Proceedings of MaritimeAlaska '81

A Conference on Maritime Commerce and Port Development

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INTRODUCTION

With the development of export channels for Alaskan resources, The Alaska Department of Transportation and Public Facilities faces the monumental task of studying, proposing, and implementing new and expanded transportation services and facilities. Now, at the early stages of development, is the time to begin the task.

Alaska is geographically situated as an extension of the Great Circle Route, so the feasibility of developing both its maritime commerce and port facilities must be emphasized. Foreign markets for coal, grain, and fisheries products are being developed. Ocean transport is increasingly more significant in this development.

The Department of Transportation, assisted by the Maritime Administration, the U.S. Coast Guard, and the U.S. Corps of Engineers, planned a forum bringing together individuals from industry, federal, state and local agencies, universities, and the interested public to discuss and assess the needs of the state and its communities for marine transport facilities and services.

At the request of the four co-sponsors, the University of Alaska Sea Grant Program agreed to coordinate and manage the Maritime Alaska '81 Conference on marine commerce and port development.

The primary objectives of the conference were:

1. To facilitate the identification of transportation capital investment needs in Alaska.

2. To correlate the findings of studies into ongoing programs and to coordinate the programs of federal, state, local and private sectors.

3. To provide a forum for exchanging information and ideas relating to maritime commerce and the development and operation of marine ports in Alaska.

4. To identify issues and problems that constrain maritime commerce and the development of marine ports in Alaska and make recommendations to alleviate the constraints.

5. To rank solutions to problems constraining viable maritime industry, ports and intermodal transportation systems in Alaska.

This conference was planned recognizing that maritime commerce and port development must be stimulated by the public and private sectors to create a viable transportation system for Alaska. Anticipated resource development in the '80s will superimpose complex and costly transportation developments on the already growing need to move freight and passengers to the remote coastal and inland communites. Existing transportation facilities and services in Alaska's rural areas, where much of the resource development will take place, range from nonexistent to seriously underdeveloped and marginally effective. Marine transport is, and has been the dominant way to move freight for Alaska. Barriers to ports and marine services development in Alaska are substantial and varied. Identifying workable solutions to reduce or eliminate the barriers is the challenge which this conference was designed to meet.

The conference focused on four main topics:

Commerce and Resources
Port Operations and Administration
Facilities and Technology
Legislation and Regulation

Each of these topics was addressed by a panel of speakers providing up-to-date information on various aspects of marine transport and facilities. Each panel was organized by one of the co-sponsoring agencies as follows:

Commerce and Resources: Alaska Department of Transportation and Public Facilities
Port Operations and Administration: U.S. Maritime Administration
Facilities and Technology: U.S. Army Corps of Engineers
Legislation and Regulation: U.S. Coast Guard

Following the panel sessions, workshops were held on:

Port Requirements for Resource Development
Port Administration, Operation and Finance
Port Facilities

While it is not likely that this conference will be repeated in coming years, the interest it has sparked will undoubtedly generate additional conferences and workshops. Subsequent meetings will probably be more narrowly focused and smaller scale; most likely regional or local in scope and emphasizing various aspects of port development and operation.

The principal benefit of this working conference has been the opportunity to share the talents and experience of both the private and public sectors in the quest for directions, policies, and solutions to fulfill the needs of Alaska and

the nation for a viable maritime industry and for better ports and intermodal transportation systems. The results of the conference will serve as informed input to Alaska's statewide and regional transportation planning process and the formulation of Alaska's capital improvement program for transportation facilities. The conference has expanded and enhanced the communication links between the private and public sectors and provided first-hand exchanges of authentic information.

These proceedings include the presentations made during the four panel sessions and summary reports of the three workshop sessions.

Preliminaries

Robert W. Ward
Commissioner
Alaska Department of Transportation
and Public Facilities
Juneau, Alaska

It's a great pleasure for me to welcome you all here today to Maritime Alaska '81. My name is Bob Ward, the Commissioner of the Alaska Department of Transportation and Public Facilities.

It gives me a great deal of pleasure to welcome our co-sponsors here, and you as participants in a program that's of great interest and importance to all of us and of urgent importance to the future of this state and its transportation needs.

It's my privilege to introduce speakers who are going to make opening remarks.

As is often the case with busy people with many things to do and schedules Mayor Sullivan was not able to be here. He's going to be represented here this morning by Tyler Jones from the Municipality, and so now I would like to call on Tyler.

Tyler Jones
Municipality of Anchorage
Anchorage, Alaska

As a U.S. Merchant Marine Academy drop out, and a guy who came to Alaska 15 years ago on a Foss Tug, it's a pleasure for me to be able to stand in for the mayor and to extend his regrets for not being able to be here.

He did ask me to give his remarks, because he had spent some time on them and wanted to leave this message with you. He wanted, of course, first to welcome all of you to Anchorage and to express his appreciation for the conference being held in our city.

The agencies which have put this conference together have done a really fine job evidently in gathering individuals and experts in many different areas to share their different information with us. Each of you is here for something a little bit different, but there is one thing that we all have in common, and that is that we want to be ready when opportunity comes knocking.

It's time for the obligatory joke. That brings to mind the story about a rookie end on a professional football team who wanted to get into the game. He practiced and practiced, but his chance never came. Finally it did come and it was the last quarter of the game. His team was behind and the coach called to him. The guy throws off his warm-up coat and runs for instructions and the coach screams, "We've run out of time outs. So get in there and get hurt."

There are a lot more similarities between our various situations and that joke than just waiting for our big chance. There are ways to get hurt today, particularly if a community or a business bites off more than it can chew in the way of maritime development.

Anchorage, this region of the state, and the state as a whole, are more dependent on maritime commerce than any other region of the United States. For example, Alaska is three times more dependent on imports and 80 times more dependent on exports than our neighboring states of the Pacific coast.

We feel the effects of this dependency every day. Where rail and truck movements are the dominant inbound modes of transportation to most cities in the lower 48, over 90 percent of all general cargo transportation has a marine component into this region of Alaska. In some ways this gives our citizens an advantage over our neighbors to the south.

For example, all of the California fruits and vegetables that we consume have lower transportation costs to Anchorage than to Chicago or other eastern destinations.

Another unusual feature of Anchorage's port is that it is economically self-sufficient on its own revenues, which it generates through operations. Our port has not represented a tax burden for the citizens for many years. In fact we paid off the revenue bonds used to construct the facility in 1967, 20 years before they were due.

Chris Gates, the Port of Anchorage's marketing and development manager is here and will be speaking to you later today about port development strategies. But I would like to tell you why, in 1958, the Anchorage city fathers decided to bond themselves for the then enormous sum of $8.2 million to construct the first terminal at the Port of Anchorage. We had a very scientific strategy back then. It's best expressed by saying that necessity is often the mother of invention. We found ourselves a fast-growing community due to military construction, totally dependent upon the federally owned Alaska Railroad and the City of Seward for our daily sustenance and general cargo.

Even in the mid-50s we found ourselves the supply center for more than two-thirds of all the settled communites in Alaska, and we had a population of over 30,000, which you have to realize still made us the most heavily populated area of the state.

A 1952 report initiated by our portless port commission showed that Anchorage could reasonably expect to divert over 350,000 tons of general cargo and petroleum to a deepwater port in Anchorage at an average savings to the Anchorage consumer of over $22 a ton. Although economics supported that decision, it was something more which actually brought the citizens of this community together to take the risk to bond themselves for that original $8 million. That something more was extreme frustration. Frustration from being economically at the mercy of a volitile union and city administration in Seward, more frustration from the Alaska Railroad which for many years prior to 1958 worked to discourage deep draft shipping to Anchorage, and which opposed our port plan because it would decrease the railroad's tonnage and our dependenace on the rail haul from Seward to Anchorage.

An editorial in the Anchorage Times the day our port opened 20 years ago reveals some of the community emotion. This was written in 1961: "For 40 years Anchorage has lived under an artificial situation created by federal agencies that blocked direct access to the sea. The waterfront was virtually closed to ocean-going vessels. The only port

facility, the Old Ocean Dock, has been owned and controlled by the Alaska Railroad, only minor traffic has been allowed.

"Throughout the years there have been periodic attempts to make the railroad's dock available for commercial operations. All were fruitless.

"During World War II when there was a shortage of ships and the Seward Harbor was congested with military freight, the big ships were diverted to the railroad's dock in Anchorage. Local residents stood on the bluff overlooking the Inlet and watched the ships do what they had been told could not be done: Navigate Knik Arm. No ship went aground in the silt that was supposed to have made that water too shallow.

"Local residents saw the peculiar phenomenon of meat and other cargo repeatedly discharged to the railroad dock so that military freight could be unloaded. Our local cargo was then reloaded in the ship's hold to be returned to Seward for subsequent delivery to Anchorage by railroad.

"This happened when the railroad was 167 carloads behind in moving cargo from Seward. It happened when the city's meat supply was depleted. Townspeople had to wait several more days before the shipment could be delivered by railroad instead of being taken directly from the dock.

"Townspeople here have never understood why they should pay artificially high freight costs. They have always sought ways of receiving their supplies by the routing and handling that must be the cheapest: By direct water shipment."

I've read this editorial to impress on you that the basis for our development was the heartfelt desire of the people of Anchorage to improve their lot. Without this drive, public or private advancement does not take place.

Anchorage realizes well the importance of maritime commerce in our lives, perhaps to a higher level than other cities in the nation. We hold strong feelings toward the growth of our marine capabilities to participate in the development of this state.

We would like to thank you for coming to Anchorage. Again, I would like to express Mayor Sullivan's regrets at not being able to be here, and we extend you our welcome and invite you to explore our city during your stay here.

Thomas J. Patterson, Jr.
Western Region Director
Maritime Administration
San Francisco, California

It is a real pleasure for me to be with you this morning. We in the Maritime Administration also want to welcome you to Maritime Alaska '81. We feel honored that Commissioner Bob Ward invited our agency to be a co-sponsor of this conference on maritime commerce and port development in Alaska.

On August 6, 1981, the Maritime Administration was transferred from the U.S. Department of Commerce to the U.S. Department of Transportation. In the future, the Maritime Administration will function as a modal administration similar to the Federal Highway Administration, Federal Railroad Administration, Federal Aviation Administration, Coast Guard, etc.

Drew Lewis, Secretary of Transportation, in testimony last summer before the House Merchant Marine and Fisheries Committee, stated there were several major reasons for transferring the Maritime Administration to the Department of Transportation. They were:

1. To provide through the department the opportunity to develop a viable maritime policy in the context of overall transportation policy.

2. To provide through the Secretary of Transportation, a central spokesperson for maritime interests. The administration will have a designated cabinet-level spokesperson to deal with maritime matters.

3. To allow the Department of Transportation to develop an integrated, intermodal national transportation system.

4. To allow the Department of Transportation to evaluate the entire national transportation system in order to improve the export performance of the United States.

5. To manage and coordinate federal maritime policy and programs more effectively by placing the two primary maritime agencies--the Coast Guard and the Maritime Administration--in one department.

We are happy to be part of the Department of Transportation family and we hope to continue to play a major role in maritime policy development.

In order to strengthen the American Merchant Marine, we must maintain our technological excellence in port development. This along with good labor and shipper relations will make a viable American maritime industry. We share with you an earnest desire to work with your state and local government representatives and private enterprise to further Alaska's trade development opportunities.

Rear Admiral Richard J. Knapp
17th District
United States Coast Guard
Juneau, Alaska

It's a pleasure to be here, and I could probably make this very, very short and sweet by saying that I certainly subscribe to everything that Tom Patterson said. On the other hand, you're not going to be that lucky.

Having heard the commentary here by Tyler Jones on the way the Port of Anchorage had apparently been treated, I think that it's particularly appropriate that this group, comprising state, federal, and private enterprise representation has gotten together. I think it's not only appropriate, I think probably it was really inevitable, because when you consider an area like Alaska where you've got more coastline than the entire lower continental United States combined, this had to happen. And I feel particularly lucky to be here when it does occur; lucky from both a personal point of view and from a Coast Guard point of view. I see Alaska as a particularly challenging locale. A place where vast resources are untapped, resources that will do not only the state good, but I think will figure into our strategic thinking in terms of energy development and independence.

That's just one element of what I see us addressing here. I see a mutual benefit to the government agencies, certainly to private industry in terms of what the plans are, what the projections are, where we are going, and how we get there from here.

Well, from the Coast Guard's point of view, we are chairing a panel on port operations and some regulatory aspects. In conjunction with the other agencies we may be able to say how to get from here to there. You better know it now and not find out later after you've made plans based on other premises.

From a Coast Guard point of view in terms of benefits, I see us tapping your expertise, your knowledge, your forethought to see where we're going. As you probably know, with the 18-month budget cycle that we have in Washington, and I'm sure it's the same in state government, Bob, you're inevitably behind the curve. So you want to be as little behind as possible. And what I see us doing is projecting what's going to happen and cranking it into our long-range plans hoping to be just a little ahead of the curve in order to anticipate rather than react.

So once again, I won't reiterate the specific objectives as put out by Tom Patterson. I think they're all very, very evident. I challenge you, I challenge all of us, to meet those objectives and come up with a pretty good prospectus in terms of Alaska port development, shipping, and general development in the maritime sector. I find it a very challenging opportunity to be here with you and I'm looking forward to the results of this conference with great anticipation. Thank you very much.

Colonel Lee R. Nunn
Alaska District
United States Army Corps of Engineers
Anchorage, Alaska

Thank you, Commissioner Ward, fellow co-chairman, ladies and gentlemen, on behalf of the Alaska District of the U.S. Army Corps of Engineers, I would like to welcome everyone here to Anchorage.

I would like to tell you a little bit about the Alaska District and perhaps help you understand our participation in this conference. I have a number of my staff assisting here at the conference and I hope that you'll have an opportunity to have an interchange with them, and will look to them for some of the answers to your questions that will come up during the workshops and the sessions ahead.

The Alaska District was only created in 1946 following World War II. However, we've been actively involved in navigation improvements in the state since the early Gold Rush days in Nome, up on the Yukon River. The federal interest in navigation, of course, stems from the commerce clause, but for the Corps of Engineers, we take our responsibility primarily from a series of rivers and harbors acts that have been in effect since 1884.

We have the responsibility not only to make improvements to waterways, but to maintain them.

I would like to tell you a few of the objectives and types of improvements that we're involved with and the federal government undertakes. We assist in the development, safety and efficiency of interstate and foreign waterborne commerce, and, of course, Anchorage is a perfect example of a city that needs that type of assistance. We promote the harvest and production of seafood, and again Alaska is a leader in that area. We encourage industrial and agricultural production. Alaska is breaking new ground in those areas. We meet the needs of recreational boating, enhance fish and wildlife sources, enhance environmental quality to the extent that we can, and enhance social effects where that's an appropriate goal.

The federal participation in improvements in navigation must be in the general public interest and they must be accessible equally to all. Some types of the navigational improvements which we get involved with, and which are considered to be in the federal interest are the channels, the anchorages, the turning basins, docks, dams, protective jetties and breakwaters. I'll point out though that we do not get

involved with privately owned facilities, nor do we get involved with the construction of the docks, the terminal facilities and the berthing areas.

Specific Congressional authorization is required for the Corps to do its work in this area, both for the planning, the construction, and the maintenance of the project. There's an exception to this which many of you I'm sure are aware of, and that's the Section 107 program where we can participate under a general authorization for projects where the federal interest is less than $2 million.

All of our projects are taken in cooperation with a public entity representing the local interest. One of the most rewarding aspects of being a district engineer is the ability to go out and work with these small coastal towns in Alaska and work on these navigation facilities, putting the things where they want them and the way they want them, and getting to know the individuals as closely as you do when you're dealing with a small isolated community reachable only by air or water. It's very satisfying for myself and my people in the district.

