart hereof without impairing the legal effect of any signatures thereon, and may be attached to another counterpart of this Agreement identical in form hereto but having attached to it one or more additional signature pages.

IN WITNESS WHEREOF, each party hereto has caused this Agreement to be executed by its duly authorized officer or attorney in fact as of the date first above written.

ATTACHMENT "F"

Oil Spill Control School

Texas A&M University System

COURSE OBJECTIVES

The purpose of this course is to provide the participants with the information and training necessary for handling an oil spill within the capabilities of available manpower and equipment. To achieve this goal, the Oil Spill Control Course will provide participants with hands-on experience and classroom instruction so that they may work within the framework of the law while maximizing their effectiveness under all spill conditions, and minimizing expense and liability to their companies. It is the School's aim that the participants will be able to:

1. recognize potential spill situations;
2. modify existing contingency plans to make them more current and practicable;
3. establish a supervisory team to execute their contingency plan;
4. organize, train, and direct a response team;
5. recommend and direct the use of proper oil spill equipment, such as skimmers, booms, sorbents, and other tools required to mount an effective spill cleanup;
6. preplan arrangements for additional support equipment and supplies not readily available;
7. establish plans for an effective communications system during a spill, which include radio, telephone, and public address systems;
8. meet legal requirements for properly reporting oil spills;
9. handle effectively the public relations aspects and be aware of the legal implications at a spill scene.

FOR FURTHER INFORMATION, CONTACT:

Oil Spill Control School
Texas Engineering Extension Service
Texas A&M University System
College Station, Texas 77843
(713) 845-2122 or 845-7621

OIL SPILL CONTROL SCHOOL

OIL SPILL CONTROL SCHOOL

conducted by the
TEXAS ENGINEERING EXTENSION SERVICE

of the
TEXAS A&M UNIVERSITY SYSTEM

(48)

KENAI PENINSULA BOROUGH

Box 850 Phone 262-4441
SOLDOTNA, ALASKA 99669

STAN THOMPSON
MAYOR

August 13, 1975

STATEMENTS OF STAN THOMPSON, KENAI BOROUGH MAYOR

AT BLM-OCS HEARINGS

Gentlemen:

I appreciate the opportunity to speak--I hope in some way my views may be helpful.

Before I speak as Boro Mayor of the Kenai Boro I have been asked by the Chamber of Commerce of the City of Kenai to read into the record a resolution they had prepared and passed--so with your permission--this is the Resolution by the Kenai Chamber of Commerce concerning the Outer Continental Shelf.

Now, with your permission, I would like to speak as a 27 year resident of the Kenai area, as a commercial and sport fisherman, as former U.S. Commissioner 8 years, and as a Kenai ex-businessman, but particularly as Boro Mayor of the Kenai Boro.

The Kenai Boro has Alaska's only major producing gas and oil fields. It has, also, the industrial complex of refineries, fertilizer plants, and liquefacation plants that are associated with the oil/gas industry. The Kenai Boro has both offshore and onshore facilities and pipelines--In other words,

the Boro has had the complete impact that can be expected with O.C.S. development.

Historically, Kenai was a small fishing village--in 1948 when I first came to Kenai there were about 350 people that lived there--most of native -Russian heritage. The entire and only real occupation was fishing or working in a cannery--there were 1 or 2 bars and 1 general store and that was it.

During the next 10 years Kenai grew--mostly due to the opening of lands to homesteading to the construction of Wildwood Air Force Base at Kenai, and a connecting road to Anchorage. The village went to about 500 or more people.

Then in approximately 1958 came the oil impact and activity and the town grew to meet the challenge. Slightly after the oil discovery the Kenai Boro (1964) was formed--taking in all of the Kenai Peninsula and the Inlet and the area across the Inlet. The City of Kenai--and the Kenai Boro met the challenges of this impact and of the change of economic conditions without any impact funds--without any increased State or Federal aids and without crying for either. Instead they bonded to build the needed facilities--the Boro bonded for over 12-million, for example, for school construction--They built the necessary schools, etc., and are still paying for them. But the point is--they can afford to pay for them due to the increased assessed values brought on by the oil industry.

For example, the Kenai Borough's assessed value in 1965, exclusive of

oil, was $65,000,000. Today-1975-the total borough assessed value is $700,000,000--an increase of $635,000,000. Of this $700,000,000 the value exclusive of oil properties is $255,233,222.

Based on our experience, impact gifts to cities, boroughs, and least of all to the state does not seem to be necessary. The value of the impact outweighs the cost.

Now there are immediate problems in small cities and boroughs in meeting the impact--sewers, schools, etc. I would recommend an availability of low interest federal loans without the usual federal controls to be made available to the impacted area for their use, if necessary.

In possible cases where the assessed values wouldn't increase to handle the required increased costs the loans could be forgiven.

In any case--any impact funds should go directly to the impacted area and not siphoned off to the state treasury for the state's disposal to the areas that may have the most political clout.

Now in this same connection, I have heard of the tremendous need for planning for this influx of oil activity. The Kenai area's impact was, I believe, orderly and if today, with out 20-20 hindsight-we were to plan for the Kenai oil and gas impact I don't know very much we would or could do to improve on the way that economics dictated, and the way

the plants, pipelines, wells, etc. turned out. There is only a limited amount of possible advantages planning has that can be done in advance.

Kenai Borough has 3 major industries besides oil and gas--#1 fishing, #2 lumbering and #3 Tourists.

Now the fishing industry (of which I have been active in for 20 years and still am) has not really been affected pro or con by the oil industry. The fishing has had a few minor gains and a few minor losses, but they easily balance out and if in any direction--the oil industry has aided the fishing.

#2 Lumbering--has gained to some extent due to better markets and roads. However, there has been a Bore Beetle infestation in many of our spruce trees which was seemingly at least aggravated by the activities of seismographic crews.

Tourism has increased beyond our capacity to handle it at present--and I can find no reason to believe it has in any way been hurt by the oil activity.

Now--it is true that the way of life--or life style, if you would--has been changed. Some feel it's poorer and some better. It is now at a faster pace with more emphasis on salary and goods. However, now there are jobs--good jobs and careers available--and our children are returning to the Kenai from college and high school instead of having to leave to find work as before.

The Boro has been able to build new schools or build additions to most others and maintain our 41 school buildings in A#1 shape--2 with new swimming pools and 1 more pool under construction and 2 more planned--we have one of the most expensive school systems in the nation per capita student and we have done this with the lowest mill rates in the state--5 mills at present. This has been made possible through the assessed values of the oil properties--(it must also be remembered we get no income from the oil or gas production).

I would also like to note that there have been no significant air pollution or major oil spills, and few oil spills (if there were any) that have done any significant damage in all the years of platforms and oil pipelines in the area and also that the Swanson River oil field has located in it one of our most enjoyed wilderness recreation areas--the Swanson Canoe Trails Systems and they seem to be very compatible.

Most of us came here to Kenai to enjoy Alaska and the outdoor environment. We have found that we can enjoy the benefits of the oil industry and retain the enjoyment of wilderness Alaska. They are not incompatible at all.

In conclusion, I feel the Kenai Borough has definitely gained by the coming

of the oil industry--In fact the 2 biggest and most important things that have happened to improve the Kenai area as a place to live has been the opening of the land for homesteading (unfortunately long since stopped) and the entry of the oil industry.

From the viewpoint of orderly transition, I would recommend the federal government look seriously at the possibility of immediate development of lower Cook Inlet. This followed by the Gulf of Alaska, etc. The advantage being that basically all of the services and attitudes necessary are already in place in the Kenai Borough--particularly the Kenai, North Kenai area, and I could see no major disruption or problems from immediate OCS drilling in this area.

I would be pleased to answer any questions that your Committee would care to ask.

Stan Thompson

Stan Thompson, Borough Mayor

FRIENDS OF THE EARTH

DAVID BROWER, *President*

BOX 1796, FAIRBANKS, ALASKA 99707

(907) 479-3684

JIM KOWALSKY, *Alaska Representative*

STATEMENT OF PETER SCHOLES, FRIENDS OF THE EARTH, REGARDING THE SALE DEIS FOR THE PROPOSED OUTER CONTINENTAL SHELF OIL LEASES IN THE NORTHERN GULF OF ALASKA, ANCHORAGE, ALASKA, AUGUST 13, 1975.

I am Peter Scholes, a resident of Anchorage and a member of Friends of the Earth. Jim Kowalsky, Friends of the Earth's Alaska Representative, was unable to be here today, so I am speaking in his behalf. Friends of the Earth is an international organization with many members in Alaska, and it is dedicated to the preservation, restoration, and rational use of the earth.

I appreciate the opportunity to testify here today, and I compliment the Bureau of Land Management on what I believe to be quite a good draft environmental impact state -- certainly a better effort than the programmatic impact statement released last winter.

Friends of the Earth's basic position is that the decision on whether or not to lease as presently proposed should be delayed for at least two years. There are many reasons, I believe, for delaying the decision to lease, and I will elaborate on two of them here.

First, there are a number of planning and legislative developments which are closely related to the sale of OCS leases. The most obvious being the work of Representative Murphy's Select Ad hoc Committee on the Outer Continental Shelf. This committee is considering legislation dealing with revenues, impact funds, etc., and they deserve to be allowed to complete their work in advance of a decision being made about leasing. Other examples include the

State of Alaska's efforts with the Coastal Zone Management Act which will include planning for onshore impacts. Another example is the settlement of the "d-2" provisions of the Alaska Native Claims Settlement Act. In this regard, one of the "d-2" bills now before Congress would create a Wrangells National Park including the Copper River delta, Kayak Island, Icy Bay, and some areas on beyond Yakutat. I believe it is desireable that all of these issues be settled in advance of any decisions about OCS leasing.

The description of the biological environment in the DEIS is divided among producers and consumers, coastal and marine environments, etc., and from this one doesn't get a feeling for the way in which all of of the components of the Gulf of Alaska ecosystem are closely and inextricably interrelated. I am not a biologist, but I don't think that one has to be a biologist to understand what John Muir meant in his oft repeated quote about one thing in the universe being tied to every other thing in the universe.

One example is that of shorebirds and their use of the intertidal zones of the Copper River delta (Copper River flats). According to Islieb and Kessel (1973, see reference in DEIS) in the month of May more than 20 million birds migrate through the area and utilize the 200+ miles of the Copper River flats. Many of these are shorebirds, and, in fact, according to Islieb and Kessel, a great percentage of the entire Alaska populations of western sandpipers, knots, dunlins, dowitchers, and least sandpipers utilize this area in May.

I understand that one of the ecological roles they may play is that of a recycler of nutrients in that they fertilize the flats

with their wastes, thus providing food for the growth of plankton which in turn is utlizied by other creatures higher on the food chain (fish, some invertebrates, whales, etc.). This role as a nutrient recycler is also important for seabirds.

What is the significance of the flats for shorebirds? We know that they feed intensively there and that from the delta the shorebirds fly to their breeding grounds at various points in Alaska. We also know that the condition of shorebirds as they arrive on the breeding grounds is critical for successful nesting.

So what happens if a large oil spill covers a portion of the Copper River flats during the peak of the May migration? How will this affect the condition of the birds on the breeding grounds? What happens to other components of the Gulf ecosystem if the flats are contaminated and no longer utilized by 20 million birds? Will it affect the fishing industry?

The answers to these questions are not known although some of the OCS reserach getting underway this year will help answer some of these questions. Projects getting underway in 1975 for the Gulf include: the food habits of migrant shorebirds, gull reproduction on a barrier island, surveys of wintering seabirds, and hydrocarbon signatures in the pre-OCS development environment. Because of the interrelatedness that John Muir speaks of, these individual projects have a signficance far beyond just the gulls on a barrier island, for example.

These research projects I just mentioned will likely not be complete for at least two more years. One can't simply dump several million dollars in the laps of some scientists and then a few months

later pick up the results. If this money is not to be wasted, then the decision to lease should be delayed for at least two years. I should add that on the basis of some of this research, you should be able to make decisions to lease or not to lease certain areas and predict the consequences -- to some extent -- for birds, fish, people, etc.

I would like to conclude by summarizing several specific recommendations.

1) The decision on whether or not to lease any or specific tracts should be delayed at least two years from the time the sale is now scheduled to take place.

2) The DEIS assigns each lease block a "proximity value" for oil spills and structures based on its distance from significant resource factors. I think this type of analysis could be expanded to include factors in addition to those utilized. A policy decision should be made that blocks that are assigned "relatively high hazard potential" should not be offered for sale given the present data base and circumstances.

3) Our current national energy policy seems to be little more than find all the petroleum we can and use it up as fast as possible. I believe the energy conservation measures as discussed in the DEIS (p.753), coupled with the development of non-petroleum energy alternatives, is the only long term course for the Nation to take.

Thank you for listening to these views. I hope these thoughts, along with all the others you have heard, will be thoroughly considered before the Interior Department makes any far-reaching decisions about OCS leasing.

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TESTIMONY BEFORE THE HEARING PANEL, U.S. DEPARTMENT OF THE INTERIOR

ANCHORAGE, ALASKA

August 13, 1975

I am Robert Richards, Vice President and Economist of the National Bank of Alaska.

In 1961 I received my Bachelor of Arts degree in economics from the University of Washington. In 1964 I received a Masters of Business Administration, specializing in business economics, from the Graduate School of Business, Stanford University. While at Stanford University I studied under Professor Theodore Kreps, a nationally renowned expert in the field of business-government relations. While teaching at the University of Washington I took postgraduate work and completed the Doctoral examinations in the field of "Business, Government, and Society," examining many of the same issues with which the Department of the Interior is concerned.

From June, 1964, to September, 1971, I served as an economist in private industry, then I taught economics at Whitman College and at the University of Washington, and, finally I served as a consulting economist in private practice. In September, 1971, I joined the National Bank of Alaska as economist and have held that position to this date.

am an economist interested in a balanced pursuit of our nation's economic objectives so as to be not only compatible with but indeed conducive to the achievements of our nation's social and ecological objectives, and I am a Westerner and an Alaskan with a great love for the outdoors. Therefore I can unequivocably assert that I am in accord with the full range of objectives of the Department of the Interior. .

When analyzing the Draft Environmental Statement, at least two major defects are observed:

(1.) It fails to consider the effect on the structure of Alaska's economy of expanded petroleum developement in this state;

(2.) When examining the environmental impact of the proposed oil and gas exploration, development, and production in the Gulf of Alaska, its scope is far too narrow.

First, let us take a look at the structural elements of the economic impact.

Heretofore, Alaska's major basic industries have been fishing, construction, forest products, and tourism. These industries are highly labor intensive, highly seasonal, and highly subject to cyclical fluctuations. It is because the private sector of Alaska's economy has been based on these highly volatile, relatively low-wage industries that Alaska's economy has been subject to

/ide swings, and certain areas have faced chronic poverty.

Now, however, we have the opportunity to break out of these low-wage bindings and cyclical disruptions which have plagued Alaska's economic history.

As you know better than I, the petroleum industry is extremely capital intensive. The pipeline, when in operation, will represent a capital investment of over $20 million per employee. This is compared to a pulp mill -- the most capital intensive sector of the forest products industry -- of approximately $800,000 per employee and a fishing vessel of less than $100,000 per employee. Tt is this difference in capital intensity and mainly this difference that explains why a roughneck on a drilling rig earns two to three times as much as a chokersetter in a logging operation in the woods.

Further, because of this extreme capital intensity and the relatively few workers associated with the petroleum industry, public revenue from this industry tends to increase to a greater degree than the need for additional public services. Indeed, an excellent additional illustration of the social benefits of the petroleum industry is the Kenai Peninsula Borough where borough government expenditures per capita are three times the level of those here in Anchorage and nearly 50% greater than the level in the Fairbanks North Star Borough.

Indeed, because the petroleum industry -- a highly capital-

be the vanguard of Alaska's future economic growth, it is my firm conviction that this economic growth will (1) create a more stable private sector and (2) not only be compatible with, but will be conducive to the achievement of the full array of our non-economic objectives: social, cultural, aesthetic, recreational, etc.

Now turning to the second defect of the Draft Environmental Statement; its narrow scope.

When endeavoring to measure the environmental and economic impact of proposed oil and gas production in the Gulf of Alaska, analyzing this project in the context of only Alaska would leave out the greatest part of the impact: the impact on the United States in general. The Department of Interior's task, of course, requires you to focus on the full range of national, social and economic benefits and social and economic costs, and the objective that we all share is to insure that the former exceed the latter.

I think it can be asserted that extraction of oil and gas from the Gulf of Alaska is not only compatible with achieving our nation's environmental objectives, but indeed is conducive to achieving our nation's environmental objectives. A number of factors lead to this conclusion.

1. If we constrain the use of coal and nuclear power because of environmental harm resulting from the development of thse two resources, then this implies an increase demand

pressure on alternative energy sources such as oil and gas.

2. It is estimated that emmission standards for automobiles imposed by the Environmental Protection Agency will increase demand for gasoline by approximately twelve per cent over the next three years.

3. Analysis of the oil seeps in the Gulf of Alaska indicates that the Gulf holds crude oil with a very low sulfur content. If this "sweet" crude in the Gulf of Alaska is not extracted, then a correspondingly greater amount of foreign crude oil must be imported. Because most of the growth in foreign supply is expected to be predominantly "sour" crude (this is, high sulfur crude) additional refineries capable of processing "sour" crude will have to be constructed in the United States, and our country will experience a greater degree of pollution resulting from refining the "sour" crude.

4. Somewhat ironically, at the very time that the Friends of the Earth, the Environmental Defense Fund, and the Wilderness Society were holding up construction of the trans-Alaska oil pipeline, I was in Los Angeles listening to environmentalists bemoaning the fact that more natural gas was not available to enable Los Angeles County to fully implement a program of fuelling county vehicles with natural gas so as to reduce air pollution.

'rankly, in my opinion, in the past there has been a tendency to analyze these projects in too narrow a sense. Ironically, rejecting certain projects on the basis of focusing on the specific environmental costs of the individual project could very will lead to not minimizing the total environmental costs to the nation as a whole. We economists refer to this as sub-optimization. It results from taking too narrow a viewpoint in our analyses of specific projects. Indeed, we are meeting ourselves full circle on this issue, and I would like to re-emphasize that, if we do not develop the oil and gas in the Gulf of Alaska because environmental costs are viewed as too great we must at least acknowledge that we are at the same time increasing environmental costs elsewhere in our country.

To summarize my testimony: I have endeavored to point out to the Hearing Panel that the Draft Environmental Statement (1.) fails to adequately consider the important positive effect on the structure of Alaska's economy from expansion of the petroleum industry in our state and (2.) does not sufficienty indentify or attempt to measure the environmental cost to the rest of the nation of not allowing oil and gas development in the Gulf of Alaska.

Thank you very much. I appreciate your taking time and considering my testimony.

Robert R. Richards

Vice President and Economist

(52)

CHUGACH NATIVES, INC.
TESTIMONY ON OCS LEASE SALE
ANCHORAGE 8-13-75

MY NAME IS RICHARD JANSON, EXECUTIVE DIRECTOR FOR CHUGACH NATIVES, INC.

WE REQUEST A DELAY IN THE LEASE SALE IN THE GULF OF ALASKA; WE FEEL THAT THE STUDY ON THE IMPACT ON SHORE IS NOT ADEQUATE.

CONTINUED AND MORE EXTENSIVE STUDIES OF THE OCEAN CURRENTS IN THE PROPOSED LEASE AREA SHOULD BE DONE SO THAT ON SHORE DRIFT CAN BE DETERMINED THEREBY FIXING THE AREA THAT COULD CAUSE THE MOST DAMAGE ON SHORE, AND WE PROPOSE THESE AREAS NOT BE PUT UP FOR SALE.

THE STUDY ASSUMES THAT THE PLATFORMS WILL BE BUILT OUT OF STEEL AND OUTSIDE OF ALASKA. THIS THEN WOULD HAVE LITTLE IMPACT ON ALASKA BUT THE NORTH SEA DETERMINED THAT CEMENT PLATFORMS WERE THE BEST. THEY MUST BE BUILT CLOSE TO THE LOCATION AND TAKES MANY ACRES OF FLATLAND AND LOTS OF AGGREGATE. IF THIS BECOMES THE CASE IN ALASKA, THIS WOULD HAVE A BIG IMPACT ON SHORE. THE STUDY SHOULD CONTEMPLATE THIS POSSIBILITY AND ADDRESS IT AS SUCH.

WE FEEL THAT THIS DEVELOPMENT WILL HAVE A DEFINITE IMPACT ON OUR LANDS, OUR CITIES AND VILLAGES THAT ARE ADJACENT TO THE PROPOSED DEVELOPMENT. WE NEED TIME TO PREPARE FOR THIS IMPACT.

WE FEEL THAT THESE ARE JUST A FEW OF THE REASONS FOR DELAY, THEREFORE, IT IS OUR FEELING THAT A DELAY IS NECESSARY.

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Testimony of: Frank A. Tupper

Representing: Kachemak Bay Defense Fund

Submitted to: U.S. Dept. of Interior

O.C.S. Public Hearing on Northern Gulf of Alaska

Date: August 13, 1975

Anchorage, Alaska

Judge Mesch, and distinguished members of the Hearing Panel;

The tragic events leading to the leasing and sale of Alaskan land for oil & gas exploration in Kachemak Bay have a direct corolation to the proposed leasing of the Interior Department for the Gulf of Alaska.

Kachemak Bay is like no other body of water in the world. It is a gross understatement to claim that it is unique. Kachemak Bay is not typical in any sense of the word.

Unfortunately, the problem that the Bay faces is sadly typical. It is a Bay in crisis, brought about by crisis, with the net result of long term crisis.

Kachemak Bay lies at the southerly end of the Kenai Peninsula, adjacent to Cook Inlet, stretching 23 miles in length, and 3 miles in width. It is pure. It is clear. It is abundant in marine life. It is a tourist mecca. It is steeped in historical and archeological values. It is beautiful, and it is home. But most important - IT IS THREATENED.

In Dec. 1973, Kachemak Bay for all its worth and wealth, was sold out for a mere $25 million at an oil lease sale, conducted by the State of Alaska, upon the request of the major oil industries.

The sale and the events that have followed, distinguished members of the Hearing Panel, are but a microcosm of O.C.S. and should be an impressionable lesson of historic significance for you to recoginize and to avoid. Representation, protection, participation, candor conservation, and wisdom are the hallmarks of a truly democratic government and society. They do not always spell progress on the tally boards of Wall Street. Nor should they if necessary. But your assignment must be one of exercising logic, clear judgments and rational thought process, not a blind allegiance to some damn fool slogan of "operation independence" initiated by our gluttony of consumptive indigestion causing the malady of "energy crisis".

Kachemak Bay, not unlike the Gulf of Alaska, is abundant with renewable & non- renewable resources; hazzardous weather conditions, and geologically dangerous strata.

The residents of Homer and Seldovia, upon learning of the oil leases chose a course that would lead to a remedy. We requested that our state move cautiously and protect the area, the economy, the lifestyle and the resources. Our politicans had mired in the prospects of "black gold" far too long. The former Governor, the Commissioner of Natural Resources and

unquestioning staff, were so arrogant as not to even post notice of the sale in our area, nor was there even an economic and environmental finding conducted to see if the sale was in the best interest, and the final insult hurled from the lofty peaks of Juneau and Anchorage was the denial of a requested public hearing on the land to be leased prior to the sale.

Democracy and representation had been perverted and the peoples land would be leased without their knowledge or consent.

This issue is presently lying on the doorstep of the Alaskan Supreme Court, whose ultimate wisdom and justice we seek. The public sector was unable to obtain the protection of their land and existing resources without the recourse of having to initiate litigation. The public was unable to get a badly needed moratorium on drilling for the purpose of conducting necessary scientific studies of the Bay and the communities to be effected without the need of going to court. The public was unable to protect and espouse their Constitutional rights without entering into litigation. Why must these studies be conducted "post facto" and in an expeditious manner?

We were advised by our political leaders and educators to take an active part in the political and administrative process of government. We did. Four hearings were held, but to what avail? When the die is cast, be it in Juneau, Washington, or Houston, the public has little chance of having any meaningful impact on the planning process, save for accepting the fate, selling out and moving on, or plant your feet on the facts and moral convictions, and fight. In Homer, we have chosen the latter, and we will prevail no matter what the odds. However, it does seem a shame tha in our historically evolved society, that this is the needed course of action that seems to be the most effective.

The action taken by the State was wrong, dead wrong, and it will eventually be corrected for Kachemak Bay and its' rich crab and shrimp sanctuaries must be protected from the high and proven risks that oil exploration and development will spawn.

Other Alaskan communities, faced with similiar destructive environmental, social, cultural and economic impacts, can and must do the same to protect their rights, their values, and their interests.

In other areas of our State, the threat posed by O.C.S. development, merits the

communities do not sink into the abyss of the industries lust and bullish destructive tactics.

Time and again small towns and villages who quietly lie in the Alaskan fallow fields of abundant resources or choice land for industrial development, await with a sense of impending doom, the sentence to be handed down, or forced down, in the burzaucratic fashion that we have witnessed and tolerated for far too long. The situation must be reversed.

When government fails to be responsive and responsible to the needs, protection and dissemination of information to such communities and their people, moral discipline gives way to myopic vision; citizens have no other recourse and alternative than to vigorously oppose such injust actions.

Such acts of arrogance and the betrayal of citizens rights and public trust were performed on Kachemak Bay. Some of those persons who were charged, through the electoral and appointive process of protecting the rights and land of the people, and who in turn, acquiesced in their line of duty, are here before you testifing today. Such a mockery. Such a farce.

I would take this opportunity today to call upon those Alaskan Coastal communities, who are being adversely affected by any unplanned, covert rush to develop, exploit and sacrific the land and community of man and nature, to join forces and collective talents in forming an Alaskan Alliance of Coastal communities to protect the land they love and respect, and have come to view as a community, not a commodity. O.C.S. is but one of the challanges that stand on the threshold, there will be others for decades to come. But collectively, we can insure that orderly, wise and rational development through planning stemming from the people on down, rather than the other way around, will be a goal that will serve the best interests of us all.

Many Alaskans have come to develop a deeply ingrained distrust and distain for governmental agencies, bureaus and their respective lip service through the existing excersise of public hearings. For the simple reason that no one really listens, and no one really has security based on devotion to the principle of rational thinking, to act on behalf of the people.

A legacy of lies, half truths and selfish motivations on behalf of a few at the expense of many, have with great reason, caused many Alaskans to fear the combined powers of

large extractive industries, compromising small town business men, mayors and elected officials and lawyers who are emersed in the mire of the frontier exploitive ethic.

Prior to Statehood, the Federal government was charged with protecting wilderness and our bountiful natural resources. Since we have joined the Union, we have also joined the inane rush to ruination and a loss of the serenity, sparce population and scenic wonderment we use to believe was the "last frontier".

The Dept of Agriculture has, through a lax permit granting and basically unregulated conservation controls, allowed Southeastern and now Southcentral, to be cleared to the waters edge of timber.

More recently, the Dept. of Interior has sanctioned an oil pipeline bisecting and usurping all that IS Alaska, impacting both man and nature at every conceivable level, with a promise of more to come, namely O.C.S.

We, (Alaska, her people ,resources and beauty) stand in the maw of Washington, expected to be rapidly devoured by the omniverous jaws of a carcenogenic society, whose government underwrites the sanctions and justifications for such "crimes" against our beloved state.

Profit seeking industries do not invest themselves in seeking a halt to such consumption. Esthetics, lifestyle, serenity, and remoteness are something to be conquered. They will be smothered by the blanket of profit priorities.

The Federal government and large coporate industries, spend millions of dollars trying to build and buy the publics' trust under the hearlded banners of patriotism, operation independence, free enterprise and the common good, Slogans such as; "progress is our most important product"; "we're working to keep your trust"; and "we want you to know", are but salves to the innocent and insults to the informed.

We have built and created the box-like trap to which we now refer to as "the energy crisis". Not unlike the dreaded disease of cancer, we are the consumming cells devouring energ supplying resources in a maniacal frenzy, with no real efforts to conserve. It would appear that our appetite can not be satiated.

In Alaska, our cities, small towns, uninhabited areas, scenic splendor and lifestyle of a simplistic yet rugged and sometimes spartan design, are now being called upon to

ould we be obligated to be another sacrificial lamb on the alter of the Interior Dept. expeditied O.C.S. lease schedule?

We can fully realize that every technological advantage has a comparible cost, that can be reflected by a given dependency. Yet we ignore the debt we owe to the land for the costly effects of what little we really gain.

Perhaps in a futile attempt to appeal to your postponing the lease sale in the Gulf and then Cook Inlet, I would strongly condemn the fact that in the more than 1300 page E.I.S. you devote but a meger 30 pages to onshore impact, land use, socio-economic effects, and no mention of construction, and service bases on shore that will be of significant impact. Also, I failed to see any reference to the cumulative effects on the environment of the Gulf and their long range implications.

Not unlike Kachemak Bay, you are trying to play "catch-up ball" with rushed scientific baseline studies on a vast area where so little is known and time is the only factor. But that is not in the best interest of "Operation Independence" now is it?

Perhaps it is long overdue, but I remain optomistic that it will be forth-coming when the government and the oil industry develop resources and meet the plans and desires of the citizens on their local level and not expect in the existing arrogant and perverted fashion of having the public rise to the wishes of the industry and government.

It is high time for Alaska to tap its human resources, and develop an inventory of petroleum resources, where they lie, and what causal effects there might be in exploring and developing these resources upon the land and the people, and then telling the industry on what conditions and where they may commence operations.

In closing, perhaps it is a most profound observation when one reflects that the battle to save Kachemak Bay comes at a time when we as a nation pay homage to the spirit of revolution against an oppressive government that took away our human rights in 1776. What arted in Bostons' harbor, is alive and well in Kachemak's Bay.

Thank you for your time, and allowing me the opportunity to testify.

Frank A. Kappen

(55)

STATEMENT OF DUANE R. BARTELS
AREA LANDMAN, EXPLORATION-OFFSHORE AREA
CONTINENTAL OIL COMPANY
HOUSTON, TEXAS

AT THE BUREAU OF LAND MANAGEMENT HEARINGS
ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR OUTER CONTINENTAL SHELF LEASING
IN THE NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA - AUGUST 12-13, 1975

My name is Duane R. Bartels. I am Area Landman for the Exploration-Offshore department of Continental Oil Company, Houston, Texas. I supervise the acquisition and administration of oil and gas leases acquired in all of the frontier areas of the O.C.S. of the United States and on all lands in the State of Alaska. From 1968 thru July 1973 I had the pleasure and enjoyment of living in Anchorage while working for Continental Oil Company. During that time I became familiar with the many cultures and the rich environment of this great state. Being aware of the industry's interest and ability to protect the environment, I am convinced the O.C.S. of the Northern Gulf of Alaska should be developed if industry finds commercial quantities of oil and gas. Continental Oil Company is a member of the Gulf of Alaska Operator's Committee and the Alaska Oil and Gas Association and wholly subscribes and supports the testimony presented by ~~those two organizations~~ THE G.O.A.O. Committee. In addition I have the following comments in behalf of Continental Oil Company, all in support of holding the lease sale in the area covered by your Draft Environmental Impact Statement.

First, you and your staff are to be commended for the comprehensive preparation of the Draft Environmental Impact Statement covering the proposed oil and gas leasing in the Northern Gulf of Alaska. It appears that few "stones" were left unturned with respect to your accumulation of data. For example, the statement recognizes the possibility of an oil

SPILL. WE IN THE INDUSTRY ALSO RECOGNIZE THIS POSSIBILITY ALTHOUGH WE BELIEVE IT TO BE HIGHLY UNLIKELY.

IN ANY EVENT YOU MAY BE ASSURED THAT THE INDUSTRY WILL TAKE WHATEVER STEPS THE LATEST TECHNOLOGY HAS DEVELOPED TO PREVENT SUCH A SPILL; BUT, SHOULD A SPILL OCCUR, THE INDUSTRY WILL USE THE LATEST TECHNIQUES AND EQUIPMENT AVAILABLE TO MINIMIZE ANY ADVERSE IMPACT.

A CONSIDERABLE PORTION OF YOUR DRAFT IS VERY POSITIVE AS TO THE ADVERSE IMPACT SHOULD AN OIL SPILL TAKE PLACE. WE BELIEVE THAT THE FINAL ENVIRONMENTAL IMPACT STATEMENT SHOULD GIVE GREATER EMPHASIS TO THE REDUCTION OF SUCH IMPACT BY WIND AND WAVE ACTION, PARTICULARLY IN THE GULF OF ALASKA, AND BY THE USE OF OIL SPILL AND CONTAINMENT EQUIPMENT BY THE INDUSTRY.

WE ALL NEED TO STRIVE FOR CLEAR AND COMPLETE STATEMENTS TO PREVENT THE PUBLIC FROM BECOMING MISLED, CONFUSED AND THEREFORE RELUCTANT TO COMMIT TO A POSITIVE PROGRAM FOR THE DEVELOPMENT OF AN ADEQUATE ENERGY SUPPLY.

IT IS UNFORTUNATE THAT THE WORD "IMPACT" IS USUALLY IDENTIFIED WITH NEGATIVE EFFECTS. LITTLE IS SAID ABOUT THE POSITIVE SIDE OF AN IMPACT, PARTICULARLY THAT WHICH TAKES PLACE EVERYDAY, UNNOTICED, AND THEREFORE IS REALLY NOT FULLY APPRECIATED UNTIL IT IS DISRUPTED OR NO LONGER AVAILABLE. WITH THIS THOUGHT IN MIND, IT SHOULD BE RECOGNIZED THAT A CONSIDERABLE PORTION OF THE ESSENTIAL DAILY NEEDS OF THE PEOPLE LIVING IN ALASKA DEPENDS UPON

GOODS AND SERVICES BEING PRODUCED IN AND SUPPLIED FROM THE "LOWER 48". ACCORDINGLY, ANY ENHANCEMENT THAT MAY BE OBTAINED IN OUR NATION'S ENERGY SUPPLY, THRU DEVELOPMENT OF WHATEVER COMMERCIAL DEPOSITS OF OIL AND GAS THAT MAY BE FOUND ON THE OUTER CONTINENTAL SHELF OF ALASKA OR FROM ANY OTHER FRONTIER AREAS OF THE UNITED STATES, WILL CERTAINLY PROVIDE A POSITIVE IMPACT TO THE OVERALL ECONOMY OF THE STATE OF ALASKA AND THE NATION.

THUS THERE IS MORE TO THE IMPACT FROM THE ANTICIPATED DEVELOPMENT THAN STATE VS. NATIONAL OR NATIONAL VS. STATE AND; THEREFORE, CONSIDERATION SHOULD BE GIVEN TO THE TOTAL IMPACT--NOT JUST TO ADVERSE EFFECTS TO ALASKA OR JUST TO THE PROPITIOUS EFFECTS TO THE "LOWER 48". WE ARE ALL IN IT TOGETHER--SO GOES ENERGY--SO GOES THE STATE AND SO GOES OUR NATION.

AS HAS BEEN SAID TIME AND TIME AGAIN, ONLY EXPLORATORY DRILLING WILL ANSWER THE QUESTION AS TO WHETHER OR NOT THERE IS OIL AND GAS IN THE AREA. SHOULD OIL AND GAS BE FOUND, THEN ONLY ADDITIONAL DEVELOPMENT DRILLING WILL PROVIDE A BASIS FROM WHICH TO PROJECT WHETHER OR NOT THERE ARE ADEQUATE RESERVES TO JUSTIFY ESTABLISHMENT OF PRODUCING FACILITIES. ONLY AFTER PRODUCTION FACILITIES ARE INSTALLED, FOLLOWED BY ADDITIONAL DRILLING AND PRODUCTION WILL YOU BE ABLE TO PROJECT THE PERIMETERS AND QUALITY OF THE RESERVOIR, FROM WHICH AN ACCURATE ESTIMATE MAY THEN BE MADE AS TO THE AMOUNT OF RECOVERABLE RESERVES; HOWEVER, THE EXACT AMOUNT OF RECOVERY WILL NOT BE KNOWN UNTIL THE

RESERVOIR IS NO LONGER CAPABLE OF ECONOMIC PRODUCTION.

CURRENT INDUSTRY INTEREST VERY WELL REFLECTS THE HIGH POTENTIAL FOR ECONOMIC PRODUCTION FROM THE GULF OF ALASKA; HOWEVER, SHOULD THE RESULTS OF THE EXPLORATORY DRILLING BE NEGATIVE AND NOT WARRANT THE ESTABLISHMENT OF PRODUCING FACILITIES, THE STATE OF ALASKA, THE "LOWER 48" AND OUR NATION NEED TO BE MADE AWARE OF THIS, AS SOON AS POSSIBLE, IN ORDER TO APPROPRIATELY MODIFY SUBSEQUENT PROGRAMS LEADING TO BECOMING A SELF-SUFFICIENT ENERGY NATION.

EXTREMELY IMPORANT THAT WE KNOW SOON IF THE FRONTIER AREAS, WHICH HAVE NOT BEEN EXPLORED, WILL CONTRIBUTE TO OUR SUPPLY OR WILL BE BARREN. WE WILL NEVER KNOW HOW COSTLY DELAYS, CAUSED BY LAW SUITS, OVER-REACTION, STRICT INTERPRETATION OF LAWS, (EVEN THOUGH WELL INTENDED) AND ORDINARY OBSTRUCTIONS HAVE HINDERED THE DEVELOPMENT OF OUR NATION'S ENERGY SUPPLY, AND DIRECTLY OR INDIRECTLY HAVE INCREASED COSTS OF CRUDE PETROLEUM. SUFFICE IT TO SAY THAT WE HAVE PAID A DEAR PRICE TO BECOME ENVIRONMENTALLY AWARE.

IN THE EARLY HEARINGS HELD FOR SALES IN THE GULF OF MEXICO WE HEARD OPPOSITION PREDICT DIRE CONSEQUENCES FOR CONTINUED SALE OF LEASES IN THAT AREA. FORTUNATELY, THESE PREDICTIONS HAVE NOT MATERIALIZED AND AT THE RECENT HEARINGS, OPPOSITION HAS PRACTICALLY DISAPPEARED. HEARINGS FOR FRONTIER AREAS SUCH AS THE GULF OF ALASKA ARE A MUST AND CAN BE VERY BENEFICIAL, BUT SUCH HEARINGS SHOULD NOT BE USED AS A VEHICLE TO PROMOTE FURTHER NEEDLESS DELAY FOR DELAY'S SAKE. THE STATE OF ALASKA CAN BECOME THE NATION'S LEADING OIL PRODUCING STATE WITH THE POTENTIAL OF BECOMING ONE OF THE LEADING OIL PRODUCING AREAS OF THE WORLD. THE BENEFITS TO THE PEOPLE OF THE U..ITED STATES CAN BE ENORMOUS AND ALL THIS CAN BE

ALASKA FOR THE PAST 8 YEARS. I AM HERE TODAY REPRESENTING THE AMERICAN ASSOCIATION OF PETROLEUM LANDMEN AS A MEMBER OF OUR ORGANIZATION'S BOARD OF DIRECTORS.

THE AAPL IS AN ORGANIZATION OF OVER 5000 PROFESSIONAL LANDMEN FROM BOTH THE CORPORATE AND INDEPENDENT SECTORS OF THE PETROLEUM AND MINING INDUSTRIES IN THE UNITED STATES AND CANADA. OUR EXECUTIVE OFFICES ARE LOCATED IN FORT WORTH, TEXAS, BUT MANY OF OUR MEMBERS RESIDE IN THIS AREA AND COUNTLESS OTHERS ARE ENGAGED IN PETROLEUM RELATED ACTIVITIES OFFSHORE AND ONSHORE ALASKA. OUR ORGANIZATION STRONGLY SUPPORTS THE SCHEDULING OF SALE #39 AT THE EARLIEST POSSIBLE DATE.

AAPL HAS HAD REPRESENTATIVES APPEAR IN PERSON OR HAS SUBMITTED WRITTEN STATEMENTS FOR THE RECORD AT EACH PUBLIC HEARING HELD BY INTERIOR FOR OCS SALES BEGINNING WITH YOUR FIRST HEARING IN JULY 1970 AT NEW ORLEANS. WE ALSO HAVE COMMENTED ON "PROPOSED RULE MAKINGS: WHERE THE INTERESTS OF OUR MEMBERSHIP HAVE BEEN INVOLVED. THESE HEARINGS FOR OCS SALES HAVE SERVED TO HIGHLIGHT OUR NATION'S ENERGY SHORTAGE, FURTHERED UNDERSTANDING OF THE PROBLEMS OF THE OFFSHORE PETROLEUM INDUSTRY BOTH IN THE PUBLIC AND PRIVATE SECTORS, AND HAVE PROMOTED ENVIRONMENTAL AWARE-NESS ON THE PART OF EVERYONE. AT THE SAME TIME, THEY HAVE CAUSED COSTLY

(57)

AUGUST 12, 1975

MANAGER
ALASKA OUTER CONTINENTAL SHELF OFFICE
BUREAU OF LAND MANAGEMENT
ANCHORAGE, ALASKA

DEAR SIR:

MY COMMENTS WILL BE BRIEF IN THE INTEREST OF THOSE WHO HAVE SAT THROUGH THIS LENGTHY HEARING.

OUR FIRM PRESENTLY HAS AN ALASKAN PAYROLL OF IN EXCESS OF 60 PERSONS. WE WERE THE LARGEST ENGINEERING FIRM IN ALASKA PRIOR TO THE ALASKA PIPELINE. BECAUSE WE ARE NOT WORKING UNDER ANY OIL INDUSTRY CONTRACT PRESENTLY WE HAVE BEEN SURPASSED IN SIZE BY SEVERAL OTHER ENGINEERING FIRMS HOLDING SUBSTANTIAL OIL INDUSTRY CONTRACTS.

FIRST, I WOULD LIKE TO ENTER INTO THE RECORD PAPERS WRITTEN BY TWO WELL-KNOWN ENGINEERS. I HAVE NO BUSINESS RELATIONSHIP WITH EITHER ENGINEER BUT I AM CERTAIN THAT EACH ENGINEER SPEAKS WITH A CONSIDERABLE BACKGROUND OF KNOWLEDGE ON THE SUBJECTS OF ENERGY AND OUR ENVIRONMENTAL REGULATIONS. THE FIRST ARTICLE IS A TRANSCRIPT OF A TALK BY DAVID R. WILLIAMS, JR., PUBLISHED IN THE CLEVELAND "PLAIN DEALER". THE SECOND

IS AN ARTICLE PUBLISHED BY STAN KAPPE WHO IS PRESIDENT OF OUR AMERCIAN ACADEMY OF ENVIRONMENTAL ENGINEERS, OF WHICH I AM A MEMBER.

THE THIRD ARTICLE PUBLISHED IN LAST SUNDAY'S ANCHORAGE TIMES WAS WRITTEN BY FORMER SPEAKER OF THE ALASKA HOUSE OF REPRESENTATIVES, TOM FINK. THESE THREE ARTICLES SPEAK ALMOST AS ONE VOICE ABOUT THE ENERGY CRISIS NOW BEFORE US AND THE NEED TO BRING SOME COMMON SENSE INTO THE PROCESS OF ENVIRONMENTAL MANAGEMENT AND CONTROLS. MR. FINK RAISES THE POINT THAT IF ALL PROJECTS THAT CREATE ECONOMIC BENEFIT MUST PREPARE ENVIRONMENTAL IMPACT STATEMENTS OUTLINING THE VARIOUS TRADE-OFFS OF ENVIRONMENTAL AND SOCIAL FACTORS RELATIVE TO THE PROPOSED PROJECT, IS IT NOT ONLY FAIR THAT THOSE ORGANIZATIONS THAT OPPOSE PROJECTS ON AN ENVIRONMENTAL BASIS SUBMIT STATEMENTS, IN GREAT DETAIL, SETTING FORTH THE POSSIBLE ECONOMIC AND SOCIAL EFFECTS (BOTH NEGATIVE AND POSITIVE) OF THEIR PROPOSED ENVIRONMENTAL CONTROLS.

THIS LEADS TO ANOTHER POINT THAT I WOULD LIKE TO MAKE THAT RELATES TO THE VERY BASIS OF BUSINESS AND GOVERNMENT SUCCESSES AND FAILURES. I SUBMIT THAT IN THE PAST GENERATION WE HAVE PASSED FROM A RELATIONSHIP OF TRUST AND GOOD FAITH TO A SYSTEM THAT IS BASED TO A GREATER EXTENT UPON DISTRUST AND LACK OF FAITH IN OUR BUSINESS AND GOVERNMENT COMMUNITIES.

THIS SEEMS TO BE A PROGRESSIVE PROCESS IN BOTH THE BUSINESS AND GOVERNMENT SECTORS. THE MENAGERIE OF FEDERAL GOVERNMENT RULES, REGULATIONS, ETC., THAT ARE SELDOM, IF EVER, EVEN PARTIALLY UNDERSTOOD, LET ALONE ENFORCED, MOST CERTAINLY CREATES A GREATER BURDEN UPON THE HONEST CITIZEN AND BUSINESSMAN WHO IS TRYING TO OBEY THESE LAWS AND REGULATIONS AND WHO HAS TO PAY THE SALARIES OF THOSE PAID TO ADMINISTER THESE REGULATIONS THAN IS THE BURDEN UPON THE DISHONEST BUSINESSMAN WHO IGNORES ALL THESE RULES AND RISKS GETTING CAUGHT WITH THE PROBABLE RESULT THAT HE WILL RECEIVE ONLY A LIGHT TAP ON THE WRIST.

WOULD IT NOT BE MUCH BETTER IF WE HAD FEWER LAWS, RULES AND REGULATIONS AND "COME DOWN HARD" ON THOSE WHO DISREGARDED THESE SIMPLER RULES? UNTIL 30 YEARS AGO AN ENGINEER WAS USUALLY GIVEN A BUDGET AND A PURCHASE ORDER BOOK AND TOLD TO "BUILD IT". THE TASK WAS ALMOST ALWAYS SUCCESSFULLY ACCOMPLISHED WITHOUT THE BENEFIT OF AN "ENVIRONMENTAL IMPACT STATEMENT" AND THE OTHER MULTITUDE OF REQUIREMENTS.

I SUBMIT THAT THE ALCAN HIGHWAY WOULD NEVER HAVE EXTENDED BEYOND EDMONTON WERE THE SAME RULES, REGULATIONS, ETC., IN FORCE THAT ARE IN EFFECT TODAY. THIS WOULD NO DOUBT ALSO BE TRUE OF THE OLD RICHARDSON TRAIL (NOW THE RICHARDSON HIGHWAY) AS WELL AS OTHER HIGHWAYS IN ALASKA.

WHAT WAS THEN CONSIDERED TO BE A NATIONAL NECESSITY WOULD TODAY BE CONSIDERED AN "ENVIRONMENTAL DISASTER". TODAY THE SCARS IMPOSED UPON MOTHER NATURE BY THAT HIGHWAY HAVE ALMOST ALL HEALED AND TRAVELING THAT HIGHWAY TODAY DOES NOT PRESENT A VIEW THAT REFLECTS AN "ENVIRONMENTAL DISASTER".

ABOUT 30 YEARS AGO OUR AMERCIAN SOCIETY OF CIVIL ENGINEERS BOASTED THAT NONE OF OUR MEMBERS HAD EVER RECEIVED A CRIMINAL SENTENCE. THIS MAY NOT BE TRUE TODAY BUT I BELIEVE THAT THE ENGINEERING PROFESSION STILL RANKS EXTREMELY WELL IN THAT CATEGORY. (AT LEAST COMPARED TO ANOTHER PROFESSION THAT IS WRITING MANY OF THE LAWS, RULES AND REGULATIONS). WOULD IT NOT MAKE MORE SENSE AS A STATEMENT OF NATIONAL POLICY IF WE WERE MORE TRUSTFUL OF THOSE WHO ARE TRYING TO ACCOMPLISH A BENEFICIAL TASK?

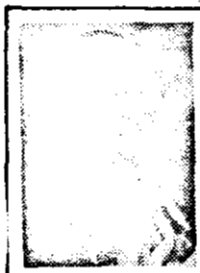
MY FINAL POINT IS THAT YOU HAVE NO DOUBT HEARD MUCH FROM THOSE WHO BELIEVE THAT PRISTINE ALASKA WILL BE DEVASTATED BY THE "GREEDY OIL INTERESTS" FROM THE "LOWER 48". I SUBMIT THAT NEARLY EVERY ALASKAN COMMUNITY HAS RECEIVED MANY BENEFITS FROM PUBLIC WORKS TO THE EXTENT THAT THESE COMMUNITIES PRESENTLY ENJOY SCHOOLS, AIRPORTS, HARBORS, DOCKS, WATER AND SEWER SYSTEMS, STREETS, HIGHWAYS, COMMUNITY HOSPITALS, PUBLIC BUILDINGS, MORTGAGE MONEY FOR HOUSING AND MANY OTHER

FACILITIES, THAT HAVE BEEN SUPPLIED LARGELY THROUGH TAXATION AND FINANCIAL SUPPORT FROM THE "GREEDY OIL INDUSTRY" AND OTHER "SOUTH 48" TAXPAYERS. ANCHORAGE CERTAINLY WOULD NOT BE THE CITY IT IS TODAY (AND I BELIEVE IT IS A GREAT CITY TO LIVE AND WORK IN) WITHOUT THE NEARLY A HALF BILLION DOLLARS IN FEDERAL DISASTER FUNDS FOLLOWING THE 1964 EARTHQUAKE. NO DOUBT ALASKA WILL TAKE A FEW LUMPS FROM ENVIRONMENTAL IMPACTS FROM GULF OIL ACTIVITIES IF A PROVEN FIELD IS DEVELOPED. PERHAPS WE WILL HAVE TO GET A DICTIONARY OF TEXAS LINGO IN ORDER TO COMMUNICATE WITH NEWCOMERS TO ALASKA. OUR OWN FIRM HAS RECEIVED LITTLE DIRECT BENEFIT FROM THE OIL INDUSTRY IN ALASKA, AND, IN FACT, PRESENTLY HAVE NO CONTRACTS WITH THE OIL INDUSTRY. NEVERTHELESS, I BELIEVE THAT THE OFFSHORE LEASES PRESENT AN OPPORTUNITY FOR ALASKANS TO AT LEAST PARTIALLY REPAY OUR "SOUTH 48" NEIGHBORS WHO HAVE SUPPORTED MOST OF THE COMMUNITY FACILITY DEVELOPMENTS THAT ARE IN EVIDENCE TODAY.

ONE OF THE MOST IMMEDIATE PROBLEMS THAT I SEE IN ALASKA IS THAT OF DEFINING THE ROLE THAT OUR FEDERAL, STATE AND LOCAL GOVERNMENTS SHOULD PLAY. MOST PERSONS IN ALASKA WOULD AGREE THAT THE ROLE THAT OUR POLITICAL SYSTEM SHOULD PLAY IS THAT OF HELPING OUR CITIZENS TO HELP THEMSELVES AND NOT THE ROLE OF ATTEMPTING TO "DO EVERYTHING FOR EVERYBODY". IF OUR

POLITICAL SYSTEMS WILL PROVIDE GUIDANCE AND DIRECTION WITHOUT USURPING THE ROLE OF PRIVATE ENTERPRISE AND THEREBY ALLOW OUR RESIDENTS TO DEVELOP AND UTILIZE THEIR OWN ABILITIES AND INITIATIVES THAT ARE PART OF OUR "PIONEER SPIRIT", ALASKA WILL NOT ONLY SURVIVE AFTER THE GULF LEASES ARE ISSUED, IT WILL THRIVE!

FRANK NYMAN
PARNTER, TRYCK, NYMAN & HAYES
(AN ALASKAN FOR 26 YEARS)



Environmental Controls Costly To Consumers

By Tom Fink

TODAY WE HAVE truth in lending, truth in packaging, truth in advertising and other "truth in" laws to protect the consumer. The purpose of these laws is to require the expression of costs and services in a language which is understandable and comparable. Hopefully, these laws will allow the consumer to make a choice as to the costs and services he uses.

One area today that affects the consumer's pocketbook to a great extent is completely devoid of the "truth in" principle. In the area of environmental costs the consumer is left in the dark. The consumer has no opportunity to compare, select or reject.

I BELIEVE the public is entitled to know, for example, the cost per gallon of gas as a result of the environmental controls on the trans-Alaska Pipeline. When the line is completed the costs ought to be computed. We ought to know if it's one cent a gallon, 10 cents a gallon, or 25 cents a gallon. We ought to know the increased cost per average home for heating fuel and the increased cost per average home for electricity as the result of the environmental controls placed on the trans-Alaska Pipeline.

The public is entitled to know the costs per average car for the auto emission controls that have been placed on motor vehicles in the past few years. If the cost is $1,000 per car, I suspect that most Americans, except those living in smog-ridden Chicago and Los Angeles, will believe that cost is too high for the benefits received.

The consumer is entitled to know the average cost of the increased electricity bill, which is directly connected to environmental controls placed on utility plants. The cost of cleaning smokestack emissions and cooling water ought to be translated to an average increase in utility costs for a home.

ABOUT A YEAR ago, Mr. Train, head of the Environmental Protection Agency, estimated that the cost for environmental clean-up of utility plants in the United States would be something like $27.5 billion. This figure is meaningless to the consumer. We need to know if it will raise our light bills by $5 a month, $20 a month, $40 a month or whatever the figure is.

When an environmental agency builds buffer zones into subdivisions for esthetic purposes, we ought to be told the increased cost per home built in that subdivision as a result of that imposition.

Needless to say, we ought to know in advance of the imposition of the environmental restriction what the unit cost will be.

All of us, generally are in favor of cleaning up the environment in which we live. I believe if we had a unit cost of some of these laws and regulations, the public would decide that some of the benefits do not equal the cost.

Also prior to the imposition of environmental controls, the more difficult but equally large unit-cost figures should be attributed to a program or project. We should know how many people will become unemployed as a result of the controls.

Many plants have been shut down because of the high cost of controls. The sales of automobiles have not met expectations, partially due to environmental costs, and employes have been laid off. Steel plants have been closed because of the controls. We should know how much of the increased food production costs are due to environmental controls.

We are entitled to know the unit cost of energy that is attributable to our failure to develop coal in the western United States.

IN OUR hell-bent chase of the pristine environment, we have lost all sense of balance. I am not suggesting that all environmental rules, laws and regulations are improper. Some of them probably are, but the public has no way to measure or to make a decision of acceptance or rejection because we are not getting a unit cost which is meaningful to anyone.

The truth-in-lending law enables each consumer to make a comparison of interest or finance charges by any type of institution. The consumer then may purchase or not purchase for he has a rational basis to make a decision.

I estimate, without supporting statistics, that a third of our inflationary spiral is directly attributable to environmental costs. Not one day goes by but that part of the income of each American is spent to pay for various environmental controls. There are not any costs today across the country as significant to each of us as the extremely high costs of the environmental controls.

I suggest that we need a law or regulation which will give us the "truth in" environmental costs.

Tom Fink is former speaker of the Alaska House of Representatives and a veteran Republican legislator from Anchorage.

Letter

Bob: This is what all civil Sanitary Engineers have been saying all along but not as strongly as Kappe. We are going to hear more of this!!

The Executive Director's Rocker

Challenges to Endangered Species

Abstract of paper presented by Stan Kappe on April 24, 1975, at the Michigan Section American Society of Civil Engineers Conference on The Engineer in Environmental Conservation, Frankenmuth, Michigan.

Before I address myself to the subject of my presentation, I would like to state my position. As a graduate Sanitary Engineer, I grew up with a background in the service of a regulatory agency on a state level and later on a federal level in charge of a pollution survey on the navigable reaches of the Delaware River and its main tributaries.

I am a great believer in the protection of the planet Earth's environment but only to that degree that produces a return on investment whether it be with public or private funds and whether it be measured in dollars, fish, recreation, health, the well being of mankind or any other parameter that may be applicable and practicable and is not destructive to the Earth's environment and its living matter. I am not a believer, however, of just spending dollars, particularly dollars that do not produce a return on investment but are spent primarily for personal ego, greed, headlines, power and the building up of a bureaucratic empire. I am also a great believer in using good common horse sense when interpreting rules and regulations and not writing into the rules and regulations provisions that were not the intent of the law-makers.

In my time I have seen many fads come and go through cycles. They were like the old hat that was never cleaned up but dug out of the closet and reused with much ballyhoo as a great discovery and breakthrough. Unfortunately, when closely analyzed, the startling discovery suddenly turned out to be one of the old discarded hats with the same old holes, but to the grandson who found old grandpappy's hat, a most exciting discovery until the fad wore off.

Currently, EPA is reported to have a staff in Washington, D. C., many times greater than FWPCA, its predecessor, had in the entire country at its peak and is spending many more dollars on pollution abatement. And yet, measured in dollars or staff, have the accomplishments and breakthroughs been compartively that much greater? According to the complaints heard throughout the country by many in the scientific community, as well as in Congress, EPA has made a substantial contribution but, unfortunately, more so in red tape and paperwork. And, according to reports, if it were not for the reused paper program, the country would soon experience a serious shortage in paper products.

According to various sources of information, the processing of an average construction grant application is alleged to take 55 people and 2,000 pounds of paperwork, primarily due to duplicate efforts inhouse on both the state and federal level. There surely must be a more efficient pathway. Such red tape is costly to the program and to the taxpayers as well as to the consultants and municipalities in dollars and also to the goals and progress of the program. It is a good thing that the Army does not need support on an equal basis for its soldiers in the front ranks. And yet, the regulatory agencies keep on expanding and taking personnel from the front ranks where it is needed without replenishing the supply through adequate training grant programs—a very poor oversight.

The National Utility Contractors Association, Inc., is deeply concerned about the current high unemployment level in the ranks of contractors and its labor forces. In its news release dated March 12, 1975, NUCA stated, "To date, only $4.8 billion of that original $18 billion has been obligated, and a mere $571 million has actually been expended . . . far below the expectations and plans of Congress. We believe that there should be a minimum obligation rate of $310 million per month nationally, instead of the current $163 million per month. The members of our industry are deeply concerned about this, and many of them are in serious trouble. Unemployment is increasing, as it is throughout the nation, and more and more of our contracting firms are going out of business."

The basic problem and lack of noteworthy breakthrough in the art of wastewater treatment may not have been due to size and bureaucracy but, like the conglomerates in the private sector that have faltered, due to size and manageability. The real issue could be not how big can bigness expand and how big can monuments be built, but how can the increasing complexities of bigness be kept simple and manageable? The large amount of paperwork being processed by EPA may be a good example. The argument of lower costs, better efficiency and better use of skilled help through bigness to those knowledgeable of the facts is a yet-to-be-proven issue and, by many analysts of the problem, a poor answer to viability and survival.

The limits of bigness can be defined only when due consideration is given to the people problem and the drop in efficiency and productivity that is likely to occur when manageability becomes too complex. Nevertheless, the frustrating battle and power struggle behind the scenes on a local, state and federal level tirelessly goes on. The

buck finally stops with an overburdened taxpayer paying the bill and on the bottom drops out due to a debt-overburdened economy as the world is experiencing today, not only will the taxpayer be hurt but also the program. Also, much time will be lost trying to put the program back on solid footing.

Treasury Secretary William Simon perhaps has a better explanation. He recently was reported to have told the nation's governors that government at all levels has grown too much and deficit spending by all segments of government is responsible for the current economic problems of recession and inflation.

Unfortunately, the basic parameters for wastewater treatment have not changed very much since the '30's. The early pioneers did an excellent job, but there surely must be room for improvement. As an example, why has it taken the designer and regulatory agencies so long to recognize the fact that all wastewater treatment units, except perhaps the screening unit at the headworks, should be designed and constructed on a balanced constant-flow basis? How else can quality control be attained? How else can the findings in the research laboratories developed on a steady state basis be put into practice and be attained in the field? Can you name any other industry that would even try to attain quality control by not balancing the flow and the load? And yet the overall cost would probably be cheaper. How did the profession get into such a rut? Regulatory guidelines which require plant design on a basis of the incoming flow were certainly not helpful. This is an evil of guidelines. It takes away creative ability and the development of noteworthy improvements. Guidelines not only prolong the agony but also take away from the designing and operating engineer the incentive and the creative ability which really made our nation an industrial power.

And yet, the regulatory agencies are not entirely to blame. We must address ourselves to the incompetency of many designers who just follow guidelines because it is too expensive to do otherwise in the process of securing approval from regulatory agencies and to the equipment manufacturers who just manufacture hardware to sell. EPA did not help the situation when it took away from the designer and owner the prerogative and logic to specify and install equipment that was in the best interest of plant performance and the owner's pocketbook. And yet, when government buys, the quality product specified must be furnished. Where is the justice in such a directive? When flimsy equipment is forced on the owner, and manufacturers are forced to make flimsy equipment to stay in business, who will be responsible for the high operation and maintenance costs, down-time and impairment to the quality of the effluent that is likely to follow? Surely, no one else but the owner and the designer even though the requirement was a directive by others. Quality equipment may soon be something in the past if this directive is not corrected.

Where are the pioneers and fighters of yesterday? If the designer does not have the courage of conviction, will the owner hold the designer responsible? More than likely, and if so, will the cost of insurance coverage be more prohibitive than it is today for errors and omissions in design and construction and be as costly and as difficult to get as malpractice insurance is for the medical profession? This situation is serious. It could mean that the designer, in order to stay in business and if he is a smart business man, will be forced to write and accept contracts with fine print containing provisions that will limit the designers' liabilities and responsibilities and righteously so, if the criteria and the powers of decision are those dictated by others.

Unless some change in the guidance program is implemented to allow the grantee to select proven and reliable products, the owner is likely to end up with major maintenance and replacement considerations in future EPA-funded projects. And the major equipment manufacturers instead of spending dollars on R & D to develop sturdy and proprietary items will more than likely sit back and cheapen their products in order to stay in business.

Another example is the noise being made today about heavy metals. What are heavy metals? Are all metals heavy metals and really harmful; and, if so, in what form and in what amounts? The propaganda is not clear; it should be clarified. And yet, the unsuspecting public is likely to think from the information being distributed that all metals are dangerous. Many of the authors should know better. How many people really know that the microorganism growth in the mixed liquor of activated sludge plants is full of so-called heavy metals? And yet in the form present most of these metals do not evidence to be harmful to the activated sludge process which some people say is very touchy. The metal sodium, for example, is harmful per se but when combined with another dangerous element chlorine forms table salt which is a necessity of life. There are many other examples of metals that in one form or another are important to life. The list is too long to tabulate. And yet, the stories being broadcast to the public are difficult to understand except as an issue for use as a scare tactic to get more money to build a bigger and bigger bureaucratic empire or to support one that is faltering for an issue. If these authors do not know, they should be awakened to the fact that all life depends on a system of enzymes, numbering perhaps in the thousands, that contain so-called heavy metals. Iron in the blood stream, cobalt in vitamin B12 and copper and zinc, essential to all organisms as a constituent of many metallo-enzymes, are good examples. There are many others.

I find the criteria set up for sanitary landfills most interesting and the parameters most disturbing. There is no argument that leachates are pollutants but the degree to underground water tables needs better definition.

The question often raised in my mind is whether all refuse should be buried and covered with earth. For example, many metals stored upon the surface of the ground exposed to the atmosphere are in general harmless as metals or stable oxides. And yet, if so stored may be unlawful but lawful when buried in a landfill as a mixture with organic material. When this regulation was formulated, the decision makers apparently were not knowledgeable of the fact that hydrogen sulphide and inorganic and organic acids are produced in landfills by the bacterial decomposition of the organic matter and that these products soon attack the metals therein and convert the metals from harmless insoluble metals to soluble metal sulphides and soluble metal chlorides which are toxic pollutants, harmful to ground waters and to the bacterial decomposition process. As a consequence, the rate of decomposition is seriously retarded, because a leachate high in toxic metal complexes has been produced. Has this

criteria been really thoroughly diagnosed? Would it not have been more advisable to separate the metals at the source to the extent feasible for separate burial or for storage on top of the ground and to dispose of the organic refuse in a separate landfill and by this action take positive measures to prevent the production of soluble toxic metal pollutant complexes? If such a practice were adopted, would the pollution of ground waters from sanitary landfills be as serious an issue? Today, because of current practice, many of the landfills decompose at a very slow rate until the metals are leached out. During this period the landfills are primarily producers of a harmful leachate that could have been otherwise but, unfortunately, due to poor judgment, has been made toxic by producing pollutants in the form of soluble metal organic and inorganic chemical complexes.

The issue of ground water pollution is an interesting issue to diagnose. The earth, when properly used, can be expected to have a much better microbial and physio-chemical purification capacity than do surface waters. All ground waters are polluted to some degree. I know of none that are not. And when the need exists, mankind has learned how to make these waters, like surface waters, usable for industrial purposes as well as for human consumption.

A landfill is a cheap method for disposing of refuse, but are the criteria established conducive to good operation or to the contrary? A two-foot cover with impervious earth may keep out the rain and reduce the quantity of leachate, but it may also impair the quality of the leachate besides putting a cover on a volcano that could erupt momentarily. An impervious cover, however, does a good job of inhibiting rapid bacterial decomposition. The entrapped gasses, particularly hydrogen sulphide and carbon monoxide, generated therein by bacterial decomposition are excellent toxic inhibitors to the microbial process. Besides, the rain that is kept out is needed very much for its oxygen content and to keep the organic material moist for bacterial decomposition. Moreover, there is a potential that the extremely poisonous gas phosgene ($COCl_2$) can be formed by a reaction of carbon monoxide and chlorine. Fortunately, phosgene gas dissolved in water readily breaks down to carbon dioxide and hydrochloric acid.

Perhaps some day mankind will, if the regulatory agencies permit, recycle seed microorganisms through the landfill to hasten bacterial decomposition and so that the landfill area can and will be used over and over instead of as a sink on a once basis as now practiced and for the recovery of valuable resources. The stakes are high but not as high as other means of refuse disposal and perhaps on a sounder investment basis.

Building a wastewater treatment plant by funds provided almost entirely by an angel (federal and state grants) is not difficult to accept even though it is a false illusion and in the end it is paid for at a higher premium by the taxpayer and the fine print makes the task difficult. However, even though EPA seems to be encouraging the design and construction of plants that have the least cost of construction in order to spread the monies, it would be in the best interest of the municipalities to insist on the construction of a plant that in lieu thereof has the least cost of maintenance and operation, because to keep the plant operational yearly at peak performance without the help of an angel could be prohibitive. The pay check has only so many dollars; whereas, the rising cost demands for other necessities of life are collectively getting to become too burdensome. And yet, on wastewater treatment there seems to be very little concern by the regulatory agencies or perhaps a willingness to accept cognizance of operational and maintenance costs that may follow construction, particularly for AWT.

There is no argument about the need of secondary treatment and preferably, in the speaker's opinion, in the form of biological treatment on all inland waterways but there is argument to scientifically demonstrate the need for producing an effluent containing a biological suspended solids content less than 20 mg/l, and for AWT plants. The latter could be a detriment to the waterway instead of an enhancement if the effluent should produce an environment in the waterway optimum for the growth of high oxygen demand autotrophic plants and microorganisms. And yet, many regulatory agencies are forcing AWT on many municipalities regardless of the fact that it has yet to be scientifically proven and demonstrated that such a degree of treatment will enhance and not impair the waterway. Equally as critical and perhaps more so is the need to prove and demonstrate that the cost-benefits of AWT will produce a return for its outrageous expenditures to the public and to the waterway.

In this connection, EPA Report 660/3-75-003 dated February 1975 entitled "Eutrophication of Surface Waters—Lake Tahoe's Indian Creek Reservoir" is extremely interesting and informative. Apparently the removal of phosphates and BOD to the levels of 99.5% and 99.8% respectively at the South Tahoe AWT plant according to the report is not the answer for weed and algal control in ICR (Indian Creek Reservoir).

According to this report . . .

"The results of the ICR studies indicate clearly that purifying wastewaters to the highest degree possible by current technology does not insure its optimum suitability for all further purposes, but rather that design parameters must eventually include the entire system."

Moreover . . .

"the STPUD AWT plant is a very efficient system for removing phosphorus, and ICR is a good system for removing nitrogen." And yet, according to the report, aquatic weed growth has been a major observable trend and is interfering with recreational use and a growth of blue-green algae has tainted the flavor of the trout in the reservoir and has produced a strong shoreline odor.

Studies recently made for Blue Plains, D. C., indicated that the cost for AWT at the D. C. plant is likely to be at least ten (10) times greater than that for secondary treatment including costs for amortization, operation and maintenance, and five (5) times greater if costs for amortization are excluded. These costs are likely to be higher, because since the study was made, chemical and material costs have skyrocketed.

In the case of Blue Plains the above studies further indicated that if the proposed 309 MGD AWT plant were constructed and put into operation, the yearly operating and maintenance costs excluding amortization would be approximately $75,000,000 per year. The question arises, for what proven asset? In Europe at least the kings put their wealth into structures and art that had

be and culture and added to the wealth and well-being of the country. The question remains: Will the AWT increment be a sound investment or a "Pink Mirage" on the horizon? Will the taxpayers of the District of Columbia and the surrounding areas in Maryland and Virginia who contribute to this regional plant put up with such exorbitant expenditures annually? My guess is not likely, because all of these political entities are now having trouble raising money to meet budgets. How long can any municipality withstand such high operating costs yearly for a speculative venture regardless of size?

After much noise in the press and otherwise by local interests about costs and need of AWT, the message apparently got through to EPA. During the month of February 1975, EPA announced after studying the staggering rise in energy and construction costs and the need for denitrification at Blue Plains that the denitrification facilities of the Washington area AWT plant would be delayed at this time. This stage, according to the announcement, would have cost $104 million to build and operating costs would have been an additional $14.1 million yearly. It would also use large amounts of electricity, methanol, and other resources. There are implications that the nitrification stage might have also been delayed if that stage had not already been under contract. This decision must have been very difficult to make. Regardless, EPA should be commended for making such a wise decision even if it did hurt.

The nitrification stage to be installed at Blue Plains, though costly, should provide some answers to the wisdom of such a large expenditure. The nitriers, nitrosomas and nitrobacter are reported to be strictly aerobes closely adhering to solid particles. They also are reported to be adversely affected by light and chlorides of many common metals, and are generally not found throughout the depth of a waterway but only at the bottom of inland waterways and the ocean at the sediment-water interface where the bacterial concentration and ammonium ions adsorbed on the clay particles is an important factor in nitrification. Perhaps, not too much unlike the nitrification which takes place in the lower reaches of deep trickling filters where it is dark, the organic content is low, and the high carbon dioxide content and the presence of simple inorganic compounds produce an optimum environment for the autotrophic nitrifying organisms. Until the erosion-sediment run-off from non-point pollution sources is abated, the bottoms of waterways will continue to be a prolific breeder of nitrification and it is extremely doubtful if the solution of the problem will be enhanced by the removal of nutrients from wastewaters. The solution is more likely to be in the use of some inhibitors or nutrient inactivants. The studies in this direction being made by EPA at the NERC-Corvallis laboratory are commendable. Its press release dated March 1975 on Zirconium as a phosphorus inactivant looks promising. According to scientific references, Zirconium compounds have been demonstrated to be powerful algaecides and alone have no significant bactericidal effects. In its experiment, EPA is using Zirconyl chloride as the nutrient phosphorus inactivant.

On nutrients, the Fifth Annual Report of the Council on Environmental Quality to Congress on its 1974 findings as required by law is not very encouraging. The report in part states and I quote ". . . The most disturbing trend regards nutrients. Up to 84% of the reaches exceeded phosphorus and phosphate reference levels associated with potential eutrophication and up to 54% of the reaches showed increased levels in 1968-72 over the previous years. Nitrate levels also increased in 74% of the reaches examined. Approximately one-fourth of the reaches exceeded nitrate levels."

The report further states, "In summary, the EPA study provides a mixed picture regarding trends in water quality. For oxygen demand and bacteria, progress is evident. With regard to nutrients, the disturbing trends reported in our (CEQ) 1972 Annual Report appear to have been confirmed."

If this trend continues, something will have to be done quickly because currently AWT is not too unlike a cost of living clause. Somewhere there has to be an end to the rainbow and Santa Claus.

The implication that 4.5 pounds of oxygen are required to oxidize one pound of ammonia may be stoichiometrically correct. But the implication that all ammonia present in wastewaters and in waterways will ultimately be oxidized to nitrates and such an oxygen demand will be stressed on the waterway can hardly be true. This fact seems to be substantiated by the large unaccounted loss of ammonia scientifically documented in the limnology of Indian Creek Reservoir. The derivatives of ammonia are too many for only such a pathway to be followed. There are other pathways through which nitrogen can be released to the atmosphere from organic-inorganic complexes besides the nitrite-nitrate denitrification pathway. And I know of no policeman or other force which controls such a pathway in wastewater treatment or in waterways. At least, the manufacturers of blowers and other oxygenation facilities are very happy that there is such an implication and requirement.

The situation is not very encouraging. On the one hand, in order to increase the productivity of fish the Fisheries agencies who should know something about fish and their environment are encouraging the input of nutrient phosphorus at the rate of 35.2 pounds per acre, which is more than 3.8 times the amount entering the alleged P heavily polluted Lake Shagawa, Minn., waters. On the other hand, EPA is spending tremendous sums of money for an EPA sponsored nutrient removal project at Shagawa Lake to improve fishing.

My bet is on the fisheries agencies. When the water pollution regulatory agencies were making much noise about the "dying Great Lakes" and pollution from phosphates, the fisheries agencies, according to the press, quietly studied and learned the causes—Lamphrey eels which infested the Great Lakes when the Great Lakes were opened to the sea and overfishing by commercial fishermen. With both problems solved, according to the news media including the press and TV, the Great Lakes today are considered to be one of the best fresh-water fishing grounds in the world. And the talk of the adjoining communities in both the U. S. and Canada is about the fine catches of a variety of good-size fish including salmon and lake trout. And yet, according to the water pollution regulatory agencies, if the pollutant P had not been removed, the Great Lakes were doomed.

Nutrients are not an evil ingredient as the propaganda machines seem to indicate but to the contrary a necessary ingredient for growth of all living matter. The amounts needed are very small. A threshold limit for P below

.003 mg l to control algal growth from all sources—the air, the soil and the waterway—is in my judgment a hopeless task. If algae is a problem, there must be a much better and more positive method than restricting the use of P or by its removal from wastewaters. The use of nutrient inactivators looks more promising.

If the nutrient P were ever brought down below the threshold level in a waterway, there could likely be a greater cry from environmentalists and the general public. Because without the nutrient P, the waterway would soon lose its capacity for productivity of fish and the waterway not being able to support fish life and other aquatic life would soon lose its recreational value as well as its place in the food chain.

The nutrients that were washed into the waterways and deposited in the earth and in the bottom of streams and lakes eons ago are today through the progress and growth of civilization and industrialization being recycled in ever-increasing amounts in the form of fossil fuels, fertilizers, etc.—all a part of the complex synergistic system of the food chain and life which today some seem to be trying awfully hard to destroy. Whereas, to feed the growing population and civilization with its inhabitants be it mankind, fish, birds, animals, microorganisms, etc., more nutrients have to be mined and produced as chemical fertilizers so that the commercial fishermen can catch more fish, the farmer can grow more crops per acre, to keep the human and animal population from starving, and so that the fisheries agencies can produce more and bigger fish yields per acre as food and for recreation. To keep these nutrients cycling, the ways of nature are slow but spectacular through turnover and upwelling of the nutrients that had accumulated on the bottom of inland waterways and on ocean bottoms and on land by winds through the atmosphere, erosion by rainfalls, by the growth of all types of vegetation, by the earth being turned over by winds, earthquakes, volcanic eruptions and by the farmer's plow and earth moving contractors besides its inhabitants. Fortunately, most the nutrient P is in the insoluble form and is slowly hydrolyzed by nature for use by all living matter so that the source should always be more than necessary. However, the Institute of Ecology reports that phosphate supplies might limit population because the supply of phosphates could be depleted in 100 years.

Today I find myself not only on the growing list of concerned citizens due to the undue high stakes being imposed on the taxpayer for undemonstrated and scientifically unproven AWT needs but also as a concerned registered professional engineer because the stakes are too high for the engineering profession to allow itself to being lead instead of leading the way. It's about time that the engineering profession became involved in politics and stood up back to back to be counted and fight for the right to think and the right to exercise creative engineering ability. The day of the ivory tower and hiding under a shell are gone. You better believe it! Only the strong will survive. The weak will only end up as an endangered specie and in the evolution gradually disappear perhaps as a technician, clerk, or you name it.

For the future, the crystal ball indicates that the standard of living, particularly that enjoyed in our nation, will in all probability be materially lowered and so will the standards of water pollution abatement, particularly the need for AWT. This time, however, by the buck being dramatically stopped by the taxpayer. The overburden is getting louder with each passing day; Blue Plains is an example. The crisis could occur with a crash and a sudden downfall, the cause — the energy crunch, double-digit inflation and shortage of critical resources. Due to the higher cost of fuel and other forms of energy that the public will soon be forced to pay, there will be fewer dollars left in the pay check to spend for other priorities in life. As a consequence, a marked drop in our nation's standard of living can be expected to follow as well as many of the grander dreams of water pollution abatement.

In the period of readjustment that will follow, the engineering profession will again be called upon to use its creative and development ability. Only this time let's get involved in politics and like labor fight for our rights and particularly for prompt payment for services rendered. Prepayments, progressive payments and closure of final payments can only be attained if the engineering community fights for such provisions as a body. Today the engineer is often the last person to be paid and, unlike the merchant, banker or IRS, without interest on principal past due. A smart business enterprise does not operate too long on such a basis, particularly when the client has invested the monies due in short-term securities to make money on someone else's money.

The time has come for the engineering profession as a whole to consider the inclusion in all engineering contracts clauses that will:

1. limit responsibility and liability to the directives and guidelines issued by others;

2. contain provisions for prepayments, progressive payments, and final payments;

3. require that all payments be made on a net 30-day basis with a penalty for delayed payments (depending on current interest rate) on all overdue balances;

4. other provisions that will improve the engineer's cash flow position. In this connection, I would like to refer you to an article published in the September 1972 issue of The Diplomate newsletter of the American Academy of Environmental Engineers entitled "Cash Flow for Meeting Consulting Engineers Day-to-Day Expenses" by Samuel I. Zack, Diplomate and retired Senior Vice President and Vice Chairman of the Board, Gannett Fleming Corddry and Carpenter, Inc. His advice at that time is still timely.

In summary, AWT could prove to be not too much unlike a cost of living clause, a dangerous plum, to the recipient and to the financial security and economy of the country.

During this critical period of unemployment and financial stress throughout the country, if Congress and its agencies are interested in (1) spreading monies over more jobs, (2) putting more people to work, and (3) completion of government-funded projects at reasonable costs and within the funds allotted, Congress should face the facts and legislate against all cost-of-living clauses, escalation in bid prices, AWT beyond the degree demonstrated and proven to be warranted and vote for repeal of the Davis-Bacon Act and related laws now on the books.

FORUM

Opinion/Analysis/Commentary

Energy:

'Wartime-like effort is needed to avoid a major catastrophe'

By David R. Williams Jr.

About 100 years ago petroleum began to enter our lives and thereafter irrevocably altered them. We never will be the same again no matter how much we try to return to the simplicity of an agrarian community. Many respected voices are preaching just such a return, but the reality is that we cannot go back. The main reason is that we surrendered, along with our rural society, a tremendous self-sufficiency and resilience. Today in our urban mode, built on high energy consumption, most of us are too far removed from producing our own basic needs. We must depend upon so many complex systems and utilitarian functions, each of which must operate efficiently or the total structure is endangered.

Our complex systems have become highly interdependent and therefore quite fragile. One monkey wrench could upset the whole works. It is not inconceivable that another 1930s-type depression or another war could cause a "civilization collapse". The crisis of finding a substitute for rapidly depleting petroleum qualifies as such a monkey wrench.

The energy crisis seems to have abated in 1975, with no more lines at filling stations, storage tanks full and tankers laid up for lack of cargoes. To think it has gone away is to ignore the long-range inevitable problem that is only a matter of time — *we are probably going to run out of oil and gas sooner than we can prepare ourselves to do without it.* Once we all face this we can set about finding the alternative energy sources that will replace petroleum. When we all understand this hopefully there will be purposeful and united public support for the large programs that are urgently needed. The "collapse syndrome" is not remote, and there is a point at which it will be too late, at any level of effort, to extricate ourselves.

All of this may sound alarmist when oil and gas seem again to be adequate, but in the winter of '75-'76 when gas is curtailed to much of American industry, and by the summer of '76, when the queues form again at the gasoline pumps, it may look different. Let's look at what must happen within the next generation and what it will mean.

(By the year 2000, natural gas will be exhausted and oil supplies will be down to a trickle.)

HOUSING: By then electric heating for homes will be predominant (some improved coal furnaces, of course, will survive). This will make a difference in the type of home in use. The single-family unit, no matter how well insulated, will be a luxury for the wealthy. Multiple-unit condominiums and apartments will have to do for most of us. Living will be more concentrated but there will be more "green belts" and "commons" where community life can be restored. Surface priorities may be allocated by "total zoning". Real estate development will concentrate on the typical large complex of integrated living, shopping, recreation and work space, and not on more urban sprawl.

TRANSPORTATION: The return to "public transportation" will have occurred, with mass transit grids linked by interurban systems. The automobile may only survive as a standardized, interchangeable electric drive unit that can be stacked and stored at mass transit interchange points. It would be used for short lateral distances and the car driven home from work would not necessarily be the same one left at the mass transit terminal on the way to work. Cities will be laid out to be concentrated along the transit corridors.

ENERGY: We are entering an electric power era, when most of the substitutes for vanishing petroleum will be converted to electrical energy. For the next 10 years, the major remedy will be steam coal. Coal production is forecast to double by 1985, with most new production coming from large surface mines in the Rocky Mountains region. Nuclear power will be slow to reach its full potential. Coal will replace oil and gas in most industry processes.

Obviously, these changes contemplate a virtual rebuilding of our urban society. The problem will be to substitute essential rebuilding to take the place of those areas of industry that will be phased out or reoriented. Perhaps the huge auto industry complex can find full employment in the vast energy and transport systems that will be needed if the change can start now.

The question is whether we will consciously rebuild our industrial society and reorient the economy upon which it is based or whether brutal changes will be imposed upon us after it is too late to adjust.

The possibility of our becoming self-sufficient via Project Independence by 1985 has passed us by. It should have begun 15 years ago. At this late hour, survival of our way of life on a reduced standard of living is our best hope. It is a struggle that will require all of our ingenuity, technology and industrial resources just to phase out dependence upon petroleum over the next 25 years; keeping in mind that our ultimate dependence upon it must end in any event.

While some experts are predicting a leveling, or even dropping off, in the world price of oil, the more realistic assessment is just the opposite. Even if we ultimately phase out our dependence upon foreign oil there is little chance that it will not continue to rise rapidly in price over the next few years. A world price of $20 per barrel by mid-year 1977 is a definite possibility. Therefore, there is not enough time to avoid the near-term crisis, our battle is longer range, not only to prevent oil from rising to much greater prices in the 1980s but to find its total replacement by the turn of the century. To emphasize again, we have a choice of continued world depression or a total marshalling of our economy to the problem.

The energy crunch has been predictable for at least 20 years, and it comes as no surprise to those who have been following it closely. The shocking aspect of the crisis is that we have no federal government planning facilities that might have anticipated this situation, or even yet, which might plan our way out of it. The federal government is making its policies upon a fallacious assumption that the crisis can be contained by normal "business as usual" methods, when only a wartime-like mobilization of our industry and economy may be able to do the job ahead and avoid a major catastrophe.

The period 1973-74 may therefore represent an all-time turning point in the course of history; that point where the fragile natural underpinnings of our industrial society have suddenly become exposed. It came as an unpleasant revelation to most of us to find that we have built a system far too dependent upon what was thought to be an inexhaustible supply of low-cost energy and natural resources. We are faced today with having the burden placed upon one generation for all of the past generations of deferred costs resulting from "high grading" of convenient natural resources and the avoidance of environmental compatibility.

Energy is just a symptom of the problem that has surfaced in our time. At the root of it is a base change in the relationship of man's efforts to his rewards. We have designed and built a wasteful industrial society upon the assumption that human labor would continually increase in value while products of its labor decreased in cost. Labor productivity began to decline in the middle of the last decade and our failure to adjust has been responsible for a huge inflation and debasing of our currencies. As a result, the relationship between an hour of labor to a bushel of wheat, a barrel of oil or a ton of coal may have changed for the foreseeable future.

The many voices in the academic world that were predicting a "leisure society" and the 20-hour work week were counting upon continued cheap resources and even more so upon cheap capital. They did not account for the finite nature of natural resources, nor did they comprehend that the great capital formation in past history had benefited so largely from huge injections of immigrant labor, homesteaded land and low taxes.

The leisure hypothesis assumed that technology would bring "new machines" to enhance productivity and place a constantly higher price upon labor. It reckoned without the lapse in capital formation that has occurred, together with the corresponding lapse in technology, over the last 15 years. The lag in technology is especially worrisome, since technology is still our greatest hope. Massive military and space programs have monopolized technology, causing it to be concentrated in large unresponsive government contractors that replaced the variety of initiatives that might have been expected from a greater proliferation of technical businesses. Again, the prevailing public mood has placed technology in purgatory and has resulted in many tax and political disincentives to our basic American ingenuity.

The cost of providing a job in the United States has risen steadily for most of our lives; but by contrast the amount of capital invested per job has declined steadily for the last 10 years. The fall-off in new plant investment means obsolescence and capacity bottlenecks. If there were suddenly unlimited demand, plant capacity in the United States would not be adequate to bring unemployment below 5%. Furthermore, we are not generating the capital to rectify this situation. Without the large injections of capital in the past, industry must depend more upon the savings of individuals and corporations. Unfortunately, the current concepts of social justice do not recognize the importance of savings, with the result that there are many tax and political disincentives to the all important savings cycle.

More capital than ever is required to pay for the new high costs of energy. However, energy costs are only the symptoms. A general capital shortage, decline of productivity and inflation are more basic causes and would have produced some rise in energy costs even if petroleum had not been in short supply. The United States debased its currency from 1965 to 1975 trying to maintain business as usual while spending $200 billion in Southeast Asia.

It could be said then that the energy crisis is really a capital and a technology crisis. What are the solutions?

1. Changes in the tax structure to provide incentives for savings and investment.

2. Incentives to technology and subsidies for research.

3. Massive government-industry programs in energy, mass transit and urban needs.

4. Incentives for exports to balance our foreign trade position.

No half measures will suffice. It will require wartime budgets with hundreds of billions of dollars allocated to large well-planned programs.

Why such drastic action, when 13 million barrels per day (BPD) of OPEC's 40 million capacity is shut in today? The answer is this shut-in capacity will be in full demand by mid-1977, with short supply increasing thereafter, even as the world practices conservation. There is no quick way to wean industrial countries from the overdependence upon oil.

Unfortunately, our government's blueprint for energy is based upon two self-contradictory premises, no massive energy expenditures and a high degree of self-sufficiency by 1985. (The plan calls for only 4.5 million BPD of imports in 1985.) But such an importation would cost the United States more than $100 billion annually at the prices likely to prevail then. This sum would not be possible for many obvious reasons. This means either initiating the necessary programs now or accepting a drastic cutback in our economy that can only mean continued world depression.

To attain 4.5 million BPD of imports the Energy Research and Development Administration assumes reduction in the use of energy amounting to a 50% drop, from 90,000 BTUs/$ of GNP in 1975 to approximately 45,000 BTUs in 1985. There is no quick way we could phase out our automobile economy to achieve such a level of consumption. Also, without redeploying the economy to some other programs to pick up the slack, we would have deepening world depression. This is where the wartime mobilization analogy comes in. If we cut back on the economy in automobiles and single family homes we must employ it in the kind of energy and mass transit and urban projects that will take up the slack.

The Washington plan calls for no such programs. It assumes that gas will hold its own, atomic power will pick up part of the gap and coal will do the rest. It was forecast last year that nuclear power will attain a capacity of 400,000 megawatts by 1985. With the slippage of cancellations in the last year this could not be more than 250,000 MW. With all of the capital problems of the private utilities and the public disfavor of nuclear power it will be fortunate if 120,000 MW are actually achieved by 1985. The assumption that gas production in 1985 will remain at current levels is unrealistic. One of the first impacts of the energy problem will be the more rapid than expected decline of natural gas. This winter many plants will be shut down for lack of gas and by 1985 gas output will be down to half of today's production, even counting Alaska.

The assumption that coal will double in output seems attainable but the forecast that solar, geothermal and other nonconventional sources will contribute significantly is highly optimistic.

In short our government has its head in the sand, and the energy crisis will become a catastrophe if a huge mobilization is not defined and implemented very soon.

Democracy reacts slowly to its less obvious threats and challenges. We have little ability to anticipate threats while there is still time to deal with them. The result is government by crisis reflex. What is needed is some comprehensive long-range planning and a data base that can be trusted. We have many computer facilities in the departments of our government, but they seldom agree. We are like a giant 747 flying blind with all the instruments gyrating wildly.

Democracy may prove to be a transitional form of government that inevitably succumbs from the burden of excessive wishes granted to its people. There is still time to preserve the democratic way, but it will mean sacrifices and acceptance of living within our means. The remedy may be a form of government-industry planning that preserves the variety of initiatives of the enterprise system but acquires a set of instruments for navigation.

ERDA is a promising start, but we must have a comprehensive policy and program. Oil companies are cutting back exploration for lack of a policy on energy plus the new tax bites caused by the loss of depletion and foreign tax credits. Utilities are canceling new plants for lack of ability to raise capital at their present rate structure. We may be trading a year's delay now for several years of catch-up later. It is almost predictable that electric power will have to be rationed in three to five years.

The point to remember is that the problem is not just energy, but the impact of energy on our economy in years to come when its shortage could cripple everything.

Williams is chairman of Resource Sciences Corp. of Tulsa, Okla., a worldwide engineering and project management company in petroleum transportation, nuclear energy, metallurgy and environmental sciences.

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A Presentation to the OCS Hearings
Anchorage, Alaska
August 12, 1975
by
Robert B. Smith

Thank you, Mr. Chairman, for the opportunity to speak here today. My name is Robert B. Smith; I am President and General Manager of Central Alaska Utilities, an investor owned public water utility in Anchorage, and I previously was Public Works Director for the City of Anchorage. It is my intention to address an aspect of this issue with which I am familiar, that of utility requirements in the event of large population increases in coastal communities as a result of major oil discoveries in the gulf.

First of all, I concur with the findings of a socioeconomic study made for the oil industry that it will be expensive to install or expand sewer and water systems to current environmental standards; and that the extent of that cost will depend on a broad spectrum of circumstances.

Such things as soil conditions, distance to water source, density of community development and the relative size of the development are obvious factors affecting costs. It is my contention, however, that with proper advance planning and good technical design, maximum efficiency can be achieved to hold operations and maintenance costs during subsequent operations to a minimum.

If the expansion is financed through long-term debt and if operations do not become burdensome, then the current residents of any community affected should not have to shoulder any appreciable tax load for services that do not benefit them.

The firm which I operate supplies water to some 30,000 Anchorage area residents outside of the limits of the municipally operated system. It is a private business and obviously must pay its way in order to remain in operation. Some of the areas we serve have no greater density then some of the existing coastal communities and certainly less than would be desirable in any new community development.

From my experiences with utility systems in the Anchorage area, it appears that the coastal towns should be able to meet any foreseeable utility requirements without undue burden to their taxpayers, especially if they receive some preference in federal and state funding assistance programs.

I believe that if the oil companies will work with the state and local government officials in planning and projecting the needs to provide adequate lead time, utilities can be provided to meet any reasonable requirements without seriously loading the communities capital indebtedness and property tax rates. A well balanced, productive and desirable community, an asset to the state, can be the result.

Thank you, Mr. Chairman.

Robert B. Smith

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The Izaak Walton League of America

INCORPORATED

BUILDING A **BETTER** OUTDOOR AMERICA

Anchorage Alaska
August 13, 1975

Subject:
Alaska outer-continental Shelf.

I Sam E Mcdowell a director of the Anchorage Chapter of the Izaak walton league of America and Chairman of our leagues Alaska fishery resources committee to Submit the following testimony on the OCS issue.

In years past the development of our petroleum resources in Alaska has been a very controversial issue among Conservationists.

1st was the development of the Swanson river and Cook inlet. Then Prudhoe Bay, and the Valdez Pipeline was the big issue.

In each of these instances the developers have gone to the ultimate limit to preserve the ecological integrity of these developments. It is therefore assumed that these same oil companies will do whatever is necessary to retain the integrity of the outer-continental Shelf.

Our League believe we are obligated to consider the economic aspects of these developments if we are to avoid the possibility of Continuous fuel shortage and paying

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ALASKA - THE SEARCH FOR A UNIFIED POLICY OF OFFSHORE OIL AND GAS DEVELOPMENT

GUY R. MARTIN
COMMISSIONER OF NATURAL RESOURCES
STATE OF ALASKA

THIRD INTERNATIONAL CONFERENCE
ON PORT AND OCEAN ENGINEERING
UNDER ARCTIC CONDITIONS

UNIVERSITY OF ALASKA
AUGUST 11, 1975

LADIES AND GENTLEMEN:

THANK YOU FOR THE OPPORTUNITY OF BEING HERE. ALTHOUGH I AM A NEWCOMER TO YOUR ASSOCIATION AND NOT OF THE SCIENTIFIC COMMUNITY WHICH DOMINATES YOUR PROGRAM, I BELIEVE WE HAVE MUCH TO SHARE. I AM CONSCIOUS OF THE BREADTH AND QUALITY OF EXPERIENCE IN ARCTIC ENGINEERING WHICH IS PRESENT HERE, AND IT GIVES ME TREMENDOUS HOPE AND ENCOURAGEMENT TO LOOK AT THE FORMIDABLE PROGRAM YOU FACE DURING THIS WEEK.

IT WOULD BE MOST USEFUL, I WOULD GUESS, IF I COULD FOCUS MY REMARKS ON SPECIFIC ASPECTS OF OFFSHORE OIL AND GAS DEVELOPMENT IN THE ARCTIC OCEAN AND THE BEAUFORT SEA. FOR REASONS I WILL EXPLAIN, THE PERSPECTIVE I MUST TAKE IS BROADER. AT PRESENT, ALASKA FINDS HERSELF POISED ON THE BRINK OF A SECOND GENERATION OF OFFSHORE OIL AND GAS DEVELOPMENT, THE FIRST GENERATION OCCURRING IN COOK INLET OVER THE PAST DECADE. THE BRINK WHICH WE APPROACH IS PRECIPITOUS, THE SIZE OF THE ABYSS IS INTIMIDATING, AND IT IS NOT YET CERTAIN WHETHER WE ARE MOVING VOLUNTARILY TOWARD THE EDGE OR BEING PUSHED.