We ask that that local entity provide all the lands, easements and rights-of-way that must come before we can be involved. They also free us of all liability except that of negligence on our part. They provide funds for the design and construction of the nonfederal portion of the complete project and they agree to operate the project as a public facility in a safe and clean manner.

The current policy only requires a five percent contribution of the local entity for the federal first cost. But as you know, there are two bills before the Senate which seek to gain full cost recovery of the construction and operation and maintenance costs through reimbursement by the local interest.

We also administer some controversial and difficult laws involving the preservation and protection of navigable waters. We issue permits for structures over, under, or in navigable waters. In Southeast Alaska we issue permits for the great log rafts that move throughout the area.

We also get involved with permits for dredging fill materials in "the waters of the United States," a very broad area. By court order our jurisdiction has been extended well beyond the traditional navigable waters that we're primarily interested in here today.

We also get involved in the removal of sunken vessels and other obstructions endangering navigation. Very often a

local boat owner or former boat owner whose boat is in 60 fathoms of water will get a letter from me telling him that he must remove it, and he's not sure why. In many cases those are routine letters, but the vessel may also be in a major submarine channel or something of that nature which is so classified I can't tell him about it. All I tell him is to move it. We have our words, but I've been very pleased with the way the people have responded in our experience here in Alaska.

The Alaska District so far has completed 39 major navigation projects which include most of this state's existing harbors. Many of these have been improved considerably since their original construction, particularly following the earthquake which caused some changes in our original orientations on those breakwaters and other aspects of the harbor.

We also are involved with surveys of all our completed projects, and we have approximately 16 navigation projects now in various stages of planning and design throughout the state.

One of the things we do that I think you'll have an opportunity to observe during your tour of the Port of Anchorage later on in the session is dredging. We're involved with dredging a number of the ports here in Alaska, one of them being the Port of Anchorage. The Port of Anchorage has had an unprecedented problem this year with siltation. I've had a contractor out there all summer who has not been taking it out as fast as it's coming in, so we brought up the Biddle, a hopper dredge from the lower 48. The Biddle will be in the Port of Anchorage removing the silt away from the dock. My other contractor will be removing the silt close into the dock. We hope to close that out before we get into the bad winter weather.

I might point out that the people in Alaska that you'll be working with are very impressive. I'm reminded of Toynbee's observation that the great civilizations of the world emanated from immigrated societies, immigrants from other countries. Alaska's much like that. The Corps first became involved and aware of that back in those Gold Rush days at Nome. We got involved in helping with Nome harbor and entered into a contract of an indefinite duration to dredge that harbor for $2,500 a year. My current bill is over a quarter of a million dollars and those immigrants are still sending me that $2,500 check every year to dredge their harbor, full reimbursement. They're shrewd, they've lived in a harsh environment, they've done well. They're to be admired. And the Alaska District is proud to be an engineering organization that's a part of that society. And we are continually involved in navigation, maritime commerce, and port development. We welcome you here to Anchorage, and we welcome the opportunity to participate in this conference and workshop.

Commerce and Resources Panel

ALASKA'S DEVELOPING ECONOMY - 1980 TO 2000

Richard H. Eakins, Jr.
Director, Office of Special Industrial Development
Alaska Department of Commerce and Economic Development
Juneau, Alaska

My purpose for being here this morning is to present to you in an erudite and convincing manner a scenario of how Alaska's economy is going to develop over the next 20 years to the year 2000. There is an old Chinese proverb which says: "Economists who make long-range predictions looking through crystal ball, sooner or later learn to eat ground glass."

When I think back to what the Alaska economy was in 1964 when I came to Alaska, and the projections being made for 1980, I am not comforted by the record. No one could have predicted the events of the past 10 years. Nevertheless, economists have never let their past inadequacies interfere with their ability to forecast for the future.

What is the future growth pattern going to be over the next 20 years for the Alaska economy? We know with fair certainty in what sectors of the Alaska economy growth is going to occur.

First, for the long-term future, Alaska's economic growth will center around resource development and extraction. This will include the energy resources: oil, gas, and coal; and the resource areas of fisheries, minerals, agriculture, forestry products, and scenery.

Second, state government, with its capability for pumping billions of dollars into the economy, will continue to be a major economic stimulus and could become a major influence on the timing and direction of economic growth. We will come back to this point later on.

Third, the Native regional corporations will be major contributors to economic development as they use their Native Claim Settlement Act award of cash and land to invest in the marketplace.

So, I haven't told you a thing that you don't already know and you derived the same conclusions yourself. For a minute let's look at the potential magnitude for economic growth in resource sectors and then review the advantages/disadvantages and the influences that will encourage or retard development.

PETROLEUM

What can we expect to occur in the petroleum industry sector? Presently, we are producing from the Prudhoe Bay field over 1.5 million barrels of oil per day through the Trans-Alaska Pipeline. Approximately 100,000 barrels per day are being produced from the Cook Inlet area. Recall the economic impact that this production has had upon the Alaskan economy to date. Include the Cook Inlet gas production in your reflection.

The Prudhoe field is projected to produce 2 billion cubic feet per day of natural gas, plus about 210,000 barrels per day of gas liquids for more than 25 years. Proven recoverable North Slope gas reserves are estimated at 29 trillion cubic feet. Cook Inlet gas reserves may contain some 4 trillion cubic feet. The most recent USGS estimate of undiscovered recoverable oil in onshore provinces gives a most likely figure of 7.1 billion barrels with a high figure of 20 billion. Estimated potential of associated gas reserve ranges from 20.7 trillion cubic feet to as much as 55 trillion cubic feet. The USGS offshore estimates of recoverable oil reserves contain anywhere from a most likely 10.9 billion barrels to a high of 36 billion barrels of oil. Estimates for associated gas reserves range from 41 trillion cubic feet to 132 trillion cubic feet of the 20 sedimentary gas and oil basis contained in Alaska, only the Prudhoe and Cook Inlet fields have been brought into production. Of the 12 petroleum basins, only two have been extensively explored.

A staggering 100 million acres of oil and gas tracks could be made available for exploration through a series of 33 lease sales scheduled over the next five years.

COAL

The world market search for coal since the 1973 energy crisis has certainly been impressed upon Alaska minds these past two years. Numbers of coal trade missions from Japan, Korea, and Taiwan have traversed the state. Test shipments of coal have been sent to Korea and Japan. A contract has been announced for the export of Interior coal to Korea. There has been the increased pace of development and exploration of the Beluga fields by Placer AMAX, BHW, and Mobile companies. All this activity has stirred the possibility that Alaska will export coal in the near future. The critical question for Alaskan coal export production is, will the world market demand for coal intensify, so that our low BTU subbituminous coal becomes acceptable to major coal user countries as an alternative or additional fuel source? Alaska's total coal resource is estimated at several trillion tons with recoverable reserves of more than 100 billion

tons. This resource ranges from tidewater sites to the Brooks Range and from subbituminous to anthracite coal.

FISHERIES

In 1980, U.S. fishermen in Alaska waters harvested 1.1 billion pounds of fish and shellfish, with a value to the fishermen of $556 million, and a wholesale value of more than $1 billion. At the same time, foreign fishermen operating in the state's 200-mile offshore zone took 3.3 billion pounds of bottomfish which could have been worth about $290 million to U.S. fishermen.

The State of Alaska has announced its intention to encourage the development of the fishery resources within the 200-mile conservation zone as a U.S./Alaska fishery. This policy includes the development of onshore processing when economically feasible. This marine food resource, if 100 percent used by the U.S. industry, would rank Alaska 10th in the world in total production. If you eliminate industrial fish processing, Alaska would rank seventh in world production on approximately 3 percent of the world total catch. The catch (excuse the pun) is what percent of that fishery can we expect to occur in Alaska as a U.S. fishery and/or foreign-owned but Alaska operated processing industry?

TIMBER

In 1979, Alaska harvested nearly one-half billion board feet of timber from public lands. The forests in the Interior are the largest undeveloped timber resource, containing 22.5 million acres of commercial forest. It is estimated this could produce a volume of 31 billion board feet of saw timber. This resource development potential is very indefinite however because land ownership patterns and the level of land use that will be allowed are all unknown.

MINERALS

Alaska is considered by experts to have tremendous potential for mineral output. Many observers feel that Alaska's hardrock minerals may be its greatest undeveloped resource. There is an increasing feeling of speculation that world markets and conditions are approaching a point that will encourage mineral development. Certainly the borax molybdemum project at Quartz Hill and Noranda's silver-lead-zinc project on Admiralty Island encourage this direction of thought. Of the 30 minerals listed critical to industrial needs which the U.S. now imports, 22 are found in Alaska. The potential magnitude for a future minerals industry in Alaska can be found by comparing it with what is now being produced in the seven western states. This is an acceptable comparison

since Alaska and the western states have a similar geological structure. At the present stage of development, the 1979 western states mineral production value is approximately $4 per square mile. Alaska's production value per square mile was less than $.50, the majority of which was sand and gravel. If Alaska were to have a comparable mineral industry to that of the seven western states, annual production value would be nearly $2 billion, approximately one-third of Alaska's current total wages and salaries. Obviously, that development could only occur over a 50 to 75 year period or more. Nevertheless, there is the possibility that significant projects could occur over the next 20 years.

AGRICULTURE

The state has announced its intention to transfer 50,000 acres of agriculture land into private ownership over the next 10 years. That would place into production over one-half million acres of land. It would move Alaska into the agriculture industry in a big way. Experts say the program is technologically possible and economically feasible. Experts also say the world market demand for protein is increasing at an exponetial rate and Alaska will be able to market quantities of foodstuffs. Potential cropland in Alaska is estimated at nearly 20 million acres, and several times that for grazing land. Given world export market demand and the potential for production, Alaska has the capability to become a major food producer and develop a major agriculture industry.

TOURISM

Two of Alaska's most valuable resources are its scenic grandeur and its mystique, which attract many people. Some 600,000 visitors came to Alaska last year to satisfy their curiosity and to see for themselves the land of Jack London, Robert Service, and the great oil pipeline.

The Division of Tourism estimates that the visitor industry is growing between 12 and 15 percent per year. The million visitor mark is expected to be attained in 1985. By the year 2000, Alaska could be receiving up to 3 million visitors a year. By comparison, Hawaii now has between 12 and 13 million visitors a year.

If you take each of these resource areas and their potential limits, we can visualize the potential for industrial development in the future. We have not mentioned the services, support, financial, and administrative sectors which would develop concurrently with the resource areas. We also have not mentioned the potential for an industrial/manufacturing base, by providing electrical power at a competitive market

rate. This would attract energy intensive industry and encourage the processing of raw materials to "down-the-line" product stage.

The basic question still remains, what development can we expect by the year 2000? This is where the economist shows his true colors. He becomes a two-hand economist: "On one hand," however, "on the other hand." Or, he dips himself in Wesson Oil and presents a case with enough assumptions and qualifiers that he can slip through regardless how the results compare with his projections.

It is a mistake to assume that resource development will occur in the short run, or even in the long run, just because Alaska possesses large quantities of scarce resources which are in demand on the world market. Development will take place when the marginal rate of investment return is equal to or greater than other investment opportunities. And there are many factors of production that interfere or inhibit development in Alaska because costs are greater than in other resource production centers. Alaskan low BTU coal has to compete with Australian and South African higher BTU coal. Alaska minerals have to compete with low cost, third world mineral producing countries. Alaska's industry has to compete with high efficiency, low cost foreign fisheries to capture the bottomfish market. Alaska as a tourist destination has to compete with cheaper travel systems to other locations.

Alaska still has cost handicaps that retard economic development in the state. Construction to costs differential in Alaska, compared to the west and gulf coasts, runs anywhere from 1.25 to 1.85, and higher in extremely isolated areas. Operational costs are higher because of climate, cost of living differentials, and a minimal domestic support and services industry. Capital investment costs are greater since industrial and community infrastructure is either nonexistent or insufficient. Costs of operation are increased because parts and material supplies have to be shipped in over long distances and the end product has to be shipped long distances to markets. These are the disadvantages that conflict with the advantages of having tremendous stocks of raw material resources. These disadvantages have narrowed considerably in the past 10 years. But if you talk with industry leaders, they still believe serious cost disadvantages have to be overcome.

Coupled with these disadvantages is the considerable amount of misinformation the outside world business community has on Alaska. They all have horror stories pertaining to the cost of the pipeline. Very few know of the Alaska companies that are competing successfully in international markets. This brings us back to my earlier statement, "that state

government can have a directional and time influence upon economic development as well as a fiscal influence."

The state is pumping hundreds of millions of dollars into the economy through increasing capital budget expenditures out of oil and gas royalty revenues. For the most part, the increasing capital budget appropriations have no meaningful direction or purpose. There is not an established management criteria which measures the economic return on the capital investment program. The capital budget program is not organized in the sense of a development program, having specific goals and objectives for structuring the economy. Capital projects ARE rigorously tested in the budget system for purpose, objective, and measurement return before receiving approval. But, presently each project is based upon its own merit and not a universal budget concept for development.

This is not meant to be a finger-pointing criticism. It is a very difficult policy situation facing the state. This is because it involves a conflict of ideologies unique in Alaska's situation when compared with the other states. The institutions of our economic system call for minimum interference by the public sector in the private market sector. We are painfully aware that this precept has been ignored and abused these past 50 years in a regulatory and tax sense. There is a real reluctance in Alaska state government to get involved in the private market sector. This is as it should be. There is also a philosophical aversion to using royalty revenues to subsidize new industry. Again, this is as it should be. There is also an aversion to preparing and conducting what could be termed a five-year or 10-year economic developmental plan. Everyone is suspicious of that and rightly so. A great deal of money has been spent the past 10 years for planning without many observable results. As a consequence, planning is suspect today. But there are certain economic aspects that are unique to Alaska's situation that pushes the state into marketplace participation.

First, the state is spending large sums for capital investment works in the economy, but they are approved upon their singular merit or legislative pork barrel allowance.

Second, the state owns vast quantities of resource materials from which it derives revenues. This inserts the state into the marketplace whether it wants to be or not.

Third, the state has as an economic policy the goal of which is broadening and diversifying the economic base in order to lessen dependency upon North Slope royalty revenues.

Fourth, the state has an economic policy with the objective of making it possible for Alaskans to participate in the

expanding economy. Witness the financial institutions organized to provide investment capital to Alaskans, enabling them to enter into the market on a competitive basis.

Fifth, the state is halfheartedly participating in two developmental sectors, agriculture and fisheries, but not to the extent of giving the full commitment required to establish an "infant" industry in today's international competitive markets. Again, much of the indecisiveness is due to a relunctance to involve the state in the private sector economy, or what might be subsidizing industry.

The above policy actions and the present degree of participation by the state in the economy requires that it set forth what its long-range goals and objectives are for the public sector and what the commitments are for attaining those economic objectives in relationship to the private sector. If the objective is to diversify and broaden the economic base of the state; and if this is to occur through the development of resources and energy; then the participation in the market sector of the state can be delineated. If we want a mineral, bottomfish, agriculture, or a petrochemical industry, then the state has to have the most efficient transportation system with deepwater harbors and ports necessary to support modern, efficient, world-scale industry. If we want a manufacturing/processing industry to add value to resource products prior to export, then the state has to have competitive power, water, sewer, and utility systems required to support world competitive industry. If we want a more stable year-round economy, then it requires the above industry development happen concurrently with community development, providing the amenities and infrastructure that will provide living centers for a permanent work force.

To overcome the Alaska high cost differentials of investment and operation, the state could consider some ingenious financing method for large-scale construction in the multi-million dollar range for large industrial developments. This could be done by participating with Alaska banks unable to fully finance such investments alone. I am thinking of the possibility of financing turn key plants over a 20 and 30 year period. This would return the state's investment in 30 years plus interest and at the same time provide industry with a cheaper capital investment load.

Such actions by the state are not subsidies. They are investments! The infrastructure investments may not return total dollar cost of construction, but they will only be undertaken if they will return operational, maintenance, and replacement costs. In addition, they will attract a performing industry of long-term dimensions which better achieves the political/economic goals of diversification and broadening the base economy.

These are the decisions along with market conditions that will influence the rate of economic development during the next 20 years. Without state investment, new resource industry development will take place slowly and only as those cost handicaps are overcome by the private market sector. In today's competitive world this can take a very long time to happen in Alaska's situation and with Alaska's disadvantages. The exception is the oil industry which is independent of the state and acts upon its own economic criteria.

What is the rate of growth going to be for the next 20 years? It is going to be spectacular when we look back in the year 2000 to view what actually occurred. From the 1980 viewpoint, it is going to happen slower than most people have been talking about for bottomfish, coal, minerals, and agriculture.

That is, unless the state moves toward the investment of its oil wealth inheritance for the private sector advantage.

ALASKA COAL IN THE WORLD MARKET

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President
Swan Wooster Engineering, Inc.
Portland, Oregon

The subject of my talk is Alaskan coal on the world market. I am happy to tell you that prospects for export of Alaskan coal are promising. Despite the relatively low heat content of much of its coal, Alaska's nearness to Pacific Rim importing nations, the proximity of mines and potential mines to tidewater, and availability of deepwater port sites could allow a significant coal trade to develop.

First I would like to touch on the qualifications of my firm to make this assertion. Swan Wooster was founded 57 years ago. Principal offices are located in the U.S. and Canada, and we enjoy a worldwide practice. We are a leading consultant in the planning and design of marine terminals for coal. Presently we are designing such facilities with an aggregate capacity of over 80 million tons. These include two large terminals in the United States; the Roberts Bank, British Columbia expansion, and the largest export terminal in the world at Richards Bay, South Africa, with a capacity of 32 million tons per year. Our transportation economists have completed and are working on many studies concerning the movement of coal throughout the world.

The remainder of my talk is based on our interpretation of up-to-date published data as well as our involvement in studies and projects.

I will discuss the world demand for export coal through the year 2000, world coal trade patterns, the Pacific Rim market and, finally, Alaska's coal and transportation resources, and the market opportunity for Alaskan coal. Figure 1 is a breakdown of the approximately 10 trillion tons of world coal resources; resources being general estimates by geologists and other experts, and reserves being estimates based on measurements. The 150 to 200 billion tons of Alaskan coal does not include speculative resources of up to 6 trillion tons.

Figure 2 indicates world coal reserves of above 650 billion tons. Reserves of course are less than the total resources shown in Figure 1. Alaska's 6 billion tons of reserves are quite substantial. To put this figure in perspective, it would take 600 years to export this total quantity at the rate of 10 metric tons per year, the size of a fairly large export terminal.

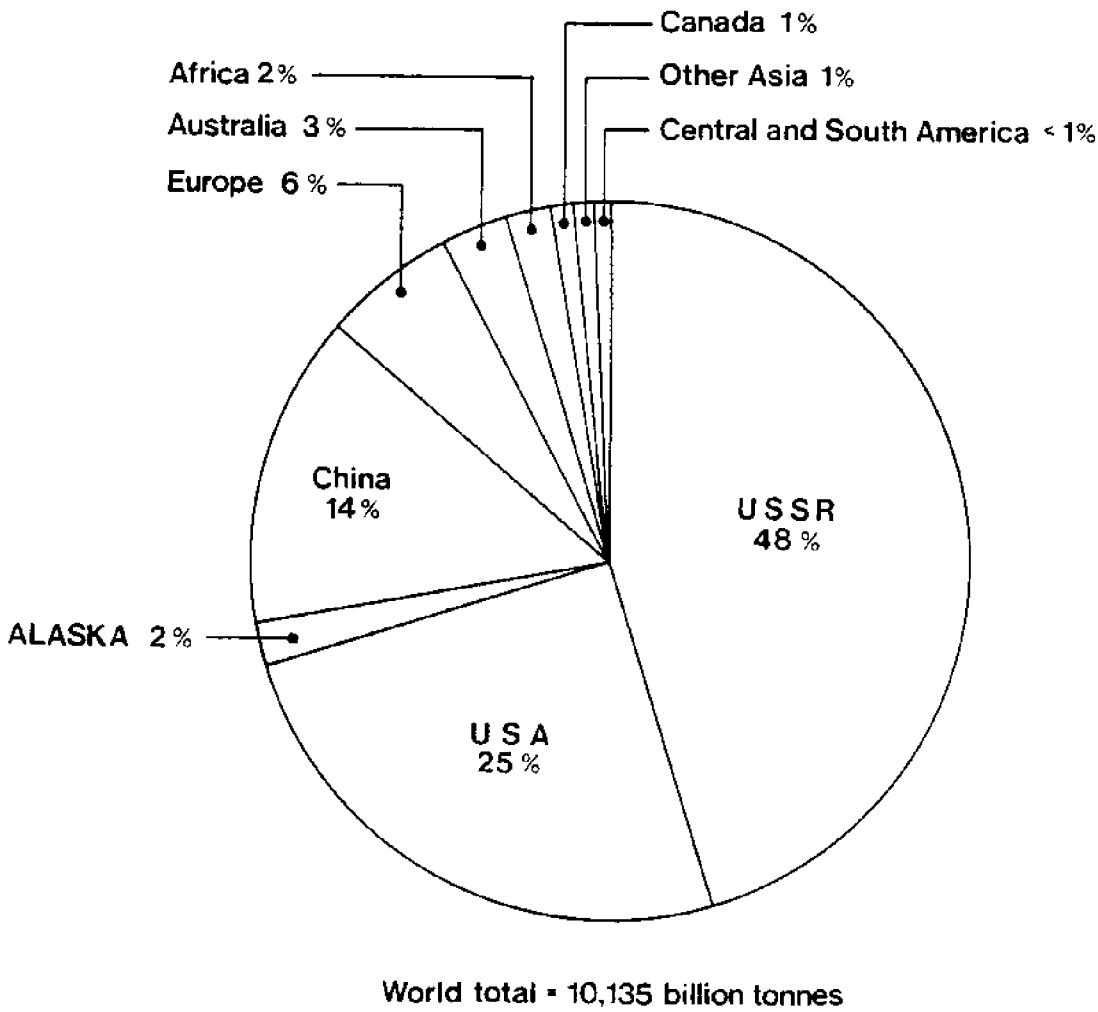

Figure 1. World coal resources. (Drewry 1980, Grossling 1979, World Bank 1979)

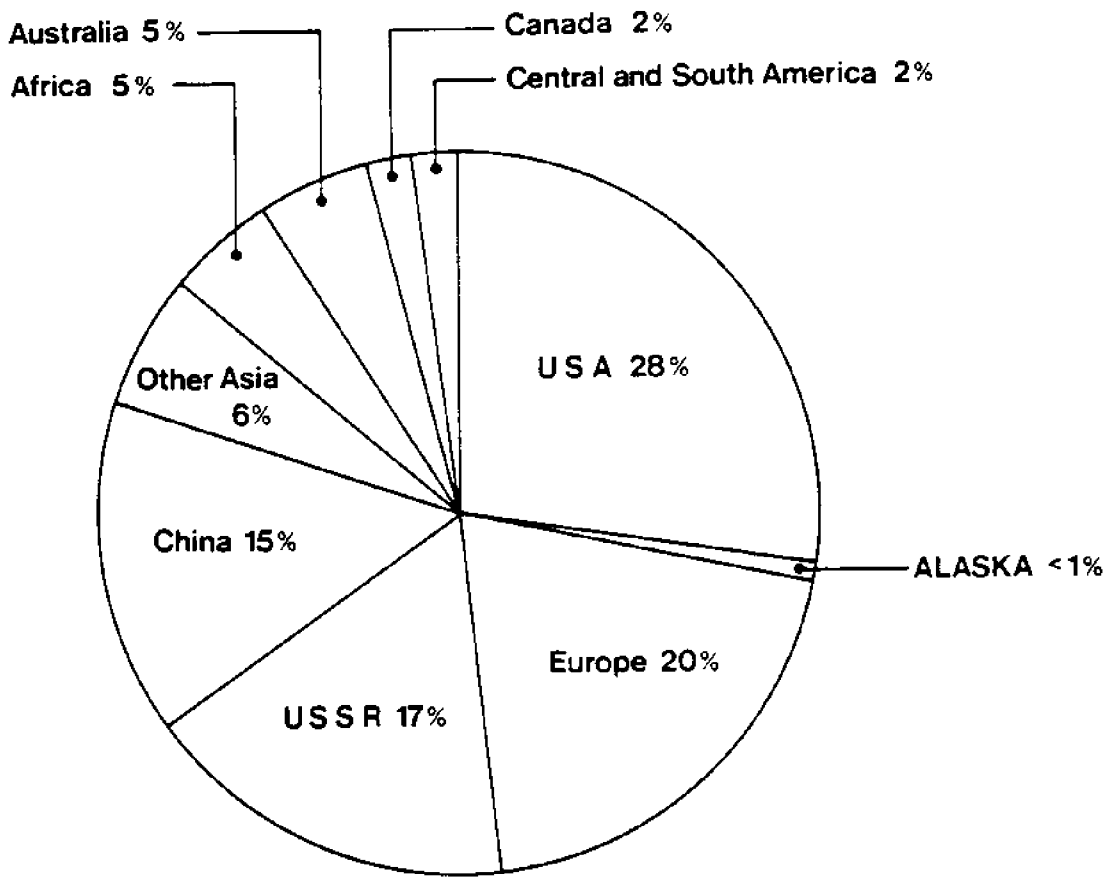

Figure 2. World coal reserves. (Grossling 1979, World Bank 1979)

Figure 3 shows our estimate of world demand for export coal and the share that may be captured by the United States. It is slightly above the forecast made by the Department of Energy Interagency Coal Export Task Force early in 1981. Note the total demand for export coal in 2000 is 700 million tons with the U.S. share projected to be 200 million tons. Most of the increase from the 65 million tons exported in 1979 will be thermal coal used in power generation stations and industry, as distinguished from metallurgical coal used for making steel. I should point out we have some doubts about expansion of transportation systems and ports in the world in time to meet this demand. The shortfall may approach 100 metric tons per year or more. The export coal will be 7 percent of total world coal production then.

Figure 4 is somewhat out of date. The large arrow from eastern to western Europe is not valid in light of the disruption in Poland. From 1979 to 1980, Polish exports dropped 25 percent. From 1980 to 1981, this will get worse.

Figure 5 is a hypothetical distribution of exports to the Pacific Rim in 2000. The 28 percent U.S. share is about 60 million tons. It shows increased Chinese participation presuming current infrastructure problems will be solved.

Factors affecting coal trade, in addition to delivered price include: quality of coal; security of supply by diversifying supply; chance of labor disruptions as those which have occurred in Australia; government stability and support for coal trade; and, of course, the existence of adequate transportation systems and port facilities.

Figure 6 indicates port facilities for larger bulk carriers. Vessels 120 to 250 thousand deadweight tons drawing 54 to 68 feet of water are particularly desirable. Larger vessels mean lower cost per ton of coal moved. Figure 7 shows the trend to larger vessels in the coal trade from 1966 to 1979. This is expected to continue and even accelerate in the future.

I should also mention that transportation cost is a large part of the overall delivered cost of coal, typically ranging from 40 to 70 percent of the total. It follows that coal from a given location, say Alaska, can be competitive if transportation costs are less than for competitors.

I will now focus on Alaska. I have previously mentioned that Alaskan reserves total 6 billion tons. Alaskan coals vary in thermal content from 7,500 to 11,600 BTUs per pound. Approximately 80 percent of Alaskan coal reserves are subbituminous. These reserves are, on the average, 9,500 BTUs per pound. This is a disadvantage for export as it requires

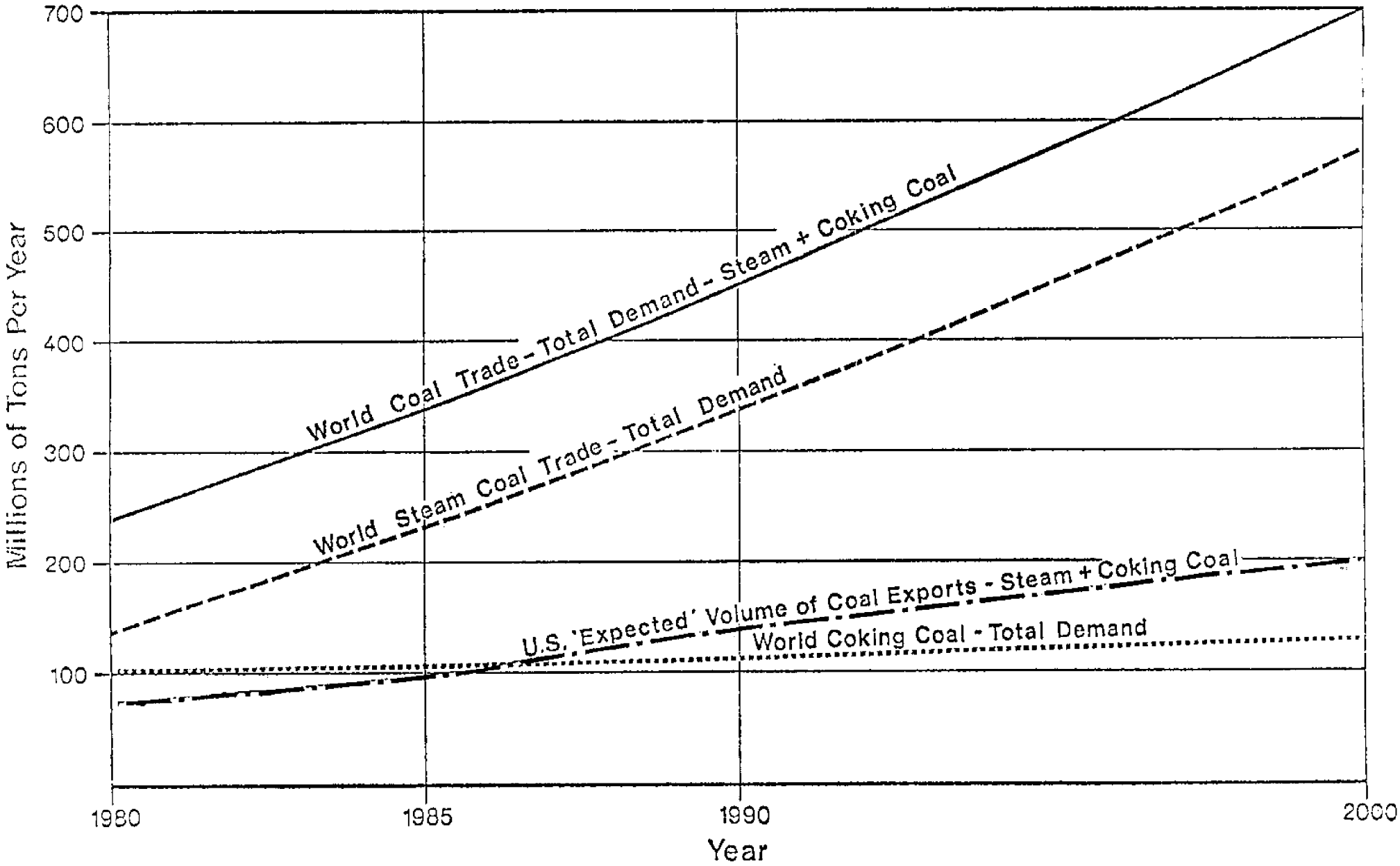

Figure 3. World coal forecast and U.S. expected coal exports.