ALLOW ME TO DESCRIBE AT LEAST SOME OF THE COMPONENT PARTS OF THE SITUATION THE STATE FACES IN THIS SECOND GENERATION. FOR THOSE MANY OF YOU FROM OTHER NATIONS, I ASK THAT YOU FORGIVE ME THE DOMESTIC POLITICS WHICH CANNOT BE ALTOGETHER SEPARATED FROM THE REPORT.

FIRST, ALASKA LEARNED IN OCTOBER OF LAST YEAR THAT THE FEDERAL GOVERNMENT HAD FIRM PLANS (DENIED THEN, BUT FIRM NOW) TO LEASE, FOR OIL AND GAS DEVELOPMENT, EVERY AREA ON ALASKA'S OUTER CONTINENTAL SHELF WHICH HAD OIL AND GAS POTENTIAL. NINE REGIONS WERE IDENTIFIED COVERING VIRTUALLY ALL OF ALASKA'S COASTLINE, FROM THE GULF OF ALASKA TO THE BERING, CHUKCHI, AND BEAUFORT SEAS. UNBELIEVABLY, THE ENTIRE LEASING PROGRAM--THE SELLING OF THE SHELF--IS TO BE COMPLETED IN JUST THREE YEARS.

NOT WITHOUT ITS OWN PROBLEMS, THE STATE OF ALASKA ADDED A COMPONENT IN THE FORM OF A REVENUE CRISIS BROUGHT ABOUT BY TRANS-ALASKA PIPELINE DELAYS AND THE RAPID DISSIPATION OF THE NOW FAMOUS $900 MILLION FROM THE NOW FAMOUS $900 MILLION PRUDHOE BAY OIL AND GAS LEASE SALE OF 1968. BY A LOGIC WHICH IS CURIOUSLY IRONIC, THE FIRST SOLUTION PROPOSED FOR THE CRISIS WAS ANOTHER OIL AND GAS LEASE SALE IN THE VERY SAME AREA. THIS IS, OF COURSE, THE BEAUFORT SEA, AND IT REPRESENTS TO THE STATE ONE OF THE PRINCIPAL MEANS OF RAISING SUBSTANTIAL SUMS OF REVENUE AT AN EARLY TIME, AS WELL AS BEING THE FIRST MAJOR STEP FOR ALASKA INTO THE ARCTIC WATERS THIS CONFERENCE KNOWS SO WELL.

FOR POLITICAL AND ENVIRONMENTAL FLAVOR, THERE IS A THIRD INGREDIENT IN THE FORM OF A SMALL BUT VOLATILE OIL AND GAS

LEASE SALE HELD IN THE CLOSING DAYS OF THE PRIOR STATE ADMINISTRATION IN THE MOUTH OF BEAUTIFUL KACHEMAK BAY AT THE SOUTH END OF THE KENAI PENINSULA ADJACENT TO THE COOK INLET OIL FIELDS. THIS SALE COMMITTED FOR OIL AND GAS OPERATIONS WHAT MANY BELIEVE TO BE ONE OF ALASKA'S ENVIRONMENTAL AND RECREATIONAL JEWELS, AS WELL AS AN IMPORTANT SHELLFISH HABITAT. IN RETURN, IT PRODUCED LESS THAN $30 MILLION IN BONUS REVENUES.

THERE IS MORE TO SAY, BUT IT IS SUFFICIENT TO CONCLUDE THAT THE SECOND OFFSHORE GENERATION WILL BE HUGE, WIDESPREAD, AND IMMEDIATE. INDUSTRY, GOVERNMENT AND OTHERS ARE PREPARED TO MOVE INTO THE WATER, (OR FOR THIS CONFERENCE, ONTO THE ICE) AT AN EARLY TIME IN A BIG WAY.

ONTO THIS STAGE CAME THE NEW STATE ADMINISTRATION OF GOVERNOR JAY HAMMOND, HAVING CAMPAIGNED ON A PLATFORM SUGGESTING THE NEED FOR GREATER CAUTION REGARDING MAJOR DEVELOPMENTAL DECISIONS, HAVING SECURED A NARROW VICTORY, AND HAVING LEFT THREE FORMER GOVERNORS OF ALASKA IN HIS ELECTIVE WAKE.

THIS ADMINISTRATION, DEPENDING ON YOUR PERSPECTIVE AND THE PAPERS YOU READ, ~~IS EITHER~~ THE DEVIL AS MANIFESTED IN A "NO-GROWTH" POLICY OF ECONOMIC STRANGULATION OR THE LAST CHANCE TO GET A GOVERNMENTAL HANDLE ON ECONOMIC AND

DEVELOPMENTAL FORCES WHICH THREATEN TO CHANGE FOREVER WHAT IS BEST ABOUT ALASKA. IT MAY EVEN BE SOMETHING IN-BETWEEN. FROM DAY NUMBER ONE A UNIFIED OFFSHORE OIL AND GAS DEVELOPMENT POLICY WAS AT THE TOP OF THE PRIORITY LIST FOR THIS ADMINISTRATION.

BECAUSE OF ITS IMMEDIACY AND ITS SCOPE, THE FEDERAL O.C.S. PROGRAM BECAME MORE A FOCUS FOR THE POLICY PROCESS THAN DID OUR OWN STATE ISSUES IN THE BEAUFORT SEA OR KACHEMAK BAY. IN RETROSPECT, THIS MAY NOT HAVE BEEN BAD, FOR IT FORCED THE STATE TO BROADEN ITS VIEW TO THE ENTIRE COASTAL AREA, AND TO SEE IF IT COULD ARTICULATE A POLICY FOR THE FEDERAL AREAS TO WHICH IT WOULD THEN SUBJECT ITSELF.

THAT POLICY PROCESS IS NOT COMPLETE, NOR IS IT LIKELY EVER TO BE FINALIZED AND LOCKED AWAY. YET, THERE IS A CLEAR RECOGNITION BY THE ADMINISTRATION THAT, IN ADDITION TO THE NEED FOR POLICY CONSISTENCY, THERE IS A NEED FOR FINALITY AND CERTAINTY. THE OIL INDUSTRY IS, TO USE ITS OWN CLICHE, A "HIGH RISK, HIGH YIELD" VENTURE WHICH, WHILE PURSUING ITS ADMITTED SELF-INTEREST, DESIRES CLEAR STANDARDS HAVING CONTINUITY IN EXCESS OF THE TERMS OF POLITICAL ADMINISTRATIONS. I BELIEVE THE GOAL OF THIS ADMINISTRATION IS TO ADDRESS THAT LEGITIMATE DESIRE AND TO PROVIDE A POLICY WHICH WILL HAVE CONTINUITY AND BE INTERNALLY UNIFIED AND CONSISTENT.

THE FORCE OF EVENTS, IN THE FORM OF THE FEDERAL O.C.S. PROGRAM, HAS BOTH ACCELERATED THE DEVELOPMENT OF THE POLICY AND SHAPED IT. ALTHOUGH THERE IS NOT TIME HERE TO SUMMARIZE ALL THE EMERGING POINTS, I BELIEVE IT WILL BE USEFUL TO DISCUSS AT LEAST THOSE CORNERSTONES OF SUCH A POLICY WHICH RELATE TO THE INTERESTS OF THOSE HERE, AND TO INDICATE THE WAY IN WHICH THESE POINTS COULD APPLY TO A CONSISTENT STATE POLICY FOR THE SPECIFIC AND DIVERSE OFFSHORE SITUATIONS I EARLIER DESCRIBED.

ONE OF THE EARLIEST LESSONS THE STATE LEARNED FROM THE FEDERAL O.C.S. PROGRAM WAS THAT ITS FIXED STRUCTURE AND SCHEDULE WAS FULLY DETERMINED BEFORE IT WAS EVER MADE PUBLIC. SUBSEQUENT EVENTS HAVE BORN THIS OUT HERE AND ELSEWHERE, IN THAT THE EFFECT OF A VIRTUAL CAVALCADE OF DISSAPPROVAL FOR MANY ASPECTS OF THE PROGRAM HAS RESULTED IN VIRTUALLY NO CHANGE IN IT. THUS, WHILE IT IS NOT POSSIBLE TO CHARGE THAT THE FEDERAL PROGRAM IS DEVOID OF PUBLIC INPUT, IT MAY AS WELL HAVE BEEN SO, FOR THERE IS NO RESPONSIVENESS TO THAT WHICH IS MADE. A SIMILAR HISTORY HAUNTS THE KACHEMAK BAY SALE, WHERE THE FILES ARE FULL WITH INCONSISTENT AND UNFULFILLED PROMISES TO THE PUBLIC.

AS A RESULT, THE STATE IS PLEDGED TO MAXIMIZE THE PUBLIC PROCESS AFFECTING OFFSHORE OIL AND GAS DECISIONS, AND TO MAXIMIZE THE BREADTH OF THE DECISION-MAKING BASE IN ITS OWN BUREAUCRACY. THIS POLICY HAS BEEN CARRIED OUT THUS FAR

REGARDING A BEAUFORT ISLAND SALE, EVEN THOUGH UNREQUIRED BY LAW, AND IT WOULD BE OUR INTENTION TO ENCOURAGE PUBLIC PARTICIPATION CONTINUING THROUGH THE STIPULATION PROCESS AT THE TIME A LEASE SALE IS ACTUALLY DECIDED. THE END RESULT, OF COURSE, SHOULD BE AN OFFSHORE LEASE SALE WHICH THE PUBLIC NOT ONLY PARTICIPATED IN, BUT AFFECTED.

SIMILARLY, WE LEARNED EARLY IN THE FEDERAL PROGRAM THAT THE PRE-EXISTING SCHEDULE AND STRUCTURE PRECEDED ENVIRONMENTAL STUDIES IN THE LEASE AREA RATHER THAN THE OTHER WAY AROUND. UNBELIEVABLY, THE FIRST YEAR BASELINE RESEARCH EFFORT IN THE NORTHEAST GULF OF ALASKA WILL JUST BE WINDING UP AS THE LEASE SALE IS HELD. THE FINE RESEARCHERS FROM NOAA WHO ARE COORDINATING THIS STUDY DO NOT BELIEVE, I THINK, THAT THEY HAVE ANY RELATION TO THE LEASE SCHEDULE AT ALL. AS ENGINEERS AND SCIENTISTS, I MUST BELIEVE THAT YOU WOULD WANT THIS INFORMATION BEFORE PROCEEDING, AND THE STATE WILL ADOPT A POLICY WHICH ATTEMPTS TO MAXIMIZE ENVIRONMENTAL INFORMATION PRIOR TO THE MAKING OF A LEASING DECISION. THIS IS THE PROCESS WE FOLLOWED WITH THE PREPARATION OF A BEAUFORT ISLANDS ENVIRONMENTAL ASSESSMENT, AGAIN UNREQUIRED BY LAW. NO SUCH STATE PROCESS EXISTED FOR APPLICATION TO THE KACHEMAK BAY SALE, NOR WAS SUCH A PROCESS EVIDENCED IN THE FUROR FOLLOWING THE SALE AND EXISTING NOW.

GOING ONE MORE STEP WITH THE FEDERAL O.C.S. PROGRAM, WE DISCOVERED THAT THERE EXISTED NO MECHANISM EXCEPT ADMINISTRATIVE DISCRETION FOR IDENTIFYING AREAS WHERE OFFSHORE OIL AND GAS DEVELOPMENT MAY BE WHOLLY INCONSISTENT WITH OTHER RESOURCE OR USE VALUES, BE THEY FISHERIES, RECREATION, WILDERNESS OR SIMPLY AESTHETIC. SURELY, EVEN IN OUR RUSH TO "SELL THE SHELF" IN ALASKA, WE CAN FIND AND AGREE ON THOSE SPECIAL AREAS WHERE EITHER WE SHOULD NOT PROCEED AT ALL, OR IF NECESSARY, DO SO ONLY AS A LAST PRIORITY.

IF THERE ARE SUCH AREAS, MUST WE NOT ASK FOR A WAY TO DEFINE THEM AND TO IDENTIFY THEM, AND A MECHANISM TO EXCLUDE THEM? THE STATE WILL ADOPT SUCH A POLICY WITH REGARD TO ITS OWN SALES, AND IS NOW DEFINING THE PRECISE AREAS OF CONCERN. INCLUDED IN THE EVALUATION PHASE ARE BOTH KACHEMAK BAY AND THE BEAUFORT SEA AREAS. THUS FAR, THERE HAS BEEN NO INDICATION THAT THERE IS EITHER ABILITY OR WILLINGNESS ON THE PART OF THE DEPARTMENT OF THE INTERIOR TO ESTABLISH SUCH A PROCESS TO AVOID EXTREME RESOURCE CONFLICTS AND PROTECT SPECIAL AREAS.

NEXT, INSOFAR AS POSSIBLE, IT HAS APPEARED DESIRABLE TO THE STATE THAT NEW OR "FRONTIER" OFFSHORE OPERATIONS OCCUR FIRST IN AREAS WHERE SUCH OPERATIONS ARE LIKELY TO COST THE LEAST, CREATE THE FEWEST RESOURCE CONFLICTS, AND REQUIRE THE LEAST AMOUNT OF MAJOR CHANGES IN THE AREA. REGARDING

THE FEDERAL PROGRAM, IT IS CLEAR THAT IT SHOULD BE RESISTED IN ITS INTENTION TO IMPOSE ITSELF FIRST ON THE NORTHEAST GULF OF ALASKA, WHERE THE COSTS WILL BE HIGH, THE RESOURCE CONFLICTS GREAT AND THE CHANGE IN THE NEARBY AREA EXTRAORDINARY. TO PLACE THE NORTHEAST GULF SO HIGH ON THE SCHEDULE, THE DEPARTMENT OF THE INTERIOR HAD TO LOOK BLINDLY PAST EAST COAST AREAS WHERE, ON EVERY COUNT, EARLIER LEASING WOULD HAVE BEEN MORE APPROPRIATE.

IN KACHEMAK BAY, RESOURCE CONFLICTS ARE EXTREMELY HIGH. CHANGE IN THE IMMEDIATE AREA WILL BE EXTREME, ALTHOUGH PRIOR KENAI PENINSULA OFFSHORE OPERATIONS PROVIDE SOME BASE AGAINST OVERALL MAJOR CHANGE AND PERHAPS AGAINST EXCESSIVE COSTS. IN THE BEAUFORT ISLAND AREA, PARTICULARLY NORTH OF PRUDHOE BAY, NEW OFFSHORE OPERATIONS WOULD BUILD ON EXISTING NORTH SLOPE OPERATIONS TO MODERATE BOTH CHANGE AND COSTS. RESOURCE CONFLICTS, ALTHOUGH PRESENT, WOULD APPEAR TO BE FAR LESS SEVERE THAN EITHER OF THE OTHER AREAS PROPOSED.

POTENTIAL COSTS, THOSE UNDEFINABLE RISKS FROM A MAJOR SPILL TO THE EXISTING RESOURCES OF AN AREA SUCH AS FISHERIES, OR SCENIC AND RECREATIONAL VALUE, MUST BE ALSO A FACTOR. NOT ONLY THE VALUE OF THESE RESOURCES, BUT ALSO THE DIFFICULTY AND RISKS OF OIL AND GAS OPERATIONS MUST BE BALANCED IN COMPARING AND PRIORITIZING OFFSHORE AREAS. SUCH AN EVALUATION MUST RESULT IN POTENTIAL COSTS FAR HIGHER IN THE NORTHEAST GULF AND IN KACHEMAK BAY THAN IN THE BEAUFORT ISLAND AREA OF THE BEAUFORT SEA.

A RELATED COMPONENT OF A UNIFIED POLICY MUST BE THE PLACE THAT ANY LEASE SALE, AND SUBSEQUENT OFFSHORE OPERATIONS, WILL PLAY IN A RATIONAL SCHEME OF OIL AND GAS DEVELOPMENT. SHOULD IT OCCUR FIRST IN AN AREA LIKE THE BEAUFORT SEA, WHERE ONSHORE SUPPORT FACILITIES EITHER EXIST OR WOULD BE COMPATIBLE, AND WHERE A PIPELINE TRANSPORTATION SYSTEM WILL EXIST WITH CARRYING CAPACITY ON A PROPER SCHEDULE?

SHOULD IT COME FIRST IN AN AREA LIKE THE EAST COAST, WHERE THE ENERGY DEMAND IS THE GREATEST, WHERE THE SUPPLY LINES WOULD BE THE SHORTEST, AND WHERE PROCESSING FACILITIES WILL BE AVAILABLE? OR SHOULD IT COME FIRST AND IMMEDIATELY WHERE NO SUCH FACILITIES EXIST AND TRANSPORTATION OF GAS OR CRUDE OIL WILL BE CONTINGENT ON A NEW, YET TO BE DESIGNED AND CONSTRUCTED SYSTEM, AND FED INTO A MARKET WHICH MAY WELL BE IN A SURPLUS POSITION WHEN DELIVERY IS MADE?

PERHAPS THE MAJOR EMERGING CORNERSTONE OF A UNIFIED STATE OFFSHORE POLICY IS THE CONCERN OF THE STATE FOR HER COMMUNITIES. THIS IS SO BECAUSE THE COMMUNITIES, WITH THEIR DISTINCT AND SPECIAL PERSONALITIES, HAVE SO MUCH TO DO WITH THE QUALITY OF LIFE IN ALASKA. NOT EVEN THE MOST ZEALOUS ADVOCATE OF OFFSHORE DEVELOPMENT DENIES THE TOLL THAT SUCH ACTIVITY WILL TAKE, IN TERMS OF CHANGE, ON THE COASTAL TOWNS OF ALASKA. THERE IS VIRTUAL UNANIMITY THAT "IT WILL NEVER BE THE SAME," ALTHOUGH THERE IS CERTAINLY LESS AGREEMENT WHETHER THIS RESULT IS GOOD OR BAD.

In the beautiful towns of Homer and Seldovia on Kachemak Bay, the verdict is "bad", and it is all the worse that their feelings were given so little public outlet prior to the sale of oil and gas lease sales in their own backyard. In the northeast Gulf of Alaska, the verdict respecting the merits of the change is different. There, the communities plead for time to plan, and for assistance in doing so, before the explosion takes place. In this area, towns like Yakutat, Cordova, Seward, and Kodiak, like the towns of Northern Scotland before them, are becoming aware of what they can do given time.

Let us give them the time they need and seek out those areas, whether they be in other sections of the United States, or on the already developed North Slope of Alaska, where the conflicts of community change will be less and the scale of the need, with fewer community conflicts, will afford us all the capability to get ready.

It is my belief that the State will continue in its policy to seek to avoid the sacrifice of its coastal communities, even to such an objective as energy supply, but rather will seek the time, the assistance or the conditions necessary to protect the people. I hope we never have to ask "how come nothing's like it was until its gone?" (Sammy Davis, Jr. as Will Martin in "Yes, I Can").

FINALLY, LET ME TOUCH ON THE POLICY THEMES RELATED TO TECHNOLOGY, AND ITS DARKER SIDE, INEVITABILITY. YOU KNOW AS ENGINEERS AND SCIENTISTS THAT MANY ALASKANS ARE GRIPPED BY THE NOTION OF INEVITABILITY--INEVITABILITY OF GROWTH, INEVITABILITY OF OFFSHORE OIL AND GAS DEVELOPMENT, INEVITABILITY OF THE LOSS OF "THE ALASKAN WAY OF LIFE"--HARD TO DESCRIBE BUT CERTAINLY REAL. INEVITABILITY TRANSLATES IN ENGINEERING TO ". . . SHOW US THE PROBLEM, WE'LL SOLVE IT."

THE ECONOMIST KENNETH BOULDING CAPTURED THE FEELING AS FOLLOWS:

> "I HAVE RECENTLY DISCOVERED THE NAME OF THE DEVIL, AND THAT IS SOMETHING TERRIBLY IMPORTANT TO KNOW. THE REAL NAME OF THE DEVIL IS SUB-OPTIMIZATION, FINDING OUT THE BEST WAY TO DO SOMETHING WHICH SHOULD NOT BE DONE AT ALL. . . . "

IS THIS "SUB-OPTIMIZATION" NOT THE TOOL, THE CONCEPT, WHICH GUARANTEES THAT EVEN THE MARGINALLY INEVITABLE CAN BE ACCOMPLISHED WITH HARD WORK, I.E., "THE DIFFICULT WE CAN DO TODAY, THE IMPOSSIBLE WILL TAKE UNTIL TOMORROW."

THIS CONCERN HAS TRANSLATED INTO EMERGING STATE POLICY ON OFFSHORE DEVELOPMENT NOT SO MUCH AS A REQUEST FOR STATUTORY STANDARDS, BUT AS A PLEA FOR THE ALASKA PUBLIC

AND ITS GOVERNMENT TO BE ABLE TO SAY "NO" TO CERTAIN ASPECTS AND METHODS OF OFFSHORE DEVELOPMENT. THIS CONCEPT CLEARLY MOTIVATES A POLICY WHICH SEEKS A RECOGNITION THAT SOME COASTAL AREAS ARE SO VALUABLE FOR OTHER RESOURCE PURPOSES THAT, EVEN IN THE FACE OF INEVITABILITY, AND EVEN WITH THE SKILL TO "DO THE BEST JOB POSSIBLE," WE SHOULD BE ABLE TO EITHER PRECLUDE OIL AND GAS OPERATIONS OR UNDERTAKE THEM ONLY AS A FINAL PRIORITY.

REGARDING TECHNOLOGY, THE NUTS AND BOLTS OF OFFSHORE OIL AND GAS EXPLORATION, THE STIPULATIONS, THE DESIGN OF EQUIPMENT, THE OPERATING ORDERS, THIS SAME CONCEPT HAS TRANSLATED INTO A REQUEST FOR CONSIDERATION OF A NEW TECHNOLOGICAL STANDARD. AGAIN, IT IS MORE A PLEA FOR A CHANGE OF PHILOSOPHY THAN FOR A STATUTORY REGIME.

UNDER PRESENT LAW, OFFSHORE OPERATIONS MUST MEET A STANDARD OF THE "BEST AVAILABLE TECHNOLOGY." THAT IS, IF WE DO IT AS WELL AS WE CAN, THEN WE CAN PROCEED. THIS IS THE STANDARD OF INEVITABILITY ARTICULATED IN LAW.

THE STATE HAS SUGGESTED THAT THIS STANDARD BE RESTATED TO REQUIRE "ENVIRONMENTALLY SAFE TECHNOLOGY". THIS HAS BEEN MET, AS I AM SURE SOME OF YOU ARE THINKING, WITH THE CHARGE THAT "IT CAN'T BE DEFINED" AND THAT "THERE WILL ALWAYS BE SOME RISKS." ON THE LATTER COUNT, I AGREE, BUT THE RISKS SHOULD

BE EVALUATED, AND TAKEN WHERE NECESSARY, ACCORDING TO A STANDARD WHICH MEASURES THE OVERALL ENVIRONMENTAL SAFETY OF A THING OR ACTION RATHER THAN MERELY WHETHER IT IS "THE BEST WE CAN DO."

ON THE LATTER--"IT CAN'T BE DEFINED"--LET ME AGREE THAT IT IS NO EASY TASK TO DEFINE ANYTHING WHICH IS SUBJECTIVE, FOR IT CONSISTS OF QUALITIES WHICH CAN'T BE ADDED OR SUBTRACTED. STILL, I WOULD BELIEVE THAT THERE IS AGREEMENT HERE THAT "ENVIRONMENTALLY SAFE TECHNOLOGY" IS RECOGNIZED NOT ONLY AS A CONCEPT OF VALUE WHICH <u>OUGHT</u> TO BE DEFINED, BUT AS A CHALLENGE FOR ENGINEERS WHICH FAR EXCEEDS THE LESSER BURDEN OF SIMPLY LOCATING THOSE THINGS AND PROCESSES WHICH ARE AT THE TOP OF THE PRESENT "STATE OF THE ART."

TO APPLY A STANDARD OF "ENVIRONMENTALLY SAFE TECHNOLOGY," REQUIRES NOT ONLY THAT, AS ENGINEERS, YOU DESIGN AND KNOW WHAT IS THE BEST POSSIBLE, BUT ALSO THAT IT IS SAFE. SHOULD WE NOT SEEK TO SET MINIMUM STANDARDS FOR OFFSHORE OPERATIONS RATHER THAN BEING SHAPED ONLY BY WHAT IS TECHNOLOGICALLY AVAILABLE?

THE TASK OF DEFINITION ~~NOT~~ ONLY ON THIS POLICY BUT ON THE OTHERS I HAVE DESCRIBED BELONGS TO US ALL, BUT FALLS MOST HEAVILY ON THE STATE. TO ADDRESS THE FEDERAL O.C.S. PROGRAM, THE ULTIMATE FATE OF A PRIOR LEASE SALE IN KACHEMAK BAY, AND THE

SALE OF STATE LEASES IN THE BEAUFORT SEA WITH INTEGRITY, CREDIBILITY AND CONSISTENCY IS NOT ONLY THE OBJECTIVE OF THE STATE, BUT THE ABSOLUTE PREREQUISITE FOR ALASKA TO DEAL FAIRLY AND SUCCESSFULLY WITH THE OIL INDUSTRY OVER THE COMING YEARS.

ALL OF THESE POINTS MUST COME TOGETHER FOR ALASKA UNDER THE GENERAL COMMITMENT TO MAKE A RESPONSIBLE AND MAJOR CONTRIBUTION TO THE NATION'S ENERGY SUPPLY FROM THE NATURAL BOUNTY WITH WHICH OUR STATE IS BLESSED. THEY MUST COME TOGETHER IN A POLICY WHICH NEITHER ACQUIESCES BLINDLY TO THE PREFERRED OR EVEN TRADITIONAL PEROGATIVES OF THE OIL INDUSTRY, NOR ARBITRARILY DENIES IT A STABLE, CONSISTENT AND FAIR STANDARD ON WHICH IT CAN DO THE WORK WE AGREE IS IMPORTANT.

STATE POLICY ON THE ISSUES I HAVE DISCUSSED, AND MANY OTHERS, HAS BEEN DEVELOPING FOR MONTHS, AND THERE CONTINUES TO BE A PRESS FOR PRACTICAL DECISIONS ON THE ELEMENTS OF ALASKA'S SECOND GENERATION OF OFFSHORE OIL AND GAS DEVELOPMENT. SOME OF THESE DECISIONS MUST AND WILL BE FORTHCOMING SHORTLY.

THE "SECOND GENERATION" OFFSHORE WILL BE MUCH BIGGER AND FAR LONGER THAN OUR MEAGER EXPERIENCE IN THE COOK INLET. THE RESULTS OF PRESENT DECISIONS ON THE BEAUFORT SEA, ON

KACHEMAK BAY AND ON THE FEDERAL O.C.S. PROGRAM WILL AFFECT THIS STATE LONG AFTER THEY ARE MADE, BUT THEY WILL SET THE PATTERN NOW.

ALSO SETTING THE PATTERN WILL BE THE QUALITY OF THE WORK THE MEMBERS OF THIS CONFERENCE WILL DO. AS I LOOK AT YOUR PROGRAM, I SEE POTENTIAL ANSWERS TO MANY OF THE QUESTIONS WE MUST ASK AS WE MOVE OFFSHORE IN THE ARCTIC. ON BEHALF OF GOVERNOR HAMMOND, I WANT TO EXTEND GRATITUDE FOR THE WORK YOU ARE UNDERTAKING, TO WISH YOU THE VERY BEST IN YOUR DELIBERATIONS THIS WEEK, AND TO WELCOME YOUR MANY DISTINGUISHED VISITORS HERE TO ALASKA. WE ARE HONORED TO HAVE YOU.

THANK YOU VERY MUCH.

TESTIMONY TO THE HEARINGS -
GULF OF ALASKA OIL AND GAS LEASE SALE
BY WALTER J. HICKEL
AUGUST 12, 1975, ANCHORAGE WESTWARD HOTEL

THE VALUES THAT ARE ALASKA HAVE MANY MEANINGS TO MANY PEOPLE.

VALUES OF NATURAL BEAUTY, VALUES OF RECREATIONAL OPPORTUNITY, OPEN SPACES, WILDLIFE.

AND ALSO VALUES IN TERMS OF MEETING THE EVERYDAY NEEDS OF PEOPLE.

EACH OF THESE VALUES MUST BE RESPECTED.

ALASKA CANNOT BE A REFUGE FOR ONLY ONE DIMENSION OF LIVING.

GOD CREATED THIS GREAT LAND TO MEET MAN'S PHYSICAL NEEDS AS WELL AS HIS SPIRITUAL NEEDS.

OUR RESPONSIBILITY IS TO SEE THAT IT'S DONE RIGHT.

THE QUESTION IN FRONT OF US IS NOT IF, BUT WHEN, WE SHALL EXPLORE THE OUTER CONTINENTAL SHELF.

AND EXPLORE IS THE RIGHT WORD.

FOR UNTIL WE EXPLORE, WE'LL NEVER KNOW WHAT'S THERE.

WE'LL NEVER KNOW WHAT MIGHT BE ITS HIGHEST AND BEST USE.

ADJACENT TO THE PIECE OF GEOGRAPHY IN QUESTION ARE SOME OF THE GREAT SCENIC NATURAL WONDERS IN ALASKA, IF NOT ON EARTH.

IT IS A TRULY VAST AREA, AND YET NO ONE, INCLUDING THOSE WHO WOULD EXPLORE IT, WANTS TO ABUSE IT.

NO ONE WANTS TO SEE IT RUINED BY THE MESSINESS OF MAN.

FORTUNATELY, WE HAVE THE TECHNOLOGY, AND WE HAVE THE CONCERNED PEOPLE IN GOVERNMENT TO SEE THAT THE REGULATIONS REQUIRED TO DO THE JOB RIGHT ARE STRICTLY FOLLOWED.

I HAVE ADVISED PRESIDENT FORD THAT WE CAN SOLVE OUR ENERGY PROBLEMS WITHIN OUR OWN NATIONAL BORDERS.

I HAVE TOLD HIM THAT ONE OF THE GREAT SOLUTIONS . . . BY NO MEANS THE ONLY ONE, BUT ONE OF THE GREAT . . . IS RIGHT HERE IN ALASKA.

I COMMEND THE FEDERAL GOVERNMENT FOR INITIATING ACTION SUCH AS THESE PROPOSED LEASE SALES TO HELP MAKE AMERICA ENERGY SELF-SUFFICIENT.

NOW IS THE TIME TO ACT. IN ACTING WE WILL GAIN CONFIDENCE.

WITH CONFIDENCE WE WILL LEARN HOW TO MAKE MAN AND NATURE COMPATIBLE.

AND THAT'S WHAT A GOOD ENVIRONMENT IS ALL ABOUT.

I HAVE SOME KNOWLEDGE OF THE HAZARDS AND THE CONCERN ABOUT THE POLLUTION THAT CAN HAPPEN FROM OFF-SHORE DRILLING.

NO OTHER ONE ISSUE DOMINATED MORE OF MY TIME AS SECRETARY OF THE INTERIOR, FROM THE MOMENT I SAT IN THAT CHAIR.

THE SANTA BARBARA BLOWOUT, THE MOST PUBLICIZED OFF-SHORE OIL INCIDENT IN HISTORY, TOOK PLACE JUST FOUR DAYS AFTER MY CONFIRMATION AS SECRETARY.

THE PEOPLE OF SANTA BARBARA, LIKE THE PEOPLE OF ALASKA, DO NOT WANT THEIR ENVIRONMENT HARMED.

AND THE PUBLIC UPROAR FROM THAT CALIFORNIA DISASTER WAS PROBABLY THE MOST IMPORTANT SINGLE FACTOR IN AWAKENING AMERICA TO AN ACTIVE CONCERN ABOUT ENVIRONMENTAL ISSUES.

WHAT THE PUBLIC MAY NOT REALIZE IS THAT THE COMPANIES INVOLVED IN THAT BLOWOUT WERE OPERATING COMPLETELY WITHIN THE LAW.

THE PROBLEM WAS THAT DRILLING REGULATIONS HADN'T BEEN UPGRADED SINCE 1952.

I INSTRUCTED THE U.S. GEOLOGICAL SURVEY TO WRITE A WHOLE NEW SET OF REGULATIONS FOR DRILLING ON THE CONTINENTAL SHELF.

TO MEET THE CHALLENGES OF THESE STIFFER REGULATIONS, AND TO WORK IN MORE DIFFICULT AREAS SUCH AS THE NORTH SEA, THE INDUSTRY HAS DEVELOPED A NEW GENERATION OF TECHNOLOGY.

BUT, WHAT'S MORE IMPORTANT, THERE'S A NEW ATTITUDE.

OUR NORTH SLOPE OPERATION HERE IN ALASKA, IN FACT, THE ENTIRE PIPELINE PROJECT, IS A PERFECT EXAMPLE OF HOW THE OIL INDUSTRY HAS LEARNED TO OPERATE WITHIN SOUND ENVIRONMENTAL PARAMETERS.

I HAVE NO INTENTION OF MINIMIZING THE DIFFICULTIES OF EXPLORING THE GULF OF ALASKA.

THERE IS NO QUESTION IT WILL BE ONE OF THE GREAT CHALLENGES OF OUR TIME. THE GAMBLE IS THERE. AND SO IS THE RISK.

BUT I HAVE TOTAL CONFIDENCE IN THE INTENT, THE ATTITUDE AND THE KNOW-HOW OF THE MODERN EXPLORATION COMPANIES.

AND, THE PUBLIC SHOULD KNOW THAT WE'RE NOT TALKING ABOUT STARTING FROM SCRATCH.

THE REASON THE PRESS IS ON FOR THE SALE OF THE GULF OF ALASKA LANDS IS BECAUSE THERE IS MUCH MORE KNOWLEDGE OF THE GULF THAN THERE IS, FOR EXAMPLE, OF GEORGIA BANKS OR THE OTHER POTENTIAL AREAS OFF THE EAST COAST OF THE UNITED STATES.

WE HAVE GEOLOGICAL KNOWLEDGE FROM THE GULF GOING BACK OVER SEVENTY YEARS, INCLUDING A FLURRY OF ACTIVITY IN THE FIFTIES AND SIXTIES.

THE MAIN REASON FOR THE CONCERN OVER THIS PROPOSED DEVELOPMENT IS FEAR . . . FEAR OF THE UNKNOWN.

WHEN YOU DON'T UNDERSTAND SOMETHING, YOU FEAR IT.

IF YOU FEAR IT, YOU FIGHT IT.

THIS WAS THE SAME ISSUE AT THE HEART OF THE CONTROVERSY SURROUNDING THE TRANS-ALASKA PIPELINE PROJECT.

THE BATTLE WENT TOO LONG.

AND WHO WERE THE VICTIMS?

THE PEOPLE WERE . . . AND SO WAS THE ENVIRONMENT.

OIL WAS DISCOVERED AT PRUDHOE IN 1967. IT WILL BE TEN YEARS LATER, AT THE EARLIEST, BEFORE A DROP OF THAT OIL GETS TO MARKET.

BY THE SPRING AND EARLY SUMMER OF 1972, WE HAD THE ANSWERS TO THE VERY REAL ENVIRONMENTAL QUESTIONS THAT HAD BEEN RAISED.

IT WAS AT THAT POINT THAT A DECISION SHOULD HAVE BEEN MADE.

ALL OF US . . . ENVIRONMENTALISTS, GOVERNMENTAL LEADERS, AND BUSINESSMEN . . . SHOULD HAVE AGREED THAT IN A YEAR'S TIME THE PIPELINE WOULD START.

THEN WE COULD HAVE PLANNED FOR IT, AND PREPARED FOR THE IMPACT AND SOCIAL SERVICES NEEDED.

INSTEAD, WE HAD TO WADE THROUGH A LENGTHY COURT BATTLE UNTIL CONGRESS STEPPED IN.

WE'RE AT THAT SAME POINT WITH THE GULF OF ALASKA.

INSTEAD OF SPENDING OUR TIME AND RESOURCES FIGHTING EACH OTHER, LET'S PLAN NOW FOR WISE, CAREFUL DEVELOPMENT.

IT TAKES STRENGTH TO DO IT RIGHT, BUT ALASKA IS A COUNTRY OF STRENGTH.

OVER THE YEARS, I HAVE OBSERVED THAT THERE ARE TWO KINDS OF PEOPLE THAT COME TO THIS STATE . . . THE FRONTIERSMAN AND THE ESCAPIST.

THE FRONTIERSMAN WILL CHALLENGE ANYTHING, INCLUDING THE RAWNESS OF LIVING IN THE WILDS. TO HIM, NOTHING IS IMPOSSIBLE.

BUT THE ESCAPIST IS FEARFUL OF OTHER PEOPLE. HE DOESN'T WANT TO FACE THE REALITIES OF WHAT MAKES LIFE GO, SO HE RUNS AWAY FROM THEM.

THE ESCAPIST IS THE REAL EXPLOITER. HE DOESN'T CARE ABOUT PEOPLE. ALL HE CARES ABOUT IS HIMSELF.

HE IS LIKE THE RICH MAN WHO BUILDS A HIGH FENCE AROUND HIS HOUSE SO HE WON'T HAVE TO SEE THE POVERTY ACROSS THE STREET.

THE ESCAPIST OF TODAY SAYS, "LET SOMEONE ELSE PRODUCE THE THINGS MAN NEEDS. JUST DON'T DO IT HERE."

ALL HE WANTS IS REFINED GASOLINE PRODUCED SOMEWHERE ELSE AND DELIVERED TO HIS CORNER GAS STATION.

THIS IS THE INDIVIDUAL WHO DOESN'T UNDERSTAND THAT WE LIVE IN ONE WORLD, A CLOSED SYSTEM.

YOU CANNOT EXPORT POLLUTION.

THE TASK OF OUR TIMES IS NOT TO THRUST OUR PROBLEMS ON THE POOR AND UNDEVELOPED NATIONS, BUT TO SOLVE THEM OURSELVES.

I'M NOT SAYING IT'S TIME TO FACE THE ENERGY QUESTION HEAD-ON IN ALASKA BECAUSE I LIVE HERE.

I'M SAYING LET'S DO IT BECAUSE THE ENERGY IS NEEDED BY OTHER HUMAN BEINGS, AND BECAUSE GOD PUT IT HERE.

WHO WILL PAY FOR THE IMPACT ON THE LOCAL COMMUNITIES AND THE STATE AS A WHOLE?

THE BEST ANSWER IS REVENUE SHARING.

JUST AS FIRMLY AS I BELIEVE IN ALASKA'S RESPONSIBILITY TO THE REST OF THE COUNTRY . . .

. . . I BELIEVE IN THE RESPONSIBILITY OF THE REST OF THE COUNTRY TO ALASKA, OR ANY OTHER ENERGY-PRODUCING STATE IN THE UNION.

THE REVENUES FROM OFF-SHORE PRODUCTION MUST BE SHARED WITH THOSE MOST IMMEDIATELY IMPACTED.

THERE ARE BILLS BEFORE CONGRESS TODAY THAT WOULD ACCOMPLISH JUST THAT.

I'M MOST FAMILIAR WITH CONGRESSMAN YOUNG'S BILL, AND IT'S A GOOD ONE.

BUT THERE IS AN ADDITIONAL POINT.

THERE'S NO REVENUE SHARING FROM A DRY HOLE.

UNTIL EXPLORATION IS ATTEMPTED, OIL DISCOVERED, AND PRODUCTION BEGUN, REVENUE-SHARING IS "PIE IN THE SKY."

AS FAR BACK AS YOU CAN LOOK, IT WAS THE FRONTIER-TYPE SPIRIT THAT BROUGHT GREATNESS TO A CIVILIZATION.

THE DOERS OF THE WORLD WILL SOLVE THE WORLD'S PROBLEMS. NOT THE DOOMSDAYERS.

AND IT'S THE DOERS WHO WILL BE THE FIRST TO SAY, "JUST DO IT, BUT DO IT RIGHT."

BECAUSE THEY ARE PROUD OF THEIR DOING.

THEY ARE THE ONES WHO WILL HELP POLICE THOSE WHO WOULD EXPLOIT, DESECRATE AND ABUSE.

WE CANNOT IGNORE THE PLIGHT OF NEW YORK CITY, THE LINES OF UNEMPLOYED IN DETROIT AND LOS ANGELES, THE RETIRED AMERICANS AND THE MIDDLE CLASS FAMILIES WHOSE SAVINGS AND SALARIES ARE BEING DEVOURED BY INFLATION, THE COMMUNITIES WHERE THE SHORTAGE OF ENERGY IS BRINGING THEM TO THEIR KNEES.

THERE'S NOTHING HUMAN ABOUT CLOSING YOUR EYES TO THESE VERY REAL PROBLEMS.

IF YOU ONLY CARE ABOUT YOURSELF, YOU'LL SOON DIE . . . AND YOU'LL DIE AWFULLY LONELY.

THIS IS NOT ALASKA'S DESTINY.

OUR DESTINY IS TO REKINDLE THE FRONTIER SPIRIT.

AND TO DO IT WITHOUT DESTROYING THE OTHER PRICELESS VALUES OF THIS LAND.

I SAY, IT IS TIME TO ACT . . . NOT TIME TO STALL.

THANK YOU.

H. A. 'RED' BOUCHER & ASSOCIATES
805 WEST THIRD • ANCHORAGE, ALASKA 99501 • (907) 279-7602

MY NAME IS H.A. "RED" BOUCHER OF H.A. BOUCHER & ASSOCIATES, ANCHORAGE, ALASKA.

IN PREPARING FOR TESTIMONY BEFORE THIS COMMITTEE, I REVIEWED SOME OF THE SPEECHES THAT I MADE THROUGHOUT THE NATION IN 1972 AND 1973.

AT THAT TIME I WAS LT. GOVERNOR OF ALASKA AND WE WERE ATTEMPTING TO IMPROVE NATIONAL UNDERSTANDING OF THE ALYESKA PIPELINE PROJECT AND EXPRESS OUR DEEP CONCERN FOR THIS NATIONS GROWING DEPENDENCE ON FOREIGN OIL.

IN AN ADDRESS TO A JOINT SESSION OF THE MASSACHUSETTS LEGISLATURE I MADE SEVERAL OBSERVATIONS THAT I FEEL ARE APPLICABLE TODAY....

"THE MOST PROFOUND ISSUE THAT THIS NATION FACES TODAY IS OUR GROWING ENERGY DEFICIT. MOST OTHER ENVIRONMENTAL PROBLEMS ARE THEORETICALLY SOLVABLE: POLLUTION CAN BE LARGELY ABATED BY THE SAME SCIENCE THAT CREATED INDUSTRY, AND SUBSTANTIAL PERCENTAGES OF MATERIALS CAN BE RECYCLED, AND THEREBY HELD IN PERPETUITY. BUT ENERGY CANNOT BE RECYCLED. OUR ENERGY DEPLOYMENT CAPABILITIES AND THEIR CONSEQUENCES WILL SUPERSEDE ALL OTHER ENVIRONMENTAL, ECONOMIC, AND POLITICAL ISSUES BEFORE THIS DECADE HAS PASSED."

CLEARLY GENTLEMAN.....THERE ARE NO "QUICK FIX" SOLUTIONS.....

OUR NATION HAS GROWN AS A WORLD POWER IN DIRECT RELATION TO THE DEVELOPMENT OF OUR ENERGY RESOURCES....SOLAR POWER, FUSION AND OTHER MORE INFINITE SOURCES OF ENERGY ARE NOT WITHIN OUR IMMEDIATE TECHNOLOGICAL GRASP IN SUFFICIENT SUPPLY TO ALLOW THIS NATION TO SWITCH ITS ENERGY LIFELINE FROM FINITE TO INFINITE POWER.

FOR THE IMMEDIATE AND FORSEEABLE FUTURE WE MUST RELY ON THE

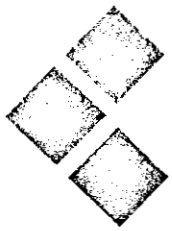
ECOLOGICAL REVOLUTION OF 300 MILLION YEARS AGO TO MOVE US IN TO THE AGE OF FINITE POWER.....

WHEN THE OPEC NATIONS MOVED THE BARREL OF OIL TO THE CENTER OF THE INTERNATIONAL CHESSBOARD OF POWER POLITICS IN THE WINTER OF 1973 THEY SENT SHOCK WAVES THROUGHOUT THE WORLDS ECONOMY THAT IS STILL HAVING A DOMINO EFFECT TODAY....THE CURRENT RECESSION THAT OUR NATION IS JUST BEGINNING TO PULL OUT OF IS MUCH MORE THAN A READJUSTMENT OR A COOLING OFF OF INFLATION.....CLEARLY AND UNMISTAKABLY THEY HAVE SQUEEZED OUR LIFELINE AND EFFECTED EVERYTHING FROM THE VALUE OF THE DOLLAR TO OUR FOREIGN POLICY....WITHOUT SO MUCH AS A SINGLE GUNBOAT THE "THIRD WORLD" BROUGHT THE INDUSTRIAL GIANTS OF THE WORLD TO THE NEGOTIATION TABLE.....

AND WHAT OF THE FUTURE? EVEN THE MOST OPTOMISTIC RECOGNIZE THAT THIS WINTER WILL SEE THE ENERGY GAP WIDEN EVEN FURTHER WITH THE PROSPECT OF RISING WORLD OIL PRICES REMAINING A CONSTANT THREAT. FOR A NATION THAT IS 96% DEPENDENT ON FOSSIL FUEL TO SUPPORT ITS INDUSTRIAL LIFE SYSTEMS....WHEN YOUR OUT OF ENERGY YOUR NOT OUT OF BREATH...YOUR OUT OF HEARTBEAT.....

IT IS IN THE FRAMEWORK OF THE LARGER PICTURE THAT I WOULD LIKE TO MAKE MY COMMENT ON THE DEVELOPMENT OF ALASKA'S OFFSHORE RESERVES. FOR WITHOUT THE INDUSTRY OF OUR SISTER STATES TO THE SOUTH, ALASKA, THE RESOURCE GIANT OF AMERICA HAS LITTLE LONG RANGE MEANING....

CLEARLY, ALASKA HAS A GREAT ROLE IN THE FUTURE OF OUR COUNTRY AND WITH THIS ROLE A GREAT RESPONSIBILITY...ACTION NOW CAN RESULT IN THE DEVELOPMENT OF A LONG RANGE ENERGY PLAN THAT CAN SEE AN



ORDERLY TRANSFER OF THIS NATIONS ENERGY BASE FROM FINITE TO INFINITE POWER BY THE YEAR 2000....FURTHER DELAY IN DEVELOPING INTRIEM RESOURCES COULD RESULT IN OUR BEING A THIRD RATE WORLD POWER BY 1985.....

RUSSIA RICH IN FINITE RESOURCES AND SECOND ONLY TO THE MIDDLE EAST IN OIL AND GAS RESERVES IS THE ONLY ENERGY SELF SUFFICIENT SUPER POWER TODAY....

DEVELOPMENT OF ALASKA'S OUTER CONTINENTAL SHELF IN HARMONY WITH ENVIRONMENTAL CONCERN CAN AND MUST BE ACCOMPLISHED AT THE EARLIEST DATE POSSIBLE, WE SIMPLY CANNOT BUILD A FENCE AROUND THE 49TH STATE AND CRINGE FROM THE FUTURE BECAUSE OF THE MISTAKES OF THE PAST.....

IN 1973 THE ARGUEMENT WAS BROUGHT FORTH THAT IT WAS IMPOSSIBLE TO BUILD A 48" PIPELINE ACROSS THE TUNDRA AND PERMAFROST.....

TODAY THIS PROJECT IS BEING CALLED A MODEL OF ENVIRONMENTAL CONCERN.....IT HAS ALSO BEEN STATED THAT ALASKA AND ALASKANS IN THE MAJORITY HAVE RECEIVED LITTLE

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NO BENEFIT FROM THE PIPELINE AND WERE OPPOSED TO RESOURCE DEVELOPMENT.

FOR A MOMENT LETS TAKE A LOOK AT ALASKA IN HER FIRST YEAR OF PIPELINE CONSTRUCTION:

1. INCOME TO THE STATE IN TAXES AND LICENSE FEES INCREASED 66.43 PER CENT OVER THE PREVIOUS YEAR.
2. CORPORATE TAXES WERE NEARLY DOUBLE THOSE WHICH HAD BEEN PROJECTED BY OUR DEPARTMENT OF REVENUE.
3. AT LEAST 50% OF THE FISCAL 1976 BUDGET WILL BE MET BY REVENUES FROM OIL AND GAS ACTIVITY.

AND WHAT OF THE INDIVIDUAL ALASKAN. IN A RECENTLY COMPLETED STATEWIDE SCIENTIFIC SURVEY CONDUCTED AS A JOINT VENTURE BETWEEN ROWAN GROUP INC AND MY FIRM, SOME INTERESTING FACTS WERE REVEALED.

1. ALASKA HAS BEEN UNDERGOING PERHAPS THE MOST RAPID INCREASE IN INCOME IN THE UNITED STATES. OUR SAMPLE TAKEN IN APRIL OF THIS YEARS TELLS US THAT 34 PERCENT OF THE POPULATION EARN OVER $25,000 A YEAR.
2. UNEMPLOYMENT IN THE URBAN AREAS INDICATED 3.6 UNEMPLOYMENT.
3. THE MEDIAN FAMILY INCOME IN ALASKA IS NOW OVER $24,000; UP FROM $16,000 IN ROWAN GROUP SURVEYS OF THE LATE SIXTIES.
4. A MAJORITY OF 57 PERCENT BELIEVE THAT OIL DEVELOPMENT, IN THE LONG RUN, WILL HAVE A POSITIVE EFFECT ON ALASKA. AMONG RESIDENTS HERE MORE THAN 10 YEARS, 65 PERCENT BELIEVE THIS, AS DOES 64 PERCENT OF UPPER-INCOME ALASKANS, 64 PERCENT OF HOUSEWIVES AND 61 PERCENT OF MEN. IN FAIRBANKS, WHERE

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PIPELINE IMPACT IS SUBSTANTIAL, WE WERE SURPRISED TO LEARN THAT 72 PERCENT OF THE RESIDENTS IN OUR SURVEY BELIEVED OIL AND GAS DEVELOPMENT WILL BE GOOD FOR ALASKA.

FINALLY I FEEL THAT IT IS ESSENTIAL THAT A PERCENTAGE OF REVENUES GENERATED BY DEVELOPMENT OF THE OUTER CONTINENTAL SHELF IN ALASKA BE SET ASIDE FOR THE STATE. THIS SHARING OF REVENUES SHOULD NOT BE TOKENISM, NOR SHOULD THE COMMITMENT TO MINIMIZE ENVIRONMENTAL DEGREDATION BE LIP SERVICE.

THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE YOU.....

(3)

FIRST QUARTERLY REPORT

Alaska Industry Survey
Research Service

June, 1975

INTRODUCTION

This is the first quarterly report presented by H.A. Boucher & Associates and Rowan Group Inc. to the Alaska Industry Survey Research Service clients.

The information is intended for consumer and citizen feedback to corporations, and for internal policy, public affairs strategy, advertising, or public relations.

Alaska Industry Survey Research Service is a service provided to a very limited number of corporate clients under the agreement that no findings will be published outside the corporate house without the cooperation and assistance of Rowan Group, Inc. and H.A. Boucher and Associates.

SAMPLE DESIGN

and

METHODOLOGY

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SOME OBSERVATIONS ABOUT THIS SAMPLE

Note: The fieldtime for this study was April, 1975. The coding and editing operation; the interviewing fieldwork; the design of the questionnaire; the electronic data processing; and the report, were prepared by Rowan Group.

SAMPLE DESIGN AND STUDY METHODOLOGY

This study is based upon a sampling plan which distributes 335 personal interviews proportionately into the areas of the state based upon voting behavior. In other words, the sample is found where the votes are found, proportionately, in Alaska.

Methodologically, this is achieved by dividing the state into election districts, and then precincts, based upon statistics in the last three elections. This design permits a very accurate location sample to form. The interviewer is assigned to a certain cluster point at which a qualified respondent must be found.

The interviewer then conducts the interview, personally, in the home of the respondent. All Rowan Group interviewers are trained according to the techniques of communication outlined in our Interviewer's Manual ©. Briefly stated, the key elements of training involve objectivity, developing an encouraging (but neutral) interest, accurate recording of the exact words of the respondents, and working the interview with interviewers and respondents who are in cultural resonance. Some of these interviews, for example, were conducted by bilingual Eskimo interviewers, in the Yupik language.

Now the statistical validity of this sampling pattern has been proven to be within a few percent of accurately reflecting the attitude and opinion of all the people of the state. A statistical analysis of this sample has been performed by research and university sources beyond our control, producing this conclusion. Most recently, this same sampling plan was used by Rowan Group in preparation of the

citizen feedback for the Alaska Capital Site Selection Committee. There, we found a sample, statewide, which had voted 56% to 44% for the capital move; comparing this sample to the voters who actually cast ballots on the question in August, we found a 1% variance(the election produced 55% for and 45% against the capital referendum).

There are other ways to indicate statistical accuracy, basically by reference to other known facts about the universe of people being studied. References to the age, sex, household size, educational levels, employment characteristics, migration, length of time in a community, and so on -- all give further credence to the notion that this sample is an accurate reflection of the Alaska public.

Complications in the fieldwork led us to forego or eliminate 25 of the planned interviews, which were complicated by situations in Barrow, Bethel and Fairbanks. We decided to data-process so that we could maintain our schedule, at the loss of these interviews. This reduced the number of rural Alaska Natives in the sample. Throughout this report, the reader should be aware of the fact that the Alaska Native subsample should be about 11%, and not the 7.4% in the sample. In other words, the Alaska Native vote is underweighted in our sample. If the reader keeps this in mind, wherever Alaska Natives make a difference on a question, this weighting can be taken into account.

This situation has increased the variance, overall, of this survey; while normally the sample would yield results under $\pm$3% for the state,

the reflection is over ±4% because of the missing rural cases, when those missing are not taken into account by the reader. In summary, then, the reader can have the confidence that all figures are within a 4% variance if most of the cases are responding to the question; and an even greater accuracy if the reader takes into account a 4% increase among Alaska Native voters.

Now there are certain interesting findings in the demographics of this sample itself. These findings indicate what kind of state Alaska is now, and by comparison with previous surveys, what kind of a state it is becoming. We make the following observations:

AGE

The state is retaining its "young" features, even with the large migration from the lower '48. As in the past, 6% of the population is over 60 -- less than any state in the union; and 22% are between 18 and 25 -- extremely high.

FAMILY SIZE

The average family in Alaska is still 4 people; only among Alaska Natives is it significantly greater in size. This affects housing stock and all related services.

EDUCATION

Alaska is educated to levels which put half the population through high school, and the other half in some contact with university, community college or "beyond high school" training. In fact, 10% of the population is educated beyond college.

Even among Alaska Natives we find an increasing educational level, although the Native levels are the lowest in the state.

INCOME

Alaska has been undergoing perhaps the most rapid increase in income in the United States. Now, 34% of the sample tell us that they are earning over $25,000 a year, and the 11% who refused to give us income information for the family exhibit characteristics which are very close to the over-$25,000 group. In the Capital Site Selection survey (of April) we found that the median family income in Alaska was now over $24,000; up from $16,000 in Rowan Group surveys of the late sixties.

Perhaps more interesting is that the median income for Alaskan Natives in this survey is over $16,000 per annum, and in the April Site Selection survey, it was over $18,000. There is no question that the land claims settlement, and the employment possibilities with oil development, are changing the very nature of income distribution in the State. The increase in median family income among Natives is more rapid than among whites in the state, and is greater than that recorded for any minority group in U.S. history, as far as we know. In fact, we do not know of a similar situation in which a minority group had income increases by family, statewide, faster than the white majority population of the state. But that is the case with Alaska Natives today.

EMPLOYMENT

While the State of Alaska insists that unemployment is at 11% (or thereabouts) in Alaska today, we have no evidence that this is the case. We claim that the state is in full employment right now. Evidence for this comes from two good sources -- the Capital Site Selection survey, which so accurately reflected the voting behavior of the state, and which indicated 3.6% of the people were unemployed; and this survey, one month later, which shows 3.9% of the people unemployed.

The question was asked as in the Census -- "What were you doing most of the past 12 months -- working, or doing something else?" We found 69.0% of the sample employed, 3.9% unemployed, 20.3% classifying themselves as housewives, 3.5% as students, and 3.2% saying they were retired. The state is almost barren of retirees.

In Puerto Rico, where Rowan Group conducts the Citizen Feedback System for the Commonwealth Government of Puerto Rico, we have been tracking unemployment for two years -- every couple of months -- and with the same question (in Spanish). There, we have been consistently 4 to 6 months ahead of the Bureau of Labor Statistics in reflecting unemployment in Puerto Rico; right now it is pegged at 18.6% in the Feedback sample, and a couple of percent lower in the Bureau of Labor Statistics.

In this Alaska case, we feel that our unemployment data is better (more qualified) than the data yielded by the state.

PIPELINE IMPACT - MIGRATION

In three recent surveys, one for the Capital Site Committee, one for the Charter Commission, and this one, we asked the question: "Did you or did anyone else in this household come to Alaska as a result of work with, or hope of work with, the oil developments of recent years?" In the two earlier surveys (now published), we found 4% statewide who affirmed this statement, 3% in the Anchorage Commission study; and in this study, 5%.

However, in all these surveys we have found from five to ten times as many of the same people who admit being in Alaska for less than a few years. Given the migration we find, the population of the state would double -- if the migration holds up at the same rate of inclination -- between the 1972 and 1980 period.

We interpret this low response to being a "pipeline family" as a way in which the respondent can pretend to be part of the solution and not part of the problem of Alaska. No one in Alaska for 24 hours is unaware of how Alaskans feel about "new" people -- there is a basic problem with growth and population. One way to handle this is to immediately become (psychologically) an Alaskan, which is what we think is happening. It used to be a couple of years before people here called themselves "Alaskan" -- now it's a couple of weeks.

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THE

FINDINGS

THE FINDINGS

Two groups of questions were asked in this series of general, strategic questions. The first were contextual -- the situation in Alaska -- and the second sequence was directed right at the attitudes of the public toward industry, profits, and business practices. Here are the results from these two sequences:

THE SITUATION IN ALASKA

Every survey of recent years (since the approval by Congress of the pipeline) has found that the interrelated issues of growth, development, population increases, the dissembling or collapse of public services, and what is generally called "pipeline impact" -- by people -- form the context for the political situation Alaska faces today. It was not necessary to repeat these questions in this survey to prove again that this is the case. Instead, we probed directly into how this growth and development phenomenon is affecting industry here, and how it is affecting people.

(a) Population. There is a definite constituency in Alaska which feels that the state is too large -- by population -- right now. This group is at 27% statewide, but jumps to 37% in the Anchorage Borough (not in the City), and 37% in Fairbanks. We find that as the age of the respondent increases, the inclination to say "too large" about Alaska's present population decreases; such that 34% of those 18-25 say it, while only 5% of those over 60 say it.

Now when we reduced this question to the local community -- "Do you feel that the present population of this community is too large, just about right, or too small?" -- well, the responses changed pretty radically. Here we found 47% of the state's people -- a plurality -- claiming that their local community was too large by population.

The most extraordinary case was in Fairbanks, where 67% said that the town was too large, 24% that it was just about right, and 7% too small. Once again, young people were far more sensitive to population size and growth than older people -- and as a rule, the younger the respondent, the more sensitivity toward local population growth.

A fantastic finding here is that a clear majority which feels the local community is too large can be found only among those who are in Alaska 2 years or less! The common notion in Alaska is that the newcomers, here largely because of the pipeline development or its manifold side-effects, are for growth; while the old-timers are trying to maintain the kind of Alaska which was small, intimate, and historically remembered. This common notion -- at least on the population question -- is misleading.

In the section on Sample and Methodology, we make the interpretation that few people admit they are in Alaska as a result of the pipeline because they do not want to be part of the "pipeline impact" problem. Likewise, this finding would indicate that newcomers have adopted the anti-population position a couple of days after settlement here.

(b) Development

The feeling about oil development is that it will, in the long run, have a positive effect on Alaska. A majority of 57% believe this, including 65% of the residents here more than 10 years, 64% of the upper-income Alaskans, 64% of the housewives, 61% of men, and 72% of the residents of Fairbanks. To Alaskans, oil development may create a lot of hassles, but the benefits are clearly outweighing the liabilities at the moment.

We gave this sample the Governor's major problem over the last month -- choosing a source of new income to meet the anticipated shortfalls of the next two years. We supplied three options, and voters chose:

30% having a new oil lease sale in the Beaufort sea & elsewhere

28% taxing oil in the ground

13% borrowing the money from private sources

28% were undecided on the issue (like the Governor)

Among Alaska Natives, there was a large plurality (35%) for a new lease sale, and little support for the other alternatives.

As this report is being written, it does appear that the government will take the first two options, and not just one of them. But there is no clear constituency for either, and the matter at this juncture must be considered undecided by the public.

We also gave the public three major budget options -- a minimum service budget (under $300 million); a reduced, cutback budget(between $300 million and $500 million); and an extensive budget "such as the legislature is now proposing" (over $500 million).

The budgets now passed in the Legislature total over $500 million, but in this survey,

25% chose the minimum budget

44% chose the cutback budget, and

14% chose the over-$500 million budget

17% did not know

These over-$500 million budget people -- 14% of the state -- tend to be upper-income, upper-educated, men(in twice as many cases as women), from Southeastern, or Alaska Native: a hodgepodge constituency at best; no coherence there.

SUMMARY

The previous findings lay out the groundwork of the Alaska public affairs situation, as the people see it. Generally, we find that population and growth are big problems, but that industry (basically the oil industry) has not been found guilty on the issue yet. Meanwhile, the state is not in true resonance with the major fiscal matters facing the state and its people, and this could bring on severe problems for the State if it continues indefinitely.

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ALASKANS AND INDUSTRY

In this section we gathered some baseline data on the relationship of Alaskans to industry. This data will be of extreme value over time as we note major changes in the population toward industry, should they occur. We should be able to predict most changes by re-comparisons to this baseline data.

(a) The situation for free enterprise.

The public -- by a huge margin -- feels that free enterprise is worse off today than in the past. Only 22% feel it is better off today, while 56% feel it is worse off. We find that upper-educated respondents believe the free enterprise situation is worse in 66% of the cases. Men, in 64% of the cases, feel it is worse now, compared to 49% for women.

Altogether, this is evidence of widespread recognition that free enterprise is worse off today than in the past.

(b) Business profits.

By an extraordinary majority (62% to 9%), Alaskans believe that business profits are good. In oil-related industries, the notion of profits is crucial to oil depletion taxation, and other highly-charged issues, so this finding is significant.

(c) Competition.

Alaskans feel that there is substantial(42%), moderate(27%) or very little(25%) competition in American business today.

(d) Satisfaction with business and government "products".

In this sequence, we found that taxpayers/consumers are happier with the services they buy from business than the services they receive from the government. The question was asked, "How satisfied are you with products and services provided by business in general?" And, "How satisfied are you in general with services provided by government?" The results:

Satisfaction with...	GOVERNMENT	BUSINESS
Very satisfied	4%	8%
Somewhat satisfied	35%	56%
Dissatisfied	36%	24%
Very dissatisfied	21%	12%
Don't know	4%	0%

The comparison by net (that is, all satisfactory comments reduced by all unsatisfactory comments):

	GOVERNMENT	BUSINESS
SATISFIED	39%	64%
UNSATISFIED	57%	38%
NET + or -	-18%	+26%

This comes as fairly good news to business and disaster to the government. In comparison, there is a net 44% difference between business and government -- positively inclined toward business services.

One can only imagine how long an institution can maintain itself with such a tawdry rate of service delivery as the government gets here, at least without major change erupting from the electorate. (It could be that the consumer movement is just catching up to government -- business has known about it for years).

Also, all other survey research indicates that the major problems perceived by the Alaska electorate today deal with the deterioration of government services, institutions and capabilities. For the government, things are likely to get worse before they get better.

On the other hand, 38% dissatisfaction in business is nothing to be proud of; and steps to deal with that dissatisfaction at the consumer level ought to be taken, industry by industry.

(e) Government regulation of business.

An area where business and government mix directly is in government regulation of business activity. In this inquiry, we found that a majority (50%),exactly) would prefer that government regulate only when there is a problem. The rest of the people split 32% to 10% for less involvement rather than more involvement, suggesting that the government has already gone too far with regulations.

(f) Ownership of Alaska business.

Alaskans believe that their businesses in the state are owned by a small elite (20%), a small group of individuals (32%),.a large group of individuals (30%) or a very large group(9%).

Now it is true that in Alaska a high proportion of the population owns or manages small business; it is also true that for years there has existed a feeling that a few people controlled the business of the town -- this is a phenomenon in all small(by population) places. The intrustion of multinations with foreign financing and international schemes does not seem to affect this notion that Alaska business is owned by a small number of people; the multinationals are surely being seen, then, as non-Alaska businesses, even though they are operating here. At the same time, the favorable-unfavorable ratings of the major industries indicates that there is a negative factor in the "outside" image, which each industry and business must guage and handle for itself, directly with the people.

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DATA NARRATIVE

of

THE GENERAL QUESTIONS
Alaska Industry Survey Research Service

GENERAL QUESTIONS

DO YOU FEEL THAT THE PRESENT POPULATION OF ALASKA IS TOO LARGE, JUST ABOUT RIGHT OR TOO SMALL?

26.5%	Too large
45.8	Just about right
9.4	Too small
8.4	Don't know/no opinion

DO YOU FEEL THAT THE PRESENT POPULATION OF THIS COMMUNITY IS TOO LARGE, JUST ABOUT RIGHT, OR TOO SMALL?

46.8%	Too large
41.0	Just about right
8.4	Too small
3.9	Don't know

IF YOU HAD TO GUESS ABOUT HOW OIL DEVELOPMENT WOULD AFFECT THIS STATE OVERALL, DO YOU THINK IT'S GOING TO HAVE A POSITIVE OR NEGATIVE EFFECT ON ALASKA?

57.4%	Positive
34.2	Negative
8.4	Don't know

HERE ARE THREE BUDGETS WHICH THE STATE COULD APPROVE THIS YEAR. FIRST, IS A MINIMUM SERVICE BUDGET (UNDER 300 MILLION). SECOND IS A BUDGET WITH SOME CAPITAL IMPROVEMENTS, IMPACT SERVICES AND SOME CUTBACKS FROM LAST YEAR'S BUDGET (300 - 500 MILLION) AND LAST IS AN EXTENSIVE BUDGET WHICH THE LEGISLATURE IS NOW PROPOSING (OVER 500 MILLION). FROM WHAT YOU KNOW, WHICH BUDGET WOULD YOU LIKE TO HAVE APPROVED?

25.2%	Minimum service budget
43.9	Improve/impact budget
13.9	Extensive budget
17.1	Don't know

OVER THE NEXT YEAR OR TWO, BEFORE THE OIL BEGINS TO FLOW THROUGH THE PIPELINE THE STATE WILL PROBABLY HAVE TO FIND NEW INCOME TO MEET ITS OPERATING COSTS. WHICH OF THE FOLLOWING THREE METHODS OF RAISING THE INTERIM MONEY WOULD YOU PREFER?

30.0%	Having a new oil/gas lease sale in Beaufort Sea or other areas
28.1	Tax the known oil/gas reserves in the ground
13.2	Borrow the money from private sources and pay it back later when the oil is flowing
28.7	Don't know

HOW WOULD YOU DESCRIBE THE SITUATION THAT FREE ENTERPRISE IS IN TODAY -- WOULD YOU SAY THAT IT IS IN A BETTER SITUATION THAN IN THE PAST, OR A WORSE SITUATION THAN IN THE PAST?

21.9%	Better
56.1	Worse
8.1	No difference
13.9	No opinion

HOW MUCH COMPETITION EXISTS IN AMERICAN BUSINESS TODAY?

42.3%	Substantial amount
26.5	Moderate amount
25.5	Little
5.8	Don't know

HOW SATISFIED ARE YOU WITH PRODUCTS AND SERVICES PROVIDED BY BUSINESS IN GENERAL?

7.7%	Very satisfied
55.5	Somewhat satisfied
24.2	Dissatisfied
11.6	Very dissatisfied
1.0	Don't know

HOW SATISFIED ARE YOU IN GENERAL WITH SERVICES PROVIDED BY GOVERNMENT?

4.2%	Very satisfied
34.5	Somewhat satisfied
35.5	Dissatisfied
21.0	Very dissatisfied
4.8	Don't know .

IN GENERAL, WHAT DO YOU THINK THE GOVERNMENT'S ROLE SHOULD BE IN REGULATING BUSINESS. DO YOU FEEL . . .

10.0%	The government should be more involved in determining decisions of business
31.9	The government should be less involved
49.7	The government should be involved only when there is a problem
8.4	Don't know

DO YOU BELIEVE THAT THE ALASKA BUSINESSES ARE OWNED BY . . .

19.7%	A very small elite
31.6	A moderately small group of individuals
30.3	A large group of individuals
9.4	A very large group of individuals
9.0	Don't know

HOW DO YOU FEEL ABOUT BUSINESS PROFITS -- ARE THEY GOOD OR BAD FOR THE ECONOMY?

61.9%	Good
9.0	Bad
22.3	Depends on
6.8	No opinion

HOW MANY YEARS HAVE YOU LIVED IN ALASKA?

13.9%	Less than 2 years
29.7	3 - 10 years
56.5	Over 10 years

HOW LONG HAVE YOU LIVED IN THIS COMMUNITY?

13.5%	Less than 1 year
7.7	1 - 2 years
16.1	3 - 5 years
18.4	6 - 10 years
44.2	Over 10 years

WHERE DO YOU FEEL YOU WILL BE LIVING FIVE YEARS FROM NOW?

64.5%	Local community
12.3	Elsewhere in Alaska
12.9	Outside of state
10.3	Don't know

INTO WHICH OF THE FOLLOWING CATEGORIES DOES YOUR FAMILY INCOME FALL?

7.7%	Under $6,000
17.7	From $6,000 - $13,000
29.0	From $13,000 to $25,000
24.2	Over $25,000
11.3	Refused

WHAT WERE YOU DOING MOST THE PAST 12 MONTHS -- WORKING OR DOING SOMETHING ELSE?

69.0%	Employed
3.9	Unemployed
20.3	Housewife
3.5	Student
3.2	Retired

(IF EMPLOYED) Was the work performed in this community?

61.9%	This community
5.8	Another community
3.9	Both
28.4	Not applicable

DID YOU OR DID ANYONE ELSE IN THIS HOUSEHOLD COME TO ALASKA AS A RESULT OF WORK WITH, OR HOPE OF WORK WITH, THE OIL DEVELOPMENTS OF RECENT YEARS?

5.2%	Yes
94.2	No
.6	No opinion

WHAT WAS THE LAST GRADE YOU COMPLETED IN SCHOOL?

1.0%	Less than 7th grade
50.3	8th - high school
38.4	Part or all of college
10.3	Beyond college

HOW MAY PEOPLE LIVE IN THIS HOUSEHOLD?

7.4%	One
63.2	2 - 4
24.2	5 - 7
5.2	Over 7

SEX

48.4%	Male
51.6	Female

LOCATION

44.2%	Anchorage
18.7	Fairbanks
14.2	Palmer/Wasilla; Kenai/Soldatna; Cordova
21.0	Juneau; Ketchikan; Sitka; Haines
1.9	Kotzebue

AGE

21.6%	18 - 25
45.5	26 - 40
26.8	41 - 60
6.1	Over 60

RACE

90.0%	Caucasian
1.3	Black
7.4	Alaska Native
1.0	Oriental
.3	Other

(4)

STATEMENT

OF

LARRY E. POWELL, MAYOR

CITY OF YAKUTAT

AT THE

DEPARTMENT OF THE INTERIOR

PUBLIC HEARING

ON THE

GULF OF ALASKA OIL LEASE

DRAFT ENVIRONMENTAL IMPACT STATEMENT

12 AUGUST 1975

MR. CHAIRMAN, MY NAME IS LARRY POWELL AND I AM THE MAYOR OF THE CITY OF YAKUTAT. THE CITY OF YAKUTAT APPRECIATES THIS OPPORTUNITY TO PRESENT ITS TESTIMONY IN RESPONSE TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT OF THE OUTER CONTINENTAL SHELF PROPOSED OIL AND GAS LEASING IN THE NORTHERN GULF OF ALASKA.

AT TIMES, THE CITY OF YAKUTAT HAS RECEIVED HIGHLY CRITICAL COMMENT FROM AN ANCHORAGE NEWSPAPER FOR EXPRESSING WHAT YAKUTAT BELIEVES TO BE LEGITIMATE FEARS CONCERNING THE LOSS OF ITS UNIQUE CULTURE AND WAY OF LIFE AND FOR SEEKING TIME TO ALLAY THESE FEARS AND TO DEVELOP WHAT THE CITY OF YAKUTAT WOULD BELIEVE TO BE SOLUTIONS TO POTENTIAL PROBLEMS RESULTING FROM THE ONSHORE IMPACT OF OCS OIL AND GAS EXPLORATION AND DEVELOPMENT.

PLEASE ASK THE RESIDENTS OF ANCHORAGE, OR FOR THAT MATTER, FAIRBANKS OR VALDEZ, WHETHER A BETTER JOB COULD HAVE BEEN DONE TO ACCOMODATE THE TRANS ALASKA PIPELINE PROJECT. PLEASE ASK THEM ABOUT THE ADEQUACY OF THEIR STREET SYSTEMS WHICH FOR MANY HAVE RESULTED IN A STRUGGLING 30 TO 45 MINUTE DRIVE IN CONTRAST TO PREVIOUS HOME TO WORK JOURNEYS OF 10 TO 15 MINUTES. ASK THEM ABOUT THE PROVISION OF PARKING IN THE CENTRAL BUSINESS DISTRICT, OR THE CAPACITY OF THEIR TELEPHONE SYSTEMS OR OTHER PUBLIC FACILITIES OR SERVICES.

IS THERE NO VIRTUE IN LEARNING FROM EXPERIENCE? SHOULD WE NOT BE AFFORDED THE OPPORTUNITY TO PLAN AND ACT IN THE PUBLIC AREA AS WELL AS THE PRIVATE AREA PRIOR TO THE IMPACT?

THE CITY OF YAKUTAT IS NOT OPPOSED TO THE EXPLORATION, DEVELOPMENT AND PRODUCTION OF OIL AND GAS FROM THE NORTHERN GULF OF ALASKA. THE CITY OF YAKUTAT IS OPPOSED TO THE TIMING OF THIS DEVELOPMENT ONLY BECAUSE IT BELIEVES THAT NEITHER IT, THE INDUSTRY NOR THE GOVERNMENT HAS THE MEANS TO ACCOMODATE THE RESULTING IMPACT WHILE MINIMIZING SOCIAL AND ECONOMIC DISRUPTION.

THE CITY OF YAKUTAT BELIEVES THAT AT TIMES THE PETROLEUM INDUSTRY AND SOME IN GOVERNMENT CONCEIVE THE CITY AS BEING VEHEMENTLY OPPOSED TO THE EXTRACTION OF OIL AND GAS FROM THE GULF. THIS IS NOT TRUE. OUR DISAGREEMENTS ARE WITH THE FEDERAL GOVERNMENT AND HAVE ONLY TO DO WITH THE MEANS OF MINIMIZING ADVERSE ONSHORE IMPACT RESULTING FROM OFFSHORE EXPLORATION, DEVELOPMENT AND PRODUCTION.

TO YAKUTAT IT IS INCONCEIVABLE THAT THE GOVERNMENT WILL NOT SPEND A FEW HUNDRED THOUSAND DOLLARS TO ASSIST IMPACTED COMMUNITIES IN PROMOTING ORDERLY AND EFFICIENT DEVELOPMENT OF A RESOURCE WHICH HAS AN ESTIMATED VALUE IN THE BILLIONS OF DOLLARS.

FOR EXAMPLE, THE CITY OF YAKUTAT HAS EXPRESSED ITS CONCERN THAT THE TLINGIT CULTURE WHICH SIGNIFICANTLY SHAPES YAKUTAT'S OVERALL LIFE STYLE BE TO THE MAXIMUM DEGREE POSSIBLE PROTECTED IN THOSE AREAS THAT ARE CRITICAL TO THE SURVIVAL OF ANY DISTINCT RACE AND ENHANCED IN THOSE AREAS THAT ADD SUBSTANCE AND VALUE TO THE OVERALL ALASKAN LIFE STYLE. WITH A MODEST GRANT FROM THE BUREAU OF INDIAN AFFAIRS, AN EFFORT IS BEING MADE LOCALLY TO DEVELOP BASELINE INFORMATION ON THE EXISTING CULTURAL ATTRIBUTES OF THE YAKUTAT TLINGIT. WITH ANOTHER GRANT FROM THE ALASKA FEDERATION OF NATIVES, THE CITY HAS CONDUCTED A SOCIO-ECONOMIC SURVEY TO FURTHER DEVELOP BASELINE INFORMATION ON OVERALL LOCAL ATTITUDES AND ASPIRATIONS. THE CITY IS ESTABLISHING A PLANNING AND ZONING PROGRAM WHICH, HOPEFULLY, REFLECTS THESE ATTITUDES AND ASPIRATIONS. THESE ACTIONS ARE, HOWEVER, BUT INITIAL AND TENTATIVE STEPS IN A PROCESS THAT INVOLVES TIME, DOLLARS AND CAPABLE MANPOWER IF THE TASK OF MANAGING GROWTH AND DEVELOPMENT IS TO BE ACCOMPLISHED IN A MANNER THAT ACCOMODATES LOCAL CONCERNS AND ASPIRATIONS. AND THE CITY OF YAKUTAT, REGARDLESS OF THE POLITICAL ODDS AND THE VOICES RAISED AGAINST IT, IS DETERMINED THAT ANY DEVELOPMENT MEET ITS LEGITIMATE AND OFTEN STATED CONCERNS AND DESIRES. IN THIS REGARD, THE CITY OF YAKUTAT IS DISMAYED AT AND PUZZLED BY THE RESPONSE OF THE FEDERAL GOVERNMENT AND THE OIL INDUSTRY. THIS STATEMENT IS MEANT TO BE RECEIVED AS CONSTRUCTIVE CRITICISM, FOR WE FEEL THAT BOTH THE INDUSTRY AND

THE FEDERAL GOVERNMENT HAVE BEEN MAKING A GOOD FAITH ATTEMPT TO BE OF ASSISTANCE. WE ATTRIBUTE THE LACK OF RESPONSE ON SOME ISSUES AND THE MISDIRECTION OF THE RESPONSE ON OTHERS TO THE SEVERE TIME CONSTRAINTS WHICH HAVE PLAGUED THIS ENTIRE UNDERTAKING FROM ITS INCEPTION. THUS THERE IS NO QUESTION IN OUR MIND THAT THE ENVIRONMENTAL IMPACT STUDY IS TOTALLY INADEQUATE. WE CAN ONLY ASSUME THAT THE GLARING DEFICIENCIES IN THE ENVIRONMENTAL IMPACT STUDY ARE AS OBVIOUS TO YOU AS THEY ARE TO US. THROUGHOUT THE ENVIRONMENTAL IMPACT STUDY THE BUREAU OF LAND MANAGEMENT REVEALS THAT THE INFORMATION ON WHICH THEIR ASSUMPTIONS ARE BASED IS MATERIAL WHICH IS INCOMPLETE, NONEXISTENT OR NOT SPECIFIC TO THE GULF OF ALASKA. THIS ABSENCE OF AVAILABLE MATERIAL FORCES THE BUREAU OF LAND MANAGEMENT TO DRAW CONCLUSIONS THAT ARE AT BEST NAIVE AND AT THE WORST DANGEROUS. FOR INSTANCE, THE BUREAU OF LAND MANAGEMENT ASSUMES THAT BECAUSE THE ANCHORAGE CENSUS DISTRICT IN 1970 HAD 79% OF THE POPULATION OF CENSUS DISTRICTS WHICH MIGHT BE AFFECTED BY THIS SALE, ANCHORAGE WILL RECEIVE 79% OF THE POPULATION IMPACT RESULTING FROM THE SALE. THIS LINE OF REASONING SHOWS YAKUTAT AND ICY BAY WITH A MAXIMUM POPULATION IMPACT OF 115 PERSONS. WE ARE UNSURE WHETHER THIS ASSUMPTION IS INTENDED TO BE HUMOROUS, OR IS DESIGNED TO LULL YAKUTAT INTO A FALSE SENSE OF SECURITY.

IT WOULD BE A WASTE OF TIME TO ATTEMPT TO DEAL WITH THE MANY DEFICIENCIES IN THE ENVIRONMENTAL IMPACT STUDY ON AN ITEM BY ITEM BASIS. THE CITY OF YAKUTAT'S POSITION ON THE NEED FOR MORE TIME TO PREPARE FOR OCS IMPACT HAS BEEN MADE ABUNDANTLY CLEAR. OUR POSITION WOULD SEEM TO BE SUPPORTED ON PAGE 748 WHERE THE BUREAU OF LAND MANAGEMENT STATES THAT "A DELAY OF 1/2 TO 2 YEARS WOULD ALLOW FOR COMPLETION OF ALL PREOPERATIONAL PHASES OF THE ENVIRONMENTAL STUDIES PROGRAM ...". THE COMPLETION OF THESE STUDIES WOULD GIVE THE BUREAU OF LAND MANAGEMENT THE INFORMATION NECESSARY TO OVERCOME MANY OF THE INADEQUACIES OF THE ENVIRONMENTAL IMPACT STUDY.

THE CITY OF YAKUTAT WANTS YOU TO BE FULLY AWARE THAT WE ARE COGNIZANT OF THE MANY WEAKNESSES IN THE ENVIRONMENTAL IMPACT STUDY. IF THE BUREAU OF LAND MANAGEMENT CONTINUES TO IGNORE THE OBVIOUS NEED FOR MORE INFORMATION AND PROCEEDS WITH THE LEASE SALE, AND IF WE ARE NOT ABLE TO RESOLVE THESE ISSUES IN A MANNER SATISFACTORY TO THE CITIZENS OF YAKUTAT, THE CITY MAY WELL BE COMPELLED TO SEEK LEGAL RECOURSE TO SEE THAT OUR RIGHTS ARE RECOGNIZED AND TO ASSURE OUR SURVIVAL AS A DECENT COMMUNITY IN WHICH TO LIVE AND RAISE OUR CHILDREN.

THANK YOU.

8/12
(5)

Carl Brady - Statement

Good Morning Mr. Chairman:

My name is Carl Brady and I am Vice President of Rowan Companies, Inc. of Houston, Texas, and President of its subsidiary, Era Helicopters, Inc. of Anchorage, Alaska.

All of Rowan's work and a major portion of Era's is for the oil industry. Era Helicopters' contracts are naturally written to be beneficial to the company; however, not necessarily to me personally or any other ultimate consumer because we must all eventually pay the costs as consumers of petroleum products.

I believe environmental protection in some instances has been over emphasized at the expense of the consumer. I hope that I will not be misunderstood for I favor protection of the environment and establishment of truly unique wilderness areas. However, getting to the point I would like to make, I believe we should initiate the leasing and exploration of the areas in the Gulf of Alaska immediately. Addressing the argument of some people that activity in the Gulf of Alaska should be delayed until sufficient surveys have been completed, I doubt that those people would ever be satisfied regardless of how much research was done. A University of Alaska professor has made a summation of all the studies on the Gulf called "A Review of Oceanography and Renewable Resources of the Northern Gulf of Alaska". It runs to nearly 700 pages, including 56 pages of references to published reports of research projects averaging a dozen references to the page. But, his introduction to this report notes that the book is not to be considered a "definitive work" because all of the available data has not been cited in some sections.

It is my understanding that the BLM and NOAA are now doing another $15,000,000 or so worth of research in the Gulf of Alaska. How long are we going to support research in areas known to have possible oil producing structures, especially in these times of energy shortages and threats of Middle East oil embargos, before we initiate development of the region?

The oil conpanies have proved they have the technology and capability to produce oil offshore without destroying the environment. Exploration and production have been going on in the North Sea for 10 years. The weather and other conditions in the North Sea have been compared time and again with the conditions that exist in the Gulf of Alaska. Rowan Companies, for example, are presently operating two semi-submersibles in the North Sea, both are capable of the same activity in the Gulf of Alaska.

The techniques learned by the same oil companies who are operating in the North Sea and wish to operate in the Gulf of Alaska should be sufficient after this ten years of experience to operate safely in the Gulf of Alaska. Why can't we use the techniques developed in the North Sea and the experience learned in the area to develop the Gulf of Alaska rather than start all over in what could be compared to an attempt to redesign the wheel.

Both the Rowan Companies and Era Helicopters have done considerable work for the oil industry in the Gulf of Mexico, the Caribbean and Cook Inlet, here in Alaska, during the past many years. We have yet to see any signs of biological damage to the fish and marine life in those areas. The essence of my feeling is "keep up the research as long as you like, but get on with the leasing and exploration and use the experience gained by those who have developed production in offshore waters around the world." Failure to do so is to invite further U.S. energy shortages and increased costs to the consumer, followed by an international crisis over who will control the oil available to the industrial nations of the world.

August 12, 1975

Comments Concerning
Draft, EIS for OCS
Leasing in Gulf of Alaska
Anchorage, Alaska

GOOD MORNING. MY NAME IS A.L. PORTER AND I AM PUBLISHER OF ALASKA INDUSTRY MAGAZINE. I FORMERLY WORKED IN THE OIL FIELDS IN MONTANA, MOVED TO ALASKA 17 YEARS AGO AND HAVE BEEN A CLOSE OBSERVER AND REPORTER OF THE ALASKA OIL INDUSTRY SINCE THAT TIME. I AM SPEAKING AS A PRIVATE CITIZEN.

I RECALL THAT IN THE FALL OF 1973, THE COUNCIL ON ENVIRONMENTAL QUALITY CONDUCTED A PUBLIC HEARING IN ANCHORAGE ON THE ENVIRONMENTAL IMPACT OF POTENTIAL OIL AND GAS DEVELOPMENT IN THE GULF OF ALASKA. AT THAT TIME THE OIL INDUSTRY, THROUGH ITS GULF OF ALASKA OPERATORS COMMITTEE, WAS ALREADY CONDUCTING INTENSIVE RESEARCH IN THE GULF. THAT WORK HAS BEEN AN ONGOING EFFORT. THOSE STUDIES REFLECT A POSITIVE ATTITUDE ON THE PART OF THE PETROLEUM INDUSTRY IN ALASKA. AND THOSE STUDIES HAVE REVEALED NOTHING THAT COULD BE TERMED AN INSURMOUNTABLE OBSTACLE TO PETROLEUM EXPLORATION IN MOST AREAS OF THE GULF.

THE DRAFT ENVIRONMENTAL IMPACT STATEMENT BEING DISCUSSED AT THIS HEARING REPRESENTS CONSIDERABLE EFFORT BY THE DEPARTMENT OF INTERIOR. IT REVEALS NOTHING THAT COULD BE TERMED AN INSURMOUNTABLE OBSTACLE TO PETROLEUM EXPLORATION IN MOST AREAS OF THE GULF.

THE STATEMENT APPEARS TO FILL THE REQUIREMENTS OF LAW, BUT IT SEEMS THAT ALL OF THESE ENVIRONMENTAL IMPACT STATEMENTS HAVE COMMON FAILINGS.

THEY DO NOT DELVE SUFFICIENTLY INTO THE POLITICAL ENVIRONMENT, THE ECONOMIC ENVIRONMENT OR THE PETROLEUM INDUSTRY ENVIRONMENT.

TO EXPLAIN BRIEFLY, I FEEL THAT THE ENTIRE PURPOSE OF SUCH AN ENVIRONMENTAL IMPACT STATEMENT IS TO ASSESS THE EFFECTS OF A CERTAIN ACTION ON NOT ONLY A SPECIFIC BIT OF ENVIRONMENT, BUT UPON THE NATION AS A WHOLE. AND THE NATION MEANS THE AMERICAN PEOPLE. THE CURRENT POLITICAL ATMOSPHERE IN THE NATION IS ANT-OIL. WE HAVE A NATIONAL ADMINISTRATION AND A CONGRESS THAT ARE AT LOGGERHEADS OVER ENERGY POLICY. WITHIN ALASKA, THERE EXISTS A WIDE SPECTRUM OF VIEWPOINTS RANGING BETWEEN PRISTINE PRESERVATION AND DEVOUT DEVELOPMENT. PERHAPS AN ENVIRONMENTAL IMPACT STATEMENT COULD BE A VEHICLE TO HELP BRING ABOUT A REASONABLE CONSENSUS AMONG AMERICANS.

THE SECOND WEAK POINT IN MOST IMPACT STATEMENTS CONCERNS THE ECONOMIC ENVIRONMENT. THERE ARE MANY TABLES OF STATISTICS AND MANY PAGES OF ALTERNATIVES. BUT THERE SEEMS TO BE SCANT DISCUSSION OF THE BASIC IMPORTANCE OF HYDROCARBON ENERGY AND RAW MATERIALS TO THE NATION. THE NATION'S RECESSION AND INFLATION CAN BE TRACED IN LARGE PART TO THE RECENT FOREIGN OIL EMBARGO AND TO THE QUADRUPLING OF PRICES BY FOREIGN SUPPLIERS. THESE TWO POINTS INDICATE THAT ANY FURTHER DELAY IN EXPLORATION OF POTENTIAL U.S. HYDROCARBON PROVINCES COULD BE DANGEROUS TO THE NATION'S ECONOMIC HEALTH.

THIRDLY, IT SEEMS THAT AN IMPACT STATEMENT COULD PROVIDE AMERICAN CITIZENS MORE INFORMATION AND INTERPRETATION ON THE PETROLEUM INDUSTRY ENVIRONMENT AS IT RELATES TO OPERATING PROCEDURES AND THE TIME NEEDED TO BRING NEWLY FOUND RESOURCES TO PRODUCTION. FOR INSTANCE, THE IMPACT STATEMENT SUGGESTS AN ALTERNATIVE OF DELAYING THE SALE PENDING DEVELOPMENT OF MORE SOPHISTICATED OIL SPILL EQUIPMENT AND DEVELOPMENT OF IMPROVED

SUBSEA COMPLETION METHODS. THIS IS HARDLY A VIABLE ALTERNATIVE.

THE PETROLEUM INDUSTRY WHICH CAN OPERATE SUCCESSFULLY AND SAFELY IN UPPER COOK INLET AND IN THE NORTH SEA CAN OPERATE SUCCESSFULLY IN THE GULF OF ALASKA. TO DELAY A POSITIVE STEP WHILE AWAITING PERFECTION IS NOT REALISTIC. EVEN IF THE FIRST SALE IS HELD NOW, IT WILL BE YEARS BEFORE FULL PRODUCTION IS ACCOMPLISHED, AND THE NATION CAN ILL AFFORD THE DELAY. AND THERE IS THAT OLD SAYING IN THE OIL INDUSTRY, THAT NOBODY EVER FOUND AN OIL FIELD OR GAS FIELD WITHOUT ACTUALLY DRILLING A HOLE. IT IS TIME TO BEGIN DRILLING THOSE HOLES.

(7)

FAIRBANKS ENVIRONMENTAL CENTER

Box 1796
Fairbanks, Alaska 99707
(907) 479-3684

STATEMENT OF PATRICIA SENNER, FAIRBANKS ENVIRONMENTAL CENTER, REGARDING THE DEIS OUTER CONTINENTAL SHELF PROPOSED OIL AND GAS LEASING IN THE NORTHERN GULF OF ALASKA, BLM, ANCHORAGE, ALASKA, 12 AUGUST 1975.

I am Patricia Senner, Director of Regional Affairs, for the Fairbanks Environmental Center. Located at 1895 Pioneer Way in Fairbanks, the Environmental Center is dedicated to the protection of the Alaskan environment through education and action. We have a great deal of interest in the BLM OCS program in Alaska, including the Gulf of Alaska, because of its implications for the state as a whole.

The Draft Environmental Impact Statement (DEIS) for the Northern Gulf of Alaska is very complete and should provide the Department of Interior with a reference for making sound decisions.

The Environmental Center has been watching with great concern the development of the Interior Department's accelerated leasing program of which this proposed lease is part. It is our opinion that contrary to Interior's contention the program is anything but orderly. If the goal of the United States is independence from foreign oil sources, then we should develop an energy policy for achieving that goal. In developing a national energy policy, studies should be conducted regarding where energy is most needed and where energy can come from to supply those needs. There was no indication in the DEIS of the availability of this type of information.

Nowhere in the DEIS is there a discussion of how Gulf of Alaska oil and gas will help alleviate current shortages in regional domestic supplies. Where will Gulf of Alaska be sent, how will it eventually get to its desinations, and when will the necessary facilities be constructed for its transportation?

THe DEIS states:: "Petroleum produced from the sale area will be distributed to U.S. markets through west coast refineries or to Japanese or Canadian markets in exchange for petroleum to be received by the U.S. in locations other than the west coast."(p.7) The petroleum received in exchange from Japan would presumeably originate in some foreign country. How does this situation fit into our goal of energy independence? Why must we risk our valuable resources to secure more foreign oil?

STATEMENT OF PATRICIA SENNER
BLM DEIS OCS-Northern Gulf of Alaska

There are many informational gaps in our knowledge of the Gulf of Alaska. A very superficial count of deficiencies listed in the DEIS produced 27 areas where little or no knowledge currently exists. Just a few of the areas where information is sketchy include: trace metals and low and high molecular weight hydrocarbon levels in the Gulf, light transmittance through the water column, direct current measurements for the Gulf, phytoplankton distribution, zooplankton in bays and estuaries, effects of crude oil on terrestrial coastal vegetation, sublethal effects of oil pollution -- especially chronic low levels, and information on first and second order effects of oil pollution on marine mammals.

The Bureau of Land Management is currently spending millions of dollars of the tax payer's money to fill in some of the informational gaps. The studies of the northern Gulf of Alaska just started this year and many will will not be completed for another two years. The purpose of these studies is to help BLM write impact statements, to help the Interior Department make decisions about which areas are environmentally sensitive to development, and to help write lease stipulations and operating orders.

We have difficulty understanding why the Interior Department undertook these investigations if they have already decided which areas to lease, written their impact statement, and produced operating orders for the Gulf. The operating orders for the Gulf were produced even before the DEIS was written. As we stated in our testimony last February regarding the programatic DEIS, "The Environmental Center cannot justify in advance writing off certain environmental losses as 'acceptable' when it cannot even be predicted what those losses will be."

The DEIS states, "Operator must comply with requirements of the Federal Water Pollution Control Act Amendments of 1972." This may not be the case. Operations outside the 12 mile limit may not fall under EPA jurisdiction. The average distance of oil and gas fields from shore will be about 22 miles. Lawyers for EPA are currently ruling on this matter. Even if EPA does have jurisdiction over OCS operations, draft effluent guidelines for oil platforms have not been promulgated. It may be as long as two years before these guidelines become finalized.

On August 7, Representative John Murphy asked President Ford to order a 90 day delay in outer continental shelf oil leasing in California and Alaska so that Congress might pass legislation to give the states time to prepare for impact of offshore dirlling. Mr. Murphy appealed to President Ford after the Department of the Interior refused the delay, stating it "is not in the public interest."