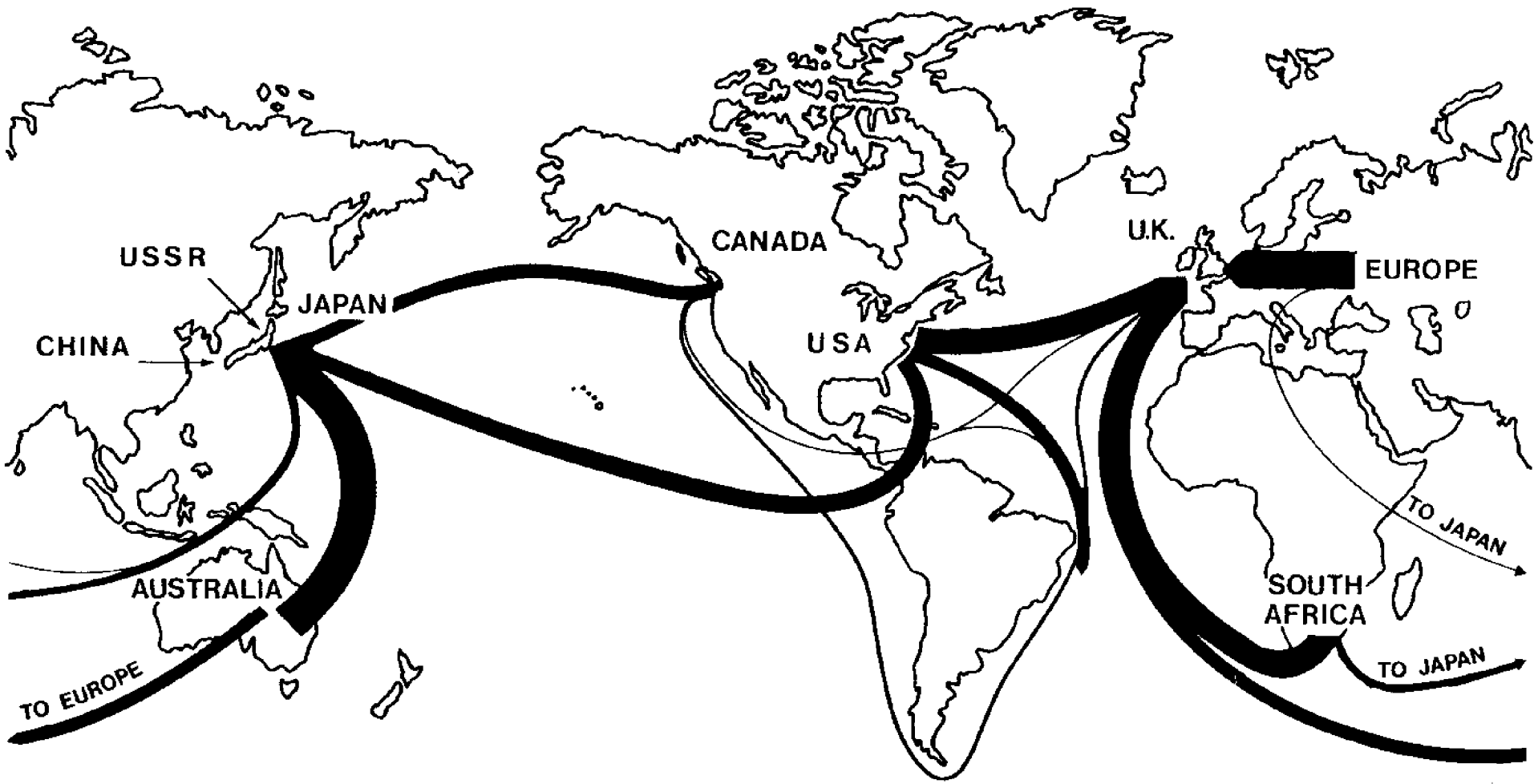

Figure 4. Routes of seaborne coal trade.

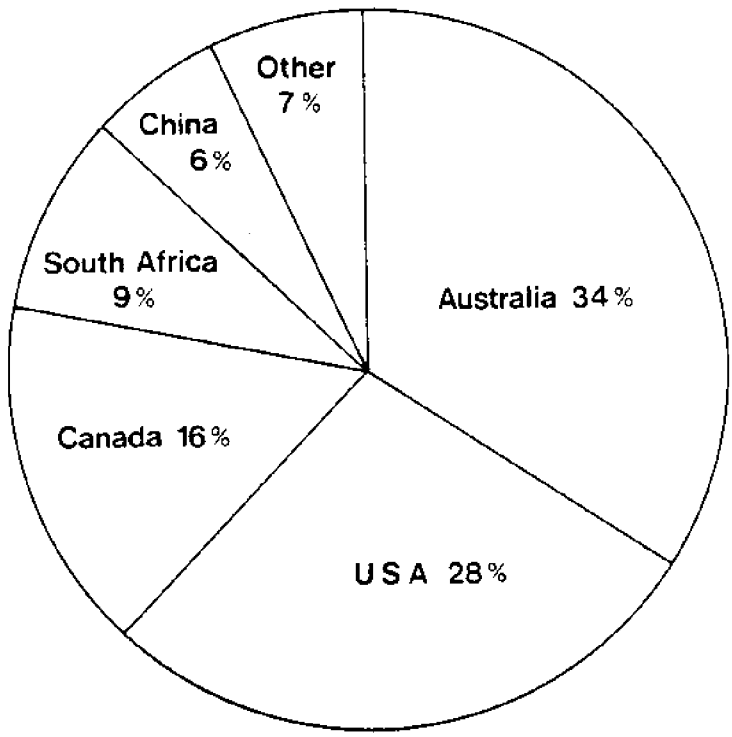

Figure 5. Hypothetical trading preferences of Far East importers-2000

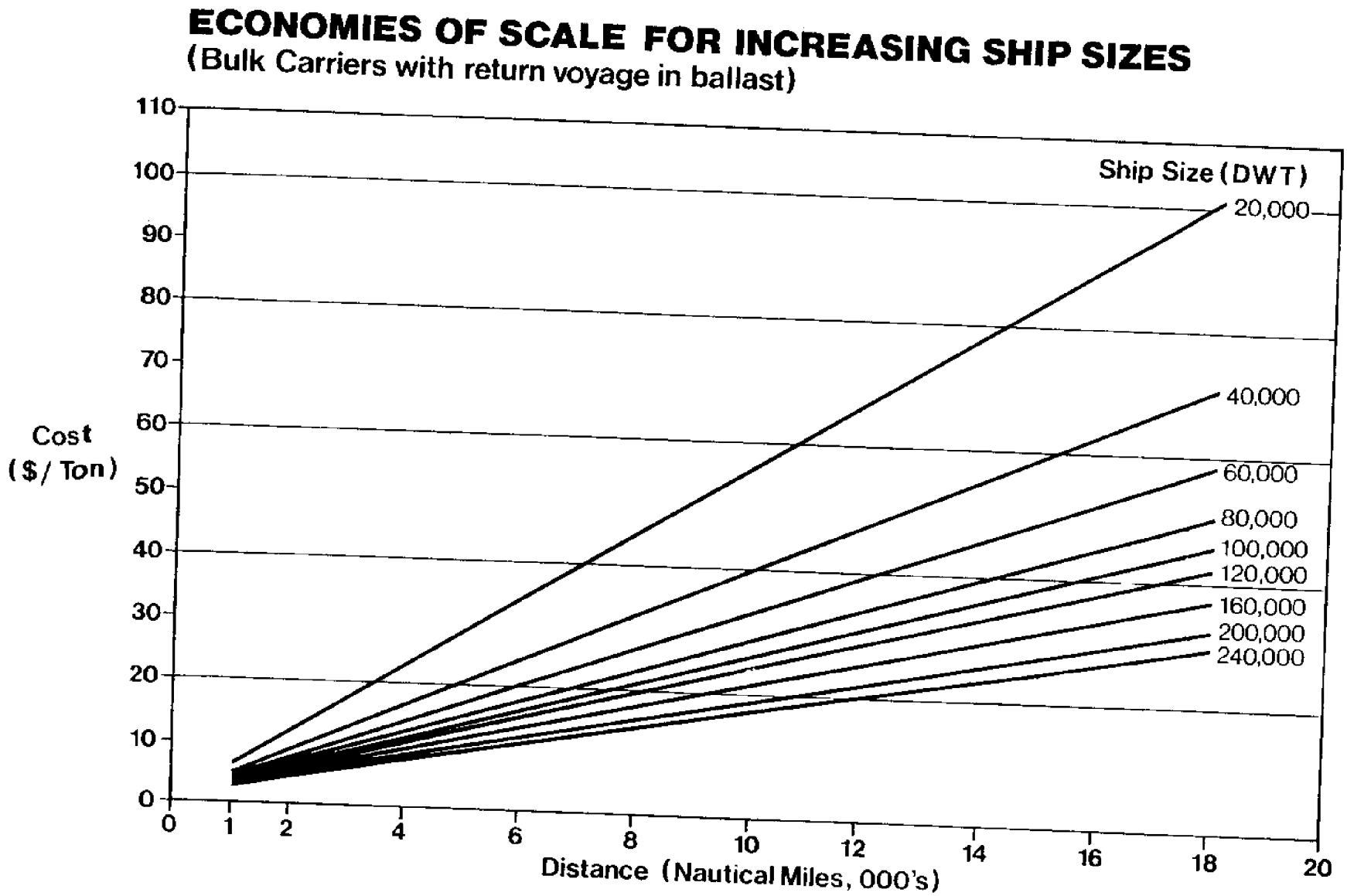

Figure 6. Economies of scale for increasing ship sizes.

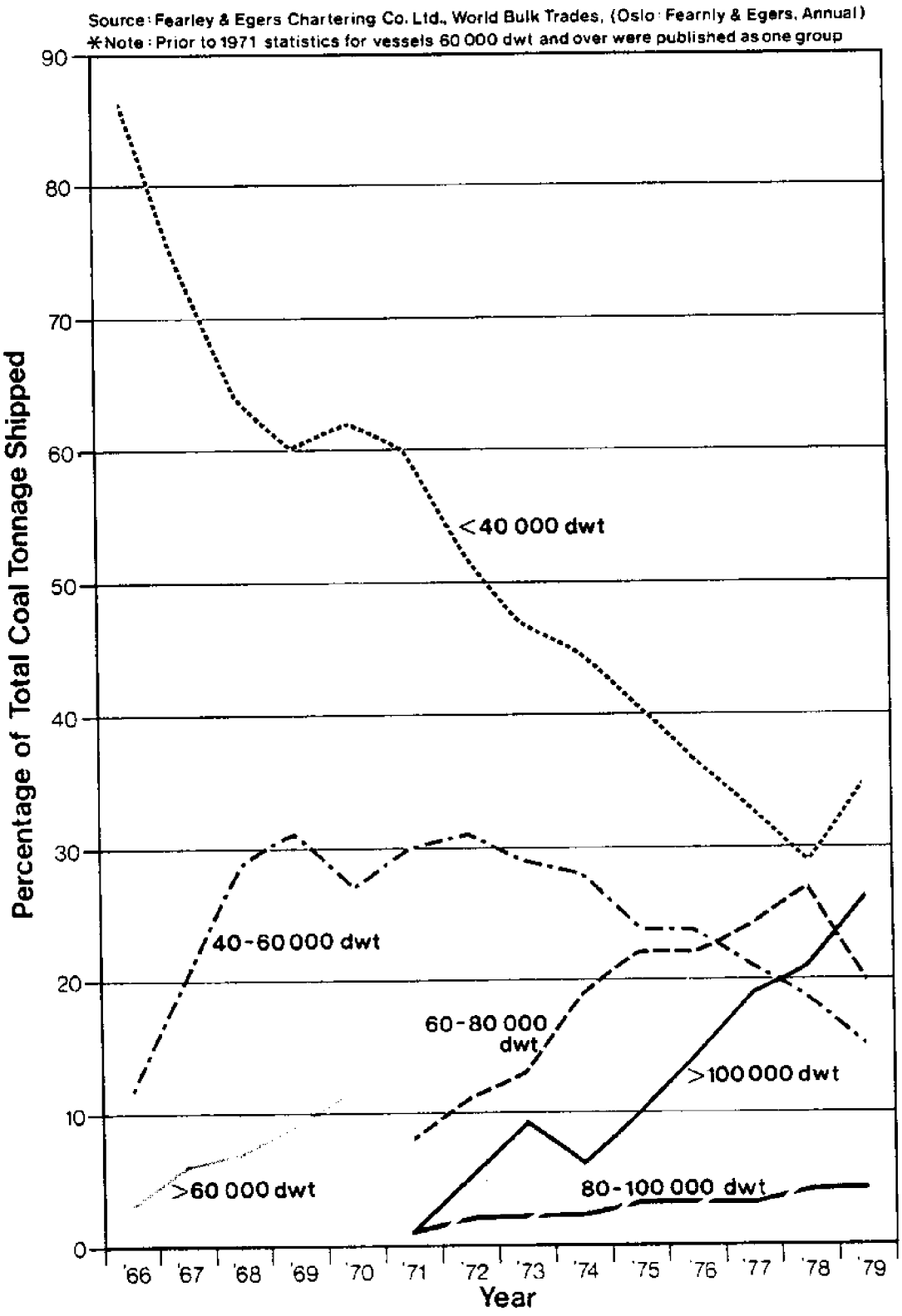

Figure 7. Ship sizes in seaborne coal trade.

specially designed boilers in electric power generation plants, blending with higher grades of coal, or industrial usage compatible with the lower thermal content. Moisture content in Alaskan coal is often high and a disadvantage. However, much Alaskan coal is low in sulfur content, 0.1 to 0.4 percent, and ash content is within acceptable limits, definite pluses.

Figure 8 shows the approximate location of coal fields. The southern fields are 25 to 300 miles from tidewater. These distances are less than many competing locations. For example, rail distance, mine to Roberts Bank, is about 750 miles, and to potential northwest U.S. ports, 1,000 to 1,200 miles.

As will be discussed in a later presentation, there are sites in Alaska on Cook Inlet, and possibly elsewhere, which can be served by rail, truck, pipeline, or conveyor and where world class port facilities can be developed. By world class, I mean those able to handle the larger bulk carriers of 120,000 deadweight tons or more.

Shipping distance from Alaska to, say, Yokahama, Japan, is less than for all competing suppliers except China. For example, the shipping distance from Anchorage to Yokahama is only 3,440 nautical miles. Comparable distances to Yokahama from other locations are: Prince Rupert, Canada, 3,819; San Francisco, 4,356; Newcastle, Australia, 4,250; Richards Bay, South Africa, 7,661.

If we add up all of the costs of furnishing the coal, transporting it by rail to the port, handling it at the port, loading it aboard vessels, and shipping it to a Pacific Rim nation; and in so doing take full account of Alaska's short land and shipping routes and potential ports for larger ships; then adjust for lower thermal content; the result is an estimated comparative cost of about $2.30 per million BTU ($48 per ton of coal) in today's dollars. This figure is quite competitive.

Competing costs per million BTU are estimated to be as follows. These are relative amounts and do not reflect the absolute prices that might occur.

South Africa	$2.00
Canada	$2.40
Australia	$2.50
Lower U.S.	$2.60 to $3.10

As you know, the BTU (British Thermal Unit) is a measure of the heat content of coal or any fuel. Hence, cost per BTU is essentially independent of the grade of coal. The competi-

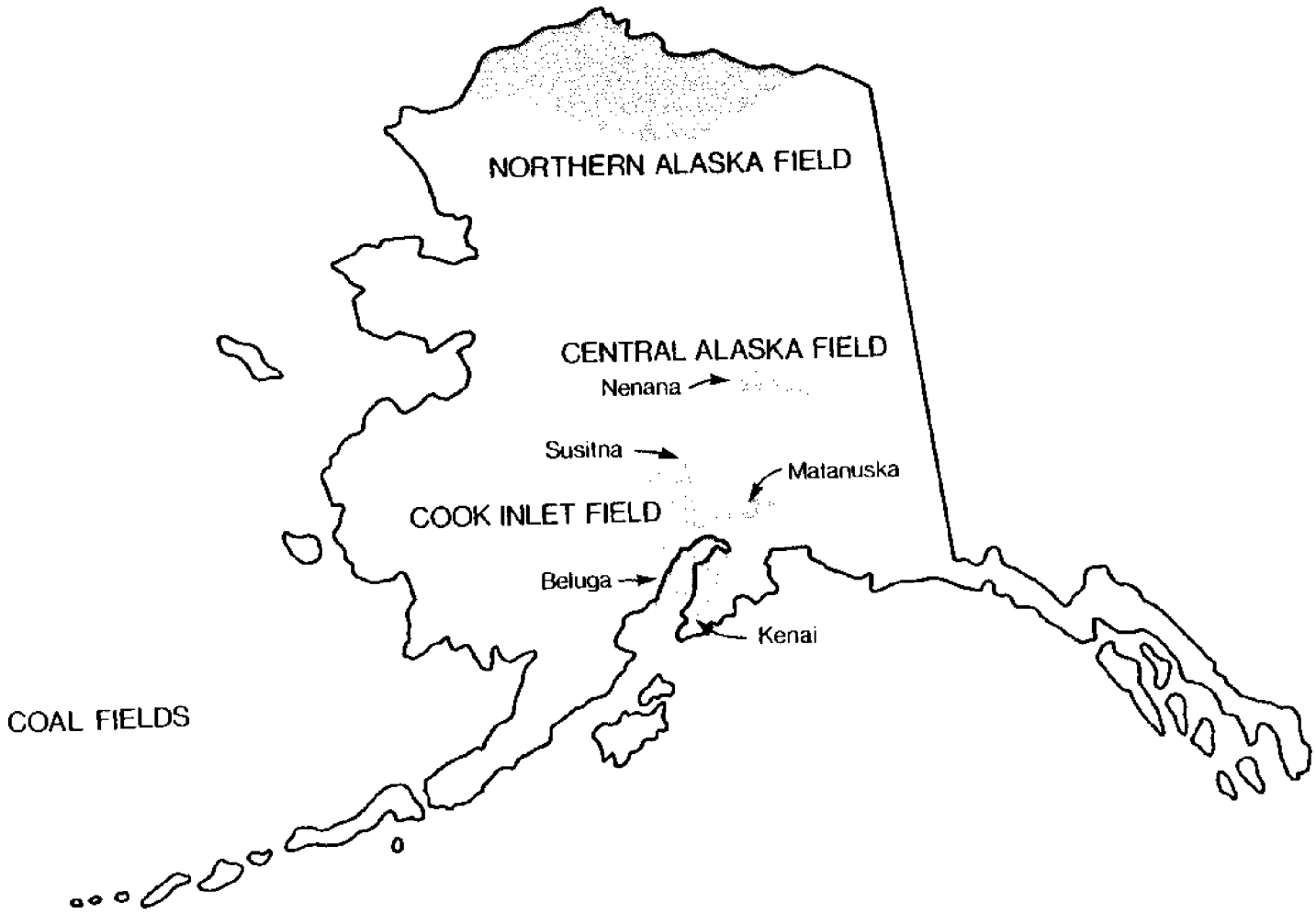

Figure 8. Alaska coal fields. (Schmirler 1976)

tive price of $2.30 per million BTU, as well as the security inherent in any U.S. supply arrangement, low sulfur and acceptable ash content, are reasons we believe Alaska's future in coal export could be bright.

To realize this opportunity, appropriate port(s), transportation systems and mines must be developed--this, of course, is your challenge.

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SHIPPING OF ALASKAN COAL TO EXPORT MARKETS

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San Francisco, California

I'm sure we all would agree with Tom Hjort's excellent presentation that coal should be an important part of Alaska's maritime future. As a representative of a mining company with holdings in a major Alaskan coal field, I'd like to discuss some of our reasons for being in Alaska and how we view the need for a coal-export port.

In the 1960s, Placer Amex was mining coal in the Matanuska Valley for consumption in Southcentral Alaska. At that time the company recognized the unique attributes of Beluga coal, especially its proximity to tidewater and the relatively short marine distances to important export markets.

When discussing transportation, it's best to use maps and my first one purports to depict total U.S. coal resources. There is only one problem with this map, (Figure 1) which was in a publication received from a government agency last year; only 48 states are shown. But as this conference indicates, Alaska has since been discovered! In any event, what this map shows that has relevance for us is that the coterminous states have little coal located near deepwater ports or even near coastal areas. The closest we seem to come on this map to coal located near waterways or shipping lanes is the coal situated adjacent to the Ohio-Mississippi River system. This coal is beginning to be barged downriver for transshipment and export out of the Gulf of Mexico.

If we look at the geography of coal in the Western states, we see that most of the coals, except in Utah and Colorado, are of low rank. Especially for the low BTU, low rank coal, any substantial transportation costs become an important factor, as Tom mentioned a few minutes ago. He emphasized the transportation costs to overseas markets, but even shipped to domestic buyers, these transportation costs often exceed the cost of the coal at the mine. Because of the distances from the mines to U.S. ports, these costs will be even more significant for coal which is being exported.

Large quantities of coal are now being mined in the West, but with few exceptions, this coal is not yet moving to the Pacific Coast. Whether we are considering potential port sites or existing ports, we're generally talking of distances from the mines which are in excess of 1,000 miles. And with the exception of those coals from Utah sources, western coals are low BTU and rank.

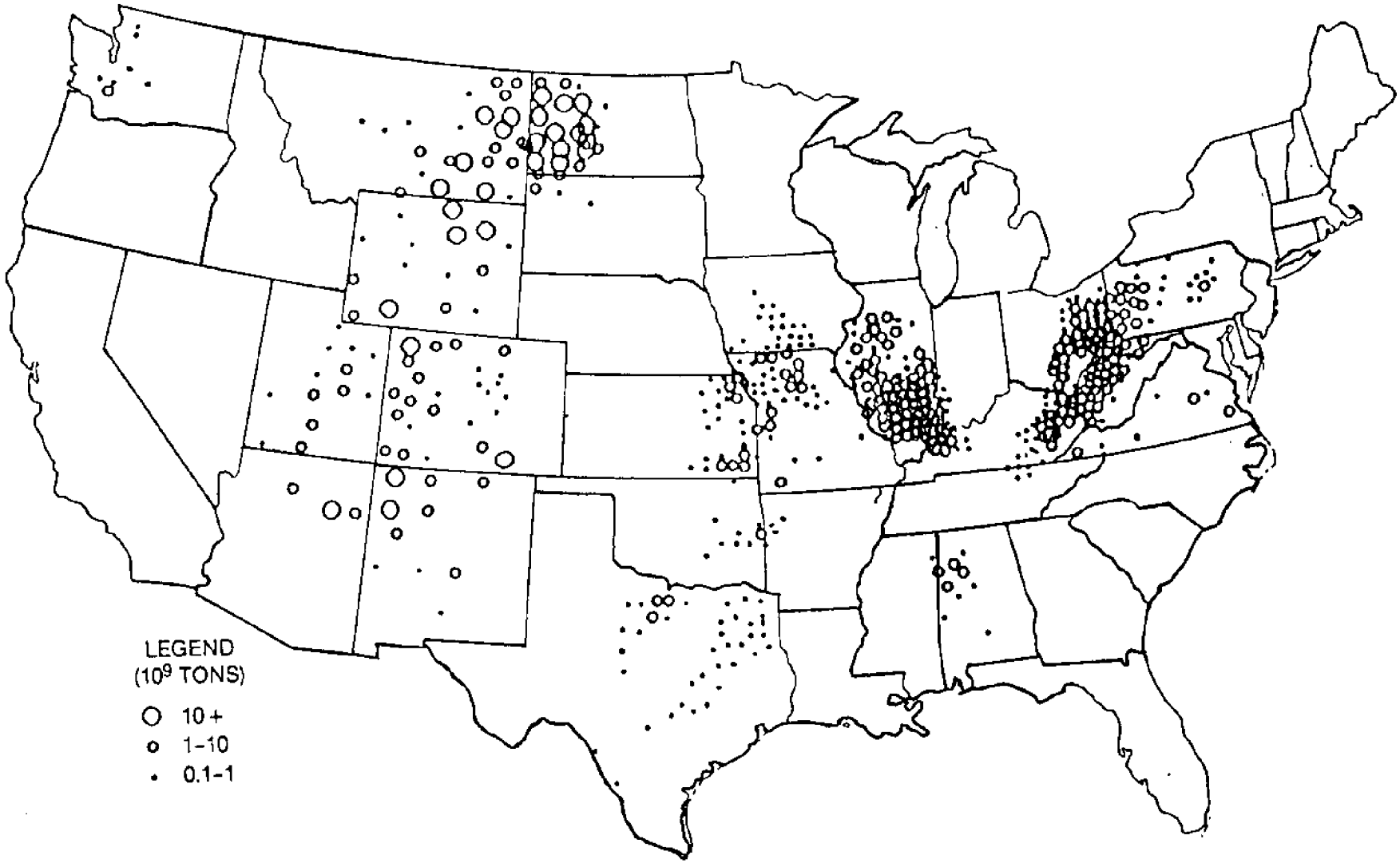

Figure 1. Total U.S. coal resources.

It might be expected that the higher BTU Utah coal could have a decided advantage inasmuch as an important measure of coal's value is its cost per million BTU's. Although these Utah coals are of excellent quality, they are mined underground and therefore have a high cost even before freight is added.

To cite an example of transportation cost to domestic markets, the current coal tariff in unit trains from the Powder River Basin, Wyoming to the new coal-burning power plant at Boardman, Oregon is $15.54 per ton in shipper-owned cars, which means that the railroad does not even provide the rolling stock. Recent delivered costs of coal to this plan were $27.69 per ton, indicating that the cost of 1,100 miles of rail transportation exceeds the cost of the coal at the mine. And as Boardman is in eastern Oregon, this cost actually represents the price of coal that is shipped no closer than a couple of hundred miles from any potential port.

Prospects are for higher rail costs yet, and not only because of inflationary escalation. The Staggers Rail Act, which was passed last year, set thresholds below which rates are not subject to review and possible suspension by the Interstate Commerce Commission. Also, a recent petition of the Norfolk and Western to exempt from regulation rail shipments of coal that are destined for export is now under consideration by the ICC. This request has been elevated from a regional to a national proceeding by a September 3, 1981 Notice of Proposed Exemption from the ICC, seeking comment on the merits of exempting all export coal traffic through all U.S. ports from some or all regulations. All this points to the advantages of developing coal that is not at the mercy of land transportation.

With respect to ports on the West Coast, significant quantities of coal have started to move through southern California, and two marine shipping terminals have recently been announced for locations on the Columbia River. However, the situation in the various harbor areas of the West Coast is similar to that in Alaska where establishment of a coal port capable of handling large colliers will require a major financial investment.

Turning now to Alaska in some detail, it is first of all important to recognize that Alaska does have several areas with large coal resources (Figure 2). Alaska ranks fourth among the states in terms of both tonnage and total heat content of coal resources, the first being Montana, then Illinois and Wyoming. As most of the people here probably know, coal is being mined today in Alaska on a significant scale, and perhaps a few may even know that coal was used as fuel when the Russians were here in the 1800s.

Figure 2. Alaska coal areas.

The largest field in Alaska, the Northern field, is truly enormous, with resources estimated at over 100 billion tons. The potential is indeed high for this northern coal, but the practical problems of mining and transport from such a remote and formidable location probably put the development of this field into the more distant future. However, some of the recent marine and petroleum activities in rugged arctic conditions of the Canadian Beaufort Sea probably could not have been conceived just a few years ago.

The more southern fields in Alaska are of most immediate interest and contain the coal that I wish to concentrate upon in the remainder of this talk. However, it should be specifically mentioned that the Usibelli mine at Healy, in the Nenana field in central Alaska, has been surface-mining coal year-round for Alaskan markets in the amount of about 800,000 tons annually. For the recently-announced contract with Korean purchasers, production of another 800,000 tons per year of Usibelli coal is expected to commence. It will be carried to tidewater by the Alaska Railroad which comes from the north to Anchorage. From there the main line continues to Seward and a spur travels over to Whittier.

Over the past few years Placer Amex, owner of the Beluga Coal Company which has coal leases in the Beluga field, has done a substantial amount of geological work to confirm and evaluate its reserves with respect to both quantity and quality of coal. The Beluga Coal Company and its immediate neighbor, Diamond Chuitna Coal, have coal reserves that are estimated at about 1 billion tons, only 50 to 60 miles to the west of Anchorage (Figure 3).

Because of the proximity of the Beluga coal field to deep tidewater on the north side of Cook Inlet, it could be expected that this coal will be a leading candidate among U.S. coals for export from the Pacific Coast.

Obviously, an important feature of this ultra-low sulfur content coal is that a short land distance of only 15 to 30 miles separate the proposed mine sites from port sites on Cook Inlet. The slope and terrain of the land between mine site and deep water can easily accommodate construction of a railroad. A view of Granite Point, one of the possible port sites for the coal terminal, shows that the terrain in this area should pose no impediment to the construction of the proposed railroad.