We have difficulty seeing how the Interior Department can determine what is in the public interest before holding hearings on the DEIS for the proposed leases. Interior has always made the point that NEPA is the way in which the public is involved in Interior's decision-making process. This appears not to be the case if Interior has already made the decision on when to hold the leases in the Gulf.

Alaska has a fair idea of what it takes to prepare for oil exploration and development from their experience with the oil pipeline boom. It takes time to develop the services people will require in communities which currently don't have them. Fairbanks has been experiencing a boom for well over a year now, and the telephone services, are still poor, necessary police protection is inadequate, housing is critically short, and many new housing developments can't hook up to good water and sewer systems. Since Fairbanks was a fairly large city before the boom hit, you can imagine how long it will take smaller coastal communities to prepare adequately for the impact to hit.

All these things lead us to conclude that the decision to lease in the northern Gulf of Alaska should be delayed at least two years. There currently is not a critical need for oil on the west coast, and the Gulf of Alaska is the area presenting the highest environmental risk for oil development. Interior's own DEIS claims that 220 of the 330 tracts being offered present a relatively high hazard potential. We can understand Interior's desire to have these areas explored soon. Legislation may very well be passed this year which would allow Interior to conduct exploratory operations. We think the Gulf of Alaska would be an excellent place for Interior to start their own exploratory program since the resources for the state are so very valuable.

The oil companies have frequently stated that they are ready to explore and develop in the Gulf. We would like to raise the question of whether the people of the state of Alaska are ready for such massive development. I believe that most people view such development with considerable ambivalence. It is nice to be able to find employment, but there are prices to pay. The price of increased crime, more restrictions on individual freedoms, higher prices, less abundant wildlife, a more hectic and polluted environment, and so on. We don't subscribe to the belief that if there is oil someplace that it must be developed. There are other values and resources at stake here which warrent protection.

This concludes our statement today. I have included for the record the Environmental Center's comments before Mr. Murphy's Ad hoc OCS Committee earlier this month which detail even more completely our concerns for OCS development in Alaskan waters.

Thank you for this opportunity to present these views.

(B)

To: United States Department of Interior
Bureau of Land Management

Subject: Alaska Outer Continental Shelf Hearing,
August 12, 1975, Anchorage, Alaska

Mr. Chairman, members of the committee, my name is Millett F. Keller. I am a resident of Anchorage and have lived here for the past 12 years. I originally came to Alaska in 1963 as an employee in the oil industry work in exploration. Approximately one year after arriving in Alaska I left the oil industry and have been employed in private business in Anchorage ever since. I would like to thank you for the opportunity to make this presentation to you.

I would like to limit my remarks to the portions of the report dealing with the impact of the OCS leasing on Anchorage. It appears to me that the report seems to stress, in an overwhelming way, the possible negative impact of the oil industry on Anchorage. I feel that in order to adequately evaluate such an impact report, both the negative and positive aspects of the impact should be evaluated.

During my 12 years in Alaska I have had an opportunity to view the impact of the oil industry on the State. During this period the oil industry has grown very rapidly, the offshore fields in Cook Inlet have been developed, the distribution and manufacturing facilities on the Kenai Peninsula have been constructed, the transportation systems to deliver the Cook Inlet oil to the Lower 48 and Japan have been implemented and the discovery and development of the North Slope oil reserves has begun.

to expand its parks system and fish and game and fisheries programs. Many of these positive environmental impacts would never have happened without the benefits of selling oil leases to the oil industry.

It is most important that the positive impact of socio-economic factors as well as environmental factors be considered in an overall impact statement. In the area of socio-economic impact, I can only say that during my 12 years in Anchorage, I have seen only positive impacts on the socio-economic life in Anchorage. I have been quite active in civic and cultural activities in Anchorage. I have seen the oil industry play a vital role in improving this aspect of life for all Alaskans. The contributions made in the form of unrestricted grants to the University of Alaska, the outright contributions to support a private fund raising effort to expand the local hospital are adequate examples of positive socio-economic impact.

The oil industry has also contributed substantially to the arts and other social organizations such as Salvation Army, YMCA, and the scouting programs. I have had an opportunity to serve on the Board of Directors of the Alaska Festival of Music for the last year, and I can tell you that without the support of the major oil companies, the program which the Alaska Festival of Music presented to the State would not have been possible. This program included such notable groups as the Metropolitan Opera Madrigal Singers, Benny Goodman, Cannonball Adderly, the Atlanta Ballet, and the Seattle Repertory Theater. ARCO, British Petroleum, EXXON, Standard Oil Company of California, Union Oil and Alyeska Pipeline Service Company made grants to the Festival which have made it possible for the Festival to defray expenses for local musicians as well as bringing in notable outside groups.

It is important that these socio-economic factors also be considered in an impact statement. For example, it would be appropriate to include the estimated amount of contributions to the Community Chest, local churches, the estimated amount of contributions to capital fund drives sponsored by organizations like the YMCA and the Providence Hospital, as well as the potential donations to be realized by the Scouts, Boys Club, and other such groups that will occur as a result of increased oil industry activity in Alaska.

In conclusion, I can state that my personal experience would indicate that of all the industries the State has to select as partners in enhancing the quality of life in Alaska, the oil industry would be by far and away the best choice. No other sector, including timber, fishing, federal government or military have contributed in as positive a manner as the oil industry.

I feel it is important to the future of Anchorage that we encourage, not discourage, the growth of the oil industry in Alaska. The oil industry has had an excellent track record to date in Alaska, and I have no reason to believe that that record would change in the future. I would strongly urge that the Federal Government move ahead as swiftly as possible with the Gulf of Alaska Leasing Program, and also actively study other potential leasing areas in the State.

(10)

MY NAME IS HELEN FISCHER. I HAVE BEEN A RESIDENT OF ALASKA FOR MORE THAN 30 YEARS--AND IT HAS BEEN MY PRIVILEGE TO NOT ONLY WITNESS THE ADVANCEMENTS MADE IN ALASKA SINCE THE WAR YEARS, BUT TO PARTICIPATE IN THEM; BOTH AS A BUSINESS WOMAN AND AS AN ELECTED REPRESENTATIVE OF MY FELLOW CITIZENS.

I SERVED IN THE TERRITORIAL HOUSE AND IN THE FIRST, SEVENTH, AND EIGHTH LEGISLATURES, AND AM A FORMER DEMOCRATIC NATIONAL COMMITTEE-WOMAN. I AM PRESENTLY A MEMBER OF THE HOUSE OF REPRESENTATIVES FROM DISTRICT 1 IN THE NINTH LEGISLATURE.

ONE ADDITIONAL ITEM OF BACKGROUND IS IMPORTANT TO THE STATEMENT I WILL MAKE. I WAS A DELEGATE TO THE ALASKA CONSTITUTIONAL CONVENTION AND FOUGHT WITH ALL MY MIGHT FOR A STRONG EXECUTIVE FORM OF GOVERNMENT IN ALASKA.

THIS WAS, IN MY VIEW, NECESSARY BECAUSE PRIOR TO STATEHOOD, THE FEDERAL GOVERNMENT HAD DISCOURAGED ECONOMIC DEVELOPMENT IN THE TERRITORY ~~THROUGH~~ thus STIFFLING SOCIAL PROGRESS AND WE ALL KNOW THAT SOCIAL PROGRESS--TO BE LASTING--CAN ONLY BE ACHIEVED IF IT IS SUPPORTED BY A STRONG ECONOMY.

WE DID ESTABLISH A STRONG EXECUTIVE GOVERNMENT IN ALASKA AND THE RESULTS WERE GOOD. RESOURCE DEVELOPMENT RAISED OUR STANDARD OF LIVING AND, MOST IMPORTANTLY FOR THE NATION, RESULTED IN THE DISCOVERY OF OIL AND GAS EQUAL TO ABOUT 30 PERCENT OF TOTAL PROVEN RESERVES IN THE U.S.

NOW, A STRANGE THING HAS HAPPENED. OUR STRONG EXECUTIVE SYSTEM IS BEING USED TO STIFLE GROWTH. AND GROWTH, IF PROPERLY HANDLED, MEANS A BETTER LIFE FOR ALASKANS. THE CURRENT STATE ADMINISTRATION, ALTHOUGH NOT REQUIRED BY LAW, PREPARED AN ENVIRONMENTAL IMPACT STATEMENT ON A PROPOSED LEASE SALE IN STATE WATERS OF THE BEAUFORT SEA. PUBLIC HEARINGS WERE HELD. THERE WAS MINIMAL OPPOSITION TO THE SALE, YET NO WORD HAS BEEN FORTHCOMING ON WHEN THE SALE WILL BE HELD. AND THE STATE'S NEED FOR REVENUES AND THE NATION'S NEED FOR NEW RESERVES HAVE NEVER BEEN GREATER. THE STATE ADMINISTRATION IS DRAGGING ITS FEET.

THE ONLY HOPE I HAVE IS THAT THE FEDERAL GOVERNMENT, PRODDED BY THIS NATION'S DESPERATE NEED FOR RESOURCES OF ALL KINDS, WILL ENCOURAGE DEVELOPMENT IN ALASKA.

I BELIEVE AN EARLY LEASE SALE IN THE GULF OF ALASKA WILL CONTRIBUTE TO MY GOALS FOR ALASKA. I URGE THE SALE BE HELD THIS YEAR.

HAVING SAID THAT WITHOUT QUALIFICATION, I FURTHER URGE THAT GOVERNMENT--FEDERAL, STATE AND LOCAL--ALONG WITH INDUSTRY AND THE CITIZENS OF ALASKA WORK TOGETHER TO MAXIMIZE THE BENEFITS OF THE LEASE SALE AND TO MINIMIZE THE ADVERSE IMPACTS WHICH COULD OCCUR WITHOUT PROPER CARE. I FAIL TO SEE WHY THIS CANNOT BE DONE. CERTAINLY A BIG STEP IN THAT DIRECTION WOULD BE FOR THE FEDERAL GOVERNMENT TO RECOGNIZE THE NEED FOR INITIAL IMPACT FUNDS--ESPECIALLY IN THE COASTAL COMMUNITIES IN THE PROPOSED SALE AREA. WE MUST WORK TOGETHER, BUT WE MUST ALSO HAVE FEDERAL FUNDS TO TIDE US OVER UNTIL A TAX BASE IS ESTABLISHED IN THE COASTAL AREA.

I BELIEVE THE FEDERAL GOVERNMENT HAS AN OBLIGATION TO DO THIS. I ALSO BELIEVE ALASKA HAS AN OBLIGATION TO PROVIDE AN ECONOMIC CLIMATE CONDUCIVE TO RESROUCE DEVELOPMENT. OUR COUNTRY NEEDS RESOURCES AND WE HAVE THEM HERE. THE PETROLEUM INDUSTRY APPARENTLY IS READY TO EXPLORE. THEY HAVE THE TECHNOLOGY AND CAN DO IT RIGHT. FURTHER, GOVERNMENT, UNDER EXISTING LAW, CAN ASSURE THAT DEVELOPMENT IS DONE PROPERLY.

I WILL CLOSE WITH AN ADDITIONAL THOUGHT: ALASKANS ARE SPECIAL PEOPLE WHO VALUE WHAT THIS GREAT STATE HAS TO OFFER. IT FEEDS NOT JUST OUR PHYSICAL HUNGER, BUT OUR SPIRITUAL HUNGER AS WELL. WE WANT THE PIONEERING SPIRIT TO LIVE. WE WILL FIGHT TO PRESERVE THAT. BUT, PLEASE, DON'T CONFUSE THIS WITH THE HARPING OF THE SMALL, VOCAL GROUP OF OUTSIDE ENVIRONMENTALISTS WHO USE THE SAME WORDS, YET MEAN SOMETHING ENTIRELY DIFFERENT. THEY WOULD HAVE US BE PRIMITIVES. WE ARE NOT. WE WERE NOT 30 YEARS AGO. AND, EXCUSE MY WORDS OF EMPHASIS, BUT TO HELL WITH THEM. LET'S MOVE AHEAD IN THE SPIRIT OF '76 AND DEVELOP THE GOD GIVEN RESOURCES OF ALASKA FOR THE BENEFIT OF ALL AMERICANS. THANK YOU.

(11)

STATEMENT

BY

ROBERT L. HARTIG

ATTORNEY-AT-LAW AND GEOLOGIST

BEFORE THE DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT HEARING

ON THE

PROPOSED LEASE SALE OF OIL AND GAS

ON THE

OUTER CONTINENTAL SHELF

IN THE GULF OF ALASKA

ANCHORAGE WESTWARD HOTEL, ANCHORAGE, ALASKA

AUGUST 12, 1975

MR. MESCH AND MEMBERS OF THE PANEL, MY NAME IS BOB HARTIG AND I AM AN ATTORNEY IN PRIVATE PRACTICE HERE IN ANCHORAGE. I WISH TO ADD MY THANKS FOR THIS OPPORTUNITY TO APPEAR BEFORE YOU AND TO EXPRESS MY VIEWS ON THE PROPOSED LEASE SALE OF THE SUBMERGED LANDS ON THE OUTER CONTINENTAL SHELF IN THE GULF OF ALASKA.

UNTIL THE SECRETARY OF THE INTERIOR ANNOUNCED HIS PLAN

LAST YEAR TO LEASE SOME TEN MILLION ACRES OF SUBMERGED LANDS OFF THIS COUNTRY'S COAST, INCLUDING ALASKA, IN AN EFFORT TO PROVIDE POTENTIAL MINERAL LANDS FOR DEVELOPMENT, FEW ALASKANS WERE AWARE OF THE PRESENT ENERGY CRISES. EVEN TODAY, WITH THE STATE'S EXPANDING ECONOMY, A REASONABLY GOOD EMPLOYMENT STATUS, AND THE FACT WE HAVE NOT WITNESSED GAS RATIONING OR SUFFERED OTHER INCONVENIENCES, MANY ALASKANS ARE PROBABLY UNAWARE FROM AN ENERGY STANDPOINT, OF THE SERIOUSNESS OF THIS NATIONAL AND WORLD PROBLEM.

THE RESPONSE BY OUR STATE AND LOCAL LEADERS, LEGISLATIVE REPRESENTATIVES, INDUSTRY PERSONNEL AND MEMBERS OF THE PUBLIC TO THIS HEARING AS WELL AS THE EARLIER HEARINGS BEFORE THE COUNCIL ON ENVIRONMENTAL QUALITY AND THE DEPARTMENT OF THE INTERIOR, IS PROOF OF THE IMPORTANCE PLACED BY ALASKANS ON THE DEVELOPMENT OF THE OCS LANDS OFF OUR COAST.

IN THE PAST, THERE HAS BEEN CONCERN EXPRESSED THAT THE DEVELOPMENT OF THE OUTER CONTINENTAL SHELF WOULD SERVE TO REDUCE THE EXPLORATION DOLLARS THAT THE PETROLEUM INDUSTRY WOULD SPEND ON ONSHORE DEVELOPMENT OF STATE AND NATIVE LANDS. HOWEVER, THE CURRENT REAL ENERGY CRISES HAS SERVED TO ELIMINATE THESE FEARS. THE INCREASED NEEDS FOR FOSSIL FUELS TO PROVIDE THE ENERGY REQUIRED TO PROVIDE THE NECESSARY SERVICES FOR AMERICA'S CITIZENS AND

INDUSTRY WILL REQUIRE NOT ONLY THE PRODUCTION FROM THE PRUDHOE BAY FIELD AND OTHER ONSHORE FIELDS, BUT ALSO ALL THE FIELDS THAT CAN BE FOUND OFF AMERICA'S CONTINENTAL COASTS AND, EVEN WITH SUCCESSFUL OIL STRIKES IN THESE PRIZED AREAS, IT IS PREDICTED THAT THE UNITED STATES WILL STILL BE GROSSLY DEPENDENT UPON FOREIGN CRUDE FOR THE NEXT DECADE.

DEVELOPMENT OF THE OUTER CONTINENTAL SHELF, HOWEVER, MUST BE CONSIDERED IN RELATION TO NAVIGATION, COMMERCIAL AND SPORT FISHING, FUTURE MINING ON THE SEAFLOOR AND SEA BED, AND AESTHETIC VALUES. I SUPPORT IMPROVED PROTECTION AND ENHANCEMENT OF THE ENVIRONMENT WITH PERIODIC REVIEW AND CONSIDERATION OF RECOMMENDATIONS FROM ALL INTERESTED SOURCES. WE MUST CONTINUE TO STRIVE FOR A RATIONAL BALANCE IN THIS AREA. WE MUST, HOWEVER, IN LIGHT OF THE ENERGY NEEDS OF OUR NATION, TAKE A PRACTICAL APPROACH TO ISSUES OF ENVIRONMENT VERSUS DEVELOPMENT.

THE PETROLEUM INDUSTRY HAS DEMONSTRATED ELSEWHERE, IN THE GULF OF MEXICO, OFFSHORE CALIFORNIA, AND IN THE HARSH ENVIRONMENT OF THE NORTH SEA, ITS ABILITY TO CONDUCT EXPLORATORY ACTIVITIES UNDER THE SAME ADVERSE CLIMATIC, TIDE AND WATER CONDITIONS AS CAN BE EXPECTED IN THE GULF OF ALASKA, YET PROTECT THESE WATERS FROM ANY DETRIMENTAL EFFECTS TO THE FISHERIES OR THE ENVIRONMENT.

OUR ALASKAN FISHERIES, WHICH ADMITTEDLY HAVE DETERIORATED OVER THE YEARS DUE TO THE CONTINUED ENCROACHMENT BY FOREIGN FISHERMEN AND THE OVER-HARVESTING OF THESE RESOURCES BY OUR OWN FISHERMEN, WAS ONCE THE LEADING INDUSTRY IN THIS STATE. THE AREAS ALONG ALASKA'S COASTLINE, EXTENDING FROM NORTON SOUND TO THE EXTREME SOUTHERN TIP OF SOUTHEASTERN ALASKA, ARE THE PRIMARY COMMERCIAL MARINE FISHERIES AREAS. THIS SAME AREA OF THE GULF OF ALASKA IS LIKEWISE ONE OF THE NATION'S GREATEST POTENTIAL AREAS FOR OIL AND GAS DEVELOPMENT.

IN THIS REGARD, I AM HOPEFUL THAT THE DEPARTMENT OF THE INTERIOR WILL INQUIRE BEYOND THE STATEMENTS OF THOSE WHO ADVOCATE DELAY IN THE NECESSARY DEVELOPMENT OF THESE RESOURCE AREAS.

PROBABLY NO ONE TODAY WOULD DENY THAT A REASONABLE DELAY IN THE CONSTRUCTION OF THE TRANS-ALASKA PIPELINE WAS PROPER. WHILE THE DELIVERY OF THE MUCH NEEDED OIL WAS DELAYED, ASSURANCES WERE OBTAINED FOR THE PROTECTION OF THE ENVIRONMENT. MANY OF THOSE WHO OPPOSED THAT CONSTRUCTION, HOWEVER, WERE NOT SATISFIED EVEN AFTER THE FILING OF THE ENVIRONMENTAL IMPACT STATEMENT AND, IT CAN BE DETERMINED, SOUGHT TO DELAY THE CONSTRUCTION FOREVER. SOME OF THESE SAME INDIVIDUALS AND ORGANIZATIONS ARE ACTIVE TODAY AND AGAIN ARE VOICING WHAT APPEAR TO BE SINCERE ENVIRONMENTAL CONCERNS

YET A WILLINGNESS TO COOPERATE IN BALANCING THE PROPOSED DEVELOPMENT WITH ENVIRONMENTAL ISSUES.

IT WOULD BE UNFORTUNATE IF CONTINUED DELAYS FOR OCS DEVELOPMENT WERE IMPOSED EVEN THOUGH INDUSTRY HAS DEMONSTRATED ITS OPERATIONAL ABILITY AND HAS SATISFIED THE ENVIRONMENTAL CONCERNS.

THE PETROLEUM INDUSTRY HAS BECOME ONE OF THE LEADING INDUSTRIES OF THIS STATE. DURING THE PERIOD OF DIMINISHED ACTIVITY IN THE FISHING INDUSTRY, THE INDUSTRY HAS CONTINUED TO PROVIDE RELATIVE HIGH LEVELS OF EMPLOYMENT AND RETURNED SUBSTANTIAL REVENUES TO THE STATE THROUGH BONUSES, ROYALTIES, AD VALOREM, CORPORATE AND INDIVIDUAL TAXES. THESE REVENUES HAVE SERVED TO PROVIDE A PORTION OF THE MUCH NEEDED CAPITAL TO EXPAND THE REHABILITATION PROJECTS FOR OUR FISHERIES AND TO OTHERWISE PROVIDE A GREAT PORTION OF THE MONEY REQUIRED TO SUPPORT THE STATE GOVERNMENT.

THE COUNCIL ON ENVIRONMENTAL QUALITY, IN THEIR REPORT, FOUND THE GULF OF ALASKA, ON THE BASIS OF ENVIRONMENTAL CONSIDERATIONS, THE LEAST DESIRABLE OF ALL AREAS FOR OCS DEVELOPMENT. THIS SAME AREA IS LISTED BY THE PETROLEUM INDUSTRY AS ONE OF THE PRIME EXPLORATION AREAS FOR IMMEDIATE DRILLING.

IT IS RECOGNIZED THAT, UNTIL SUCCESSFUL WELLS ARE DRILLED AND THE PETROLEUM FIELDS DELINEATED, IT IS IMPOSSIBLE TO KNOW THE NATURE OR EXTENT OF THE PRODUCTION FACILITIES THAT WILL BE REQUIRED. IN THIS REGARD, THE NEED FOR CONTINUED FEDERAL, STATE AND INDUSTRY COOPERATION IS APPARENT. THROUGH THE CONTINUED COORDINATED ACTIVITIES, WITH CONSIDERATION BEING GIVEN TO ALL DISCIPLINES, NECESSARY DEVELOPMENT CAN CONTINUE TO THRIVE AND TO EXPAND IN A HARMONIOUS MANNER.

THE REMAINING CONSIDERATION WHICH I WISH TO REVIEW IS THE SOCIAL AND ECONOMIC IMPACT THAT CAN BE EXPECTED TO TAKE PLACE ON THE INDIVIDUAL COMMUNITIES AND THE STATE.

IT MUST BE NOTED THAT THE EXPLORATION ACTIVITY OFFSHORE WILL REQUIRE THE ADDITION OF EXPANDED SERVICES BY LOCAL AND STATE GOVERNMENTS IN THE FORM OF POLICE PROTECTION, SCHOOLS, HEALTH AND SOCIAL SERVICES, ETC. WHILE IT CAN BE ARGUED THAT THESE SERVICE REQUIREMENTS WILL MORE THAN BE OFFSET BY THE BENEFITS DERIVED FROM THE ADDITIONAL ACTIVITY BROUGHT ABOUT BY THE JOBS AND TAXES, CONSIDERATION MUST BE GIVEN TO THE NATURE AND SIZE OF THE AFFECTED COMMUNITIES.

A MARKED INCREASE IN PETROLEUM ACTIVITY IN ANY OF THE SMALL COMMUNITIES ALONG ALASKA'S COAST CAN BE EXPECTED TO DOMINATE THE ECONOMIC ACTIVITY AND TO PLACE AN IMMEDIATE IMPACT AND POSSIBLE STRAIN ON THE SMALL COMMUNITY. ONE ONLY NEED TO REVIEW THE DEMAND MADE BY THE INCREASED POPULATION IN VALDEZ, OCCASIONED BY THE CONSTRUCTION OF THE OIL PIPELINE, TO UNDERSTAND THE CONCERN IN THIS AREA.

IN ORDER TO ALLEVIATE THIS IMPACT, CONSIDERATION SHOULD BE GIVEN TO THE PROPOSED LEGISLATION WHICH PROVIDES FOR REVENUE SHARING FROM THE FEDERAL OFFSHORE RESOURCES WITH ADJACENT STATES.

THE NEED TO MAKE ADDITIONAL POTENTIAL LANDS AVAILABLE IS NOW. ANY FURTHER DELAY WILL ONLY INCREASE THE ENERGY PROBLEMS. EVEN WITH THE UTILIZATION OF OTHER ENERGY FUELS, THE ENFORCEMENT OF CONSIDERATION PRACTICES AND THE EXPECTED TECHNOLOGICAL BREAK-THROUGHS IN ENERGY FUELS, THE DEVELOPMENT OF THE NATION'S FOSSIL FUELS MARKS THE ONLY IMMEDIATE HOPE FOR THE ALLEVIATION OF THE ENERGY CRISES.

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(2)

SEA-LAND SERVICE, INC.

TESTIMONY

PRESENTED AT THE FEDERAL HEARING CONCERNING
THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR
THE PROPOSED SALE OF OIL AND GAS LEASES ON THE
OUTER CONTINENTAL SHELF IN THE GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12, 13, 1975

MR. CHAIRMAN AND MEMBERS OF THE HEARING PANEL, MY NAME IS JAN M. KOSLOSKY, JR. I APPEAR HERE TODAY IN MY CAPACITY AS ALASKA SALES MANAGER, SEA-LAND SERVICE, INC., ALASKA DIVISION. I WANT TO THANK YOU FOR THIS OPPORTUNITY TO PRESENT THE VIEWS OF SEA-LAND ON THIS VITAL SUBJECT AND ALSO TO EXPRESS APPRECIATION FOR THE FACT THAT THESE HEARINGS ARE BEING HELD IN ALASKA, THEREBY ALLOWING MANY ALASKANS THE OPPORTUNITY TO VOICE THEIR OPINIONS.

SEA-LAND SERVICE IS THE LARGEST CONTAINERSHIP CARRIER IN THE UNITED STATES MERCHANT MARINE INDUSTRY, OFFERING CONTAINERIZED CARGO SERVICE THROUGHOUT THE FREE WORLD AND SPECIFICALLY IN THE ALASKA TRADE SINCE 1964. OUR BUSINESS TO AND WITHIN ALASKA HAS INCREASED DRAMATICALLY OVER THE PAST ELEVEN YEARS WITH A PRESENT SERVICE SCHEDULE OF THREE NORTHBOUND SAILINGS PER WEEK FROM SEATTLE TO ANCHORAGE AND FOUR SAILINGS ON ALTERNATE WEEKS FOR AN AVERAGE OF 5,180 CONTAINER LOADS PER MONTH. PORTS OF CALL ON THE LINEHAUL VESSELS ARE SEATTLE, ANCHORAGE AND KODIAK

WITH SCHEDULED FEEDER VESSEL SERVICE TO CORDOVA, ADAK, SAND POINT, CAPTAINS BAY, CHIGNIK AND DUTCH HARBOR. IN 1976 OUR ALEUTIAN CHAIN SERVICE WILL BE EXPANDED TO INCLUDE THE COMMUNITIES OF FALSE PASS, KING COVE AND SQUAW HARBOR. IN ADDITION TO THE VESSEL OPERATION, SEA-LAND OPERATES SEA-LAND FREIGHT SERVICE, INC. WHICH IS A FULLY CERTIFIED INTER-STATE AND INTRA-STATE MOTOR CARRIER. IT OFFERS SERVICE TO ALL COMMUNITIES ACCESSIBLE BY HIGHWAY FROM HOMER, SEWARD AND VALDEZ TO THE SOUTH AND TO PRUDHOE BAY TO THE NORTH.

OUR INVOLVEMENT WITH THE OIL INDUSTRY IN ALASKA BEGAN WHEN WE ENTERED THE ALASKA TRADE AND HAS CONTINUED THROUGH TO THE PRESENT. THE INDUSTRY NOW CONTRIBUTES SIGNIFICANTLY TO OUR OVERALL BUSINESS WITH SHIPMENTS RANGING FROM DRILLING COMPOUNDS, BITS, DRILL STEM,CASING, CHEMICALS, CEMENT, INSTRUMENT HOUSES, MACHINE PARTS AND OTHER REQUIRED HARDWARE. WE ARE NOW IN THE PROCESS OF SUBSTANTIALLY EXPANDING OUR TRUCKLINE OPERATION BOTH AT FAIRBANKS AND KENAI SPECIFICALLY TO ATTRACT OIL INDUSTRY BUSINESS. THIS CAPITAL INVESTMENT WILL RESULT IN A LARGER PAYROLL, MORE FACILITIES AND ROLLING STOCK AVAILABLE IN THE MARKET PLACE.

IT IS PERHAPS THE LAST POINT THAT BEARS SOME FURTHER DEFINITION. FOR EXAMPLE, IT IS CLEAR TO ALL WHO EITHER RESIDE IN ALASKA OR DO BUSINESS IN ALASKA, THAT TRANSPORTATION OF GOODS IS ONE OF THE KEYS TO ECONOMIC STABILITY AND GROWTH. ALASKA IS ALMOST EXCLUSIVELY A CONSUMATIVE ECONOMY AND BECAUSE

OF THIS FACT, IS TOTALLY RELIANT ON A QUALITY, COST EFFICIENT TRANSPORTATION SYSTEM. WITHIN TRANSPORTATION ECONOMICS, VOLUME AT A PROPER RETURN ON INVESTMENT DETERMINES SERVICE FREQUENCY AS WELL AS THE VARIETY OF MODES IN THE MARKET PLACE. THIS HAS BEEN DEMONSTRATED REPEATEDLY NOT ONLY WITH WATER SERVICE TO ISOLATED ALASKAN TOWNS BUT WITH TRUCKING SERVICE TO THOSE COMMUNITIES SERVED BY ROAD.

DEVELOPMENT OF ALASKA'S OUTER CONTINENTAL SHELF WILL NOT ONLY ACCOMPLISH THE OBVIOUS OBJECTIVES OF PROVIDING THE NATION A COST STABLE ENERGY SOURCE; IT WILL ALSO BRING A LONG TERM GROWTH TO THOSE COMMUNITIES AFFECTED AND WILL ALLOW THE TRANSPORTATION FIRM DOING BUSINESS IN ALASKA TO MAKE THE CAPITAL INVESTMENTS NECESSARY TO IMPROVE AND EXPAND THE TRANSPORTATION NETWORK THROUGHOUT THE PRINCE WILLIAM SOUND AREA.

TRANSPORTATION AND MATERIAL PACKAGING TECHNOLOGY HAS BEEN GREATLY EXPANDED WITH THE CONSTRUCTION OF THE PIPELINE. A GOOD PORTION OF THIS TECHNOLOGY CAN BE APPLIED TO THE SUPPORT TASK FOR OFF-SHORE DEVELOPMENT AND AT THE SAME TIME ENCOURAGE MORE FREQUENT AND COMPETITIVE SERVICE AT A POSSIBLY IMPROVED RATE STRUCTURE FOR THE LONG TERM BENEFIT OF THE COMMUNITIES AFFECTED.

THANK YOU.

8/12 (13)

U. S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

PUBLIC HEARING

ON

PROPOSED LEASING IN THE GULF OF ALASKA

Anchorage, Alaska

August 12-13, 1975

Statement of

Charles H. Murphy

Chairman, Murphy Oil Corporation

Mr. Chairman, Gentlemen:

My name is Charles Murphy. I am Chairman of Murphy Oil Corporation, a medium-sized international integrated oil company which also owns controlling interest in the world's largest offshore contract drilling company. In my testimony I will address specifically the issues of separation of exploration from development and Federal exploration. This I attempt within the context of exploration and development of our nation's Outer Continental Shelf frontiers at large, drawing on our hard learnt lessons of twenty-two years, beginning in the shallow, near shore Gulf of Mexico and ranging on to the North Sea a hundred miles from land in 500 feet of water.

At the outset, in plain language, I feel compelled to assert that exploration and development are by their nature so overlapping as to be inseparable as a practical matter, and that a direct government role in exploration would retard development of our nation's resources when the public interest clearly requires acceleration.

Lately you have seen a welter of revised estimates of the amount of oil and gas recoverable from our frontiers. This is a lot of sound and fury signifying nothing. No one knows, or could possibly know, without extensive exploration, delineation drilling, and production tests whether we have some, much, or not any commercial reserves on our frontier continental shelves. What <u>is</u> known about them is that they are prospective. What must be learned,

and quickly, is whether they harbor some, much, or not any commercially producible reserves.

North Sea cost and operating experience matched with two of the best known producing trends of the U.S.A. will clear up the point. In May I was a member of a group of American environmentalists, government people, and oilmen inspecting North Sea development and its onshore impact. During a briefing, a cool British professional, with no axe to grind, explained that none of the finds of under 300 million barrels appeared possible of development without subsidy or a moratorium on taxes. In discussion another rose to say, "My esteemed colleague is out of date - the threshold is now 1 billion barrels."

Our central Gulf of Mexico shelf, which is in an advanced stage of exploration and development, has only six fields of more than 300 million barrels reserves. There are none of 1 billion barrels. The six total about 2.8 billion barrels. So, if Gulf of Alaska costs and operating conditions are similar to those of the North Sea but with reservoirs similar to the central Gulf, we might have reserves of, say, 3 billion barrels if the 300 million threshold is right, not any if at least 1 billion barrel traps are required to make the grade.

But we <u>think</u> the structures in the Gulf of Alaska are larger than in the Gulf of Mexico - we <u>hope</u> the pays are thicker. So let's turn to the several basins of Southern California, one of the world's most prolific producing provinces, square mile for square mile, and where, as in the Gulf of Mexico, age of the rocks is about the same as age of the prospective beds here.

In Southern California there are thirteen fields of over 300,000,000 barrels each, totaling 12.1 billion barrels; five of over 1 billion barrels, totaling 7.4 billion barrels. The producing province here could be twice the areal extent of that in Southern California. So if costs and operating conditions in the Gulf of Alaska are like those in the North Sea and the oil fields like those of Southern California, we would have reserves of around 24 billion barrels or 15 billion, as the case may be. In the one case productive capacity might be around 4.8 million barrels a day, in the other around 3.0 million barrels a day.

In short, there are many plausible cases ranging from no producible reserves at all up to 24 billion barrels. But, you may say, "There could be five Prudhoe Bays out here." Well, so there may - or ten for that matter - or, once again, none.

Objects of the exercise I've just been through are two. Firstly, our ignorance of resources on the frontier Outer Continental Shelf is such that a rational energy policy cannot evolve until hard information begins to be accumulated. Secondly, the environmental impact could be de minimis. Obviously, our energy problem is one thing if we do have vast oil and gas reserves on the OCS, quite another if they are insignificant. And just as clearly, all the debate about revenue sharing, state and local planning for onshore impact of offshore development, and the like, will have been an exercise in futility if, God help us, there is no oil, or only a little, there. And that, by the way, now seems the most likely case on Canada's Scotian shelf where five years ago the prospects were exciting.

So much for the background. Within it let's turn to separation of exploration and production and to a Federal role.

Exploration and development are, in reality, a single, integrated effort, in both physical and economic terms. One successful hole in a petroleum deposit does not - and cannot - provide information needed to determine how much oil or gas may be there, or the size and boundaries of the field. For example, every time a company listed on a stock exchange makes a discovery, it's required under SEC rules to announce it as "a material fact." Then the company invariably feels compelled to add the shopworn phrase: "Further drilling will be required to determine commercial significance of the find."

I am familiar with the Office of Technological Assessment's study on the subject of separation. I know some members of the Ad Hoc Task Force personally and all of them by reputation. I hold them all in high regard. When men of such professional standing and practical experience say, as they do (p. 4), "that development* begins after discovery...in commercial quantities," I conclude that they are not applying to the American frontier Outer Continental Shelves - the regions, after all, we are concerned with - experience accumulating in the most analogous region overseas - Scottish waters of the North Sea. In the same paragraph one finds the statement, "Production* of the oil...begins only after a reasonable estimate has been made of the approximate amount and potential flow rates* of the oil...found."

*Emphasis added.

Here, based on North Sea experience, one would have to substitute "development" for "production." The meaning, as you can see, is something entirely different. I can describe firsthand how it is working in a field operated by a group including my own company. About a year and a half ago the operators encountered pay, cored and logged the formation, and were confident of a discovery, but no tests were made owing to weather. A stepout well was then drilled three miles away. This time production casing was set and extensive flow tests were conducted. At that time a discovery had obviously been made but to this day, if asked by the Oil and Gas Journal for their statistical section, I could not say which well was the discovery. Over the next six months two stepout wells indicated that a large but indeterminate reserve had been found. At that stage serious preliminary planning started for development - the general route, but not diameter, of a pipeline; the type of permanent platforms, but not their location or number; inquiry, but not orders, for tubular and plate steel tonnage. A third long stepout indicated the probability but not the proof that the threshold reserve of 1 billion barrels was present. On such evidence, considering the overpowering importance of time, it was deemed a reasonable business risk to place firm orders for steel tonnage and to commit irrevocably for use of such equipment as pipeline lay barges and supporting vessels. That marked commencement of development. But was exploration over? Clearly not. Two widely spaced delineation wells were required to distinguish proven from probable reserves and to determine optimum location of the permanent platforms. So far we've seen seven wells -

one, or two, rank wildcats; two, or four, high risk stepouts; one, or three, delineation wells - the numbers in each case depending on one's point of view and personal definition of terms. All were without question exploratory wells to varying degrees. All were abandoned as sacrificial after they had yielded up their share of Mother Earth's secrets, the hallmark of an exploration hole. Yet six of the seven were extensively flow tested through production casing (necessary to assess producing capability of the reserve and thereby to determine diameter of the pipeline, amount of platform and shoreside storage, etc.), an operation usually thought of as the bridge between the development and production functions.

There is now a pause, or change of pace, but not a cessation, in the work program as laying the pipeline begins, specifications of the storage depot are prepared and construction commences on the permanent platforms. The mobile rig can be spared for a vital rank wildcat elsewhere. But exploration will resume concurrently with what will clearly be development drilling from fixed platforms as deeper formations remain to be explored and the field pay in a separate fault block must be tested.

Gentlemen, we are not at this hearing considering exploration and development as an abstraction. The subject is exploration and development in cold, deep, turbulent seas. I suggest that this case history of a field in the North Sea demonstrates that under operating conditions expected to prevail in the Gulf of Alaska and the North Atlantic OCS exploration, discovery, delineation, development, then more rank wildcatting, overlap so as to defy any precise distinction among them.

Now let us turn to a government role in exploration of the OCS. The question boils down to this: Who can locate and produce that oil and gas most effectively, at least cost and most benefit to the public - private industry or the Federal government? In a word, at the least cost to society?

I believe - measured by any truly objective standard - that private industry is in a far better position to achieve these goals than is government.

The case of a direct government role is based, among others, on,

1) getting fair value for the publicly-owned resource, and

2) enhancing competition in the petroleum industry.

Let's look at these. As to fair value, I would like to introduce some startling statistics. They answer the question of who really has been receiving the benefits of offshore operations in the United States.

During the 21-year history of Federal OCS lease sales, receipts from offshore operations have totaled $19.3 billion. Ninety-four percent of that money has gone to the Federal government in royalties, bonuses, and rentals. only six percent, $1.1 billion, has gone to the oil industry.

In addition to bonuses, rentals, and royalties, exploration, development, and production costs to the companies so far are an estimated $9.7 billion.

In other words, the oil companies to date have spent $8.5 billion more than they have received - cash in versus cash out. To be sure, there is capital value in the remaining reserves and speculative value in the blocks not yet tested, and I do not imply that companies do not ultimately hope OCS operations will be profitable. My purpose is simply to point out that, to date,

such operations have not been the bonanza or "giant giveaway" that has sometimes been depicted. My intuition is that the ultimate aggregate rate of return on all OCS blocks leased to date will be less than the yield on electric utility bonds.

The point can be made another way. From September 1972 through May 1974, the aggregate high bids at OCS sales were $8.9 billion. The aggregate runnerup bids were $5.0 billion. The $3.9 billion left on the table is equivalent to 40 percent of the total profits during 1973 of the 25 largest oil companies.

Last year alone companies paid bonuses and first-year rentals of more than $5 billion. From 1954 through last year the total in bonuses and first-year rentals exceeded $14 billion - just for the <u>right</u> to look for oil and gas and to develop any found. No guarantee for the exploring companies - no risk to the taxpayers. Now it might be said that the government would not have had to pay itself the bonuses and that would be literally true. But in economics cost of an opportunity foregone is just as real as cash on the barrel head.

Would a government search, followed by sale of prospects after oil had been indicated on them, enhance competition by relieving independents of the rank wildcat risk? It sounds like a good idea, but like so many being put forward these days, I suspect it would have the opposite of the desired effect.

First, let's approach the subject on the basis of pure reason. Introduction of this new player in the game - big, rich, notoriously callous toward large expenditures, would have the effect of weakening all other competitors. By definition, almost, the small and weak would be driven from the field first. In the words of an old Slavic proverb, "By the time the fat become lean, the lean are dead." That's not the intent of the proponents of government exploration, yet a plausible outcome is concentration in the hands of a few large companies and the Federal government.

Moving on to the practical, while there are seven or so giant firms in our business, there are many more of medium size and smaller companies - of which my own is one - ranging down to the individual proprietor. While I have personally witnessed plenty of bare knuckle competition among the giants, we like to think that much of the competitive balance in our business is supplied by these medium-size and smaller companies.

Let's refresh our memories of how they operate. An independent wildcatter - the fellow who in myth, but not in fact, finds most of the oil - typically is a seller, not a buyer, of properties at the very stage leases would be auctioned under the proposed system. He takes the risk, licks his wounds if the well is dry, and cashes in if he hits it big, leaving to the majors problems of financing development, the headaches of reservoir studies, and the tedium of keeping lifting cost down, so as to free himself to go out and try it again.

Now for the medium-size companies - I hope you would accept my company as Exhibit "A" for this purpose. We consistently buy leases at every stage - from dollar an acre trend plays, through (with partners) $80 million for a prime OCS wildcat block, on to fully developed producing properties. The stage at which we do least well is bidding for semiproven or proven undeveloped reserves. Some years ago we avidly wanted the City of Wilmington's proven acreage in the Wilmington field, and we weren't even in the running. Throughout the 1950's and 60's we were consistent bidders for Crown reserves in Canada. We got our share out of sheer doggedness, but I am here to tell you it was hard slogging. In the early 50's there was a fair amount of open land in the Scurry County Reef field, and we didn't get an acre.

In short, based on abstract reasoning and application of accumulated practical experience to the proposal that government explore, then auction leases on the OCS, I think competition more likely to be lessened than enhanced.

Now I should like to turn to general, yet compelling, objections to direct exploration by the Federal government. Firstly, the inevitable delay that would be a consequence of mobilizing for a task industry is already organized and equipped to accomplish. Secondly, the probability that of the oil there, whatever it is, much would remain undiscovered.

The effect of delay would be a heavy burden on consumers, taxpayers, and workers - in a word, the nation as a whole. Let's examine that question.

For a number of years, this country has consumed more oil and gas than it has been finding. But this has not always been the case. Until 1967, the oil component of our energy mix was delivered, as it were, first in a large stream from the interior of the lower-48 states; second, in a smaller stream from abroad; and, third, in a growing rivulet from our Outer Continental Shelf.

Not only was the first of these the largest, it also stemmed from a resource base sufficiently developed to provide backup capacity, should either the import stream be curtailed by the actions of other countries, or the development of our frontier resources be delayed by impediments of our own government. This was the optimum posture.

Unfortunately, strictures of both kinds did, in fact, occur:

..In 1967, the Six Day War closed the Suez Canal;

..In 1969, a moratorium was placed on drilling and production in the Santa Barbara Channel, following the oil spill there;

..From early 1970 through mid-November 1973, development of Alaska's North Slope was suspended because of the postponement of the trans-Alaska pipeline - and oil, which could have been flowing to U.S. consumers during the Arab embargo, is still underground at Prudhoe Bay;

..In the early 1970's, a number of scheduled lease sales were postponed, following two offshore accidents, although neither accident more than temporarily affected the environment; and

..The Yom Kippur War - and the subsequent Arab oil embargo of Winter 1973-74 - seriously affected the availability of fuel in the United States.

These events - plus the discouraging effects that price controls and added tax burdens have had on the incentive to find new oil and natural gas

deposits - have combined to erode our spare productive capacity. Today, that backup capacity is gone.

Consider in retrospect, for example, what the result would have been had we had one million barrels per day of Alaskan oil flowing to the lower-48 states, when the Arab embargo was imposed. Would the OPEC cartel then have been as successful as they were in raising prices? I don't pretend to know the precise answer, but I firmly believe we could have resisted - and forestalled - at least some of the price increase.

I mention this to emphasize that delay is not without cost. It has a price, and this nation is now paying it. You can be sure the OPEC cartel is carefully watching our actions for evidence of further delay, which will permit them to continue collecting their present - or a higher - price.

As I stated earlier, our backup productive capacity is gone. We find that production from the maturely developed lower-48, onshore portion of our resource base is actually declining at a rate of about one-half million barrels per day per year. Delays in turning around the decline in domestic production threaten to retard recovery from the recession, as energy shortages cause some factories to close, and others to curtail production.

This has already occurred in the case of natural gas. It could occur in other fuels, if delays further widen the breach between domestic supply and demand. Imports may not be available to fill the gap.

Let me interject here one thought that might be helpful to you in your deliberations. We are currently getting about 17 percent of all the oil and

natural gas produced in this country from wells in the Gulf of Mexico. Seventeen percent.

Now, let's look at what that production means in terms of the consumer and worker on the East Coast, for example. And I'm talking about averages. Obviously, no one can account for each barrel of oil or cubic foot of natural gas in the vast delivery mix of our national supply system. But, on the average, one out of every six gallons of gasoline, and one out of every three cubic feet of natural gas, consumed on the East Coast today, originated in a well offshore Louisiana or Texas.

My point is this, gentlemen. Much of the area already leased in the Gulf of Mexico has been explored, developed and placed in production. And, despite continuing efforts to find new petroleum deposits there, production in many of the tracts has matured, and is declining. And I ask: Where - aside from increased imports - will the oil and gas come from, if we don't get on with the job of exploring the frontier areas of the OCS and Alaska?

Finally, the risk of leaving much oil undiscovered arises from premature condemnation of prospects and entire trends in a government exploration program. To be sure, governments elsewhere do explore for oil as monopoly. Aside from the outright totalitarian states, Mexico and Brazil do it that way. Others, notably Italy and France, have a mixture with government predominating. In Canada there is an admixture with private industry predominating.

I am familiar with all of those. And I believe any objective observer will certify that none can approach, much less rival, the American way. I did

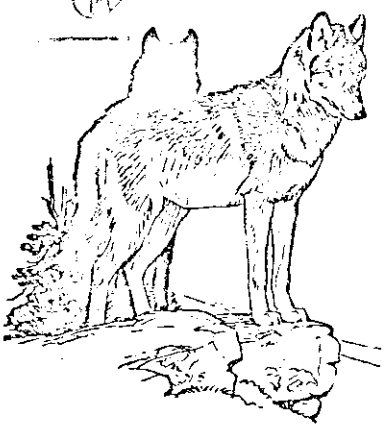
not coin the phrase (but I wish I had) "oil is found in the minds of men." The drill only confirms the correctness, or reveals the errors, of the mind's ideas. The more "ideas," the greater the chance for discovery.

Our form of government, responsible through both a legislature and an executive to its people, is just not organized to apply multiple working hypotheses to locate oil and gas in subtly expressed geologic situations. An industry composed of many different companies, and many different experienced teams to gather and analyze data, is equipped for such ventures.

To turn over this effort, even in limited areas, to government would be the same as asking one company (with plenty of money and no experience) to do the job. I am not among those who make sport of criticizing our government. I revere our system and I hold in admiration many public servants - career and elected. But it stubs its toe every time it departs from its proper function, which is to govern. The combination of law and regulations which led to the fiasco in catalytic mufflers on 1975 autos bears eloquent witness. Not to speak of running passenger trains, or even delivering the mail.

By your leave I close on a personal note. If Professor Schumpeter was right when he said - in his monumental work, "Capitalism, Socialism and Democracy" - that capitalism will inevitably give way to socialism, I am one free enterpriser who will not sulk in his tent. I will cheerfully do my level best, no matter what the system. But the wherewithal to do the job today - right now - is in the private sector. I believe that I can conscientiously say, even were I philosophically persuaded that the government should

accelerate its intrusion into business, it should not, as a purely practical matter, do so on the Outer Continental Shelf in the 1970's.



Alaska Conservation Society

Incorporated in 1960

Box 80192 College, Alaska 99701

TESTIMONY FOR THE HEARINGS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON OUTER CONTINENTAL SHELF PROPOSED OIL AND GAS LEASING IN THE NORTHERN GULF OF ALASKA (SALE #39) PREPARED BY THE BUREAU OF LAND MANAGEMENT ALASKA OUTER CONTINENTAL SHELF OFFICE, ANCHORAGE, ALASKA ON TUESDAY AUGUST 12, 1975

My name is Virginia dal Piaz. I am representing the Alaska Conservation Society. This organization was incorporated in 1960 and is the largest Alaskan conservation group with a membership of about one thousand.

We note that the description of the proposed action is described in the "would" and "could" tenses on the first three pages. From page six on, the premise of "will" and "shall" is made. This, and inumerable other phraseology, indicates that an administrative decision has already been made to definitely hold the proposed lease sale, that this was communicated effectively to the environmental impact statement writing team and that the government views the draft environmental impact statement as a "pro-forma" legal exercise. We know only too well how hard it is to teach old dogs new tricks, nevertheless, environmental assessments are not to be treated as project proposals nor the scene of biases toward these proposals.

The estimate of the recoverable oil resources used the USGS resource statistics incorrectly. All calculations for planning use the 2.8 billion barrel figure which has a five percent probability, or as we must point out, a 95 percent IMPROBABILITY. At this stage of the game, the 50-50 probability should be used, and that is slightly less than 1.0 billion barrels of petroleum. This is such a simple statistical fact that we can only assume a deliberate attempt to mislead the public.

No mention was made that today's technology results in extracting only 32% of the petroleum in any geologic trap. Thus the amount of recoverable oil statistics could be aided much more by advancing the recovery technology and holding off until that technology is available.

The description of the physical and biological environment was done very well and with excellent documentation. However, the discussion of the social and cultural impacts particularly the continual inuendos that increased traffic, trade and industry along the coast would be of overall benefit to the people and cultures of the area is misleading. People live there primarily BECAUSE OF the lack of these things. Their culture can exist ONLY in the absence of traffic and industry which has become so typical of the American scene.

The treatment of the estimated impact of this Outer Continental Shelf lease sale is alarmingly naive and understated. It is stated that the TOTAL area impacted by on shore loading, storage and treatment facilities at Cordova, Yakutat, Yakutaga and elsewhere would be 760 acres (1.2 square miles). The LNG plant would require 120 acres and pipelines would require only 175 acres. Once before, we listened to the same sort of phoney statistics from Alyeska and the oil industry. They told us that impacts of an oil pipeline would be limited to a narrow strip of land representing a fraction of 1% of the land area of the state. Today we see the unfavorable social, economic and environmental effects THROUGHOUT the state.

The section on probabilities for oil spills is likewise inadequate. The statistics from the Gulf of Mexico were used for extrapolation to the Gulf of Alaska. In no way could operation in Alaska be safe from failure as in the Carribean. The geologic hazards are similar to the California coast at Santa Barbara and we are all aware of the severe problems there. Earthquakes are severe and frequent. Hurricane force storms occur along with freezing conditions. Ten Alaskan Brown bears loose in this hearing room would be easier to deal with than some of the conditions to be encountered during any oil production in the Gulf of Alaska.

Risks along the Pacific shores are much greater than are predicted based on many of the world-wide average figures used in the Draft Environmental Impact Statement.

Even if the amount of oil spilled were not underestimated, the ratio of oil spilled to recoverable oil would be unacceptably high. Such an analysis of this ratio was only begun in the draft environmental impact statement before us. That job must be completed.

As we are becoming more and more aware, low level chronic oil spillage from day to day operation may pose as much or more of a threat to ecosystems as more spectacular large scale spills. We cannot just write off the possibility of long term damage to ecosystems in the area as "acceptable risk".

In addition we are appalled that there is little or no discussion of the cumulative effects of oil pollution from sources outside the Outer Continental Shelf lease program on the area.

We can only ask: Isn't there a strong possibility or likelihood of pollution from shipping activities between Valdez and the northwestern United States once tanker traffic starts?...Or can that all be ignored because all those other environmental impact statements are now filed away "out of sight, out of mind"? Although someone might judge the effects of spills from one project to be acceptable surely no one is so naive as to think that when several projects are simultaneously adding to the problem there is not an increased danger of eventually adding the proverbial "straw that breaks the camels back". If dangers of "chronic pollution" aren't bad enough, we can only wonder at what point the combined contamination ceases to be chronic and becomes acute.

The section on irretreivable committment of mineral resoucres is totally inadequate in that the basic assumption has been made that "it takes no resources to extract, process and deliver petroleum." Perhaps as with other poorly thought-out energy schemes this project will also yield less energy or only insignificantly more than the total of mineral energy resources used in the process. Land loses are grossly underestimated.

The Council on Environmental Quality assessment was that the Gulf of Alaska is an area of highest risk for outer continental shelf petroleum extraction. It is an area of rich biological productivity, as has been well documented. It is an area particularly ill prepared for the cultural and economic impacts. We can therefore only conclude that the proposed action with its proposed timing is being pushed for reasons of presumed political expediency.

No environmental impact statement can be acceptable unless it weighs all these factors for each outer continental shelf area and comes to a logical and rational conclusion as to how to proceed. We find this process entirely lacking.

We can only join with the Governor of this state, many members of Congress and a vast body of the public in urging delay and reconsideration by the Department of Interior.

If this is not done, citizens may be forced to seek help through both legislative and judicial processes.

An alternative action proposed is Energy Conservation. It is stated: "In the short term (we would add also in the long term) ENERGY CONSERVATION OFFERS THE ONLY OPTION FOR MATCHING ENERGY REQUIREMENTS TO AVAILABLE SUPPLY. THE GOALS OF NATIONAL SELF-SUFFICIENCY AND CONSERVATION OF NATURAL RESOURCES ARE BEST ACHIEVED THROUGH ENERGY CONSERVATION." (Page 753). This is an admirably concise way of saying it, so then, lets not just pay lip service, lets do it!

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OUTER CONTINENTAL SHELF HEARINGS

ANCHORAGE, ALASKA

AUGUST 12, 1975

STATEMENT BY

CHARLES R. WEBBER

MY NAME IS CHARLES R. WEBBER AND I REPRESENT LIQUID AIR INCORPORATED IN THE STATE OF ALASKA. I HAVE BEEN A RESIDENT OF THIS STATE FOR 21 YEARS, DURING WHICH TIME I HAVE SERVED ACTIVELY ON BOARDS AND COMMITTES DEALING WITH PETROLEUM AND PIPELINE PROJECTS.

LIQUID AIR IS A MANUFACTURER OF INDUSTRIAL AND MEDICAL GASES AND MAINTAINS MANUFACTURING FACILITIES IN ALASKA WHERE IT SERVES AS A SUPPLIER TO INDUSTRIAL CUSTOMERS. AS A MANUFACTURER IT IS ONE OF THE FEW TRULY INDUSTRIAL MANUFACTURING OPERATIONS IN THE STATE. IN FACT, THE PERFORMANCE REPORT OF THE ALASKAN ECONOMY, PRODUCED BY THE STATES DIVISION OF ECONOMIC ENTERPRISE DOES NOT INCLUDE A SEPARATE INDUSTRIAL MANUFACTURING CATAGORY. THE ONLY MAJOR CONSUMER PRODUCT PRODUCTION, OUTSIDE OF THE NORTH KENAI REFINING/PETROCHEMICAL COMPLEX, IS LIMITED TO THE FISHERIES, AND TO A LESSER EXTENT WOOD PRODUCTS.

ALASKA MUST BROADEN ITS ECONOMIC BASE TO ASSURE ITS ECONOMIC VIABILITY IN THE FUTURE. THE OIL INDUSTRY OPERATING IN THE GULF OF ALASKA HAS THE OPPORTUNITY TO ASSIST IN THIS THROUGH THE AVAILABILITY OF ENERGY AND THROUGH THE CONVENIENCE OF TRANSPORTATION. THERE IS THE OPPORTUNITY FOR BUSINESS GROWTH DURING THE INSTALLATION OF PRODUCTION FACILITIES IN THE GULF AND THE POSSIBILITY OF CONVERSION INDUSTRIES FOR THE PRODUCTS DISCOVERED.

IN THE CASE OF ANY NATURAL GAS THAT IS DISCOVERED THERE WOULD BE A REQUIREMENT FOR LIQUIFICATION AND THE POSSIBILITY OF SECOND AND THIRD STAGE CONVERSION TO PETROCHEMICALS. CONVERSION PLANTS AND THEIR ASSOCIATED GATHERING SYSTEMS CAN PRODUCE SUBSTANTIAL PROPERTY TAX REVENUE UPON THEIR COMPLETION. THIS REVENUE CAN BE DERIVED FROM AN INDUSTRY THAT RANKS LOW IN TERMS OF SOCIAL AND ENVIRONMENTAL IMPACT AND HIGH IN CAPITAL INVESTMENT.

OUR COMPANY HAS HAD AN OPPORTUNITY TO WORK WITH THE PETROLEUM INDUSTRY IN MOST PLACES OF THEIR OPERATION IN ALASKA AND IT HAS GIVEN ME AN OPPORTUNITY TO SEE FIRST HAND THE CONCERN THE INDUSTRY HAS FOR THE ENVIRONMENT. THE INDUSTRY SHOULD BE HIGHLY COMPLIMENTED ON THE RESOURCES, PEOPLE AND TECHNICAL SKILL THEY HAVE PUT INTO THE FIELD IN THEIR EFFORTS IN ALASKA. THE PETROLEUM INDUSTRY HAS CAREFULLY ASSISTED IN MATTERS CONCERNING ENVIRONMENTAL, SOCIAL, AND ECONOMIC IMPACT AND HAS BEEN A RESPONSIBLE PARTNER WITH ALASKA IN THE ALASKAN OPERATIONS.

AT A TIME WHEN THIS NATION IS IN SUCH DIRE NEED OF "HOME" PRODUCED ENERGY IT WOULD SEEM INAPPROPRIATE TO NOT GIVE THE INDUSTRY CREDIT FOR ITS ACCOMPLISHMENTS IN OUR STATE AND PERMIT THEM TO CONTINUE TO MEET THE CHALLENGE OF ENERGY PRODUCTION IN THE GULF OF ALASKA. THE PETROLEUM INDUSTRY CAN DRAW ON 18 YEARS OF SUCCESSFUL EXPERIENCE IN OFF SHORE DRILLING IN THE GULF OF MEXICO AND MORE RECENT SUCCESSES IN THE SEVERE ENVIRONMENTAL

CHALLENGES OF THE NORTH SEA. THE INDUSTRY HAS THE CAPABILITY TO MEET THE CHALLENGE AND MUST NOT BE DISUADED BY THOSE WHO SUGGEST A THOUSAND REASONS WHY IT CAN'T OR SHOULDN'T BE DONE.

IT MIGHT BE WELL TO POINT OUT THAT ALASKA IN DEALING WITH THE OFF SHORE DRILLING IN THE GULF OF ALASKA WILL BE REQUIRED TO DEAL WITH PROBLEMS THAT MAY TEND TO REPEAT THEMSELVES AS OTHER RESOURCE POSSIBILITIES ARE IDENTIFIED. THE SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACT ISSUES WILL MOST CERTAINLY NEED TO BE RESOLVED AT EACH NEW SIZABLE PROJECT AND IT IS THIS CHALLENGE THAT FACES US HERE. A RELUCTANCE TO DRIVE FORWARD AND FIND THE SOLUTIONS REQUIRED ONLY LESSENS THE RATE AT WHICH THE ENERGY NEEDS OF OUR COUNTRY CAN BE MET.

A DELAY IN SUPPLYING ENERGY TO OUR COUNTRY CAN CONTRIBUTE ECONOMIC DEPRESSION AT A TIME WHEN THE NATIONAL VITALITY IS MOST IMPORTANT. THERE IS GENERAL AGREEMENT THAT AMERICA WILL BE DEPENDANT ON OIL AND GAS AS A PRIMARY ENERGY SOURCE FOR AT LEAST TWENTY YEARS.

OUR COUNTRY IS FACING CHALLENGES ON THE ECONOMIC FRONT THAT RELATE TO THE GULF OF ALASKA DRILLING. IF THERE IS PRODUCTION IN THE GULF IT IS APPARANT THAT EACH BARREL PRODUCED THERE WILL LESSEN EQUIVALENTLY THE NEED FOR IMPORTED OIL AND THEREBY ASSIST THE BALANCE OF PAYMENTS SITUATION BY COUNTERING THE OUTFLOW OF U.S. DOLLARS THAT ARE SO GREATLY NEEDED TO SUPPORT OUR ECONOMY. AS OIL

PRICES RISE THE VALUE OF U.S. PRODUCED OIL RISES COMMENSURATELY AND WE ARE SEEING SOME SHARP INCREASES IN OIL PRICES.

PRODUCTION FROM THE GULF OF ALASKA WILL ALSO SERVE TO STRENGTHEN THE DEFENSE POSITION OF OUR COUNTRY FOR IT IS CONCEIVABLE THAT INTERRUPTION OF THE IMPORT SUPPLY LINE COULD ALTER THE COUNTRIES ABILITY TO RESPOND MILITARILY SHOULD THERE BE A NEED.

IN LIGHT OF THE FOREGOING, AND WITH CONSIDERATION OF REASONABLE ENVIRONMENTAL SAFE GUARDS, THE COMMITTEE IS URGED TO PROCEED WITH THE NECESSARY STEPS TO INSURE THAT A LEASE SALE IN THE NORTHERN GULF OF ALASKA BE HELD AT THE EARLIEST POSSIBLE TIME.

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DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

HEARING ON PROPOSED LEASING
NORTHERN GULF OF ALASKA

AUGUST 12-13, 1975 - ANCHORAGE, ALASKA

STATEMENT OF WILLIAM M. MEYERS

I AM WILLIAM M. MEYERS OF THE LAW FIRM OF LISKOW & LEWIS OF NEW ORLEANS, LOUISIANA. I AM APPEARING HERE TODAY AS ATTORNEY FOR THE GULF OF ALASKA OPERATORS COMMITTEE. AS WILL BE EXPLAINED LATER, THE GULF OF ALASKA OPERATORS COMMITTEE IS COMPRISED OF 28 MEMBER COMPANIES.

THE COMMITTEE HAS REQUESTED AND OBTAINED PERMISSION TO MAKE A MULTI-WITNESS PRESENTATION. THIS WAS DONE FOR TWO REASONS. FIRST, WE BELIEVE THAT A COORDINATED PRESENTATION OF THIS TYPE ON BEHALF OF THE OFFSHORE INDUSTRY WILL BETTER COVER THE PERTINENT ISSUES INVOLVED IN THIS HEARING THAN WOULD A SERIES OF SEPARATE STATEMENTS FROM THE MEMBER COMPANIES WHICH WOULD BE LARGELY REPETITIVE. SECOND, WE BELIEVE THAT CONSIDERABLE TIME WILL BE SAVED IN MAKING THIS INDUSTRY PRESENTATION SINCE A GREAT MAJORITY OF THE MEMBERS OF THE GULF OF

ALASKA OPERATORS COMMITTEE WILL NOW CONTENT THEMSELVES WITH FILING WRITTEN STATEMENTS.

OUR WITNESSES WILL COVER THE MANY IMPORTANT ISSUES RELATING TO THE EXPLORATION AND DEVELOPMENT OF THE PETROLEUM POTENTIAL OF THE GULF OF ALASKA. WE WILL DISCUSS THE NEED FOR THE OIL AND GAS RESOURCES OF THE GULF, THE PHYSICAL OCEANOGRAPHY, THE GEOLOGY, THE TECHNOLOGY, THE SOCIO-ECONOMIC IMPACTS, AND THE ENVIRONMENTAL EFFECTS. CERTAINLY, IN EVALUATING THIS TESTIMONY IT IS NECESSARY TO EXAMINE THE PARTICULAR BACKGROUND AND QUALIFICATIONS OF EACH WITNESS. WE SUBMIT THAT EACH OF OUR WITNESSES IS AN ESTABLISHED EXPERT IN HIS FIELD. EACH IS WELL-EQUIPPED BY EDUCATION, TRAINING AND EXPERIENCE TO ADDRESS THE SUBJECT WHICH HE HAS BEEN ASSIGNED IN A RESPONSIBLE AND OBJECTIVE MANNER.

OUR WITNESSES WILL BE PRESENTED IN SEVERAL PANELS. THE FIRST PANEL CONSISTS OF DR. HOWARD A. SLACK, VICE PRESIDENT, ATLANTIC RICHFIELD COMPANY AND CHAIRMAN OF THE GULF OF ALASKA OPERATORS COMMITTEE, AND MR. JOHN A. SILCOX, VICE PRESIDENT AND GENERAL MANAGER, EXPLORATION

DEPARTMENT, WESTERN OPERATIONS, INC., STANDARD OIL COMPANY OF CALIFORNIA.

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I NOW PRESENT DR. SLACK WHO WILL DISCUSS THE PURPOSES OF THE GULF OF ALASKA OPERATORS COMMITTEE AND THE VARIOUS ENVIRONMENTAL STUDIES WHICH HAVE BEEN CONDUCTED BY THE COMMITTEE AND CERTAIN OF ITS MEMBER COMPANIES.

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OUR NEXT WITNESS, MR JOHN SILCOX, WILL COMMENT ON THE REPORT RENDERED BY THE COUNCIL ON ENVIRONMENTAL QUALITY ENTITLED "OCS OIL AND GAS - AN ENVIRONMENTAL ASSESSMENT".

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MR. SHERMAN H. CLARK IS OUR NEXT WITNESS AND WILL DISCUSS "THE NEED FOR PETROLEUM SUPPLY FROM THE GULF OF ALASKA".

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THE NEXT PANEL WILL DEAL WITH THE PHYSICAL OCEANOGRAPHY AND OCEAN GEOLOGY OF THE GULF OF ALASKA. THE WITNESSES ARE:

1. MR. PAUL HORRER WHOSE SUBJECT IS THE PHYSICAL MARINE ENVIRONMENT OF THE GULF OF ALASKA.

2. MR. JOHN MCKEEVER WHO WILL DISCUSS SEAFLOOR SEDIMENTS AND CHARACTERISTICS, AND INDUSTRY SURVEYS OF BOTTOM CONDITIONS.

3. MR. H. J. FITZGEORGE WHO WILL TESTIFY AS TO THE OIL AND GAS POTENTIAL OF THE AREA UNDER CONSIDERATION.

4. DR. JOHN H. WIGGINS WHO WILL DISCUSS THE "PROBABILISTIC RESPONSE OF OFFSHORE PLATFORMS TO SEISMIC EXCITATIONS IN THE GULF OF ALASKA".

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THIS IS A CONTINUATION OF THE TESTIMONY ON BEHALF OF THE GULF OF ALASKA OPERATORS COMMITTEE.

OUR NEXT PANEL WILL COMMENT ON TECHNOLOGY FOR OCS DEVELOPMENT. THE WITNESSES ARE:

1. MR. L. E. WILSON WHO WILL SPEAK ON EXPLORATORY DRILLING OPERATIONS, WITH EMPHASIS ON THE NORTH SEA EXPERIENCE.

2. DR. KENNETH BLENKARN WHO WILL DISCUSS DEVELOPMENT AND PRODUCTION, PIPELINES, AND DESIGN OF STRUCTURES TO WITHSTAND WAVE AND SEISMIC FORCES.

3. MR. A. D. MOOKHOEK WHOSE SUBJECT IS TRANSPORTATION AND TERMINALS.

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THIS CONCLUDES THE PRESENTATION OF THE GULF OF ALASKA OPERATORS COMMITTEE SCHEDULED FOR TODAY.

WEDNESDAY, AUGUST 12, 1975

THIS IS A CONTINUATION OF THE PRESENTATION OF THE GULF OF ALASKA OPERATORS COMMITTEE.

OUR FIRST WITNESS TODAY WILL BE MR. GUENTER M. CONRADUS WHO WILL REPORT ON THE STUDY MADE ON THE ECONOMIC AND SOCIAL IMPACT OF OIL RELATED ACTIVITIES IN THE GULF OF ALASKA.

THE NEXT PANEL OF WITNESSES WILL DISCUSS THE ENVIRONMENTAL EFFECTS OF OFFSHORE DEVELOPMENT.

1. MR. JOE TYSON WILL REPORT ON THE GULF UNIVERSITIES RESEARCH CONSORTIUM OFFSHORE ECOLOGY INVESTIGATION.

2. MR. WILLIAM F. GUSEY WILL COMMENT ON THE IMPACT OF THE PROPOSED OFFSHORE LEASING ON FISH AND WILDLIFE.

OUR LAST GROUP OF WITNESSES WILL DISCUSS OIL AND THE MARINE ENVIRONMENT.

1. DR. CLAYTON D. MCAULIFFE WILL DISCUSS THE FATE AND MOVEMENT OF OIL SPILLS.

2. DR. DALE STRAUGHAN WILL COMMENT ON THE ENVIRONMENTAL EFFECTS OF OIL SPILLS, PARTICULARLY RELATED TO THE SANTA BARBARA INCIDENT.

3. MR. E. W. MERTENS WILL REPORT ON THE RESEARCH PROGRAM CONDUCTED BY THE AMERICAN PETROLEUM INSTITUTE'S COMMITTEE ON THE FATE AND EFFECTS OF OIL IN THE MARINE ENVIRONMENT.

4. DR. A. H. LASDAY WILL DISCUSS CERTAIN AREAS OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT RELATING TO THE EFFECTS ON THE ENVIRONMENT OF CRUDE OIL AND OF OIL AND GAS DRILLING AND PRODUCTION RELATED FLUIDS.

5. MR. JESSE P. JOHNSON WILL DISCUSS OIL SPILL CONTINGENCY PLANNING.

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THIS CONCLUDES THE TESTIMONY ON BEHALF OF THE GULF OF ALASKA OPERATORS COMMITTEE.

(17)

STATEMENT OF

HOWARD A. SLACK
ATLANTIC RICHFIELD COMPANY

CHAIRMAN, GULF OF ALASKA OPERATORS' COMMITTEE

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

on

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA

AUGUST 12-13, 1975

GULF OF ALASKA OPERATORS COMMITTEE

STATEMENT OF HOWARD A. SLACK, ATLANTIC RICHFIELD COMPANY

OFFSHORE SALE ENVIRONMENTAL HEARING

ANCHORAGE, ALASKA

AUGUST 12-13, 1975

GOOD MORNING. MY NAME IS HOWARD A. SLACK. BY EDUCATION, I AM A PHD IN ENGINEERING PHYSICS. I AM A MEMBER OF THE SOCIETY OF EXPLORATION GEOPHYSICISTS, THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AND A MEMBER OF THE BOARD OF DIRECTORS OF THE ALASKA STATE CHAMBER OF COMMERCE. I AM VICE PRESIDENT AND RESIDENT MANAGER FOR ATLANTIC RICHFIELD COMPANY IN ALASKA. MY AREA OF RESPONSIBILITY IS ALL MY COMPANY'S EXPLORATION AND PRODUCTION ACTIVITIES IN AND ADJACENT TO THE STATE OF ALASKA, INCLUDING THE OUTER CONTINENTAL SHELF. THE LATTER REPRESENTS APPROXIMATELY 383 MILLION ACRES OR ABOUT 66-2/3 % OF THE TOTAL UNITED STATES CONTINENTAL SHELF.

I AM APPEARING TODAY IN THE CAPACITY OF CHAIRMAN OF THE GULF OF ALASKA OPERATORS COMMITTEE, WHOSE MEMBERSHIP CONSISTS OF 28 COMPANIES. THESE COMPANIES ARE:

AMERICAN INDEPENDENT OIL CO., INC.
AMERICAN PETROFINA OIL COMPANY
AMOCO PRODUCTION COMPANY
ATLANTIC RICHFIELD COMPANY
ASHLAND OIL, INC.
BP ALASKA INC.
CHAMPLIN PETROLEUM COMPANY
CITIES SERVICE OIL COMPANY

CLINTON OIL COMPANY
CONTINENTAL OIL COMPANY
EXXON COMPANY, U.S.A.
GULF OIL COMPANY, U.S.
MARATHON OIL COMPANY
DEPCO, INC.
MOBIL OIL CORPORATION
MURPHY OIL CORPORATION
NATIONAL COOPERATIVE REFINERY
PANCANADIAN PETROLEUM COMPANY
PENNZOIL COMPANY
PHILLIPS PETROLEUM COMPANY
PLACID OIL COMPANY
SHELL OIL COMPANY
SKELLY OIL COMPANY
STANDARD OIL COMPANY OF CALIFORNIA
SUN OIL COMPANY
TENNECO OIL COMPANY
TEXACO, INC.
UNION OIL COMPANY OF CALIFORNIA

THE GULF OF ALASKA OPERATORS COMMITTEE WAS ORGANIZED IN NOVEMBER OF 1971 TO DEVELOP AN ASSESSMENT OF THE IMPACT OF OIL EXPLORATION AND DEVELOPMENT ON THE ENVIRONMENT OF THE GULF OF ALASKA AND TO PREPARE AND COORDINATE THE PRESENTATION OF TESTIMONY AT THE ENVIRONMENTAL HEARING FOR THAT AREA.

THE COMMITTEE ACCOMPLISHES ITS TASK THROUGH A NUMBER OF WORKING SUBCOMMITTEES. THESE SUBCOMMITTEES ARE:

ENERGY DEMAND
ENVIRONMENTAL AND BIOLOGY
GEOLOGY AND GEOPHYSICS
OIL SPILL PREVENTION
DRILLING AND PRODUCTION
MARINE TERMINALS AND TRANSPORTATION
ADMINISTRATION AND COMMUNICATIONS
PUBLIC, BUSINESS AND GOVERNMENT RELATIONS
SPECIAL PROJECTS

AND EACH IS EMPOWERED TO DEAL WITH THOSE PROBLEMS, RESEARCH AND STUDY RELATED TO ITS PARTICULAR INTERESTS. A SMALL EXECUTIVE COMMITTEE MEETS MORE FREQUENTLY THAN THE ENTIRE COMMITTEE TO COORDINATE THE EFFORTS OF THE GROUP. THE OFFICERS, THE EXECUTIVE COMMITTEE, AND THE SUBCOMMITTEE CHAIRMEN COMPRISE THE COORDINATING COMMITTEE.

THE OIL INDUSTRY HAS BEEN INTERESTED IN THE GULF OF ALASKA OCS FOR MANY YEARS, BECAUSE OF THE BELIEF THAT THIS AREA HOLDS PROSPECTS FOR MAJOR DISCOVERIES WHICH CAN SIGNIFICANTLY AID OUR COUNTRY'S GOAL OF REASONABLE ENERGY SELF-SUFFICIENCY. IN ANTICIPATION OF LEASING IN THIS REGION, THE INDUSTRY LONG AGO COMMENCED ONE OF THE MOST EXTENSIVE PROGRAMS OF ENVIRONMENTAL STUDY EVER ATTEMPTED. LET'S TAKE A LOOK AT SOME OF THE MORE SIGNIFICANT ACTIVITIES UNDERTAKEN BY THE GULF OF ALASKA OPERATORS COMMITTEE RELATIVE TO THE GULF OF ALASKA.

1. GROUP OCEANOGRAPHIC SURVEY: THIS SURVEY, UNDERTAKEN IN 1968, WAS ORGANIZED SOME TWO FULL YEARS PRIOR TO PASSAGE OF THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969. IT WAS DESIGNED TO ESTABLISH THE FULL RANGE OF PHYSICAL ENVIRONMENTAL CONDITIONS SO AS TO ASCERTAIN THEIR EFFECT ON PETROLEUM EXPLORATION, PRODUCTION, AND TRANSPORT. THIS RESPONSIBLE EFFORT RESULTED FROM THE STRONG DESIRE OF THE PARTICIPANTS TO DETERMINE WHETHER OPERATIONS COULD BE SAFELY AND ECONOMICALLY CONDUCTED IN THIS AREA. HISTORICAL DATA OF RECORD WAS COMPILED AND AN IN-OCEAN DATA BUOY WAS ACTIVATED TO GATHER WAVE DATA. THESE DATA HAVE CONVINCED US THAT CONDITIONS IN THE GULF OF ALASKA ARE NO WORSE THAN IN OTHER AREAS OF THE WORLD WHERE PETROLEUM OPERATIONS ARE CURRENTLY BEING SAFELY CONDUCTED. WITH THIS KNOWLEDGE, INDUSTRY HAS PROCEEDED WITH FURTHER ENVIRONMENTAL STUDIES AND WITH EXPLORATION COMMITMENTS PREPARATORY TO A SALE.

TO MY KNOWLEDGE, THE GULF OF ALASKA GROUP OCEANOGRAPHIC SURVEY IS UNIQUE. NOWHERE ELSE IN THE WORLD HAS THE INDUSTRY UNDERTAKEN SUCH AN EXTENSIVE EFFORT PRIOR TO MAJOR EXPLORATION AND PRODUCTION EXPENDITURES. THE DATA OBTAINED BY THE GROUP OCEANOGRAPHIC SURVEY IS PROPRIETARY TO THE PARTICIPANTS. HOWEVER, SINCE THE DATA PROVIDE THE MOST COMPREHENSIVE COMPILATION OF INFORMATION RELATIVE TO THE GULF OF ALASKA, THE PARTICIPANTS HAVE RELEASED TO THE GULF OF ALASKA OPERATORS COMMITTEE AND THEY, IN TURN, TO THE BLM AND THE COUNCIL ON ENVIRONMENTAL QUALITY, A CONDENSATION OF THE SURVEY REPORTS. THIS IS IN THE FORM OF FIVE SEPARATE DOCUMENTS. ADDITIONALLY, THE SURVEY GROUP HAS MADE CERTAIN APPROPRIATE PORTIONS OF THE INFORMATION AVAILABLE TO THE DRILLING CONTRACTING INDUSTRY FOR THEIR USE IN EQUIPMENT DESIGN.

2. Review of the Oceanography and Renewable Resources of the Northern Gulf of Alaska: THIS WORK WAS DONE BY THE INSTITUTE OF MARINE SCIENCES IN 1972, EDITED BY DONALD H. ROSENBERG AND WAS PARTIALLY FUNDED BY THE GULF OF ALASKA OPERATORS COMMITTEE. THIS STUDY WAS AVAILABLE TO THOSE WRITING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT.

3. Fish, Wildlife and Petroleum Production, The Gulf of Alaska: THIS COMPILATION OF EIGHT SEPARATE REPORTS BY THE ENVIRONMENTAL AND BIOLOGY SUBCOMMITTEE OF THE GULF OF ALASKA OPERATORS COMMITTEE COVERS BIRDS, TERRESTRIAL WILDLIFE, MARINE MAMMALS, THREATENED SPECIES AND THE FISHERY RESOURCES OF THE GULF OF ALASKA.

ADDITIONALLY, IT REVIEWS THE EFFECT OF OIL ON FISH AND WILDLIFE WITH SPECIAL CONSIDERATION TO RECENT DATA ON COLD WATER EFFECTS. IT CONCLUDES WITH A STUDY CONDUCTED BY SHELL OIL ON EXPLORATORY FISHING DRAGS FOR DEMERSAL FISH AND SHELLFISH.

4. THE OIL ACTIVITY RELATED SOCIAL AND ECONOMIC IMPACT ON THE GULF OF ALASKA COMMUNITIES: THIS STUDY WAS CONDUCTED BY THE MATHEMATICAL SCIENCES NORTHWEST, INC. IN SEATTLE UNDER THE DIRECTION OF GUENTER CONRADUS AND FINANCED BY THE GULF OF ALASKA OPERATORS. COMMITTEE.

5. OIL SPILL TRAJECTORY PROGRAM: INTERSEA RESEARCH CORPORATION IS PERFORMING CALCULATIONS OF TRAJECTORIES ON THE OCEAN'S SURFACE FROM SEVERAL LOCATIONS WHERE OIL AND GAS OPERATIONS MIGHT BE CONDUCTED. MR. CLAYTON MCAULIFFE OF CHEVRON OIL FIELD RESEARCH COMPANY, USING PREVIOUS RESULTS, HAS MADE ESTIMATES OF BIODEGRADATION, DISPERSION, AND EVAPORATION OF POSSIBLE ACCIDENTAL OIL RELEASES IN THE GULF OF ALASKA. BOTH PROJECTS WERE INTIATED AND SUPPORTED BY THE GULF OF ALASKA OPERATORS COMMITTEE.

6. SEISMIC RISK ANALYSIS: THIS STUDY WAS CONDUCTED BY THE J. H. WIGGINS COMPANY OF CALIFORNIA AND REPRESENTS A PROBABILISTIC ANALYSIS OF THE GULF OF ALASKA SEISMIC ENVIRONMENT. THE LIKLIHOOD OF EARTHQUAKES OF VARYING MAGNITUDES OCCURRING AT ANY SITE HAS BEEN ESTIMATED AND THE RESPONSE AND PERFORMANCE OF OFFSHORE STRUCTURES TO SEISMIC EVENTS EXAMINED. THIS WORK FORMS A BASIS FOR THE DEVELOPMENT OF SEISMIC DESIGN CRITERIA AND THE ASSESSMENT OF THE FEASIBILITY AND RELIABILITY OF OFFSHORE STRUCTURES.

7. OIL SPILL PREVENTION AND CONTINGENCY PLAN: THE GULF OF ALASKA OPERATORS COMMITTEE HAS AN OIL SPILL PREVENTION AND CONTINGENCY PLAN WHICH WILL BE IN EFFECT PRIOR TO THE FIRST EXPLORATORY DRILLING ON THE OUTER CONTINENTAL SHELF OIL IN THE GULF OF ALASKA.

IN ADDITION TO THESE PROGRAMS ALREADY MENTIONED, THERE ARE MANY OTHER STUDIES THAT HAVE BEEN ORGANIZED AND SUPPORTED BY SEVERAL OF THE COMMITTEE'S MEMBER COMPANIES. SOME OF THIS WORK IS ONGOING NOW AND SOME IS IN THE PLANNING STAGES. THESE PROGRAMS INCLUDE:

(1) A WAVE AND WEATHER FORECAST STUDY (1971-1972)

MANAGED BY EXXON AND CONDUCTED BY OCEANOGRAPHIC SERVICES.

(2) AN OFFSHORE SOIL BORING PROGRAM (1973)

MANAGED BY SHELL AND CONDUCTED BY EXPLORATION SERVICES, INC.

(3) A WAVE AND WIND MEASUREMENT PROGRAM (1974-1976)

BEING ADMINISTERED BY MARATHON AND CONDUCTED BY INTERSEA RESEARCH.

(4) A WAVE HINDCAST EVALUATION PROGRAM (1975-1976)

THAT IS USING THE MANY PHYSICAL MEASUREMENTS COLLECTED FROM THE WAVE AND WIND MEASUREMENT PROGRAM TO IMPROVE WAVE FORECASTING TECHNIQUES. THIS PROGRAM ALSO IS BEING ADMINISTERED BY MARATHON AND CONDUCTED BY INTERSEA RESEARCH.

(5) A SUPERSTRUCTURE ICING REVIEW (1975)

ADMINISTERED BY MARATHON.

(6) AN OCEAN CURRENT MEASUREMENT PROGRAM (1974-1975) CONDUCTED BY BOLT, BERANEK AND NEWMAN.

(7) A METEOROLOGICAL AND OCEANOGRAPHIC FORECASTING PROGRAM (1975-1976) THAT WILL BE ADMINISTERED BY MARATHON AND WILL USE MUCH OF THE PHYSICAL MEASUREMENT DATA COLLECTED IN THE GULF OF ALASKA.

MOST OF THIS DATA HAS BEEN MADE AVAILABLE TO THE BUREAU OF LAND MANAGEMENT FOR ITS USE IN PREPARING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT. OTHER STATE AND FEDERAL AGENCIES HAVE RECEIVED THIS INFORMATION UPON REQUEST. AS MR. MEYERS HAS INDICATED, SUBSEQUENT TESTIMONY BY REPRESENTATIVES OF THE GULF OF ALASKA OPERATORS COMMITTEE WILL CONTAIN FURTHER DETAILS OF SOME OF THESE PROGRAMS.

FROM THE ACTIVITIES WHICH I HAVE DESCRIBED, WE MUST CONCLUDE THAT THE INDUSTRY HAS THOROUGHLY STUDIED THE GULF OF ALASKA ECOSYSTEM. NOTHING HAS BEEN FOUND THROUGH THESE STUDIES WHICH PRECLUDES THE OIL INDUSTRY FROM OPERATING IN THIS AREA WITH COMPLETE ENVIRONMENTAL SAFETY.

THE GULF OF ALASKA OPERATORS COMMITTEE SUBMITS TO YOU THAT NEVER HAS OUR INDUSTRY ENTERED A NEW AREA SO WELL INFORMED, WELL EQUIPPED AND WELL TRAINED AS WE ARE NOW FOR THE PROPOSED EXPLORATION AND DEVELOPMENT OF THE GULF OF ALASKA. WE ARE PREPARED TO GO FORWARD, AND WE HAVE HIGH HOPES THAT OUR EFFORTS WILL RESULT IN SIGNIFICANT DISCOVERIES OF PETROLEUM WHICH ARE SO BADLY NEEDED FOR THE ECONOMIC WELL-BEING AND SECURITY OF OUR COUNTRY.

8/8/75

(17)

PROBABILISTIC RESPONSE OF OFFSHORE PLATFORMS TO SEISMIC EXCITATION IN THE GULF OF ALASKA

Oral Testimony

by

John H. Wiggins, Ph.D.
Professional Engineer
Professional Geophysicist

Presented at the
Environmental Hearing:
Gulf of Alaska
Offshore Sale

SLIDE 1

My name is John Wiggins. I hold a Master of Science Degree in Geophysics, with a speciality in Seismology and the Doctor of Philosophy Degree in Civil Engineering, with a speciality in Structural Dynamics. I am a Registered Civil Engineer and Geophysicist in the State of California, and am one of four persons selected to develop seismic risk maps for the United States, National Bureau of Standards' earthquake code study. My firm has been intimately involved with developing the seismic risk maps for the State of Alaska over the last two and one half years.

My purpose here is to discuss the probabilistic response of offshore platforms to seismic excitation in the Gulf of Alaska.

SLIDE 2

Earthquake engineering is made up of three disciplines in the scientific community. The first deals with the seismic enviornment in which principally seismologists work. From the knowledge of the seismic environment, one can estimate ground shaking, structural response and the failure of various structural elements and components. The latter two disciplines are left to the structural engineer and specialists in engineering mechanics.

All of these disciplines and the knowledge inherent within them, have varying degrees of uncertainty. By combining all of the disciplines and the uncertainties, one can estimate the seismic risk of a particular structural design located at a particular geographical position.

SLIDE 3

This slide illustrates the specific steps that must be treated in an earthquake engineering analysis. Specifically, I shall first discuss the "proneness" of an area to earthquake activities. By combining the seismicity inputs with the soil-structure models, modes of vibration and estimates of damage can be computed in probabilistic terms.

SLIDE 4

Until recently, earthquake design codes, as well as almost all codes and standards, have been developed with the "hope" that absolute safety would result. We now realize that some risk is involved with every standard or code used in design practice. Earthquake codes currently being developed for the National Bureau of Standards by more than 70 national experts is being developed with a clear expectation of risk (chance of loss) in mind. It is within this risk acceptance rationale that I shall direct my testimony.

SLIDE 5

Let us first examine the factors that influence ground motions.

SLIDE 6

The mechanism of earthquake action in the Gulf of Alaska is now generally agreed to be caused by a layer of roving plates which are moving relative to one another. The Pacific Plate is being forced northwesterly in relation to the American Plate. The area of interest is located in the vicinity of the junction of the Pacific and American Plates.

SLIDE 7

On page 53 of the EIS, it is stated that there are two methods for estimating future seismicity. One of these can only be used for relative comparisons. There are actually six basic methods which have been developed in order to make estimates about future seismic motions. Method 1 is deterministic in its approach. Maximum credible earthquakes are postulated to occur on known fault lines which intersect the earth's surface. Usually an earthquake magnitude and distance from source to site is postulated by an expert.

SLIDE 8

This slide indicates the zone of the postulated maximum credible earthquake magnitude of 8.5 developed by the U.S. Geological Survey. It ranges from the dotted line to the 3,000 meter contour depth line. The major problem in determining potential future motions is specifying the location of the earthquake within this broad zone. Should it be located at the center of the zone, directly underneath the site, or at some other distance?

SLIDE 9

In order to overcome some of these objections, Method 2 assumes that a good estimate of future seismicity may be derived from examining historic seismic conditions that are not modified by judgment. Various scientists have contended, however, that historic data are too limited to derive accurate probabilistic values of seismicity.

SLIDE 10

Method 3 assumes that the "negative" of seismic history can be expected to occur in the future. Thus, where seismic "gaps" appear in the data , one can expect a large earthquake in the near future. Such a "gap" has been postulated to occur within the zone anticipated for the general sale area.

SLIDE 11

This figure indicates all earthquakes greater than magnitude 7 that have occurred since 1938. The 38 years of data alleges to indicate that there is a seismic feature missing in the area of the sale. However, if one considers a longer history, and includes the three earthquakes that occurred in the "gap" in 1899 and 1900, one can compute the amount of energy released along the eastern, western and "gap" areas. More than twice the energy per year has been released in the "gap" area per mile as compared to that for the eastern and western areas combined. On page 55 of the EIS, further evidence elaborating on the usefulness of the "gap" theory in forecasting future seismic motions is developed.

SLIDE 12

Method 4 attempts to combine the knowledge of fault locations and historic data in a manner such that all past earthquakes are judgmentally placed in "source zones." The resulting seismicity is therefore influenced heavily by human judgment. This method has the same drawbacks as Methods 1 and 2 in that criteria depend on the involved individual's judgment and the completeness of the data.

SLIDE 13

Method 5 makes the assumption that our knowledge about past seismic history is highly uncertain. Earthquakes are postulated to occur anywhere within a very large region. The major drawback to this "shoulder-shrugging" process is that major tectonic features are known and should be considered in some logical way.

SLIDE 14

Method 6 has only recently been postulated. Some earth scientists think that there is a link between the huge earthquakes which periodically erupt all around the rim of the Pacific Ocean basin. A huge tremor that shakes Japan, the scientists suspect, may trigger another large earthquake months later in Peru, Mexico or Alaska.

This view has been cautiously expressed and has not been able to meet the test or repeatability using 75 years of fairly accurate information.

SLIDE 15

I have chosen to use Method 2 for the best, first estimate of the seismicity in the Gulf. I believe that Method 2 is superior for the following reasons:

1. We have used yet another approach for mapping called the Bayesian method. It combines Methods 1 with 2 in a rigorous mathematical procedure. To date, we have constructed Bayesian maps only for California. However, those maps reveal that where data are of good quality and in sufficient number,

there is little difference between a Bayesian map and Method 2.

2. Historical data allow us to use the probabilistic method and present a logical engineering framework for decision making.

3. The rationale follows that set forth by the Structural Engineers Association of California in their earthquake design policy.

4. It has been shown in all case law involving flood plain zoning, another natural hazard, that the severity of the regulation must match the severity of the historic risk.

SLIDE 16

Before talking about earthquake history, let us examine something that is more familiar; namely, automobile accidents. This slide describes the number of yearly accidents that might be expected. The number of vehicles involved in an accident may be described as the magnitude of the accident. Note that the data do not fall on top of one another, because they involve different data bases. Also, the data diverge for 8 and 9 vehicles. The reliability of the information in the large magnitude is lower than that in the low magnitude range. Nevertheless, as more yearly data are plotted, they will converge on the line, even at high mangitude.

SLIDE 17

The same phenomenon is experienced in earthquake history. This slide plots the magnitude of events that have occurred in and about the City of Anchorage, using two data bases. The first is that which has been taken by NOAA since 1963. It is an accurate information base; however, the reporting period (10.5 years) is short compared to the historic Alaska data base of 74 years. The historic data base, however, is incomplete for magnitudes lower than 6.5.

The 10.5 year data base coincides quite closely with the regression curve plotted in the lower magnitude ranges. More information is available in the smaller magnitude range than that for large magnitudes. This finding reflects the automobile accident example.

However, if the historic is combined with the 10.5 year data base, the circles plot closer to the regression curve than do the triangles, indicating that the line is a good estimate of seismicity.

SLIDE 18

The ground motion that might be experienced by a structure is influenced by the distance as well as the size of the earthquake. It is suggested that the EIS make note of this fact. On pages 362, 364, 365 and 366, it is mentioned that structures are designed to resist earthquakes of a specified Richter magnitude. But magnitude is only one part of the two-part problem of deriving intensity. Unlike water waves, which occur over large regions, earthquake motions dissipate from source to site. Thus, the second part of deducing

intensity is to know the attenuation properties of the geographical region in question. What are the ground motions at the epicenter and how do they dissipate with distance?

Curves used in our study to develop seismic risk maps are constructed primarily from California earthquake data. The question might arise as to whether California information can be used to discuss Alaska conditions, both near the epicenter and at some distance from the epicenter. This slide shows the difference in attenuation properties in the eastern and in the western or California region of the United States. In 1811, an earthquake slightly smaller than the famous 1906 San Francisco earthquake occurred in southern Missouri. The area of potential damage is considerably larger than that of the 1906 quake. Similarly, the 1971 San Fernando earthquake affected a much smaller area than did the 1886 Charleston, South Carolina earthquake which had a similar magnitude.

SLIDE 19

This slide plots the region in which people can notice an earthquake. I have also plotted the areas felt by six typical Alaska earthquakes. In all but one instance, the data fall well below the California line indicating that California attenutation equations are conservative in an analysis of Alaska. Page 44 of the EIS confirms our estimates of the attenuation properties for the Gulf of Alaska region.

SLIDE 20

Is the same observation correct in the near-field? It has been postulated that because Alaska earthquakes occur on

"low angle" faults, this may not be the case. As you can see, the Pacific Plate being pushed under the American Plate has a very gentle slope.

The following rationale leads me to the conclusion that the use of California data in the near-field is also an adequate approximation of Alaskan conditions:

1. Alaska earthquakes have deeper foci than do California quakes. The average depth of the 1964 shocks was 26.5 kilometers. California earthquakes have an average depth of about 16 kilometers.

2. As the slide depicts, it is questionable whether or not the sale area is underlain by the low angle fault type.

SLIDE 21

3. Referring back to an earlier figure, the western Alaska aftershock zones appear to be wider than the eastern aftershock zones. When the energies are balanced, however, the length to width ratio of the zones are nearly similar.

The largest recent earthquake in California (the 1952 Arvin earthquake of magnitude 7.7) had a similar aftershock length to width ratio. This indicates that the aftershock zone width is not necessarily proof that low angle faulting contributes to large zones of high intensity vibrations.

SLIDE 22

Using all of the historic information available and treating each earthquake as a point source, hard rock velocity contours for an arbitrary return period, 100 years, have been constructed for the Gulf of Alaska. In the general area of the sale, the contours range from a low of about 3 inches per second at the southeast edge to a high of about 7 inches per second at the northwest edge of the area.