As Tom Hjort mentioned, the shipping distances to California are short, with the San Francisco Bay Area being about 2,200 miles distant. This is farther than by rail from Utah or New Mexico. However, as rail tariffs continue to increase, marine transport, being more closely tied to fixed capital

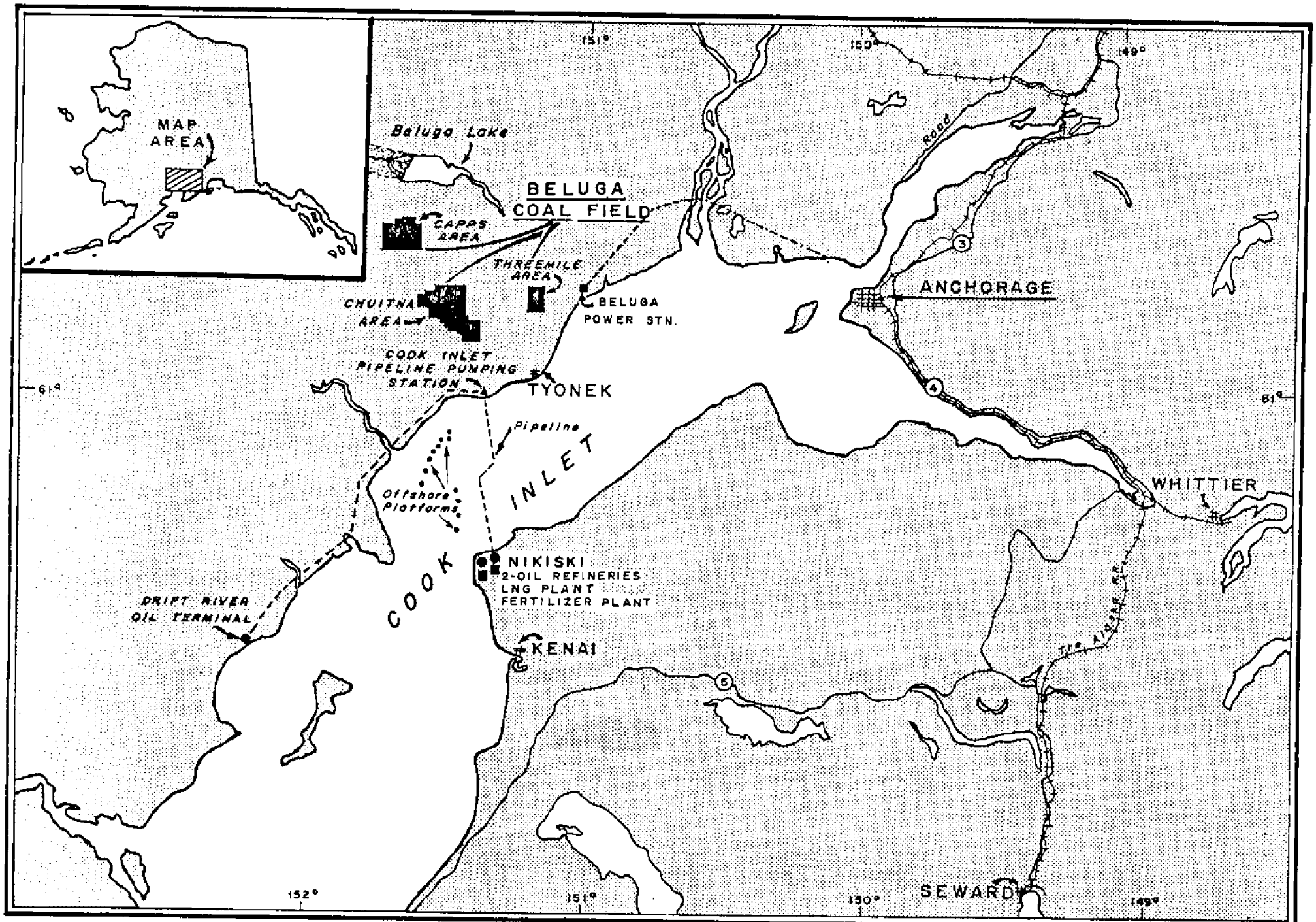

Figure 3. Location map.

costs, becomes more economically attractive. And, as Tom also mentioned, with shipping distances of less than 4,000 miles to Japan, Beluga coal has already drawn considerable attention from the Japanese. Within the next two weeks, our second sizeable test shipment will be dispatched to Japan. In this case, about 1,200 metric tons will be tested by and for the Electric Power Development Corporation of Japan.

Now that the coal resources in this area have been evaluated and markets on the Pacific Rim are becoming real instead of potential, it might appear all downhill, so to speak.

However, it should be kept in mind that the coal in the Beluga field, although usually low in sulfur content, is also low in calorific value, being similar to the subbituminous coal from some of the other Western states. Tests are underway to investigate the upgrading of Beluga coals.

Although the magnitude of Alaska's coal resources can be appreciated from what has been said, there is another factor of large magnitude and importance--namely, the investment required in port facilities which will enable coal to be shipped to major offshore markets. While the large reserves of the Beluga Coal Field do have close access to year-round shipping, the cost of a port installation on Cook Inlet to accommodate ships of 100,000 deadweight tons or larger will necessarily be high.

The 30 foot tides of Cook Inlet will require a higher as well as larger pier structure. Moreover, there is a need to build a pier structure strong enough to withstand the forces created by the currents and to resist the forces of the ice which bear against the pier during the winter.

A consequence of the expense of such a facility is an economic requirement that a large annual tonnage must be shipped in order to amortize the cost of port construction. At this time, we expect that economic viability will require initial contracts totaling about 5 or 6 million tons per year. A study is underway for Nissho Iwai Corporation which will revise and provide more detailed information to a port study that was conducted in 1975 for Placer Amex.

Two of the possible port sites being considered are at Granite Point and at North Foreland or Tyonek, where a pier already exists for wood chip cargoes. This pier, however, is shorter in length than would be required for the size of vessels that we have just spoken about.

In view of the desire of the State of Alaska, our company, and other potential major shippers to minimze any environmental

effects, a port facility is being considered which would serve more than just the shipments of our own company. Corollary benefits would result in economies in infrastructure.

I'm sure there are many here who are interested in Cook Inlet navigation, especially because of the seasonal ice and high tides. We frequently have questions about the ice--usually from people who have not been to Alaska. Viewed in a photograph, ice-covered waters can appear much more forbidding than they are.

In 1975 we made our first port study to ascertain what maximum size of collier could be utilized year-round in upper Cook Inlet, we engaged a recognized arctic ice navigation consultant, Captain J.B. Garvie, who concluded on the basis of an onsite winter study that vessels at least as large as 100,000 deadweight tons could be used throughout the year.

I might just mention that when we returned in February of this year with some other consultants, the task of evaluating the ice was frustrated by the fact that even in Cook Inlet's most ice prone location, near Anchorage, no ice cover existed.

One of the vessels used during the 1975 winter study was a rig tender, one of two small supply boats serving the offshore oil platforms in upper Cook Inlet. These vessels go out from Nikiski to the platforms regularly, about two or three times a week. It can be added that these boats were built for service in the Gulf of Mexico--not the Gulf of Alaska. Although not having ice maneuvering features, they are able to navigate year-round from their port in lower Cook Inlet to the often ice-surrounded platforms in the upper Inlet.

An important reason why navigation in the Inlet is possible without the use of icebreakers is that, distinct from the much more northerly regions of Alaska where there are icebergs composed of old, hard ice that accumulates from one year to the next, Cook Inlet is influenced by the relatively warm Alaska current. Only in winter months do portions of the Inlet freeze into a congealed, soft, brash ice in between concentrations of ice pans. It is actually the high tidal fluctuations and the currents in the Inlet that have a very beneficial effect on ice conditions. Floes are broken up by these forces, and the currents, which sweep in with the flood tide, serve to dilute the ice cover with seawater.

From the standpoint of practical experience gained operating in Cook Inlet, probably most impressive is the experience sustained over many years by both Sea-Land Service and Totem Ocean Trailer Express. Their ships routinely serve Anchorage two or three times a week throughout the year and, as you know, are subject to the most severe ice conditions because of this port's location at the head of the Inlet.

I would like to point out that these Sea-Land vessels are World War II C-4 hulls which were converted--not for ice service--but for carriage of containers. These vessels do have extra steel in their hull plates, but it is important to state that the hulls have not been ice strengthened (which means that they would have been structurally reinforced for ice).

The pilots taking these ships into Anchorage will time the ship's arrival in the upper Inlet to coincide with the flood tide. A pilot regularly used by Sea-Land has advised that only once was a tide missed because of ice. That's a pretty impressive record.

The Cook Inlet pilots in Homer are also skilled, and belong to the same organization that provides pilotage to the tankers sailing from Valdez. They were trained in Grenoble, France.

We feel that having our transportation to export markets primarily dependent upon marine shipping is a great advantage. This audience does not need to be told of the inherent economies of marine transport, and as there are no rights-of-way in the ocean, competition can easily be brought to the transport of Alaskan coal.

With the favorable logistics associated with transportation from the Beluga Coal Field to the various foreign and domestic markets that are envisaged, we are confident that the economies and feasibility of marine transport will help assure a competitive delivered price for Alaskan coal.

MOVING ALASKA FOREST PRODUCTS TO WORLD MARKETS

Lloyd Jones
Manager of Legislative and Governmental Affairs
Louisiana-Pacific Corporation
Ketchikan, Alaska

When we talk about the timber resources of Alaska, it is difficult to picture and appreciate the size of the area and the challenges involved with their development. To better acquaint you with the subject, here are a few facts on the location and status of the timber resources.

Alaska has a total of 119 million acres or 56 percent of the total forest area of the Pacific coast region, which includes Washington, Oregon, California, and Hawaii. Alaska also has 16 percent of the nation's total forest lands including more than 28 million acres of productive woodlands. The size, quality, and species of Alaska's coastal forests compare favorably with some producing forests of the Pacific Northwest states; while Alaska's interior forests have potential for production similar to the U.S. upper Midwest, interior Canada, northern Sweden, and Finland.

The potential for a renewable timber resource exists in the interior on federal, state, and private lands. Until there is a sharp rise in forest product values, Alaskans must rely on the carrying power of other resources such as minerals, coal and oil to lead the way for development.

The Chugach National Forest, located along the shores of the Gulf of Alaska, contains enough economically viable timber to support a modest forest industry. The Alaska Lands Act directed the completion of a Chugach region study by December 1981, that will determine the land ownership and use patterns of this area.

Many of the Native village and regional corporations scattered along the Cook Inlet and Gulf areas are beginning to harvest their timberlands. For several years there have been rather extensive logging operations at Afognak Island near Kodiak and the Tyonek area across from Anchorage on Cook Inlet. Sawmill quality logs are being exported from the Afognak operation, while at Tyonek everything is sent through a chipper and exported as chips.

Most of the ongoing timber development in Alaska has occurred in Southeast. The forest products industry there employed approximately 3,300 people in 1980 and harvested some 481 million board feet from forest service lands, 34 million

from Native lands, and 15 million from B.I.A. lands. The Alaska Lands Act directs the forest service to maintain a timber supply of 4.5 billion board feet per decade. The Alaska Native Land Claims Settlement Act provides approximately 500,000 acres expected to yield an annual harvest of 250 to 350 million board feet for Native corporations.

Our products are shipped either as logs, cants, chips, or pulp. The Alaska operations of the company I work for exported products last year to South Africa, Argentina, Bulgaria, People's Republic of China, Egypt, India, Iraq, Japan, Korea, Mexico, Taiwan, and Thailand. The total value of these exports exceeds 140 million dollars. The export markets are very important to us because of the restrictive Jones Act which precludes the movement of American goods between American ports on other than American bottoms. This makes it extremely difficult for us to compete in the U.S. domestic market with foreign countries using cheaper, more accessible foreign ships. Canada especially takes advantage of this, and also utilizes rail service into the United States.

Our operations depend on efficient water transportation links for both raw materials and finished products. It all begins with roads, sorting yards, and log transfer sites. This is followed by tugboat services to tow log rafts from logging operations to the mills, and docks for conversion and preparation for shipment to the world markets.

The major shipping ports for wood products in Southeast Alaska are Ketchikan, Metlakatla, Klawock, Wrangell, Sitka, and Haines.

In 1980 these ports shipped 82 million board feet of logs, 255 million board feet of cants and lumber, 300,000 tons of pulp and 108,000 tons of chips.

Louisiana-Pacific Corporation and the Cape Fox Corporation are the major forest product shippers in Ketchikan. The LPC pulp mill and sawmill have existed for many years under various owners and have extensive logging operations throughout southern Southeast Alaska. The Cape Fox Corporation is a local Native corporation and is the "new kid on the block." They have been developing their land and forest resources for the last two years. They will be constructing a log sorting-storage yard and log transfer site near Ketchikan. This facility will be located and designed to allow development of dock facilities, although there are no current plans for a dock.

In 1980, the Ketchikan docks handled 76 million board feet of cants, 17.5 million board feet of logs and 160,000 tons of pulp. Fifty ships called for these cargoes.

In Metlakatla the city dock is used for cant and log ships. The Annette Hemlock Mill, which is operated by Louisiana-Pacific Corporation, has a chip barge loading facility. These chips are taken to the pulp mill in Ketchikan. The city dock had 27 ships call for 55 million board feet of cants and 20.5 million board feet of logs in 1980. The cants are loaded from the dockside and the logs are hoisted aboard from the water.

In Klawock, two docks handle the shipments of logs, cants, and chips. The Alaska Timber Corporation dock has been in operation for several years and the Sealaska Timber Corporation dock was completed this year. At the Sealaska operation, logs come directly out of the sorting-storage yard to the dock for loading aboard ship.

In 1980, 20.5 million board feet of cants, 67,000 short tons of chips and 16.5 million board feet of logs were shipped from Klawock on 14 ships.

In Wrangell, the Alaska Lumber and Pulp Company operations at the Wrangell Lumber Company and Alaska Wood Products sawmills have docks at both locations. ITT-Rayonier, Inc., shipped logs from the Wrangell port also.

Thirty ships picked up 81 million board feet of cants and 25 million board feet of logs from Wrangell in 1980.

In Sitka, the Alaska Lumber and Pulp Company shipped 140,000 tons of pulp over its dock facilities in 1980 and required 11 ships.

The Haines area utilizes two docks, the Schnabel Lumber Company Dock and the Lutak Dock. In 1980, 22.5 million board feet of cants, 2.3 million board feet of logs, and 42,000 metric tons of chips were moved over these docks. Fifteen ships moved this cargo.

Koncor, a forest resource management company from Kodiak, expects to be exporting logs from the Yakutat area in the near future. They have plans for a log transfer site and log sorting-storage yard near Yakutat. This company handles timberland management for several Native village corporations. They are also involved in the Afognak Island activities where a production of 30 million board feet annually is expected over the next 10 to 15 years.

At the Tyonek operation, Kodiak lumber mills shipped 70,000 short tons of chips in 1980 and expect to continue a similar production for two more years. If they are successful bidders on the next state timber sale, they will extend that operation by five more years.

World markets for Alaskan wood products are at an extremely low point. Educated predictions are for an upswing to begin in the latter half of 1982 and continuing good markets through the '80s.

Innovation, productivity, and challenge are the keywords to the efficient handling and movement of our products once they are ready to be shipped. Log ships have improved from loading one log at a time to loading bundles of logs. The bundles are sorted by lengths and the logs are neatly trimmed to increase the volume stowed aboard ship. The openings on the ships have been enlarged along with the size of the ships to increase loading efficiency.

Cant loading has been helped by using forklifts in the ship's hold to stow the cants. They were stowed by hand before the ship's gear was improved enough to hoist the forklifts into the hold. Cants are now bundled in neat, uniform packages to efficiently use the space available aboard ship.

At the Annette Hemlock Mill in Metlakatla, a truck-train moves the cant bundles from the storage yard to the shipside much more efficiently than the old forklift method.

The old style of loading bales of pulp was to sling six bales aboard and then stow them in the cargo holds with two-wheeled handtrucks. The new ships now have cranes aboard and larger openings that can handle up to 64 bales in a lift. The improvement in ship's gear and cargo holds have made it possible to hoist forklifts aboard for stowing the bales.

The old style ships require stevedoring gangs of 13 men, while the modern ships can be loaded with nine-men gangs.

Another example of innovation is the new Sealaska operation at Klawock. This facility is designed specifically for the efficient handling of logs from truck to yard to ship. The logs are loaded aboard ship from the dock, a big improvement over loading out of the water.

In Wrangell, the Alaska Lumber and Pulp Sawmill at Shoemaker Bay has just completed a multimillion dollar project to improve their ability to handle logs to the mill and the sawn products to the ship. The old mill site near downtown Wrangell will be converted to a log handling yard and the dock will be used for loading round logs aboard log ships.

A good example of meeting a challenge is on Afognak Island. The Afognak Timber Corporation was faced with shipping its logs without placing them into the water because of environ-

mental constraints imposed on them by the Alaska Department of Fish and Game and the U.S. Forest Service. As a solution they implemented a lighterage process using a barge to move the logs from shore to shipside. This method has worked, but they do not recommend it as an efficient way to get the job done.