SLIDE 23

Using the fault line correction technique, in a sense combining Method 1 and Method 2, we have constructed a more realistic map. Particle velocity ranges from 4 inches per second to 8 inches per second within the general vicinity of the sale. Considering the differences in techniques for constructing maps, these differences are small and lend confidence to the analysis.

SLIDE 24

Recognizing that maps can be produced for different return periods, the question arises as to what return period or, put another way, what probability of occurrence during the structure lifetime is acceptable for design? In order to answer this question, we can examine the de facto risk associated with the current and proposed United States codes.

Present California codes have associated with them a de facto 22% chance that the level of design will be equaled or exceeded during the 50-year lifetime expectancy of a building. The U.S.G.S. is now using the 10% chance of exceedance

in their map values for a 50-year building life. These percentages of exceedance may be compared with water wave exceedance estimates appearing on page 36 of the EIS. These estimates are 26% for the 100-year and 14% for the 200-year storms.

SLIDE 25

Recognizing these de facto as well as stipulated criteria, four candidate levels of shaking, reflected by the response spectra shown, have been used to analyze various offshore platform designs in various kinds of soils. Level 3 corresponds to the strongest record recorded on soil in California, and Level 4 corresponds to 1.5 times that level. Using the relative methods of determining seismic recurrence frequencies referred to on page 53 of the EIS, 0.5 inches/yr. vertical uplift has been evidenced on the average over the last 4500 years. Assuming a dip angle of 10°, the horizontal movement has been about 2.3 inches/yr. which corresponds to the California San Andreas Fault rate of movement. The base, particle velocity spectra are shown in this slide.

SLIDE 26

Herein are shown the various risks associated with the inputs used in analysis. The probability of occurrence of each level at the strongest and the weakest seismic locations are noted. Levels 3 and 4, for the most part, equal or are below current and proposed probabilistic levels.

SLIDE 27

We may now proceed to the structural analysis and response procedure. Seismograms, typical of that shown in the lower left-hand corner of this slide, were used to excite structures.

SLIDE 28

Actual test site soil borings were taken in the Gulf of Alaska. Three typical sites are shown: Soils I, II and III might be termed as soft, stiff, and semi-stiff, respectively. These soil configurations were modeled for computer treatment.

SLIDE 29

We have analyzed and modeled typical offshore structures, one of which is shown. The vibration modes have been coupled with soil as demonstrated by the lower figure on the right.

SLIDE 30

Let us proceed now to the development of an understanding of the damage that might occur from the various levels of vibration.

SLIDE 31

Three platform configurations were considered: template, outrigger and tower. These are jargon descriptions of various designs that may be considered for the Gulf of Alaska region. Five modes of failure were considered: failure of the deck structure, the template, the piles in compression and tension, and failure of the conductor pipe in which oil pipes are contained.

SLIDE 32

The performance of the tower structure in 600 feet of water can be demonstrated. Assuming the sofest soil, the normalized deck displacement relative to rock is shown for the levels of input and various types of analyses performed.

I want to make two points in this slide: First, the worst level of shaking was provided by level 3, when soil interaction is considered, because of tuning between the soil column and the structure. Tuning between the soil and the structure is therefore a very important consideration to investigate in the design of any structure located at a particular site.

Second, it can also be seen that the two different methods of analysis; namely, DYNALIST II and SAP IV, (which is used to design California hospitals and other structures) present only slightly different results.

In summary, all three possible preliminary designs are expected to survive earthquake actions of level 3 and 4 without collapse, but with some damage. This result indicates that structures can be designed using the current seismic knowledge as input.

SLIDE 33

In order to gain a perspective on how severe level 3 and level 4 earthquakes are, let us compare them with existing codes. Level 4 is higher than all of the codes, including the California Hospital Code. Likewise, level 3 is higher than all but the 1976 Uniform Building Code which assumes the worst soil and the most importan structure.

Herein I am plotting the UBC code levels stipulated for the design of "other structures." In that code, forces are doubled for "other structures" as compared with buildings because of the usual lack of redundancy built into bridge piers and the like. But offshore drilling platforms that are highly interlaced with bracing, are very redundant types of structures and could be categorized as "buildings" when the intent of the doubling factor is recognized. Thus, for platforms of the template variety, level 3 and level 4 would be inputs well above all of the codes shown.

SLIDE 34

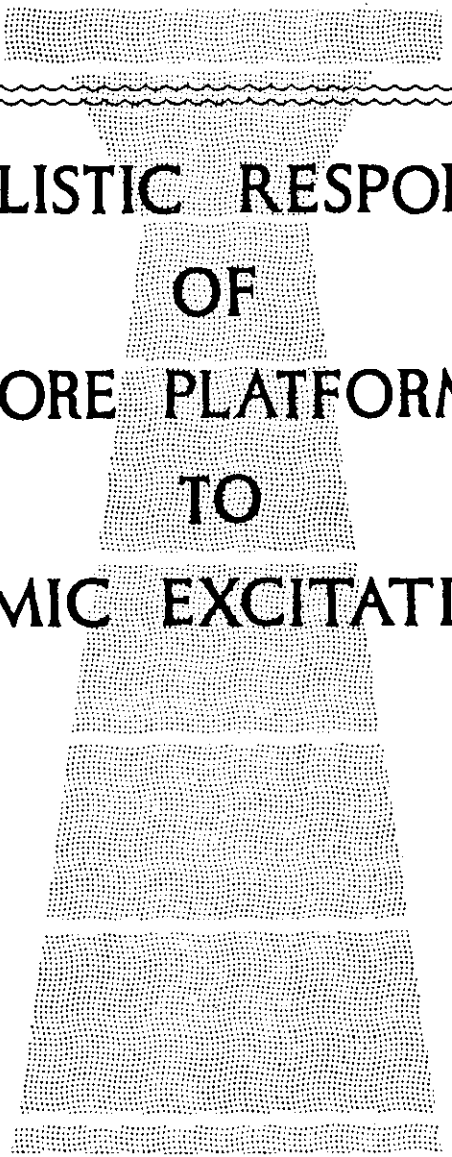
In summary, it must be recognized that the earthquake engineering problem of design is probabilistic in nature, as pointed out in the EIS. There are many factors that affect safety and the environmental risk. How big is the earthquake? Where will it be located? What is the chance that response will be equaled or exceeded? How does response affect the probability of damage? How will damage affect loss consierations?

With the appropriate consideration of each probabilistic term, enough knowledge and know-how is available so that structures can be designed for the GOA within an acceptable level of risk.

Thank you,

J. H. Wiggins

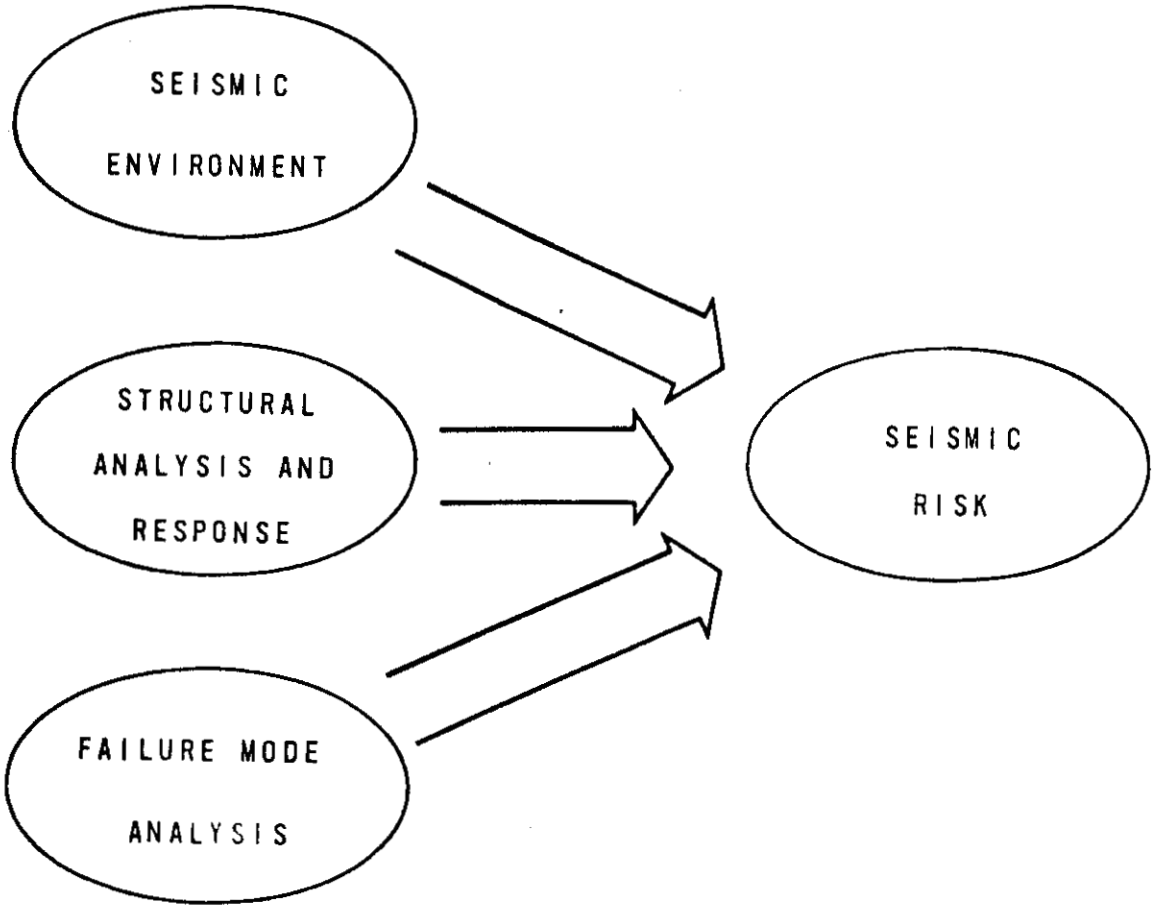
J. H. WIGGINS COMPANY



PROBABILISTIC RESPONSE OF OFFSHORE PLATFORMS TO SEISMIC EXCITATION

SLIDE 1

EARTHQUAKE ENGINEERING

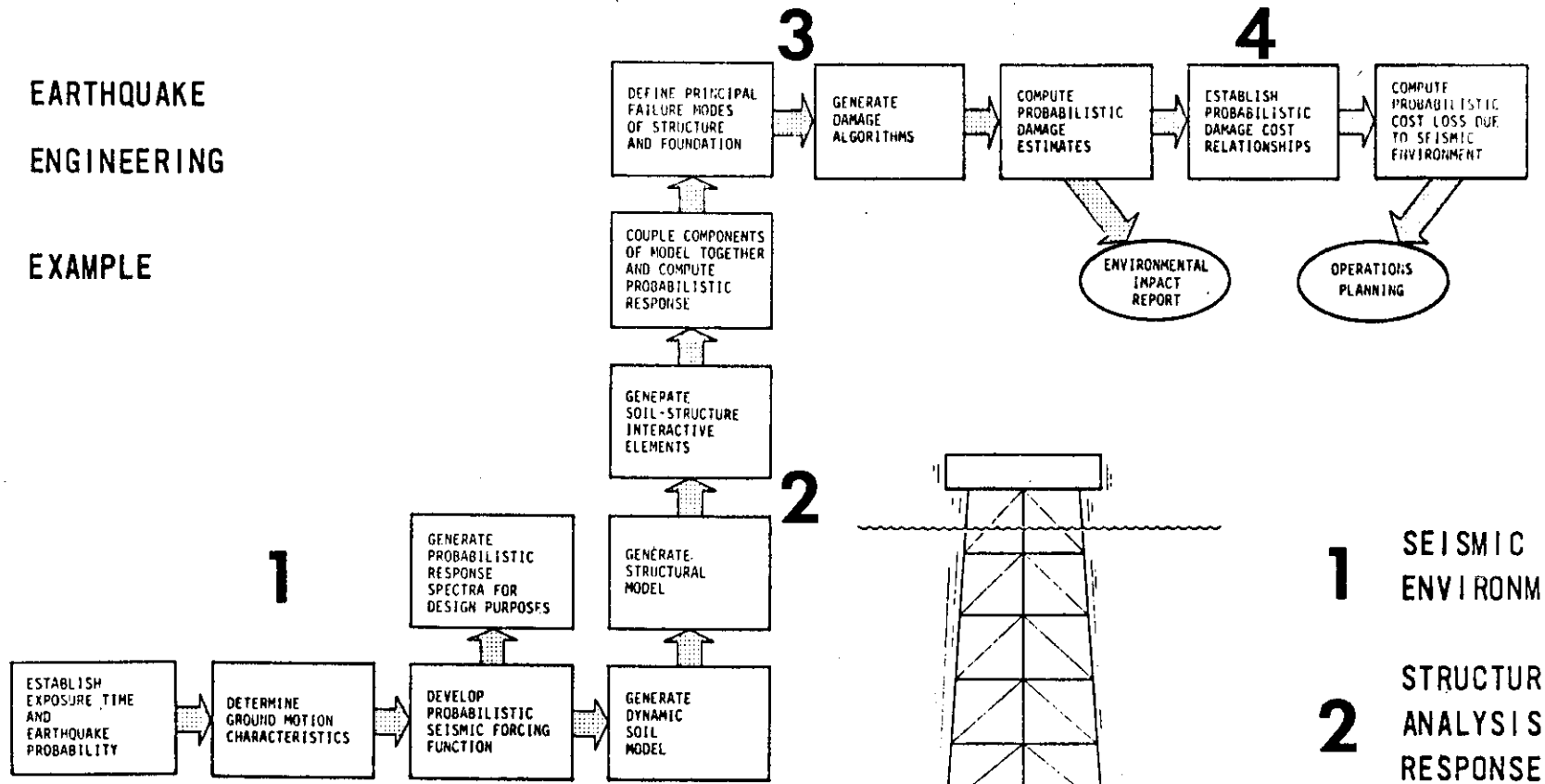


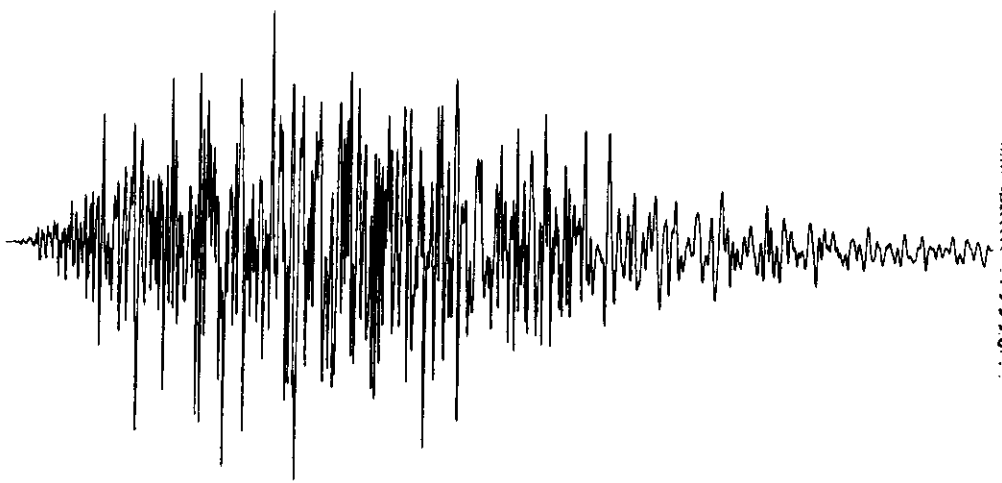
SLIDE 2

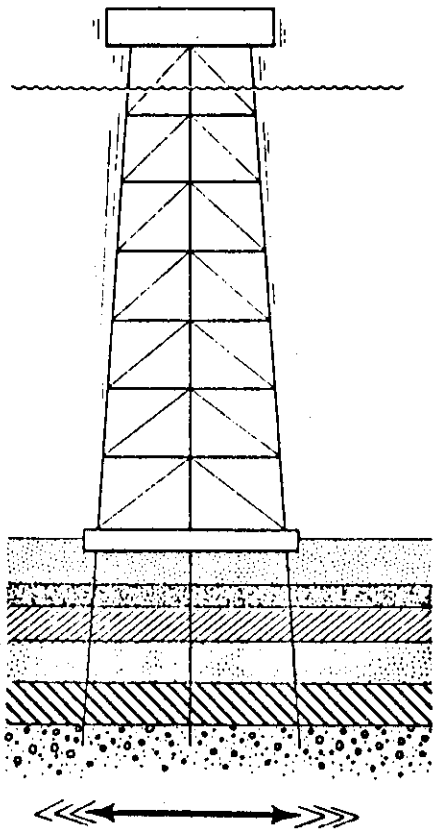
EARTHQUAKE

ENGINEERING

EXAMPLE







1 SEISMIC ENVIRONMENT

2 STRUCTURAL ANALYSIS AND RESPONSE

3 FAILURE MODE ANALYSIS

4 RISK ANALYSIS

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SLIDE 3

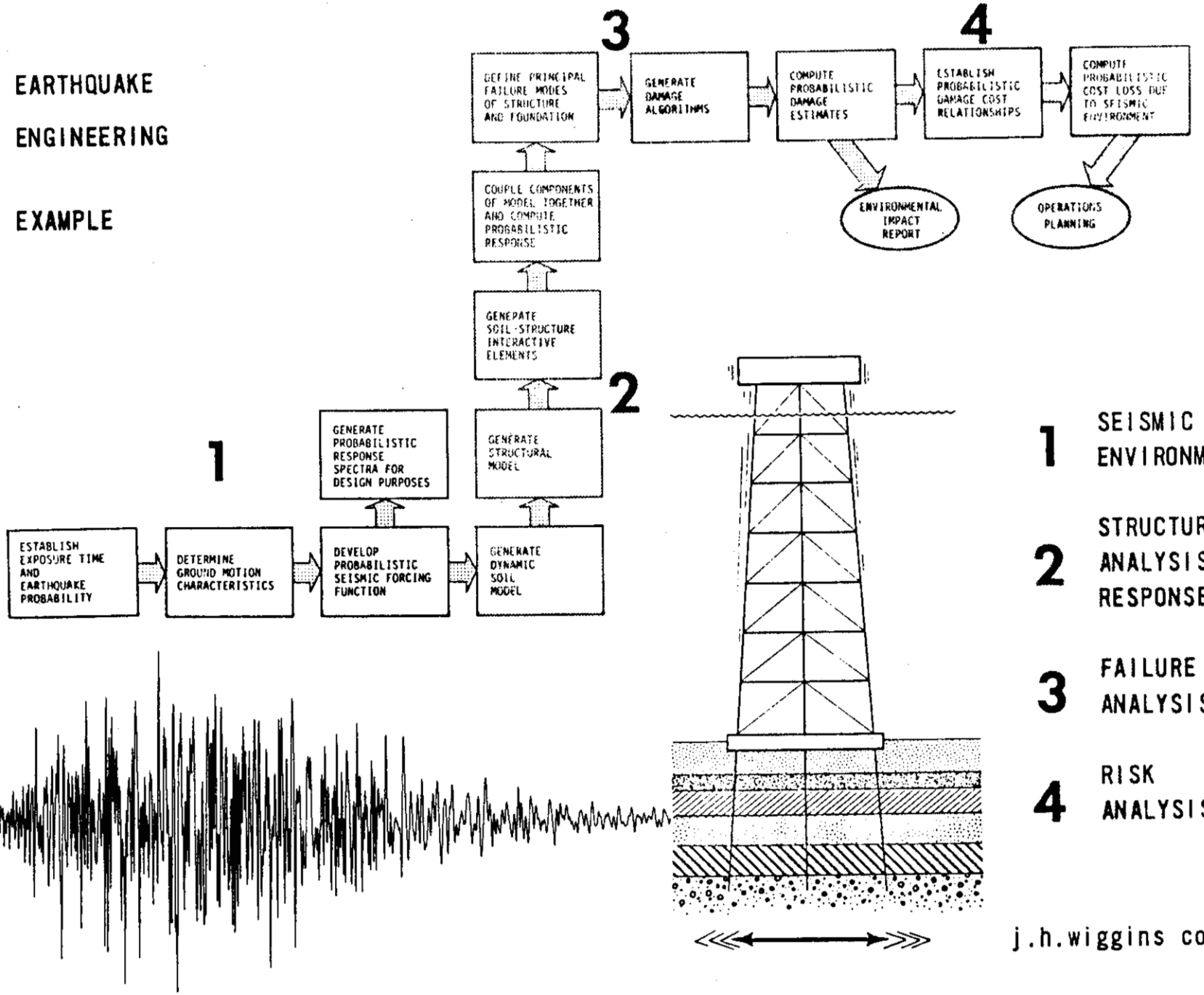
EARTHQUAKE DESIGN RATIONALE

CURRENT EARTHQUAKE DESIGN CODES ARE BEING DEVELOPED WITH THE CLEAR EXPECTATION OF RISK . . . (CHANCE OF LOSS)

EARTHQUAKE

ENGINEERING

EXAMPLE



1 SEISMIC ENVIRONMENT

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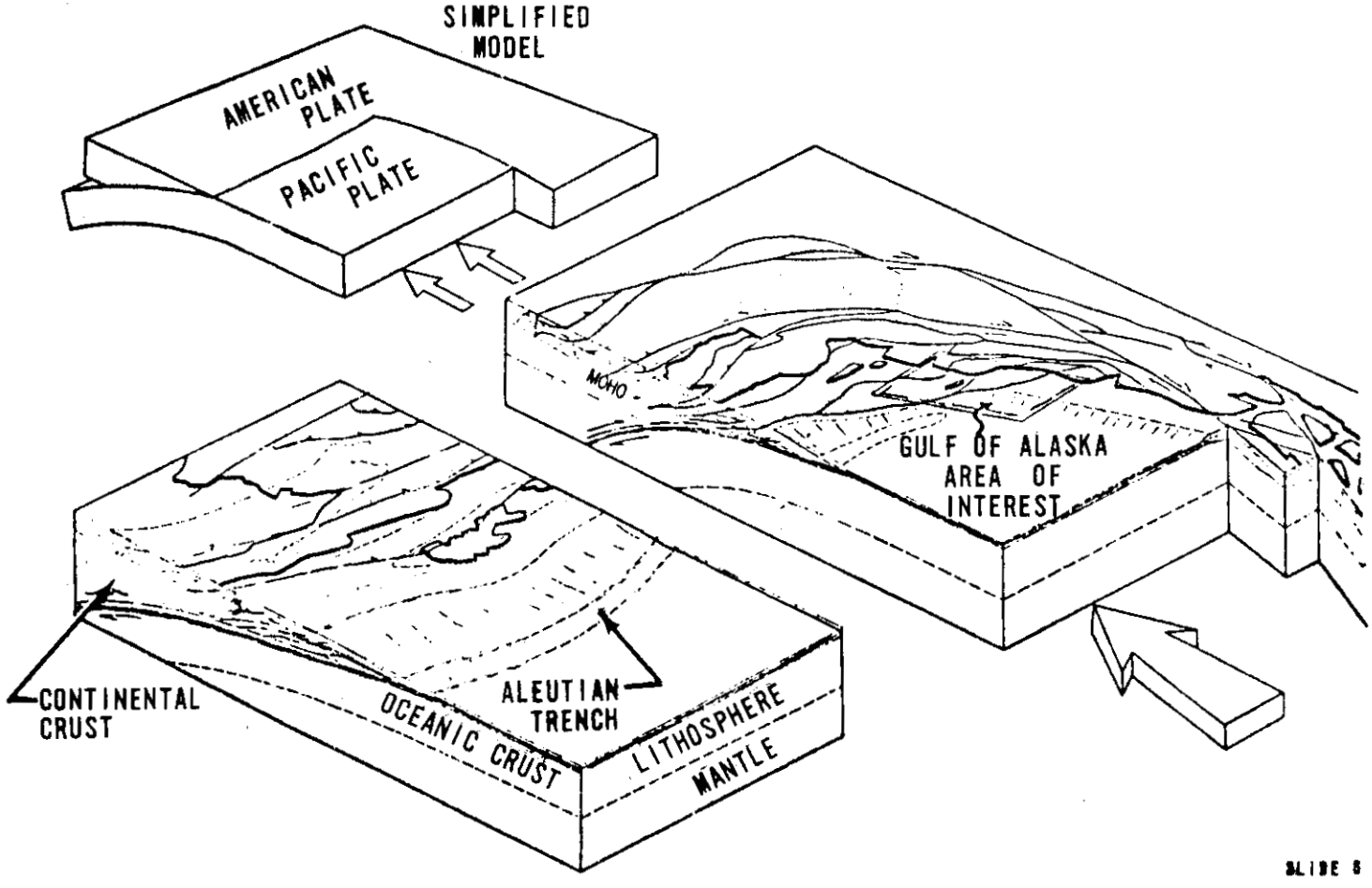
SLIDE 5

GULF OF ALASKA PLATE MOTION

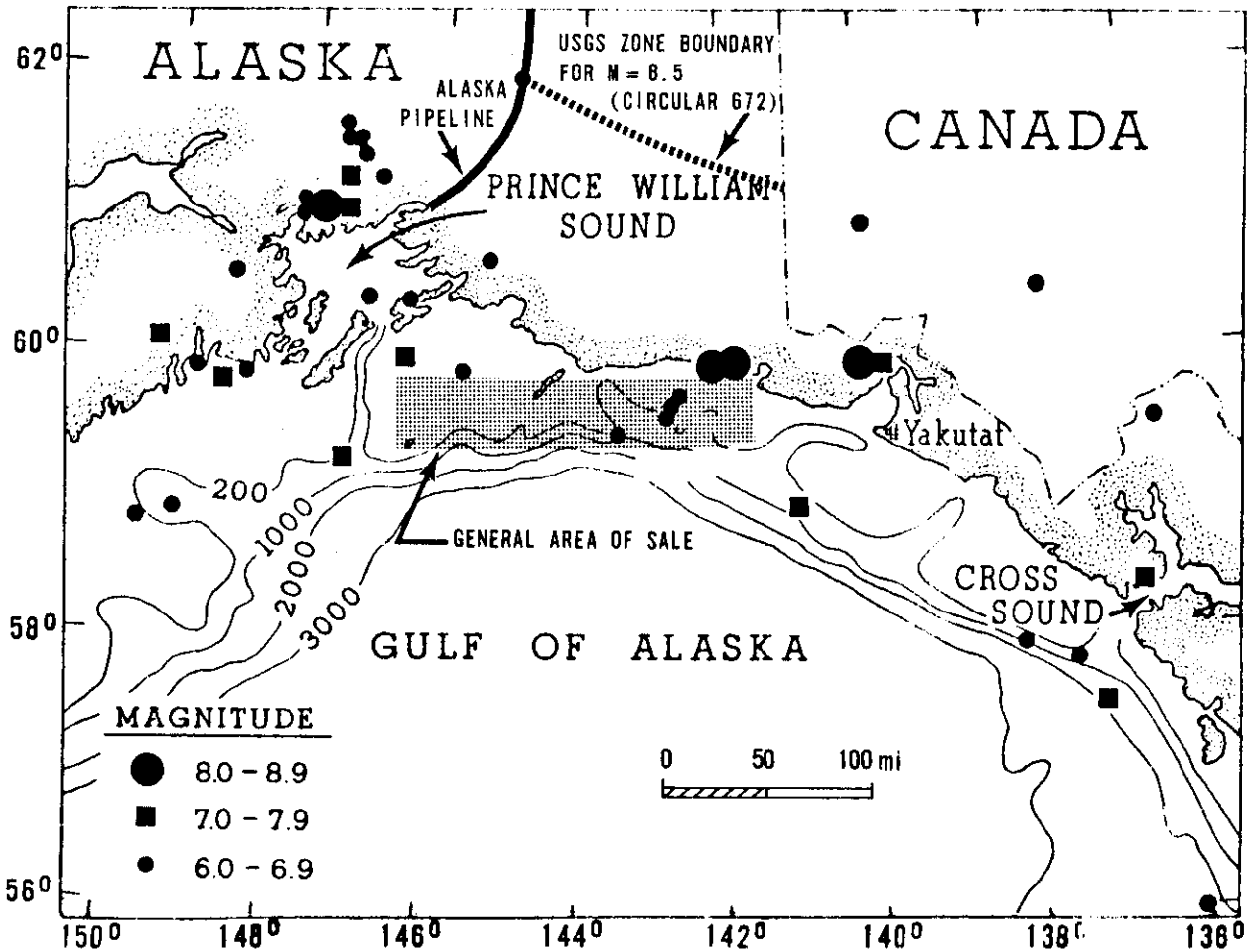


SLIDE 8

METHODS FOR CONSIDERING SEISMICITY

1. DETERMINISTIC – EXPERT JUDGMENT ABOUT MAGNITUDE AND DISTANCE

GULF OF ALASKA—EPICENTERS OF HISTORIC EARTHQUAKES



1. Submarine contours in meters.
2. After Page.

SLIDE 9

METHODS FOR CONSIDERING SEISMICITY

1. DETERMINISTIC – EXPERT JUDGMENT ABOUT MAGNITUDE AND DISTANCE
2. PROBABILISTIC – HISTORY IS LIKELY TO REPEAT ITSELF

METHODS FOR CONSIDERING SEISMICITY

1. DETERMINISTIC – EXPERT JUDGMENT ABOUT MAGNITUDE AND DISTANCE
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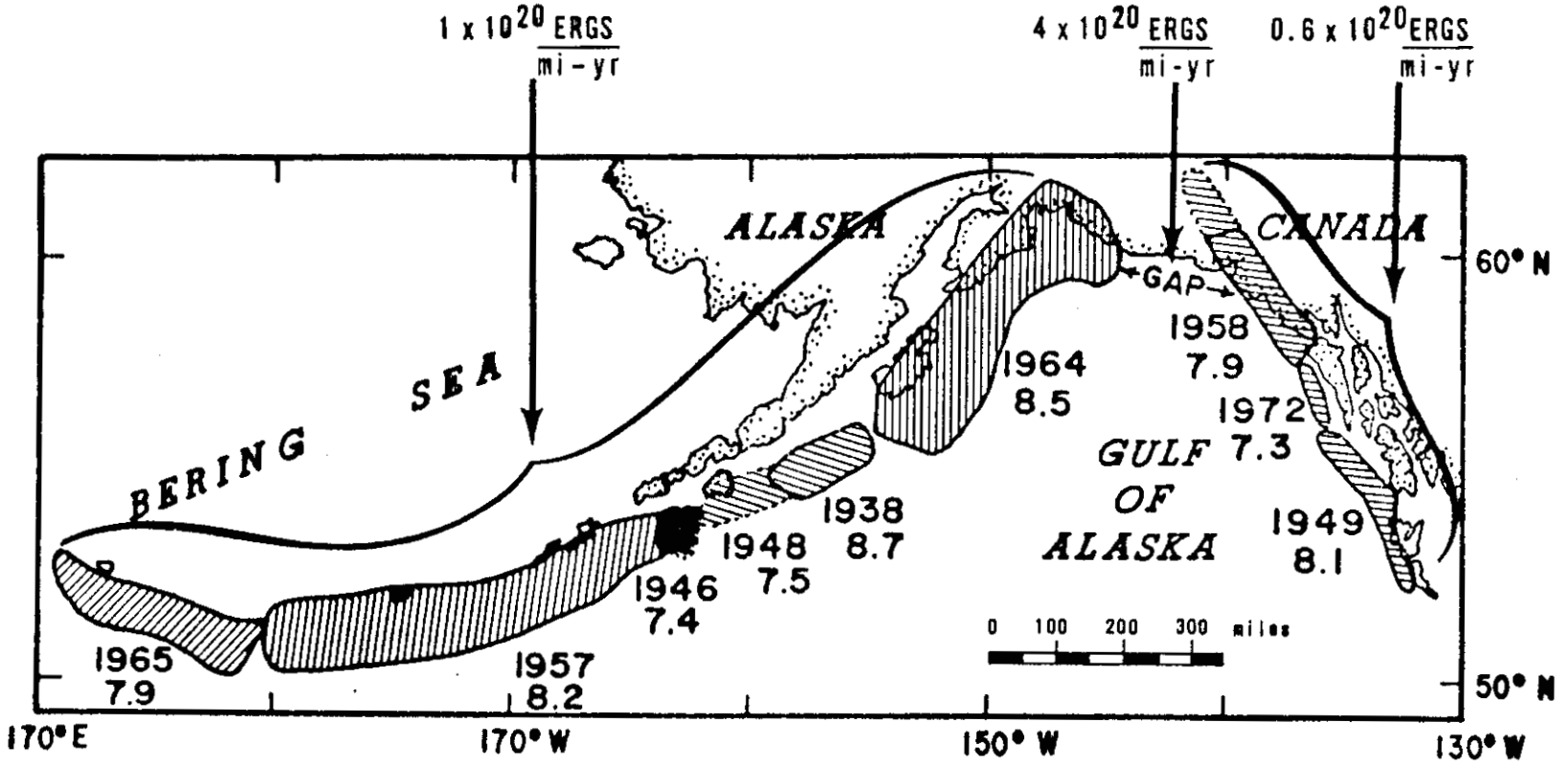
3. PROBABILISTIC – THE 'NEGATIVE' OF HISTORY IS LIKELY TO OCCUR

AFTERSHOCK ZONES OF EARTHQUAKES OF MAGNITUDE 7.3 OR GREATER SINCE 1938



1. Dashed where extent of zone is uncertain.
2. Dates and magnitudes given.
3. After Page.

SLIDE 11

METHODS FOR CONSIDERING SEISMICITY

1. DETERMINISTIC – EXPERT JUDGMENT ABOUT MAGNITUDE AND DISTANCE
2. PROBABILISTIC – HISTORY IS LIKELY TO REPEAT ITSELF
3. PROBABILISTIC – THE 'NEGATIVE' OF HISTORY IS LIKELY TO OCCUR
4. DETERMINISTIC:PROBABILISTIC – HISTORY REPEATS ITSELF ON KNOWN FAULTS

METHODS FOR CONSIDERING SEISMICITY

1. DETERMINISTIC – EXPERT JUDGMENT ABOUT MAGNITUDE AND DISTANCE
2. PROBABILISTIC – HISTORY IS LIKELY TO REPEAT ITSELF
3. PROBABILISTIC – THE 'NEGATIVE' OF HISTORY IS LIKELY TO OCCUR
4. DETERMINISTIC:PROBABILISTIC – HISTORY REPEATS ITSELF ON KNOWN FAULTS
5. PROBABILISTIC:UNCERTAIN – HISTORY WILL REPEAT ITSELF AT A UNIFORM RATE OVER A BROAD AREA

METHODS FOR CONSIDERING SEISMICITY

1. DETERMINISTIC – EXPERT JUDGMENT ABOUT MAGNITUDE AND DISTANCE

2. PROBABILISTIC – HISTORY IS LIKELY TO REPEAT ITSELF

3. PROBABILISTIC – THE 'NEGATIVE' OF HISTORY IS LIKELY TO OCCUR

4. DETERMINISTIC : PROBABILISTIC –
   HISTORY REPEATS ITSELF ON KNOWN FAULTS

5. PROBABILISTIC : UNCERTAIN –
   HISTORY WILL REPEAT ITSELF AT A
   UNIFORM RATE OVER A BROAD AREA

6. PSUEDO DETERMINISTIC –
   LARGE PRIOR EARTHQUAKES FORETELL
   FUTURE SHOCKS

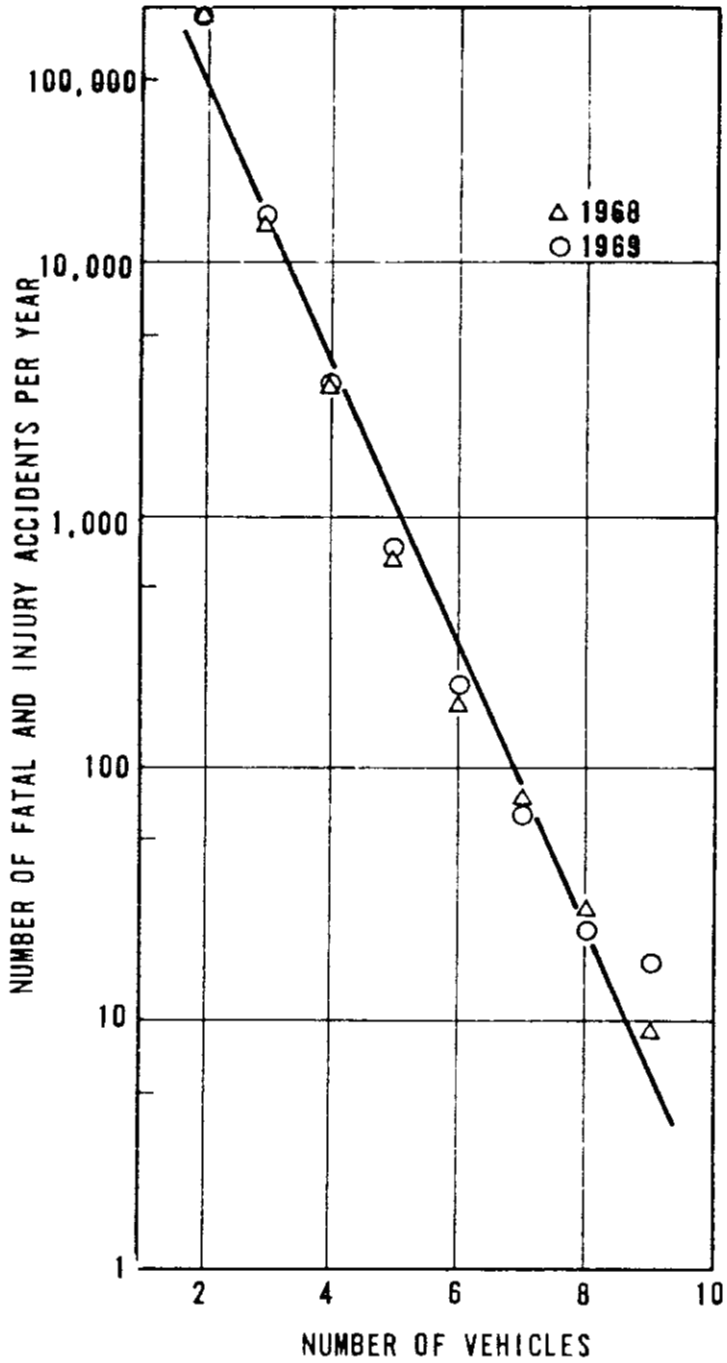
OUR METHOD OF REPRESENTING SEISMICITY

USE METHOD 2 – HISTORY IS LIKELY TO REPEAT ITSELF USING FAULT LINE CORRECTIONS IN METHOD 1

REASONS

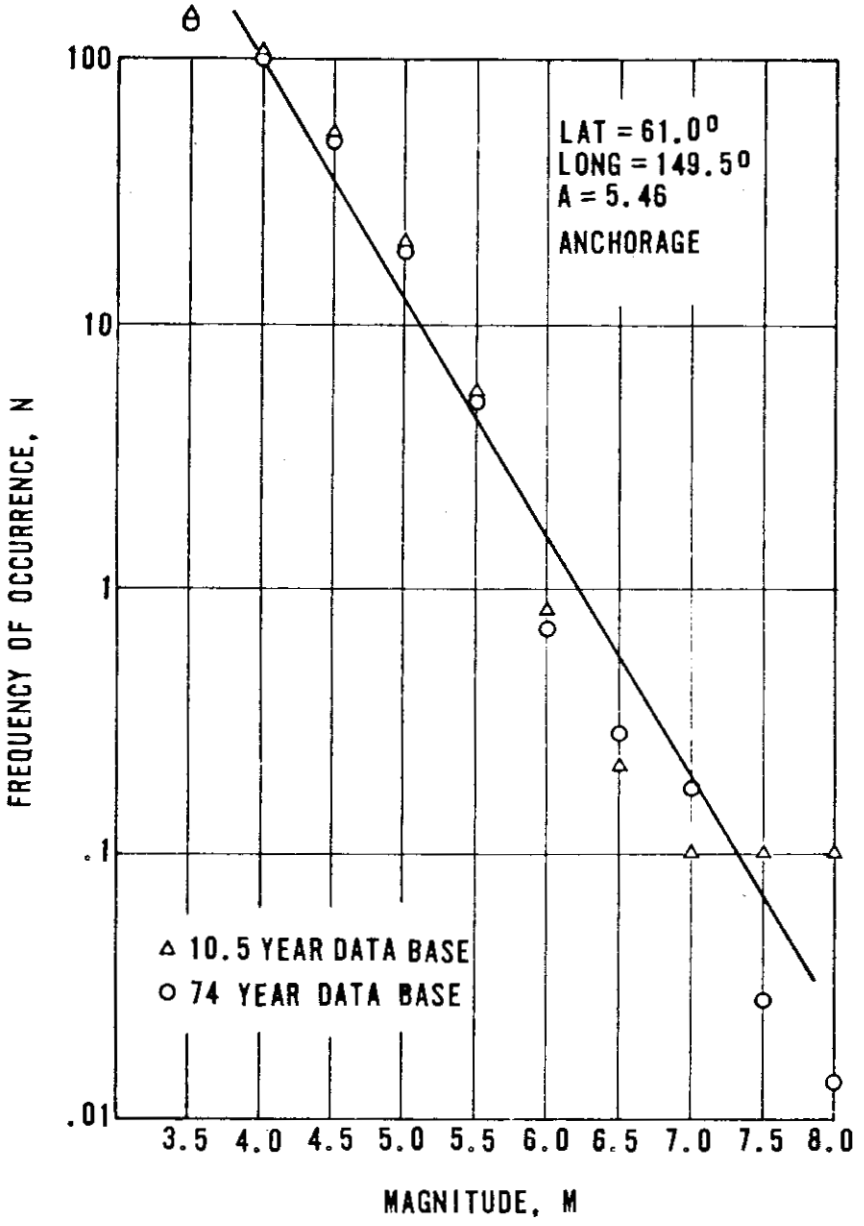
1. BAYESIAN MAPS OF CALIFORNIA
2. PROBABILISTIC ENGINEERING FRAMEWORK
3. FOLLOWS RATIONALE OF STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA
4. SATISFIES CASE LAW REQUIRING THAT 'THE SEVERITY OF THE REGULATION SHALL MATCH THE SEVERITY OF THE RISK.'

FATAL AND INJURY ACCIDENTS BY NUMBER OF VEHICLES (CALIF.)



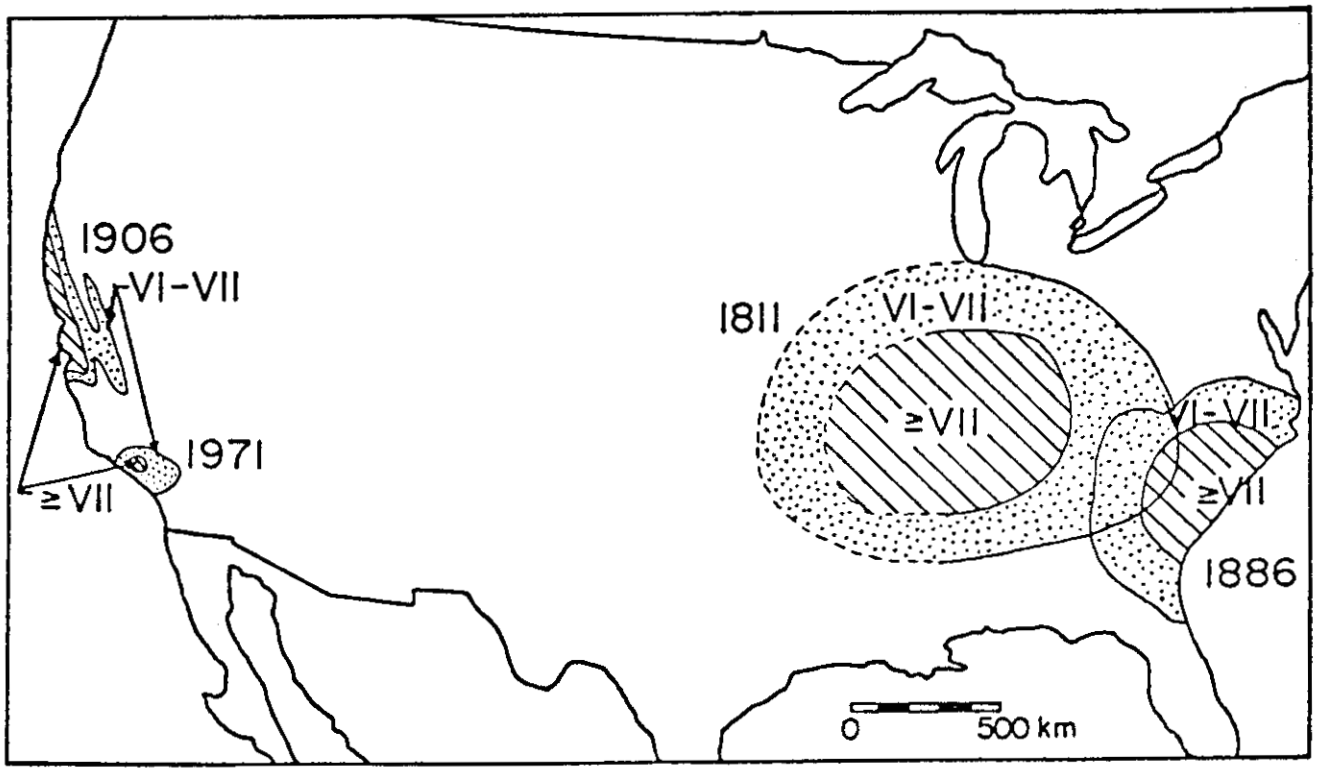
SLIDE 16

EARTHQUAKE FREQUENCY DISTRIBUTION FOR ANCHORAGE



SLIDE 17

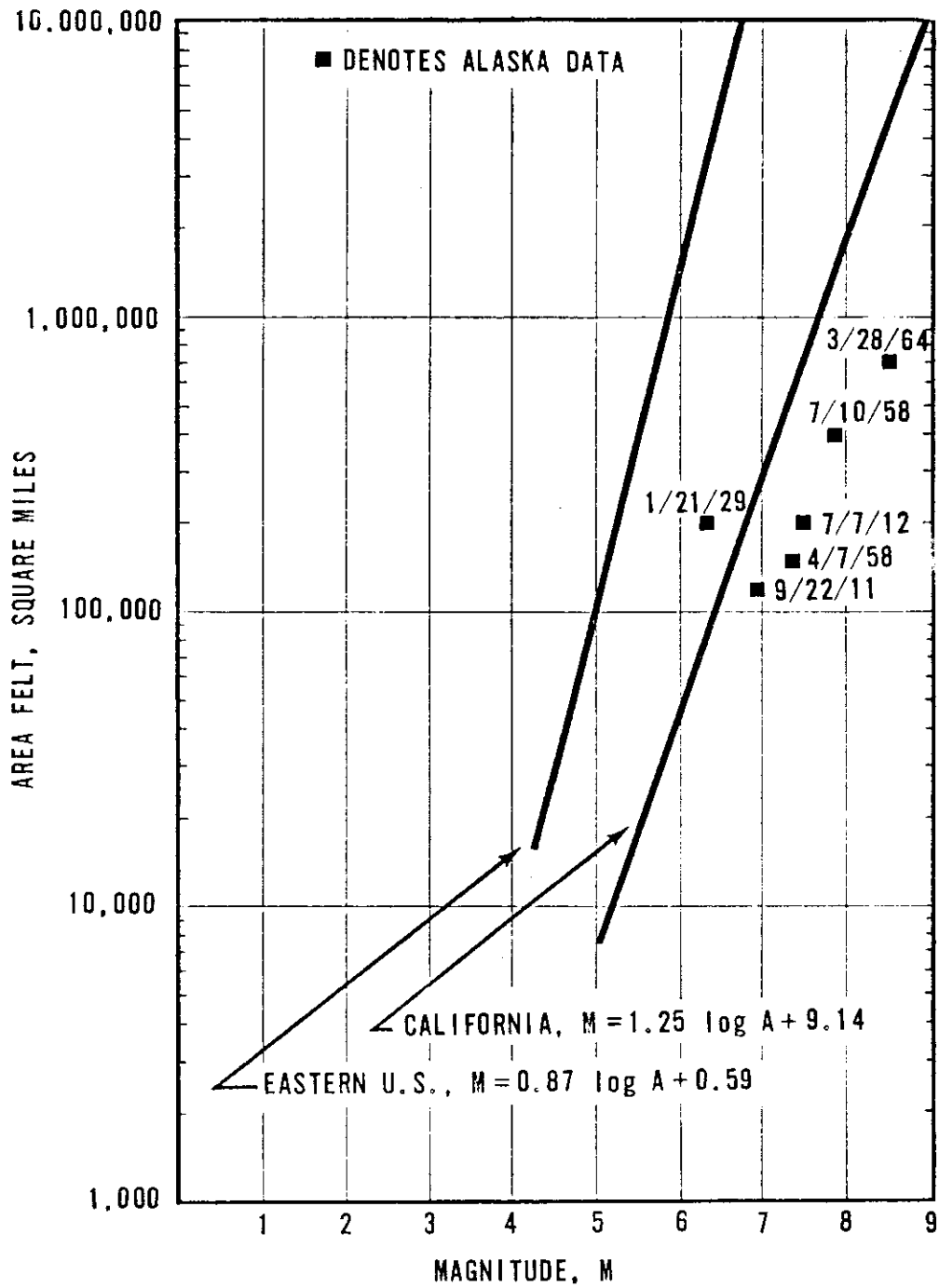
COMPARISON OF DAMAGE AREAS



1. The 1906 and 1811 earthquakes were about equal in magnitude, as were the 1971 and 1886 earthquakes.
2. After Nuttli.

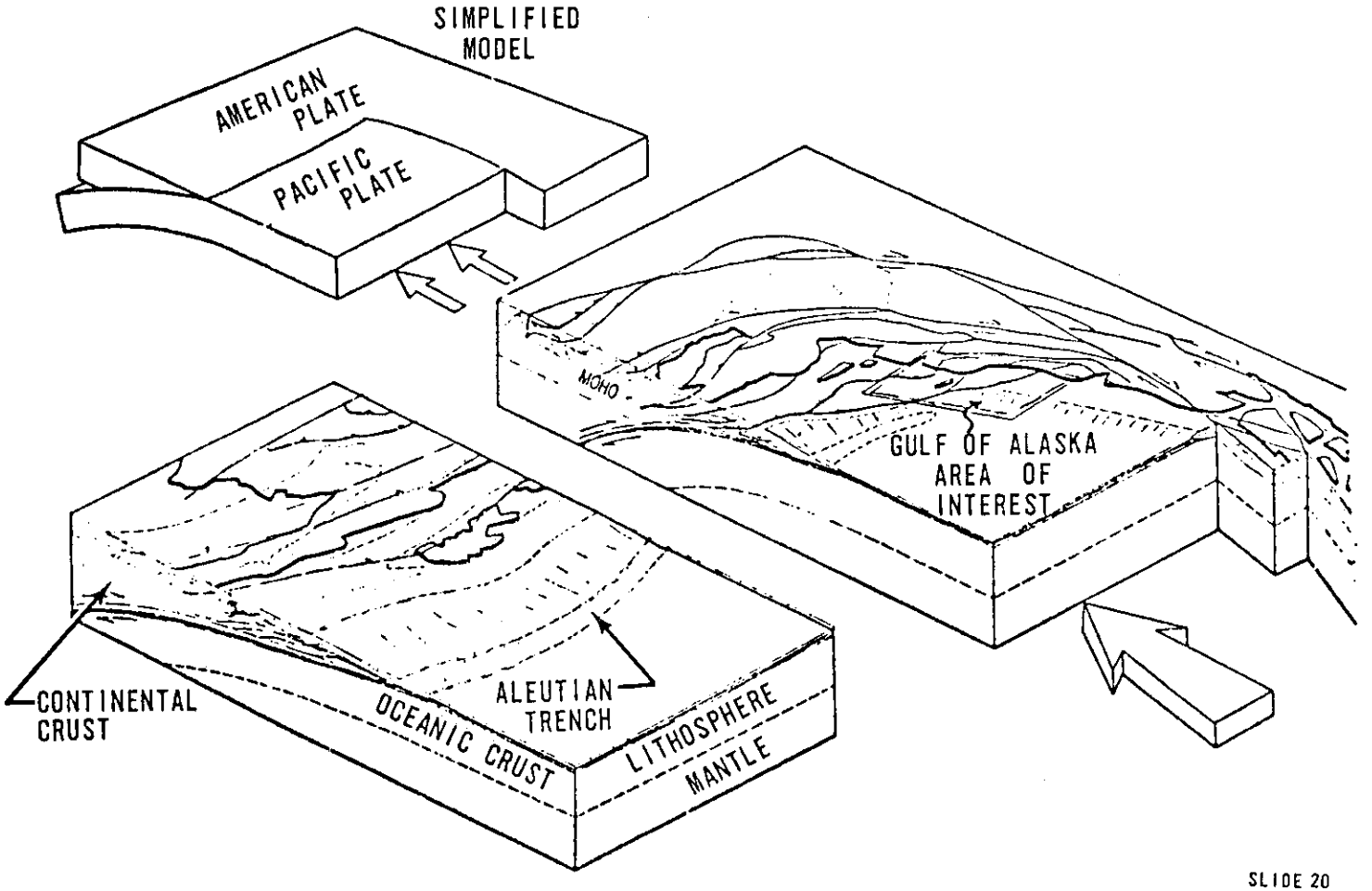
SLIDE 18

FELT AREA OF ALASKA EARTHQUAKES IS LESS THAN THAT OF CALIFORNIA OR THE EASTERN PART OF THE UNITED STATES



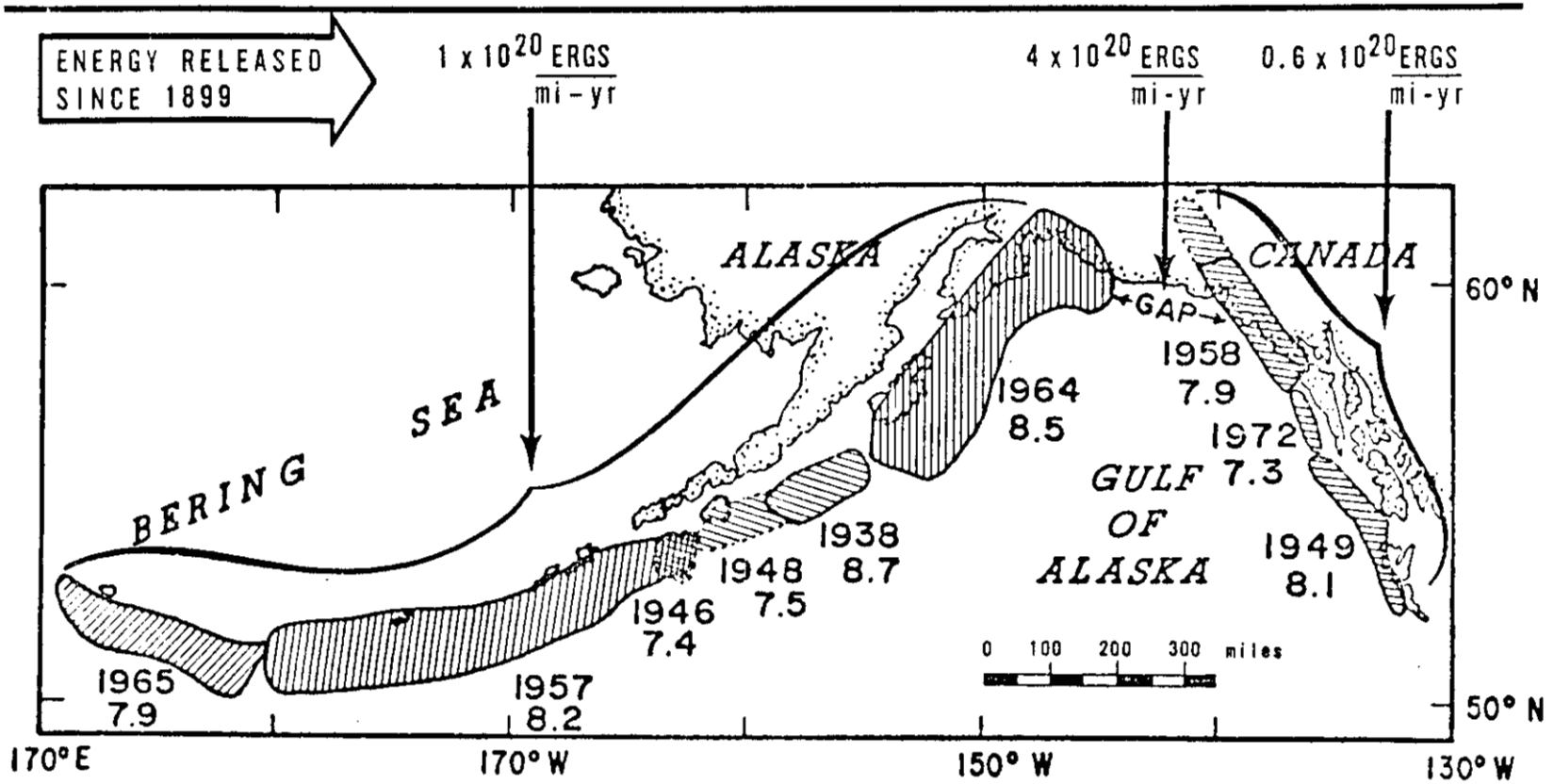
THE TWO CURVES WERE CONSTRUCTED FROM EQUATIONS IN NBS, BSS #61, ASSUMING A 'FELT' MMI OF III.

GULF OF ALASKA PLATE MOTION



SLIDE 20

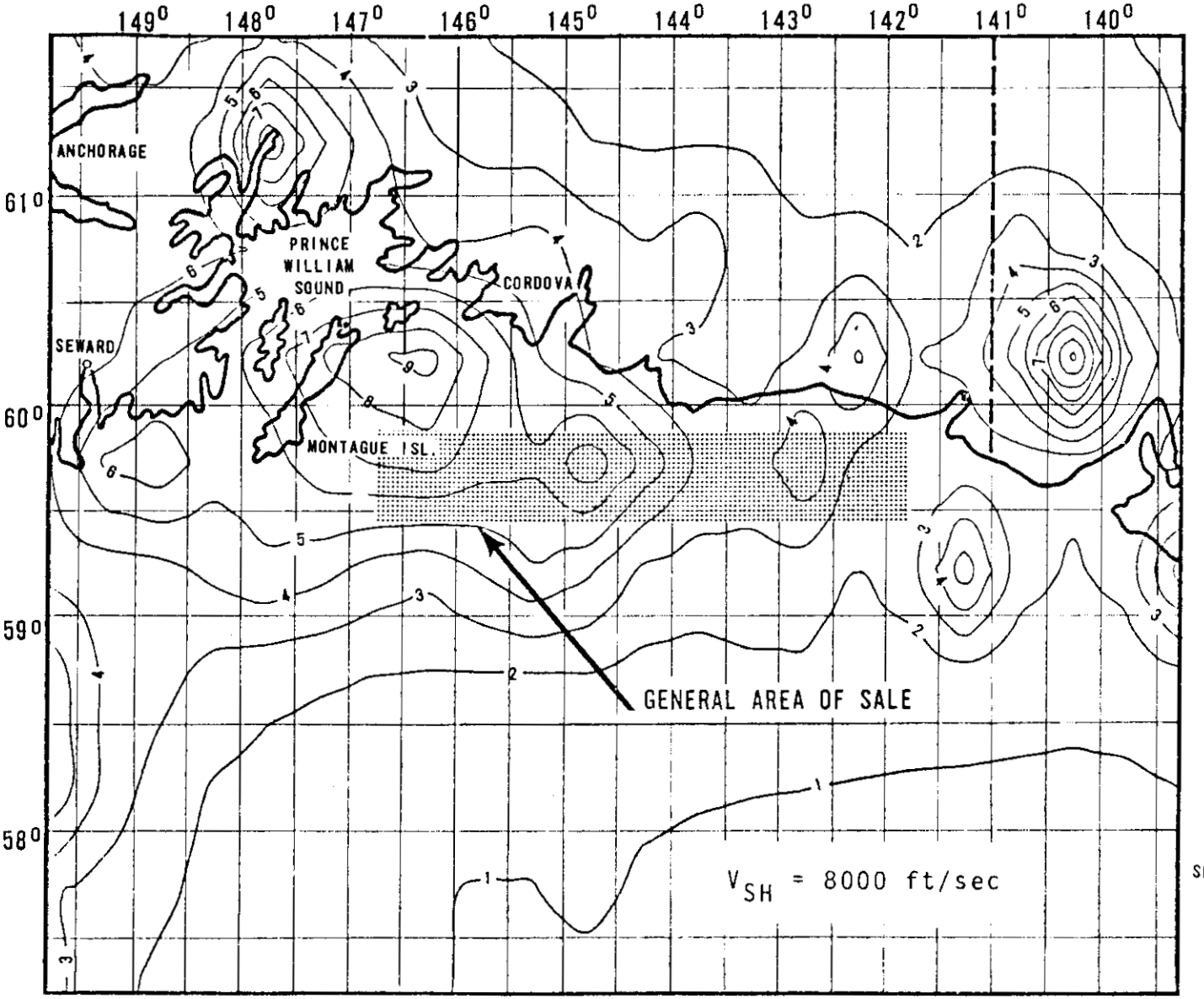
AFTERSHOCK ZONES OF EARTHQUAKES OF MAGNITUDE 7.3 OR GREATER SINCE 1938



1. Dashed where extent of zone is uncertain.
2. Dates and magnitudes given.
3. After Page.

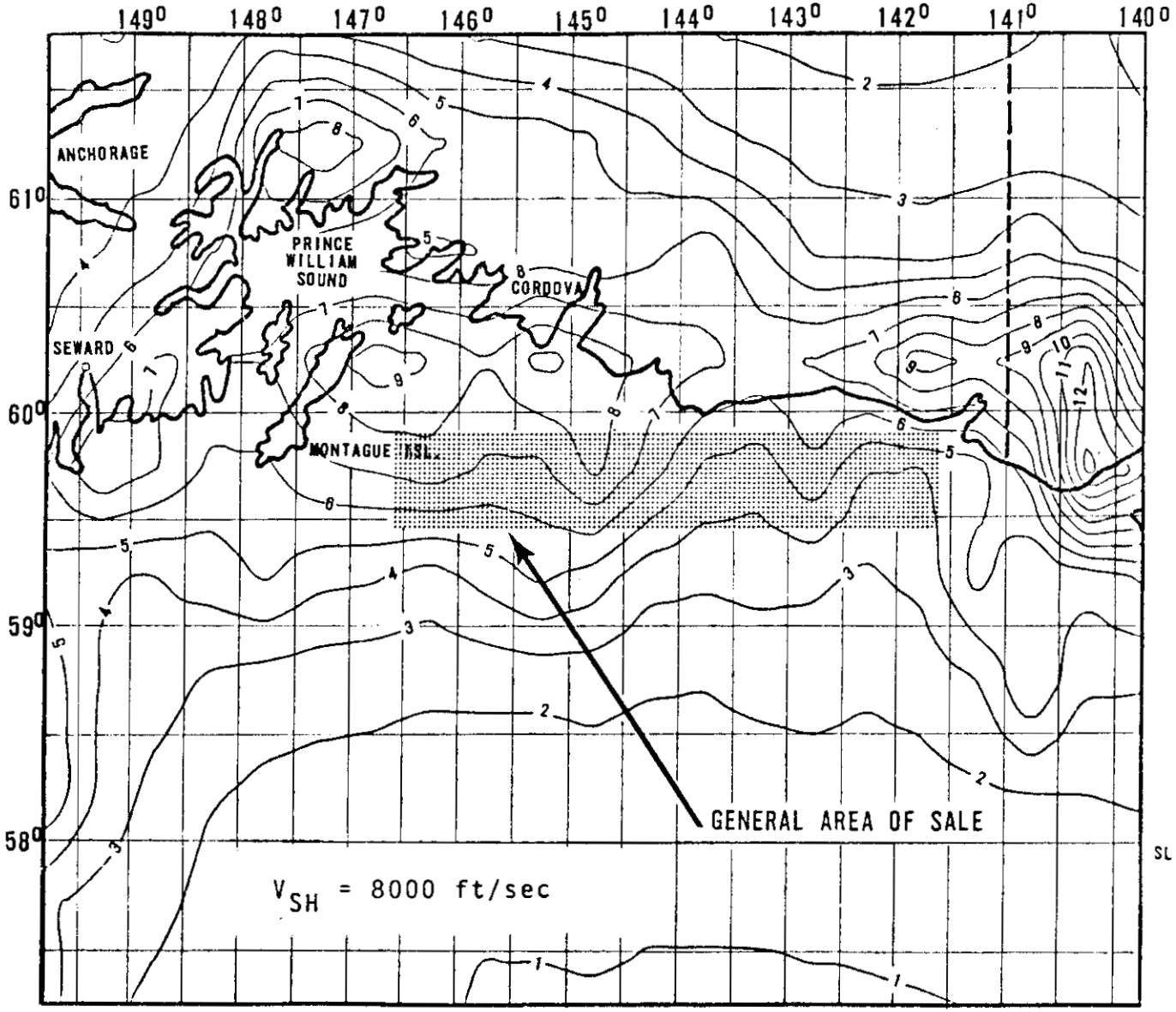
SLIDE 21

HARDROCK VELOCITY (IN/SEC), GULF OF ALASKA, RETURN PERIOD = 100 YEARS
(NO FAULT LINE ENERGY DISTRIBUTION)



SLIDE 22

HARDROCK VELOCITY (IN/SEC), GULF OF ALASKA, RETURN PERIOD = 100 YEARS
(WITH FAULT LINE ENERGY DISTRIBUTION)

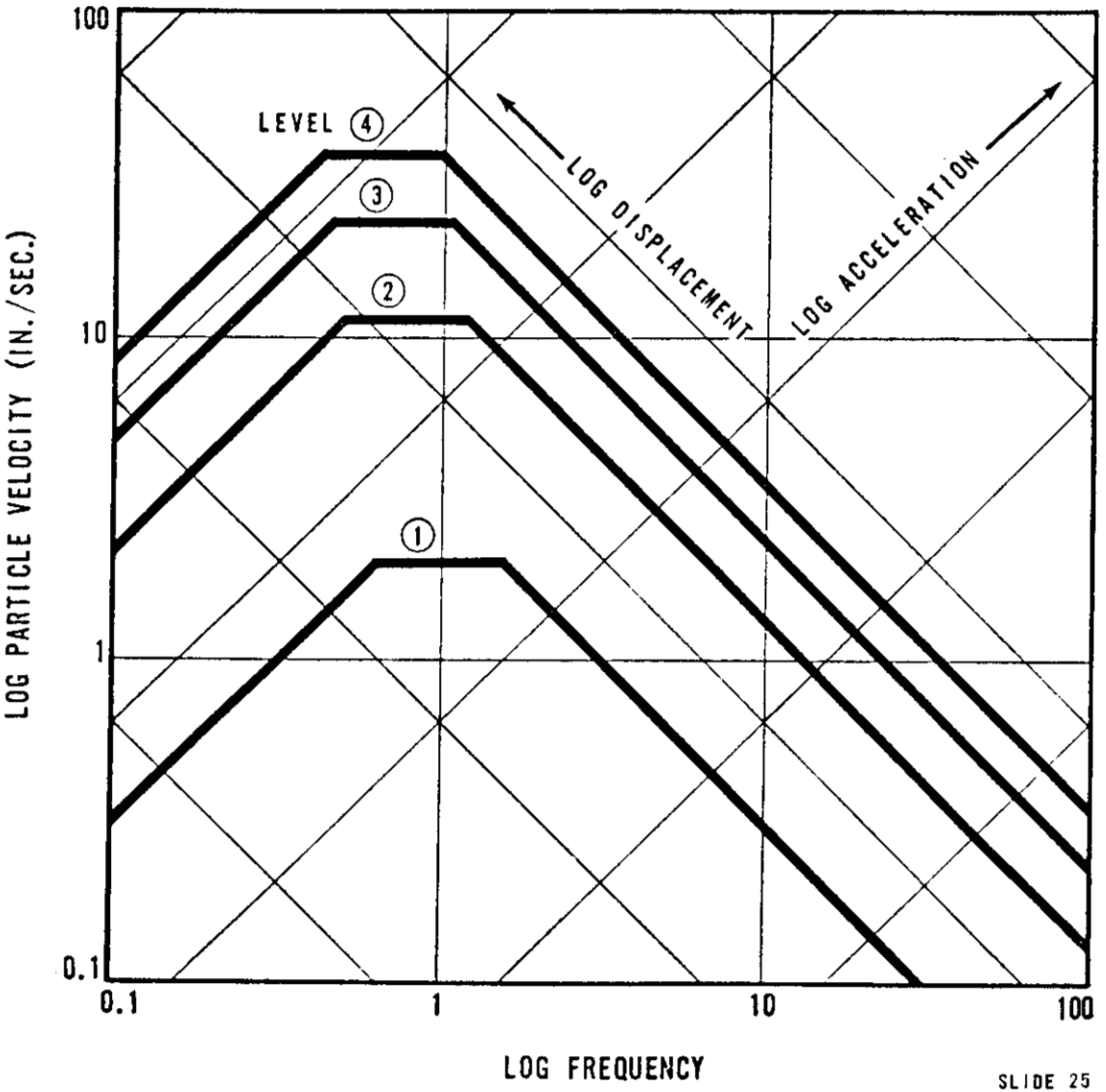


SLIDE 23

ANALYSIS CRITERIA

	BUILDING LIFE	PROBABILITY OF EQUALING OR EXCEEDING
UNIFORM BUILDING CODE	50 YRS	22%
USGS RISK MAPS	50 YRS	10%

HARDROCK PARTICLE VELOCITY SPECTRA (V_{SH} = 3800 FT/SEC)



SLIDE 25

EARTHQUAKE PROBABILITIES FOR SEISMIC ENVIRONMENTS IN GOA

FOR MONTAGUE ISLAND AREA

LEVEL NUMBER:	P_0(%):
1	99.9
2	31.9
3	12.8
4	5.6

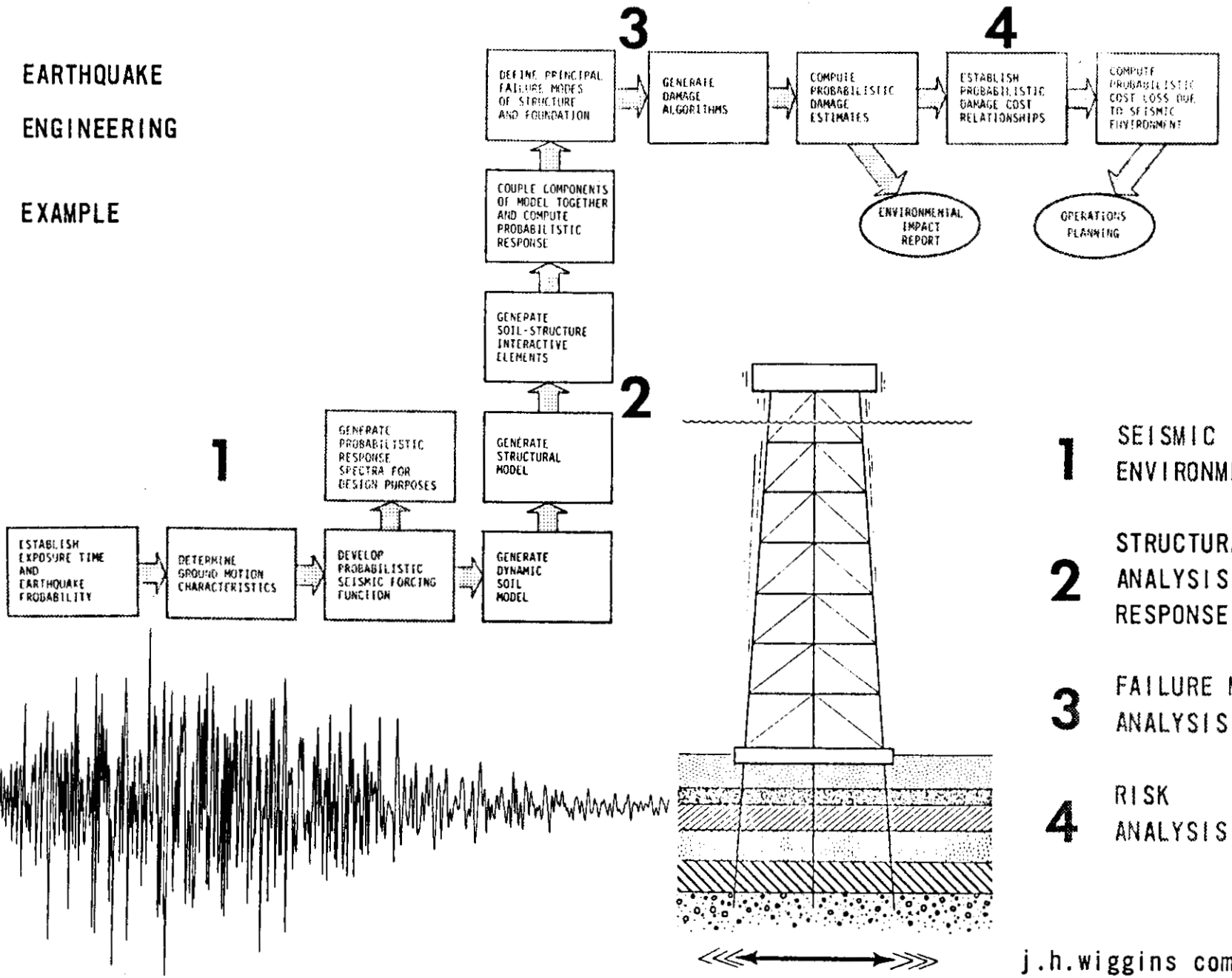
FOR YAKUTAT AREA

LEVEL NUMBER:	P_0(%):
1	97.2
2	18.4
3	6.0
4	3.1

EARTHQUAKE

ENGINEERING

EXAMPLE



1 SEISMIC ENVIRONMENT

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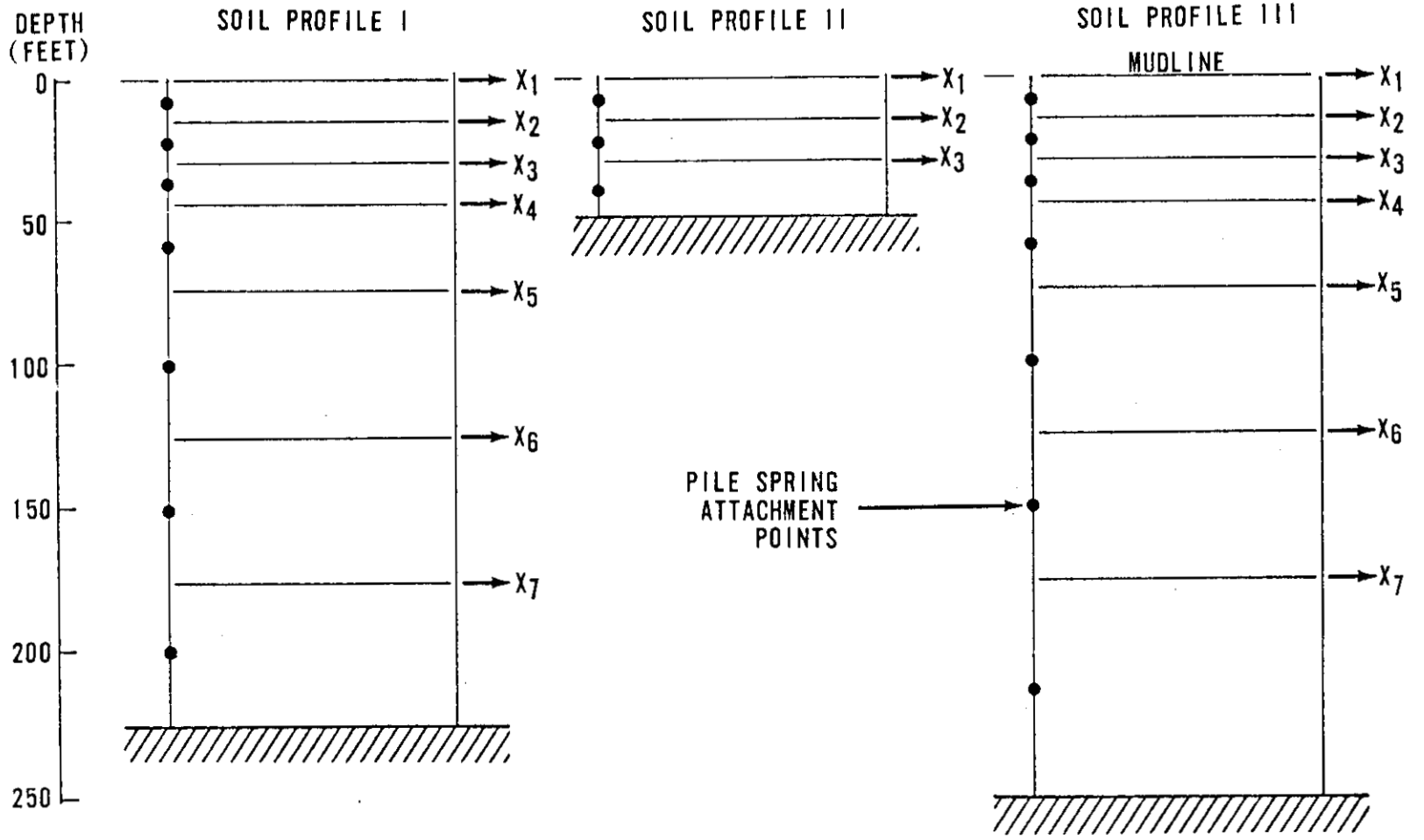
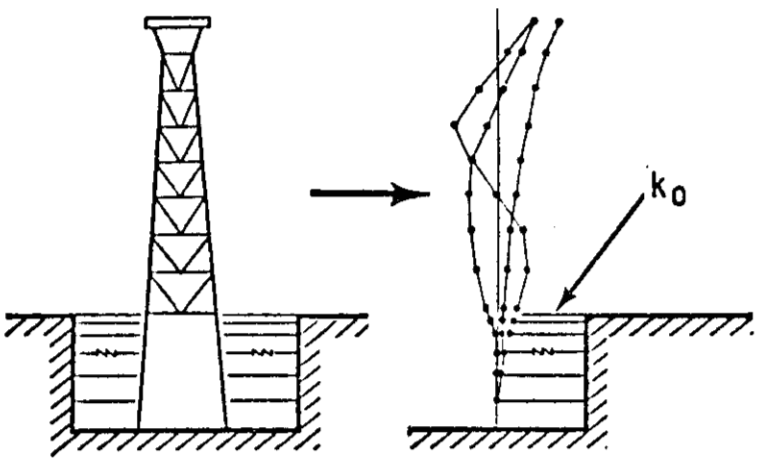
FINITE ELEMENT MODELS FOR THREE SOIL PROFILES

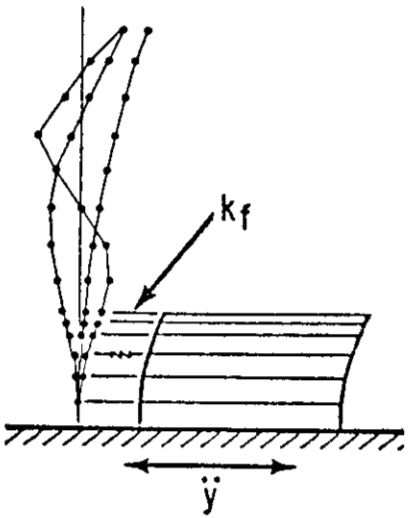


SLIDE 28

MODAL REPRESENTATION OF A COMPLEX STRUCTURE



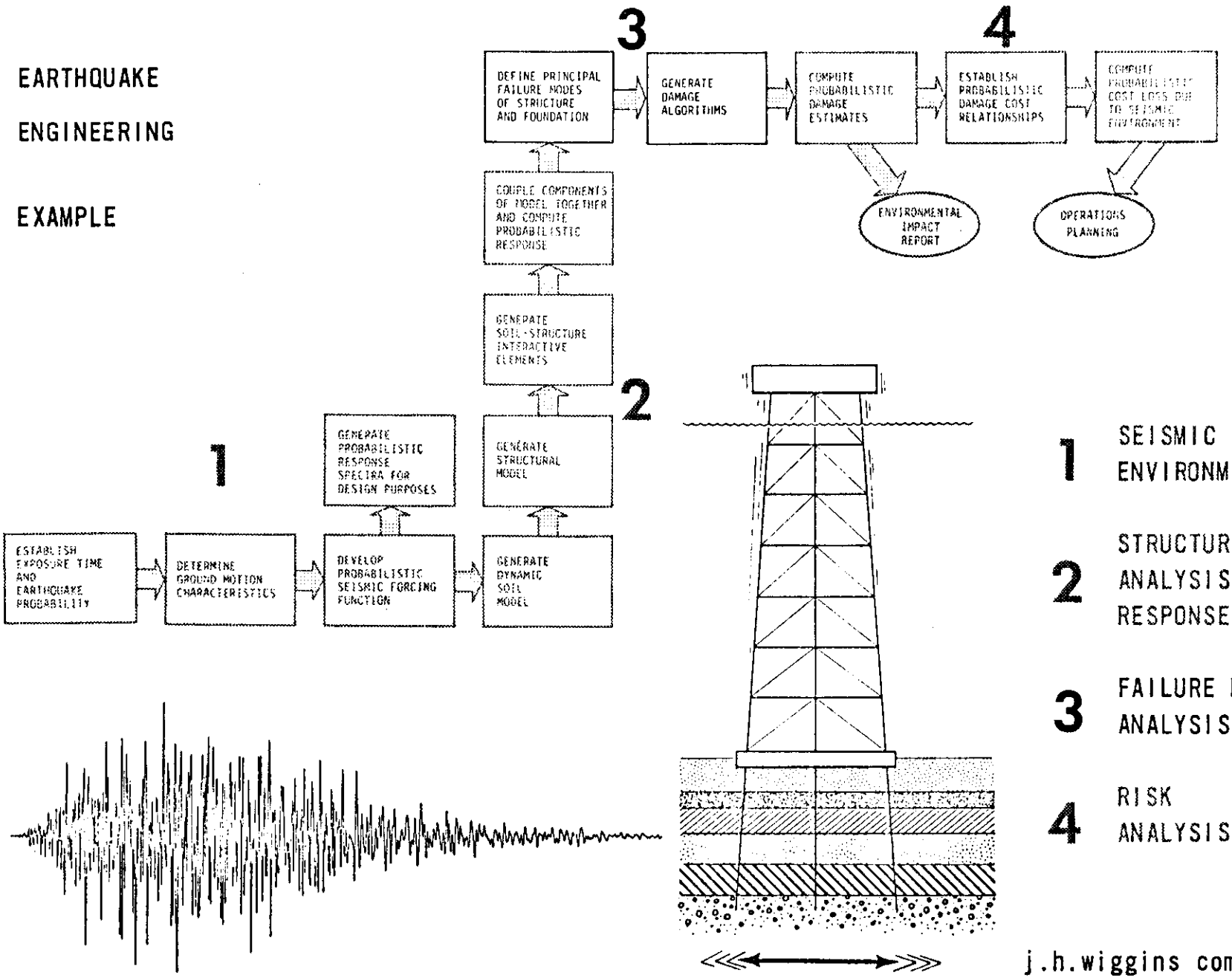
COUPLED RESPONSE OF SOIL STRUCTURE SYSTEM



EARTHQUAKE

ENGINEERING

EXAMPLE



1 SEISMIC ENVIRONMENT

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4 RISK ANALYSIS

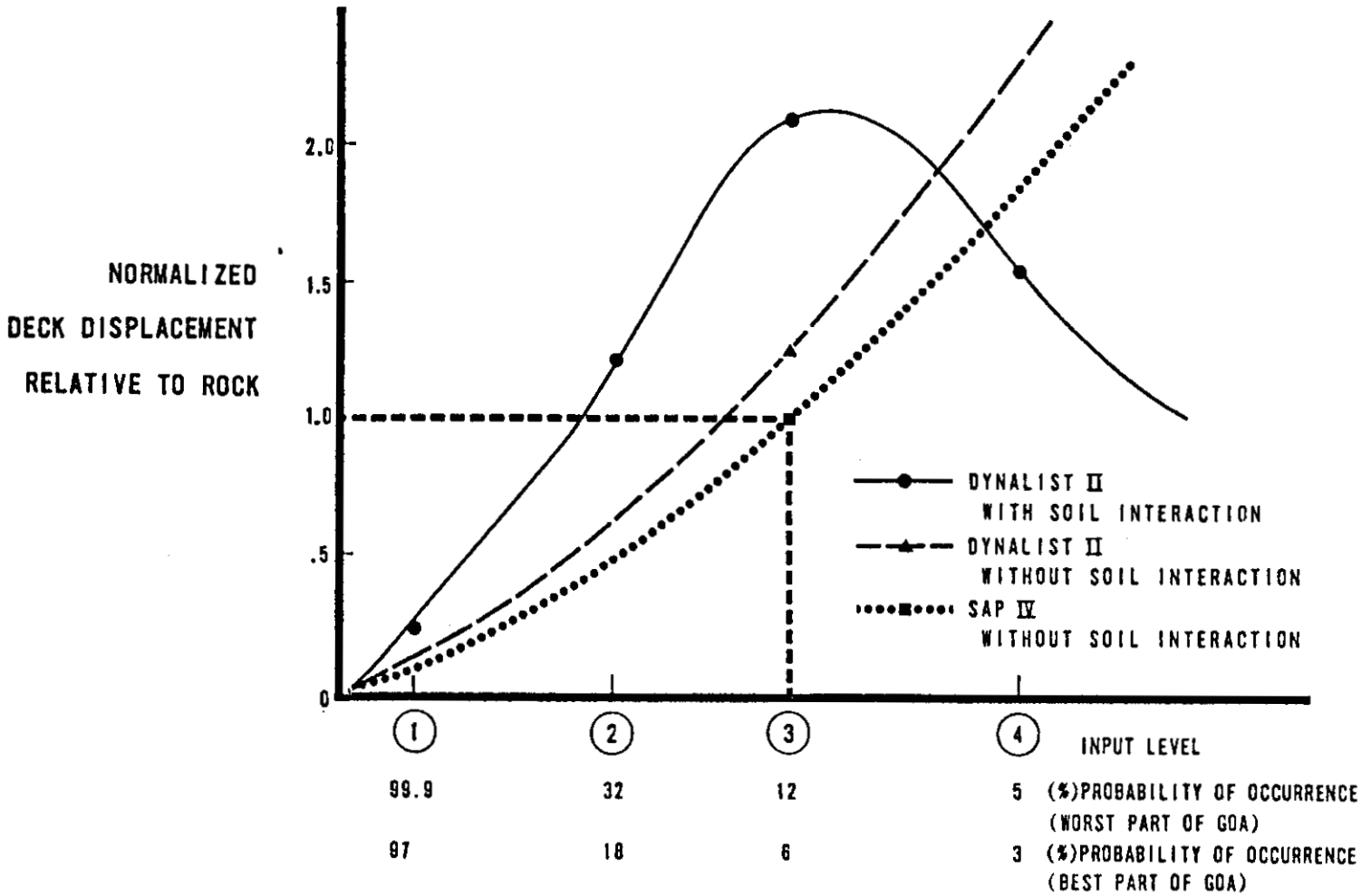
j.h.wiggins company

SLIDE 30

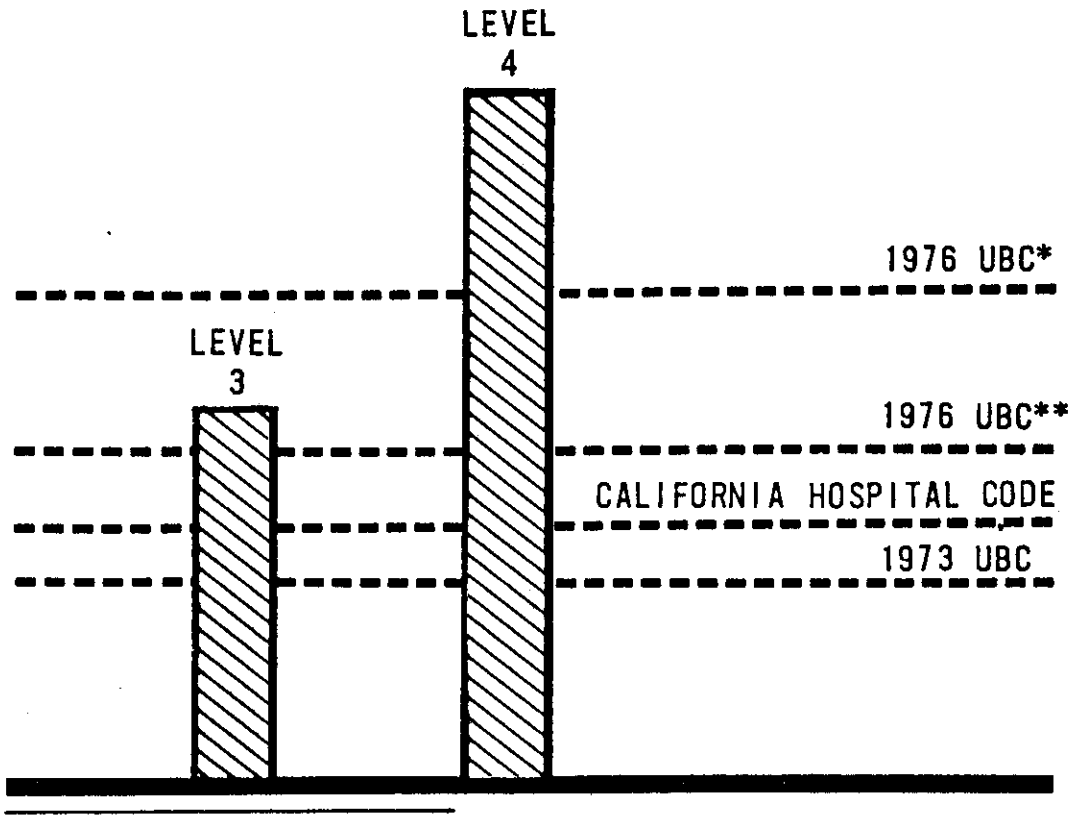
FAILURE MODES CONSIDERED

1. DECK STRUCTURE
2. TEMPLATE
3. PILES IN COMPRESSION
4. PILES IN TENSION
5. CONDUCTOR PIPE

COMPARISON OF RESPONSE METHODS



COMPARISON OF LEVELS OF ANALYSIS PERFORMED ON PRELIMINARY GOA STRUCTURES WITH EXISTING U.S. CODES



* Worst Soil, Most Important Structure.

** Best Soil, Most Important Structure.

SEISMIC RISK - PROBABILITY OF OCCURRENCE

- PROBABILITY OF EARTHQUAKE = P_E
- PROBABILITY OF LOCATION = P_L
- PROBABILITY OF RESPONSE = $P_E \times P_L \times P_R$
- PROBABILITY OF DAMAGE = $P_E \times P_L \times P_R \times P_D$
- PROBABILITY OF LOSS ($) = $\underbrace{P_E \times P_L \times P_R \times P_D \times P_\$}$

CONDITIONAL PROBABILITIES

(57)

THE OIL AND GAS POTENTIAL OF THE GULF OF ALASKA

STATEMENT BY
H. J. FITZGEORGE, MOBIL OIL CORPORATION

PREPARED FOR
GULF OF ALASKA OPERATORS COMMITTEE

GULF OF ALASKA ENVIRONMENTAL IMPACT HEARING
ANCHORAGE, ALASKA
AUGUST 12-13, 1975

My name is Harold Fitzgeorge. I am Vice-President of the Western Exploration and Producing Region, North American Division of Mobil Oil Corporation. In this position I am responsible for all exploration and producing operations for the State of Alaska and contiguous waters, and the northern two-thirds of the United States, including the West Coast and offshore areas.

Prior to this assignment, my experience included assignments as President of Mobil Oil Company de Venezuela, Exploration Manager for Mobil International, and Vice-President and Exploration Manager of Mobil Oil Canada, Ltd. In total, I have 27 years of experience in oil and gas exploration and development since I began working as a geologist in Oklahoma City.

Mobil Oil Corporation is an active member of the Gulf of Alaska Operators Committee, and I am pleased to speak here today. It provides me an opportunity as a geologist to discuss the oil and gas potential of a region that could become one of the most important oil and gas provinces of the U.S. I will elaborate on this, but wish to caution you that in spite of my scientifically based optimism, there are no certainties in oil and gas exploration.

The Gulf of Alaska Sedimentary Basin lies between Kodiak Island on the west and the coastline just west of Juneau, Alaska. It is almost 900 miles long and varies from 40 to 100 miles wide. The total area of the basin is about 40,000 square miles, of which 85%, or about 34,000 square miles, lies beneath the waters of the Gulf of Alaska. This area compares in size with the Louisiana and Texas combined offshore areas.

Oil explorationists look for several criteria when evaluating the oil potential of a basin. Two important factors are source and reservoir rocks. An oil basin must have sedimentary rocks capable of generating oil, and sufficiently thick porous rocks to contain the oil. Oil is generated from organic rich sediments by heat when these sediments are buried to depth, and it is commonly trapped in porous sand reservoir rocks in the earth. Large anticlinal structures contain much of the known world oil accumulations.

The presence of source beds and hydrocarbons in the Gulf of Alaska is well documented:

- A total of 108 oil and 15 gas seeps have been reported onshore by the U.S. Geological Survey. All are west of Yakutat Bay, with clusters of 86 of them in the Katalla area and 29 in the Yakataga area. Several offshore seep areas have also been noted.

- Shallow oil was discovered in 1902 on the north shore of the Gulf of Alaska at Katalla. Cumulative production of nearly 154,000 barrels from the Pt. Hey sandstone and fractured Poul Creek shales resulted from this and subsequent drilling between 1902 and 1933. The oils were described as high gravity, paraffin base and very low in sulfur content.

- A total of 71 wells have been drilled in the province, including one near Middleton Island, 70 miles offshore. Although no commercial discoveries by today's standards have been made, numerous shows of oil and gas have been recorded and the existence of a thick sedimentary sequence has been clearly established.

- Geological and geophysical studies indicate that the Gulf of Alaska Sedimentary Basin contains rock thicknesses in the order of 20,000 feet of Tertiary and Pleistocene rocks, of which the younger 10,000 to 15,000 feet are highly prospective for oil and gas. Estimates of the volume of these younger rocks range from 50,000 to 75,000 cubic miles.