In summary, we have a large timber resource in the Interior that will develop as the state develops. The Native corporations have the potential to develop an annual timber harvest of 250 to 350 million board feet. The ongoing timber industry is guaranteed a 450 million board feet of harvest per year from the Tongass National Forest. The timber industry is busy refining the transportation, product handling, and shipping facilities that now exist and we are working to develop new ones to better meet future challenges and opportunities.

OIL AND GAS TRANSPORT IN ALASKA

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To the extent that my subject involves the forecasting of commercial oil and gas discoveries on Alaska's continental shelf over the next 20 years, I, as an oil explorationist, should be as well qualified as most people to do this risky crystal ball gazing into the future of our hydrocarbon production. I have no special insight into how that production will reach its logical market places, and I'm sure that is your particular interest. I will, therefore, confine my remarks to the utilization of existing tanker and pipeline technologies, and transportation. I do not intend to indulge either in technological or political fantasies, although in order to reach some worthwhile conclusions, the economics of future exploration, production and transportation must be considered.

Our nation's economic position six months from now is the subject of heated debate and controversy, therefore, to guess correctly what its status will be in 10 or 20 years' time is probably, at best, presumptuous. However, the basic premise which allows me to construct oil and gas scenarios for the future--scenarios which must include economic considerations--is the conviction that in one or two decades' time the United States will be at least equally as dependent on oil and gas as it is today and, in all probability, will be both politically and economically willing and able to support both onshore and offshore Alaskan oil and gas production wherever it is practicable.

The rationale for that premise is that over the past 70 years most of the easily found cheap oil in America has been discovered and produced. Future oil will be very difficult and expensive to find. Consequently, it is already a great challenge to industry simply to maintain the domestic production rate at its present level, and more importantly to maintain the rate of discovery of new reserves. Foreign oil, be it in Canada, Mexico, or the Middle East, will never have the reliability of domestic sources, and in the future this will be doubly true, especially if the demand for oil and gas accelerates, either in the Western World, as is likely, or, as is almost certain, in the Third World nations.

The experience of the oil embargo in 1973 and the Iran imposed gasoline shortage of 1979 and 1980, should make it clear to everyone how fine the line is between the world's

oil supply and the world's oil demand. My particular concern as an explorer for oil is the difficulty of significantly increasing the amount of conveniently producible oil in the world, or, the supply. If Alaska represents one means of achieving that, then the benefits to America will, by the turn of the century, be obvious and great, and the price, whatever it will be, will be worth it.

With that preamble to set the future scene, let me now discuss the hydrocarbon prospects in those parts of Alaska which will, it is hoped, contribute to the energy needs of the next 20 years. Then, having estimated the relative importance of the various geological basins in Alaska, I want to suggest what will be involved in producing and moving the oil and gas to available markets, which will inevitably be mainly outside of Alaska.

In discussing resource assessments, in particular the volumes of oil and gas that may be discovered in one or several geological provinces, it is absolutely essential that we be aware that the figures arrived at are usually measured in billions of barrels of oil equivalent, as the natural gas and the natural gas liquids are converted to an energy equivalence to a barrel of oil and added into the sum. We must also be totally aware that the figures are not quantitative predictions of the amount of oil and gas in a particular basin. Politicians love to use the figures in that fashion. That is probably one reason why the oil industry is so loath to publish any estimates, and leaves that unfortunate task to the United States Geological Survey. But, if used correctly, the figures are meaningful and can provide a worthwhile basis for future petroleum planning and policy.

Let me try to illustrate what I mean. The National Petroleum Council, that includes nearly all of the major petroleum, oil and gas producers, certainly those that are working in Alaska, has recently produced a final draft of a report on the oil and gas resources of the major sedimentary basins in Alaska north of the Aleutian Chain and the Alaska Peninsula. The Arctic Alaska and the Bering Sea areas, if you will.

That report estimated that the Navarin Basin, which is the one farthest west in the Bering Sea and crosses over the international boundary into Russian territory, and because of that, it's the most prospective of the lot; the report stated that the Navarin Basin has a risked mean assessment of 4 billion barrels of oil equivalent and a risked high side figure of 44 billion barrels. In normal everyday language, this means that the most likely amount of producible oil and gas in the Navarin Basin is 4 billion barrels of oil and gas, but that there is a one percent change of the basin containing 44 billion barrels of producible hydrocarbons.

The same report assessed the Bering Sea Region, which, of course, includes the Navarin Basin, as containing 9 billion barrels of oil, with a one percent chance of 52 billion barrels of oil and gas being present.

What these figures mean is that the Navarin Basin is relatively more important than other basins in the Bering Sea area, but it could quite easily turn out to be totally nonproductive. However, the region as a whole probably does contain the 9 billion barrels forecast, because one or more of the other basins may easily yield amounts of oil and gas close to or exceeding the one percent probability high-side estimate.

So, for future planning purposes, we can expect to transport 9 billion barrels of oil and gas from the Bering Sea region in the future. We don't know exactly which area or basin the oil will be found in, but we should be quite certain in our planning that we have the capability of transporting it from the Navarin Basin, because at the present time that appears to be the most likely source.

Put another way, there are eight discrete geological basins we recognize in the Bering Sea region, and of those eight, one or possibly two of them are likely to contain multi-billion barrel bonanzas occurring in several or many fields. The problem is, we don't know which one.

Remember, we are not looking for or expecting to find another discrete single oil field like Prudhoe Bay, but we do hope to find another North Sea. And the high-side potentials from the National Petroleum Council's estimates of the Norton Basin, at 7.6 billion barrels, the Navarin Basin at 44 billion, the St. George Basin at 23 billion, or the Bristol Basin at almost 11 billion, are all large enough to allow for production values similar to those of the North Sea.

As we move north above the Bering Straits, the transportation problems associated with recoverable hydrocarbons change dramatically, as do the exploration and production difficulties. South of the Straits, conventional technology is quite capable of coping with the physical ice and weather conditions of the area. But farther north, the relatively high oil and gas reserve estimates for the Chukchi Sea Region of 6 billion barrels as a risk mean, or most likely amount, and 43 billion with a 1 percent chance of discovery and production, represent theoretical reserves which might be very difficult to find and exploit in the next 20 years. This is obviously because of the physical problems of that particular region.

On the other hand, the most potentially productive region of all, the Beaufort Sea, has in the shallow water areas perhaps

reserves of 13 billion barrels, and risked high-side reserves, (1 percent chance) of 59 billion barrels, and that, I believe, is almost certain to be actively explored with both existing and new technology in the coming years.

To summarize and recap the National Petroleum Council reserve estimates, the Beaufort and the Chukchi Sea areas together probably have undiscovered recoverable hydrocarbons amounting to almost 22 billion barrels, 60 percent of which will be oil. The North Slope onshore, the Arctic National Wildlife Range, the National Petroleum Reserve and other unexplored land areas, probably harbor about 12.8 billion barrels of which half will be oil, and the Bering Sea area has 9 billion barrels of which 57 percent is estimated to be oil.

Having established the considerable importance of those regions, let me now briefly discuss the likely modes of transportation which will be employed to reap the benefits of those resources. At present, the only commercial production of oil and gas in Alaska is from on and offshore fields in Cook Inlet, and from the much more significant Prudhoe Bay ouput, which as you've heard, amounts to 1.5 million barrels of oil a day. That's transported through the Alaska Pipeline to Valdez, where four tankers can be berthed at one time and turned around in 24 hours to carry the oil to markets.

The Trans-Alaska Pipeline Service Company system itself and the terminal at Valdez will undoubtedly be the model for any future similar oil transportation systems in Alaska. It will also probably be capable of coping with new oil production from the North Slope and the Beaufort Sea for the next 20 years. Given the reserve estimates we have already discussed for those areas, the Beaufort and the North Slope, together with the probable timing of their discovery, it is very difficult to foresee the potential throughput of the TAPS Pipeline, which is 2 million barrels of oil per day, being exceeded before the year 2000.

If, in fact, that opinion happily proves to be incorrect, and there is a lack of transportation capacity from the arctic sometime before that time, the alternative of tanker transportation will undoubtedly be considered. The February 1981 voyage of the Coast Guard Breaker, Polar Star, to Point Barrow clearly showed the shortcomings of winter ship movements through the arctic pack. But, on the other hand, the remarkable and innovative Canmar ice breaker, the Kigoriak, which has been operating in the Canadian Beaufort for the past two years, has made possible the design and development of Dome Petroleum Company's class 10 ice breaker/tanker concept which will probably be constructed and carry oil to the East Coast via the Canadian Northwest Passage on a routine basis in 10 years' time.

However, outside of the Beaufort, the relatively shallow water, the extreme ice conditions within the arctic gyre, and the political and environmental considerations in the Alaskan Beaufort Sea, will probably mandate that further future oil movements continue to be via pipeline to Valdez.

Gas production will also be carried by a pipeline system rather than by ice-breaking liquid natural gas carriers, but such ships have been proposed in Canada for the arctic pilot project to carry gas from Melville Island to the East Coast markets.

The use of these Canadian arctic transportation schemes, if they work and can be proven to be economical, should not be underestimated in Alaska. I think we will gain measurably by the Canadian experience, but probably by upgrading the safety of tanker movement in the ice environment of the Bering Sea regions rather than in the Chukchi or Beaufort Seas.

In mentioning ice-breaking tankers, it is worth remembering that a prime consideration of an oil and gas transportation system must be a high degree of operational efficiency and reliability. While it is possible to shut down an oil and gas field quickly if the transportation system fails, the effects of such a shut down often damage wells and restrict subsequent production rates. Also, in the arctic, cold temperatures during the shut down could cause partial solidification of the oil or hydrate formation in gas pipelines, which would result in severe problems during subsequent start-up operations. For these reasons, proven techniques are much more likely to be chosen for transportation in Alaskan environments than systems which are perceived as less reliable or less safe.

Future land pipelines in or from arctic Alaska will copy techniques already proven in the TAPS and the Kuparuk Pipeline on the North Slope. If a major pipeline needs to be constructed, it would probably cost $12 million a mile for a throughput of 1 million barrels of oil per day. The Valdez-type shipping terminal at the southern end of such a line could be expected to cost $1.8 billion and the whole thing, without any legal delays, would take six years to design, construct and put into operation.

Offshore Marine pipelines will undoubtedly be needed both in the arctic and Bering Sea regions in the future. None has yet been built in severe ice environments, although an experimental three-quarter mile long, 18-inch pipeline was laid from an offshore well to Melville Island in the Canadian arctic in 1978.

Large diameter conventional pipelines measuring hundreds of miles in length have been laid in the North Sea and pipelines are now routinely laid in water depths of a thousand feet. They're operating in that depth in the Gulf of Mexico and at 2,000 feet in the Mediterranean Sea.

Pipeline laying techniques for offshore Alaska will be fairly conventional with normal lay barges being used in the southern, more ice-free areas. In ice-covered areas, a significant amount of trenching would be required to bury and protect the pipe from ice scouring.

Although the conditions vary in the marine areas around the state, the pipe laying costs on a dollar-per-mile basis are probably about the same. Order of magnitude estimates for a 36-inch diameter oil or gas line with a throughput of a million barrels of oil or a billion cubic feet of gas per day are about $7.5 million per mile.

Ideally, a Bering Sea oil or gas field would be piped to shore where a marine terminal would stow the oil or liquify the gas and then load it into conventional tankers for shipment to market. However, in the Navarin Basin which is 500 miles from Dutch Harbor, the nearest port, offshore storage and loading facilities would undoubtedly be required. Such facilities are operational in 500 foot water depth in the North Sea and are quite feasible in the similar depths and in the moderate ice environments of the Navarin Basin. Concrete gravity structures and fixed loading towers are practical options for that area.

Tankers with ice capability can be built and they can be powered and operated with the desired reliability to service fields south of the Bering Straits. Multi-year ice is extremely rare in the Bering Sea and the ice conditions are sufficiently well known and defined to enable such tankers to be constructed. We can expect these future ships will be about 250,000 tons deadweight, and will be capable of carrying 2 million barrels of crude oil. They will be 1,450 feet long and have a draft of approximately 60 feet.

For gas transport from the same area, liquid natural gas tankers with a capacity of 880,000 barrels of LNG, or about 3 billion standard cubic feet of gas, would be used. Those would be 1,250 feet long and have a draft of approximately 42 feet. Both types of ships will probably require ice breaker assistance in the wintertime, because even if the tankers themselves have ice breaking capabilities, they will probably need additional ice breaker support to operate satisfactorily. The cost of one such oil tanker is estimated to range from $190 to $380 million, depending on the degree of ice specialization built into the vessel. From 6 to 13

of these vessels will be required to transport up to one 1 million barrels of oil per day and given the estimates which I quoted for the Bering Sea region, that daily production rate, about 1 million barrels a day, is probably realistic, although it is unlikely to be achieved before 1995.

The LNG tankers are even more expensive and would probably cost between $300 million and $510 million each. From 6 to 10 of them would be required to transport 1 billion cubic feet of LNG per day. As with the oil, this level of production cannot realistically be expected before about 1995.

It is reasonably clear from the above discussion that the number of dollars involved in bringing an offshore Bering Sea oil or gas field into production is rather mind boggling. On top of the production platforms, pipelines, tankers, and exploration costs, one has to add, in most cases, a shore terminal which can be expected to cost about $1.9 billion plus other support facilities for another $500 million. The grand total is sufficiently high to make one suspect that a gallon of gas is still a bargain at today's prices and that even more conservation is in order in America. Also, the staggering economics indicate the absolute necessity for additional discoveries to be very large indeed. Industry must expect to find billion barrel oil fields and trillions of cubic feet of gas for these new areas to be realistic commercial propositions.

I think you will find that when the lease sales covering some of these areas we have talked about take place, the oil industry will give a clear indication of its commitment by vigorous and highly competitive bidding followed by active exploration drilling. Without that early commitment, the plans for tankers, ice breakers, ports, etc., are mere pipe dreams.

PORT DEVELOPMENT STRATEGY IN ALASKA

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I have heard that the definition of a pessimist is a person who looks at a situation and only sees problems. Conversely, an optimist is a person who looks at problems and sees opportunity. Both types of people are rampant in Alaska. Personally, I am an optimist. While I see great barriers confronting us, such as climate, low population, and tremendous distances, I also see great opportunity for the decision makers of today to unlock this state's large warehouse of natural resources.

One method of turning the key involves developing a port system sufficient to provide efficient outlets for our resources. To construct such a system, we must begin to build a concept of port development, to devise a strategy that maximizes the transportation system rather than maximizing local self-interests as is the current trend.

Port development strategy in Alaska is receiving a great deal of attention as various policy makers and port developing entities commission professional consultants to suggest proper port development strategy. Again, with our limited population, this is appropriate. Broad perspectives are needed to help guide and assist us. The federal government, for example, has just completed the Southcentral Alaska Deep Draft Navigation Study. The state is developing a statewide port development and marine commerce plan, due later this year. The Port of Anchorage is just finishing its own strategic marketing plan to help chart development for the next 20 years.

This third party objective assessment of where we are, where we could be in the future, and the steps necessary to get there helps provide fresh insight into the port development task, and gives us an objective basis for decision making. Additionally, such planning provides development justification to both the affected populace and the sources of financial backing.

Strategic port development, in Alaska or anywhere, involves defining the means necessary to achieve specific objectives in a competitive environment. Anchorage for example, competes with the federally-owned ports in Whittier and Seward for general cargo. Alaska ports compete with those in the lower

48 and Canada. Log exports, which a great deal of our economy depends upon, are the best example of this competition.