The many onshore indications of hydrocarbons in the basin logically led to a search for petroleum offshore. In 1964 Mobil conducted their first seismic survey in the Gulf of Alaska, and in 1966 joined 24 companies in the first group survey in the Gulf of Alaska. Since then, numerous group and proprietary surveys have been conducted, and my company alone, as an example, has participated in 19 proprietary and 11 group surveys. In addition, we have obtained gravity, aeromagnetic, shallow seismic and sidescan sonar surveys plus bottom sampling and core hole data. We estimate that industry in both group and proprietary surveys has collected over 60,000 miles of seismic data, 8,000 line miles of gravity data, 14,000 line miles of aeromagnetic and 6,000 miles of shallow resolution seismic data. They have drilled 89 core holes and obtained extensive dart core coverage. Our company alone has obtained in excess of 4,500 dart cores. I estimate these surveys represent a pre-sale investment on the part of private competitive industry in the amount of $26 million dollars.

Now let us take a closer look at the geology and oil and gas potential of the Gulf of Alaska. It is important for everyone, and in particular local, state and federal government officials, who influence and directly affect offshore exploration and producing operations, to understand the potential of the Gulf of Alaska in light of our worsening domestic oil and gas shortages.

The prospective Sedimentary rocks of the Gulf of Alaska are sands and shales of Teritary and Pleistocene age and are both marine and non-marine in depositional origin. These sediments are exposed along the northern edge of the basin and have been further described in the subsurface by wells drilled along the shore and seaward by core holes, bottom sampling, geophysics and one deep test near Middleton Island.

Rocks of Cretaceous age are highly intruded, contorted and metamorphosed and are not regarded as objectives for oil and gas exploration.

The Tertiary rocks of the basin are of two distinct sequences: the lower unit is of Paleocene and Eocene age. They are usually hard, dense and highly deformed, and as such offer limited potential.

These rocks are overlain by a sequence of middle and upper Tertiary and recent sediments thought to be in the range of 15,000 to 20,000 feet thick. Beds of Oligocene, Miocene, Pliocene and Pleistocene age exhibit adequate reservoir characteristics, and the organic shales and silts of early Miocene age are thought to be potential source beds, as shown by the many oil and gas seeps from these rocks in the central part of the Gulf of Alaska.
It is interesting to note that rocks of the same age are the major producing horizons in California and the Gulf of Mexico.

Numerous structural features have been indentified both onshore and offshore. Within the designated sale area there are large anticlinal structures mapped by the seismograph. Structures of the magnitude outlined can contain significant reserves which are critically needed for the continued economic well being of Alaska and the lower forty-eight.

Analysis of crude oils from the Katalla Oil Field and various seeps indicate that the Gulf of Alaska has the potential for high quality, low sulfur crudes. The Katalla area crudes measure 41-45° API gravity, with negligible sulfur and high gasoline yields. Analysis of seep crudes show sulfur contents of .8% by weight or lower. This type of crude is a highly desirable source for our product needs in light of air quality control requirements for low sulfur products.

Published figures vary widely on the oil and gas potential of the Gulf of Alaska. Likewise, the areas covered and the methods used by various analyses differ. The Alaska State Department of Natural Resources, Division of Geological and Geophysical Survey, using a volumetric method, estimated in 1974 for the Gulf of Alaska offshore a speculative recoverable resource of 5.4 billion barrels of oil and 39.4 trillion cubic feet of gas, to water depths of 1,500 meters. The United States Geological Survey has recently published a survey for Southern Alaska offshore which gives the lowest limit at 95% probability to be 1 billion barrels of oil, and the highest limit to be 6 billion barrels with a 5% chance: gas reserves are estimated at 2 to 17 trillion cubic feet at the same probabilities. These USGS reserves are for 200 meters or less of water depth and include the Cook Inlet and Kodiak Island Province, which are not included in the aforementioned State of Alaska survey. The Draft Environmental Impact Statement contains the USGS estimate of oil and gas potential for that portion of the Gulf of Alaska contained in the proposed sale area. The lower limit, at 95% probability, is 100 million barrels of oil and 300 billion cubic feet of gas. The high side of that estimate, with a 5% probability, is for 2.8 billion barrels of oil and 9 trillion cubic feet of gas.

Mobil's most recent estimates in the Gulf of Alaska of the potential recoverable oil and gas are of similar magnitude. However, there is no way of knowing what might ultimately be found until the drill bit actually penetrates the reservoirs we think might be present. The potential of the area can only be determined by a succession of exploratory wells seeking out every stratigraphic trend, every structural trend and every combination of both until the final oil potential of the region is known.

There are those who will argue that estimates of the hydrocarbon potential for the entire U.S. offshore are too high and those who argue the other side. Mobil's as well as many other responsible published opinions is that the United States' undiscovered resources will be large in the offshore with the Gulf of Alaska being one of the significant undrilled frontier areas. We think the offshore offers the best opportunity to find large accumulations of oil that will allow us a viable alternative to increased dependence on foreign imports; however, there have been no offshore Federal sales since 1968, except the Gulf of Mexico. In the first quarter of 1975 oil imports represented 38% of total petroleum supply. Our nation should not continue its heavy and increasing dependence on foreign energy sources. Our offshore areas must be explored now. America needs to breathe new life into its domestic oil and gas exploration. In a Department of interior survey of the oil industry, the Gulf of Alaska

was ranked number one in OCS sale priority for its probability of large potential. The oil industry by its already large investment in the Gulf of Alaska has shown it is prepared to carry out an exploration and producing program in an environmentally safe manner that will contribute to a greater and safer domestic energy supply.

Thank you for your attention, and if I can answer any questions you may have I will be pleased to do so.

STATEMENT OF

JOHN H. McKEEVER
AMOCO PRODUCTION COMPANY

BEFORE THE

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING ON

PROPOSED OIL AND GAS LEASING ON THE OUTER CONTINENTAL SHELF NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12-13, 1975

Gulf of Alaska
Sea Floor

Good Morning. My name is John McKeever. I am a Staff Geologist and exploration representative in Alaska for Amoco Production Company and have been employed in that capacity, resident in Alaska, for nine years. During that time I have been concerned, on behalf of my company, with field work, with geophysical work, and with bottom sampling in the Gulf of Alaska. I have reviewed the draft environmental statement. In preparing the Final Environmental Statement, I believe you should be aware that the oil and gas industry, and others, have acquired a very great deal of information about the sea floor in the Gulf of Alaska, and that considerable technology to interpret this information with respect to environmental concerns exists.

We do not suggest that the Gulf of Alaska sea floor is free from problem areas. We do, however, firmly believe that industry has the information and the knowledge to identify these areas and that our operations can be conducted with complete environmental safety.

IN GEOLOGY, AS IN HISTORY, ONE OF THE MOST BASIC PRINCIPLES IS THAT THE PAST IS A KEY TO PREDICTING THE FUTURE. FORTUNATELY, THERE IS A RECORD OF IMPORTANT PAST EVENTS IN THE GULF OF ALASKA TO AID US IN JUDGING THE SAFETY OF FUTURE OPERATIONS. THIS RECORD IS ENSCRIBED IN THE GEOLOGY OF THE GULF OF ALASKA. IT IS WRITTEN IN THE ROCKS EXPOSED ALONG THE SHORE, AND MORE GERMANE TO OUR PRESENT CONCERNS, IT IS WRITTEN IN THE SEDIMENTS UNDERLYING THE WATERS OF THE GULF OF ALASKA.

IN THE NEXT FEW MINUTES I WILL SHOW YOU HOW WE READ THE HISTORY WRITTEN IN THE ROCKS OF THE SEA FLOOR AND HOW WE CAN THEN ANSWER QUESTIONS ABOUT THE GULF OF ALASKA'S SEA FLOOR STABILITY IN RELATION TO LARGE EARTHQUAKES, STORM WAVES, TIDAL AND STORM CURRENTS, AND NATURAL OIL AND GAS SEEPS. BEFORE GETTING INTO THE TECHNICAL DETAILS OF HOW WE READ THE HISTORY OF THE ROCKS, LET'S REVIEW FOR A MOMENT WHAT WE ALREADY KNOW ABOUT THE GULF OF ALASKA. WE KNOW THERE ARE OIL AND GAS SEEPS IN THE AREA. WE KNOW THAT THE GULF IS SUBJECT TO LARGE WAVES AND SEVERE STORMS, AND THAT THESE HAVE OCCURRED FOR MANY YEARS. WE ALSO KNOW THAT WITHIN RECORDED HISTORY THE AREA HAS BEEN SUBJECT TO VERY LARGE EARTHQUAKES, AND THAT THESE ALSO TOOK PLACE IN PREHISTORIC TIMES. WE ALSO KNOW THAT SINCE ROCKS OF THE SEA FLOOR WERE

PRESENT DURING SUCH PAST EVENTS AND FAILED ONLY IN LOCAL AREAS, IT IS VERY UNLIKELY THAT WIDESPREAD FAILURE WILL OCCUR IN THE FUTURE.

NOW THEN, LET'S PROCEED TO INTERPRET GEOLOGIC HISTORY AND IF POSSIBLE TO PREDICT THE FUTURE. WE BEGIN BY GATHERING INFORMATION ABOUT THE SEA FLOOR, AND THIS IS OBTAINED IN A VARIETY OF WAYS, RANGING FROM DIRECT OBSERVATION BY PEOPLE IN SUBMERSIBLE VESSELS TO DETAILED MAPPING BY GEOPHYSICAL SURVEYS.

THE TWO METHODS MOST FREQUENTLY USED BY THE PETROLEUM INDUSTRY HAVE BEEN SEA FLOOR SAMPLING AND HIGH RESOLUTION ACOUSTIC SEISMIC SURVEYS. IN SEA FLOOR SAMPLING, AN ACTUAL PIECE OF ROCK OR OTHER MATERIAL FROM ON OR BENEATH THE SEA FLOOR IS RECOVERED BY DREDGING OR CORING. DEVICES SUCH AS CLAMSHELL OR BUCKET DREDGES, DART OR PISTON CORERS, OR ROTARY CORE DRILLS ARE USED TO OBTAIN ACTUAL SAMPLES OF THE MATERIAL ON OR BELOW THE SEA FLOOR.

HIGH RESOLUTION ACOUSTIC SEISMIC SURVEYS ARE USUALLY SPOKEN OF AS ACOUSTIC SURVEYS. ALL ACOUSTIC SURVEY SYSTEMS HAVE AN UNDERWATER ENERGY SOURCE BROADCASTING SOUND WAVES INTO THE WATER. THE SOUND IS SENT OUT IN SHORT PULSES AT PRECISELY

TIMED INTERVALS. WHEN THE SOUND PULSES STRIKE A SURFACE SUCH AS THE SEA FLOOR OR BEDS BENEATH IT, THEY ARE REFLECTED BACK, IN PART, AND ARE DETECTED BY SENSITIVE RECEIVERS, AND THE TOTAL TRAVEL TIME IS RECORDED. THE DISTANCE BETWEEN THE SOUND SOURCE AND THE REFLECTING SURFACE CAN THEN BE CALCULATED FROM THE KNOWN VELOCITY OF SOUND THROUGH THE TRANSMITTING MEDIUM.

THE RANGE OF USEFUL FREQUENCIES FOR ACOUSTIC SYSTEMS IS FROM ABOUT 40 UP TO 300,000 HERTZ. THE HIGHER FREQUENCY, SHORTER WAVE LENGTH SYSTEMS HAVE HIGHER RESOLUTION AND ACCURACY, BUT SHALLOW PENETRATION, WHILE THE LOWER FREQUENCY, LONG WAVE LENGTH SYSTEMS HAVE GREATER CAPABILITY IN DEEP PENETRATION. THE ENERGY SOURCE AND RECEIVERS OF ANY SYSTEM CAN BE TUNED TO RECORD SPECIFIC FREQUENCIES THAT PROVIDE THE BEST INFORMATION OR THE INFORMATION MOST DESIRED ABOUT A PARTICULAR AREA. SUCH SYSTEMS ARE CALLED TUNED TRANSDUCER SYSTEMS. UNDER GOOD CONDITIONS, THE HIGH FREQUENCY SYSTEMS CAN DEFINE FEATURES WITH LESS THAN A FOOT OF RELIEF ON THE SEA FLOOR AND THEY CAN ALSO DETECT SCHOOLS OF FISH AND BUBBLE COLUMNS IN THE WATER. THE LOWER FREQUENCY SYSTEMS CAN PENETRATE PERHAPS AS MUCH AS 3000' INTO THE SEA FLOOR AND DEFINE BEDS WITH A RANGE OF ACCURACY OF 2' TO 30'.

A NUMBER OF ACOUSTIC SYSTEMS ON DIFFERENT FREQUENCIES CAN BE MOUNTED ON ONE SURVEYING VESSEL AND WHEN THIS IS DONE THE RESULTING SURVEY IS CALLED A MULTI-SENSOR SURVEY. WHILE ACOUSTIC SURVEY DATA IS BEING RECORDED ON SHIPBOARD, THE EXACT POSITION OF THE SHIP IS ALSO BEING RECORDED CONTINUOUSLY BY NAVIGATIONAL SYSTEMS OF THE SHORAN OR LORAN TYPE. THUS, THE EXACT LOCATION WHERE EACH PIECE OF DATA WAS COLLECTED IS KNOWN AND CONSEQUENTLY, MAPS OF THE DATA CAN BE PREPARED.

EXAMPLES OF THIS DATA ARE SHOWN HERE. FIGURE 5 IS A DEPTH RECORDER PROFILE. NAVIGATIONAL STATIONS ALONG THE PROFILE ARE NUMBERED ACROSS THE TOP OF THE RECORD AND MARKED BY VERTICAL LINES. THE DEPTH SCALE ON THIS RECORD IS IN FATHOMS, AND YOU WILL NOTE THAT THE RECORD SHOWS A SCARP WITH ABOUT EIGHT FATHOMS OF RELIEF ON THE LEFT, AND BUBBLE CLUSTERS IN THE WATER COLUMN ON THE RIGHT.

A TUNED TRANSDUCER RECORD IS SHOWN IN THE LOWER PART OF FIGURE 5. THIS RECORD WAS RUN SIMULTANEOUSLY WITH THE DEPTH RECORDER RECORD ABOVE AND IT SHOWS THE SAME SCARP, THE SAME BUBBLE CLUSTERS; HOWEVER, THE HORIZONTAL SCALE IS EXPANDED.

AN ELECTROMECHANICAL RECORD IS SHOWN IN THE UPPER LEFT OF FIGURE 6. HERE WE SEE TWO LAYERS OF SEDIMENTARY ROCK,

COLORED GREEN AND YELLOW, AND WE SEE THE DETAILS OF THEIR CONTACT WITH A SERIES OF OLDER BEDS BENEATH THEM. PENETRATION HERE IS ABOUT 500' BENEATH THE SEA FLOOR. A SPARKER RECORD IS SHOWN IN THE LOWER PART OF FIGURE 6 AND IT SHOWS A SIMILAR SUCCESSION OF BEDS ALONG A DIFFERENT SURVEY LINE.

A SIDE SCAN SONAR RECORD IS SHOWN IN FIGURE 7. IN THIS SYSTEM THE SOUND IS BEAMED DOWN AND OUT ON EITHER SIDE OF THE SHIP'S TRACK AND THE RECORD FORMS A PICTURE MUCH LIKE AN AERIAL PHOTOGRAPH OF THE SEA FLOOR SURFACE.

THE ACTUAL BOTTOM SAMPLES CAN BE EXAMINED BY SPECIALISTS IN GEOLOGY AND ENGINEERING TO DETERMINE HOW OLD THE BEDS MAY BE, THE KIND OF ENVIRONMENT IN WHICH THEY WERE DEPOSITED, WHETHER THEY MAY PROVIDE SUITABLE SOURCES, OR SUITABLE RESERVOIRS, FOR OIL AND GAS, AND HOW STRONG THEY MAY BE FOR ENGINEERING PURPOSES.

WHEN THESE PROPERTIES ARE DETERMINED, THEY CAN BE CORRELATED WITH THE LAYERS OF SEDIMENTARY ROCK DETERMINED BY THE ACOUSTIC SURVEYS, AND MAPS CAN BE MADE SHOWING THE SEA FLOOR TOPOGRAPHY, THE TREND OF SEA FLOOR GEOLOGIC FEATURES, THE DISTRIBUTION OF DIFFERENT KINDS OF SEA FLOOR SEDIMENTS, AND THE GEOLOGIC STRUCTURE OF THE OLDER BEDS BENEATH THE SEA FLOOR.

THESE RESULTS CAN BE USED TO DETERMINE THE PRESENT SEA FLOOR ENVIRONMENT AS WELL AS ITS RECENT HISTORY, AND CAN ALSO BE USED TO PLAN FURTHER EXPLORATION ACTIVITY. ONE OF ITS PRINCIPAL USES FROM THE ENVIRONMENTAL STANDPOINT, IS THAT IT ENABLES THE PETROLEUM INDUSTRY TO LOCATE THE AREAS WHERE HAZARDS MAY BE INVOLVED AND TO AVOID THEM OR TO PLAN AROUND THEM.

A NUMBER OF SEA FLOOR SURVEYS HAVE BEEN CARRIED OUT IN THE GULF OF ALASKA BY INDUSTRY GROUPS, BY PRIVATE GROUPS, AND BY INDIVIDUAL COMPANIES. THE SURVEYS HAVE BEEN CONCENTRATED IN THE GENERAL AREA BETWEEN MIDDLETON ISLAND AND ICY BAY. BY THE END OF SUMMER 1975, IT IS ESTIMATED THAT THE INDUSTRY WILL HAVE ACCUMULATED ABOUT 6000 LINE MILES OF ACOUSTIC SURVEYS, OVER 5000 DART CORE SAMPLES, AND POSSIBLY 25,000' OF DRILL SAMPLES, AT A TOTAL COST OF MORE THAN $15 MILLION. MOST OF THIS EXPENDITURE MAY BE CREDITED TO THE PETROLEUM INDUSTRY AS AN INVESTMENT IN ENVIRONMENTAL UNDERSTANDING OF THE REGION.

BENEATH THE CONTINENTAL SHELF LIE ROCKS SIMILAR TO THOSE FOUND ONSHORE BORDERING THE GULF OF ALASKA. HOWEVER, OFF-SHORE THE FORMATIONS ARE LESS STRUCTURALLY DISTURBED THAN

THEY ARE ONSHORE, AND THEY WERE PLANED OFF BY MARINE AND GLACIAL EROSION DURING RATHER LATE GEOLOGIC TIME.

DURING THE PLEISTOCENE ICE AGES THE SEA LEVEL WAS LOWERED AND MUCH OF THE GULF OF ALASKA'S CONTINENTAL SHELF WAS ABOVE THE SURFACE OF THE SEA. IT WAS THEN COVERED BY GREAT ICE SHEETS ORIGINATING IN THE MOUNTAINS BEHIND THE PRESENT COAST LINE. THE ICE APPEARS TO HAVE CUT SEVERAL MAJOR CHANNELS ACROSS THE GULF OF ALASKA CONTINENTAL SHELF FROM MONTAGUE ISLAND CHANNEL TO ALSEK CHANNEL, AND GLACIATION APPEARS TO BE THE PRIMARY DETERMINANT OF THE BATHYMETRY OF THE GULF OF ALASKA CONTINENTAL SHELF.

THE UPPER RECORD ON FIGURE 8 IS AN ELECTROMECHANICAL RECORD, AND SHOWS THE SEQUENCE OF BEDROCK FORMATION AND GLACIAL AND RECENT OVERBURDEN THAT ARE TYPICAL OF MUCH OF THE NORTHERN GULF OF ALASKA. THE BOTTOM PART OF THE RECORD SHOWS BEDROCK SLOPING UPWARD TOWARDS THE SEA FLOOR, AND TRUNCATED BY A GLACIAL UNCONFORMITY. THIS EROSIONAL SURFACE SLOPES AT A LOW ANGLE AND IS FAIRLY SMOOTH AND REGULAR WITH PERHAPS 100' OF RELIEF.

DIRECTLY OVERLYING THE BEDROCK ALONG THIS UNCONFORMITY IS A LAYER OF OVERBURDEN ABOUT 40' TO 100' THICK. ITS SURFACE

HAS A LOW UNIFORM AVERAGE DIP SEAWARD WITH ERRATIC LOCAL RELIEF OF 10'. THIS LAYER SHOWS NO STRATIFICATION AND IT IS FEATURELESS EXCEPT FOR A NUMBER OF SMALL DIFFRACTION PATTERNS. CORE SAMPLES FROM THIS LAYER SHOW THAT IT IS OF LATE PLEISTOCENE TO RECENT AGE AND WAS DEPOSITED BY GLACIERS IN A MARINE ENVIRONMENT. IT IS CALLED THE GLACIAL OVERBURDEN LAYER AND IS OVERLAIN BY ANOTHER LAYER OF OVERBURDEN WHICH HERE THICKENS UNIFORMLY FROM ABOUT 20' TO 230' IN A SEAWARD DIRECTION. AT THIS LOCALITY THE UPPER SURFACE OF THIS LAYER FORMS THE SEA FLOOR WHICH IS EXTREMELY SMOOTH WITH A GENTLE SEAWARD SLOPE. THE SMALL CYCLIC VARIATIONS IN ITS THICKNESS ARE CAUSED BY WAVES OR SWELLS AT THE SURFACE OF THE SEA. SAMPLES OF THIS LAYER SHOW THAT IT IS A MARINE DEPOSIT OF RECENT AGE, COMPOSED ALMOST ENTIRELY OF SILTY CLAY WITH SCATTERED PEBBLES AND COBBLES EMBEDDED WITHIN IT, AND IT IS CALLED A RECENT OR NORMAL MARINE OVERBURDEN.

WHERE RECENT OVERBURDEN IS ABSENT, THE SEA FLOOR LOSES ITS SMOOTH ACOUSTIC CHARACTER AND TAKES ON A CHARACTER REFLECTING ITS COMPOSITION. WHEN GLACIAL OVERBURDEN FORMS THE SEA FLOOR, ITS TOPOGRAPHY IS TYPICALLY HUMMOCKY, AND SIDE SCAN SONAR SURVEYS MAY SHOW A COBBLY SURFACE OR EVEN MAY OUTLINE LARGE BOULDERS. WHERE BEDROCK FORMATIONS FORM THE SEA FLOOR THEY ARE USUALLY TOPOGRAPHICAL HIGHS, AND SHOW A ROUGH SURFACE, OFTEN WITH RIDGES THAT FOLLOW AND TRACE THE MORE RESISTANT BEDS.

THE LOWER ELECTROMECHANICAL RECORD IN FIGURE 8 SHOWS RECENT OVERBURDEN PARTLY COVERING A SEA FLOOR TOPOGRAPHIC HIGH, BUT ABSENT ACROSS THE ROUGH, ERODED APEX OF THE HIGH. THE ROUGH TOPOGRAPHY OF THIS FEATURE, AND THE ABSENCE OF DETECTABLE GLACIAL OVERBURDEN, MAY INDICATE THAT IT WAS NEVER GLACIATED AND IS IN FACT A BED ROCK OUTCROP.

THE GULF OF ALASKA HAS UNDERGONE A LONG HISTORY OF EARTH MOVEMENTS THAT HAVE FOLDED AND TILTED THE UNDERLYING BEDROCK. THE RECORD OF THESE EARTH MOVEMENTS IS EVIDENT FROM THE ACOUSTIC SURVEYS SHOWING FORMATION BEDROCK BENEATH THE OCEAN FLOOR. HOWEVER, THERE HAS NOT BEEN ANY EXTENSIVE FOLDING OR FAULTING OFFSHORE SINCE THE LATE PLEISTOCENE. WE CAN DEMONSTRATE THIS BECAUSE WE SEE NO DEFORMATION, OR AT LEAST, ONLY OCCASIONAL INSTANCES OF DEFORMATION OF THE GLACIAL OVERBURDEN LAYER AND THE RECENT OVERBURDEN LAYER.

THE RECENT OVERBURDEN LAYER FORMS THE SEA FLOOR, OVER ABOUT 75% OF THE SHELF AREA, AND THE GLACIAL OVERBURDEN COVERS ABOUT 10%, WHILE 15% OF THE SEA FLOOR IS COMPOSED OF BEDROCK ITSELF.

SINCE THE RECENT OVERBURDEN LAYER BLANKETS MOST OF THE SHELF, ITS STABILITY AS A FOUNDATION LAYER IS ESPECIALLY

IMPORTANT. THE FLAT PARALLEL REFLECTORS WITHIN THIS UNIT ARE BEDDING PLANES FORMED AS THE UNIT WAS DEPOSITED. BREAKS IN THESE BEDDING PLANES WOULD INDICATE TECTONIC DISTURBANCE. SUCH A BREAK IS VISIBLE IN THE BEDDING OF THE RECENT OVERBURDEN ON THE RIGHT SIDE OF FIGURE 8B, SHOWING THAT THE SEDIMENTS HAVE SHIFTED SLIGHTLY SINCE THEY WERE DEPOSITED AND THEREFORE MIGHT NOT PROVIDE A FIRM FOUNDATION IN THE FUTURE. ACOUSTIC SURVEYS HAVE FOUND SUCH AREAS OF INSTABILITY AT ONLY A FEW ISOLATED LOCALITIES. IN THE REST OF THE REGION THE BEDDING IN THE RECENT LAYER IS PARALLEL AND UNBROKEN. THIS SHOWS THAT THESE SEDIMENTS HAVE BEEN UNDISTURBED OVER A PERIOD OF MANY THOUSAND YEARS SINCE THEY WERE DEPOSITED, AND THAT THEY WILL PROVIDE A STABLE FOUNDATION FOR ANY FUTURE CONSTRUCTION.

ACOUSTIC SURVEYS HAVE SHOWN THE DISTRIBUTION, THICKNESS AND TOPOGRAPHY OF THE VARIOUS KIND OF BEDS THAT FORM THE SEA FLOOR IN THE NORTHERN GULF OF ALASKA, AND THEY SHOW RECENT STRUCTURAL MOVEMENTS. AS MENTIONED EARLIER, THERE ARE ONLY A FEW LOCATIONS WHERE THERE HAVE BEEN RECENT MOVEMENTS WITHIN THE PROPOSED SALE AREA.

THERE ARE BATHYMETRIC TRENDS WHERE THE BOTTOM SLOPE MAY BE STEEP ENOUGH TO BE UNSTABLE AND SUBJECT TO SLUMPING. THESE

TRENDS OF SLUMPING HAVE BEEN LOCATED AND MAPPED BY ACOUSTIC SURVEYS AND SEEM GENERALLY TO BE ALONG THE OUTER EDGE OF THE CONTINENTAL SHELF IN THE AREA OF DEEP WATER. FIGURE 9A, ON THE SPARKER RECORD AT THE TOP, IS A PROFILE ACROSS THE BOUNDARY BETWEEN THE CONTINENTAL SHELF AND THE SLOPE. IT SHOWS A ZONE OF SMALL FRACTURES NEAR THE EDGE OF THE SHELF AND A ZONE OF PROBABLE SLUMPING DOWN THE SLOPE. SUCH UNSTABLE AREAS WILL BE AVOIDED DURING OFFSHORE EXPLORATION OPERATIONS.

ACOUSTIC SURVEYS CAN ALSO BE UTILIZED TO LOCATE BUBBLE COLUMNS IN THE WATER AND ACOUSTIC VOIDS IN THE BEDS BENEATH THE SEA FLOOR. FIGURE 5 SHOWS AN EXAMPLE OF BUBBLES IN THE WATER COLUMN. THE LOWER ELECTROMECHANICAL RECORD ON FIGURE 9B SHOWS A CLUSTER OF ACOUSTIC DISCONTINUITIES. IN OTHER REGIONS IT HAS BEEN FOUND THAT SUCH ACOUSTIC DISCONTINUITIES AND BUBBLE COLUMNS ARE OFTEN EVIDENCE FOR HYDROCARBON GAS SEEPS. THUS, TO REDUCE THE POSSIBILITY OF BLOWOUTS, OPERATORS WOULD AVOID DRILLING OR TAKE ADEQUATE PRECAUTIONS IN LOCATIONS WHERE SEEPS HAVE BEEN MAPPED OR ARE SUSPECTED.

THE SEA FLOOR SURVEYS UNDERTAKEN COLLECTIVELY AND INDIVIDUALLY BY COMPANIES IN THE PETROLEUM INDUSTRY PROVIDE THE KNOWLEDGE NEEDED TO CARRY OUT ENVIRONMENTALLY SAFE PETROLEUM

EXPLORATION AND DEVELOPMENT ACTIVITIES. THE SURVEYS THAT HAVE BEEN MADE SHOW THE CHARACTERISTICS OF THE SEA FLOOR IN THE REGION AND THEY HAVE LOCATED THE TRENDS WHERE PROBLEMS MAY EXIST. THE TOTAL INDUSTRY EFFORT THAT HAS GONE INTO SEA FLOOR SAMPLING AND ACOUSTIC SURVEYING WILL GO FAR TO MAINTAIN ENVIRONMENTAL INTEGRITY IN EXPLORATION FOR PETROLEUM IN THE GULF OF ALASKA.

THANK YOU.

(17)

STATEMENT OF

PAUL L. HORRER
INTERSEA RESEARCH CORPORATION

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

on

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12-13, 1975

GULF OF ALASKA OPERATORS COMMITTEE

Statement of Paul L. Horrer, Intersea Research Corporation

OFFSHORE SALE ENVIRONMENTAL HEARING

Anchorage, Alaska

My name is Paul Horrer. I am President of Intersea Research Corporation. My educational background includes a BS in Meteorology from Cal Tech and MS in Physical Oceanography from Scripps Institution of Oceanography. My work experience includes 8 years as research oceanographer at Scripps and 19 years as a consulting oceanographer. The latter includes projects in Alaska beginning with the Chevron marine terminal at Nikiski in 1959. My firm, Intersea Research, is presently conducting a two-year wave measurement program at five locations in the Gulf of Alaska. Intersea's predecessor company, Marine Advisers, Inc., carried out an extensive in-office study in 1968-70 to develop and summarize data on weather, waves and currents in the Gulf of Alaska as well as two years of wave measurements at Yakutat. Both projects were financed by groups of oil companies.

Slide 1 The purpose of my testimony is to discuss the physical marine environment of the Gulf of Alaska, particularly as this environment affects offshore petroleum operations; to describe the state of present scientific knowledge of this environment; and to indicate some future improvements to be expected in such knowledge.

Generally my testimony is in agreement with the Draft Environmental Impact Statement which presents a good description of the physical marine environment. Two exceptions involve (a) ocean currents, and (b) tsunamis. Some recent information, not included in the EIS, is available on currents. The other exception is that I disagree with the broad statements made in the EIS regarding potential damage to rigs and facilities due to tsunamis. Written comments on the EIS will be filed later.

Slide 2 Past and present measurements in the Gulf that are pertinent to this testimony include both public and industry-sponsored programs which date back to the end of the last century, beginning with weather observations from ships, as well as shore-based recording of tides and sea water temperature. Those initial programs and others are continuing, and now there are weather satellites and sophisticated wave and weather telemetering buoys.

The weather plays a governing role in dictating the nature of almost all offshore operations. The knowledge of average or frequently occurring weather conditions is an important factor in planning for efficient and safe offshore operations. Evaluations of extreme or rarely occurring conditions provide the basis for the design of structures or other facilities. And, finally, prediction of weather is an integral part of the conduct of prudent offshore operations.

Slide 3 Within the Gulf of Alaska area, wind measurement data are available at coastal stations, at Middleton Island, at two weather buoys (EB-03 and

EB-33), and from some ship reports. Such information gives a first estimate of wind conditions generally to be found within the Gulf of Alaska but does not necessarily describe all offshore locations. However, there are methods by which winds can be calculated from the synoptic weather charts

Slide 4 of historical data published by the Weather Bureau. In 1967, the petroleum industry organized and supported an environmental study of the Gulf of Alaska costing $1,200,000 and requiring thirty months of effort. The prime contractor for this effort was my consulting firm, Marine Advisers, Inc. The Marine Advisers' project included wind calculations from weather maps, technically known as wind hindcasts, for twenty locations in the Gulf of

Slide 5 Alaska. An example result of this study is summarized in this slide which portrays the monthly variation of wind conditions throughout the year at one location. For example, this indicates that during the month of January winds greater than 24 knots could be expected to occur 25 percent of the time.

Slide 6 More detail is available in information about the directions of winds, presented in this slide as a typical "wind rose" at an information site. For example, this diagram indicates that winds from the east-southeast, at speeds between 11 and 21 knots, occur approximately 10 percent of the time.

Slide 7 In addition, the examination of wind information permits evaluations of the extreme events to be expected. As in all evaluations of extreme events, one must view the information in a probabilistic manner. Annual extreme winds have different sorts of probability distributions than do typical winds. A series of observed annual maximum events is fitted to one of these theoretical distribution functions and the speed occurring once per century on the average can then be determined. This slide indicates that at a

typical offshore location in the Gulf of Alaska, one should expect wind gusts of 100 knots to occur on the average once every five years.

It is important to note that, in general, winds are not directly the most important parameter which influence offshore structures or operations. Instead, it is the waves generated by the winds which constitute the most important phenomenon. Winds determined from the historical synoptic weather maps may also be used to evaluate waves occurring during past history. Such historical wave evaluations, or wave hindcasts, were also a part of the industry-supported Gulf of Alaska project begun in 1967.

Slide 8 Wave calculations were verified against wave measurements, also made as a part of the project. This slide indicates the seasonal variation of normal waves at a typical station in the Gulf of Alaska. These results, for example, indicate during the month of January, sea states with significant waves higher than 12 feet should be expected to occur 25 percent of the time. Significant wave height is a technical term but one whose numerical value corresponds closely to the subjective visual impression

Slide 9 of wave height reported by a trained observer. Information on the occurrence of extreme wave events is depicted in the next slide. This indicates that a wave 95 feet high should occur, on the average, once every 100 years.

Refinement of these wave data will be accomplished, if needed, by means of the wave measurements and hindcast evaluation being performed

Slide 10 now by Intersea for a group of oil companies. "Waverider" buoys, which measure sea surface elevation fluctuations by means of a specialized

accelerometer, telemeter data to shore while also analyzing and recording results on a cassette tape within the buoy. Fifteen of these were installed in five clusters of three each, for redundancy, in August and

Slide 11 September 1974. Wave data is received and recorded ashore from the Waveriders at Sitkinak Island, Middleton Island and Yakutat. Wind and other weather data are recorded ashore at these three locations. It is planned to continue this program into 1976.

The Gulf of Alaska has earned a reputation as being a stormy area of the world. However, this area is not markedly different from other areas in which the offshore petroleum industry has successfully conducted operations. The indicated extreme winds of the Gulf of Alaska are substantially less than those associated with Gulf of Mexico tropical hurricanes, and the persistence of storm winds in the Gulf of Alaska does not appear to suggest more severe conditions than encountered in the Norwegian North Sea. In both of these mentioned areas, the petroleum industry now operates successfully. The industry also copes with stormy

Slide 12 sea conditions in other areas, as well. An evaluation of various areas of the world has been made on the basis of ship reports of wave heights. This survey comparison is presented on the next slide. It is to be recognized that ship reports of wave heights reflect certain biases on the part of observers on ships with different characteristics. Nevertheless, the trends are significant in indicating that the Gulf of Alaska is not more stormy than other areas in which offshore petroleum operations have been conducted. In terms of extremes, it is worthwhile to note that the drilling vessel SEDCO 135F experienced a wave reported to be 95 feet high in drilling off Vancouver

(Petroleum Engineer, March 1969) without evidence of threat to the structural integrity or safety of the unit. Moreover, the industry has designed platforms for very large waves, and these have been utilized in the North Sea.

One familiar with the sea will recognize, of course, that conditions of wind and waves are also accompanied by various types of ocean currents. On the continental shelf, away from constricted bays, currents are not generally, however, a major factor in offshore design or routine operations. They are, nevertheless, considered in structural design and must be accounted for in any oil spill containment and cleanup contingency plan. The previously-described industry-sponsored study determined both normal current and extreme

Slide 13 conditions of current to be expected in the Gulf of Alaska. Such information is included in this slide which depicts the occurrence of normal types of current. This, for example, indicates that current velocities which exceed

Slide 14 one knot should generally be anticipated 25 percent of the time. Estimated extreme current values are shown in the next slide, where surface currents are evaluated for a typical location to be as much as 4 knots. The values for current indicated in these slides do not differ from currents found in many other areas of the world such as the North Sea or the Grand Banks area, and they are not as severe as currents in Cook Inlet.

Slide 15 Direct measurements of currents with recording current meters were carried out in the Gulf of Alaska in 1974 by Bolt, Beranek & Newman, and Intersea at seven locations and by the National Ocean Survey at three locations. Analysis of these data will permit further refinement of the Marine Advisers' study of currents.

As with traditional maritime activity, the drilling of offshore oil wells, especially exploratory wells, must be carried out with one eye on the weather. This means that weather forecasts are important. One oil company organized a trial forecasting effort, with emphasis upon those weather conditions which might, for example, call for shut down of an exploratory drilling operation.

Over a trial period of three months, routine forecasts were made for an area off Yakutat by a marine forecasting consulting firm. Particular attention was devoted to the forecast of sea states. Concurrently with the forecasting, waves were measured in the forecast area using a Waverider. Comparison of forecast and measured conditions of seas provides a measure of forecast reliability. From such comparisons the following conclusions have been established.

1. Most important, there occurred no storm conditions which were not forecast.

2. There were only a few "false alarm" forecast storms, which failed to materialize.

While experienced judgment indicates that present Gulf of Alaska forecasting is adequate for offshore operations, improvements are desirable and to be expected. A group of oil companies is considering a new year-long forecasting program using a computer-based wave model to gain practice in this science before exploratory drilling is initiated. Special forecasting

generally improves rapidly with experience gained in actual operations. For the Gulf of Alaska, one may expect that this normal evolution of improvement will be augmented through expansion of the input data base by additional oceanographic buoys to be deployed by the National Oceanographic and Atmospheric Administration. One such buoy is now in operation off Kodiak, and another is off Yakutat, as shown in an earlier slide.

Slide 16

In addition to knowledge of winds, waves and currents, the offshore industry also requires estimates of the total water level rise and, especially, estimates of the probability that various design water level elevations will occur. Besides waves and the infrequent earthquake-produced tsunami, the components of raised sea surface elevations are astronomical tide and storm surge. Tides in the Gulf of Alaska are of the mixed type, containing both diurnal and semi-diurnal components. In the northeast part of the Gulf of Alaska, extreme tides range from -3 to +15 feet relative to the Mean Lower Low Water reference datum.

Storm surge is the increase in sea-surface elevation due to low barometric pressure and to wind tide. In the Marine Advisers' study, storm surge was calculated for the most severe storms of record. Depending on location and water depth, the 100-year storm may raise the water level by one to five or six feet. The 100-year combined astronomical and storm tide is on the order of 20 feet above mean lower low water or 15 feet above mean sea level. This is considerably less than in Cook Inlet.

Slide 17 Good documentation now exists on tsunami run-up elevation in harbors and bays, and thus shore facilities can be constructed at safe elevations. In the open Gulf, although the tsunami is higher at places than the tides, it is much lower than the maximum storm wave. For example, in the Good Friday 1964 earthquake, it has been calculated by numerical modeling that the water elevations about 50 miles west of the proposed lease area reached a maximum of 30 feet, five minutes after initial ground motion. In the open Gulf, the tsunami was not a bore nor was it steep like a wind wave, but rather the water level rose gradually to its maximum elevation.

Slide 18 In the CEQ report the potential damage to underwater oil storage systems on the open coast due to tsunamis was assessed improperly. In order to place it into proper perspective, it is useful to compare the tsunami with storm waves. Drag and inertial forces on a hypothetical storage vessel due to a tsunami will be much smaller than those due to the maximum storm wave for which the industry is confident it can safely design.

For example, a tsunami raising the water level 30 feet in 5 minutes at a location where the water depth is 200 feet would produce water horizontal acceleration and velocity maxima of 0.15 ft/sec^2 and 7 ft/sec. By comparison, the maxima for a storm wave 90 feet high with a 16 second period would be 8 ft/sec^2 and 20 ft/sec at the surface decreasing to 4 ft/sec^2 and 10 ft/sec at the bottom.

Buoyancy forces due to a tsunami will be comparable to those due to the design storm wave. Of course, buoyancy forces matter

only for an underwater storage tank which has large volume above the still water level. A storm wave 90 feet high with 16 seconds period in 200 feet water depth would raise the water level an average of 44 feet along a 300-foot wide structure; the hydrodynamic attenuation reduces this to 25 feet differential water pressure at the sea floor. That compares with 30 feet calculated water level rise due to the 1964 tsunami in the open Gulf.

The offshore petroleum industry generally expends substantial effort in understanding the physical marine environment where offshore operations are conducted. It is to be noted that much of the detailed information is obtained to meet expanding needs as development proceeds. Specific design information, required for design of producing facilities, is most effectively gathered in the course of early exploratory phases. From the foregoing, it is quite clear that the industry has already completed the required preliminary assessment of the physical marine environment of the Gulf of Alaska. Although more complete and detailed knowledge will be gained as offshore activity in the area increases, I am confident that sufficient knowledge is already available to permit operations to be conducted with safety to the environment and to personnel.

GULF OF ALASKA
MARINE PHYSICAL ENVIRONMENT

PRESENT KNOWLEDGE

FUTURE IMPROVEMENT

METEOROLOGICAL AND PHYSICAL OCEANOGRAPHIC MEASUREMENTS

BY SHIPS OF OPPORTUNITY
- WEATHER
- SHIP'S DRIFT

BY OCEANOGRAPHIC SHIPS
- SEA WATER DENSITY
- CURRENTS

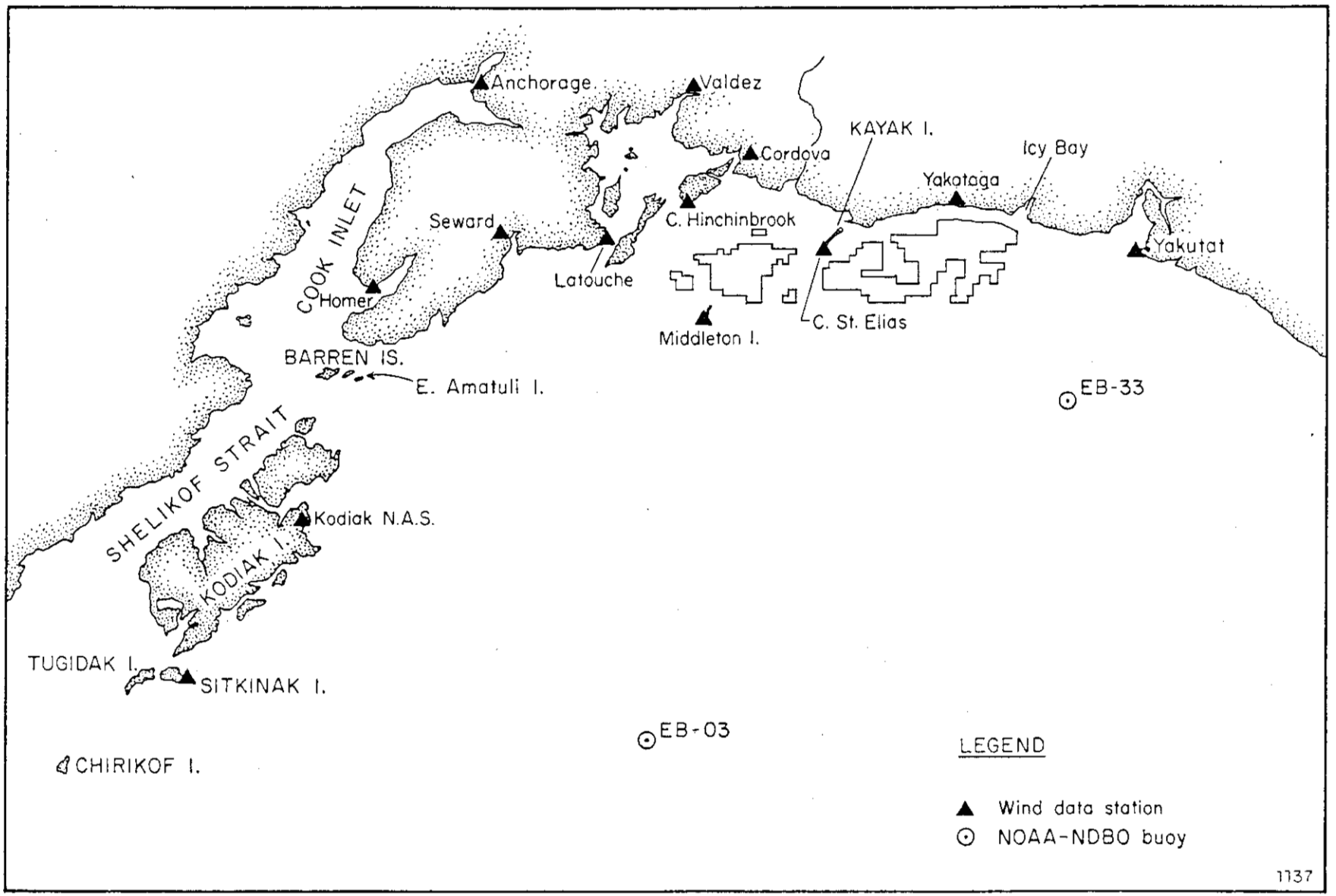
AT AIRSTRIPS, LIGHTHOUSES AND HARBORS
- WEATHER
- TIDE
- SEA TEMPERATURE

BY INSTRUMENT BUOY SYSTEMS
- WIND, AIR AND WATER TEMPERATURES, BAROMETER
- WAVES
- CURRENTS

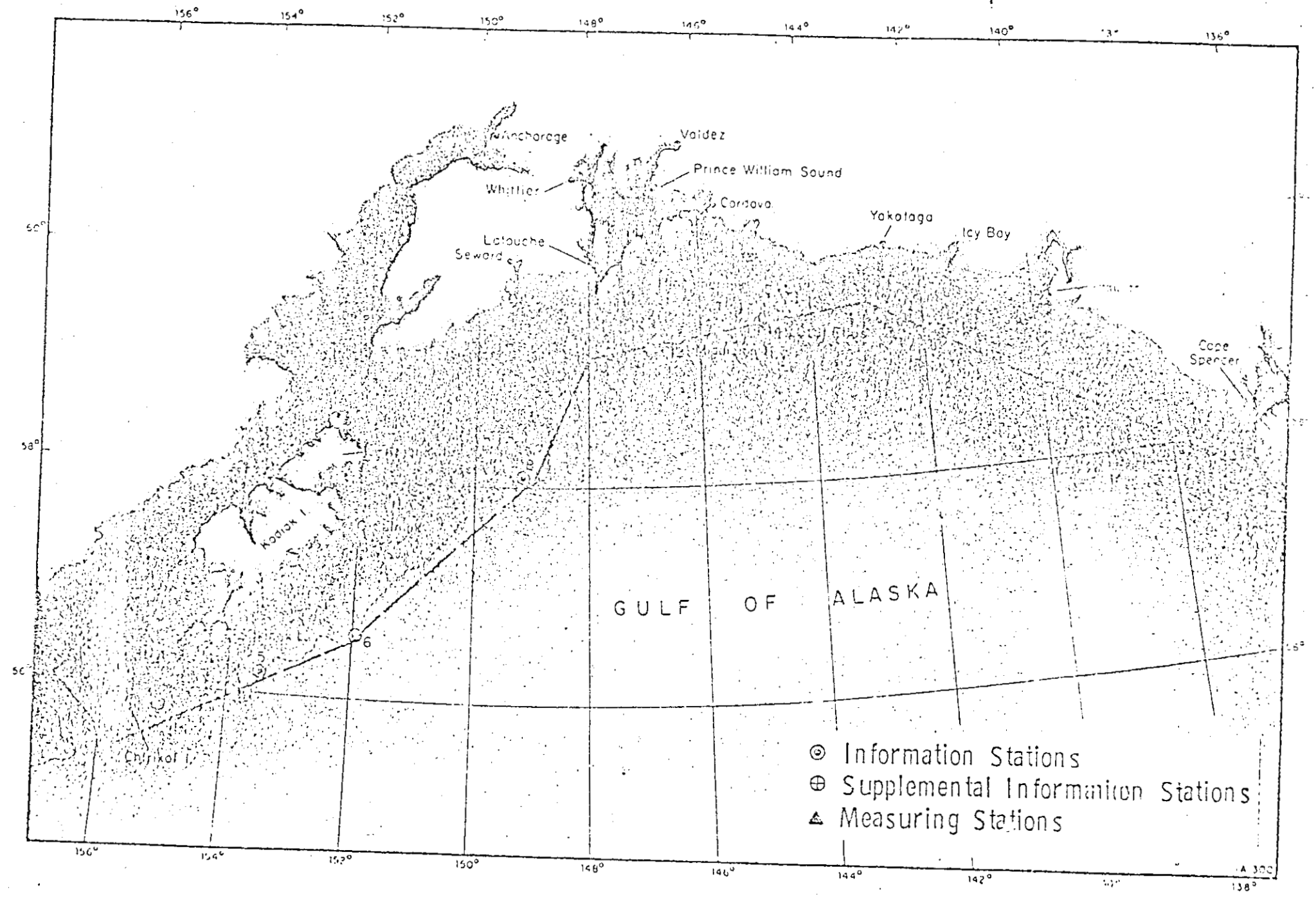
BY UNDERWATER SENSOR CABLED TO SHORE RECORDER
- WAVES
- TSUNAMIS

BY SATELLITES
- CLOUD COVER
- SEA TEMPERATURE

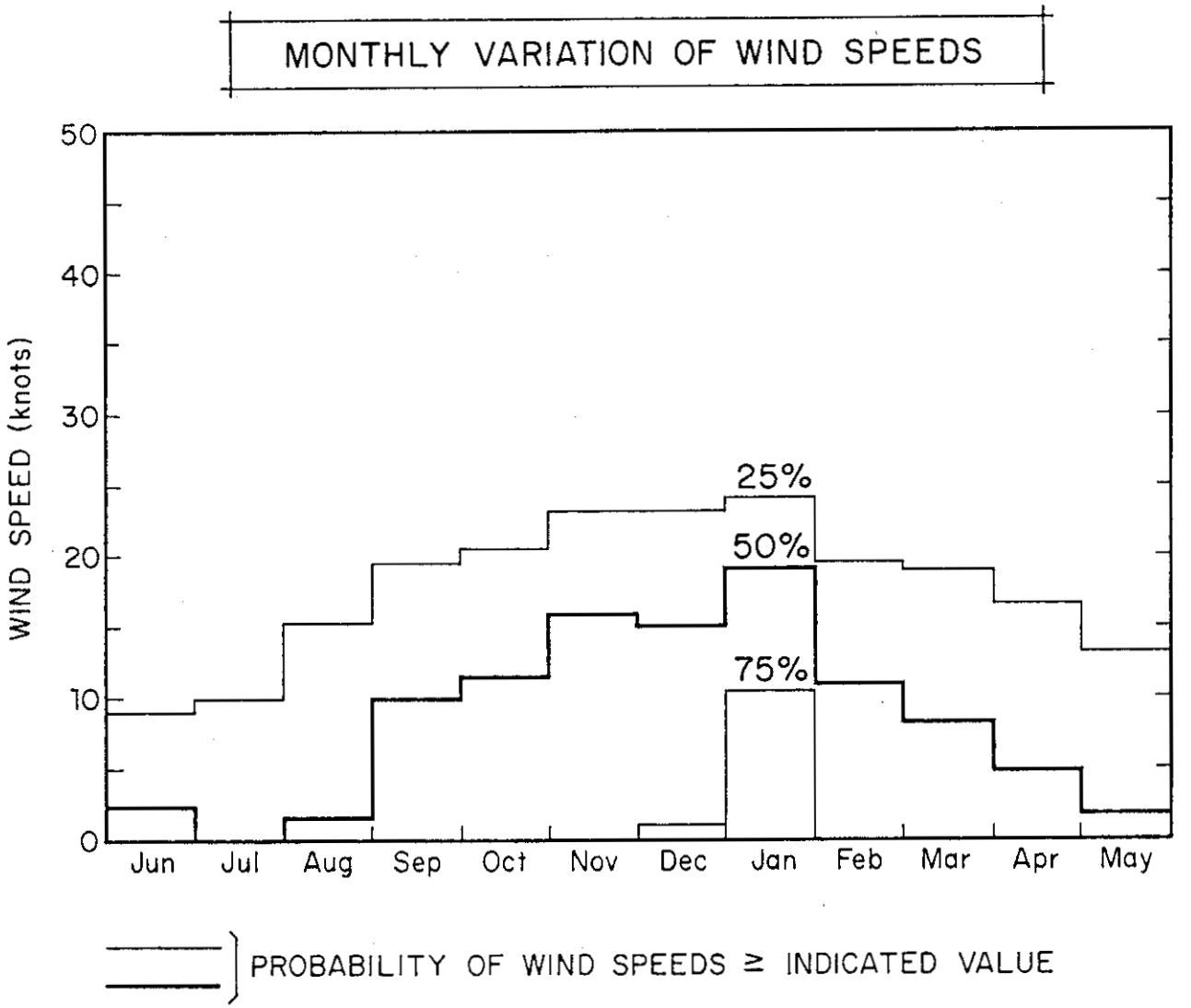
WIND DATA STATIONS

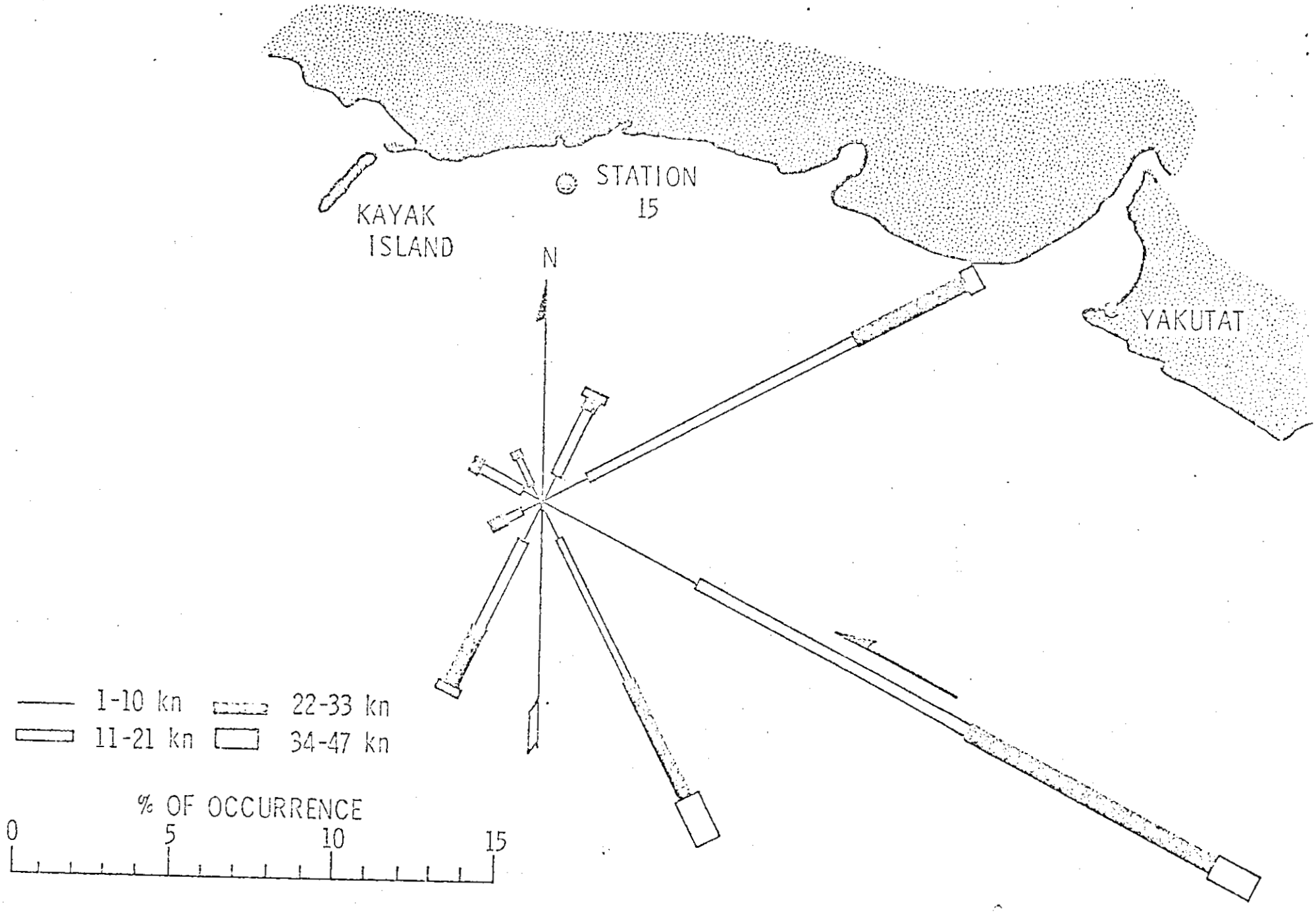


LOCATION MAP FOR STUDY AREA AND VICINITY



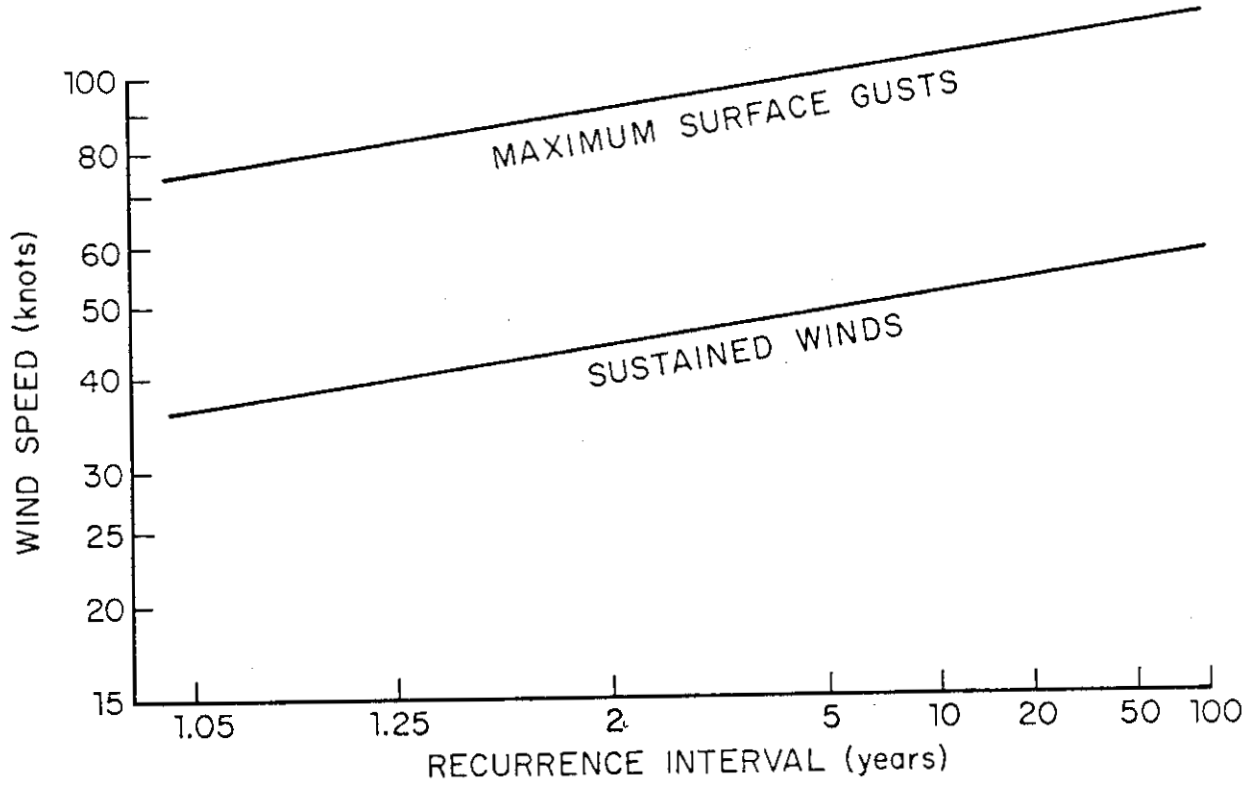
SLIDE 4


MONTHLY VARIATION OF WIND SPEEDS
WIND SPEED (knots)
50
40
30
20
10
0
25%
50%
75%
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
PROBABILITY OF WIND SPEEDS ≥ INDICATED VALUE

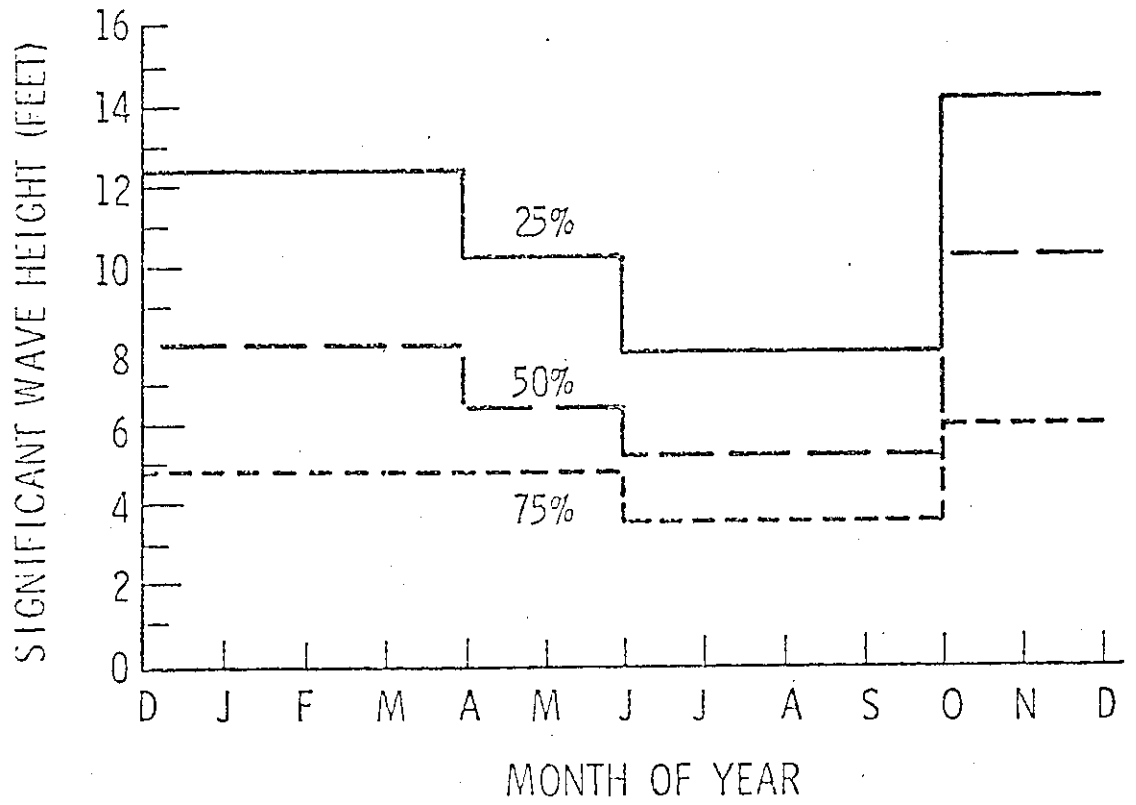


WIND DISTRIBUTION AT STATION 15 IN WINTER

RECURRENCE INTERVAL OF WINDS

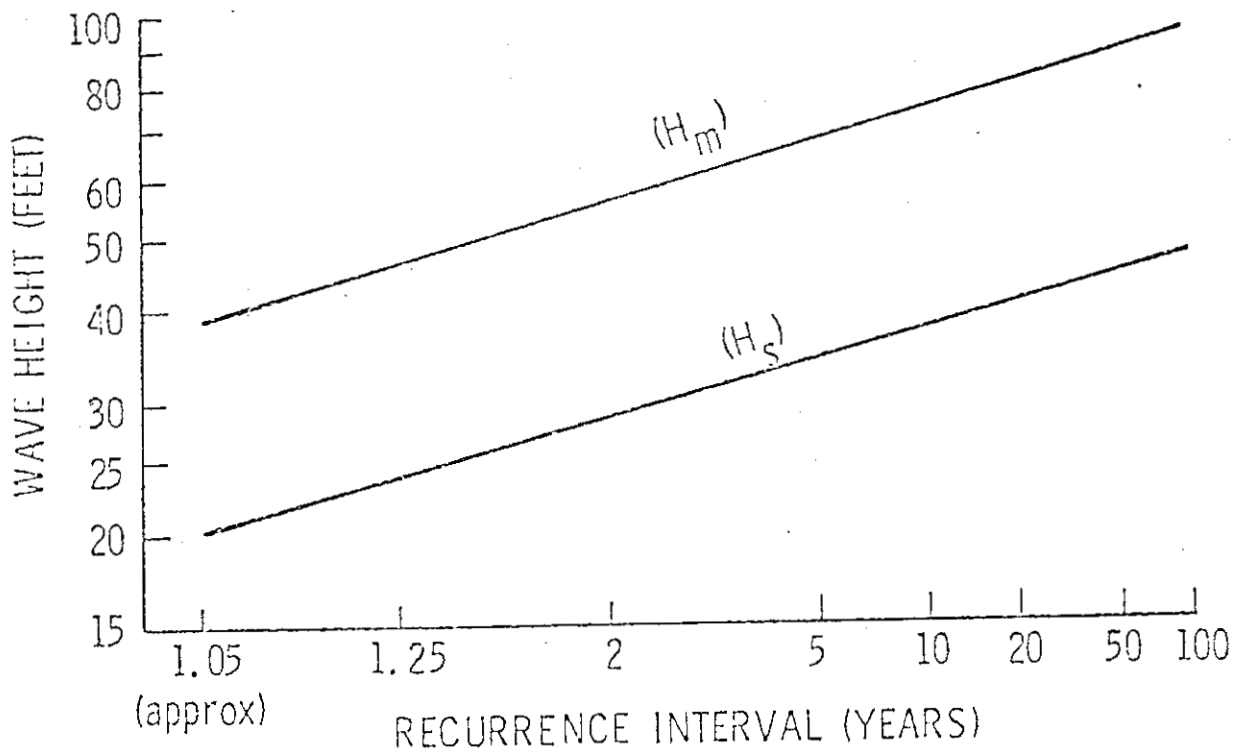


SEASONAL VARIATION OF WAVE HEIGHTS

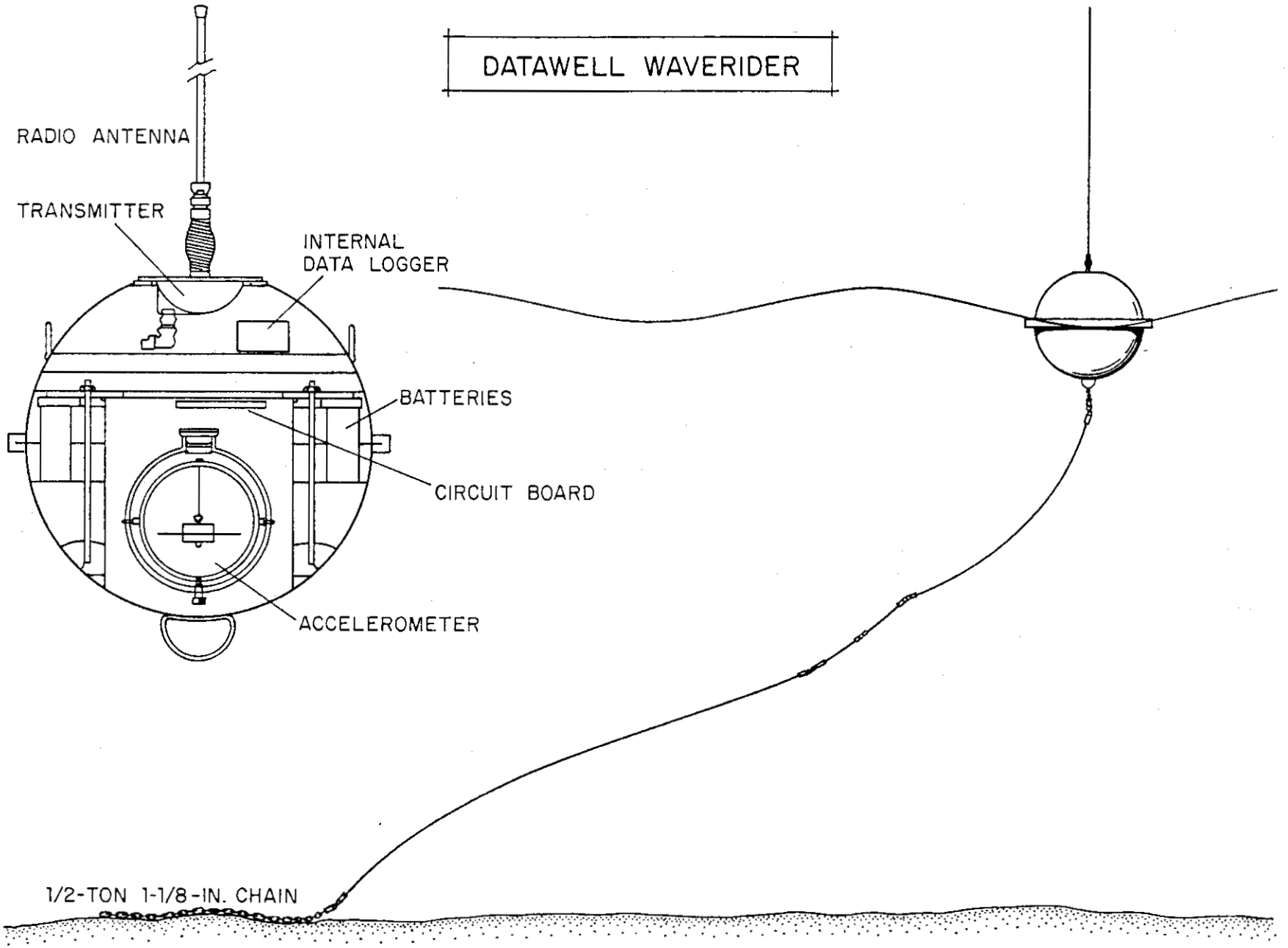


PROBABILITY OF WAVE HEIGHTS INDICATED VALUE

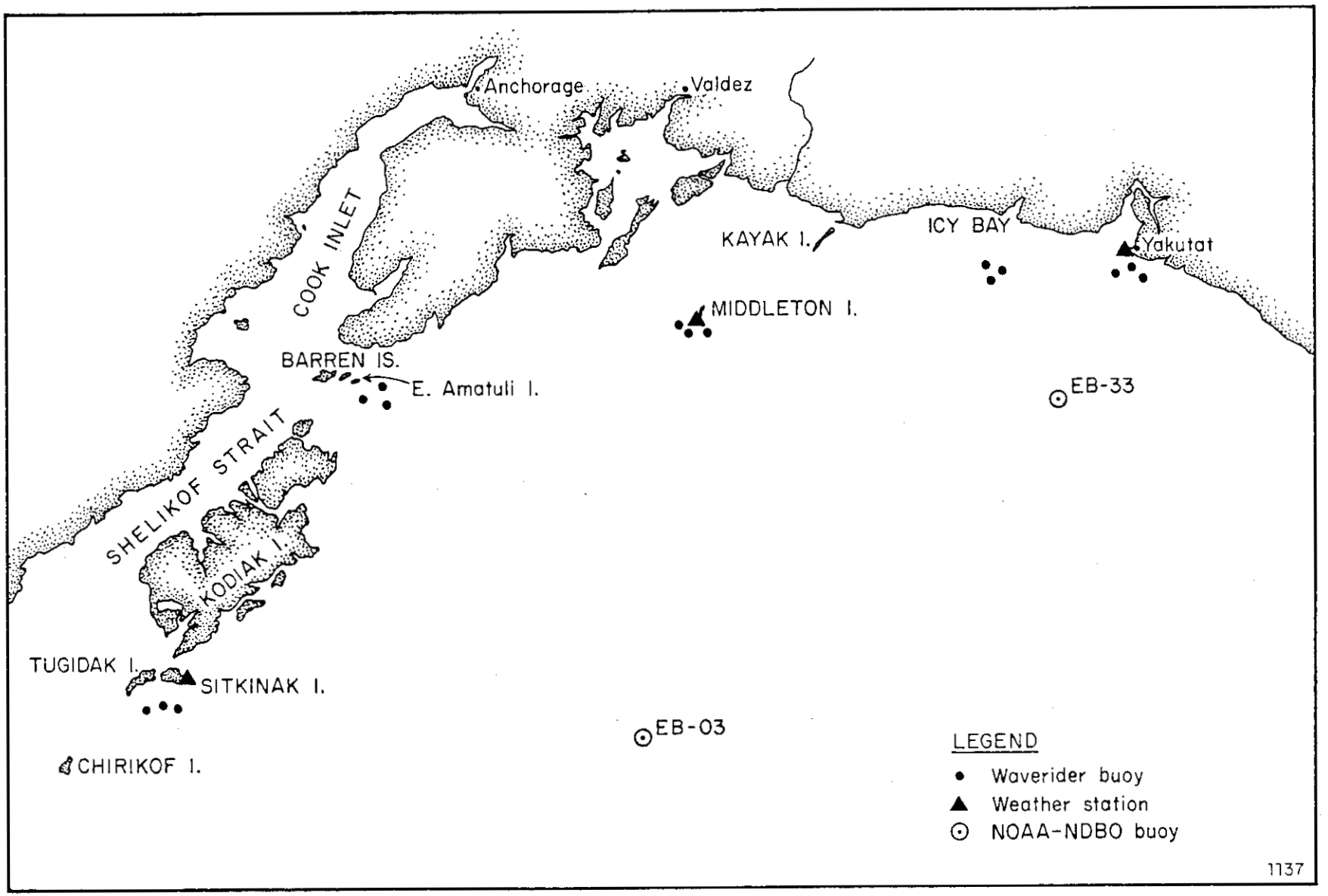
RECURRENCE INTERVAL OF SIGNIFICANT WAVE HEIGHT (H_s) AND MAXIMUM WAVE HEIGHT (H_m)



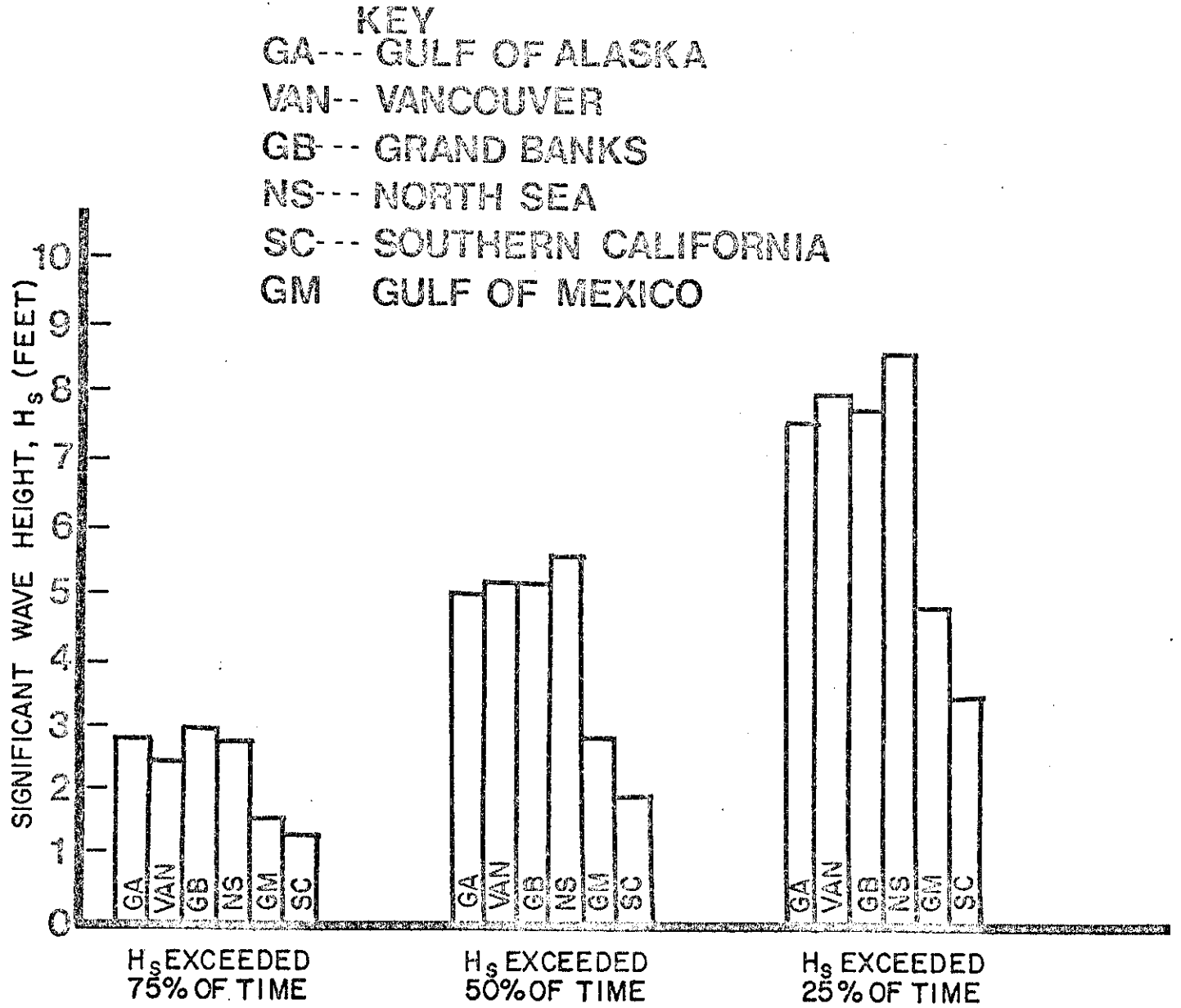
SLIDE

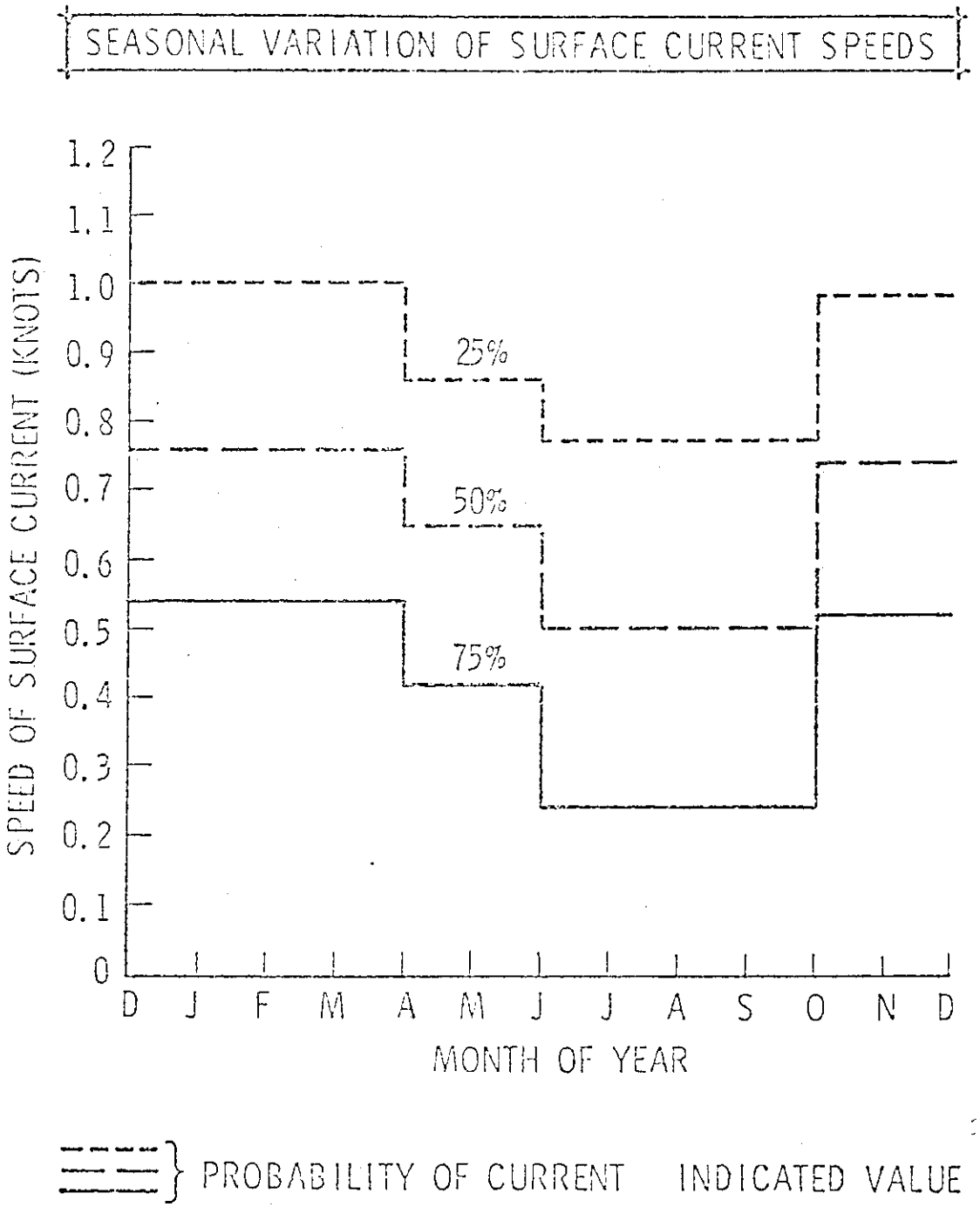

DATAWELL WAVERIDER
RADIO ANTENNA
TRANSMITTER
INTERNAL
DATA LOGGER
BATTERIES
CIRCUIT BOARD
ACCELEROMETER
1/2-TON 1-1/8-IN. CHAIN

GULF OF ALASKA
WAVE AND WIND MEASUREMENT PROGRAM



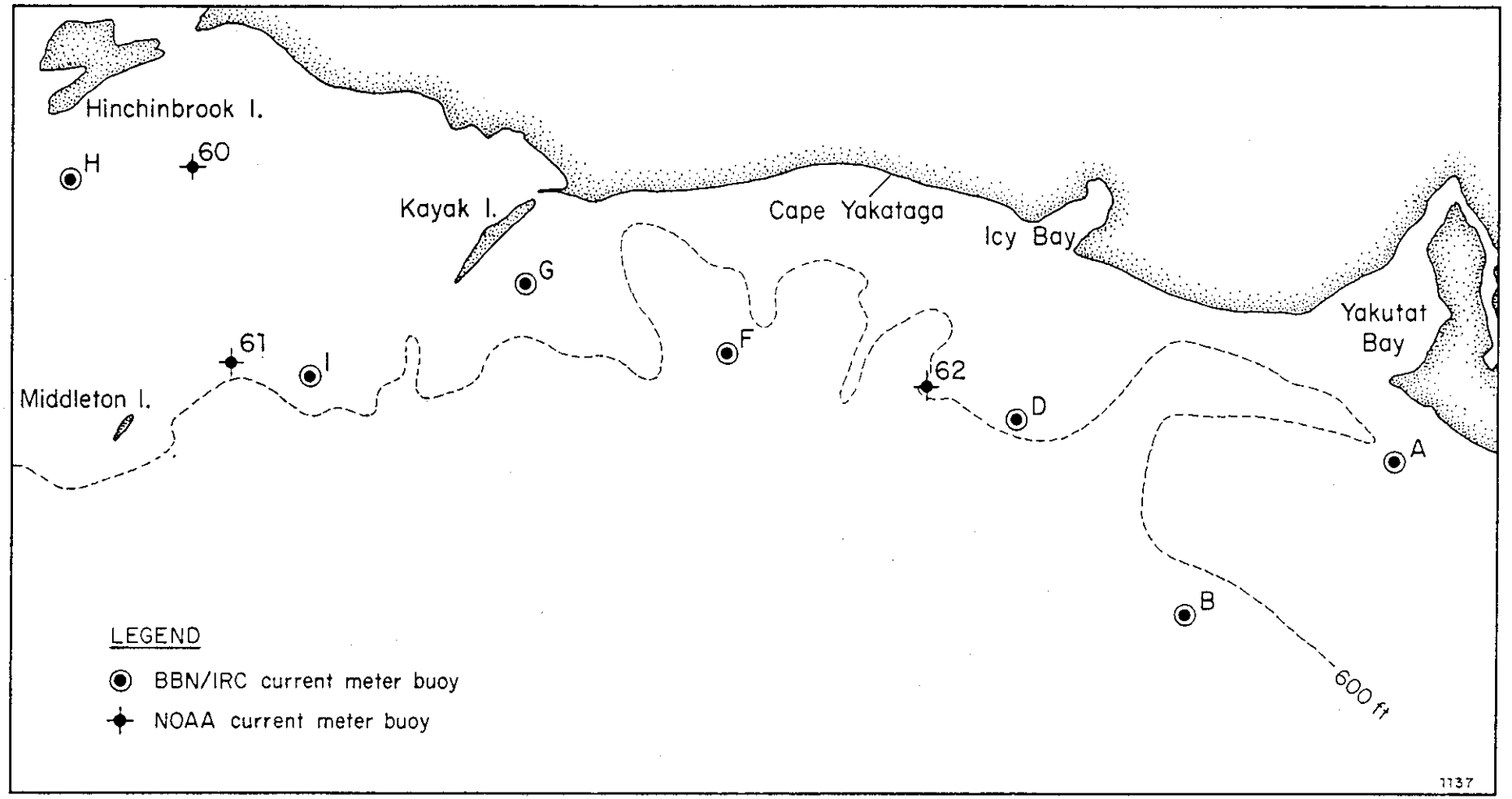
COMPARISON OF WAVE HEIGHTS IN VARIOUS OPERATING LOCATIONS



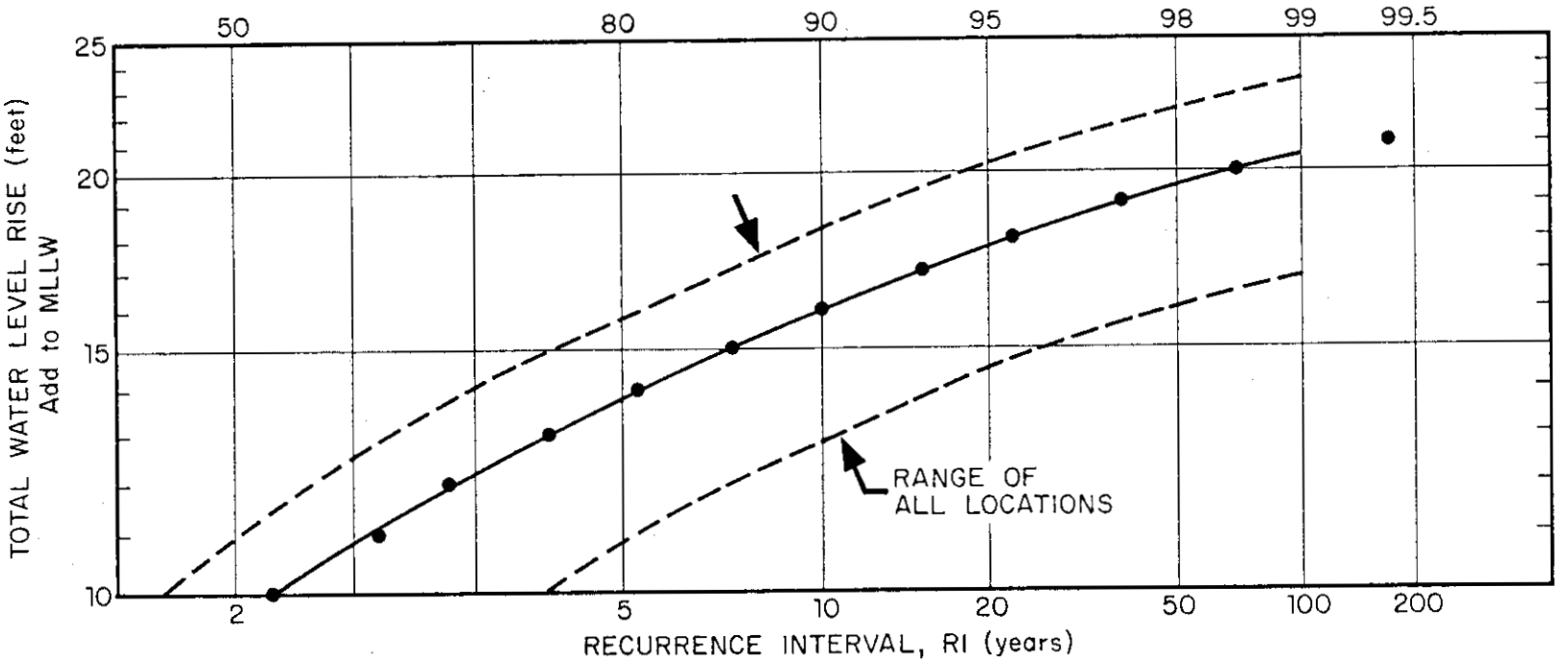

SEASONAL VARIATION OF SURFACE CURRENT SPEEDS
SPEED OF SURFACE CURRENT (KNOTS)
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
25%
50%
75%
D J F M A M J J A S O N D
MONTH OF YEAR
PROBABILITY OF CURRENT INDICATED VALUE

SLIDE

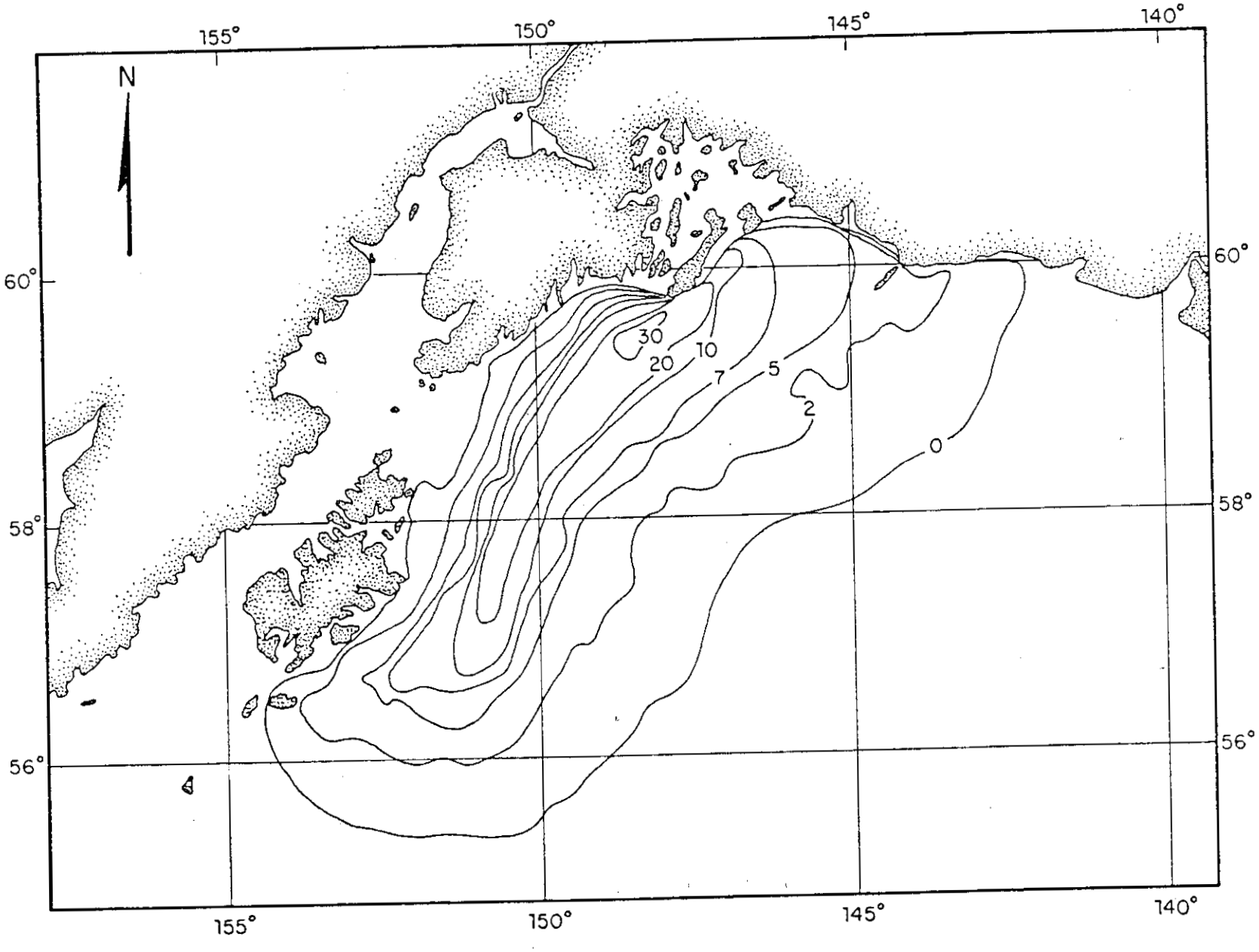
GULF OF ALASKA
CURRENT METER MEASUREMENTS



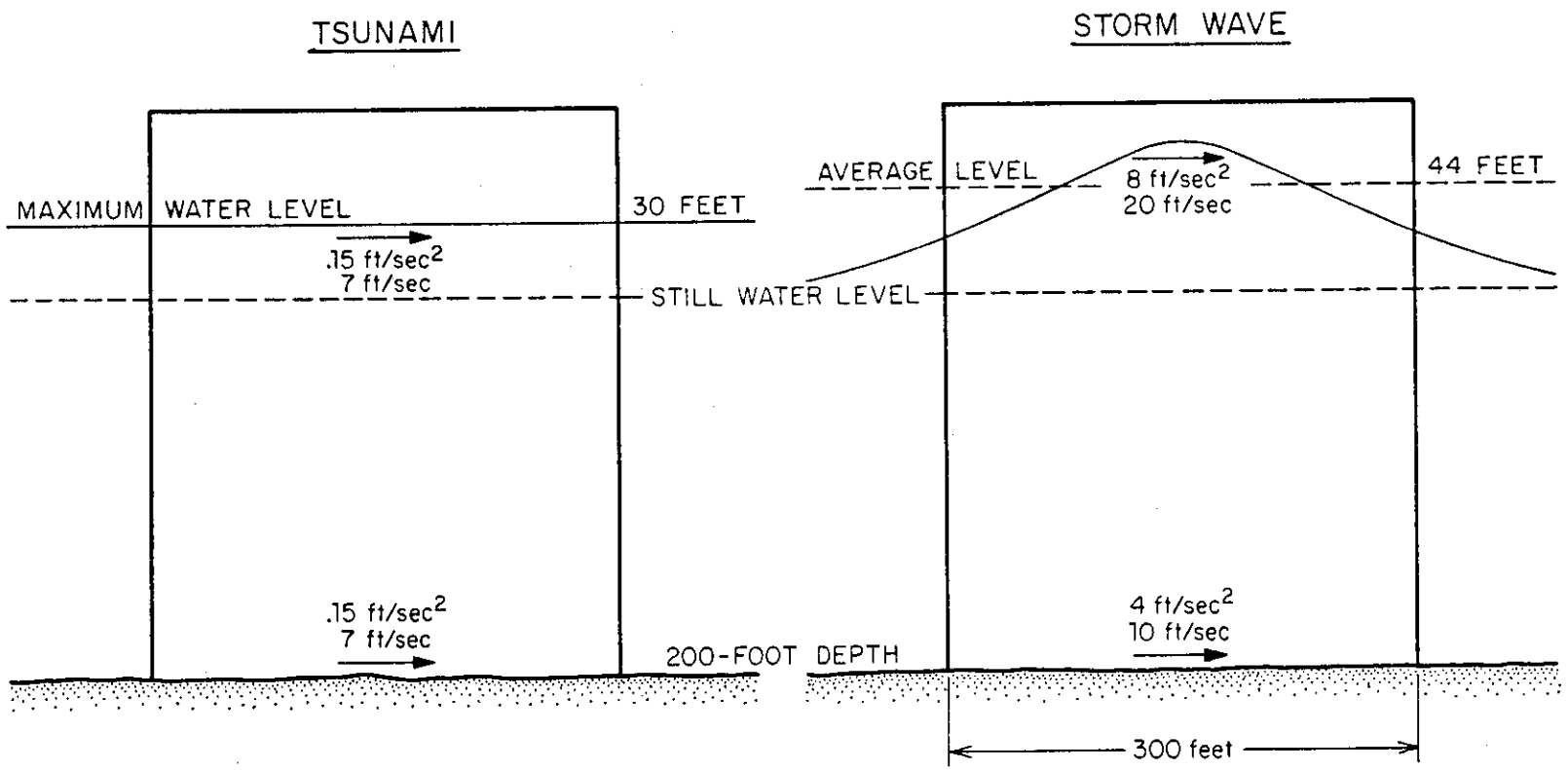
COMBINED WATER LEVEL ELEVATION DUE TO ASTRONOMICAL & STORM TIDE



COMPUTED MAXIMUM 1964 TSUNAMI ELEVATION (feet)



COMPARISON OF TSUNAMI AND STORM WAVE



SHERMAN H. CLARK ASSOCIATES
Menlo Park, California 94025

Statement of
Sherman H. Clark

Before the
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Hearing on
PROPOSED OIL AND GAS LEASING ON THE OUTER CONTINENTAL SHELF
Northern Gulf of Alaska

Anchorage, Alaska
August 12-13, 1975

THE NEED FOR PETROLEUM SUPPLY FROM THE GULF OF ALASKA

My presentation deals with three questions relating to the potential development of Gulf of Alaska oil and gas resources: is there a basic need for this supply, what are the hazards in delaying the development, and is it desirable to forestall development until a national energy policy is prepared?

THE NEED

Let me begin with the need, which is primarily a national issue. There are five components to the analysis: (1) outlook for domestic oil and gas production from existing sources, (2) the requirements for all energy, (3) the availability of other sources of energy, (4) resulting demand for petroleum, and (5) the implications of relying on foreign oil supplies.

1. Existing Sources

Domestic oil and gas production have both been declining for several years, and combined 1975 production will be down about 10% from the peak output. A downward trend is a near certainty to 1980. Excluding Federal OCS and all Alaskan sources, there is virtually no hope that the slide in production can be arrested thereafter. With early access to every possible resource and adequate incentives, the highest output of oil and gas combined will be no higher in 1985-90 than today. The generally prevailing estimate calls for a reduction of about 15%, or about 25% below the early 1970s peak. These estimates are not exceptional; most of the published projections in the past year or so have been in the same range.

The conclusion is inescapable; Federal OCS production will offset or help to offset, the production decline in old fields; short of accelerating the exporation effort in all frontier areas such as the Gulf of Alaska, there is no way that U.S. oil and gas production will exceed the present level. We are accustomed to thinking that new

supplies imply an increase in total supply available, but this is not the case with U.S. oil and gas production.

2. Energy Requirements

The use of energy is related to the level and characteristics of economic activity. In the past 18 months, beginning with the Arab oil embargo, we have also learned that economic activity can be affected by energy availability.

Our economic projections have been influenced by the energy outlook as well as by the length and severity of the current recession, the degree of inflation in the recent past, the federal deficits and imbalance of payments, and the below normal business investment in this decade. In a deliberately conservative forecast, we estimate the growth rate in real GNP to be only 2.2% per year for 1973-80, but to increase to 3.8% per year in the 1980s. In comparison with the postwar trend through 1973, extrapolated to 1990, $4.6 trillion less GNP will be generated in 1974-90 under this forecast; that is equal to three year's total output at the current size of the economy and part of that loss is attributable to our energy problems.

The nation is using a certain amount of energy to support the present level of economic activity, just as it has in the past and will in the future. The past trend in total energy use per unit of GNP shows a decline at 1.2% per year from 1920 to 1954, but in the postwar period there has been virtually no change; that is, for every percentage increase in GNP, there has been an equal percentage increase in energy. There is no indication of any change in the relationship through the first quarter of 1975. However, we have assumed--again in a deliberately conservative manner--that commencing in 1976 the use of energy per unit of GNP will decline at 0.7% per year, equal to the average rate of change over 1920 to 1974. The decline in the ratio is assumed, in anticipation of price effects combined with the effect of conservation legislation. But there are a number of factors that will tend to offset any improvement in the energy-economic activity relationship:

- More energy is needed for energy intensive growth markets such as fertilizers and petrochemicals.

- More energy is needed for the steel industry, which will expand more rapidly than in the past 10 years.
- More energy is needed because stack gas devices and other means of improving the environment absorbs energy.
- More energy is needed because energy conversion such as coal gasification absorbs a large share of the energy input.
- More energy is needed to save energy, in producing insulation and other energy saving materials.
- More energy per unit of output will be required in energy production and mining in general because of lower grades of deposits in less accessible locations.
- In addition, remember that we are comparing the future with the past relationship in energy use and GNP. Consider the following comparisons:

  -- The power plant heat rate (or efficiency) will improve very little over the next decade, and far less rapidly than in the 1920-60 period. Higher efficiency of new plants tends to be offset by energy absorbed in scrubbers and other environmental equipment. Dieselization of the railroads increased efficiency by several orders of magnitude in the postwar period but that program is completed and future improvement will be limited.

  -- Electric power will continue to increase as a share of total energy. Electric power requires more energy input per unit of output than other energy and as stated, the efficiency is not expected to improve.

  -- The composition of economic activity will change very gradually; Services, generally considered to be non-energy intensive, will not increase as a share of GNP any more rapidly than in the past 20 years during which the energy-GNP relationship changed very little. Services will be adversely affected by the slower future increase in real disposable income and static to declining discretionary income. Moreover, Services in total is already the major component of GNP and by virtue of its large share, a rapid change in share is extremely difficult to achieve.

Combining the conservative economic forecast with an energy-GNP ratio trend that certainly appears conservative in the light of all the above factors, yields a growth rate for energy requirements of only 1.5% per year for 1973-80 and 3.1% per year for 1980-90. The low growth rate in energy use is heavily attributable to a low growth rate in economic activity. A concerted effort to achieve more rapid economic growth can be expected and may well prove to be successful; if so, energy requirements will be higher than forecast above, and this forecast should be viewed as realistic to low.

3. Availability of Other Energy

Nuclear power production is based largely upon scheduled additions through 1985 at least. The scheduled additions have been stretched out and reduced in the past year or two; if anything, the projected reliance on nuclear may be overstated because of further delays and possible cancellations. Nuclear power faces even stiffer resistance from environmentalist groups than does Federal OCS development. As a result, 10 to 13 years may be required from initiation of a nuclear project to initial operation.

Coal, despite its enormous resource base faces many constraints to rapid expansion of productive capacity. Output and use failed to increase in 1974 and there will probably be little increase in 1975. Scheduled additions to capacity amount to about 200 million tons through 1983 versus roughly 600 million tons currently, but as much as half the additions will only offset capacity that will close down because of exhaustion of the deposit or inability to meet Mine Safety Standards or environmental regulations. Additional expansion can be expected by 1983 as well as in 1984-90, but there are limitations to expansion that include environmental limits on sulfur content, delays caused by environmental hearings, problems associated with industrial conversion to coal, water availability for gasification plants, and potential limits to output in the western states that may be imposed by these states. The projected production by 1990, including coal for gasification and for exports, is in excess of 1.2 billion tons. This is not necessarily the upper limit, but it will be difficult to achieve a much greater level of output.

Geothermal capacity operating in 1980 is only that already scheduled, and will be extremely limited. While rather fantastic estimates of operating capacity in 1985 and 1990 have been made by reputable groups, this source of energy is also subject to constraints and extreme uncertainty:

- The level of R&D; the degree of success in such efforts and the timing.
- The success of exploratory activity.
- The location of new deposits in relation to the demand centers for this energy.
- The necessary incremental approach to expansion of capacity in any general location, caused by the unpredictable size of the resource available. In other words it is not practicable to install a large plant, for example, one with a 1,000 megawatt capacity. In Geyserville, a large geothermal resource, each new plant adds only 75 to 125 megawatts of capacity.

Solar energy is in an R&D stage that will last at least five years and probably 15 years or more. According to the FEA, there is at present no market for solar systems because they are not competitive; if they could be sold, manufacturers would provide the systems. For example, manufacture of high temperature solar energy collectors in 1974, at maximum Btu output, was equivalent to only 56 barrels per day of oil, largely financed by various research projects. As in any extensive R&D effort, the outcome and particularly the timing of any degree of success is extremely uncertain. The position taken in this study is that the market for solar systems will evolve gradually, will not commence before 1980, and will probably not be particularly significant until after 1990. To the extent that there is any use in the 1980s, the effect is anticipated in the lower rate of growth in conventional energy demand in the residential and commercial sectors.

4. U.S. Total Demand for Petroleum

After allowing for low economic growth, a steady improvement in the relationship between energy use and economic activity that is a substantial departure from postwar experience and questionable in magnitude,

and the practical availability of all other forms of energy that recognizes all the constraints on these sources, the overall demand for oil and gas combined for 1973-80 is only 0.3% per year, and 1.8% per year for 1980-90, and part of this is coal that has been gasified. But total gas availability from all sources is certain to continue to decline to 1980, and will most probably be lower through the 1980s than at present by 10% or more. The most optimistic assumptions as to deregulation and resource base would yield no higher availability than at the peak in 1973, while the low estimate adopted is not necessarily the lowest that may be realized. To offset the gas decline and meet overall growth in oil and gas requirements, oil demand will increase by several percent per year while domestic production declines.

Thus, the results of this conservative analysis show that, even with the fullest possible access to Federal OCS lands and all other promising hydrocarbon locations throughout the country together with adequate incentives, the nation will have to continue to rely on oil imports of increasing magnitude. Depending on the oil and gas resource base and the inevitable delays in achieving new production in Alaska, imports will increase from 6 million barrels per day currently to 9 to 12 million barrels per day in 1980 and 13 to 17 million barrels per day in 1990. At the present time, the prevailing opinion as to the oil and gas resource base favors the higher estimate of import levels in 1980-90 even though the high import estimates look unrealistic today.

5. Implications of Relying on Foreign Oil

U.S. oil imports from Canada reached a peak of 1.2 million barrels per day and have since declined, with the further Canadian government objective of gradually phasing out exports completely. The oil availability from the rest of the free world (excluding OPEC and related production in the Middle East) is distinctly limited; this portion of the free world is in such a substantial net deficit position on petroleum that the expected increase in local production can do no more than offset, or partially offset, the local increase in demand. Some countries within this category, should substantial oil production be achieved, may also

elect to join OPEC, which is assumed to provide the balance of the required supply; its availability is far from assured.

Based upon a free world energy balance that takes into account the net availability from the Soviet Bloc, the OPEC and related Middle East output is projected to increase from 31 million barrels per day in 1973 and 27 million barrels per day in 1975 to 32 million barrels per day in 1980 and 41 million barrels per day in 1990. This projected OPEC output assumes full availability of Federal OCS and all other U.S. oil and gas as well as nuclear power and other sources of energy. When economists declare that there will be a surplus of energy within the time period of this study, they assume that all of these sources will be available and that there will also be numerous discoveries of supergiant oil fields, but some of the same economists will then argue against the development of Federal OCS resources or other sources of energy. The discovery of supergiant fields, sufficient to alter the historical trend in the finding rate, is basically unpredictable. The past finding rate incorporates discoveries such as in the North Sea and the North Slope; if the future trend in the finding rate is to be substantially higher, such fields will have to be found with increasing frequency. Outside of OPEC, such a prospect is not supported by current evaluations of the resource base.

If new U.S. sources of energy are not made available and the U.S. economic growth projections of this study are not reduced, the need for OPEC production will be that much greater; instead of 41 million barrels per day in 1990, we could face a reliance on OPEC of 58 million barrels per day if OCS production and nuclear power are not permitted. Obviously, the less the U.S. energy production, the greater the world's reliance on OPEC. Extreme reliance on OPEC is not sound policy because of the lack of security of this supply, an already uncertain outlook as to the availability of the quantities required without full U.S. development, and potential economic distortions if the reliance is too extreme.

Of major significance with respect to excessive reliance on foreign oil, is the burden placed on the foreign exchange position of the United States. Sudden price increases by the OPEC in 1973 increased the adverse balance of payments of the United States. The weight of

economic opinion is that the sudden increase had much to do with the severe inflation of 1974. The measures taken to combat that inflation as well as the basic economic distortion induced in turn, have a great deal to do with our present economic recession and high unemployment rate. The more we are dependent on foreign oil the more we are exposed to similar and indeed more severe shocks of the same sort. Gentlemen, the need clearly exists.

DELAYING DEVELOPMENT

The second question to be considered is that of delaying development. When there is a demonstrated need for oil and gas from the Federal OCS now, when there is every indication that the resource exists, when the technology is available to develop the resource, and when industry is considering investing to find and produce the oil and gas, should development be delayed? It has been argued that oil and gas are too precious to use them for their Btu content, and that development of the Federal OCS resources should be delayed until their use can be restricted to such valued uses which are generally characterized as the production of materials (i.e., petrochemicals) as opposed to heat and other forms of energy. It has also been argued that a delay of a few years is necessary for planning purposes.

There are substantial net economic benefits to the development of OCS production. Any delay, even for a few years, cannot be made up later and will reduce those benefits in constant present dollars as well as incurring greater risk of inadequate energy supplies over a longer period of time. There is a high degree of risk involved and the potential consequences are even lower economic growth and higher unemployment than have been incorporated in this study. In evaluating the consequences, rather than isolating the analysis to one source such as the Gulf of Alaska, all challenged new sources should be combined together; the reduced domestic supply of 2 to 7 million barrels per day equivalent in 1985 and 5 to 12 million barrels per day equivalent in 1990 entails high risks amounting to $100-$300 billion (1975 dollars) per year of reduced GNP rising to $250-$600 billion per year by 1990; the related unemployment is in the millions of people, at the extreme in excess of 20 million.

As for the long term delay, the same arguments are applicable. In addition, the concept that oil is too precious to use for thermal value fails to consider the potential use of coal--our abundant energy resource--for the production of chemicals and other materials.

WAITING FOR A NATIONAL ENERGY POLICY

The third question deals with delaying development until a national energy policy has been adopted. But desirable as a national energy policy may be, it cannot alter the basic facts of energy supply and demand described earlier. Energy and economic activity are so interrelated that an energy policy literally requires an economic plan, introducing many uncertainties and extreme controversy. A complete national energy policy may never be developed. In any event, no policy or portion thereof has any chance of acceptance if it is predicated on low economic growth, high unemployment, or no increase in real disposable income. No policy can create onshore oil and gas resources that do not exist, or bring on new resources held back by legal or environmental hurdles, or make new technology and capital instantly available.

The probable elements of a national energy policy have been anticipated in the earlier analysis--conservation legislation, rising real prices for energy, and encouragement in the development of all energy resources. But a policy cannot change the alternatives to Federal OCS development--either greater reliance on oil imports or a lower economic growth rate. Delaying development until a national energy policy is available will help to defeat the potential success of such a plan, because the domestic energy supply is needed now.

CONCLUSION

Developing Federal OCS resources will result in substantial net economic benefits in itself. Additionally, this development will help to support the nation in expanding the economy and creating additional jobs for an already known increase in the labor force. The alternative is lower economic growth and greater unemployment--measured in millions.

These resources should be developed as quickly as possible, in order to arrest a continuous decline in U.S. oil and gas production and to achieve a reasonable regional balance in world oil supplies. There is no economic or energy policy justification for any delay.

(7) PP 7, 10

Testimony of John H. Silcox

Vice President and General Manager - Exploration
Standard Oil Company of California,
Western Operations, Inc.

On Behalf of Gulf of Alaska Operators Committee

At the Department of Interior, Bureau of
Land Management Hearings
On the Draft Environmental Impact Statement
For Outer Continental Shelf Leasing
In the Northern Gulf of Alaska

Anchorage, Alaska - August 12, 1975

My name is John H. Silcox. I am a geologist and Vice President and General Manager of Exploration for Standard Oil Company of California, Western Operations, Incorporated.

My company has been an active oil operator in Alaska since the late 1950's and during my career, I have been pleased to live and work in Anchorage for several years. As a result, and because of my present responsibilities, I am thoroughly familiar with the history and ongoing development of petroleum exploration in Alaska and its offshore waters.

My testimony today is on behalf of the Gulf of Alaska Operators Committee, a 28-member group of oil and gas companies engaged in exploration and environmental studies of the Gulf of Alaska.

Later in this hearing, others will offer statements on virtually every aspect of exploration, development and environmental assessment of offshore areas. They will outline the extensive efforts the oil industry is taking to minimize or eliminate entirely <u>any</u> potentially adverse environmental impact as a result of offshore operations.

My own comments will be limited to a document entitled "OCS Oil and Gas---An Environmental Assessment." This is a report to the President by the Council on Environmental Quality dated April 18, 1974. At this time, I would like to enter into the hearing record a volume entitled "Oil Industry Comments on the CEQ Report."

This volume contains detailed references to various parts of the CEQ Report, far more extensive than I can possibly cover in my brief comments. I urge your careful consideration of these observations.

First, let me say the oil industry recognizes that the CEQ---because of its presidential mandate---had only a short time to prepare its report on what is an exceedingly complex and controversial subject. We also recognize that the Council did not have the benefit of a technical staff with the scientific expertise to produce a definitive study.

Despite this, the CEQ Report has become to some <u>the</u> final "authority" on environmental issues associated with oil and gas operations in the Gulf of Alaska. It is erroneously regarded as a scientifically complete and objective appraisal. And it is often cited as a reference,

especially by those seeking to delay leasing of the Outer Continental Shelf for oil and gas exploration. Unfortunately, it is neither complete nor objective.

Because of this, we believe it is imperative to offer this critique on the CEQ Report and some of its findings. And we appreciate this opportunity to present our views at this hearing.

Our comments are necessarily critical of the report, its lack of scope in certain instances and the false impressions it can convey to the uninformed reader who is not familiar with technical subjects. But we believe our comments are constructive suggestions for improvement. We hope they will be carefully considered in the sincere spirit in which they are offered.

We respectfully request and we trust that our comments and our documented presentation will receive fair and objective consideration in the final Environmental Impact Statement on the Gulf of Alaska.

The CEQ Report does contain a number of constructive recommendations which have been accepted and implemented--- a fact not widely known, especially among oil industry critics.

But those of us who have spent years in oil development and environmental assessment find we must strongly disagree with much of the CEQ Report.

The petroleum industry has spent more than $2 million on numerous scientific studies of the Gulf of Alaska. These studies represent the most comprehensive environmental assessment of the possible impact of oil and gas operations ever conducted in any non-producing area in the world.

This involved years of effort and the talents of some of the most knowledgeable experts ever assembled. The studies were conducted with great care and at great expense. Petroleum industry witnesses appeared and testified extensively at the hearings conducted by the Council.

Yet their testimony, the supporting documentation and the comments made by petroleum industry witnesses were given little consideration. In fact, this mass of material and expert comment was <u>virtually ignored</u> in the final report.

As a result, the CEQ Report falsely implies that oil and gas development in the Gulf of Alaska is an unreasonably high environmental risk operation. Yet if this factual data had been reflected properly in the final draft, we believe it would clearly demonstrate the shortcomings of the CEQ Report and offset this false impression.

One conclusion in the CEQ Report which greatly concern the petroleum industry is the arbitrary "ranking" of the 17 OCS areas in terms of environmental "risk." The report purpor to classify the Gulf of Alaska as a high environmental risk for oil and gas exploration.

Apparently, this "ranking" is based on three general concerns: Oceanographic conditions, seismic hazards and the Gulf of Alaska's geographic location---an area of major ecological interest.

In all development by man, whether of oil or any other commercial endeavor, there is some degree of environmental risk. Yet in evaluating this potential risk, great care must be made to clearly distinguish between real threats to the environment and subjective judgments that simply prohibit any proposed development.

If this had been done, we do not believe oil exploration in the Gulf of Alaska could reasonably be classified as an area of high environmental risk.

Even the term "risk" must be properly defined if it is to offer any meaningful assistance to an environmental assessment of the Gulf of Alaska. Nowhere was this done in the CEQ Report.

Everyone here "risked" the prospect of being hit by a falling meteorite on the way to this hearing. Yet the probability of being struck by a falling meteorite is so remote that this particular "risk" is almost non-existent.

By failing to make such measured distinctions, the CEQ Report leaves a clear impression that anything labeled as a "risk" must indeed be "risky" or even unacceptably "hazardous."

This is simply not true.

To rank the Gulf of Alaska on the high end of an environmental risk scale and the Eastern Georges Bank at the low end is an arbitrary judgment. It totally ignores the fact that for both areas, based on past oil industry experience, there is a very low probability of any major or permanent environmental damage from drilling and production activity.

Furthermore, to be useful, the concept of "risk" of environmental damage must be considered on a larger scale of risk evaluation---giving proper weight to all available options the U.S. has to develop the additional energy it must have. Everyone is well aware of the potential long-term energy crisis confronting the United States.

We import 40 per cent of the petroleum we use and the gap between domestic production and demand grows wider each year. It aggravates the balance of payments problem; it seriously impairs the nation's ability to recover from the worst recession since World War II. Increased dependency on foreign sources of petroleum is clearly not in the national interest. Because of this, it is the declared policy of the Federal government to encourage and hasten domestic oil exploration, particularly in the promising offshore areas.

Chronic long-term energy shortages could cause widespread unemployment and severe hardships that would create massive social and economic problems. Clearly, the "risk" of exploring for oil in the OCS is more than offset by the economic risk of not vigorously trying to become more self-sufficient in energy.

Viewed in this context, as part of the overall economic, ecological and social environment, any reasonable observer must conclude that oil and gas exploration offshore, including the Gulf of Alaska, is clearly acceptable and necessary.

Too often, excessive environmental restrictions have simply ignored economic needs. The delay in the Alaska pipeli project is an example. Yet, to the individual citizen, a job, a paycheck and energy to heat and light his home and fuel to run his car are critically important. They are part of his total environment, and must be considered, too.

Major Short-Comings of CEQ Report

Because of limited time, I will briefly outline the major shortcomings we find with the CEQ Report. But I will be happy to respond to any questions at the conclusion of this summary.

First, the CEQ Report gives little notice to the sweeping technical advances the oil industry has achieved in offshore drilling the past 25 years. It virtually ignores the research programs carried out in the Gulf of Alaska by the petroleum industry, the testimony we presented, and the several boxes of documentation entered into the record. The final report contains only one or two minor references to this research.

By way of contrast, the environmental community offered rhetoric rather than scientific fact, and yet their philosophy permeates the entire fabric of the CEQ Report.

The U.S. industry leads the world in petroleum technology. It has explored, found and developed almost all the Free World's oil reserves, including the latest major offshore area---the North Sea. Except for seismic activity, environmental conditions in the North Sea are slightly more severe than in the Gulf of Alaska.

Yet the oil industry has constructed offshore platforms, drilled, and placed sub-sea pipelines into operation. Today, the North Sea is producing oil and gas with no significant detrimental impact on the marine environment.

The result has been tremendously beneficial for the economic environment of neighboring nations. The United Kingdom expects to be self-sufficient in oil and gas in the early 1980s and Norway plans to become an oil exporter. Previously, both those nations had been almost totally dependent on foreign oil.

Secondly, a disturbing part of the CEQ Report is the superficial treatment it gives to complex technical subjects, with insufficient documentation. The report uses language which exaggerates and overstates potential environmental damage.

The use of such words as "devastate," "chaos," and "massive changes" in describing the potential impact of oil operations strongly suggests a bias against petroleum development and clearly demonstrates a lack of scientific objectivity in assessing environmental questions.

In many instances, the overall impression given by the report is a wholly unwarranted skepticism toward the oil industry and its sincere and positive efforts to act responsibly, to fully comply with all environmental safeguards.

Thirdly, great emphasis is placed on the spill trajectory probability forecasts conducted by the Massachusetts Institute of Technology. Yet the MIT calculations are misleading in several crucial respects.

They make no allowance for the established fact that oil spilled in the ocean evaporates, biodegrades, emulsifies and disperses---within relatively short periods of time---so any spill is diluted to a degree that harmful effects are eliminated or greatly minimized.

Nor do the MIT calculations allow for the fact that the industry makes every effort to contain and prevent spilled oil from coming ashore. Indeed, Federal regulations already require equipment and containment plans in all offshore producing areas.

Fourth, the CEQ Report grossly overstates the effect that oil operations in the Gulf of Alaska will have onshore, both here and in the Lower 48 states.

For example, the CEQ predicts that more refineries and petrochemical plants will be required on the West Coast because of OCS oil. This is untrue. The growth of refineries is caused by demand for refined products in a particular region, not by the presence or absence of oil production. The production of OCS oil will simply substitute domestic oil for part of the foreign crude now being processed by West Coast refineries.

The only significant onshore effects will be from those required to support offshore operations---including boat landings, heliports, staging areas, offices and possibly oil and gas treating facilities. Even this may not be required in all cases because it may be an advantage to store and ship some oil from offshore facilities.

Fifth, in another reference, the report mentions potential health hazards and makes mathematical forecasts of additional hydrocarbon emissions near U.S. refineries. But it does not document this finding.

If it had, the authors would have discovered that in areas they mentioned, hydrocarbon emissions from refinery operations are strictly controlled now---by rigid state, local and Federal regulations. Clearly, this type of undocumented and incomplete presentation to a non-technical audience imparts an exaggerated and erroneous impression of onshore effects of OCS oil development.

The CEQ Report could have been more useful and accurate if it had studied these subjects in more depth and if it had at least considered the testimony by the petroleum industry.

But there is one onshore impact mentioned by the CEQ with which we do agree: OCS oil production will provide substantially increased employment opportunities---in the Lower 48 and in Alaska.

Sixth, I must criticize the Council's superficial discussion of natural phenomena and the design technology that has been developed to minimize problems caused by natural phenomena.

Other witnesses will discuss these topics in detail, including oceanographic conditions, the effect of winds and waves, earthquakes and design practices. Here again, the CEQ has ignored the considerable factual data and information presented by the Gulf of Alaska Operators Committee. In several instances, ocean conditions presented by the oil industry differed from those cited by the CEQ. But the Council did not list its sources, nor the geographic location of the data it cites.

There are several misleading statements on the oil industry's technical ability. An example: An uninformed reader scanning the CEQ Report would get the clear impression that modern engineering is incapable of designing structures to withstand earthquakes. But such structures are being constructed in active seismic zones throughout the world.

Further, in discussing offshore operations, the report should have noted that the farther away you get from an earthquake fault or epicenter, the less potential there is for damage or even ground motion.

Much of the lease sale area in the Gulf of Alaska is located sufficiently distant from significant faults that the potential for severe ground motion is sharply reduced.

The report should have at least acknowledged that millions of people in the world live in active seismic regions---in Japan, California, Alaska, down the West Coast of South America and into the Middle East. To suggest that development of any kind should be prohibited in these areas because of seismic hazards is absurd. What is needed is to design structures to withstand and minimize potential damage. That is already being done in the U.S.

Seventh, the discussion of tsunamis in the Council's report also leaves a reader a false impression of their overall severity and potential for damage. The main threat from wave actions caused by seismic activity is to onshore installations---berthing facilities, docks and things of this sort. This is recognized.

But in the open sea---where much of the oil operations in the Gulf of Alaska would take place---the impact of most tsunamis would probably go unnoticed.

The Council's report makes only passing reference to the oil industry's technological accomplishments in Cook Inlet where since the early 1960's, when petroleum production activities commenced, there have been no serious structural failures or damaging oil spills.

Drilling platforms in Cook Inlet have withstood year batterings by 3 to 4 feet of ice moving at five knots or better, and tides whose range is among the highest in the world. These platforms have also experienced an earthquake measured at a magnitude of 6.5 on the Richter scale.

Eighth, as a final item of this critique, we believe the CEQ Report should have placed more importance on the oil industry's experience in offshore drilling in the Gulf of Mexico. The industry has drilled and produced offshore in the Gulf of Mexico for a quarter of a century. There has been extensive operations in all weather, even under storm conditions in an area noted for hurricanes. Yet the oil, fishing and other industries have operated harmoniously together over all that period of time.

There has been no evidence of lasting harm to the environment nor to marine life from offshore oil operations.

The Offshore Ecology Investigation conducted by Gulf Universitie Research Consortium contains factual data on the ecological health of the Gulf of Mexico. Despite this documentation, this harmonious operation of the oil industry with fishing and other marine activities is not reflected in the CEQ Report.

In summary, we believe many parts of the CEQ Report give an imprecise picture of the Gulf of Alaska environmenta assessment, a false picture of the industry's ability to design safe structures for the Gulf of Alaska, and an erroneous impression of the onshore impact of leasing OCS lands in the Gulf of Alaska.

The oil industry believes its input to the CEQ Report was not adequately considered or reflected.

With this presentation and the written documentation we have offered, the industry has tried to put the CEQ Report in its proper perspective.

We earnestly trust that the testimony being presented here today will be seriously considered and evaluated by those who prepare the final Environmental Impact Statement---and by those in the decision-making process regarding OCS leasing for the Gulf of Alaska.

Thank you. If anyone has any question----

* * *

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Oil Industry Comments on the CEQ Report

July, 1975

(14)

STATEMENT OF SAM L. DEMMERT

PRESIDENT

YAK-TAT-KWAAN, INC.

PRESENTED AT

HEARING ON DRAFT ENVIRONMENTAL STATEMENT

PREPARED BY

DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
OUTER CONTINENTAL SHELF
NORTHERN GULF OF ALASKA

AUGUST 12, 1975

GENTLEMEN, I AM PLEASED TO HAVE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY AND PRESENT OUR VIEWS ON THIS IMPORTANT SUBJECT DEALING WITH THE OUTER CONTINENTAL SHELF.

I AM THE PRESIDENT OF YAK-TAT-KWAAN, INC. WHICH IS THE VILLAGE CORPORATION OF YAKUTAT FORMED UNDER THE ALASKA NATIVE CLAIMS SETTLEMENT ACT. OUR STOCKHOLDERS MAKE UP WELL OVER ONE-HALF OF THE TOTAL POPULATION OF YAKUTAT -- BOTH INSIDE AND OUTSIDE THE CITY.

WE HAVE REVIEWED THE DRAFT ENVIRONMENTAL IMPACT STATEMENT PREPARED BY THE BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR ON THE OUTER CONTINENTAL SHELF, NORTHERN GULF OF ALASKA. THIS IS A VOLUMINOUS DOCUMENT OF ALMOST 1,000 PAGES. WE FIND IT MOST DIFFICULT IN THE RELATIVELY SHORT TIME AVAILABLE TO DETERMINE FROM THIS STATEMENT THE EXACT IMPACT ON THE YAKUTAT COMMUNITY IN AS MUCH AS ALL DATA FOR COASTAL COMMUNITIES ARE "LUMPED" TOGETHER. THE MANY PAGES OF STATISTICAL DATA ARE NOT RELATED IN PRACTICAL TERMS TO THE FACILITIES AND SERVICES NEEDED FROM THE PUBLIC AND PRIVATE SECTORS IN EACH COMMUNITY. SOME OF THE CONCLUSIONS ARE SO FAR FROM WHAT WE BELIEVE TO BE REALISTIC THAT THE CREDITABILITY OF OTHER SECTIONS OF THE STATEMENT ARE OPEN TO QUESTION. THIS IS PARTICULARLY TRUE IN THE LIGHT OF THE OIL

INDUSTRY STUDY ON SOCIAL AND ECONOMIC IMPACT DONE BY MATHEMATICAL SCIENCES NORTHWEST, INC. FOR THE GULF OF ALASKA OPERATORS COMMITTEE.

WE ARE ATTACHING TO THIS STATEMENT A COMPARISON OF A SUMMARY OF SOCIAL AND ECONOMIC DATA TAKEN FROM THE MATHEMATICAL SCIENCES REPORT AND THE DEPARTMENT OF INTERIOR'S DRAFT ENVIRONMENTAL STATEMENT. WE NOTE THAT THE GREATER EMPHASIS IS PLACED ON THE ANALYSIS OF THE LOWER OIL PEAK PRODUCTION ASSUMPTION OF 550,000 BARRELS PER DAY, ALTHOUGH AN ASSUMPTION AS HIGH AS 1.5 MILLION BARRELS PER DAY IS QUOTED. HOWEVER, FROM THE STANDPOINT OF EVALUATING THE IMPACT ON THE COASTAL COMMUNITIES WE FIND IT MORE DISTURBING TO LEARN THAT THE DEPARTMENT OF THE INTERIOR FEELS THERE WILL BE ONLY ONE ONSHORE TERMINAL FACILITY AND THREE OFFSHORE, WHILE THE GULF OF ALASKA OPERATORS COMMITTEE STATES THERE WILL BE A NEED FOR TWO ONSHORE AND NONE OFFSHORE. SIMILARLY, THE NUMBER OF OIL AND GAS FIELDS IS LISTED AS FIVE (WITH A MAXIMUM OF TEN) BY THE COMMITTEE AND TWELVE BY THE DEPARTMENT'S FORECAST. THE NUMBER OF PLATFORMS VARIES FROM 15 IN THE COMMITTEE'S ESTIMATE TO 22 IN THE DEPARTMENT' STATEMENT.

ALTHOUGH YAKUTAT IS LISTED AS ONE OF THE THREE LIKELY PRIMARY SUPPORT/SUPPLY BASES BY THE DEPARTMENT OF INTERIOR IN ITS STATEMENT THE ESTIMATED POPULATION INCREASE IS ESTIMATED

AT SLIGHTLY OVER 100 PEOPLE. WE FIND THIS AN INCREDULOUS CONCLUSION. IN THE SAME STATEMENT THE 1974 CEQ REPORT OF THE "HIGH DEVELOPMENT CASE" OF "AN INDUCED POPULATION OF OVER 4,000" IS DISCUSSED. YET, THERE IS NO EXPLANATION FOR THESE EXTREME VARIANCES IN POPULATION ESTIMATES (100 COMPARED TO 4,000) BY TWO FEDERAL AGENCIES. THIS MAKES IT DIFFICULT FOR ANY ONE TO PLACE A GREAT DEAL OF CONFIDENCE IN THIS DRAFT ENVIRONMENTAL STATEMENT MUCH LESS USE IT AS A BASIS FOR PLANNING INVESTMENTS BY EITHER THE PUBLIC OR PRIVATE SECTORS.

WE HAVE CITED SOME ALARMING DISCREPANCIES BETWEEN THE DEPARTMENT OF INTERIOR'S DRAFT ENVIRONMENTAL STATEMENT AND THE OIL INDUSTRY'S STUDY AND REPORT ON THE POTENTIAL SOCIAL AND ECONOMIC IMPACT. WE BELIEVE THESE DIFFERENCES SHOULD BE STUDIED AND RECONCILED. WE ALSO BELIEVE THAT SPECIFIC DATA SHOULD BE DEVELOPED FOR EACH COASTAL COMMUNITY AND THAT THIS DATA SHOULD BE RELATED IN A PRACTICAL SENSE TO EACH COMMUNITY. FOR EXAMPLE, THE NEED FOR SUPPORT/SUPPLY FACILITIES INCLUDING SUCH THINGS AS DOCKS AND STORAGE AREAS SHOULD BE IDENTIFIED AND RELATED TO COMMUNITY FACILITIES, PUBLIC UTILITY AND OTHER SERVICES NEEDED. ONCE THE "NEEDS" ARE IDENTIFIED THE ABILITY OF THE PUBLIC AND PRIVATE SECTORS IN EACH COMMUNITY TO SUPPLY THESE NEEDS SHOULD BE ANALYZED AND SOLUTIONS OFFERED WHERE THE COMMUNITY IS UNABLE TO MEET THE NEEDS.

IN ADDITION, I WAS RECENTLY SURPRISED TO READ IN THE JULY 1975 ISSUE OF THE MAGAZINE "ALASKA" THAT THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION HAS JUST STARTED A 4-5 YEAR STUDY PROGRAM TO ESTABLISH BASELINE DATA IN THE GULF OF ALASKA FOR DETERMINING THE IMPACT OF OIL DEVELOPMENT ON THE ENVIRONMENT. HOWEVER ONCE THE LEASE SALES ARE HELD THE STUDY CANNOT CONCLUDE THAT THE SALE SHOULD NOT BE HELD OR SHOULD BE DELAYED. SO ONE BASIC POSSIBLE CONCLUSION FROM THE STUDY IS FORECLOSED BEFORE THE STUDY IS EVEN MADE.

IN GENERAL WE FEEL THE DEPARTMENT OF INTERIOR DOES NOT HAVE SUFFICIENT INFORMATION TO ACCURATELY PROJECT THE ENVIRONMENTAL IMPACT OF LEASING IN THE GULF OF ALASKA.

AS PREVIOUSLY STATED WE HAVE HAD TO CONDUCT OUR OWN STUDIES AND ATTEMPT TO PLAN FOR THE FUTURE IMPACT OF OCS DEVELOPMENT. HOWEVER WE NEED MORE TIME TO DO A PROPER JOB AND THEREFORE WE FEEL OUR REQUEST FOR RE-SCHEDULING THIS SALE IS JUSTIFIED.

GENTLEMEN, I WANT TO MAKE IT ABSOLUTELY CLEAR, FOR YOU, FOR THE PRESS, AND FOR OTHERS PRESENT HERE, THAT OUR CORPORATION DOES NOT FLATLY OPPOSE THE DEVELOPMENT OF THE GULF OF ALASKA OCS OIL POTENTIAL. IF THAT DEVELOPMENT IS

PROPERLY DONE, THE GULF COASTAL COMMUNITIES CAN PROSPER AND BENEFIT FROM THE ONSHORE DEVELOPMENT. WE RECOGNIZE THAT OUR COUNTRY NEEDS THE OIL AND GAS RESOURCES THOUGHT TO BE DEEP IN THE GULF -- BUT -- CANDIDLY, WE'RE NOT WILLING TO SEE OUR YAKUTAT LAID BARE UNDER THE ONSLAUGHT OF DEVELOPMENT.

WE BELIEVE THAT DEVELOPMENT AND PRESERVATION OF THOSE THINGS WHICH ARE IMPORTANT TO US IN YAKUTAT ARE COMPATIBLE -- THAT YAKUTAT CAN BENEFIT FROM THE GULF OF ALASKA OCS DEVELOPMENT IF THAT DEVELOPMENT COMES ABOUT UNDER STRICT CONTROL AND IN THE PLACES LOCAL PEOPLE WANT IT -- IF THAT DEVELOPMENT IS MADE TO CONFORM TO THE WANTS AND WISHES OF LOCAL PEOPLE RATHER THAN LOCAL PEOPLE HAVING TO ADJUST AND CHANGE TO ACCOMMODATE THE DEMANDS OF THE DEVELOPMENT.

OUR CORPORATION HAS SPENT THOUSANDS OF DOLLARS IN THE PAST YEAR DEVELOPING A LAND USE PLAN. WE'VE CONSIDERED IT -- FROM THE PHYSICAL, ECONOMIC, SOCIAL AND LAND USE POINTS OF VIEW. AND WE'RE ABOUT TO SPEND MORE DOLLARS TO CONSIDER IT FURTHER. AND WE HAVEN'T RULED OUT ONSHORE DEVELOPMENT BY ANY MEANS. ON THE CONTRARY, WE'RE PROPOSING TO DEVELOP ONSHORE FACILITIES TO SERVICE THE OCS DEVELOPMENT. THE CITY AND OUR CORPORATION ARE WORKING CLOSELY TOGETHER IN THESE EFFORTS, AND WE INTEND TO CONTINUE WORKING TOGETHER TO

ASSURE THAT THE PEOPLE OF YAKUTAT BENEFIT FROM THE DEVELOPMENT RATHER THAN PAY THE PRICE AS HAS BEEN THE CASE IN SO MANY OTHER COMMUNITIES. AND -- IT'S IMPORTANT TO NOTE THAT THERE ARE TWO REASONS WHY WE'RE DOING THESE THINGS:

1. THERE ARE OBVIOUS ECONOMIC BENEFITS TO THE COMMUNITY AND TO THE CORPORATION FROM ENTRY INTO THIS AREA:

2. AND, WE SEE OUR DEVELOPING OF ONSHORE SUPPLY AND SUPPORT FACILITIES AS THE ONLY MEANS WHEREBY LOCAL CONTROL OF THAT DEVELOPMENT CAN BE ACHIEVED.

WITHOUT THAT LOCAL CONTROL -- WITHOUT THE ABILITY TO DECIDE WHAT LAND USES ARE GOING TO BE LOCATED WHERE -- WITHOUT THE ABILITY TO POLICE THAT DEVELOPMENT -- OUTSIDE INTERESTS -- LAND SPECULATORS AND MAJOR OIL INTERESTS FROM HOUSTON AND DENVER, WILL MAKE THE DECISIONS AND YAKUTAT PEOPLE WILL BENEFIT NOTHING IN THE WAY OF JOBS AND INCOME. WITHOUT THAT LOCAL CONTROL YAKUTAT WILL EXPERIENCE A PROLIFIRATION OF UNCONTROLLED, INDISCRIMMINATE AND IMPROPERLY LOCATED DEVELOPMENT. INSTEAD OF ONE MAJOR FACILITY WHICH THE COMMUNITY CAN ALSO USE TO MEET ITS SHIPPING NEEDS, AND A PLANNED INDUSTRIAL AREA, MONTI BAY WILL BE LINED WITH TEMPORARY DOCK FACILITIES -- EACH OIL COMPANY OWNING AND OPERATING ITS SEPARATE FACILITY -- AND YAKUTAT WILL END UP LIKE KENAI,

ALASKA, WHERE, AFTER ALL WAS SAID AND DONE IN THE COOK INLET OIL AND GAS DEVELOPMENT THAT COMMUNITY STILL, TODAY, DOESN'T HAVE A LOCALLY OWNED DOCK FACILITY TO MEET LOCAL NEEDS.

IF THE SALE GOES FORWARD IN DECEMBER OF THIS YEAR THE COMMUNITIES WILL NOT BE PREPARED; SHORTAGES OF ALL TYPES WILL EXIST; OIL COMPANIES WILL GO THEIR SEPARATE WAYS AND BUILD FACILITIES TO MEET THEIR IMMEDIATE INDIVIDUAL NEEDS WHEREVER THEY CAN OBTAIN LANDS ONSHORE; AND THE LONG TERM NEEDS OF BOTH THE INDUSTRY AND COMMUNITY WILL NOT BE MET. THEREFORE, WE URGE A MORE THOROUGH EVALUATION OF THE DATA IN THIS ENVIRONMENTAL STATEMENT AND THE RE-SCHEDULING OF THE OIL AND GAS LEASE SALE.

IF FUNDS WERE AVAILABLE TODAY THE MINIMUM PERIOD NEEDED FOR LOCAL PLANNING AND IMPLEMENTATION OF SUCH PLANS IS TWO YEARS. FOR THIS REASON WE HAVE SUPPORTED THE POSITIONS OF THE CITY OF YAKUTAT AND STATE ADMINISTRATION FOR A RE-SCHEDULING OF TWO YEARS BEFORE HOLDING THE NORTHERN GULF OF ALASKA SALE.

PROPOSED 1975 OIL AND GAS LEASING

IN

NORTHERN GULF OF ALASKA

SUMMARY OF SOCIAL & ECONOMIC DATA - THIS SALE ONLY

	MATHEMATICAL SCIENCES NORTHWEST INC.	U.S. DEPARTMENT OF INTERIOR BLM
DATE OF HEARING ON INTERIOR IMPACT STATEMENT		AUGUST 12, 1975
PROPOSED DATE OF SALE		DECEMBER, 1975
SALE ACREAGE OFFERING		1.8 MILLION ACRES
ANTICIPATE SALE		1.4 MILLION ACRES
TOTAL PRODUCTIVE ACRES		650,000 ACRES
OIL & GAS FIELDS	5	12
MAXIMUM NUMBER	10	
AVERAGE DISTANCE OF OIL FIELDS FROM SHORE	25 MILES	22 MILES
AVERAGE DISTANCE FROM SHORE BASES	50 MILES	
RECOVERABLE OIL (5% PROBABILITIES)		2.8 BILLION BBLS.
RECOVERABLE GAS (5% PROBABILITIES)		9 TRILLION CU. FT.
PEAK PRODUCTION OIL - DAILY	550,000 BBLS/DAY (1.5 MILLION BBLS/DAY)	550,000 BBLS/DAY
ANNUALLY		200 MILLION BBLS/YR.
PEAK PRODUCTION GAS - DAILY		1.0 BILLION C.F./DAILY
ANNUALLY		365 BILLION C.F/YEAR
PLATFORMS	15 (3 PER FIELD)	22
WELLS		900

	MATHEMATICAL SCIENCES NORTHWEST INC.	U.S. DEPARTMENT OF INTERIOR BLM
PIPELINE		12 TO 24
TOTAL MILES OF PIPELINE		300 (50 ONSHORE, 250 OFFSHORE)
PIPELINE BURIAL EXCAVATION VOLUME		.9 TO 2.4 MILLION CU. FEET
OFFSHORE TERMINAL FACILITIES	0	3
PIPELINE ACREAGE REQUIRED		175 ACRES
ONSHORE TERMINAL FACILITIES	2*	1 (120 ACRES)
SUPPORT SUPPLY FACILITIES	2***	8 (640 ACRES)***
LNG PLANT	1*****	1 (120 ACRES)
ONSHORE LAND REQUIREMENTS		1,055 ACRES
PETROLEUM REFINERIES	0	0
SERVICING FLEET (BOATS & SHIPS)		20 TO 60
ANNUAL CRUDE OIL SHIPPED BY TANKER		200 MILLION BBLS/YR
EXPLORATORY DRILLING WOULD START	1976	ONE YEAR AFTER SALE
" " " CONTINUE	1985	11TH YEAR
" " " PEAK	1979-80	1979-80
LIFE OF OIL & GAS FIELDS		25 YEARS
ELAPSED TIME FOR OIL & GAS FIELDS		40 YEARS

* LIKELY TO BE LOCATED SOME DISTANCE FROM ANY COMMUNITY. ONE TO BE STARTED IN 1979, AND ONE TO BE STARTED IN 1981, WITH TWO YEARS REQUIRED TO BUILD EACH FACILITY.

*** MATHEMATICAL SCIENCES STATES YAKUTAT AND CORDOVA ARE PRIMARY SUPPORT/SUPPLY CENTERS. INTERIOR STATES THAT POTENTIAL SUPPORT/SUPPLY ACTIVITIES WILL BE CONDUCTED IN YAKUTAT, YAKATAGA, MIDDLETON ISLAND, CORDOVA, SEWARD, ANCHORAGE, KENAI, AND VALDEZ, BUT CORDOVA, YAKATAGA AND YAKUTAT ARE CONSIDERED PRIMARY BASES.

::::: PRODUCTION OF 300 MILLION CUBIC FEET OF GAS DAILY OVER 7-10 YEAR PERIOD AT CURRENT PRICES IS REQUIRED TO MAKE LNG PLANT FEASIBLE. 55-60 MILLION CUBIC FEET DAILY IS REQUIRED FOR A PRILLED UREA OR ANHYDRODUS AMMONIA PLANTS. LNG FACILITY WOULD REQUIRE 30 MONTHS TO BUILD WITH AVERAGE CONSTRUCTION WORK FORCE OF 350, AND PEAK FROM 400 TO 500; AND 25 TO 35 IN PERMANENT WORK FORCE AND 65 INCLUDING INDUCED EMPLOYMENT. UREA OR AMMONIA PLANT WOULD REQUIRE 30 MONTHS TO BUILD WITH AVERAGE CONSTRUCTION WORK FORCE OF 200 AND PEAK OF 300; AND PERMANENT WORK FORCE OF 200, OR 372 WITH INDUCED EMPLOYMENT.

EMPLOYMENT & POPULATION INCREASES
MATHEMATICAL SCIENCES ONLY
CASE B

YEAR 1976 -	DIRECT	291
	INDIRECT AND INDUCED	541
	TOTAL	832
YEAR 1980 -	DIRECT	1,486******
	INDIRECT AND INDUCED	2,764
	TOTAL	2,534
YEAR 1985 -	DIRECT	886
	INDIRECT AND INDUCED	1,648
	TOTAL	2,534

STATEWIDE POPULATION INCREASE - CUMULATIVE

1976	1,633
1980	8,444
1985	5,148

COASTAL COMMUNITIES POPULATION INCREASE - CUMULATIVE

1976	59
1980	700
1985	1,302

****** IF MAXIMUM DAILY PRODUCTION OF 1.5 MILLION BBLS. OF OIL IS REACHED, EMPLOYMENT IN 1981 WOULD BE 2,342 WHICH IS 48.5% GREATER THAN IT WOULD BE WITH DAILY PRODUCTION AT 360,000 BBLS.

EMPLOYMENT & POPULATION - INTERIOR, BLM ONLY

ESTIMATED SALE INDUCED POPULATION

YEAR	TOTAL WORKFORCE	TOTAL POPULATION
1975	0	
1976	0	
1977	0	
1978	152	348
1979	152	348
1980	1,440	3,297
1981	2,510	5,748
1982	3,128	7,163
1983	4,501	10,307
1984	5,016	11,487
1985	4,595	10,522
1986	3,449	7,898

NOTE: POPULATION IS ANTICIPATED TO REMAIN AT THE 1986 LEVEL DURING LIFE OF PRODUCTION.

POSSIBLE DISTRIBUTION OF POPULATION

	TOTAL	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1978	348	.278	3	31	21	3	6	6
1980	3,297	2,604	33	297	198	33	66	66
1985	10,522	8,134	105	947	631	105	210	210
1986	7,898	6,239	79	711	474	79	158	158

(1) ANCHORAGE (2) CORDOVA (3) KENAI (4) KODIAK (5) YAKUTAT (6) SEWARD (7) VALDEZ

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STATEMENT OF

A. D. MOOKHOEK
EXXON COMPANY, U.S.A.

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

on

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12-13, 1975

PRESENTATION FOR ENVIRONMENTAL HEARING
GULF OF ALASKA OFFSHORE SALE
A. D. Mookhoek

My name is Bram Mookhoek. I am the Ocean Operations Manager for the Marine Department, Exxon Company, U.S.A., and during my 27 years in the company have been associated with all areas of marine transportation including the technical, economic and operational aspects. I might mention at this time that I am also chairman of the Marine Services Subcommittee of Alyeska, which is a group representing the Owner companies in marine matters. In this capacity, I work closely with the U. S. Coast Guard on routing of tankers to and from Valdez, navigation aids, anchorage areas in Prince William Sound, vessel traffic system, etc. Some or all of these aspects will also apply to the Gulf of Alaska marine operations.

In my discussion today, I will cover two subjects: (1) marine transportation, and (2) terminals.

In the marine transportation area, we will first look at the ships. For obvious reasons, we are, at this time, in no position to determine the size tanker to be used since this is a function of the crude production and the location of the terminal. However, to place this in better perspective, we have prepared this slide which shows, for various ship sizes and at different production levels, the number of port calls which would occur. This tabulation shows that a 45,000-ton tanker with a draft of 39 feet and a carrying capacity of 325,000 barrels of crude at a production level of 120,000 barrels per day will be arriving at the terminal about once every 3 days, while a 120,000-ton vessel having a draft of 52 feet and carrying about 860,000 barrels will arrive once every 7 days. Of course, if the production is greater than 120,000 barrels per day, port calls will increase correspondingly, as indicated by the number to the right of the third column.

It should be pointed out that the ship sizes shown here are arbitrarily selected and do not imply the actual size to be used. However, I believe it can generally be accepted that vessel size increases as production levels become higher.

Some of the sizes shown here are for existing vessels in the U. S. fleet, while others are new construction. Assuming that crude will be shipped to the U. S. West Coast, only vessels built in the U. S. and manned by U. S. crews will be permitted, because the Jones Act prohibits use of foreign flag vessels in U. S. domestic trades. U. S. ships are built to standards established by the American Bureau of Shipping and maintained under the rigid inspection and maintenance requirements of the ABS and the U. S. Coast Guard. The vessels are equipped with reliable and advanced communication and navigation equipment.

On this next slide, we are indicating some of the typical design and operating data. The sea speed of all these vessels is about the same and varies between 16 and 17 knots.

One of the items in this slide shows the quantity of segregated and dirty ballast capacity. Under normal weather conditions, northbound vessels carry about 30 to 35 percent of the ship's deadweight tonnage in ballast, while in heavy weather this may amount to 40 to 50 percent. As you know, segregated ballast is carried in tanks which are dedicated to clean seawater ballast and are not connected to the cargo tanks. Accordingly, this ballast water is not in contact with oil and can be discharged to the sea. The dirty

ballast is carried in tanks previously containing crude and is contaminated with oil. Therefore, this ballast will be transferred to a shore receiving facility where oil and water will be separated. How this is done will be briefly covered later in this presentation in the environmental impact statement.

On this next slide we show some of the special design and equipment features. Most of these items relate to safety, communication and pollution prevention and are designed to prevent accidents.

In this respect, you may be aware that a traffic separation system is presently under development by the U. S. Coast Guard for all ships traveling between Valdez and the West Coast. This new system will establish separate routes for north and southbound vessels and is designed to minimize crossing situations, thus reducing the chances of collision. It is likely that vessels scheduled to load at a Gulf of Alaska terminal will be required to use these same routes for part of the voyage. In addition, a vessel traffic system similar to Prince William Sound will probably be developed for the approaches to the terminal.

You may also be aware that the Coast Guard is installing a Loran "C" system which will cover the area from Southern California to Alaska. This navigation system, which, according to the U. S. Coast Guard, is accurate to 1/4th of a mile at the edge of the station's operating envelope and improves to 50 feet accuracy closer to the station, is scheduled to be in service prior to the start-up of the Trans Alaska pipeline and provides accurate vessel position fixing and, combined with the radars and bridge-to-bridge communications, will augment the ship's navigation system to insure the possibility

of collisions and groundings are reduced to as low a level as possible. Vessels to and from the Gulf of Alaska will use this system also.

Turning now to the second subject, a marine terminal or terminals will be necessary to receive crude oil delivered from the wells, store the oil and then load into tankers for delivery to market destinations in the lower 48. These terminals may serve a single company or, in most cases, may be operated as multiple use facilities. A typical terminal installation located ashore is shown in this slide. Terminal storage requirements depend directly upon thruput volumes and tanker sizes and schedules. Storage facilities must be adequate to allow continuous operation of the offshore pipelines, thus minimal storage requirements are usually several times the daily thruput volumes. To place this in better perspective, for a production level of 120,000 barrels per day, a terminal site of about 40 acres with about 1 million barrels of tankage would be required. Because of these large storage requirements, for operational reasons it is generally more advantageous to locate the tanker loading facilities adjacent to or near the shore. However, offshore loading berths cannot be discounted at this time for the Gulf of Alaska until fields are discovered and the feasibility of suitable onshore terminals has been developed.

There are a number of site locations in the Gulf of Alaska, as indicated on this slide, which would be suitable for tanker terminals. In view of the present uncertainty as to where oil will be discovered, no detailed analysis has been prepared for these locations. In the selection of a location, we take into account length of submarine pipelines, water depth, protection from the weather by terrain features, suitable land to build a tank farm, etc. Some of the more favorable sites for terminals near the proposed lease area are:

Yakutat Bay - This location with water depths of 180 feet can accommodate the largest tankers and is currently used for infrequent tanker deliveries and has a dock facility. However, this facility is very limited in size and not suitable for crude tankers anticipated. Several protected waterfront sites exist within the bay which are suitable for a marine terminal. Water depth is adequate near shore to accommodate fixed loading docks while terrain is sufficiently high to protect the shore facilities from high tides and waves.

Icy Bay - The bay with a water depth of up to 60 feet provides shelter from the east and has several potential terminal sites with deep water near the shore. The bar at the entrance to the bay has about 40 feet of water, with the bottom consisting of sand and gravel. Dredging to a depth of about 50 feet suitable for 80,000-ton tankers for a distance of about two miles could be considered. The contiguous land areas are flat with sufficient high ground to accommodate an onshore terminal.

Kayak Island - This area is exposed to the Gulf of Alaska on the east but affords some protection for large vessels on the west side. Deep water areas, 180 to 300 feet 4 miles offshore, have no limitations for large tankers, while the approaches are not restricted by depth or land masses. Due to the exposed location, sea berths would probably be more practical than fixed berths. There is ample relatively flat land for installing tanks and other terminal facilities.

Middleton Island - The west side provides protection from easterly winds and seas, but due to the depth of water, about 80 feet, tankers would have to moor approximately one and one-half miles offshore. Adequate high ground is available on the island for storage tanks and related terminal facilities.

Montague Island - This area has several protected areas with deep water, about 600 feet, to the coast which would be suitable. Onshore land is available for terminal facilities.

The crude oil terminals will be planned and operated in accordance with advanced technology to ensure a safe, pollution free performance with the principal features to be developed to suit the specific sites. Design considerations and operational provisions will be made for rapid response to emergencies such as extreme weather, warning of a tsumani or other contingencies. Of course, the actual location and design of any terminals will require compatible solutions to land use, wildlife habitat and seismic considerations.

Crude oil will be received from the submarine pipelines in all welded steel tankage which will be designed to meet the local conditions, i.e. high snowfall and anticipated seismic forces. Tanks will be provided with automatic gauging equipment with manual back-up, together with high level alarms to guard against overfilling. A containment dike with a capacity of 110% of the total tankage including adequate allowance for surface water impounded within the dike area will be installed. A fire detection and extinguishing system will be incorporated in the design.

Turning now to the dock facilities, a sufficient number of docks will be provided to accommodate the required number and size of tankers. These docks will be equipped with a fendering system and designed to withstand seismic and wave forces as well as docking impact forces. The dock

structure to be used will vary with the prevailing slope and soil conditions of the seabed. For flat or gently sloping seabed conditions, the dock will be constructed from steel jacket or reinforced concrete structures which will be anchored to the sea bottom.

In the case of a steeply sloping sea bottom, a floating dock might be constructed which will have the ability to move in a vertical direction to accommodate tidal movement or wave action. Lateral or longitudinal movement will be restrained by means of rigid struts hinged at the dock and anchor points ashore.

Mooring dolphins for each type of berth will be constructed of steel jacket structures anchored to bedrock or firm soil. Each mooring dolphin will be equipped with quick release mooring hooks for securing the mooring lines from the tankers.

Qualified pilots will be used for all tankers entering or leaving the terminal while tugs and mooring launches will be available to assist in mooring the vessels. In addition to berthing and unberthing tankers, these tugs will be fitted with fire fighting systems capable of delivering foam or water onto the deck of the largest tankers when in light condition.

Loading of the tankers will be by gravity flow if tanks are installed at a sufficient elevation, which is dependent on the topography of the onshore site. In the event elevation is insufficient, loading pumps will be used.

Steel loading arms will be provided on each dock to connect to the ship's piping. These will be operated from a control center on the dock. Shut-off valves will be provided on the docks and onshore in each loading line

to permit either local or remote operation from the control center. This valve arrangement will allow emergency shutdown to be initiated at various points. To prevent excessive surge pressures in emergency conditions, relief valves will be included in the design. These emergency features will prevent internal pressure buildup by more than 10% at any point in the piping system.

To maintain the high water quality standards and scenic beauty of the area, strict operating procedures to guard against the possibility of accidental oil spills and the adoption of design criteria to minimize the risk of oil spills resulting from equipment failure or due to earthquakes will be developed. In addition, a sewage treatment facility and incineration of combustible waste will be provided.

A ballast treatment plant to handle all oil contaminated ballast water and wash water used to clean cargo tanks will be installed. Although advancing technology may result in further improvements, the type of system will probably consist of a three-step process of gravity separation followed by chemical flocculation and dissolved air flotation. The treated water will conform to the applicable water quality standards. In this system, oil contaminated water is pumped into steel storage tanks where, after settling, floating oil is skimmed off and pumped to the oil treating section. After the gravity separation, chemicals will be added to the ballast which will then enter the chemical flocculation and air flotation chambers. The ballast is retained for a specified time in the flocculation chamber where it is subjected to continuous gentle agitation for floc development. This floc has a strong affinity for oil, and the remaining oil in the ballast is captured by the floc particles.

From the flocculation chamber, the ballast flows to the mixing zone, where air is introduced and air bubbles attach themselves to the floc and the mixture flows to the flotation zone. In the flotation zone, the air suspended material rises to the surface where skimming equipment removes the floating matter. The clarified ballast is tested continually for oil content and leaves the treating facility into an outfall line through a diffuser discharging into the port at a point well below sea level.

Oil skimmed in the gravity separation step and that recovered in the flocculation/air flotation process is pumped to the terminal crude storage tanks for loading aboard tankers.

The foregoing description of dock facilities mainly applies to onshore type installations. However, offshore sea berths cannot be discounted until oil fields are discovered and the feasibility of suitable onshore terminals has been developed. Ballast handling facilities for offshore loading berths will be designed to perform a similar function as for the onshore berth. Either the dirty ballast will be pumped ashore for treatment or retained aboard the vessel for subsequent discharge at a shore treatment plant.

These offshore berths could be of several types, including fixed type docks, island type docks, single point moorings or conventional multipoint moorings. In general, the seabed anchoring characteristics, water depth and sea conditions will dictate the most economical and practical type structure.

Offshore loading facilities are relatively common, but until recently they were all located in protected water. However, with improved technology, offshore loading terminals in exposed locations are relatively common, i.e. Kharg Island in the Persian Gulf, Dubai Terminal 60 miles offshore in the Arabian Gulf, Mobil's Nigerian Terminal, Phillips' Ekofisk Terminal in the North Sea, etc. In addition, single point mooring installations are in the advanced engineering stage for offshore locations in the Gulf of Mexico off Louisiana and Texas.

The Louisiana facility will be located about 18 miles off Bayou Lafourche, while the Texas installation will be 30 miles off Freeport. Both facilities will be in a water depth of about 100 feet. Although the difficulties may be accentuated in the Gulf of Alaska, these installations which include tanker safety zones and traffic regulations demonstrate the feasibility of constructing and operating offshore terminals in exposed locations safely and with minimum hazard to the environment.

ADM:mjb

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(no)

STATEMENT OF

KENNETH A. BLENKARN, Ph.D.
AMOCO PRODUCTION COMPANY

before the

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEARING

on

PROPOSED OIL AND GAS LEASING

on the

OUTER CONTINENTAL SHELF

NORTHERN GULF OF ALASKA

ANCHORAGE, ALASKA
AUGUST 12-13, 1975

OFFSHORE DEVELOPMENT AND PRODCTION

Statement of Kenneth A. Blenkarn, Ph.D., Amoco Production Company

OFFSHORE SALE ENVIRONMENTAL HEARING

Anchorage, Alaska

Good morning, ladies and gentlemen. My name is Kenneth Blenkarn. I am a Special Research Group Supervisor for Amoco Production Company, and I direct the development and application of offshore and arctic technology for Amoco and its corporate affiliates. My engineering Ph.D. degree emphasizes training and research in theoretical and applied mechanics. For more than 20 years I have been developing basic technology related to petroleum production, particularly environmental force criteria for
lide 1 offshore structures. I have been responsible for the design of many offshore platforms, including many of the early permanent structures installed in Cook Inlet.

My first purpose is to describe for you the equipment and methods employed in the production of offshore petroleum resources. I then wish to address the special aspects of engineering for applications in the Gulf of Alaska.

Only after exploratory drilling has discovered petroleum deposits, and various testing and confirmation has established adequate reserves, does

actual development of production begin. The key feature of most offshore production is the construction of fixed platforms or towers. These platforms, founded on the sea bottom, support working decks clear of wave action and from which well drilling and production activities are conducted. Most offshore platforms are comprised of three basic elements: jacket, piling, and deck.

lide 2 The trussed or braced jacket is fabricated at a shore location. It is
lide 3 then barged or floated to the offshore site where it is tipped or other-
lide 4 wise maneuvered into position resting on the ocean floor.

Piling are then guided and driven through members of the jacket to fix the structure firmly into the foundation soils. This work is generally
lide 5 performed by special offshore construction derrick barges.

lide 6 Once piling installation is complete, deck sections, together with operating equipment, are hoisted up and placed atop the structure by the derrick barge.

Effective design of offshore platforms requires careful evaluation of the environmental forces to be anticipated during the structure lifetime. This is especially true of forces caused by storm waves. Over the years, the offshore industry has devoted significant effort to the scientific investigation of ocean waves, their occurrence probabilities,

and the forces resulting from waves. Such efforts have contributed to the success of the industry in building reliable offshore platforms.

After construction of a platform is completed, well drilling is initiated generally through specially driven structural well conductor
ide 7 pipes. Several wells are directionally drilled from a single platform to reach an array of locations at the productive horizons. Production from the completed wells is directed into separation and other treating equipment to prepare it for entry into the transportation system.

All of the equipment and tanks on a platform are fitted with automatic safety devices which shut in the producing wells and stop flow through the system in the event of any equipment malfunction. Shut-off valves on the platform deck are supplemented by safety shut-in devices down inside well casings, below the ocean bottom. These are controlled to be activated by abnormalities in the production equipment or in the platform structure itself. The likelihood of oil discharge, even in the improbable event of platform structural failure, is significantly re-
lide 8 duced by use of downhole safety valves. These valves have undergone rapid improvement in recent years and will be able to provide a high degree of reliability.

Generally, the preferred and safest way to transport offshore production away from a platform is to pump it through a subsea pipeline to shore

facilities. The construction of subsea pipelines employs special pipe-lay barges. As successive lengths of pipe are joined on the barge, additional lengths of pipeline are lowered onto the ocean bottom.
.ide 9 Depending upon the water depth, the pipeline is either guided to the ocean bottom by a structural stinger or suspended under controlled tension to preclude bending damage to the pipe. Subsea pipelines are weighted to rest on bottom without movement under changing current or wave conditions. In areas where the pipe is likely to be subject to excessive environmental forces, or to mechanical damage by anchors and fishing gear, the pipe is buried beneath the sea floor. The pipe bury operation is accomplished with unique dredging equipment which cuts a trench into which the pipe is deposited and subsequently to be covered.

Pipelines are coated to protect against corrosion, and construction joints are carefully inspected to avoid mechanical or metallurgical defects. Nevertheless, like platform production equipment, subsea pipelines can be equipped with automatic sensing devices which shut down the throughput stream. These devices serve to minimize the discharge of oil in the case of any leak which might occur in spite of quality control measures in construction.

While pipelining to shore has long been the predominant disposition of offshore production, alternates are being developed. Offshore storage
1' 10 and offshore tanker loading have become increasingly common. The latest

developments are engineered to permit continuation of operations even under stormy sea conditions.

Additional detail regarding various potential development systems for the Gulf of Alaska is to be found in a supplemental document which I submit for the record.

The basic methods for production from offshore locations are well established and proven. The question at issue in these hearings is whether such technology is suitable for application in the Gulf of Alaska. More specifically, the concern is with our ability to adapt this proven technology adequately to account for the particular physical environment of the area. I intend to show that such an adaptation can be made. I will discuss the two important implications of the environment of the Gulf of Alaska. The physical oceanographic conditions and earthquakes.

The Gulf of Alaska is recognized as a stormy region, and one must address the influence of weather and waves upon the safety of offshore facilities. At the heart of the matter is the effect of storm waves on the structural integrity of offshore platforms or other structures.

Testimony by Mr. Horrer describes studies of the physical oceanography of the Gulf of Alaska and our knowledge of expected conditions in this

region. For the present concern, the main result is a comparison of

ide 11 extreme Gulf of Alaska wave conditions with those determined for the North Sea. This comparison is shown on slide 11. There is no real definable difference in the severity of extremes in the two areas. This is important because a number of offshore platforms have been designed to withstand North Sea extremes. Several of these have already been installed. There is no question of our ability to design platforms to resist Gulf of Alaska extreme waves.

ide 12 Some of the recently designed North Sea platforms represent a marked departure from traditional modes of offshore platform construction. Specific attention is drawn to the concrete, gravity-foundation platforms. It is, however, to be recognized that this particular development is a reflection of (a) construction schedules and economics, (b) foundation soil conditions, and (c) premium placed on storage capacity. The choice of a concrete gravity platform as opposed to a more conventional steel structure is not a consequence of the particular design wave requirements. There may emerge special platform designs for Gulf of Alaska operations, but such designs will not be dictated because wave conditions are more severe than encountered elsewhere.

The generally stormy weather of the North Sea has led to the construc-

ide 13 tion of larger, more seaworthy construction ships and barges, for example, very large derrick ships and semi-submersible pipelay vessels. These

advances have been motivated by the need to improve the effective working time of construction equipment. It is to be expected that much of this construction experience will carry over directly to application in the Gulf of Alaska.

The Gulf of Alaska region is, of course, recognized as being prone to earthquake activity. Hence, as in the case of design against waves, the industry must build structures to resist anticipated earthquakes with a high degree of reliability. This is required for reasons of both economics and personnel safety. Nevertheless, we must balance risks against the costs to society of reducing such risks. It is not in the best
lide 14 interests of society to squander capital, material, and human resources in needless overdesign of offshore structures. In seeking the proper balance of design, the industry looks to the professional community, as well as its own scientists and engineers.

The technology of earthquake design has been developing for many years. As Dr. Wiggins explains, it combines inferrences of seismically induced base rock and ground motions together with analyses of resulting structure and foundation behavior. I think that it is important to emphasize that this is not just a matter of interpreting seismic measurements by mathematical manipulations. Methods and practices of earthquake design have been adjusted and calibrated from observations of actual structures

in earthquakes; some fail, while others experience earthquake shaking without damage.

The focus of earthquake design is to provide a structure adequate to withstand statistically projected seismic conditions anticipated at the construction site. Dr. Wiggins testimony outlines the basis for this technology. Of course, there is no such thing as a structure which can be guaranteed against failure, regardless of cataclysmic events which nature might someday bring to pass. This is not to say that such imponderables are to be simply ignored. Serious conjecture about such events can provide useful input to the overall design process. These ideas may, for example, suggest design refinements which give a structure the potential to sustain extensive damage without collapse, but which do not subvert the basic design indicated by established earthquake engineering practice. Once again, it is to be noted that in the unlikely event of structure damage or even collapse, the likelihood of pollution by uncontrolled well flow will be further reduced by the functioning of downhole safety shut-off valves.

On balance, there is little doubt but that we can design offshore platforms with appropriate levels of earthquake resistance. It is important
lide 15 to observe that offshore structures, unlike most conventional buildings, are predominantly designed against lateral loads. And there is an extensive experience in such designs. The wave loading on a platform may well be of the same magnitude as design earthquake forces. Moreover,

in-service experience shows that offshore platforms display a substantial margin between design forces and those actually required to cause collapse.

Ocean bottom soils are particularly important in considering design against possible consequences of earthquakes. Local soil conditions affect the intensity of local seismic loading and the foundation integrity for structures. The soil of the ocean bottom also determines the susceptibility of pipelines to seafloor slides triggered by earthquakes. The industry has already initiated investigations of the Gulf of Alaska sea bottom through use of soil borings and soil seismic surveys. Testimony by Mr. McKeever describes such activity in some detail, and places it within an overall geologic perspective. Extensive and detailed investigations will take place during exploratory drilling and in preparation for development of permanent facilities. The purpose will be to identify suitable sites for offshore structures and proper routing for pipelines, all to reduce earthquake damage hazards. Surveys with soil sampling and seismic methods also serve to avoid the placing of installations where there is likelihood of disruption by surface faulting or soil movement.

ide 16

One might perhaps be concerned over direct disruption of oil wells by fault movement during earthquakes. However, there is a body of experience to indicate that this is not a significant problem. Extensive

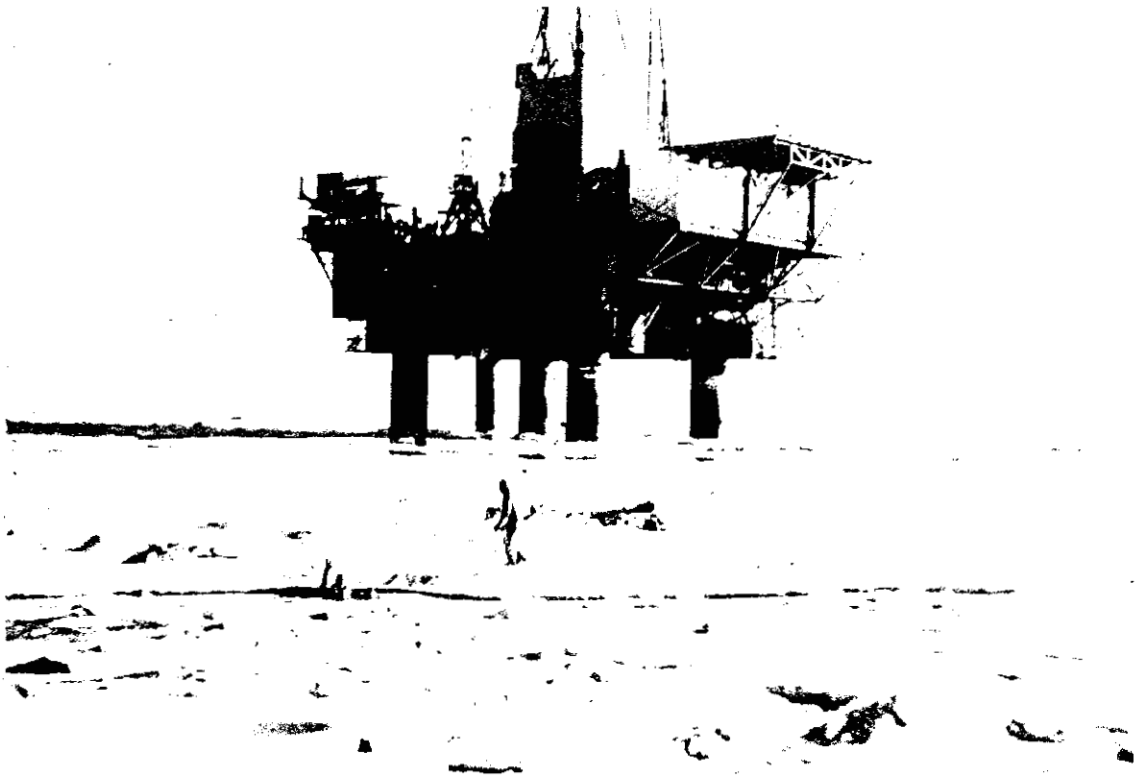
drilling and producing operations have been conducted in the seismically active area of Southern California. While a few wells have suffered casing damaged by fault movement, such damage has not occasioned release of well fluids to pose a pollution threat.

Consideration of the foregoing leads me to the following conclusions regarding technology for offshore production in the Gulf of Alaska:

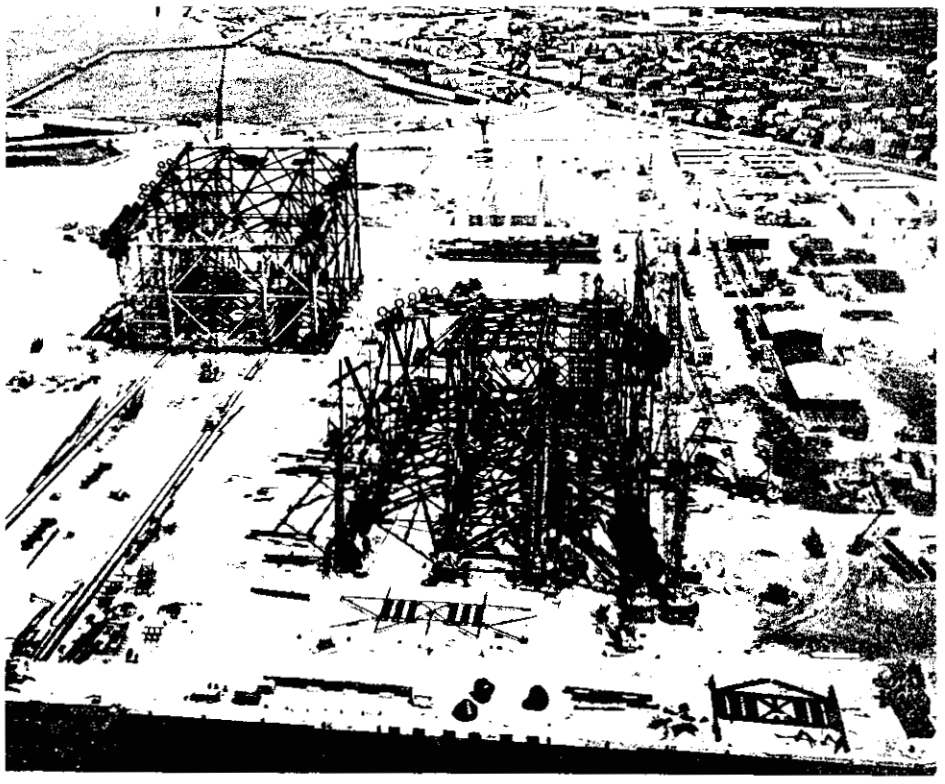
1. Most of the established production technology previously described here is directly applicable to operation in the Gulf of Alaska.

2. Wave conditions in the area against which facilities must be designed are not any more severe than already overcome by the industry.

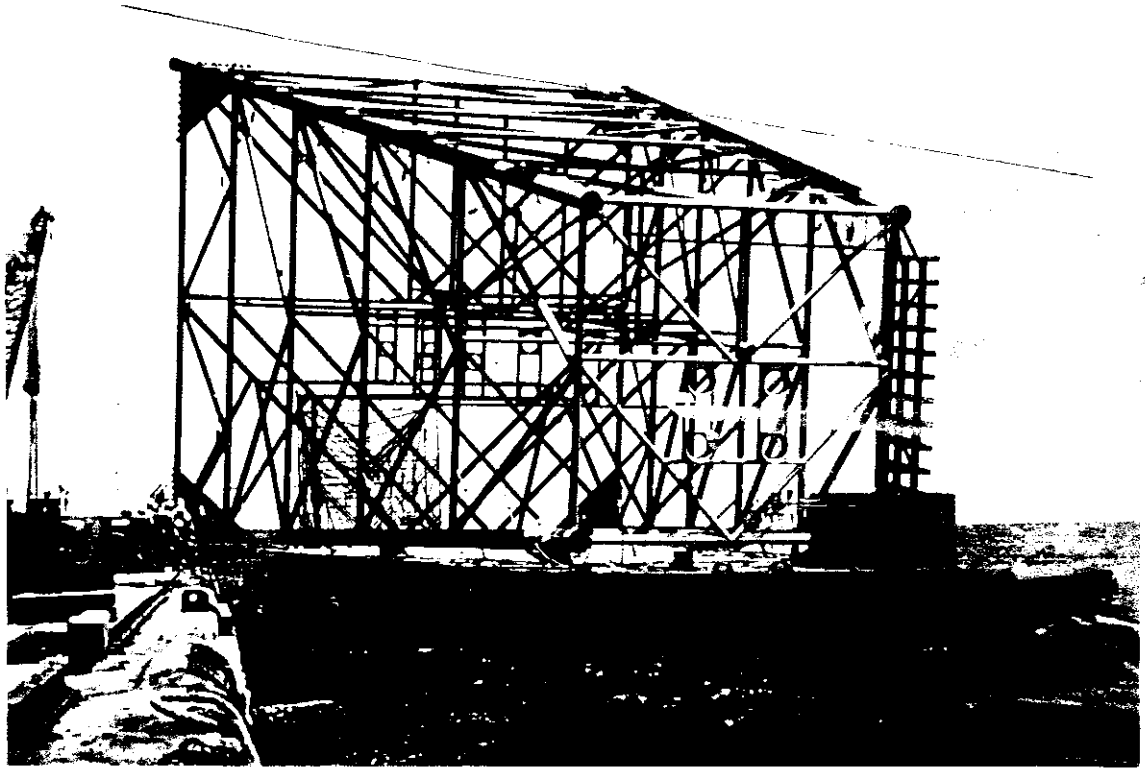
3. Available earthquake technology provides means for construction of platforms and other facilities with adequate structural reliability.



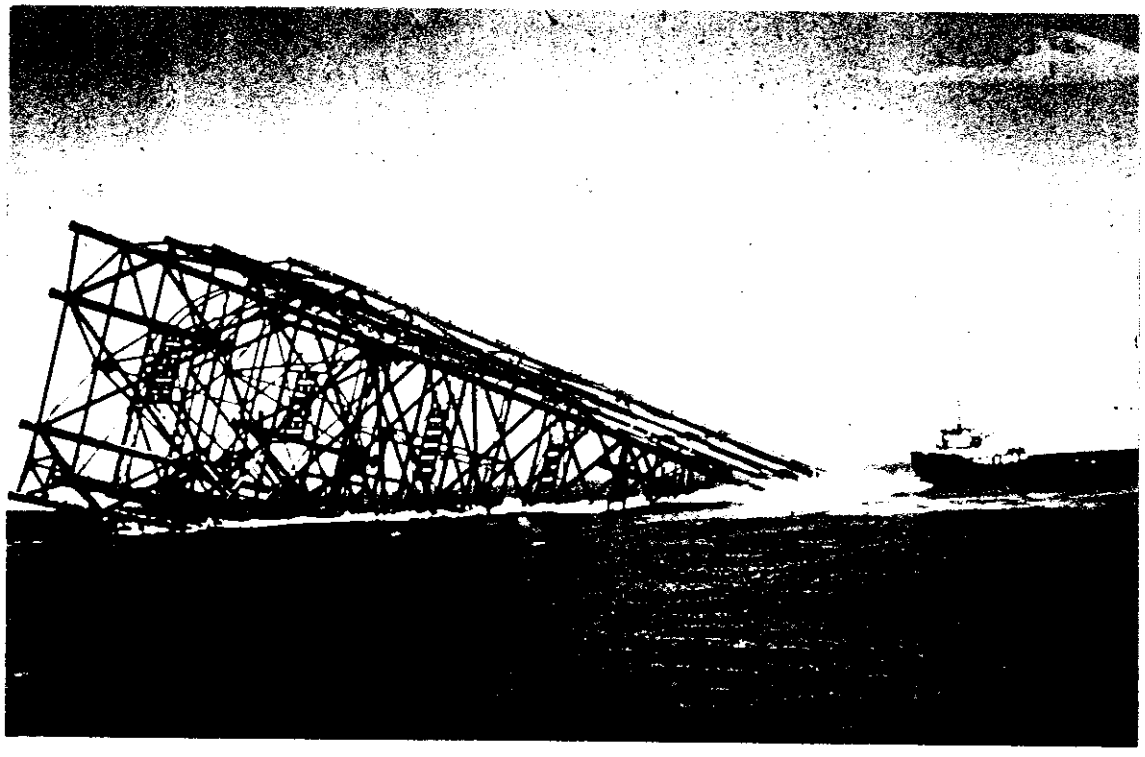
SLIDE 1 COOK INLET PLATFORM



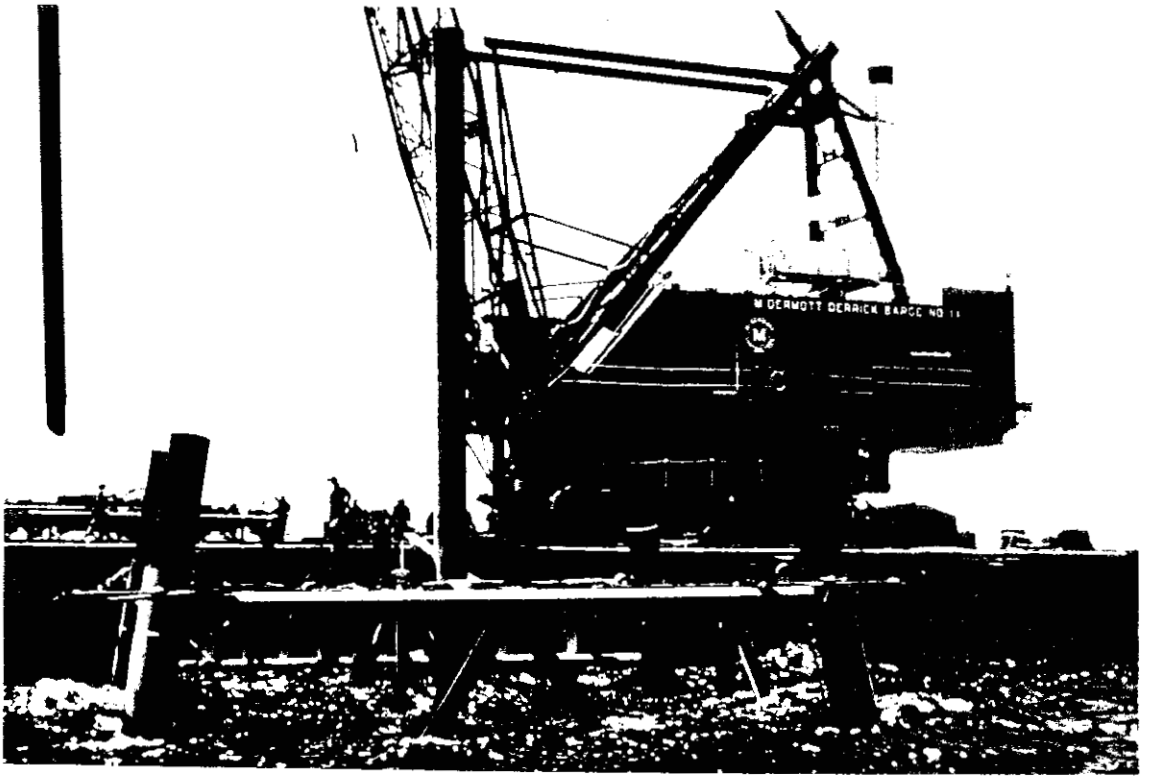
SLIDE 2 PLATFORM JACKET IN FABRICATION



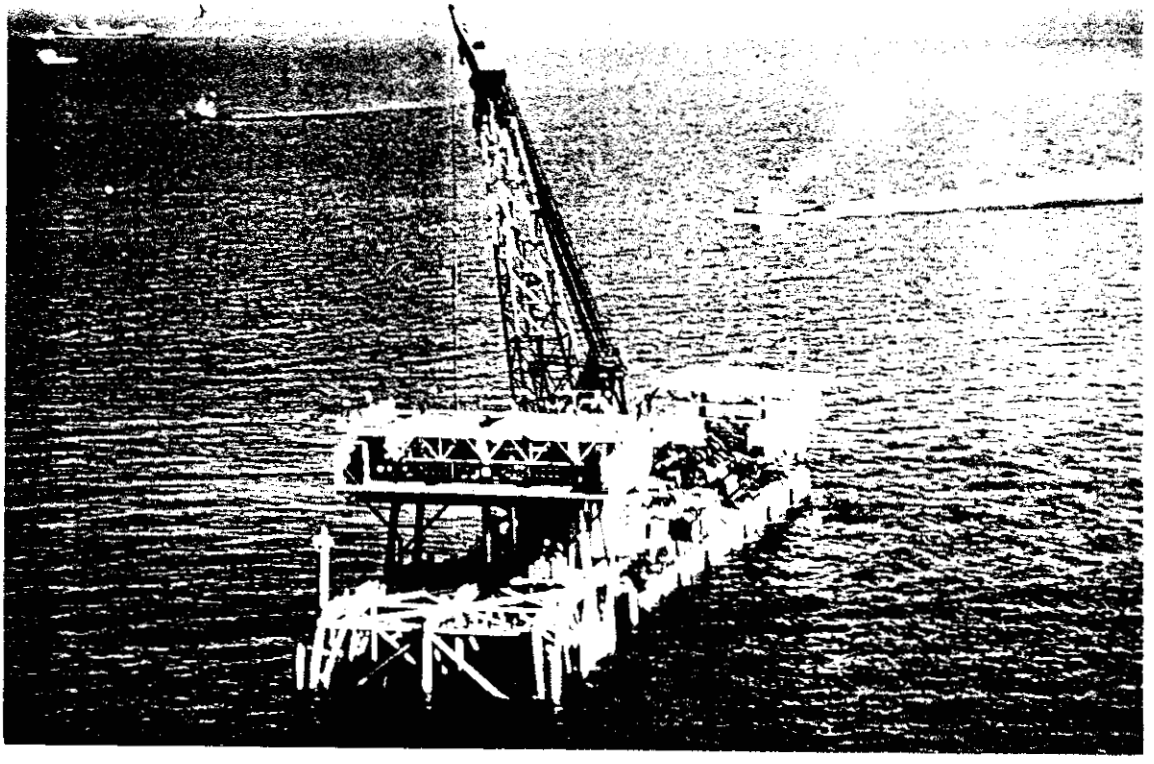
SLIDE 3 JACKET BEING TRANSPORTED



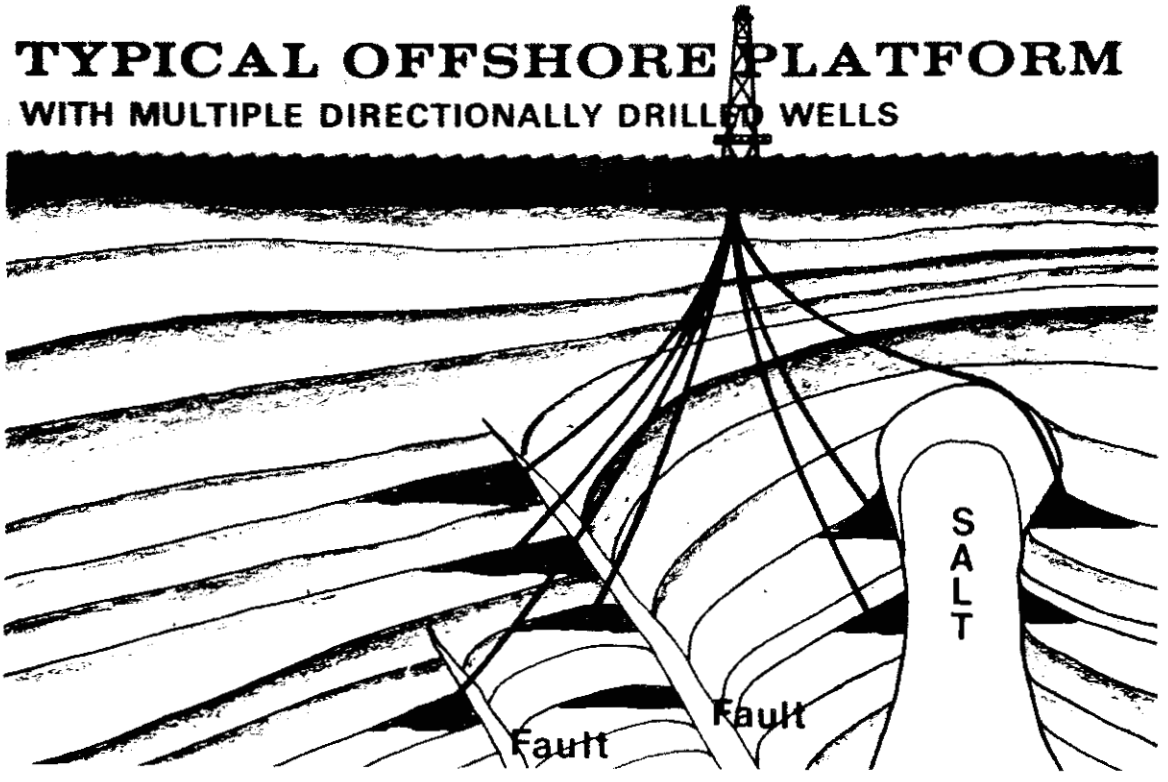
SLIDE 4 JACKET BEING LAUNCHED



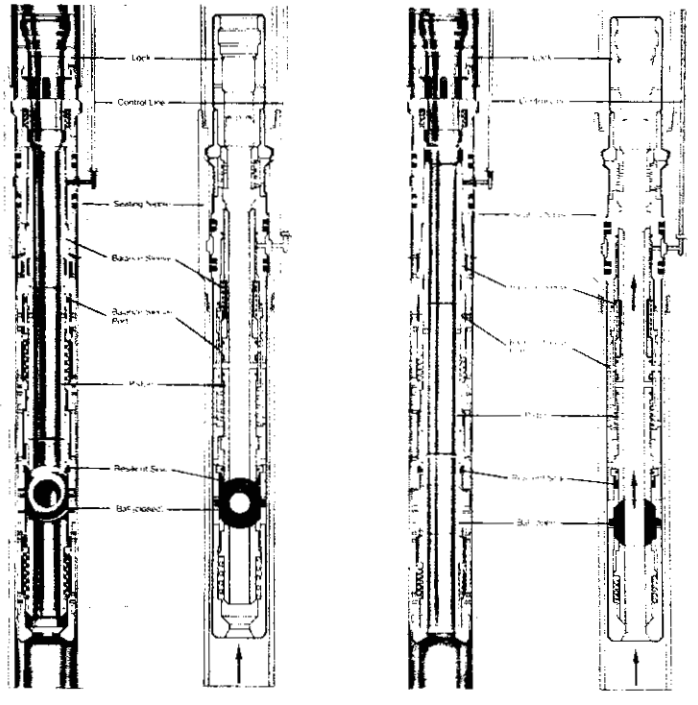
SLIDE 5 PILE DRIVING



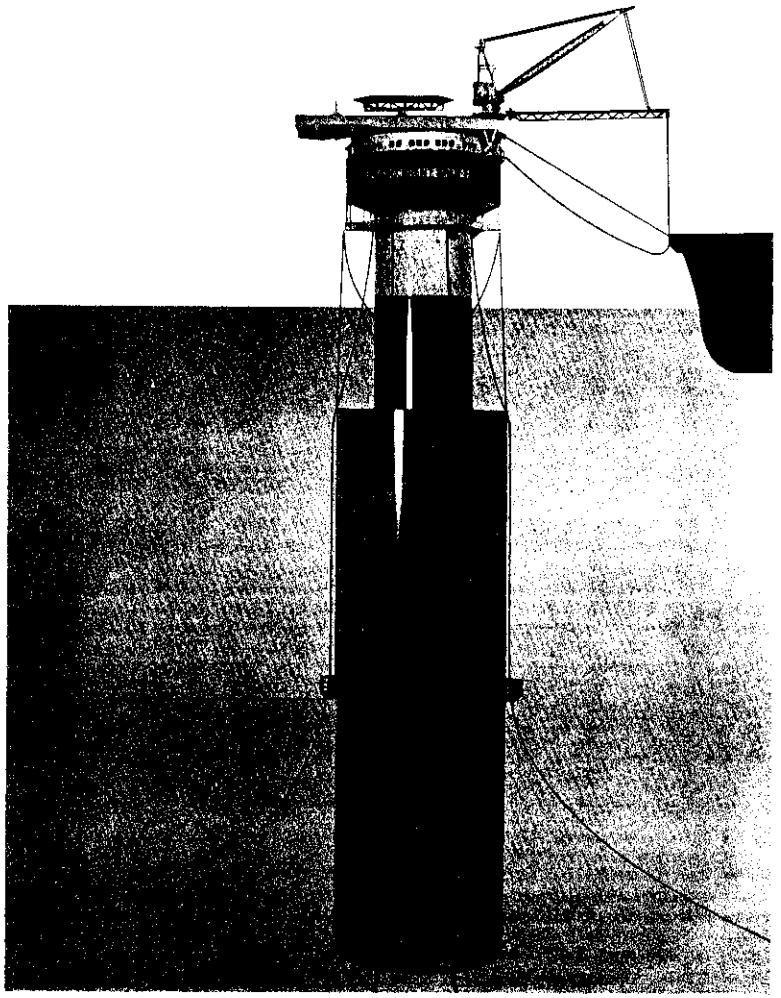
SLIDE 6 DECK LIFT



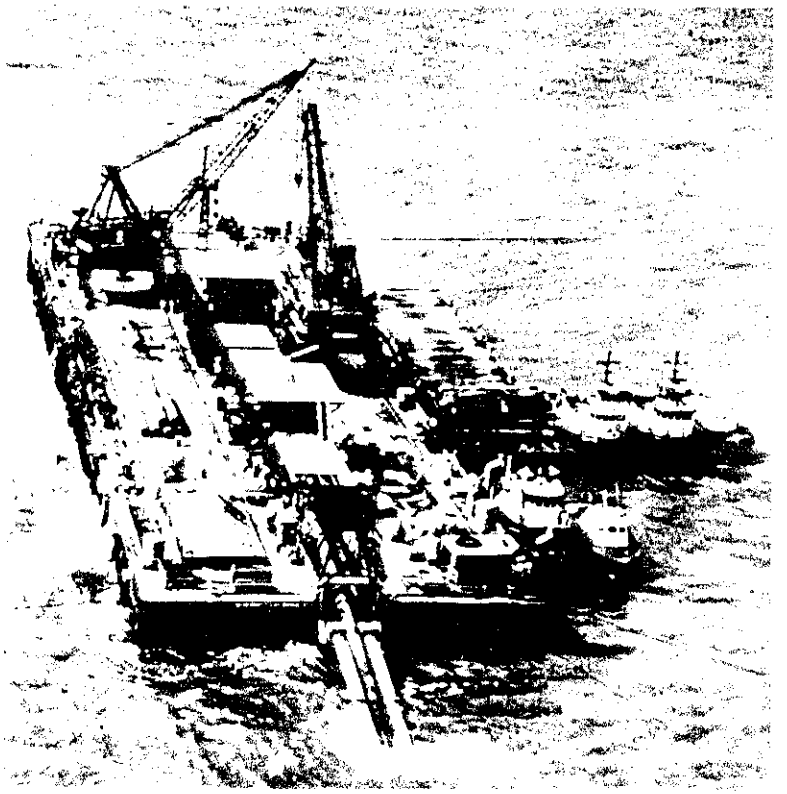
SLIDE 7 SCHEMATIC OF DIRECTIONAL DRILLING



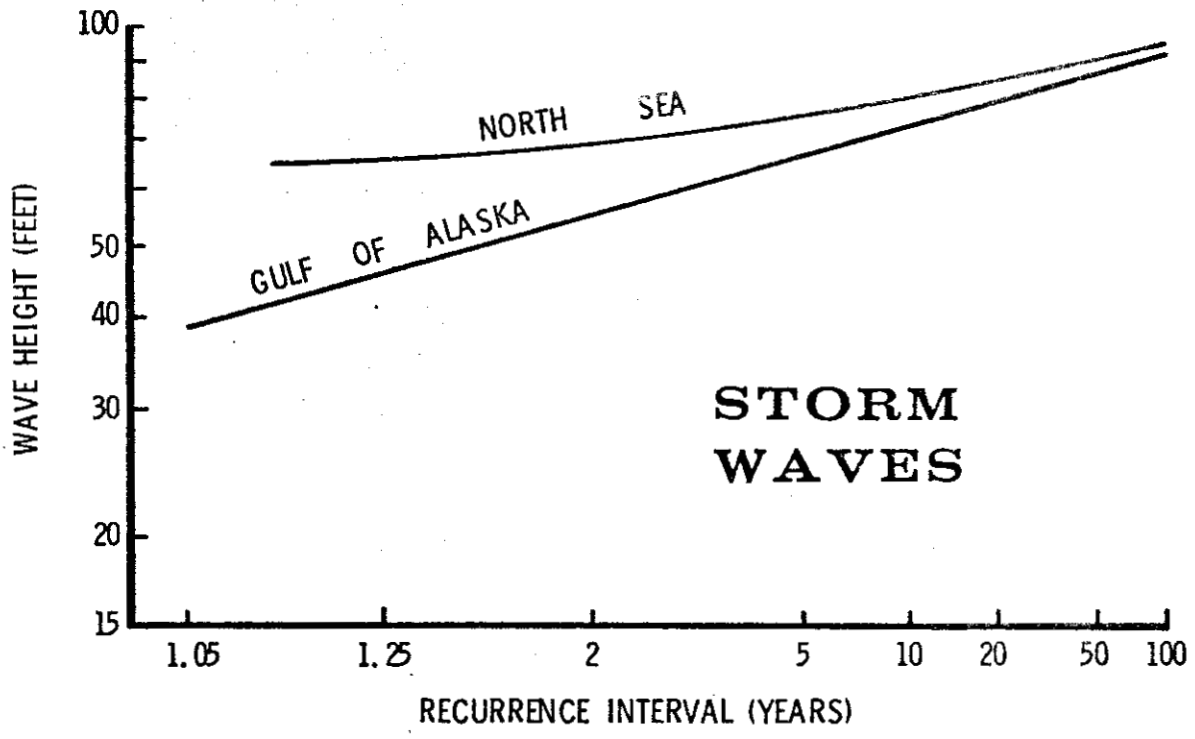
SLIDE 8 DOWN-HOLE SAFETY VALVE



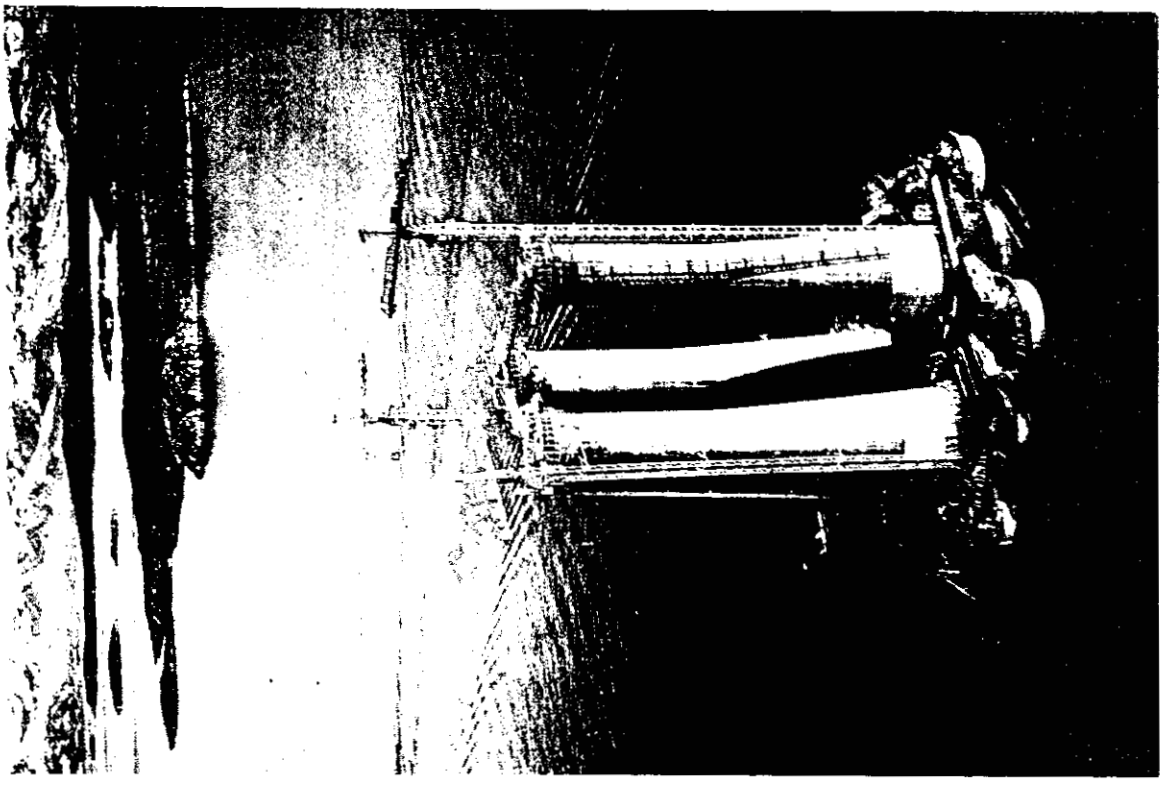
SLIDE 10 OFFSHORE STORAGE AND TANKER LOADING



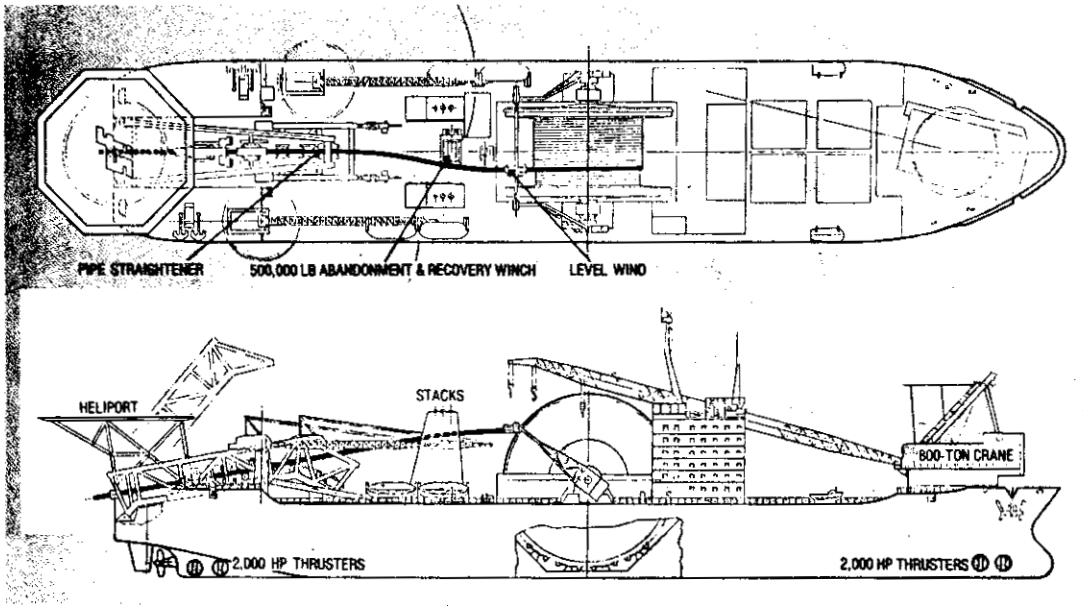
SLIDE 9 PIPELAY BARGE



SLIDE 11 GULF OF ALASKA AND NORTH SEA STORM WAVES

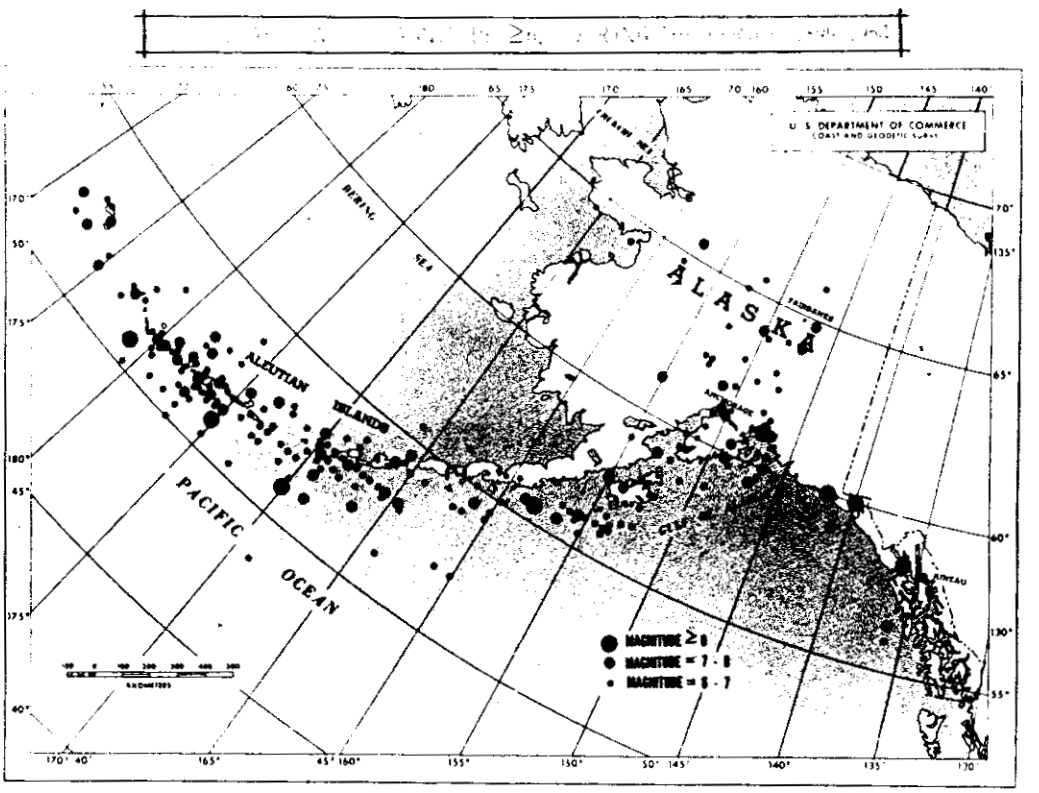


SLIDE 12 CONCRETE, GRAVITY PLATFORM

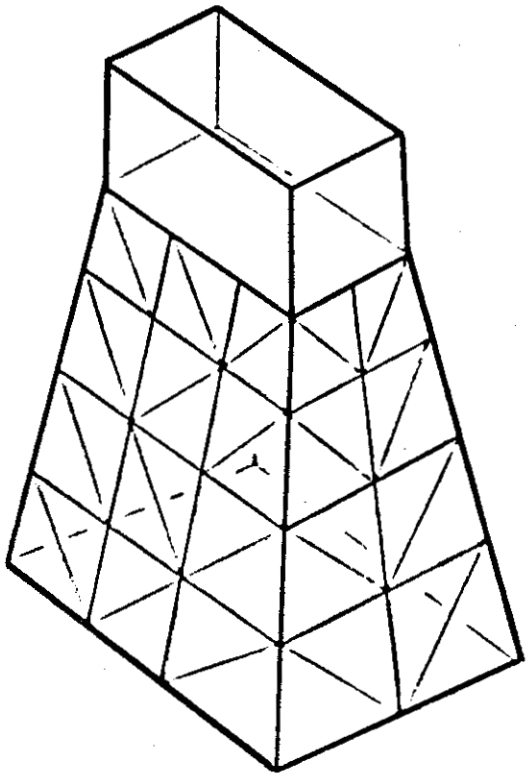


SCHEMATIC OF THE PIPE LAY SHIP A level wind feeds wraps of pipe on and off the reel. As it is wound around the reel, the pipe acquires an ovality of 1.5%, but after it is straightened, an ovality springback reduces this to about 0.1%. Shown here the pipe is entering the water at a shallow angle. The truss can be elevated to increase this angle to 55%.

SLIDE 13 NORTH SEA CONSTRUCTION VESSEL



SLIDE 14 GULF OF ALASKA EARTHQUAKE LOCATIONS



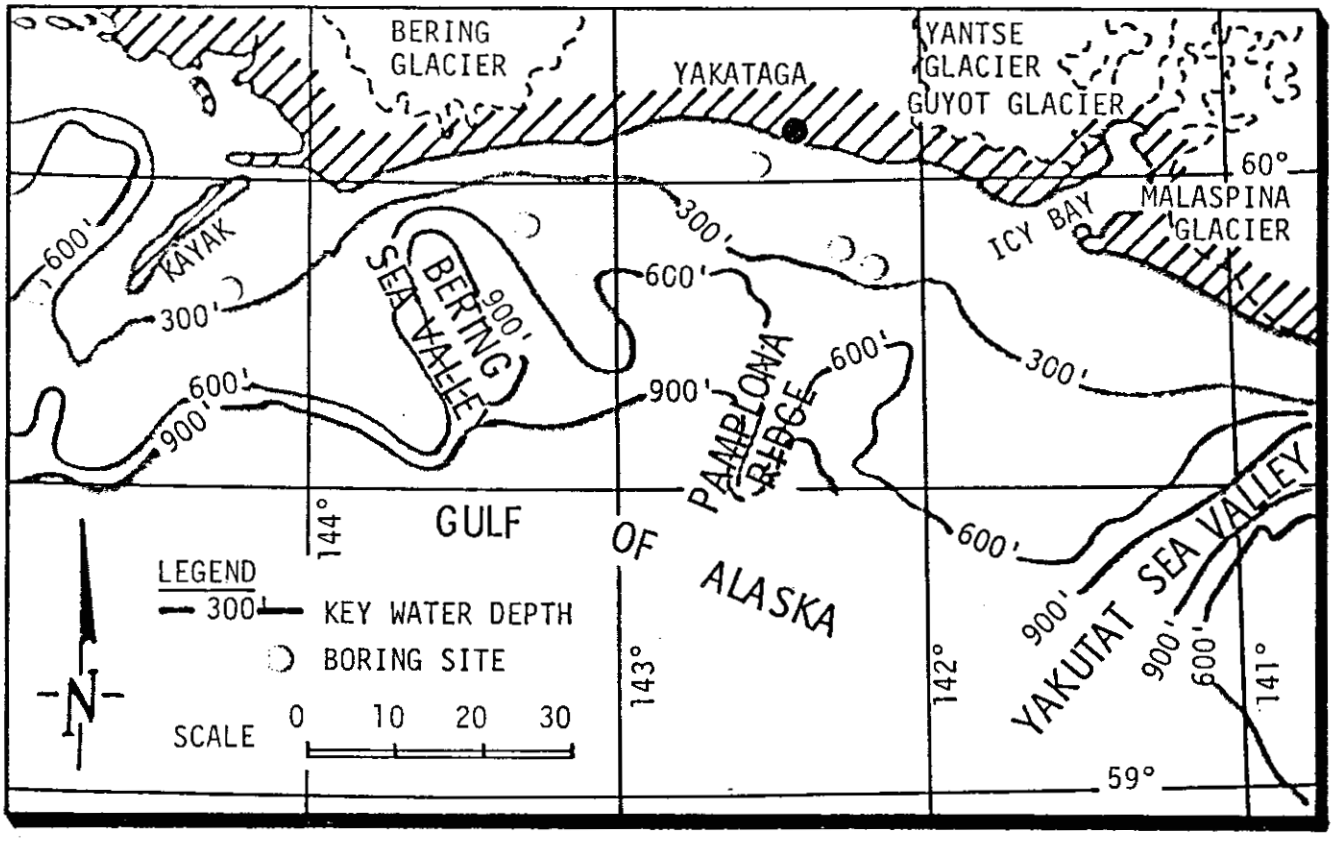
WAVE vs. EARTHQUAKE LOADING

EXAMPLE PLATFORM

IN 300 FOOT WATER DEPTH

FOUNDATION SHEAR	FOUNDATION OVERTURNING
6,000 TONS	1,200,000 TON-FEET
7,300 TONS	1,800,000 TON-FEET

SLIDE 15 COMPARISON OF WAVE AND EARTHQUAKE LOADING



SLIDE 16 SOIL BORING LOCATIONS

SECTION 3 OF 5

DEVELOPMENT AND PRODUCTION

PREPARED BY

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DATE

DECEMBER 15, 1971
REVISED AUGUST 1973

SECTION III OF V

DEVELOPMENT and PRODUCTION

for the

GULF OF ALASKA OPERATORS COMMITTEE

by the

GULF OF ALASKA GROUP OCEANOGRAPHIC SURVEY

TECHNICAL COMMITTEE

DEVELOPMENT AND PRODUCTION

GULF OF ALASKA

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DEVELOPMENT AND PRODUCTION

GULF OF ALASKA

Introduction

Much of the oil and gas produced from offshore U.S. is obtained from what are called self-contained drilling and production platforms. These platforms are built onshore, then towed and set into place at offshore sites determined by prior exploratory drilling. The platforms are pinned to the ocean floor by means of long steel piles placed through the legs. These platforms are truly self-contained with all necessary supplies, equipment, quartering facilities and personnel to operate independently for extended periods.

After the platforms are in place, drilling equipment is set and drilling operations then begin. Wells are drilled directionally from the platforms and the bottom of a well may be over two miles horizontally and as much as four miles vertically from its surface location on the platform. As many as 60 wells have been drilled from one platform but usually there are no more than 24 wells, primarily because of the size limitation of the oil and gas bearing reservoirs.

Gas is transported to onshore distribution facilities by pipelines which are laid on the ocean bottom. These pipelines are buried in surf zones and unusual problem areas. Most oil is pumped to shore through pipelines, though it is also shipped via pipelines to offshore loading facilities (terminals).

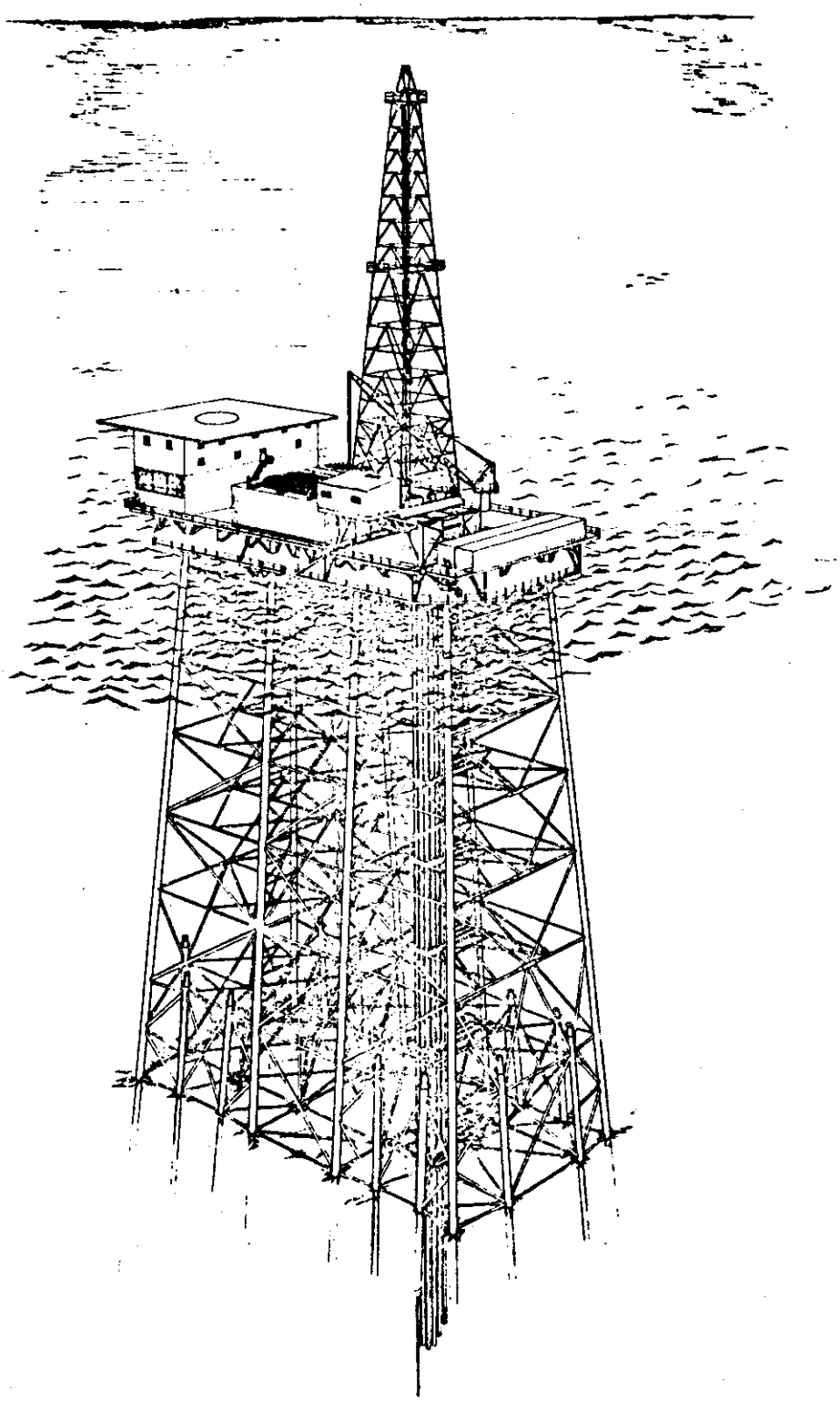
After oil is produced from offshore wells and processed on platforms it is piped to a 500,000-barrel or larger storage tank which is located in over 100 feet of water. The oil is then pumped from the tank through floating hoses to tankers moored nearby. In some fields the tankers are tied to large (≈35 feet diameter) floating buoys and the oil is piped from the storage facilities to the anchored buoys via underwater pipelines to the floating hoses.

The type of development method that would be the safest and most economical for the Gulf of Alaska will depend on water depth, location, and other physical features. Neither the specific ocean environment (waves, wind, etc.) nor the water depths impose insurmountable technological barriers. Platforms and facilities have been designed for environments nearly as severe. Those for the North Sea, for example, are being designed to withstand 90- to 100-foot waves. Platforms have also been designed for deeper waters; one has been designed for over 800 feet of water off the West Coast and one has already been installed in 375 feet of water in the Gulf of Mexico. Five platforms are now being constructed for the North Sea to be installed in approximately 460 feet of water. Analytical methods to design offshore platforms and facilities to withstand earthquakes have been developed and are being improved. Capability now exists for the construction of earthquake resistant platforms but just as in the case of commercial building, construction, design, and analysis work, we are continuing to improve our knowledge and efficiency. Pipelines are being laid in the North Sea in over 400 feet of water so oil and

Platforms

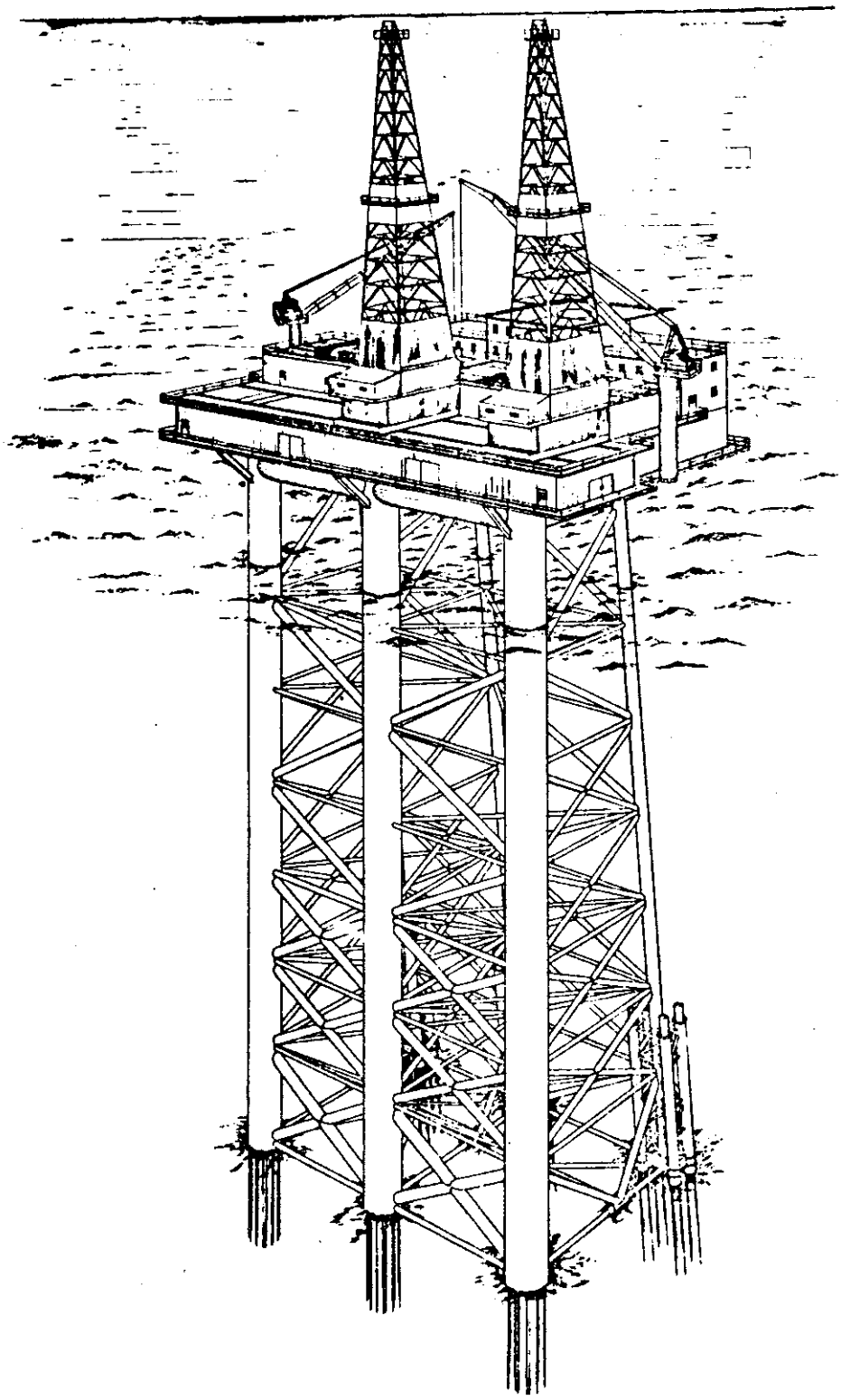
A considerable backlog of experience has been built up over the past 20 years by the oil industry in the design of platforms, especially in the Gulf of Mexico and off the California coast. Though design procedures vary somewhat, the following items are being considered in order to complete the design of a platform:

1. Platform design criteria are being established. Design wave height, wave period, wind and current are being decided upon, using the best available data and analytical techniques. Earthquake criteria are being determined for those platforms that have to be located in a seismically active area. Structural icing criteria are being established if the platform is to be so exposed.
2. Soils information will be obtained from the specific platform site and analyzed to determine the type of foundation which will be required. Sea bottom surveys will be performed to determine water depth, bottom slope, presence of boulders, mud slide potential, etc., for each platform location.
3. The number and location of wells and the type and size of equipment on the platform at various times during its life will be determined. This will establish the platform dimensions.
4. Availability of platform fabrication and installation equipment will be checked. Platform configuration will certainly be influenced by those considerations.



DEEP WATER 350'-450'
TEMPLATE PLATFORM

FIGURE 1



DEEP WATER TOWER/TEMPLATE

FIGURE 3

dual fuel units (natural gas/diesel) which automatically switch from one fuel to the other. This would allow using natural gas fuel and/or diesel fuel during development drilling. The water injection turbines could be fueled by natural gas only. The maximum use of natural gas for power would minimize air pollution potential.

Primary power would probably be high voltage alternating current with the drilling rigs using rectified DC power. Reciprocating gas lift compressors could then use the primary voltage. Shipping pumps, waterflood supply pumps and utility service would probably use transformed AC electric power.

Pressured fuel gas could be supplied by gas turbine powered centrifugal compressors consisting of at least two identical units.

Excess gas can be shipped elsewhere for disposition or can be reinjected. Depending on the quantity available, dehydrated and scrubbed gas can be pressurized for fuel and transmission by the same compressors. A venting system will be required for safety and pressure relief.

Cranes would probably be independently powered by reciprocating diesel engines.

Gas in excess to that required for fuel can be shipped elsewhere for disposition or injected into an appropriate portion of the reservoir. A venting system along with a safety flare will be required for safety and pressure relief.

All facilities will be constructed, equipped, maintained and operated in accordance with OCS Orders and other regulatory agencies as a minimum requirement. The latest oil spill prevention equipment, such as drip pans, segregated drains so that all potentially oily water

Emulsified crude oil may be measured and shipped from the platform via submarine pipelines. Crude oil would be processed onshore or offshore before being shipped to the terminal. The associated or solution gas is expected to be transported ashore for sale to liquified natural gas plants. If economics do not justify such plants, the gas will probably be injected into an appropriate place in the reservoir.

Development Drilling from Fixed Platforms

Development drilling in the Gulf of Alaska from a fixed platform will most likely be from two rigs on each platform. The rigs would be winterized and capable of drilling year-round.

All wells will be drilled in accordance with the Gulf of Alaska OCS Orders as a minimum requirement. Operations would be carried out under accepted good practices, similar to those established in the Cook Inlet.

Development drilling itself has very little impact on the environment except for the increase in activity. Drill cuttings will be disposed of in accordance with OCS Regulations and with whatever other governmental regulations that apply.

As soon as the exploratory program indicates a field large enough for development, construction of platforms for development drilling and future production facilities can begin. This period of time, including moving and installation, is estimated to require two and a half years (Item 4). This phase would be completed approximately seven years from the date of a lease sale. Development drilling (Item 6) will require approximately three years, depending on the number of wells required. It is thus predicted that substantial oil production would not occur for approximately eight years from the lease sale date.

Design construction and installation of producing facilities, pipelines, tanker terminals, etc., (Item 5) will require about three years beginning near the end of the exploration phase.

Maximum rate of production of oil will probably not be realized until an additional two years have elapsed or ten years from the date of the lease sale.

SUBSEA COMPLETIONS

Subsea completions are a relatively recent development in the oil industry's continuing effort to produce hydrocarbon energy to supply today's energy-starved world. In past years sufficient reserves were discovered either onshore or in the relatively shallow offshore areas of California, Louisiana and Texas (less than 300-foot water depths. That picture has changed in recent years and the growing demand for energy has pushed the oil industry into deeper and deeper waters and into the more hostile environmental areas of the world. Since the first commercial subsea completion by Shell Oil Company in 1962 in the Santa Barbara Channel, and subsequent completions by Texaco, Standard Oil Company of California, Atlantic Richfield, and others, this phase of the oil industry has experienced a rapid rate of growth in technology and hardware. The first subsea completion depended on divers for much of the wellhead hookup and therefore the working time on bottom was limited by equipment and technology available in 1962. This limitation alone probably delayed the practical use of subsea completions several years as the economic incentive was not there. This also helped to delay the development of the necessary hardware required for such completions. Subsea completions have been made in most of the offshore hydrocarbon producing areas of the world since these initial completions were made.

Industry interest in areas such as the Gulf of Alaska, Santa Barbara Channel, and deep water areas offshore Louisiana and Texas helped revive the interest in subsea completions. There are several

studied as this affects flowline lengths and sizes, underwater obstacles encountered, relationship to other wells and facilities, and many other factors. Consideration must be given to effects upon other activity in the area such as fishing and shipping in order not to interfere with their use of the area. All these data must be studied before the final decision can be made as to the time economics and physical limits of a subsea completion in a particular area.

The previous discussion has been limited to "conventional" subsea completions, completing one well at a location using presently available tools and technology. Advanced methods of subsea completions are underway. None of these systems have to date been used on a live well, but are in the design or test phase of their development. Three systems that are further along in their development are (1) the cluster concept (Figure 5) where several wells are drilled through a circular template with a service capsule housing controls and valving located in the center, (2) the row concept (Figure 6) where several wells are drilled through a rectangular template with a submersible work chamber servicing the wells, and (3) the single well cellar concept (Figure 7) where single wells are drilled and completed within a large cellar, each cellar serviced by a diving bell-type work chamber. Each of these three systems have merit and parts of each system have been used on live wells. Much development needs to be done in this area as these and other systems have their place in the development of hydrocarbon reserves in deep water and remote areas.

Drilling would be accomplished from either a semisubmersible type drill vessel that is anchored over the drill site or a drill ship that would utilize dynamic positioning with or without the use of anchors.

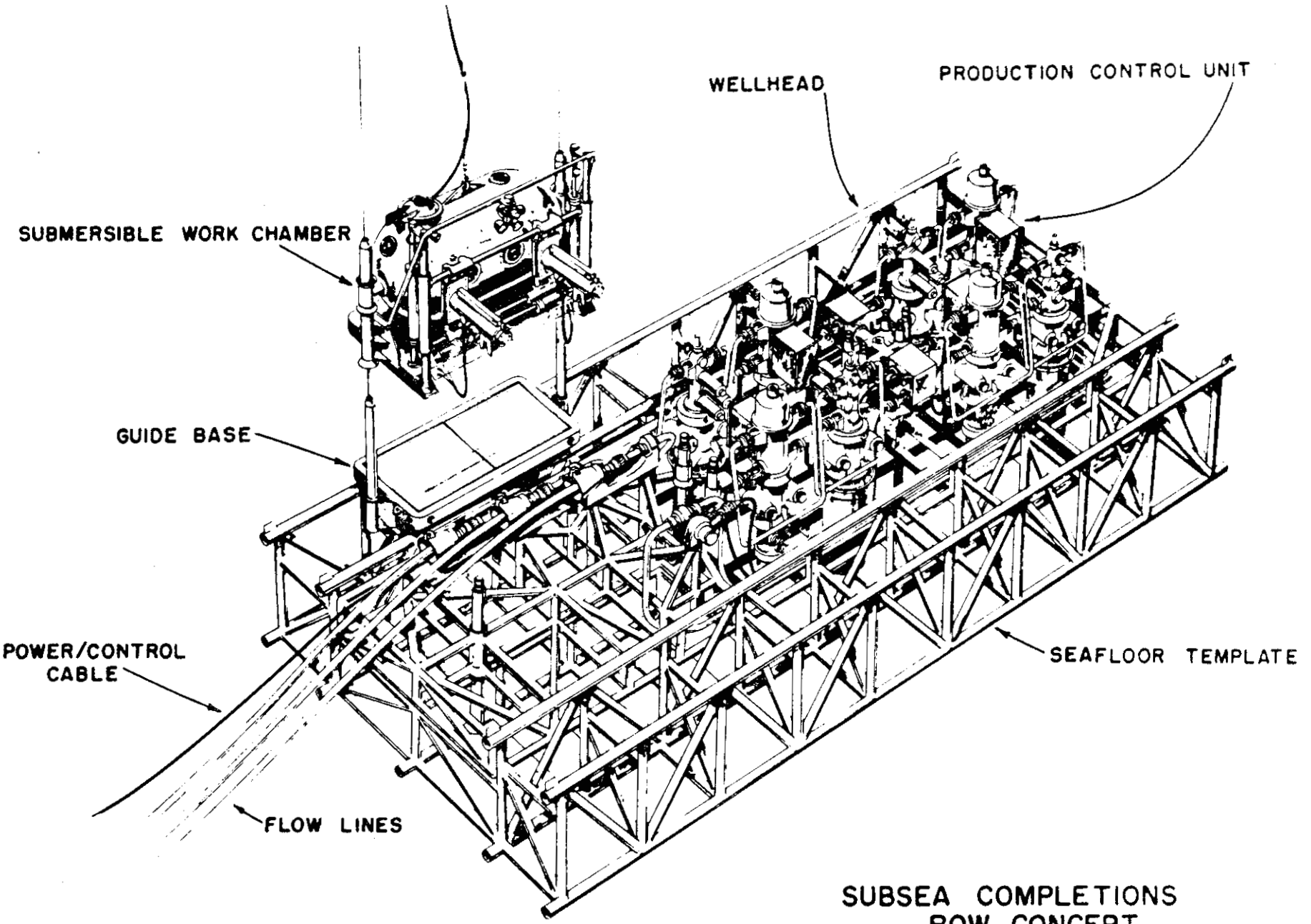


FIGURE 6

SUBSEA COMPLETIONS
ROW CONCEPT

SUBSEA PIPELINES

Pipelines are accepted as the most versatile and consistent means available for moving large volumes of oilfield products. This is especially true in the offshore regime where pipelines have an unparalleled safety and service record. Based on this, it is logical to expect that pipelines will be the primary mode of oil and natural gas transportation in the Gulf of Alaska.

Utilization of pipelines requires a careful and detailed design effort prior to the installation of these lines. This effort includes both on-site field surveys and analytical studies. Current, wave, and tide conditions are evaluated and the forces these environmental actions impose during the installation and the life of the pipeline are quantified. On- and sub-bottom foundation conditions are also investigated and taken into account during route selection for the pipeline. Particular attention is paid to adverse seabottom topography. Areas having unstable or excessive slopes, large boulders and related problems are avoided if possible. Where it is impossible to avoid such occurrences the pipeline and its appurtenances are modified to provide adequate strength and stability characteristics.

Having quantified the environmental and foundation conditions along the pipeline route, the designer is then able to select the size, grade, and wall thickness of pipe required to satisfy installation and service conditions. Typically the grade and wall thickness chosen are a function of the installation procedure used and the site conditions (such as water depth, probable seastate at installation time, etc.) under

of pipeline leaks that have occurred can be directly traced to mechanical damage or to very rare and infrequent occurrences of natural phenomena rather than to failures attributable to design, service, or installation errors. In fact, this inherent safeness makes a well-designed pipeline the ideal means, from an environmental standpoint, for transporting oil and natural gas produced in a marine environment.

Natural conditions in the Gulf of Alaska will impose several difficult but not impossible constraints on the design, installation, and use of pipelines. Among these conditions are the rough sea bottom topography, the hostile weather, the earthquake potential, and the water depths in which potential hydrocarbon carrying basins of the Gulf of Alaska are located. One measure of this hostility is the probable cost of emplacing these pipelines. Costs of nearly $1 million per mile are often quoted for a typical twin pipeline system (two 12-inch pipelines at least 30 miles long) in place in waters not over 300 feet deep.

Because of geological conditions in the Gulf of Alaska, somewhat adverse sea bottom topography can be expected over some of the area. Adverse conditions such as boulder strewn and shifting sand sea bottoms are found in other offshore oil production areas. By proper design and installation procedures the effect of these can be minimized. For example, pipelines are now correctly functioning in both the Cook Inlet and the North Sea under similar circumstances.

Localized on-bottom current, tide, and wave effects must be determined prior to the installation of a pipeline. These effects could require the use of special anchoring devices, burial, or other special installation methods. Considerable precedence exists for the use of these techniques.

A potential for earthquakes exists in the Gulf of Alaska. The means by which to predict their occurrence, location, and magnitude is not yet well known. Fortunately pipelines have proven, in the past, to be relatively insensitive to the effects of major earthquakes. Ground shaking of itself is less hazardous than the hazard of crossing active faults and the hazard of landslides. During earthquakes on land, land slides are commonly responsible for much of the damage to surface structures. Submarine pipelines in the Gulf of Alaska would be routed as much as possible to avoid active faults and unstable slopes.

Hydrocarbon bearing pipelines have been successfully emplaced in waters over 400 feet deep and offshore pipelines have been placed in over 1000 feet of water. From the environmental viewpoint the depth of water in which a pipeline is laid is only important as far as the potential speed with which repairs could be made in case of line damage and resulting leakage. The relative harshness of the general climate in the Gulf of Alaska makes pipeline repair techniques rather depth insensitive.

As prudent operators it is only natural to expect oil companies to utilize the latest in pipeline safety and anti-pollution devices. This is doubly true in the Gulf of Alaska where the environment places such severe limitations on man's activities. Among these

2. The static (no flow) pressure in a pipeline located in deeper waters would most likely be less than the ambient hydrostatic pressure of the seawater around the pipeline. Upon shutdown the pressure in a ruptured line should quickly equalize to the ambient pressure upon initial product loss and subsequent losses should be relatively minor.

As with any venture involving hydocarbons in the offshore regime, there is a certain amount of inherent risk with the use of marine pipelines. This risk is illustrated by the pipeline oil spills of considerable magnitude that have occurred in the past despite the utilization of then current technology and operating plactices.[1] Prudent planning and operation dictate that these occurrences be minimized to a level consistent with the environment in which the pipeline exists. Present day OCS Regulations aid the offshore operator in achieving this consistency by defining minimum acceptable operating practices. In fact, these regulations (and associated orders, etc.) "are designed (according to the BLM) to prevent any major oil spill from occurring in OCS operations except through storm damage, equipment failure, operator error, or vessel collision." To reduce this possibility departmental regulations and orders generally require the use of more than one safety device in the various production systems.

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[1] "Systems Oil Spill Cleanup Procedures" prepared by George A. Gilmore, David D. Smith, Allen H. Rice, E. H. Shenton, and William H. Moser; Applied Oceanography Division, Dillingham Corporation, reported to the Committee for Air and Water Conservation, American Petroleum Institute, approved by Roy A. Gaul, Executive Vice President, Dillingham Environmental Company.

ONSHORE OIL TREATING FACILITIES

In choosing the location for an onshore facility, several things must be considered in this selection. The sites should be located near the beach so that the pipeline will be of minimum length and freight and equipment may be transported to the sites by sea if necessary. The terrain should be high enough to afford some protection from any potential tidal waves from earthquake action and yet it should be near enough to the beach so that a submarine pipeline may be brought ashore with a minimum of difficulty. The location should be situated so that an airstrip may be constructed. Items to be considered in this regard are available material, soil conditions and surrounding terrain. The airstrip should be approximately 5000 feet long to accommodate freighter type planes as well as smaller planes for personnel transportation. Beaches near the facility should be suitable for water-borne freight carriers. There are very few places along the Gulf of Alaska where facilities can be reached by road and this method of access to the facility for all practical purposes is disregarded.

The onshore facility should be so located that there is room for expansion in the future.

There are certain locations where communications are difficult; therefore, the site should be located in a position to provide good communications. The necessity of fresh water at any site is of utmost importance. The hydrology of the coastal area has had little study but water requirements for the small communities along the coastal area have presented a relatively minor problem due probably to the fairly high

GENERAL ENVIRONMENTAL DESIGN AND OPERATIONAL CONSIDERATIONS

Waste Water Disposal

Waste water on offshore platforms will originate primarily from the producing well stream. This and other sources of water will be processed prior to disposal. Treating of waste water will include measures necessary to meet water quality standards set forth by applicable regulatory agencies if the water is to be discharged into the Gulf of Alaska. The methods of processing the waste water for such discharge may include heating, coalescing, filtration, settling, and flotation. In some instances waste water may be disposed of by injection into the producing formations for repressuring and secondary recovery operations.

In those cases where crude oil processing facilities are located at onshore locations only free water will be separated and disposed of on the platforms. Water contained in emulsion with the oil will be removed onshore and processed for disposal utilizing equipment similar to that on the platforms. Disposal of the treated waste water at the onshore facility will probably be accomplished by discharge into the Gulf of Alaska. An alternative method of disposal of produced water at the shore site is to utilize subsurface zones if they are geologically and environmentally feasible and will accept the waste water with reasonably low surface injection pressures. The choice of the disposal method to be used will require a comprehensive study of the feasibility and economics of subsurface disposal versus

4. A mature risk assessment method and policy.

The selection of design criteria is based on integrated assessment of these items.

Seismicity

Seismic activity as revealed by earthquakes in the general area in and around the proposed OCS lease sale area is known to be fairly high. The locations and intensities have been recorded and documented[3] according to locations of epicenters and Richter magnitude. During the period from 1898 to 1961, 602 earthquakes greater than magnitude 5.3 occurred in or adjacent to Alaska. Most of these quakes occurred out along the Aleutian Islands and into the area around Cook Inlet. Records indicate that approximately six of these occurred in the proposed lease sale area. Between December, 1967, and October, 1969, records indicate three occurrences of earthquakes with an approximate intensity of magnitude five (5), with epicenters located within the proposed lease sale area and about fourteen others of a magnitude of four (4) or less. The most recent intense earthquake in the area occurred in March, 1964, and was one of three ever to be recorded in Alaska with an intensity of eight or more on the Richter scale. This quake resulted in much damage in the Anchorage area.

Existing platforms in the Cook Inlet have been analyzed for all environmental forces including earthquakes. Earthquake analyses

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[3] Davis, T. N. and C. Echols, Geophysical Research Report #8 (UAG-R131), 1962, Geophysical Institute, University of Alaska, College, Alaska.

the prospective platform location would be analyzed for load carrying capacity. Areas of very poor capacity would be avoided whenever possible. The topography of the bottom and the type material composing the slope as determined by coring would locate potential submarine slide areas. These areas would be avoided as potential platform erection sites. Marine geophysical tools have evolved to the point that they do a more precise job of mapping subsurface stratigraphy than those tools used on land. Part of this is due to the mobility of marine geophysical equipment allowing a more thorough coverage of a given geographic area. Relatively few fault lines have been found in the area of interest and these are considered to be inactive. Distance from the known active fault lines present in the Gulf of Alaska geologic province and earthquake epicenters generally influences magnitude of the ground motions during an earthquake. The further removed from the epicenters and active faults the smaller the ground motion.

Potential slide areas should be avoided when considering a fixed offshore facility. A potential slide area might be defined as an area composed of any material which may lie on a slope in a stable condition until disturbed by some rare and unusual phenomenon. It may be necessary for pipelines and power cables to be laid across active faults and potential slide areas, however it will be possible to minimize this through judicious selection of line routes. In instances where it is necessary to cross these problem areas, specially designed lines may be necessary. For example, one large line might be replaced with several smaller lines in order to achieve line flexibility thereby minimizing overstress or failure conditions.

Safety

In designing offshore structures for the Gulf of Alaska, safety is one of the most important criteria to be included. The Gulf of Alaska OCS Regulations concerning safety on offshore structures are in a final draft form (USGS) at this time. All structures installed in the Gulf of Alaska will meet applicable government regulations.

Reliable detection, alarm, and safety control systems will be used to protect offshore installations. The latest in technology and equipment will be employed to meet these requirements. The survival capsules have become a popular safety device on offshore installations in the Cook Inlet. These provide maximum protection for personnel working on offshore installations. This method of platform abandonment will probably be used in the Gulf of Alaska. Helicopters and boats will be utilized to evacuate the platforms in an emergency.

At the onshore facilities, as was the case on the offshore installations, alike safety systems will be employed throughout the installation. Remote operating capability will be utilized. Adequate fire fighting capabilities will be provided, utilizing a reliable water source and probably some type of dry chemical. The entire facility will be designed so that an accidental oil spill would be contained within the limits of the facility. This will include adequate impervious diking for the storage tanks on location as well as containment provisions for the treating vessels.

Logistics and Support

Transportation -- The most logical way to move heavy supplies and equipment to the Gulf of Alaska coastal area will be by ship or barge.

would be through the ports of Cordova, which is planned to be connected to the Highway system by the Copper River Highway, and Haines, which is presently connected to the Highway system. Equipment and material could be trucked to either of these locations and then barged to the work area.

Air transportation would play a major role in moving of personnel and smaller supply items. At present Yakutat, Cordova, Middleton Island, and Kodiak have scheduled air service and airstrips at their localities that can handle freight planes. Kodiak has a control tower, Cordova and Yakutat have a flight service station. The airstrips at Seward, Middleton Island and Cape Yakataga are gravel and can accommodate air freight planes but have no control tower and only limited landing aid facilities. There are numerous airstrips for light planes along the Gulf of Alaska coast. Many of these strips are maintained in useful condition by the FAA and are shown on the World Aeronautical Chart.

Undoubtedly the helicopter will play an important part in any operation along the Gulf of Alaska. Since it does not require a graded runway for landings and takeoffs, any open space including beaches is a potential heliport. Twin engine helicopters are now in domestic service equipped with instruments rated for blind flying. These units have a greater range than the single engine helicopters and are capable of staying aloft on one engine. This type of helicopter will greatly minimize the hazards of foul weather conditions that are often very local. This equipment would also reduce the hazard of long (possibly 30 miles or more) over-water transportation to the platform

be an impossibility and that the principal criteria would be the cost of the installation and maintenance of satisfactory service.

Telephone facilities are restricted to the following coastal area communities: Yakutat, Cape Yakataga Airport, Middleton Island, Kodiak, Valdez, Whittier, Cordova, and Seward. All of these centers are tied into the Alaska communications system. The system appears efficient with telephone calls to the Lower 48 being completed rapidly and with a minimum of trouble, and direct dialing is now possible. All work boats should be equipped with ratio-telephone and, if possible, should be able to communicate directly with the main and/or district headquarters.

Post offices are located at Yakutat, Cordova, Seward, Kodiak, Valdez, and Whittier. However, mail probably can be given to the pilots of planes that call at Cape Yakataga or Middleton Island for delivery to established postal offices, if necessary.

Base of Operation -- This type of facility must have sufficient flat or gently sloping areas to accommodate permanent living quarters, equipment housing, pipe ways, tanks, and an airstrip. The site must be on a protected body of water or on waters that are feasible for tanker or barge moorage and offer sufficient protection for the construction and maintenance of a small boat pier. A beach with relatively low cliffs is desirable in addition to a clear approach in the moorage area for tankers.

Living Site -- The most desirable off-duty living situation would be a site where families of working personnel could be accommodated. This would be a community with all facilities such as housing, schools,

located in the large glacial outwash planes and, if necessary, from the numerous streams originating in the adjacent mountain ranges. The water should be of fair quality although it could carry very fine sediment and a high iron content. Salt water intrusion could be a problem with wells that are drilled very close to shore. With the fairly high precipitation rate in the coastal area, wells and/or lakes or streams should have sufficient yield to supply the relatively small estimated need.

The availability of fresh water thus appears not to be a significant problem in the Gulf of Alaska geological province with the possible exception of Middleton Island. At the present time, water is obtained on Middleton Island from very shallow wells in the surficial deposits locally called "muskeg." There is no published information regarding the potential of this water supply but is is doubtful that it would be sufficient for a large installation even if a large amount of storage were provided. Middleton Island will require careful, hydrogeologic study before final selection as a base for a large operation provided that a fairly large reliable source of water is needed. It is probable that desalinization of sea water will be necessary if economics so indicate.

Air Pollution

After oil production has been initiated on a sustained basis, the fuel used to power the production platforms and all other facilities possible, such as those on shore, will be natural gas which is recognized as pollutant-free fuel. All applicable laws relative to air pollution will be complied with.

S T A T E M E N T

OF

LELAND E. WILSON

BEFORE

THE U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT HEARING

ON THE

PROPOSED OUTER CONTINENTAL SHELF
OIL AND GAS LEASE SALE

GULF OF ALASKA

_____, 1975

ANCHORAGE, ALASKA

Mr. Chairman, my name is Leland E. Wilson. I am a 1950 graduate of Tulsa University in Petroleum Engineering. Since 1950 I have worked with Atlantic Richfield Company, primarily in drilling and production activities. I am a registered Petroleum Engineer in the State of Alaska and have authored several technical papers on drilling and production. My experience includes eight years in the offshore areas of the Gulf of Mexico, four years in the Cook Inlet area and three years on the North Slope. For the past three years I have been associated with my company's operations in the North Sea. While the North Sea is not the Gulf of Alaska, there are many physical similarities between these two areas and certain of the operating conditions found in the North Sea will be present in the Gulf. For that reason, the experience of the industry in the North Sea is relevant to this hearing.

In my opinion the North Sea effort has clearly demonstrated industry's proven capability to explore and develop in a severe environment. However, it should be borne in mind that we will be entering the Gulf of Alaska very substantially better prepared, equipped and supported than we were when operations commenced in the North Sea. We will have more and better data on basic environmental conditions and structural design for the Gulf. This results from our industry programs relating to meteorology, oceanography, current data, weather forecasting,

wave hindcast evaluation, superstructure icing and, most importantly, on our evaluation of the significance of this data. We will be entering the Gulf of Alaska with capable, trained personnel and will be able to draw from a well developed and experienced oil industry related infrastructure of capable contractors.

(1) Index Map of the North Sea Area.

It was in 1964 that the governments of the various countries surrounding the North Sea began awarding exploration licenses. Early drilling was confined to the southern portion of the North Sea in water depths of less than two hundred feet. Large gas fields, including Leman Field, one of the largest offshore gas fields in the world with reserves of about ten trillion cubic feet of gas, were quickly discovered. Gradually drilling operations moved northward, and the first major oil field Ekofisk, was discovered in Norwegian waters in 1969. Other new oil fields were discovered at Forties, Josephine, Auk, and Brent, and new gas fields were found at Heimdal and Frigg. The northernmost drilling site of 62° North latitude in the North Sea compares with a latitude of about 60° North for the northern Gulf of Alaska.

(2) Slide of Fields

A total of 975 wells have been drilled in the North Sea since the beginning of leasing in 1964. Of these 975 wells, 725 have been exploratory holes. Of these exploratory wells, 520 were dry holes, 120 discovered gas and 85 discovered oil. Seventeen commercial gas fields and twenty-four commercial oil fields have been discovered.

The North Sea was quite different from other major operating areas where the industry had previously worked. The Gulf of Mexico, although certainly severe at times, did not generate the continual storm environment of the winters in the North Sea. There we have not only sea states of 65 to 85 ft. maximum waves, but we had added the conditions of extremely cold water, heavy swells from the mid-Atlantic and rapid development of storm conditions both from the North and West. Fog conditions were frequent and radio/communications/navigation systems were not as well developed in the North Sea as in the Gulf of Mexico. It is not unusual to have extended periods of downtime due to this wide spectrum of offshore problems, for example: one drill ship which we contracted for was essentially idle from November 15th to February 15th with almost no progress. The semi-submersibles which are better equipped to maintain operations under storm conditions have also been shutdown for weeks at a time due to one or more of the variety of conditions which can cause downtime. The Gulf of Mexico seldom shuts down rigs for such long periods although individual hurricane storms can be just as severe for short periods.

To search for and produce oil under adverse conditions new equipment had to be designed and built. One of the major tasks was to develop drilling and production platforms capable of withstanding the harsh sea and weather conditions. The early drilling in shallow water depths in the southern North Sea was accomplished from existing jack-up rigs. As drilling moved North into more severe weather

conditions and greater water depths, semi-submersible rigs such as are shown on these viewgraphs were used:

(3) SEDCO 135

(4) BLUE WATER III

(5) TRANSWORLD 61

These rigs were utilized in water depths up to six hundred feet and, in summer months, as far north as the Shetland Islands (refer to Viewgraph 1). Generally, these rigs returned to more southern drilling sites in winter months to allow for more efficient operations. However, as demand increased for year-round exploration, as well as for exploration in the far north (up to 62° North Latitude), more sophisticated, heavy,semi-submersibles were built to cope with the sea and weather conditions:

(6) WAAGE II

(7) PENTAGONE DESIGN

(8) SEDCO 700

(9) AKER H-3

(10) PENROD 71

These rigs, some displacing upwards of 30,000 tons, can work safely in gale force winds and high sea states. They are capable of survival in one hundred foot seas and are able to continue efficient operations in twenty to twenty-five foot seas in water depths of over one thousand feet. Most are self propelled, use all-chain anchor systems, and have

crews of seventy to ninety men. Many of these rigs have sustained maximum wave heights of seventy feet and mean wind velocities of over sixty-five miles per hour. In the event of severe storms, a rig of this type can disconnect from the sea floor and ride out the storm, primarily because of its design which offers much less resistance to waves than does a ship shape. Most of this new generation of semi-submersibles are ocean going craft that can, and have, crossed the Atlantic under their own power or with only an accompanying tug.

(11) Illustration of Transparent Design

As of July 1, 1975 there are thirty-five semi-submersible rigs working in the North Sea from about Latitude 56° North to 62° North. It might be noted that all rigs and hull designs are carefully checked by qualified marine surveyors such as Det Norske Veritas, Lloyds, and the American Bureau of Shipping.

In addition to advanced drilling platforms, development of associated equipment has aided in operations in the North Sea and contributed to the fine safety record of these new rigs. For example, major advancements have been made in the design of Blowout Preventers and subsea equipment. Operators regularly use 10,000 psi working pressure equipment although little high pressure has been encountered. The newer equipment allows releasing from the sea floor safely, reconnecting and completely circulating the well prior to opening BOP's. Fail-safe valves, shear rams, redundancy on all safety systems and frequent tests have greatly improved the reliability of all this equipment.

Another major development greatly aiding operations in the North Sea has been better weather forecasting utilizing computers and satellites. These forecasts give us more lead time to prepare for storms and allow a prediction of their duration. Many operators use the London Weather Centre and independent contracting firms to give them twice a day forecasts or even more frequent if storm conditions are worsening. For example, our own Company uses a procedure whereby if weather forecasts are for twenty-five foot seas and/or forty-five mile per hour winds we discontinue drilling new hole, but may continue with other operations which are considered safe such as: logging or running casing. If wave heights are forecast to be greater than thirty-five feet we suspend all operations at the drill floor, pull and lay down sufficient drill pipe to allow the drill string to be hung off on the lower pipe rams with the bit inside the casing. If wave heights are expected to exceed forty-five feet or there is a vertical motion of the drill floor equal to or greater than fifteen feet we pull and lay down the riser pipe with the drill pipe still in the hole at the base of the last string of casing. In this position we are able to ride out the remainder of the storm or if we were moved off location by an anchor slippage it would not be too difficult or expensive to get back on to location again. It is very rare for the personnel to be removed from the rig since the vessel is seaworthy and designed to withstand up to one hundred foot waves.

In order to offset the long distances from operating bases it was necessary to greatly improve support transportation. Long range helicopters with large load capacities have significantly helped to alleviate the distance problem. These helicopters can quickly deliver

emergency supplies and technical assistance when needed. Specially designed supply ships with 1,000 ton cargo capacity are now common. In addition to moving large amounts of supplies in one trip, these ships can serve as anchor handling vessels, supply vessels, towing vessels and safety vessels.

(12) Viewgraph of Supply Boat

Increased storage areas on rigs also help to resolve the supply problem. The larger rigs can store up to 2,000 tons or more of variable loads of muds, cement, water and fuel, as well as items for human consumption. This increased storage capacity helps to prevent in-hole problems as enough materials can be kept on board to cope with emergencies until more supplies can be obtained.

Rigs in the North Sea are manned by much more than a driller and a few roughnecks. Highly trained technical personnel in numerous fields stay on board. On a typical rig in the North Sea will be found superintendents, both for contractor and company, geologists, drilling engineers, electricians, mechanics, sub-sea engineers, mud engineers, cementers, welders, weather observers, a complete marine crew, and a team of expert divers.

There is no doubt that those operating in the Gulf of Alaska will benefit greatly from industry's experience in the North Sea, including the mistakes that were made. For example, certain rig deficiencies noted in the early stages of the North Sea activity have resulted in significant

improvements in structural design, instrumentation, and inspection techniques which will provide much more reliable Units for the Gulf of Alaska than were available for the initial operations in the North Sea. Several rigs which were of inadequate design have failed to perform properly and one jack-up rig and one semi-submersible has been lost in storms. Inadequately designed rigs are now relegated to the Mediterranean and other milder areas. In addition one gas well went out of control and a relief well had to be drilled to control it, however no environmental damage was done during this blow out. Many of the lessons we have learned in drilling in the North Sea will be of benefit to the Gulf of Alaska operation, such as proper marine riser tension, use of motion compensators, proper storm draft, and improved anchor handling techniques.

The success of the North Sea operation reflects the proven ability of the oil industry to explore and develop in a hostile environment similar to that which will be encountered in the Gulf of Alaska. I believe it is reasonable to expect an even better personnel and equipment safety record in the Gulf of Alaska as a result of improvements initiated in the North Sea. Wells are now routinely being drilled East of the Shetland Islands at distances of 200-250 miles from the Aberdeen shore base which require 2½-3 hours helicopter flying time and 24-30 hours boat time each way. Sea temperatures are very similar to that of the Gulf of Alaska at between eight and nine degrees centigrade during the winter months. From what I have seen of the storm data of the Gulf of Alaska it appears that the same frequency of storms and similar sea states can be expected during the winter months.

It is a credit to the governments of the countries surrounding the North Sea and the industry that despite all of this activity no major oil spills or serious environmental damage has occurred. This outstanding record has been achieved even though the area was entered and initially explored with a lack of experience in operating in such an environment and without some of the more sophisticated technology and logistical support which will be available in the Gulf of Alaska.

In conclusion, let me point out that the North Sea is estimated to contain 30 billion barrels of oil reserves and 85 trillion cubic feet of gas reserves. Production should peak at about 2.8MM barrels per day of oil and 10 billion cubic feet per day of gas by 1980, thus making Norway and the United Kingdom self-sufficient. Hopefully, operations in the Gulf of Alaska will help move our country in the same direction. Based on my experience, I see no reason why the industry cannot operate safely and efficiently in the Gulf of Alaska.

(22)

DEPARTMENT OF THE INTERIOR

ALASKA OUTER CONTINENTAL SHELF (OCS) HEARING

BUREAU OF LAND MANAGEMENT

ANCHORAGE, ALASKA 99510

Outer Continental Shelf Draft Environmental Impact Statement
Proposed OCS Oil and Gas Lease Sale #39

Northern Gulf of Alaska
Anchorage Westward Hotel
Anchorage, Alaska

August 12-13, 1975

By
Herman Loeb
Director of Exploration Environmental Affairs

Pennzoil Company

Administrative Law Judge

Members of the Panel -- Ladies and Gentlemen

My name is Herman Loeb. I am Director of Exploration Environmental Affairs for the Pennzoil Company, and I live in Houston, Texas.

It is with a great deal of pleasure that we acknowledge the opportunity to take part in this Department of Interior Hearing which we believe to be a most important key to the future development of the petroleum reserves of this nation.

I would like to state at the outset that Pennzoil is an original member of the Gulf of Alaska Operators Group. We agree with the Group testimony and to avoid redundancy ask that the Panel observe and make note of our concurrence.

We are primarily a natural resources company. Pennzoil Companies are engaged in the exploration and production of oil and gas, copper, sulphur, potash and associated minerals, the sale and marketing of these products.

One of the main thrusts of our corporate efforts is in the field of exploration and a great deal of our personnel and financial planning has been directed to the search for additional reserves of oil and gas. Our management for a number of years has pressed for a firm dependable schedule for OCS leasing, and this Environmental Impact Statement and Hearing with it's accompanying schedule, certainly is a forward step in this direction.

The results of the Department of Interior priority poll as to resource potential rated the Gulf of Alaska as the top choice in the "frontier areas." We believe this poll to be a valid one and concur in this choice.

Pennzoil has for some time been interested in the Alaskan region. As early as 1967, we drilled two wildcats in the Cook Inlet and know first hand of the problems that accompany such an effort. At that time we as well as the rest of the industry worked diligently to prepare for additional sales in the Lower Cook Inlet and the Gulf of Alaska. Nominations were solicited but as we all know, additional OCS sales in the aforementioned areas were never scheduled. It should be remembered that many man hours of exploratory work, seismic and surface as well as subsurface were conducted in anticipation of a sale. We participated heavily in this effort. An Anchorage office was opened in 1970 but due to incumbent delays was closed at the end of 1972. We believe now as we did in 1967 that oil and gas exploration and development can be conducted in the Gulf of Alaska within the existing rules and regulations. We believe that industry has the expertise to adequately protect the environment and to continue its search for urgently needed additional fossil fuels.

However, since the "frontier area" terminology became accepted in President Nixon's Energy Message in the Spring of 1973, a number of extremely important events that have vitally effected this nation's energy resource potential have occurred. To review the chronology

would serve no useful purpose but the documentation of the exploratory effort, we believe to be worthy of note. The long range optimistic approach assumed that hydrocarbon accumulation could be expected in the aforementioned OCS areas, i.e., Northeast Gulf of Mexico, further seaward areas off the Louisiana and Texas coasts, deeper waters off Southern California, the Atlantic offshore, and the Gulf of Alaska.

One of these five areas, the Northeast Gulf of Mexico (Mafla Area) has been drilled and to date results have been discouraging. Recent sales for deeper water tracts off the Texas and Louisiana coasts have been light compared to previous sales indicating possible doubts in regard to commercial accumulation.

The main point is that simply we don't know whether hydrocarbons exist in these four remaining areas. The best geology in the world, ladies and gentlemen, is a little luck and we're going to need plenty of it when we drill these areas. <u>This nation cannot afford to delay exploration in these unknown areas. If no accumulation exists, the sooner we know the better.</u> We believe industry has the expertise to drill and explore in these frontier areas, and Pennzoil welcomes the opportunity to join the rest of industry in taking the financial risk.

As an exploration company, we think it is our primary objective to find new reserves that will make this country less dependent on foreign sources. The leasing of additional "frontier areas" is the most direct, logical and secure method of achieving this objective.

Since 1970 when the Pennzoil Board made the decision to acquire a major position in the Gulf of Mexico OCS, we have accomplished the following as of August 1975:

1. Participated in the last thirteen (13) OCS sales with 47 other companies and obtained interest in 84 offshore tracts.* These groups expended in excess of $1.7 billion of which Pennzoil affiliates contributed $491 million.

2. Within the Gulf of Mexico, Pennzoil and its affiliates have drilled or participated in the drilling of 355 exploration and development wells at a net cost of approximately $103 million.

3. Have set or announced intention to set 27 production platforms on 20 tracts.

4. Have five (5) blocks now on production at a combined gross daily rate of approximately 760,000,000 cubic feet gas and approximately 47,000 barrels of oil and condensate.

The above was accomplished under the existing parameters of OCS Land Act and present State regulations. It is quite apparent that our interest is indeed focused on additional OCS development and future sales.

In conclusion, we would like to stress that our offshore operations were conducted within the existing regulations of the state and federal government and with the constant awareness and protection of the environment. We fully concur that this can and must be done. We look forward to communication and cooperation with the Department of Interior and other state and federal agencies as new areas of the OCS become

*Two tracts dropped - final confirmation on two additional tracts from July 29, 1975 sale still pending.

available. Finally, we welcome the opportunity along with the rest of industry to lease and develop OCS tracts in the Gulf of Alaska with full knowledge of the financial and exploratory risks involved. We believe that these new areas should be leased and that additional reserves will be discovered.

(23)

STATEMENT ON PROPOSED LEASE SALE NO. 39

OUTER CONTINENTAL SHELF

GULF OF ALASKA

DEPARTMENT OF THE INTERIOR HEARING PANEL

AUGUST 12 - 13, 1975

OF

R. W. BYBEE

EXXON COMPANY, U.S.A.

STATEMENT ON PROPOSED LEASE SALE NO. 39
OUTER CONTINENTAL SHELF
GULF OF ALASKA
DEPARTMENT OF THE INTERIOR HEARING PANEL
AUGUST 12 - 13, 1975

R. W. BYBEE
EXXON COMPANY, U.S.A.

Mr. Chairman and members of the panel. I am R. W. Bybee, Exploration Department Operations Manager of Exxon Company, U.S.A. My duties include direct responsibility for my company's exploration activities in all domestic offshore areas. It has been my privilege to participate in your hearings on the Gulf of Mexico and offshore California, and I am very happy to have the opportunity to meet with you on this occasion.

Industry, through the Gulf of Alaska Operators Committee, has made an indepth study of your draft environmental statement, and is presenting comprehensive testimony in response to your invitation to comment. Exxon, as an active participant on the committee, endorses the statements made by committee representatives at this hearing.

It is not my intent to duplicate any of these statements, but I would like to comment briefly on three matters pertinent to this discussion:

First, you have identified the extent of industry interest in the Gulf of Alaska as one of the subjects to be developed at this hearing. It is apparent that industry has a great interest in this sale, on the basis of the No. 1 ranking it gave to the Gulf of Alaska in response to your request for a petroleum potential ranking in frontier areas. Exxon believes the Gulf of Alaska is a prospective area for petroleum exploration and urges that proposed Lease Sale No. 39 be held without delay.

Second, Exxon has been a responsible corporate citizen of Alaska since our first geologic crews initiated their exploratory efforts in the mid-1950's. We recognize our responsibilities of corporate citizenship and affirm that in any future operations we will continue to cooperate with the appropriate State and Federal regulatory agencies as well as local community organizations to ensure that our operations will be compatible with the environment and allow multiple usage of the Gulf of Alaska waters.

Third, Exxon and the industry have demonstrated the technical capability of safely conduct exploratory and development operations in the Gulf of Alaska. The petroleum reserves that have been discovered on the outer continental shelves of the free world result, to a large extent, from American technology which was initiated in the Gulf of Mexico a quarter of a century ago. Since that time, refinements and improved technology have permitted drilling and producing operations to proceed in increasingly difficult environments.

A good example to illustrate the sophistication of our current technology is the North Sea, where substantial petroleum reserves have been discovered and developed under weather and sea conditions similar to those in the Gulf of Alaska. We are confident that we can operate safely and effectively in the Gulf of Alaska.

I would like to emphasize that exploration and production activities can be conducted in a manner compatible with the environment in this area.

The U.S.G.S., in cooperation with the industry, has developed regulations under which extensive exploration and production operations have been safely accomplished. Exxon has operated in a safe and responsible manner in California, the Gulf of Mexico and most recently in offshore Florida.

In conclusion, Exxon strongly recommends that Sale No. 39 be held without delay. We are confident that the resulting activity will benefit our Nation, the State of Alaska, and the local communities including their citizens in the Gulf area.

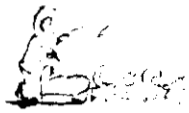
(24)

TELEX 09025-138

Alaska Bussell Electric Company

"AN ALASKAN CORPORATION"

ELECTRICAL CONTRACTORS



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BUSSELL ELECTRIC
P. O. Box 308
Kirkland, Washington 98033
(206) 827-1008

My name is Roger Spencer, Vice President of Alaska Bussell Electric Company, an Alaskan Corporation.

I will leave it to those who employ statisticians and economists -- and computers -- to explain the nation's dependence on fossil fuels, which I am convinced is the case.

And surely there are those here more qualified than I to state again the dangers of over--dependence on unreliable foreign sources for our oil and gas needs -- and I am convinced that these dangers are real.

I will confine my remarks to what I can testify to from personal experience.

First of all, I know that oil and gas development has been good for this state's economy. I have experienced it, and so have the great majority of those I know in the state.

I am convinced that when at all possible the oil companies use local employees and local businesses. As a matter of fact, my firm was not fully qualified to serve the full needs of our oil company clients in the beginning. I was sent outside for special training so that my firm would be more qualified. That the oil companies gave us time to do this rather than bring in outsiders is noteworthy, in my view.

My personal experience in this regard is not unique. Alaska Bussell Electric has more employees by far than would be the case were there no oil development in Alaska. And our employees, hired

locally, have far greater opportunities to learn new skills and to advance within our organization. There are scores, perhaps hundreds, of other such small businesses in Alaska today that are prospering because of oil development.

I could not, in good faith, speak for oil and gas development if economic considerations were not balanced against other aspects of life in Alaska. For example, the environment.

There are two things I know about the oil industry's concern for the environment. One is that the oil companies treat our environment with greater care than do any others I can think of. That includes sportsmen, tourists, homesteaders, Natives, fisherman, sourdoughs and cheechakos.

I can show you examples of this by the dozens right here in Anchorage or in any other community or village in Alaska that I am familiar with. For instance, sewage treatment effluents from camps along the Trans-Alaska Pipeline route are checked for efficiency and if all isn't well, Alyeska gets slapped with fines and adverse newspaper headlines. The other side of the coin is that most communities in the state have inadequate sewage treatment facilities -- or, as is more often the case, they have no sewage treatment at all.

The other thing I've observed which convinces me that oil companies are working to protect the environment is the attitude of their employees.

My work takes me to the platforms in the Cook Inlet and I have never seen an employee who was not conservation-minded. Most are sportsmen and some have commercial fishing interests. These are the kind of people who instinctively refrain from throwing even a candy wrapper off a platform -- and they are the same folks who would never think of throwing a beer can out of their car when back in Anchorage.

To believe these same people would operate carelessly so as to let oil get into the waters around their platform just wouldn't make sense.

All I'm trying to say is that oil and gas development has been good for Alaska and if the environment is suffering, we should look elsewhere for the culprits.

I strongly urge that the proposed lease sale in the Gulf of Alaska be carried out.

Roger D. Spencer

4/12
25

June 30, 1975

Director
Department of the Interior
Washington, D.C. 20204

Re: City of Whittier Position Statement, of oil & gas leasing on the outer continental shelf.

Dear Sir:

The City of Whittier strongly endorses the Department of Interior Plan to explore and develop potential oil and gas sites on the nations outer continental shelf. We favor the early exploration of the Gulf of Alaska.

We are aware of the ctiyical position the nations is in at this time in regard to the petroleum and natural gas needs both for the present and future.

We cannot visualize how a national energy policy can be developed and implemented without an accurate assessment of the resources available. Current estimates by the U.S. Geological Survey and the Alaska State Division of Geological Surveys are of necessity speculative. We believe that speculative element should be removed and national energy management be developed based on known reserves. This knowledge can be obtained only by test drilling in areas showing favorable geophysical and geological characteristics.

We know that the oil companys have the expertise to safely operate off shore drilling rigs, from the experience they have gained by operations in the Gulf of Mexico and the North Sea.

We do not see an incompatibility of fishing and oil leasing activities in the Gulf of Alaska. On the contrary, subject to results of additional environmental studies, I

believe the activities are complementary, both that the fishing industry is dependent on the petroleum industry for its energy source and that additional jobs created by oil leasing will create jobs necessary to diversify our economy.

Very truly yours,

C. Ross Wood

C. Ross Wood
City Manager

CRW:sl

DRAFT STATEMENT

21

Mr. Chairman, Committee Members

~~GOOD AFTERNOON. MR. CHAIRMAN.~~ I AM ROY ROBINSON, PRESIDENT OF THE ALASKA BROADCASTERS ASSOCIATION AND GENERAL MANAGER OF KFIA. I WOULD LIKE TO COMMENT ON THE OIL INDUSTRY DEVELOPMENT IN ALASKA WITHIN A CONTEXT THAT I AM FAMILIAR.

WHEN THE MODERN OIL INDUSTRY MOVED INTO ALASKA A LITTLE MORE THAN 15 YEARS AGO AND ~~SETTLED DOWN~~ HEADQUARTERED IN ANCHORAGE, THIS COMMUNITY HAD THREE RADIO AND TWO TELEVISION STATIONS. THE LIVE RADIO-CASTING OF SOME NATIONAL EVENT WAS THEN THE SUBJECT OF MUCH PROMOTION AND CONSIDERABLE COMMENT. TODAY, THERE ARE ~~EIGHT~~ 9 RADIO AND FOUR TV STATIONS HERE AND LIVE TELECASTS FROM AS FAR AWAY AS OUTER SPACE ARE BECOMING ALMOST COMMONPLACE.

I HASTEN TO ADD THAT I DON'T ATTRIBUTE THIS REMARKABLE INCREASE IN THE INFORMATION AND ENTERTAINMENT MEDIA DIRECTLY TO THE INFLUENCE OF THE OIL INDUSTRY.

BUT OIL COMPANIES HAVE BEEN IN THE FOREFRONT OF SPONSORS FOR PUBLIC SERVICE AND LIVE SPORTS BROADCASTS. AND, WITHOUT THE POPULATION AND ECONOMIC GROWTH GENERATED LARGELY BY THE OIL INDUSTRY DUING THE PAST DECADE OR SO, THE EXPANSION IN COMMERCIAL BROADCASTING SIMPLY WOULD NOT HAVE BEEN POSSIBLE.

THE ~~POINT~~ THING I WISH TO ~~MAKE~~ STRESS IS THAT THE GROWTH IN THIS PARTICULAR COMMERCIAL SECTOR, AND I SUSPECT A LOT OF OTHERS, WOULD NOT HAVE BEEN NEARLY SO GREAT WERE IT NOT FOR THE SUBSTANTIAL REVENUE GENERATED BY THE OIL INDUSTRY PRESENCE HERE.

MORE

BUT THERE IS SOME CONCERN ALREADY BEING EXPRESSED THAT THERE MAY BE A SHARP DROP IN ~~THE~~ THIS PROSPERITY WHEN THE ~~TRANS~~ TRANS-ALASKA OIL PIPELINE CONSTRUCTION IS COMPLETED AND EMPLOYMENT IS EXPECTED TO ~~XXXXX~~ UNDERGO A STEEP DECLINE. SMALL FIRMS COULD BE BANKRUPTED AND CERTAINLY THE LEVEL OF COMMERCIAL SERVICES WOULD BE SIGNIFICANTLY LOWERED, SHOULD THAT OCCUR.

I AM TOLD, HOWEVER, THAT THE RESERVES OF THE ALASKAN GULF ARE EXPECTED TO RIVAL THOSE OF THE NORTH SLOPE AND PERHAPS EXCEED THEM. IF THAT IS TRUE, AND IF WE BEGIN EXPLORATION IN THE NEAR FUTURE, THERE WOULD BE AN ORDERLY ~~XXXXXX~~ TRANSITION OF ACTIVITY FROM ONE ~~XXXXX~~ AREA TO THE ~~XXXXX~~ OTHER WITHOUT ANY SEVERE AND UNNECESSARY ECONOMIC DISRUPTION.

IT WOULD SIMPLY BE GOOD BUSINESS TO GO AHEAD WITH LEASING IN THE GULF OF ALASKA ~~AND EVERYTHING I HAVE READ RECENTLY INDICATES~~ Recent THE NATION BADLY NEEDS ANY NEW OIL OR GAS THAT MAY BE FOUND ~~XXXXX~~ THERE.

THANK YOU, MR. CHAIRMAN, LADIES AND GENTLEMEN.

STATEMENT ON LEASE SALE ON THE
OUTER CONTINENTAL SHELF OF ALASKA

JAMES M.DODSON JR.
EXECUTIVE DIRECTOR

ON BEHALF
OF THE MEMBERSHIP OF THE ALASKA AIR
CARRIERS ASSOCIATION, INC. AUGUST 12, 1975

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President

LLOYD ROUNDTREE
Alaska Island Air –
Petersburg
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Sea Air Helicopters, Inc. –
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Ketchikan

KEN LOKEN
Channel Flying Service
Juneau

LLOYD ROUNDTREE

EXECUTIVE DIRECTOR

JAMES M. DODSON, JR.

My name is James M. Dodson Jr. I am here this evening on behalf of the membership of the ALASKA AIR CARRIERS ASSOCIATION, INC., a wholly Alaskan Trade Association of Commercial Aviation Carriers, both fixed wing and Helicopter, from every part of this state. I am here to speak in support of an early lease sale on the Outer Continental Shelf of the Gulf of Alaska.

Our Association consists of 87 Air Carrier firms who account for an estimated 75-80% of the gross aviation revenues reported to our state Transportation Commission, which last year exceeded $70 million dollars. Of the roughly 1098 aircraft in commercial service in Alaska, my membership operates about 65-70% and employ about 1600 Alaskans.

Our membership vividly recalls the winter of 1973-74 when they suddenly found themselves without assured fuel supplies to continue there service to the public. I don't know who was more concerned about this situation -- the aircraft operators, or the people in the bush who have a near life-and-death dependency on the air transportation services we provide. None of us look forward to a repetition of that potentially disastrous situation.

- More -

The United States has the potential oil and gas reserves to avoid that kind of crisis shortage in the future, if we go ahead now with exploration and development of those potential supplies. Alaska's Off-Shore area in the Gulf of Alaska is one of those areas which should be given the go ahead for exploration and development, now, so that this country can be assured we will never again be humiliated by a small block of oil exporting countries using their petroleum as a weapon and Alaska's population, even though small, can be assured of the continuation of their lifestyle in the remote areas because they will have an air transportation system.

I have been hearing over the past week, in the press, a plea to study the Gulf of Alaska Off-shore oil development more--that we should let the east coast states, who need the oil, develop their off-shore areas first. I believe this to be a classic example of "dynamic inaction and creative delay" as defined in Dr. James Boren's excellent handbook for bureaucrat's, "When in Doubt, Mumble". I don't believe we can better our environmental protection knowledge through "appropriate pondering" any more then we can solve the over-population problem by studying the human gestation period, hopeing, through studied delay, to extend it to 18 months.

The oil companies and the Federal government have been studying the potential of the Gulf of Alaska for at least seven years. I understand the oil potential of the Atlantic continental shelf was just realized in the last two or three years. I am told

the Gulf of Alaska has the greatest geological potential and knowlegable oil people say, on the basis of the years of study, they are, technically ready to proceed here, safely and with knowledge of environmental difficulties they will encounter.

If this is true then it certainly makes sense to me to proceed with exploration in the Gulf while getting ready in the Atlantic. It also makes good sense to me to go ahead with an orderly, steady exploration and development program in Alaska, rather than put up with the economically devastating fits and ~~state~~ STARTS situation we have had in the past as a result of lawsuits and indecision on the part of Public decision makers. Our boom and bust cycles of late in Alaska have been produced, not by market conditions, but by indecision. The small businessman in Alaska, which all my members are, can deal with market conditions, but not bureaucratic indecision and fingertapping.

Alaska has the resources the nation needs for our future security as well as a continuation of our life-style. The longer we delay developing them the more we endanger both our security and life-style.

I thank you for your time.

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(29)

Good morning. My name is James Malapanes, representing Bricklayers Local No. 1 of Alaska. I am here to urge the federal government to proceed with oil and gas leasing in the Gulf of Alaska because I believe it is in the best interest of the nation, the state of Alaska, and certainly, it will be to the economic advantage of the working people in this state.

I read news stories predicting gasoline shortages around the United States this summer and there are regular dire predictions of serious heating fuel shortages next winter, particularly in the eastern United States. Workers in industry and commerce will be the first to feel the blow of fuel rationing because their places of employment will be the first to be cut off, except a few vital service industries.

As for Alaska unemployment, the state is now in the greatest period of economic prosperity in history and yet one-twelfth of its work force is unemployed. During winter, and particularly in the construction trades, this can rise to more than one-half.

The only way any real improvement and balance can be brought to Alaska's employment situation will be through creation of jobs as a result of commercial and industrial development. I realize that leasing and oil exploration in our outer continental shelf areas won't create many jobs or solve next winters fuel problems for the United States.

But if large oil fields are found, the nation will have another reliable source of some badly needed petroleum and Alaska must inevitable experience development of processing and petro-chemical plants which will provide stable, year-round employment.

I know my union won't get any work directly from any oil development in the Gulf of Alaska. But I do know that it takes a lot of energy to produce the tools and materials with which we work. I also know that there isn't very much new construction work to be had in times of economic recession.

To that extent, my reasons for supporting the lease sale may be selfish. If so, I'm not ashamed to admit it.

I thank you for your time.

(30)

SAM KITO
President, AFN, Inc.
August 13, 1975

TESTIMONY

ENVIRONMENTAL IMPACT STATEMENT

FOR THE

GULF OF ALASKA OIL SALE

The Alaska Federation of Natives at it's Board of Directors meeting on July 24, 1975 passed the following motion, "that AFN take a position on the upcoming Outer Continental Shelf lease sale, that the sale be delayed." The Alaska Federation of Natives feels strongly that the Environmental Impact Statement prepared by the Bureau of Land Management for the proposed northern Gulf of Alaska lease sale is totally inadequate. We are strongly opposed to the government rushing headlong into an OCS leasing program in the Gulf without adequate assessment of the socio-economic onshore impact of oil development. We are also concerned that some of the offshore impacts have not been adequately addressed.

The Environmental Impact Statement is filled with statements that leads one to believe that the Department had very little information on which to base their conclusion. As a matter of fact, the section on environmental impacts of the proposed action begins with the following sentence - "Much of the impact data on which this section was based was, generalized, incomplete and not specific to the Gulf of Alaska." It seems to us that there can be no more damning criticism of the EIS than the Department's own words quoted above. We find other similar statements in the EIS as follows:

1. "There are no published studies on phytoplankton species distribution for the proposed area..." page 102
2. "The rugged coastline of the Gulf of Alaska is not well known, and very few of its shores have been described sufficiently to be of any correlative value to ecological studies completed on them." Page 107
3. "There are no published studies or surveys of the marine vegetation in this area." page 111
4. "There is little logic at this time on which to assume the geographic distribution of these facilities or the period of time and the given so the facilities will remain in service." page 542
5. "The actual adverse affects on the fish and the fisheries will depend on a number of factors that are not at present known..." page 572
6. "Presently unknown impacts could be avoided or reduced, but until all studies are completed and analyzed impacts can only be speculative." page 749

The above list is not in no means exhaustive, but we think it points out the deficiencies that exist in the Environmental Impact Statement. The Department indicates on page 748 of the Impact Statement, that a delay of approximately one half to two years "would allow for completion of all pre-operational phases of the environmental studies program in the northern Gulf of Alaska and realize the objective stated earlier." If this time is needed, we cannot understand why the Department does

not take it. There must be a delay in order to get a true assessment of the potential onshore impact of small communities on the Gulf of Alaska.

ENVIRONMENTAL IMPACTS

The Alaska Federation of Natives does not have the technical expertise to comment on some of the scientific factors addressed in the discussion of potential environmental impact. However, we do think there are a number of points that need to be raised. The most important point is that the EIS does not link potential negative environmental impact to lifestyle of people who live onshore. For instance, Tlingit Indians living in Yakutat use both seaweed and herring eggs as part of their subsistence diet. There is no mention of this anywhere in the Impact Statement or the negative impact on the lifestyle of the people should these resources be seriously reduced as a result of any oil spillage. The EIS does not address the potential negative affects of serious reductions in fish, shell fish, clams and other sea resources on the life styles and subsistence living patterns of people living in small communities should major oil disasters take place.

The Environmental Impact Statement also ignores the potential devastating effect of a large increase of population on the fish and wildlife populations. Large increases in population in places like Yakutat, Cordova, Tatitlek, Chenega, and other small communities could seriously reduce populations of moose, deer, fish, and other resources, if the individuals employed in construction and development activity are allowed to compete for subsistence resources that are already becoming scarce.

A recent survey in Yakutat has shown 60% of the people living in the area get between 25 and 50% of their food from subsistence activities. These activities include both Natives and non-Natives and a major reduction of subsistence resources either through oil spillage or over-hunting and fishing resulting from major increase in population would have disastrous negative impacts on the lifestyle of the people of the community.

ONSHORE SOCIO-ECONOMIC IMPACTS

Without question, the weakest section of the EIS is that dealing with Onshore Socio-Economic Impacts. Not only are the discussions about onshore impact of a superficial nature, but many of the assumptions may seem to be ill conceived, if not ouright ludacrist. For instance, on page 595, the Bureau of Land Management makes the incredible assumption that because in 1970, Anchorage had 79% of the population of the places that might be impacted by the OSC sale, that Anchorage will have 79% of the population impact from the Outer Continental Shelf development itself. There is just no basis for this kind of an assumption and as a matter of fact, it is pretty clear that Outer Continental Shelf development cannot take place unless there is considerably more population increases in small communities than the Department presently projects. The population figures discussed on page 592 are warped in another manner. Kenai-Cook Inlet census figures are thrown into the base formula when it seems unlikely that Kenai-Cook Inlet will receive much impact if any, from the northern Gulf sale. There seems to be informed consensus that the primary communities to

be impacted would be Seward, Whittier, Cordova, and Yakutat. It is conceivable that new cities might be developed at some other places.

On page 592, the Bureau of Land Management also makes the assumption that there will be no impact in Yakutat until 1978 and then there will only be 3 people coming to Yakutat as a result of the OCS lease sale. One could laugh at these figures, if they did not bode such potential tragedy for small communities such as Yakutat. There are already more than three people in Yakutat as a result of the Gulf sale and it hasn't even taken place yet.

On page 704, the EIS states "Only if population inducements rise significantly above those projected in this draft EIS, will Yakutat have it's traditional, Native, cultural lifestyles threatened." As we've just pointed out, the population figures are already wrong and the sale hasn't even taken place yet. The Department of Interior states in several places that local planning procedures must be implemented in order to avoid impact. However, if you use the Department of Interior population figures, the amount of planning needed is negligible. Certainly, Yakutat would not have to do a great deal of planning to accept a maximum of 115 people projected by the Department of Interior for Yakutat and Icy Bay. The Department of Interior is doing a great disservice to these communities by not providing accurate information on which the communities can base their planning.

We would also disagree with the assumption on page 704 that "The Bureau has no direct authority to mitigate what CEQ (1974) called

"unnecessary disruption of traditional values and lifestyles". "But that such authority and responsibility rests with the state and local officials at various administrative and regulatory levels." First of all, we believe that the Department of Interior has an extensive responsibility to these people. Not only does the Department have a responsibility because the impacts are taking place as a result of a sale made by the federal government, but in the case of Yakutat and other small communities with significant Native populations, the Department of Interior has a trust responsibility to those Natives to protect them from a destruction of their lifestyle.

Yet, the Department of Interior is doing absolutely the opposite. They are providing the communities with information that is incomplete, inaccurate and at times outright fallacious, and this information is useless for good planning. It seems to us that the population impact figures used by the Council on Environmental Quality are much more realistic and provide for possible impacts of a five to ten fold increase in Yakutat. One of the basic problems in all the discussion of potential impact on small communities is that until the exploration phase has been carried out, it is virtually impossible to project the full impact of the lease sale on these communities. There is no question that there will be some impact from exploration, but the development phase could bring absolute total devastation to the life-style of the communities like Yakutat if major pools of oil are found near the community and if the assumption that BLM makes about the construction of oil rigs out of state proves to be false.

The oil rig construction assumption is a very dangerous one because if the BLM is wrong, then a small community which is targeted for the construction for concrete platforms in state would have thousands upon thousands of workers on these projects. The Bureau of Land Management does not even deal with this as a possibility in their Impact Statement which is just another example of how shallow the Environmental Impact Statement is.

We already know, for instance, that there have been impacts other than population impacts in Yakutat. Land prices have risen considerably because of a major land purchase by oil companies in the middle of town. We have also seen a split in the community as a result of the potential for the lease sale. There is a portion of the community who want to develop now at any cost, whereas, there is also a faction who says we need to wait and plan for what could be a devastating onslaught as a result of the development. Unfortunately, most of the pro-development people are basing their stand on the inadequate population figures which the Bureau of Land Management and the oil companies have been providing. It is clear from the recent survey in Yakutat that even most of those individuals desiring development do not want to see the community of Yakutat grow much beyong 1500 people. The construction of one concrete oil drilling rig would result in a population increase of 2200 people on a temporary basis.

CONCLUSION

In conclusion, we would like to say that at this point, we do not see how the Bureau of Land Management can in good faith proceed with the

sale based on the draft Environmental Impact Statement. There is no question that the Department of Interior has been treating this Impact Statement as a necessary evil which must be dealt with as a written document, but which has absolutely no affect on the Department's decision to lease. Unfortunately, the Environmental Impact Statement cannot come to any rational conclusions about leasing because it is no based on any good assumptions.

Throughout the document, the Bureau of Land Management refuses to share the burden for any of the onshore planning that must take place because of the OCS lease sale, but rather places the entire responsibility on the shoulders of the state and local governments. Then, in the same breath, the Bureau of Land Management turns around and forces a lease sale upon state and local governments before they are ready to plan and work with the major developments that could take place. Even if the oil finds in the Outer Continental Shelf are as large as the government hopes, the impact on national consumption of oil will be practically negligible. It is difficult for us to see why a delay in the lease sale in order to deal with these problems could have any significant, negative impact on the rest of the country.

Finally, if the Department does not find conclusions to it's own questions that were raised throughout the EIS, AFN will attempt to resolve these issues through litigation for the protection of life-styles that could be affected by OCS development.

THANK YOU, MR. CHAIRMAN. MY NAME IS TAMARA CARR. I AM A MEMBER OF THE ALEUT CORPORATION, PRESIDENT OF ARCTIC-PACIFIC, INC., A MINORITY CONSTRUCTION FIRM, AND I AM A PROFESSIONAL REALTOR.

IT IS IN ALL OF THESE CAPACITIES, AND AS A CONCERNED ALASKA CITIZEN THAT I COME HERE TODAY TO SPEAK IN SUPPORT OF THE PROPOSED OIL AND GAS LEASE SALE BY THE DEPARTMENT OF THE INTERIOR.

ALASKANS, AND PARTICULARLY NATIVE ALASKANS, NEED BETTER HOUSING, BETTER COMMUNICATIONS, BETTER TRANSPORTATION, AND ALL OF THOSE THINGS MOST ALL AMERICANS TAKE FOR GRANTED. HOUSING STANDARDS IN RURAL ALASKA, FOR EXAMPLE, ARE ON A PAR, IF NOT BELOW THE DEPLORABLE LEVEL OF THE NAVAHOES. HOUSES, AIRPORTS, BOAT HARBORS AND SATELLITE STATIONS CAN BE BUILT. BUT THIS WILL REQUIRE MONEY AND ENERGY....LOTS OF IT.

ALSO, ALL OF THESE GOOD THINGS OF LIFE WILL HAVE NO MEANING FOR THE AVERAGE ALASKAN, EVEN IF THEY ARE BUILT, UNLESS WE HAVE THE MONEY TO SHARE THEM. THERE WAS NATURAL GAS HEAT A POINT BARROW LONG BEFORE THE FIRST ESKIMO HOMEOWNER BEGAN ENJOYING IT. INDOOR PLUMBING CAME TO BETHEL YEARS BEFORE ANY NATIVE FLUSHED A TOILET.

THERE WERE WITNESSES YESTERDAY WHO TOLD YOU THAT PETROLEUM DEVELOPMENT DOES HAVE A POSITIVE IMPACT ON SERVICE COMMUNITIES BY BRINGING ABOUT IMPROVED TRANSPORTATION AND COMMUNICATIONS FACILITIES. I BELIEVE THAT.

MORE

THESE IMPROVEMENTS ARE DESIRABLE AND NECESSARY THROUGHOUT ALASKA TO BREAK OUR AGELESS PATTERN OF SINGLE RESOURCE DEVELOPMENT. WE HAVE ALWAYS BEEN A ONE-RESOURCE LAND, ALTHOUGH THE PRIME INCOME HAS VARIED FROM FURS TO GOLD TO FISH TO MILITARY AND CONSTRUCTION. IT'S ALWAYS BEEN BOOM OR BUST DEPENDING ON THE HEALTH OF THE ONE RESOURCE.

NOW, WE HAVE PETROLEUM DEVELOPMENT, BUT WE STILL FACE THE NEED FOR A DIVERSIFIED ECONOMY...

WE HAVE THE OPPORTUNITIES NOW TO USE THE SUPPORT FACILITIES DEVELOPED BY AND FOR THE OIL INDUSTRY TO BUILD UP OUR INCOME FROM TOURISM, TIMBER AND MINING. WE NEED MORE THAN ONE WAY TO BRING REVENUES TO THE STATE. WE NEED A DIVERSITY OF ECONOMIC INTERESTS TO BREAK THE SUBSISTANCE LIFESTYLE.

IT IS DIFFICULT FOR ME TO DISCUSS THE ALASKAN LIFESTYLE WITHOUT A VERY PERSONAL FEELING ABOUT THE APPARENT ROMANCE THAT SOME PEOPLE ATTACH TO LIVING OFF THE LAND.

LIVING OFF THE LAND... A SUBSISTANCE STYLE OF LIFE... IS A GOOD LIFE, IF THAT'S WHAT YOU CHOOSE. IF YOU CAN MAKE A LIVING IN SOME OTHER MANNER THAN HUNTING AND FISHING...AND YOU CHOOSE TO HUNT AND FISH, THAT IS FREEDOM. IF YOU LIVE IN A REGION WHERE YOU CAN ONLY MAKE A SUBSISTANCE LIVING AND YOU HAVE NO OTHERWISE MARKETABLE SKILLS, THAT IS SERFDOM, AND WE REMAIN ENSLAVED TO THE LAND.

NOW, THE RUSTIC WILDERNESS MAY BE A TOURIST ATTRACTION TO A WEALTHY ENVIORNMENTALIST, BUT FOR THOSE OF US WHO LIVE HERE, WE WOULD LIKE THE CHOICE OF GAINING SOME MATERIAL WEALTH, AND TO CHOOSE FOR OURSELVES THE BEST WAY OF LIFE.

NONE OF THIS IS TO EXPRESS CRITICISM OF THE SYSTEM. RATHER, IT IS SIMPLY TO POINT OUT THAT UNDER OUR SYSTEM, PEOPLE MUST HAVE THE INCOME TO HAVE A BETTER WAY OF LIFE; AND INCOME MEANS JOBS WITH WHICH TO EARN THAT INCOME. THE COOK INLET EXPERIENCE HAS SHOWN THAT OIL DEVELOPMENT NOT ONLY PROVIDES JOBS THROUGH DIRECT EMPLOYMENT, IT SPREADS REVENUE THROUGHOUT THE ENTIRE STATE. SINCE THE BEGINNING OF OUR CONSTRUCTION EMLIGHTENMENT, THE UNIONS REPRESENTING THE CONSTRUCTION TRADES HAVE OFFERED A FINE PROGRAM OF APPRENTICESHIP TO MANY OF THE ALASKAN NATIVES. ARE THESE PROGRAMS TO COME TO A HALT BECAUSE OF THE LACK OF EMPLOYMENT AFTER THE ALASKA PIPELINE? THIS TRAINING PROGRAM IS THE WAY OUT OF SUBSISTANCE LIVING FOR MANY OF OUR PEOPLE. THESE ARE THE MAJORITY WHO WANT AND DESERVE A BETTER WAY THAN OUR ANCESTORS.

NOT EVERY ALASKAN, WHETHER NATIVEBORN OR NOT, WANTS TO PACK WATER, EMPTY HONEY BUCKETS OR SEE THEIR CHILDREN BROUGHT UP IN A LIKE MANNER. THERE ARE PROGRAMS OPENING UP TO ALEVIATE THIS PROBLEM VIA THE INDEPENDENT REGIONAL CORPORATIONS, BUT AGAIN, WE CAN'T WAIT ANY LONGER.

THE STATES' REQUIREMENTS FOR REVENUE TO MEET THE NEEDS OF ITS CITIZENS ARE HERE AND NOW. IT'S SIMPLY NOT RATIONAL TO DELAY THIS OIL DEVELOPMENT AND FURTHER DELAY FOR WHO KNOWS HOW MANY YEARS, THE OPPORTUNITY OF A BETTER WAY OF LIFE FOR OUR PEOPLE, JUST SO SOME URBAN OFFICIALS AND OFFICIAL PLANNERS CAN HAVE MORE LEISURE TO PLAN WHAT FORM THAT IMPROVED LIFESTYLE SHOULD TAKE.

THE NEED IS NOW. THE OPPORTUNITY IS NOW. EVERY DAY OF DELAY WILL SIMPLY ALLOW MORE TIME FOR INFLATION TO ERODE THE OPPORTUNITY THAT WE CAN GRASP RIGHT NOW.

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TESTIMONY OF R. H. NANZ AT BLM HEARINGS ON
DRAFT EIS FOR GULF OF ALASKA

ANCHORAGE, AUGUST 12-13, 1975

My name is Robert H. Nanz. I am Vice President of the Western Exploration and Production Region of Shell Oil Company. I am here today because I am personally concerned about the issues involved. I am a professional geologist and I have spent just over half of my 28 years with Shell in Exploration and Production Research, both as a researcher and as a director of research. I refer here to my research background in order to establish my professional interest in exploration and production activities. I have served as Exploration Manager for onshore areas of the United States as well as for the West Coast offshore and Alaska. During the past 5 years I have been directly involved in 9 lease sales held for the Gulf of Mexico.

I appreciate the opportunity to participate in this hearing and present our views on energy and related problems. At the outset let me say we share with you and the people of Alaska a common concern for the need for energy. We share an equal concern for protecting the environment while securing that energy. Shell has frequently expressed its belief that energy production and environmental concern can be harmonious. In fact we have a Corporate Environmental Policy which expresses our commitment to conduct all of our operations in a sound environmental manner. This policy is attached for the record with the statement I am filing. Let me add that I believe our record over the past several years shows that we have attempted to live up to that policy and commitment.

You have heard testimony on environmental effects given by the Gulf of Alaska Operators Committee. To save time, I will not go further into this area other than to tell you that we at Shell, and I personally, agree with the information supplied. Further, I will personally commit that our Shell exploration and production activities in this critical OCS area under consideration will be carried out with our best efforts to protect and enhance the environment.

We as a Nation are in deep trouble. In fact, if we continue on our present course, we are headed toward a national tragedy. We are overly dependent on foreign crude oil and are becoming more so each day. Many people were aware of the problem, but the embargo of November 1973 left no doubt. Our economic position in the world has weakened. It didn't have to be this way. We would be in a much stronger position today if we had been permitted to continue to explore for and develop the Nation's oil and gas resources in the frontier areas of the offshore and Alaska. We have waited six years since 1969 for this promised sale in the Gulf of Alaska. Delays in the leasing of offshore areas, the 4-year delay in approval for construction of the Alaskan North Slope Pipeline and the ceiling on natural gas prices are primary causes of our present critical shortage of oil and gas. Expansions of exploratory and development activity as well as increased conservation measures are necessary to help solve this Nation's energy needs and economic problems.

Domestic oil production had been declining since 1970 and is now about 8.4 million barrels a day, a decline of half a million barrels a day from last year. According to the latest White House Fact Sheet, imports will increase to 7 million barrels a day by year end, about 40% of domestic consumption. In addition it is estimated that imports will average more than 7.5 million barrels a day in 1977 if no action is taken to reduce demand or increase domestic supply. Since the added imports are expected to come mainly from Middle East nations, our vulnerability to an embargo will be greatly increased.

Our company energy studies indicate that during the 1980's the required imports will be at a level of about 11 million barrels per day assuming 2.5 million acres of OCS lands will be leased each year and that economic incentives will exist. Now, if, instead of 2.5 million acres per year, we assume no frontier areas are made available, we estimate that the nation's need for imports by 1990 would be increased by an additional 4 million barrels per day. In terms of 1975 dollars and import costs, this would cost the Nation an additional 16 billion dollars per year. This would further weaken our economic security.

If we are ever going to regain command of our own destiny, we must move immediately and aggressively on both strategic and tactical plans. The strategic action should be aimed at our longer term energy problems and the development of greater supplies of power from coal, oil shale, tar sands, nuclear, geothermal, solar and hydro energy sources. None of these sources, however, except coal and nuclear, can provide a significant portion of the Nation's needs in the next ten years. Our tactical action should be to find and develop oil and gas resources as rapidly as possible consistent with sound environmental and economic practices.

One of the alternatives discussed in the draft environmental impact statement is to delay the proposed sale for one-half to two years to allow for completion of all baseline, onshore impact and other environmental studies in the northern Gulf of Alaska. The fact that these studies have not been completed is not a valid reason for delays in leasing.

The impact of exploratory drilling operations on the baseline studies in the coastal areas and the deeper waters would be minimal to none. There would be no pipelines and no tankers. Traffic would be limited to supply boats and helicopters probably at about the same level of activity as in baseline sampling operations. Onshore activity would consist almost entirely of the use of warehouses and storage yards for drilling supplies - pipe, cement, drill bits, etc.

The results of offshore exploratory drilling to determine if oil and gas actually exist and where they exist in the adjacent OCS are a necessary part of the data required for the proper development of coastal zone management studies. It is a waste of effort and money to plan for alternatives which may not occur. Obviously any concern is groundless if all the wells are dry. After exploration there will still be ample time - 3 to 5 years - before oil and gas production could possibly begin in which to complete all of the coastal zone studies.

Where are we going to find the new supplies of oil and gas that are needed to reduce our dependence on foreign oil? We estimate the future undiscovered potential for the U.S. to be in the range of 65 to 155 billion barrels of oil and 225 to 575 trillion cubic feet of gas. In terms of years of supply at 1975 rates of consumption, this is 11 to 26 years' supply for oil and 10 to 17 years' supply for gas. There is, of course, some chance that these estimates are low. For the good of the Nation, let's hope they are.

We have made an estimate of the amounts of future oil and gas that might be found offshore as compared to onshore. We expect about two-thirds of the new oil discoveries and about one-third of the new gas discoveries to come from the offshore.

The frontier OCS lands offer an excellent opportunity for additions to domestic energy production. While this Nation has been deliberating on the leasing and exploration of our offshore areas, other nations of the world have made intense efforts to develop their offshore resources. They are moving ahead to strengthen their economic positions. Exploration is underway in almost all of the offshore areas of the world.

For example, in the Far East almost all of the areas have been or are now under lease.

In the North Sea large volumes of oil and gas have been found and there are plans for further exploration and development.

In the MacKenzie Delta area in Canada, drilling is underway and many fields have been found. There is a great contrast between the almost completely leased situation in Canada - a country which is also sensitive to environmental protection - and the retarded situation on the U.S. side.

A survey of the situation in the world outside communist areas reveals that 34 percent of the continental shelves of the world is now under contract. In contrast less than 3% of the U.S. continental shelf area has been leased. Is it any wonder why we are becoming increasingly more dependent on imported oil?

We strongly believe that all of the frontier OCS areas must be put up for leasing and exploration in an orderly and expeditious manner. We have no assurance that the Gulf of Alaska or any other given area will be productive. Given our current state of knowledge, all we can say is that the potentials for oil and gas in each of the frontier areas are attractive, but naturally in varying degrees. The Gulf of Alaska is at or near the top of most lists.

However, estimates of the potential discoveries are quite imprecise for any new area. A good case in point is the government's and the petroleum industry's estimates of the hydrocarbons to be found in the Mississippi-Alabama-Florida Offshore Sale of December 1973. As expressed by the bonuses bid for the leases, 1.4 billion dollars worth of oil and gas was thought to have been purchased. To date and after the drilling of many wells no oil or gas has been found in the structures of that sale area and the initial exploration effort is almost over. On the other hand very few forecasters would have predicted the very large volumes of oil and gas found on the Arctic Slope of Alaska at Prudhoe Bay.

It is critical to the future of this country that all these frontier areas be opened to exploration promptly so that exploratory drilling can give us the answers to their future productive capability. Energy must not become an exercise in regionalism or an issue which pits state against state. Energy - its development, its production, and its consumption - is a national issue and should be a shared responsibility. We need to know as soon as possible which of these areas have productive capability so that the U.S. industry can gear up to provide the materials and trained manpower to undertake the development activities. More steel will be required from the mills to provide materials for the platforms, the drilling rigs, pipelines and ships. The development of the offshore should create thousands of jobs and put billions of dollars into the Nation's economy.

Industry has the capacity to evaluate and develop the frontier areas in terms of technical expertise, manpower and equipment. The capital requirements will be extremely large but the industry can meet them as it has always done in the past provided the economic environment is favorable.

As you are aware, the petroleum industry is still deeply "in the red" as far as the offshore is concerned. The government gets its share first and since 1954 they have collected in the form of bonus, rental and royalty payments about 95 percent of the total revenue generated so far in the OCS.

Industry's capital for new ventures must come from the revenues generated from the sale of its oil and gas production which includes "old oil" now under price control and interstate gas sales also under strict control. To enable industry to meet these capital requirements oil must be decontrolled with adequate provisions for reinvestment to expand energy supplies. As in the past, borrowing on the strength of future production from the proven reserves will also provide capital.

If the U.S. industries are clearly given a "green light" and a "clear track", they can and will gear up to build the equipment needed for accelerated exploration and production. The industrial potential for such an expansion is present in this country but a stable and hospitable economic climate must be developed to encourage the commitment of the large investments which will be required. Such a climate might also attract home some of the U.S. owned drilling rigs now operating overseas because of lack of domestic work.

The last topic which I wish to discuss briefly concerns policy for exploration and development of the OCS and the method of awarding offshore leases. We strongly believe the present leasing system is the optimum one for the good of this Nation and should be continued without changes for the following five reasons.

Firstly, more oil and gas will be found under the present system whereby the search is conducted simultaneously by many groups using different exploration strategies. No single decision making body, a single company or a government will find a large proportion of the oil. The greatest amount of oil and gas is found by the diverse and parallel efforts of numerous companies each applying its own geologic strategy to the earth's crust. This is recognized by both industry and government professionals. For example, three or four groups tested their strategies on the North Slope before one group finally succeeded. I am

nagged by the thought that Prudhoe Bay type fields might not be found if the concept and decision making of a single group, such as a government agency or one company were substituted for the multi-pronged approach of the current competitive system.

Secondly, the present system provides for an immediate and substantial revenue to the government in the form of bonuses and rentals plus royalty payments and taxes during the life of the production. Concern has been expressed that the public has not received a fair value for their leases. We recently conducted an analysis of the distribution of revenue which will result from the production of oil and gas discovered on OCS leases in the Gulf of Mexico during the period 1964-1973. In this analysis actual prices were used for past production; for future production we assumed that the current price structure would continue. We further assumed there would be no increase in developing and operating costs and no changes in tax laws.

During this period we estimate that the petroleum industry spent about $10.8 billion on exploration alone and discovered 4 billion barrels of oil and 24 trillion cubic feet of gas. In addition the industry spent, or will spend, $9.5 billion for development and operating costs in producing these volumes. Costs of salaries, materials, equipment and services related to exploration and development and daily producing operations which are paid to various sectors of the economy other than the government, take about one-third of the gross revenue. Of the remaining two-thirds, we calculate that the government will have received about three-fourths in the form of lease bonuses, rentals, royalties and taxes, leaving the industry about one-fourth. The government therefore will have received almost three times as much as all the companies in the entire oil industry. Taxpayers put up no money and took no risks. In addition the government received much of its share immediately after each sale as bonus, whereas industry must wait years to begin recovering its investment. The industry profit after tax, therefore, based on discounted cash flow analysis is only about 5 percent.

These data prove that the existing system generates intense competition. I can tell you that from personal experience I know of nothing more competitive than an offshore lease sale. Let me cite some other evidence of this. The high bids in the 15 OCS lease sales since 1967, which totaled $13.6 billion, exceeded the second high bids by $6.3 billion. In other words, 46 percent of the high bids were "left on the table" - were unnecessary to get the lease. The government gets this extra money that is an outgrowth of competition among scores of companies. In addition it does not constitute a barrier to participation by smaller companies as some critics allege. We have been partners with small companies in many sales. Our data show that for the 15 OCS sales since 1967, companies other than the 8 largest domestic producers have shared in two-thirds of the leases and obtained 51 percent of the working interest.

Thirdly, the present method attracts technically and financially capable and responsible operators who intend to follow through with sustained and complete operations. It also maximizes prompt and efficient evaluation and development of leases. Some proposals, such as royalty bidding, do not require any appreciable pre-discovery expense and economic risk and hence encourage speculation. Other proposals, such as profit sharing, do not encourage promptness due to lack of

front-end investment to be recovered nor do they encourage efficiency since the government is paying part of the costs.

Fourthly, the existing procedures place the sole risk of OCS entry and development on the operator. The U.S. taxpayers are not being asked to risk their monies on wildcat drilling. At a time when the budget deficits are at all time highs, it does not appear logical for the government to assume the additional obligation to spend the billions of dollars required for evaluation and development of the offshore.

Fifthly, the present system encourages development of new technology in offshore exploration and development. The dominant source of new technology in the world in the field of petroleum exploration and production has been the United States. The research laboratories of U.S. oil companies and petroleum related contractors have produced the major portion of technical developments. Evidence that American technology dominates the world petroleum scene lies in the fact that about 80 percent of the seismic crews and mobile drilling rigs operating around the world in offshore waters are American. The world recognizes the U.S. as the leader in petroleum technology. Why is this so? I believe the only answer is that the competitive system we have in this country stimulates new technology.

In conclusion, I would like to re-emphasize the seriousness of the energy problems facing this Nation today. The current critical shortages result primarily from delays in the leasing of offshore areas, the 4-year delay in approval for construction of the Alaskan pipeline as well as the artificial ceiling on the price of natural gas. The frontier OCS lands offer an excellent opportunity for desperately needed additions to domestic energy production. Industry must be allowed to get on with the exploration of all of these frontier areas in an orderly and expeditious manner. We believe the industry can and will do the task in an environmentally acceptable manner. And, finally, we believe the present leasing system has worked well in the past and should remain unchanged.

If time permits and there are any questions, I will be pleased to answer them.

Thank you, gentlemen.

The Mapmakers

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Presentation by Brigitte Lively to
Hearing on Gulf of Alaska Offshore Leasing

Ladies and Gentlemen:

Thank you for the opportunity of presenting my reasons why I favor the northern Gulf of Alaska Offshore lease program as scheduled.

I am Brigitte Lively. We live in the Matanuska Valley, about 40 miles from Anchorage, where I also head the operations of The Mapmakers. I have been in Alaska continuously since 1960.

I have no engineering or biological experience, and therefore should not dwell on subject of safety in construction, safety to personnel, safety to the phytoplankton, vegetation, zooplankton, benthic invertebrates, marine fish marine and coastal birds, marine and coastal mammals, and the chemical substances in the ocean's water. I am confident that the engineers and scientists that have developed the offshore drilling facilities that are in use now, are continuing to apply their newly gained knowledge from each fresh condition encountered during offshore drilling in other parts of the world and off America's coast, and are doing their best to uphold a good record. After all, only 4 significant spills out of a total drilled 18,000 offshore wells in the past 25 years is acceptable by any standards of human undertaking.

What I would like to dwell on a little more is a word that has been connected with offshc drilling lately: Logic.

If there is a great demand for a commodity, one tries his best to supply that demand. If one could put a moratorium on hunger, then it might be logical to put a moratorium on finding the resource that satisfies hunger. As you all know, energy derived from oil anc gas is just one of the applications of that resource. Fertilizer is another one. It is not quite logical to develop a strain of wheat that would yield record harvests for under-developed countries, if this strain of wheat is only living up to its potential based on an abundant supply of petrochemical fertilizer. It is not quite logical for American farmers to have to pay 2½ times more for fertilizer within one year because of high import oil prices, when the prices could be held down by using our domestic supplies. A shortage of oil and gas affects our food needs, and the worlds/ just as much as our energy needs. While some of our doom sayers warn us of impending world starvation, they store up on freeze dried food and soybeans for their own needs, and at the same time stifle those whose job it is to supply energy and food to all. That is not good logic. There are other examples of errant logic, and I hope that this honorable committee and others put the testimony of those in proper perspective, who would like to delay the efforts of the oil companies in finding oil; and yet invest their monies in stock certificates of these same companies whom they are fighting. Is it logical for the leaders of a community, who is ensured some 20,000 acres under the Alaska Native Claims Settlement Act(without fear of encroachment) to talk of "cultural genocide", when the sophisticatior which is expressed with such a statement would lead one to believe that with that much knowledge the implied danger could be thwarted, or the upcoming events be turned to the advantage and enhancement of cultural preservation.

This popular logic brings me to another widely used term connected with the circumstance:

f this hearing: Socio-economic impact, which is used in a way to illogically imply: socio-economic disaster. This expected adverse impact on our coastal gulf communities, as well as the often mentioned assault on Alaska itself, and the effect that these exploitive maneuvres have on the land of our children and grandchildren, reminded me of the various books I had read on early Alaska. Can you imagine an "unplanned" impact on communities like Nome with a sudden population increase of 12,000 people, 35,000 going through Skagway, 30,000 though Dawson, Yukon Territory? Have you been to these former boom towns, lately, or others such as Knik Sunny Knik, Ruby, Chitina, Iditarod, Matanuska? Were you able to find some of them at all? Would you not imagine that, first of all, the people in those days in the obvious boom towns did expect a moving on of the populace and a stabilization of things after the height of activity would be over, and planned while the boom was going on, and "made do" with the inconveniences they accepted because they decided to stay with it. Charles R. Tuttle in "The Golden North", a book which he wrote in 1897 shows great insight in describing the impact this gold rush had on one town, and how he and others realized that this boom had to be followed by a let-down, and that was prepared for as the opportunity presented itself; but that this relative unpreparedness, which is in no way comparable to our sitation due to the improvement in transportation, technology, instant housing and communication, as well as our awareness expressed in impact statements, and other studies on the situation in question already, also brought out the greatest virtues in men. Virtues that were totally absent even back in the good old days of '98, in the socalled civilized parts of the United States. Think of how those men of '98 in Alaska's coastal towns, the Interior or the Yukon Territory would have enjoyed the conveniences of a planned socio-economic impact! Or would they? Might they not have profited from a moratorium on gold exploration, so their arrival could have been planned for, their stay been made comfortable, and their departure well regulated, so as not to leave any adverse impact? Whatever the answer, for us these bygone days are a part of our history and heritage, of stories and tales of lives of a people that were unique to us because of the boom and bust aspect. I am sure that most of the people of that era were aware of their special circumstances in their special situation - and they drew the consequences once they chose to be part of it - be it boom or bust. As for the towns themselves - they are romantic reminders - if there is anything left at all - ecological balance restored - historic places which we visit in memory of Alaska's colorful past. Some we even restored in order to remind us of their significant past. I think most uf us are aware of the fact that Alaska and her coast is useful to us for her

(35)

Statement of

W. L. Cole
Vice President Gas Supply
Southern California Gas Company

Presented Before The

Department of the Interior
Bureau of Land Management
Hearings on Proposed Leasing in the Northern Gulf of Alaska

Anchorage

August - 1975

Statement of W. L. Cole
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Hearings on Proposed Leasing in the Northern Gulf of Alaska
Anchorage - August - 1975

I am William L. Cole, Vice President of Gas Supply for Southern California Gas Company and am appearing on behalf of that company and Pacific Alaska LNG Company. I am appearing here today to present information regarding the proposed leasing of Outer Continental Shelf lands in the northern Gulf of Alaska and the importance of such leasing to southern California.

The Southern California Gas Company is a public utility subsidiary of the Pacific Lighting Corporation and has been distributing natural gas to southern California homes, businesses and industry for more than one-hundred years. The Company's service territory includes, generally, the southern half of the State of California. Overall, Southern California Gas Company is the supplier of gas to an area having a population of approximately twelve million. In 1974 Southern Cal's sales and own use of natural gas were in excess of 906 billion cubic feet; it received an average of 2-1/2 billion cubic feet per day from its suppliers. Service to a total of 3.3 million residential, commercial and industrial customer meters makes Southern California Gas Company the single largest gas distribution utility in the United States.

My appearance here today is prompted by the need to stress the importance of the nation's Outer Continental Shelf resources to the natural gas industry and to direct your attention to consideration of natural gas supply problems.

Unfortunately, it has seemed to us that in discussing the advantages and disadvantages of Outer Continental Shelf development, the focus has been exclusively on oil. We feel that there is also a need to focus on the significance of the potential for natural gas resources in the Outer Continental Shelf.

As a nation, natural gas has in recent years supplied approximately 30 percent of our total energy demands. Natural gas customers vary in size from the smallest domestic residential consumer--even apartment house occupant--to large petrochemical facilities based upon use of natural gas as a raw material. In recent years, as the supplies of natural gas have failed to keep up with demand for this premium fuel, curtailment of deliveries to many industries has been necessary. So far this has generally been limited to large volume consumers such as electric generating plants, but in some parts of the country the limited supplies of natural gas have prompted local regulatory groups to temporarily suspend the connection of new gas consumers to the systems of local distributors. In many cases, including our own, the limited supply of natural gas has required curtailment of deliveries to an increasing number of industrial customers, particularly in the colder periods of the year when residential demands are highest. In most instances, industrial customers are required to maintain a capability of utilizing alternate fuels when supplies of natural gas are to be curtailed. Unfortunately, however, many small industries do not have this alternative fuel capability and must rely upon continuing supplies of natural gas in order to remain in operation.

Southern California has long depended upon natural gas as its primary residential, commercial, and industrial energy source. Today gas satisfies 55

percent of this area's total non-transportation energy needs. During 1974 the amount of energy delivered by Southern California Gas Company was 2-1/2 times the energy generated by all the nation's nuclear power plants. Nearly all of the residences in southern California use gas for household heating (92%) and water heating (94%). About 77 percent use gas for cooking. In addition, Southern California Gas Company has nearly 180,000 firm service commercial customers such as schools, hospitals, churches, restaurants, hotels, laundromats, small offices and similar smaller operations. There is no practical alternate fuel available to these customers. Also receiving firm natural gas service are nearly 7,000 customers specifically identified as industrial. Many of these have an essential processs requiring a gaseous fuel. Others have no alternate energy sources because their volumes of energy use are too small for the alternatives to be economically feasible or their facilities are not amenable to installation of the equipment or fuel storage required. A significant portion of this firm industrial service is used for space heating for human needs in industry.

Our regular interruptible class of customers is made up principally of 1,165 large commercial and industrial customers but includes a few residential-type customers. The other interruptible customer class consists of the large utility electric generation customers. Natural gas service to these customers has always been provided on an interruptible basis. As recently as the late 1960's, Southern California Gas Company had served as much as 80 or 85% of the annual fossil fuel requirements of these utility electric generation customers. However, with the decline in available gas supplies which Southern California Gas Company has experienced during recent years, the level of gas service to these customers has declined steadily. It is currently estimated that in 1976, next year, deliveries to these customers will be virtually non-

existent.

That brings me to a discussion of the natural gas supply situation for southern California. Since 1969, we have not been able to contract for any additional increments of gas supplies from our two present out-of-state suppliers - El Paso Natural Gas Company and Transwestern Pipeline Company. On the contrary, under decisions issued by the Federal Power Commission, we have been subjected to major curtailment of supplies by these companies--curtailments which are expected to grow larger in the months and years ahead. In addition, since 1968 the quantity of gas we have been able to obtain from local California sources has declined by about 80%. This situation is not unique. There has recently been considerable publicity given to the deterioration of the natural gas supply situation on a national level. There have been reports indicating that prospects for further curtailments in supply should be expected for the forthcoming winter and that these are expected to lead to increases in the level of unemployment in certain parts of the country. The situation is very serious.

I have attached a chart which illustrates the natural gas supply and demand situation in southern California assuming we do not get any additional gas supplies. By examining this chart you will note the anticipated continuing moderate growth in requirements expected for our service area and you will also note the significant drop in actual and forecast gas supply available to meet those requirements. As I mentioned, this forecast trend in supplies is based upon sources currently available to our system and does not include the possibility of receiving additional supplies which I will discuss shortly. The chart indicates that, under average-year weather conditions of the fore-

cast trend, not only will service to utility electric-generating plants from our system in 1976 be virtually non-existent, but our other interruptible customers will receive severely diminished supplies. You will also note that in 1979 supplies available are estimated to be inadequate to meet full requirements of the firm customers in southern California. This is a dangerous prospect for our community.

One solution that may seem plausible, that is, conversion to electricity is not an answer. A simple calculation can be used to demonstrate this. If no new gas supplies are obtained, the Gas Company would be curtailing 15 percent of its firm or non-interruptible load by the year 1980. To replace this gap in natural gas energy with electricity, it would be necessary to build an electric system having a capacity equal to the entire Los Angeles Department of Water and Power, the nation's largest municipal electric utility. A similar increase in electric capacity would have to be built in 1981. Obviously this is not feasible nor possible. The electric utilities already have their hands full keeping up with their own growth and demand of existing markets.

The substitution of fuel oil or coal in homes and for other small users is equally impractical considering environmental problems and the lack of a distribution system. Of course, this brings out another important consideration recognized in southern California for almost 20 years--that natural gas should be used by industry to the extent possible for environmental reasons.

I mentioned earlier the dangerous prospect of the curtailment of our firm customers. The increasing curtailment of our interruptible industrial customers also has serious adverse economic and other consequences. Those companies,

that for whatever reason cannot turn to alternative forms of energy, are faced with shut down. Whether the shut down be temporary or permanent, the resulting unemployment and economic dislocation, both direct and indirect, presents a frightening picture. Every effort has to be made to get adequate gas supplies to avoid--or at the very least--minimize the curtailment of these customers.

That brings me to the subject of exploration and development of the Federal Outer Continental Shelf areas. Southern California Gas Company is strongly in favor of proceeding with leasing, exploration and development of potentially productive Outer Continental Shelf lands around the United States. Because of the many months and years that will be required to bring any resources in these areas to a point where they can be used to meet local requirements, it is vitally important that the Federal Government expedite this activity as rapidly as possible. We are very concerned about the long lead times that are required from leasing until substantial volumes of gas - and oil - can be delivered. We feel that it is essential to proceed with the necessary steps to develop these lands now.

We have, for a number of years, actively supported the development of our nation's offshore oil and gas resources. At every opportunity, we have taken a position in favor of development of the OCS areas, including those in the Santa Barbara Channel, the Southern California Outer Banks area, the Cook Inlet Basin, and in the Gulf of Alaska. In late 1973, a detailed statement favoring leasing and development of the natural gas resources in the Gulf of Alaska was submitted to the President's Council on Environmental Quality for its consideration. In our planning we recognize that a liquefied natural gas

project will be required to beneficially utilize the natural gas resources developed during the course of exploration in this province. Preliminary studies of such a project have been completed and more detailed analyses are underway. The management of the Pacific Lighting companies has indicated its intention to be actively involved in the marketing of natural gas from this area.

Let me assure you that we understand the environmental concern relating to offshore drilling. We recognize the need for appropriate safeguards, such that the developments we are talking about can be accomplished in an environmentally safe manner. We believe that this can be done. We would not support any proposal which in our view bore an unacceptable risk to the environment. But give industry and man's ingenuity a chance to meet this challenge. Problems have been solved before - and they can be met in the OCS environment.

I don't want to leave you with the impression that we are going to be relying exclusively on OCS development for additional gas supply. We are not. To help develop additional domestic supplies, we are participating in gas exploation in our traditional supply areas of the Southwestern States - New Mexico, Oklahoma and Texas. An affiliated company is participating in a proposed coal gasification facility to be constructed in northwest New Mexico. We are also involved in projects relating to bringing gas from the Arctic areas of Alaska and Canada and in the form of LNG from Indonesia and southern Alaska. But these projects do not reduce the importance of expeditious development of the OCS. The anticipated decline in deliveries of gas to ourselves and other gas companies from our respective traditional sources in the lower 48 point up the need for increasing gas supplies from all sources just as rapidly as

possible.

One other matter. I have been talking about supply. Our management also recognizes the need for conservation of energy. Maximum conservation steps are absolutely essential. However, it is our view that these efforts will simply not be sufficient to eliminate the necessity of developing additional supplies to substitute for the depletion of our existing sources and to meet the growth in energy demand which will exist even with maximum conservation efforts.

SoCal Gas's support for conservation manifests itself in such efforts as our CONCERN program, which gives recognition to builders using energy-saving construction techniques, our residential insulation sales program and our public information program suggesting means of conserving energy to our customers. Our customers have heeded the call to conserve energy. At the present time, consumption by our firm customers, mostly residential, is about five percent below what we would have estimated absent conservation.

Our success, along with that of others, in achieving a solid reduction in energy use through conservation should not be misinterpreted. It does not follow that we will be able to continue reducing energy demand at the previously experienced rate. Much remains to be done in the area of conservation, but we must recognize that the reduction which has occurred is the easily accessible "fat" in our energy load. Additional savings will be much harder to produce.

Now, I would like to make some specific remarks on the Draft Environmental Impact Statement for the proposed Northern Gulf of Alaska lease sale:

#1 On page 4, the authors have indicated possible recovery factors for oil. It is suggested that the authors may also consider indicating appropriate recovery factors for associated-dissolved gas or non-associated gas, or if they do not wish to indicate such recovery factors, perhaps they could indicate the reason for not doing so.

#2 On page 9, the authors have indicated that one LNG plant is expected to be completed in the Gulf area during the year 1983. We can offer no alternative suggestion for this assumed timing, but would point out that any LNG facility must be justified upon the delineation of sufficient natural gas supply to support the economic feasibility of the required investment. In addition, it should be recognized that such a facility should be considered as early as possible during the development history of a province such as the Gulf of Alaska in order to minimize any wastage of natural gas which might occur because of the production of oil during a period prior to the time an appropriate gas market can be developed. In view of these considerations, the timing suggested by the authors for the construction of the LNG plant, by the third year of the development well drilling program, may be appropriate.

#3 In Table 2, on page 13, and at several other places throughout the DES (including, among others, pages 347, 513 and 529), it is indicated that the proposed LNG plant may require approximately 120 acres. We believe that to be near the absolute minimum of space required for such a facility. It is quite possible that the area

required for such a plant may exceed 200 acres, particularly if significant gas reserves (even exceeding those assumed in preparation of the DES) are eventually developed in the Gulf of Alaska.

#4 On page 526, the statement is made that "A producing gas well normally has safety flares ignited." We believe this to be incorrect. Such safety flares have been operated for a number of years on platforms in the Cook Inlet area where oil and associated gas are produced. However, we do not believe that it is a normal requirement to have safety flares in continuous operation where gas is the only produced fluid.

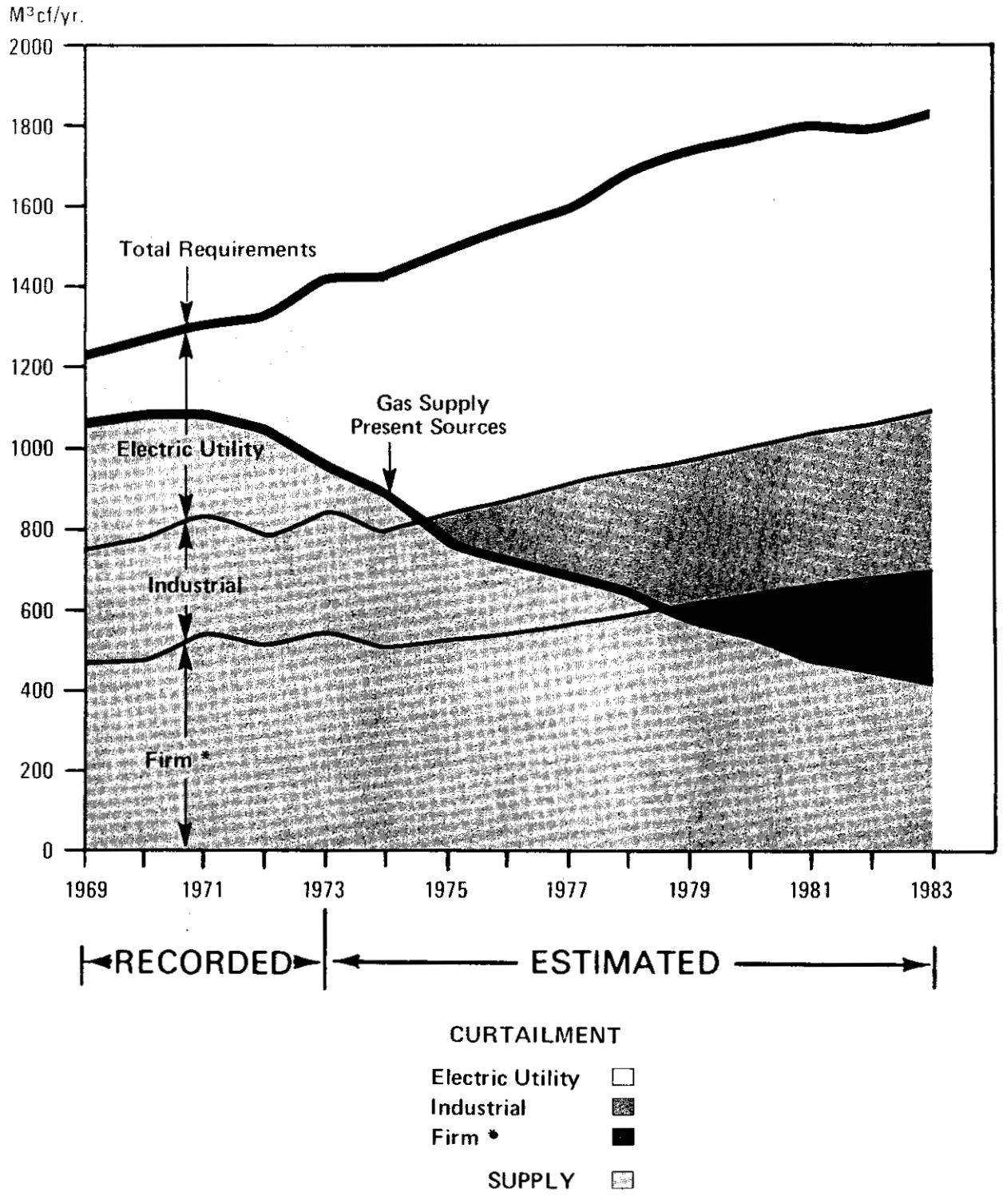
#5 In Appendix 2, on page 2-19, it is indicated in the paragraph designated "A. General" (under the subject heading "5. Oil Well testing procedures.") that "Measured gas volumes shall be adjusted to the standard conditions of 15.025 psia and 60° F. for all tests." We recommend that the Bureau of Land Management, the USGS, and the Department of the Interior, or any other agency concerned, revise such a statement to require the reporting of measured gas volumes on a standard pressure base of 14.73 psia. We feel that this is especially critical in any Federal offshore area where produced gas is likely to be transported, sold or otherwise disposed of under the jurisdiction of the Federal Power Commission. The FPC has standardized all of its reporting and publishing requirements on a standard pressure base of 14.73 psia. If the Department of the Interior could adopt the same standard, particularly for new,

frontier areas such as the Gulf of Alaska, it would simplify the reporting requirements of those companies and agencies subject to government jurisdiction, and would also reduce certain areas of confusion which inevitably arise because of variations in such reporting and publishing standards.

In conclusion, let me stress that in your considerations of the problems related to the development of Outer Continental Shelf lands, do not overlook the potential natural gas resources estimated to be available in those areas and the vital need for such natural gas resources to meet the energy demands in southern California and in the nation as a whole.

Thank you for the opportunity of allowing me to make these remarks to you today.

Pacific Lighting Utilities
GAS SUPPLY-REQUIREMENTS COMPARISON
PRESENT GAS SUPPLY SOURCES



* Residential and other small industrial and commercial consumers not equipped to use alternate fuel

SOURCE: 1974 California Gas Report

(36)

CALDERWOOD AND MANGUS, INC.

CONSULTING GEOLOGISTS

425 G STREET, SUITE 980
ANCHORAGE, ALASKA 99501

907-279-6551

My partner, Keith Calderwood, who is unable to attend this hearing, asked that I make a brief statement for the record. Mr. Calderwood commenced mapping the geology of the Yakataga District in 1953 and has worked in the area intermittantly since that time. He has authored a very comprehensive report of the geology of the Katalla-Yakutat area in the Gulf of Alaska sedimentary province which has been sold to several companies who plan to explore for petroleum in this area. He has personally visited more than 50 oil and gas seeps along the coast some of which are comparatively large (up to 1/2 barrel per day). Some of these seeps have been known since 1898 and were the cause of the early drilling in the old Katalla oil field which was the first commercial oil field in Alaska.

It is our opinion that the seeps and oil development of the past have not adversely affected the environment and that development of the anticipated offshore reserves can be done safely and without seriously affecting the onshore and marine environments of the Gulf of Alaska.

(37) STATEMENT GIVEN 8-13-75 AT BLM HEARINGS ON THE DRAFT EIS IN THE GULF OF ALASKA

My name is Chuck Evans and my testimony presented today is as an individual, however, I feel that I should qualify myself to speak. Therefore, I will give you a sketch of my background.

I spent fifteen years in the exploration and production department of a major oil company working in all of the important domestic petroleum provinces. I have been an Alaskan for nine years. I am presently the head of the Petroleum Department of The First National Bank of Anchorage. I hold degrees in business, geology and law. I am the former chairman of the Planning & Zoning Commission of the Greater Anchorage Area Borough and am presently an Assemblyman of the Greater Anchorage Area Borough Assembly. I have also lectured in the field of oil and gas economics throughout Alaska.

It has been said that if all economists were laid end to end they couldn't reach a conclusion. In variation it has been suggested that if these same economists were laid end to end, it might be a damn good thing. In spite of these comments, I would like to present testimony in the area of socio-economics.

Prior to entering that area, however, I feel very strongly that the technology to explore - and hopefully with discovery to develop - the OCS, Gulf of Alaska is available and has been for some time. History alone will tell you that the oil industry does not first explore in this era of enviornmental enlightment unless their exploration is technologically perfected. Obvious examples are the Cook Inlet development and the North Slope exploration.

The oil industry has been in Alaska for many years but not until 1957 with discovery of Swanson Field on the Kenai Peninsula was the decision made by the State of Alaska to hang its economic star on the oil and gas industry. It was a good decision.

The oil industry is giving to Alaska the only solid long term economy that we have ever had. Don't become so enamored with unreasonable environmental restrictions that you forget the socio-economic needs of the Alaskan people.

We are presently building a pipeline from the North Slope to Valdez and although I do not believe that we will suffer a great economic recession after its completion, I do feel that to insure strong economic growth, we must have development in other areas which have the potential of producing hydrocarbons. The Federal Government is ready, the oil industry is ready and the people of Alaska's need's are crying out for OCS sale in the Gulf of Alaska to solidify and expand our economic base. The OCS sale will provide jobs for people not only in Yakutat, Cordova and Kenai, but also in the Anchorage area. The money placed in our economy from jobs is the best money for our community for it doesn't filter through the hands of politicians as in the case of royalty or tax revenues. Jobs for people are the true measure of success in a community.

If there is a problem with impact, it's not impact caused by the oil industry but rather impact caused by non-responsive government that has cautioned on growth but reluctant to prepare for it.

I have in my capacity as an assemblyman and planning commissioner stated that we must prepare for that growth that will come from development of our some fifteen sedimentary basins in Alaska. My warning has not been particularly pointed toward the oil man coming into the state because they come with a job. They are an unique breed that participate in community affairs. A survey done some years ago pointed out that some 80% of them owned their own houses, an excess of 80% voted in elections and it is apparent in the Anchorage area at least that their families participate in community affairs. They don't live off the community but contribute to it.

A real impact comes from those fire flies attracted to the light of success and this is the impact we must prepare for. Those people that come to Alaska and claim life style protection, but in reality are the unemployed and the unemployable. They are here today and were here yesterday - ask them if they participate in a positive manner in our communities or is their's a negative life style.

I would like to conclude by saying that the reason the state doesn't want the OCS sale is that they need the revenue that will be produced from either development on state lands or on federal uplands and in their myopic vision they do not want the direct benefit of a solid economy that guided growth will bring. Had the state planned its spending as well as the oil industry has planned its exploration and development, the state would not be in the financial straits that they are in today.

I do believe, however, that coastal states should share in the revenues from OCS development - at least in a greater percent than non-coastal states and that federal impact funds should go as directly as possible to those communities impacted.

I see by the increased deposits in my bank that the people have money and the living is good, but let us solidify this growth by spreading our exploration and development base in other areas that are highly potential for the discovery of hydrocarbons and provide the opportunity for employment to all Alaskans and thereby freedom of economic independence.

Do not delay the outer continental shelf lease sale in the Gulf of Alaska.

Thank you,

CHUCK EVANS

THE ALASKA CHAPTER
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
BOX 4-2500 • ANCHORAGE, ALASKA 99509
TELEPHONE (907) 272-3417

SKILL
RESPONSIBILITY
INTEGRITY

3201 SPENARD ROAD
ANCHORAGE
GEORGE ED. SMITH
MANAGER

August 13, 1975

Secretary,
U.S. Department of Interior

Thank you, Mr. Chairman. My name is Steve Stephens and I represent the Alaska Chapter of the Associated General Contractors. I am here to speak in support of the proposed OCS lease program in the Gulf of Alaska.

We endorse this proposal because there is no question but that the United States needs additional sources of domestic oil and there is good reason to believe that some of it can come from the Gulf of Alaska.

In fact, I haven't heard anyone say lately that the Gulf of Alaska shouldn't be explored and developed. Some people are saying that the program should be put off a few months, or a few years, for various reasons. One says we need more research. Another says wait until the State gets a coastal zone management law to better regulate the activity. A third says hold off until the State is guaranteed a share of the revenue by act of Congress.

There can never be enough research to satisfy some people. The industry says it is technologically ready for safe operations in the Gulf and a number of government agencies will be standing by to make them prove it. That should be sufficient insurance.

I don't intend to argue whether or not the State needs a coastal zone management law. But our members who have worked jobs in the coastal areas would probably argue that the State agencies seem to have plenty of management authority already.

Probably everyone in Alaska would like to see OCS leasing held off until Alaska can be assured a share of the revenue. God knows, we need the money. But it is unrealistic to try and block something so much in the national interest while parliamentary maneuvering goes on, possibly for years, in Congress over who is going to get how much of what.

There is another serious aspect to delaying the activity. That is the inflation factor. We all saw what happened to the trans-Alaska oil line cost as a result of prolonged delay. Any contractor can tell you horror stories about what has happened to operating costs on his construction projects in the past two or three years.

Every year work is delayed, the higher operating costs will climb and the more economically marginal any oil discoveries will become. That is not in the best interest of the nation or Alaska.

Thank you, Mr. Chairman.

Sincerely,

ALASKA CHAPTER
ASSOCIATED GENERAL CONTRACTORS

S. C. Stephens
President

SCS/dlc

Cordova District Fisheries Union

Headquarters: Box 939, Cordova, Alaska *Seattle Office: 84 Union Street*

August 22, 1975

Connie Wassink
Bureau of Land Management
800 A Street
Anchorage, Alaska

Dear Sir:

Enclosed are copies of the Cordova District Fisheries Union EIS testimony and copies of Cordova City Council and Chamber of Commerce resolutions.

During a Cordova District Fisheries Union general membership meeting held August 18, the membership voted to support the State of Alaska in case of litigation over the OCS lease sales.

We hope this will be a benefit to you and would appreciate any and all information you might be able to send to us in regards to our position.

Sincerely,

Bob Blake
President

enc.
bb/mh

Cordova District Fisheries Union

Comments on EIS , OCS , Proposed Oil and Gas Leasing in

The Northern Gulf of Alaska

ALASKA OCS OFFICE
ANCHORAGE, ALASKA
AUG 27 1975

August 13, 1975

Mr. Chairman-- Members of the Committee;

My name is Robert Blake, Iam Chairman of the Cordova District Fisheries Union, and President of the Cordova Aquatic Marketing Assn.

F
I am here to represent as best I can, some of the views of our 400 fishermen members on the Draft Environmental Impact Statement, Outer Continental Shelf, Proposed Oil and Gas Leasing in the Northern Gulf of Alaska.

One of the areas of gross neglect in the EIS is the failure to mention the some 1100 people directly involved in the various fisheries in and around the Prince William Sound, Copper River and Bering River area, nor the 200 plus cannery workers that make their living processing their catches.

Certainly this amount of people who depend upon the North Gulfs virtually pollution free environment for their livlihood and lifestyle should be worthy of at least a casual mention. However apparently the Department of the Interior in keeping pace with the rest of the EISinformation feels that small oversights such as the human resource that will probably be displaced by the developement of OCS Oil is of little consequence.

We, the fishermen of the Cordova, Prince William Sound area dearly wish we could ignore the Dept. of the Interior and its actions as easily as they appear to ignore us. Sadly however this is not the case. We are approching a era of decision, in which the U.S. Dept. of the Interior will condemn or condone our very existance.

We have conservativly estimated the equipment used in catching and processing fisheries products in our area at $55 million. During the typical life of a oil field (25 yrs) we have again conservativly computed the value of the Cordova area fisheries on the principle species such as salmon, herring and shellfish only, as $400 million ex vessel value to the fishermen or $800 million at the first wholesale value of products. The total fisheries value both domestic and foreign for all species are in the 1 to 2 billion dollar area.

These figures put the dollar value of the fisheries products to be extracted from the watersof the Copper River , Prince William Sound area on a par with the production value of one of the oil fields expected to be developed from this sale. The great difference being, that the fisheries, if left unharmed by mans pollution can eventually produce and exceed the dollar value of the whole proposed lease sales oil production. What probably should really be considered more heavily than the dollar value is the ability of the area to produce food to feed the hungry world for as long as mankind exists, should mankind allow it to do so.

Certain sections of the Draft EIS tend to downgrade the dollar value of the fisheries of our area, for example on page 506 " The commercial value of salmon caught in the Copper River District averaged $1,157,632 between 1960 and 1969 " While statements such as quoted cannot be classified as truly erroneous, they do not show the true valueof the fishery. This example given can only be considered the ex-vessel price paid to the fishermen for the Cpopper River gillnet fishery and did not include the Prince William Sound seine and gillnet fishery which usually is of considerable more valuedue to the larger number of fish caught. It also deletes the millipns of lbs. of shellfish products taken during the same period and uses of course a period when fisheries products were of considerable less value than they are now. To accurately

...ow a comparrison the EIS should at least treat the Fishing Industry as equally as it does the Oil Industry.

On pages 577 and 578 - an example of a hypothetical oil spill--superimposed on the Copper and Bering River area and P.W.S., according to the EIS results in a 804,345 lb. reduction in fish catch. This is based on a presumption that no fish are taken for 60 days and that half the median number are taken the next 60 days. Some $259,625 in fishing revenues would be lost, assuming that the catch in the affected area is salmon, finfish and shellfish. Based on a relative importance of 1973 poundage landedetc. etc..

Another grossly false illusion created-- In the first palce for example, conservativly there was over 36,500,000 lbs. of the above mentioned species of fishes landed in the area in 1973. With simple arithmetic this amounts to at least 100,000 lbs per every day of the year. Using the EIS figures for ex-vessel price, the same 60 day period of whole loss and another 60 day period of half loss would amount to a value of $2,800,000. Should the spill occur during our peak salmon run period it could easily reach a 7 or 8 million dollar loss.

Probably the most unrealistic statement made in the EiS concerning the dollar value of the fisheries is on pages 573 and 574. quote " A summary of the factors influencing economic growth in Alaska during the period of 1961 to 1972 concluded that during this period the fisheries industry including both commercial fishing and fish processing, increased only slightly etc. etc.. On balance, Alaskas renewable resources industries have made no net contribution to the real growth of the economy ." end quote

I cannot for the life of me understand how such statements were allowed t be printed in a document of this magnitude. The increased dollar value of salmon has primarily compensated for the decrease in number of fish . The King crab industrywhich at present averages 76.5 million lbs per year, the 5.5 million lbs. of Dungeness crab that is now processed annually. Tanner

crab, which were not even fished in any volume prior to 1969 now averages 1.8 million lbs catch per year and the shrimp fishery developed basically out of Kodiak now produces over 100 million lbs per year. Add to this the amount of new jobs created and new processing facilities developed to handle these products on a substantially year round basis, along with salmon and you have to show a noticable contribution to the growth of the economy of Alaska.

The Socio-Economic impact on the Cordova area should OCS oil develope, and regardless of what the present Cordova City Counsel and Chamber of Commerce have to say, would be devastating. At present for our normal population we do have adequate educational, medical and recreational facilities. However our new sewage treatment facility will be hardly more than adequate for the present population , while the utilities such as water, electricity and telephone cannot be adequately supplied to the present inhabitants. Without complete and total revision of the systems , cordova would not be able to supply any additional heavy users.

Our harbor facilities right now are overcrowded and even with the planned expansion will barely take care of the fishing fleet. None of the presently used boats in the fishing fleetare capable of being converted into support vessels, and in all probability few of the fishermen will be able to obtain jobs on the support vessels should they so desire.

So what does a Cordova area fisherman , like myself , who has spent his life investing in and constantly upgrading his equipment in orderto more adequately provide for his family have to look forward to for the future of himself and his family should OCS oil be developed?

1- A practically promised, upwards to 50% reduction in the fishery and fish processing by the year 2000.

2- A drastic reduction in the quality of education now offered in the areas schools.

3- In adequate medical, recreational, sewage disposal facilities along with a shortage of necessary utilities.

4- A practically unimaginable increase in taxes, real property values, a probably insumountable overall cost of living created by over inflated boom dollars, along with a lack of about everything necessary for our present way of life.

5- Tremendous decreases in game animals and fishes that the present peopl of the area utilize heavily for subsistance. Both from pollution and increase human disturbance and pressure.

6- A marked increase in crime , violence and other adverse conditions brought on by any major boom.

To compensate for this, some of the displaced fishermen might be able to obtain a few of the unskilled jobs associated with the developement but be forced to sacrifice their life style.

As far as the city of Cordova is concerned , at present it could in no way stand the impact of even light developement. With no specifically designated impact funds to offset the necessary additional facilities required, well in advance of any impact, the city could not financially survive. The possible increased employment, even before the noticable decrease in fishery production, cannot possibly offset the tremendous costs for necessary facility additions. The Cordova City Council and Chamber of Commerce may state that they are ready and capable of handling the situation, but they are in fact just agroup of business men looking ofr increased business and not looking at any of the adverse effects that have to be taken care of along with it. All action taken by these two groups was initiated during the period when the major portion of the community was engaged in fishing and not available to comment on or activly take part in their decision. It is my opinion that these two groups will be forced to back down on their stands.

We of the CDFU feel that the Dept. of Interior is maximizing potential ecological disaster by holding this particular lease sale at the presently scheduled time. This OCS Oil developement will greatly increase the danger

of a major spill due to increased tanker and support boat traffic as it is superimposing this traffic on the already potentially heavy tanker and suppor traffic created by the trans-Alaska pipeline. As yet traffic lanes and contr facilities and systems for the overall traffic have not even been considered. Eventually controlled or not the volume of tankers and support boats to be using the area can only lead to a catastropic oil spill.

None of the ecolcgical baseline studies that are absolutly necessary have been done to actually anyones satisfaction. The entire EIS used possible comparisons with food chain life and findings based on the Gulf of Mexico , the North Sea or other areas. We are not dealing with other areas, we are dealing with the North Gulf of Alaskab which is entirely different from any place else in the world. The studies have to be conducted here and in a manner worthy the ecological value , not in a hap-hazard fashion. To do it right, to do it in a just and accurate fashion takes time. And the values at stake are definitely worth the time. The fisheries of Alaska have been the backbone of Alaskas economy for a long time and should not be thrown out the window just to develope oil.

The visual graphic aids accompanying the EIS are little better assesments of catalogueing critical marine fishery habitats, anadromus fish streams and areas of highly concentratedfishing effort than if some child was turned loos e with a crayon and a map. Whole areas of fisheries are excluded, no cataloguing of species by importance or value. Whole moose populations are excluded, erroneous weather and sea conditions are extended as fact-- These illustration are so bad that they had to be marked that the Dept. of Interior would not guarantee their accuracy . And why not, because the studies cessary to support these illustrations as well as practically the entire EiS have not been done . Nor will they be done if this lease sale is allowe to go on as scheduled. The entire EIS and these hearings for that matter appear to have been published and held just to follow the letter of the law

But completely disregard the moral obligations of it.

One of the major concerns of not only our area but of the entire west coast, is the fact that at some time during their life cycle almost all the salmon from the pacific states pass through the lease zone area. This fact is not even acknowledged in the EIS.

We are just now receiving preliminary reports on the effects of Prudhoe Bay oil on anadromus fish through various stages of developement. The facts are in no way pleasant to read. The studies done at Auke Bay on Prudhoe Bay crude versus pink salmon eggs, alevins, fry and fingerlings have clearly demonstrated critical damage will occur from either large oil spills or chronic low level pollution. Equally or even greater damage has been demonstrated on Tanner crab the principle shellfish of the area.

Overall the federal governments current five year program to catalogue, research and define the fisheries resources associated with the North Gulf of Alaska OCS Oil development is unbelievably inadequate. IN fact, none of the obvious inshore or offshore resources utilized by U.S. fishermen are even part of the program as far as we can tell. The National Marine Fisheries Service seems pre-occupied only with dedfining the possible impact on ground fish utilized by foreign fishermen. There is no program to assess the salmon, herring and shellfish inshore of the 3 mile limit; Prince William Sound and the Copper River Delta are not even in the OCS Study program despite their extremely vunerable position, immediately downwind and down current from most of the proposed lease sale zones.

Weather and seismic conditions of the area by themselves should be enough to slow down the present action. Weather conditions as represented in the EiS are in our opinion another area of gross inadequacy, these conditions should be studied accurately and over a period of time. The Eis itself states tha t the lease zone is located at the farthest end of the longest wind tunnel

'n the world. The geographic conditions of the area tend to increase and complicate the wind and storm patterns.

As yet there has been no equipment developed that can even hopefully recover spilled oilfrom these waters except under thed most ideal of conditions and beleive me it isn't very often in the gulf you find these ideal conditions. The worst part bing of course the fact that during the far from ideal conditions period is when major catastrophys are the most likely to occur. So we are faced, at least at present , with the ugly fact that when it happens we in the P.W.S. and C.R. area will get the gruesome results.

Conditions brought on by seismic actions, when they will happen, and of wha magnitude are of course anyones guess, however we do know that the lease zones are locatred in one of the most highly active seismic areas of the world. this fact in itself adds greatly to potential environmental dammage.

We also cannot find who is responsible for monitoring and policing OCS evelopement. This is a area that certainly has to be considered Neither can we find who is responsible for damages to the fisheriesand the fishermens gear and incomes through this oil developement.

When I first started reading the EIS , I was of a mind to take notes o n errrors and ommissions, I found within the statement. However I soon realized my notes would soon be greater in volume than the EIS itself. So with this testimony I have tried to hit upon some of the greater ommissions and errors, however a considerable amount of written testimony will be forthcoming from our area to be included in the final impact statement.

In conclusion I would like to state that the Cordova District Fisheries Union advocated delay of the proposed lease sale #39 in the North Gulf Alaska until such time as---

1- SaTisfactory baseline studies are made on the eco-system involve d and the marine resources of the area are catalogued and evaluated.

2--Technology is developed to safely produce the OCS oil of the area, considering all the factors of weather, seismic activity etc. and ability to produce this oil without the chronic low level polution.

3- Adequate control of tanker traffic and support systems are designed.

4--Impact funds are provided to offset the potential population explosion.

5-- Proper plans are made to monitor and police pollution from OCS developement.

6--Equipment is developed that can handle oil spill~~s~~ cleanup under the existing conditions, not just under ideal conditions.

7--Liability for damages suffered by the fisheries are placed squarely on someones shoulders. This would require both a detailed , ongoing monitoring programand a fund for payment of damages to fishermen and fish processors.

8-- Proper weather and current studies in the lease zone are carried out.

We will enlist the help of any organization or agency or action available to us to see that these necessary studies and provisions are met.

While we are not totally against OCS developement in this area, we feel that the selection of the North Gulf of Alaska for early OCS development is foolhardy in view of the great environmental risk.

I compare the Dept. of Interiors actions toward this accelerated lease sale much as a overanxious potential father, who rather than gain his desires in a rational way, trys impregnating nine women in order to only have to wait one month.

Thank you

Robert H. Blick

Pres. CAMC

Pres. CDFU

A RESOLUTION SUPPORTING THE LEASE/SALE OF PARCELS OF THE GULF OF ALASKA BY THE FEDERAL GOVERNMENT FOR THE PURPOSE OF OIL EXPLORATION AND PRODUCTION.

WHEREAS the City of Cordova, Alaska is a rural coastal community with approximately 2,500 people, and

WHEREAS the main industry of Cordova is the seasonal fisheries and fishery related processing and marketing, and

WHEREAS the Chamber of Commerce supports new industrial growth which will provide sustained employment and long term economic benefits for the City of Cordova, and

WHEREAS the economic impact will offset many of the detrimental sociological and environmental effects, and

WHEREAS the nation is in crucial need of oil and it's related products.

NOW THEREFORE BE IT RESOLVED that the Chamber of Commerce of Cordova, Alaska:

1. Supports the proposed lease/sale of tracts in the Gulf of Alaska by the federal goverument.

2. Supports the development of federal and state impact funds for affected coastal areas including interim impact funds prior to production.

3. Urges cooperation between the oil and gas industry and the fishing industry while engaged in common grounds.

4. Urges base line studies to assess the existion fishery resources inside the 3 mile limit on the Gulf Coast and in Prince William Sound as they are adjacent to purposed lease areas.

5. Welcomes and accepts the responsibility to work with both the fishing industry and oil industry for the mutual benefit of Cordova.

RESOLUTION #75-25

A RESOLUTION SUPPORTING THE LEASE/SALE OF PARCELS OF THE GULF OF ALASKA BY THE FEDERAL GOVERNMENT FOR THE PURPOSE OF OIL EXPLORATION AND PRODUCTION

WHEREAS, the City of Cordova, Alaska is an incorporated Home Rule City with approximately 2,500 people, and

WHEREAS, the main industry of Cordova is the seasonal fisheries and fishery related processing and marketing industry, and

WHEREAS, the citizens of Cordova experience severe economic fluctuation because of the seasonal industry, with high winter unemployment, and

WHEREAS, the fishery industry has been on an economic decline and any improvement to the industry will take several years, and

WHEREAS, the City of Cordova hopes to broaden industrial growth in the Cordova area to provide more employment and a better way of life for its residents, and

WHEREAS, the federal government realizes the potential of oil in the Gulf of Alaska and the need for oil exploration and production,

NOW THEREFORE BE IT RESOLVED that the City Council of the City of Cordova, Alaska:

1. Supports the proposed lease/sale of tracts in the Gulf of Alaska by the federal government.

2. Urges the Hammond administration of the State of Alaska to support the lease/sale.

3. Urges the oil and gas industry to cooperate and work with the fishing industry while sharing common ground.

4. Welcomes the opportunity to work together with the oil industry to promote a harmonious and fruitful relationship.

PASSED AND APPROVED THIS 29 DAY OF June, 1975

Mayor

Clerk

RESOLUTION #75-27

A RESOLUTION ASKING THE FEDERAL GOVERNMENT TO PROVIDE IMPACT ASSISTANCE TO CORDOVA AS A RESULT OF GULF OF ALASKA OIL ACTIVITY

WHEREAS, the Department of Interior is planning to hold a lease sale this year that would lead to exploration and drilling in the Gulf of Alaska;

WHEREAS, the City of Cordova has gone on record by unanimously passing Resolution #75-25 supporting the proposed lease sale and;

WHEREAS, the costal communities of the State of Alaska, especially Cordova, can reasonably expect to receive major influxes of people and a demand for services which reasonably can not be provided by our citizens,

NOW THEREFORE BE IT RESOLVED that the City of Cordova asks the federal government through the congress and Department of Interior to enact immediate legislation to provide adequate programs by which federal revenues from such leases and activities are shared with state and local communities at the outset of this development to fully offset this federally sponsored activity.

PASSED AND APPROVED THIS 11 DAY OF August, 1975.

James A. Poor, Mayor

Donna M. Sherby, Clerk

H-1-107

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INSTITUTE OF SOCIAL, ECONOMIC
AND GOVERNMENT RESEARCH

UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA 99701

August 15, 1975

Mr. Edward J. Hoffmann, Manager
Alaska Outer Continental Shelf Office
Bureau of Land Management
P.O. Box 1159
Anchorage, Alaska 99510

Dear Ed:

Attached is my cleaned up testimony on the draft EIS for the Northern Gulf.

I will not have an opportunity to do a detailed job, though could someday go over some specific points if anyone has time and the interest.

More important, I have developed some ideas on how a cooperative effort could be developed to both prepare a coastal management plan and meet EIS requirements. It would probably require 12 months or so. Therefore, there is no need to pursue unless there is a decision to hold off on the lease sale.

I hope and trust that you did not take my highly critical testimony in a personal way. It certinaly was not intended that way. It's just that the whole process, with all its constraints, was a bit preposterous.

Best wishes,

Victor Fischer
Director

VF/dml

Enclosure

PLEASE REPLY BY AIRMAIL

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Testimony of Victor Fischer, Director, Institute of Social, Economic and Government Research, University of Alaska, for the Department of the Interior hearings on the Draft Environmental Impact Statement, Outer Continental Shelf: Proposed Oil and Gas Leasing in the Northern Gulf of Alaska. Anchorage, Alaska, August 13, 1975.

My name is Victor Fischer, I am the director of the Institute of Social, Economic and Government Research of the Univeristy of Alaska. I am testifying in a personal capacity.

I have been somewhat reluctant to get involved in this hearing at all because I've had an uneasy feeling that all this is simply a pro-forma farce intended to legitimize a decision already made. While the draft EIS contains statements that no leasing decision has been reached and that none will be till the final EIS is prepared and reviewed (pp. 22-24, 27), Secretary Hughes has made repeated public statements to the effect that the lease sale will proceed as scheduled, that the action is in the public interest, that there will be no delays. And that makes one wonder how real this proceeding is.

Despite these hesitations, however, I do hope and assume that we have a bona fide process, and that the environmental impact statement will be taken seriously within the Department of the Interior.

I will address myself strictly to the draft EIS and specifically to its socioeconomic and onshore impact analyses. It is here that my expertise and interest lie, and it is here where the main problems of the statement will be found.

In brief, it is my opinion that the draft EIS is totally inadequate, both in terms of meeting requirements of National Environmental Policy Act and regulations issued under it, and in terms of dealing with the likely impacts resulting from the proposed Gulf leasing action. In fact, I believe that the statement is irresponsible, 1) in the way it underestimates and refuses to deal with impacts of the sale and probable resultant development and, 2) in the almost total absence of consideration for the context and many related events within which the developments will occur. The methodology is too limited and inadequate for the task, and many available sources and materials, existing and potential, have not been utilized in preparation of the EIS.

(I would, by the way, like to mention that while I am extremely critical of the scope and quality of the draft statement, I am not in any way condemning the people who prepared it. They struggled valiantly to put the draft together, despite

ridiculous time, manpower, and other constraints that were imposed on them by those who have been in such a hurry to get something out in time to meet Interior's OCS schedule.)

I would first like to summarize where, in my opinion, the draft EIS is inadequate with respect to NEPA and the Council of Environmental Quality guidelines for preparation of environmental impact statements:

1. The description of the proposed action is deficient in not taking adequate care to identify population and growth that may be directly and indirectly affected by the proposed actions. The regions and areas likely to be impacted are not fully reflected in the EIS.

2. Probable impacts of the proposed action are not adequately set forth. Primary and direct consequences are not projected fully or accurately; methodologies are extremely deficient. Treatment of secondary and indirect consequences is extremely deficient. (Note, by the way, the CEQ regulations emphasize that "secondary effects ... may often be even more substantial than the primary effects of the original action itself.")

3. Alternatives are not adequately considered, particularly in their relation to everything else that may occur in relationship to energy and OCS development in Alaska.

4. The required information is certainly not conveyed succinctly in an easily understood form. If anything, the

statement is a hodgepodge of miscellaneous information, much of it irrelevant, most of it not properly interrelated and constructively analyzed.

5. The social sciences are not adequately covered in terms of meeting the NEPA requirement for utilization of "a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision-making which may have an impact on man's environment."

It would take another tome, and more time than I can give, to provide you with a complete, detailed critique of the draft environmental impact statement. I will here cover some of the deficiencies and problems that I consider most significant, and will privide some further detail in a supplemental statement if I have a chance to do so.

1. Assumptions (I. C., pp. 6-13) The assumptions and scenarios outlined in the first part of the draft statement are inadequate to establish an effective basis for projecting on-shore impacts of OCS development. Lack of adequate attention to complete scenarios results in subsequently limited descriptions of existing socioeconomic environments and highly questionable projections of impacts.

The extremely cryptic assumptions and development scenarios are not properly substantiated and developed. All in all, they appear to be extremely conservative, consistently

underplaying probable impacts.

2. Developments not adequately covered. The draft EIS treats the proposed lease sale virtually in isolation, completely ignoring or treating lightly other activities and developments affecting communities, the region, and Alaska. This results in undercutting impact analyses and downplaying cumulative efforts of OCS development. In particular, thorough consideration needs to be given to this proposal stimulating State of Alaska on-shore and off-shore leasing in the Northern Gulf of Alaska area adjacent to federal leases, to further federal OCS leasing in the Gulf and other parts of the state, to the effect of pipelines bringing oil and gas from the North Slope to Gulf ports, and to processing in the affected region of natural gas transported from other regions of the State.

3. Description of social and economic environment. (II.E., pp.215-317). Area coverage is inadequate. Descriptions are often irrelevant, frequently incomplete, use non-current information (e.g., Valdez impacts of pipeline terminal development are ignored), and contain a variety of errors and improper citations. The discussion of land use controls implies that there are some, when in fact there is no effective land planning or regulation in most areas likely to be affected by OCS development.

4. Future environment without the proposal (II.F, pp. 317-319). This section says exactly nothing. It is not

enough to say that the nature of future changes cannot be foreseen in detail when regional and other projections could actually be developed.

5. Impact of the social and economic environment (III. E., pp. 491-596) Aside from not taking into account the earlier-mentioned related and unrelated developments that may interact with the effects of the proposed leasing action, this part of the draft EIS suffers from horrendously bad methodology, poor structure, and extremely incomplete impact analysis. Generally, impacts are seriously underestimated and underrated. In part, this is the result of inadequate assumptions and too limited a scope of impact projections.

Aside from questionable projections of direct employment and population effects, the study collapses because of some ridiculous methodology used in projecting and distributing induced population (pp. 588-595). The section starts off by using a statewide projection of the relationship between workforce and population, and applying that to the OCS analysis; that's no way to go, for there is no basis for assuming that the statewide relationship applies here. Worse yet, a "hypothetical distribution" of population is then made, allocating total projected induced population according to 1970 census distribution in the South-central Alaska coastal region. There is no rationale whatsoever to assume that OCS-induced growth will be distributed according to

some past relationships having nothing to do with OCS development. In fact, it is patently wrong to make such an assumption.

This methodology results in the ridiculous conclusion that the induced population increase in Kodiak will be greater than the total growth impact of Cordova, Yakutat, Seward, Valdez and Whittier combined. And Kodiak is not even in the area that will be affected by the proposed lease sale!

The critical problem is that these projections are then used to look at the growth impact of each of the potentially affected communities, with the obvious result that impacts are severely underestimated; to my mind, the underestimation is perhaps several orders of magnitudes. This to me completely voids the bulk of the discussions of community and land use impacts, which discussions are pretty bad even without this gross error.

The coverage of impacts of the Alaska economy is also inadequate, again not taking into account the effect of other possible developments throughout the state that will interact with those of this proposed lease sale. What statewide projections are used utilize limited development scenarios, not even including future OCS development projected by the Interior Department.

In summary, this part of the draft EIS is totally inadequate. Impacts are consistently underestimated, giving a false picture of likely effects of the proposed lease sale.

6. State and local planning and management (III.G. 3 & 4 pp. 616-617). The draft EIS places continuing reliance on a state coastal zone management program and on zoning regulations administered by municipalities of the state. (See also pp. 309-313). Except in a few communities, no plans, management programs, or zoning exist. Impacts are already being felt, and suggesting that impacts will be generally modest and not be felt for many years, as is done in the report, ignores the fact that it will be some time before plans and management programs can be developed.

7. Mitigating measures. The whole discussion of mitigating measures does not deal with adverse social and economic impacts and what can be done about them. It would seem quite feasible to suggest a variety of things the government could do to help mitigate impacts.

8. Adverse effects that cannot be avoided. This part cavalierly states that the federal government has no authority to mitigate social impacts and thereby implies that the government needs to do nothing about them. This conclusion is reinforced by the continuing downplaying of projected impacts, based upon the earlier-discussed erroneous analyses. And, again, the broader social and economic impacts are totally ignored.

It is these general problems as well as the many specific deficiencies not mentioned here, that bring me to the conclusion that the draft EIS is woefully inadequate. Rather than talking about the alternatives discussed in the draft, I would like to quote this statement from BLM's own Final Environmental Statement on the proposed Increase in Oil and Gas Leasing on the Outer Continental Shelf issued earlier this year:

> The State of Alaska is probably the most ill-equipped region to handle the pressures of OCS development ... a long lead time will be necessary for Alaskan development, time in which to begin preparing for these impacts if a decision is made to proceed with such development. (pp. 213-214)

I believe the government should heed its own counsel and take the time necessary to perfect a satisfactory EIS and begin preparing honestly for the impacts to come. There are two critical reasons for doing this:

First, no matter how much we want to pursue OCS development to accomplish national objectives or promote economic development or satisfy personal greed -- if you don't have a proper EIS, the OCS program will fail and be delayed for a long, long time, and the price will be much greater than facing up to the task now. As others have suggested, trans-Alaska pipeline history will repeat itself, and for the same reasons.

Second, the impacts of OCS development in the Gulf and elsewhere are going to be extensive and severe, primarily because they will be occurring in the context of many other events and impacts. The growth projections our institute has made under the Man in the Arctic Program supported by the National Science Foundation show tremendous additional growth in Alaska over the next 15 years being generated as the result of oil and gas development occurring largely in response to federal policies. It is vital, therefore, that you do not shirk the government's responsibilities in this area.

In conclusion, I believe that both the national interest (however defined) and the state's objectives will be best served if you do the right kind of a job by the Northern Gulf of Alaska environmental impact statement.

Thank you.

Homer L. Burrell
P. O. Box 764
Anchorage, Ak. 99510
August 26, 1975

REMARKS FOR INCLUSION IN RECORD OF HEARINGS OF AUG. 12 & 13, 1975, ANCHORAGE, ALASKA, REGARDING A POSSIBLE OIL AND GAS LEASE SALE OFFSHORE NORTHERN GULF OF ALASKA.

My Name is Homer L. Burrell, and I was director of the Alaska Division of Oil and Gas for over six years. The Alaska Division of Oil and Gas is the regulatory body that oversees oil and gas drilling and producing operations in Alaska.

I have reviewed the draft Environmental Impact Statement, and consider that it does an adequate job of setting forth the potential impact of oil and gas operations in the area of the proposed sale.

Those that object to the sale seem to fall into one or more of three categories:

1. Those that wish to obtain a contract for rewriting all or portions of the Environmental Impact Statement;

2. Those that seek to delay the sale as a means of "blackmailing" the United States Congress into some form of revenue sharing with the adjacent state;

3. Those that seek to delay the sale because they believe that more data or information is required before a valid judgment can be made on whether or not to hold the sale.

There is little reason to discuss the first group. As for the second group, I would point out that there will be

very slight impact on the coastal communities for many years, because it is unlikely that a first exploratory well could be drilled by the Summer of 1976, owing to unavailability of drilling equipment. And if a well were drilled by mid-1976, it would be a minimum of five years before there would be regular production, even assuming that oil or gas is found in commercial quantities. This is because of the very short drilling season in the Gulf of Alaska, the necessity to drill confirmation wells after discovery to determine whether or not the field is commercial, and the delays in designing, ordering and installing the necessary production platforms and pipelines to shore, as well as the on-shore facilities required. During this period of time, the United States Congress can determine what revenue sharing will be permitted.

Those whose objections are set forth in the third category above apparently believe that there will be some new information or technological breakthrough within six months or two years that will make drilling more environmentally safe than it is now. There is no evidence to substantiate this hope. Indeed, proponents of this view have apparently overlooked the energy crisis within the United States, and our dependence on imported oil.

For the record, it should be pointed out that the Outer Continental Shelf adjacent to the States of Oregon and

Washington was leased in the mid-1960's, and several wells were drilled. All these wells were unsuccessful, and there was no appreciable impact on the coastal communities as a result of these operations. The same is true of the Desten Anticline off the coast of Florida, which was recently leased by the Department of the Interior, and on which some seven wells were drilled, all unsuccessful.

Inasmuch as states adjacent to Outer Continental Shelf operations have a valid interest in the conduct of these operations, I respectfully recommend that adjacent states share technical information with the United States Geological Survey and that appropriate state personnel be permitted on the drilling boats or platforms, in an advisory capacity to the federal regulatory personnel.

I also recommend that the primary term of the OCS leases be changed from five years to ten years, since the five year lease was designed for the Gulf of Mexico, where year-round operations are possible. In the Gulf of Alaska, exploratory operations from drilling boats can be conducted for only about three months of each year.

Thank you for the opportunity to have these remarks included in the record.

Howard L. Burrell

Testimony on Draft Environmental Impact Statement
Proposed Oil and Gas Leasing in the
Northern Gulf of Alaska (Sale No. 39)

(42)

Testimony by Ruth E. McHenry
Box 1333
Seward, Alaska 99664

At Anchorage, Alaska, on 13 August 1975

I am a thirty-year resident of Alaska and a six-year resident of Seward. I am testifying as a private citizen. I hope that my testimony will also reflect the opinions of many Sewardites who are not members of the Chamber of Commerce or City Council, and who, therefore, are not usually heard from.

This environmental impact statement fails to explore in depth certain types of impact, and certain other types are not discussed at all. I would like to mention three of these deficiencies:

I. Impact on lifestyles in non-Native communities is not discussed.

A very bland, limited discussion is given to impact on lifestyles in Native communities. It is even contradictory: On page 497 is the statement that "It is unimaginable that 10 to 20 plus years of OCS oil exploration and production activity, at whatever magnitude, would not have irreversable effects on the Yakutat people and their village." On page 704, however, is the contradictory claim that "Only if population inducements rise significantly above those projected in this draft EIS would Yakutat have its traditional native cultural lifestyle threatened."

Lifestyles of Natives and non-Natives in the predominantly white communities are not discussed at all. "Quality of life" is mentioned, but only in reference to sewage systems, schools and divorce rates. However, many Alaskans were first attracted to (or chose to remain in) these communities for quite different qualities. They could have enjoyed a higher standard of living, with better health care, more cultural events and even better weather, in one of the other states. The appeal to them was in the opportunities for outdoor activities--hunting, fishing, hiking --and for the enjoyment of scenery, the sense of closeness with nature.

The Secretary of the Interior, in reading the DEIS, cannot be expected to grasp this, for three reasons: First, these activities are always treated separately. We read in one section that hunters will experience more competition for game. In another section, we read that beachcombers may be unhappy about globs of oil. Elsewhere we read that clam-diggers may have to avoid oil-polluted areas. Nowhere is this all drawn together, so the effect is diluted. It is not stated that many individuals enjoy all these activities, each in its season, and that they stand to have their enjoyment of all these activities diminished or ruined by OCS development.

Secondly, the importance of these activities is downgraded because they are referred to as "recreational". In fact, many of them grade from recreational into subsistence. Alaskans rely on fish and game resources to a greater or lesser degree to supplement their diets and offset the high cost of living. The terms "sport hunting", "sport fishing", and "recreation" do not convey this, nor do they convey the other values of outdoor activities--the peace and solitude, the sense of self-reliance.

Thirdly, little reference is made to the fact that these activities are engaged in by local residents. I found a one-sentence reference to Cordova deer hunters and another to Valdez salmon sport-fishermen. Mostly, outdoor activities are treated as tourist attractions. The Secretary might understandably infer that fish and game, unpolluted beaches and natural scenery are important to the communities primarily as tourist attractions. He might conclude that adverse impacts on them can be compensated for by oil revenues.

II. Induced population figures are incomplete.

Induced population figures shown on page 588 do not include transitory persons who do not become residents. Transitory persons are defined as both those who leave after working for a while and those who leave after failing to find work. The statement does not even attempt to put a figure on the latter.

Also, the statement indicates a decline in induced population after 1984. It fails to explore the fact that Chambers of Commerce and local governments have traditionally been loath to allow a population to decline. They can be expected to clamor for more industry, including more sales in the Gulf. Furthermore, improved support services and facilities might well make feasible other developments which were previously uneconomical. These developments may even be in areas quite remote from the Gulf Coast--areas not discussed in this impact statement. Thus, this sale's "multiplier effect" will probably far exceed, both in magnitude and area, that postulated in the statement. This is especially troubling to those of us who recognize that, after Alaska has been developed and tamed, there will be no place left for us to carry on the way of life we have enjoyed in the past.

III. Other alternatives have not been given sufficient consideration.

Although energy conservation is listed as an alternative to Alaskan OCS development, the proposed conservation measures do not go beyond cutting of waste and inefficiency. The phrase, "major changes in lifestyles", is used, but--

other than "discouraging automobile use"--the proposals do not involve anyone's giving up anything or lowering his standard of living. Americans may be asked to build their homes with more insulation, but not to build smaller homes. Yet, it is well known that Americans consume all resources--not just energy resources--far out of proportion to their numbers. On a finite earth, this situation cannot continue indefinitely.

At the very least, this DEIS should have suggested the need for a study of alternate, less consumptive modes of living for Americans. I believe that OCS development should be deferred until such a study is made and its suggestions implemented. Only if, at that time, OCS development still appears necessary, should it proceed. This may sound radical, but it is hardly as radical as what OCS development is expected to do to Alaska--its environment, its resources and the lifestyles of its inhabitants. I, for one, see no reason why my way of life should be sacrificed to the American standard of living.

(43)

Tom Fink, C.L.U.

P. O. BOX 1066, ANCHORAGE, ALASKA 99510
PHONE 907 / 279-2522

Testimony to BLM on OCS

August 12, 1975

Gentlemen,

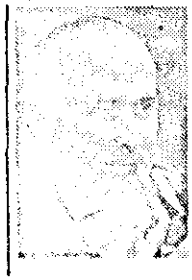
I am Tom Fink, private citizen, a twenty-three year resident of the Anchorage area. I have served a little over eight years in the Alaska Legislature and in 1973 and 74 was Speaker of the Alaska House. I wish to urge that you proceed with the Outer Continental Shelf Sale in December of 1975. I'm convinced it can be done in an environmentally safe manner and any further information that you need to assure the safety, you can gather while the industry is exploring for oil.

I've attached a copy of an article which I wrote indicating that the economic impact of the Outer Continental Shelf will be positive from the viewpoint of the State rather than negative.

And most importantly, I'm convinced that the United States must develop, and soon, adequate domestic energy so that we are independent of other countries of the world for purposes of our security and secondly to get our economy moving.

Thank you.

August 3, 1975, Anchorage Sunday Times A-7



Alaska Can Afford OCS Development

By Tom Fink

IN THE NEXT several weeks the commissioner of natural resources is going to try to convince visiting congressmen that Alaska cannot afford the impact of the Outer Continental Shelf oil and gas lease sale. If the commissioner wants to tell the congressmen of the many undesirable facets of the impact, he should say it in just that way.

If he wants to tell the congressmen we can't stand the fiscal or economic impact

LAST YEAR on June 30 we had 140,000 people employed in the state. This year on June 30 we have 170,000 people employed — a 21 per cent increase. The number of people unemployed on June 30 last year and this year is the same, at 16,000.

The Greater Anchorage Area Borough had an assessed value of $1.6 billion in 1972 and has an assessed value of $2.7 billion today — a 70 per cent increase. The millage rate is slightly reduced.

constant stream of visitors, from Anchorage, Valdez, Fairbanks and all points in between, requesting the state do whatever it had to do to get the pipeline built. The cities, particularly Valdez and Fairbanks, indicated approaching bankruptcy and stated their only salvation was the pipeline. Now, the media has made much of the inconveniences and disturbances caused by the impact.

There are many inconveniences and bad aspects of any kind of development. But

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DATE: August 4, 1975

FILE NO.

SUBJECT: Outer Continental Shelf

Mr. Edward J. Hoffman, Manager
Alaska OCS Office
Box 1159
Anchorage, Alaska 99510

Dear Mr. Hoffman:

On behalf of the City and Borough of Juneau, Alaska, I would appreciate the following statement be entered into the formal record.

The City and Borough has completed its review of the Draft Environmental Impact Statement, Outer Continental Shelf, Proposed Oil and Gas Leasing in the Northern Gulf of Alaska. Although we do not have sufficient expertise to adequately analyze and prepare meaningful comment on the potential environmental affects of the OCS program on the ocean and seas and its marine life, we have been able to evaluate the section entitled "Social and Economic Environment of the Northern Gulf of Alaska Coast."

We have determined that a serious error was made by the authors of the Statement in that the City and Borough was not included in the group of Alaska communities which might be impacted by this proposed leasing program. The direct opposite is the case with the recently completed Gulf of Alaska Operators Committee's report An Economic and Social Impact Study of Oil Related Activities in the Gulf of Alaska. This report extensively includes the City and Borough of Juneau in its on-shore analysis. If the oil companies chose to include us, and they did for good reasons, why should not the Federal government?

We would also like to point out that on February 7, 1975, a position statement was forwarded to the Department of the Interior relative to the Outer Continental Shelf hearings in Anchorage which were held on February 3 and 4. In that letter we suggested that when more precise environmental impact statements are developed, the Juneau area should not be ignored but its potential evaluated to serve

as a support community.

We have also received written concurrence from Governor Jay Hammond and Commissioner of Natural Resources Guy Martin that this area should be evaluated as a support area for OCS development as a part of our economic diversification effort. Still, even with all of this, we have not been included.

It could be argued that the proposed lease sale, which is situated on both sides of Kayak Island between Cordova on the west and Icy Bay on the east, is too far removed geographically from the Juneau area. We do not agree. The EIS does include Anchorage, which is also substantially removed geographically from this particular lease area. The Anchorage area is included because historically that is where the oil companies have been located and where sources of housing, transportation, communications, supplies and social amenities are concentrated and available. The Juneau area may not have the oil companies, but it does have many of the other amenities and necessities which would be required for on-shore impact activities. It is our opinion that Juneau on the southeast and Anchorage on the northwest end could effectively absorb substantial on-shore OCS impact activity.

Prior to the completion of the Final Environmental Impact Statement, we anticipate and expect the Department of the Interior to include the City and Borough of Juneau with the communities that may be impacted by OCS drilling and development.

Sincerely,

Mirginia Kline
Deputy Mayor

STATEMENT CONCERNING PROPOSED OCS SALE
NUMBER 39, NORTHERN GULF OF ALASKA

My name is C. V. Chatterton, a registered professional engineer employed as Vice President by Rowan Drilling - U.S., the domestic operating division of Rowan Companies, Inc.

As an Alaskan for nearly fifteen years and as spokesman for a drilling contracting firm with twenty years experience in Alaska, I speak to the matter before us with not only a personal but also a business interest.

For credentials, Rowan offers fifty years of experience and expertise in the drilling of crude oil and natural gas wells. Rowan currently operates thirteen offshore drilling units, including two semi-submersible units in the North Sea, where climatic conditions are similar to the Gulf of Alaska.

Drawing upon a background of experience and expertise, it is our considered and sincere conviction that drilling and producing operations can be carried out safely within the site-specific of the proposed OCS Sale No. 39. Industry practices and technology necessary for safe operations exist and have been proved.

Crude oil and natural gas drilling and producing operations can now be conducted within the Gulf of Alaska without any significant or lasting effects upon the environment.

There are no viable alternates to the proposed action, short of leaving a much needed potential source of domestic energy lying fallow beneath the sea. Drilling and producing operations within the site-specific can now be conducted in full compatibility with any other demands placed upon the area. Development of this potential energy reserve will prove economically beneficial to all.

In short, we support early implementation of proposed OCS Sale No. 39. Delay will serve no useful purpose with respect to environmental, economic or social considerations.

Thank you for the opportunity to appear before you.

ROWAN DRILLING - U.S.

A Division of ROWAN COMPANIES, INC.

C. V. Chatterton
Vice President

(46)

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Alaska State Legislature

House of Representatives

COMMITTEES
STATE AFFAIRS
LABOR AND MANAGEMEN

August 11,1975

REMARKS GIVEN AT OCS HEARINGS IN ANCHORAGE, August 12 - 13,1975

Mr. Chairman, and Members:

My name is M.F. "Mike" Beirne. I am a medical doctor practicing in Anchorage, and I specialize in pathology and forensic medicine. I am also a member of the Alaska State House of Representatives.

I support strongly the immediate exploration and development of our outer continental shelf areas.

In my opinion, America must have this immediate exploration and development of the outer continental shelf. Adequate environmental safeguards are proper and necessary. However, these safeguards must be reasonable in every respect so that we do not add unneccessarily to the cost of living. Certainly, we consumers ultimately must pay any and all bills, and all costs related to these environmental safeguards as well as for the exploration, development, and marketing of our petroleum resources. The consumers, the taxpayers, the citizens, always pay the bills.

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Alaska State Legislature

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August 11,1975
M.F."Mike" Beirne
Remarks given at OCS Hearings in Anchorage August 12-13,1975
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Certainly we have to use our petroleum resources, but not wastefully; we cannot afford that. Some people call for no growth, or even limited growth, or retarded growth. I suspect those people may be so comfortably situated in life that they aren't thinking of the average consumer. Or maybe they get a check from home each month, or from the government each month, and that gives them a choice to live out in a sleeping bag. Maybe they just don't know what they are advocating. But I know what I want, and I want immediate development.

I think we all know what a significantly reduced level of energy use in this country would do to us. The Arab embargo gave us a quick clue. Hundreds of thousands, or perhaps even millions of Americans out of a job, is not my idea of progress. And paying the Arabs billions of dollars a year for oil that we have right here doesn't make any sense to me either. We have a choice. We have an opportunity. And it lies, for the most part, beneath the waters along America's coast lines, and half of that coastline is around Alaska.

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The Federal government, I realize, has the difficult and perplexing problem of determining actually what is in the nation's best interest regarding OCS oil and gas development.

The draft environmental impact statement no doubt raises some frightening questions. There are never any satisfactory answers to these type of questions. I call them "What if" questions.

For example let me draw an analogy.

Suppose that before a man and woman could begin a family that an impact statement would have to be prepared. And that statement would be developed by the appropriate specialists in the field. A doctor could point out for example that unquestionably it would be statistically possible for some of the children to be born with deformities. The psychiatrist could project with a great deal of certainty that some offspring might possibly be mentally retarded, or perhaps even criminally insane. Another specialist would no doubt, feel compelled to point out the possibility that one of the children might grow up, contact some dreaded disease like bubonic plague, attend the baseball World Series and spread that disease to thousands of his fellow human beings.

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This is certainly not an attempt at ridicule, on the contrary, all I am saying is that given the assignment to project what possibly could happen when a certain action is taken, that dedicated, sincere individuals will tend to raise questions for which there are no totally satisfactory answers.

Finally, someone has to weigh the evidence , and to make the decision which seems best in light of all the available data. In this case, I presume this burden will fall on the Secretary of the Interior.

I hope his judgement is to proceed with an oil and gas lease sale in the Gulf of Alaska this fall. I believe this would be in the best interest of the nation, of Alaska, and of the consumers.