The importance of establishing specific port development goals cannot be understated. All perceived port opportunities are then assessed to assure consistency with goals before action takes place. Other important factors to be considered when selecting a port development strategy include: the resources of the port, including the facility, and its financial and professional capabilities; the compatibility of the opportunity with the existing and forecasted business activities of the port; and the stage in the life cycle of the opportunity. For example, is the opportunity at maturity or is it just starting? Will the market demand for this opportunity or product grow or is it predicted to remain level? The final factor is to define the competition's expected reaction to the development.

The process of formulating a development strategy in its simplest form boils down to five steps:

1. Identify new business opportunities. In Alaska that's fairly easy.

2. Identify the port's barriers to participation (economic, political, and physical).

3. Evaluate the opportunities against goals and objectives for consistency, financial rate of return, regional impact, etc.

4. Determine who should implement the program. Should it be the private or public sector? As we heard Mr. Eakins say this morning, the public sector has the ability to speed up resource development projects, possibly saving development opportunities which are precluded without public assistance.

5. The final area is formulating the steps and specific actions to secure the opportunity.

Those steps must be walked through carefully with great regard to the area and the environment in which a port operates.

Who performs the port development function currently in Alaska? Is it the federal government, as has traditionally been the case in Alaska at such ports as Seward, Whittier, Adak, Dutch Harbor, or Haines? Is it the state the port developer, as could be imagined by viewing development of the various ferry terminals in Southeast Alaska. Or, could

it be that the local communities are the port developer, as can be seen here in Anchorage or in Valdez, with its new container terminal and recently-funded grain elevator. With all these government entities plus the private sector developing ports in Alaska, who should take the lead to insure that development takes place correctly?

With our infinitesimal population and strategic importance in terms of defense, energy, and minerals, shouldn't the federal government be the prime developer? Or should the state take heed of Article 8, Section II of the Alaska Constitution which reads in part, "The Legislature shall provide for the utilization, development, and conservation of all natural resources for the maximum benefits of its people." Or, as in Anchorage's, Valdez's or Homer's development, should local governments continue to maximize their own self-interest and develop ports which meet their particular municipal goals? Possibly private industry should take the total risk of port development, and establish new outlets for the state's resources only when and if the expected rate of return on the sale of those resources equals the level required to bid all development funds, including port development funds, away from other investments.

Who should be developing Alaska's ports? The answer will depend on who you're talking to, because all the entities have legitimate development interests, and all will develop ports. My opinion is that this is exactly as it should be with one exception, that being an obvious need for a state-chartered port authority to oversee port development and fill three basic needs:

1. Promote communication on a regular basis between the various port development entities in Alaska.

2. Expedite the funding and permitting, both federal and state, of new local government and private port developments.

3. Directly implement port development strategy for communities which specifically concede their development powers to the authority.

A past problem and are that I foresee being mitigated by a state port authority, relates to the rural/urban split in Alaska; the competition between basically Anchorage, and the rest of the state. I don't think it is reasonable to expect the state to dictate to the urban centers or the rural areas what port development will be in their best interest. However, the task is required for the state to make sure that port development is not duplicated, creating several port facilities when tonnage levels barely support a single

facility over its economic life. I see a state chartered port authority helping with this task, and helping assure people that when public funds are expended toward the development of the state's ports they are being expended wisely, and not in support of blind self-interest.

What are some of the influential projects facing Alaskan port developers? As we've heard earlier today, there seem to be industries interested in developing the state's resources. Let me briefly run through the list once again, not for a detailed assessment of each potential opportunity as Anchorage sees it, but to illustrate the magnitude of the task that confronts us.

We've heard a little about oil and gas transport. Let's start there. Prudhoe Bay's ongoing development for example will include completion of a water flood injection system and a field expansion program of over 150 additional wells by 1984. Additionally, a major gas conditioning facility will probably be built to serve a natural gas line, a natural gas liquids line, or both. According to the Corps of Engineers' deep draft navigation study, more than 427,000 tons of general cargo will be involved with such development over the next 50 years. Other oil and gas related exploration and development is expected in the Alaska National Petroleum Reserve, the William O. Douglas National Wildlife Refuge, and the Kaparuk River area. Additionally, outer continental shelf exploration and development is expected in the Beaufort Sea, Cook Inlet, Norton Basin, the Chukchi Sea, the North Aleutian Shelf, Navarin Basin, and in the Kodiak area.

The Alaska natural gas transportation system with its anticipated 740 miles of 48 inch pipe, eight compressor stations and now $40 billion price tag is expected to produce more than 1 million tons of freight, bulk, and containerized cargo for Alaskan ports.

The Susitna hydroelectric project, an enormously important project to the Southcentral region, recently received a shot in the arm after it demonstrated seismic stability. The inbound projections for containerized cargo directly associated with this project's construction equals over 540,000 tons of cargo over an 11 year construction period, not to mention the indirect freight impacts associated with such massive development.

Coal, both from Healy and Beluga, will require a development strategy which minimizes Alaska's geographic position and sells an image of political stability, an intangible of immense worth to countries which have traditionally received coal from such areas as South Africa and Poland, and which have recently experienced the disruption of supplies due to labor strikes.

LPG and petrochemical development could also greatly influence industrial port development strategy. The products of such an industry could reach as high as 8.8 million tons of southbound bulk and containerized cargo from a Southcentral port per year. This expected tonnage, plus the prospect of a $4.5 billion tidewater investment and the potential full-time employment of over 5,000 people, makes this project of considerable interest to the five locations that were studied by the potential developer (and underscores the competitive nature of Alaskan port development).

Other potential natural resource development on the state's menu includes: mineral development along the Brooks Range, Seward Peninsula and railbelt; forest product shipment increasing to the Pacific Rim countries; energy intensive industry potential associated with low-cost hydroelectric power which the state is currently developing; agricultural exports associated with the state's commitment to develop an agricultural base of over 500,000 acres by 1990; and the seafood industry's expansion to accommodate increased world demand for fish products.

These are just some areas of potential port development interest that Alaska and her communities face in the coming years. I would like to superimpose these opportunities on some factors relating to our existing transportation infra-structure to help demonstrate a particularly Alaskan challenge which lies before us.

The formulation of an Alaskan port development strategy must take into consideration the quality and quantity of our existing inland transportation system. Ports cannot be developed in isolation, but require highly efficient transportation links to the areas where the resources are mined or processed. Alaska's inland transportation system is relatively undeveloped and provides limited access to areas of the state.

Our rail system for example, serves a very narrow corridor in the Southcentral region. It serves less than 20 cities and only three ports: Anchorage, Whittier, and Seward. Large areas of the state, particularly those in the resource-laden interior regions, are without rail service of any kind.

Alaska's highway network is relatively sparse, concentrated, and generally of limited capacity and quality. Alaska's roads and highways have several disadvantages, including the fact that only 30 percent of our mileage is paved, and virtually all of the inter-city routes are narrow, two-lane roads with inadequate shoulders. The design speeds along many routes are between 30 and 40 miles an hour, but those are safe speeds only under optimal conditions.

Alaska's inland transportation system broadens port development strategy considerations. In one function the port is an outlet for resources and commodities to be used outside of the local area. In Alaska, port development strategy might therefore include the formation of a specific transportation means to move cargo to and from the port. For example, the creation of a barge feeder line to increase utilization of the port as a general cargo distribution center, or perhaps the creation and development of a dedicated railroad, conveyor, or pipeline might facilitate accomplishing specific port development or resource development objectives.

The point to be made is that Alaska's many unique requirements often demand creative strategies involving nontraditional port activities.

Additionally, the need for a creative port development strategy rises from the fact that ports, especially ports in Alaska, operate in changing environments. Changes occur in transportation technology, government policy, in overall economic activity, and in the level and character of competition. Also, the change I feel most difficult to forecast, but yet so important, is the change in community norms and attitudes.

I would like to summarize with what I consider to be the most important consideration in developing port development strategy in Alaska, and that is leadership. In this state, especially now, port development decisions must be made boldly. Rarely does sufficient information exist to make decisions easy, or cut and dried. Unfortunately, there is no cookbook which details the "right" Alaskan port development. Although we recognize the public process and the beneficial system of checks and balances involved in public port development, success comes down to one event, a manager or policy maker making a decision, taking a risk, and proceeding. It's easy to do nothing, especially with the tremendous forces at work in this state that add risk to all decisions. But in a competitive world the port developer must play both defense and offense, and not making a decision, not taking a risk, in tantamount to lost opportunity and the definition of the word "failure."

The extremely long lead times required for port development permitting and facility construction require that decisions be made well in advance of actual use. In some cases to accomplish port development goals, a commitment to build a multimillion dollar facility must precede a commitment for that facility's use, in order to generate a commitment to use that facility. Truly bold, positive decision makers are the key to successful port development efforts. Acquiring such people probably represents the best single action a port can take to pull itself up by its own bootstraps.

In closing, I would like to read the concluding paragraph from the editorial that Tyler Jones read from earlier this morning. Again, this was written 20 years ago, the day the port opened, July 8, 1961. This represents the feeling of the citizens of Anchorage at the dedication of the Port of Anchorage in 1961.

It says, "The new city dock must be a success. The people must make it so. They can and will make it the port of arrival for their major freight items and will see it alter some of the transportation pattern of the state by making it possible for interior points to get cheaper supplies. The city dock, huge in the minds of local residents, is only a tiny finger extending into the waters of Knik Arm.

That finger is beckoning to the ships of the world to come here. Based on the achievements of the past and the omens of the future, we would bet that the people will triumph again."

This "can-do" attitude, coupled with development "basics" and a recognition that the transportation system must be maximized rather than local self-interests, leads me to believe that Alaska will develop a port system that will, in fact, provide aisles and doors to the state's vast warehouse of natural resources.

QUESTIONS

MR. REINHART

My name is Virgil Reinhart, I'm with the Maritime Administration in Washington, D.C., and I would like to direct either questions or comments to Mr. Herrera.

I was a government representative on the transportation task group that contributed to the report the National Petroleum Council is preparing, and one from which you extracted a lot of information. I have also been involved in concluding an agreement on joint maritime research projects with the government of Canada. The projects will deal with Arctic matters. Now, my experience in both of these matters leads me to feel that the Canadians were also seriously considering taking oil from the Beaufort Sea westward to Japan, particularly in view of the gas. You seem to disregard that possibility. Do you really think that is not a possibility? Thank you.

MR. HERRERA

No, I think it's a possibility, although it will be quite difficult. Whether it's a political possibility is another thing entirely. Dome recently stated publicly to a group of native visitors to Canada that they had no intention of ever trying to take oil, crude oil, through the Alaskan Beaufort to Japan. Whether they remain true to that remains to be seen. I suspect from our experience with local North Slope politics over the past five years that getting clearance to ply tankers through the Alaskan Beaufort Sea will be quite a feat.

MR. BOLT

My name is Ron Bolt and I'm with the Alaska Pharmacology Council. (Indiscernible due to feedback)

I'd like to address a question to Mr. Herrera. We've heard quite a bit about the oil development, but as a ports conference, we haven't really related it to tonnage. And during the Trans-Alaska Pipeline we had a lot of publicity about the size of the barge hauls running to the North Slope and tonnage moving through the state. And I understand that in the last year or so we have equalled that tonnage in some areas. I'm wondering if you have any information on the

type of tonnage that is moving through the state presently and what the forecasts are in the way of tonnage needs and port needs to support the type of development you discussed?

I had a second question also. There has been some port development by the oil companies on the North Slope. They have built some piers and staging areas, and I'm wondering why we haven't heard much about that as a port. Could you describe that development a little bit, please?

MR. HERRERA

I'm not sure if I'm capable of answering your queston on tonnage, but I can attempt an answer if you will. In the Bering Sea area that I've suggested will be productive perhaps in 15 years, I suspect most of the equipment and supplies needed will be barged directly to that area. Now, that, of course, entails docking facilities and so on which presumably will be developed when the location of the discoveries is clear. I don't want to crystal ball gaze as to where that will be, but I suspect that the supply will be by barges.

On the North Slope there's a lot of development right now that will result in a great deal of tonnage arriving in Anchorage or the southern ports of Alaska. It then moves up the haul road, or the railroad and the haul road to the North Slope. The Kuparuk is on-going, although some of that material comes in on the sealift. I think there's going to be at least one major development offshore in the Beaufort Sea not far from Prudhoe Bay. One can foresee from presently known exploration results at least one major field being developed onshore within 60 miles of Prudhoe Bay. How those fields translate into actual tonnage, I can't tell you, but it will be significant.

The other part of your question was ports on the North Slope. This already is a problem. Just for the sort of simple needs of exploration in the Beaufort Sea now the east dock and the west dock at Prudhoe are not adequate. I suspect that serious thought will be given quite soon, to enlarging the facility at the Prudhoe Bay area.

MR. BOLT

Can you give us any indication of the current tonnage moving say to the North Slope versus what moved at the peak of the construction of the pipeline?

MR. HERRERA

Well, I'm guessing, but I wouldn't expect the future--or present and future tonnage to be equal to that, but it will be getting onto that sort of magnitude I think.

Port Operations and Administration Panel

MANAGING ALASKA PORTS AND TERMINALS

Merle D. Adlum
President, Maritime Trade Council
Commissioner, Port of Seattle
Seattle, Washington

I am very pleased to have been asked to speak at the first Alaska conference on maritime commerce and port development. As some of you may know, my interest in maritime activities started at an early age. From my first job as a cook on a fishing boat through my experience on commercial tugs, ferries, off-shore vessels and tankers, to my present positions as a consultant for the Transportation Institute and as Port of Seattle commissioner, I have been actively engaged in maritime activities all of my working life.

My particular interest in Alaska trade stems from my early work in the maritime industry serving Alaska. Working for the Alaska Freight Lines in the early 1950s, I participated in the first containerized shipments to Alaska. Our system combined break-bulk cargo stowed in the hold of barges with containers stacked on top.

In 1954, I became active in union work for Master's Mate and Pilots, Local 6 and for the Inlandboatman's Union of the Pacific. From 1968 through 1979, I served as president of the Inlandboatman's Union. Earlier, my interest in maritime affairs had led to a role in port development as commissioner for the Port of Seattle--a position I've been proud to hold since 1964. I think it is safe to say that my interest and involvement in port development and Alaska is well documented.

In March of this year, the Port of Seattle cosponsored the Alaska Resource II Conference, which assembled community, business and industry leaders to discuss potential developments for Alaska. These discussions renewed my belief that development of Alaska's natural resources may provide partial solutions to the obvious Alaskan problems of geography, limited transportation networks, and severe climate. Just recently, the Alaska Legislature passed a bill authorizing $528 million to be spent on hydroelectric projects over the next two years. This bill is a possible first step in spending $5 billion over the next five years on hydro projects.

In a sense, the legislature has invested funds from today's oil energy revenues to create a new energy source that is cheap and clean in comparison to alternative sources. I congratulate the legislators for their foresight, and would like to suggest some further potential benefits of the

development of hydroelectric power. It is well known that for many industries the power source is the primary consideration in location of a plant. Aluminum is a prime example of an industry that requires abundant, economical energy. The industry will locate wherever energy can be assured. In the 1950s, the Aluminum Can Company of Canada constructed a smelter near Kittimat, British Columbia, because of the economies of a hydroelectric plant in the production of aluminum. ALCAN disregarded all other negative considerations of location including the lack of port facilities. In Alaska's case, port facilities and the backhaul capacity are already available for industries and manufacturing firms that produce break-bulk commodities. Petrochemical commodities and light industry products would certainly help balance trade between Alaska and northwest ports.

Among other potential developments are mining of molybdenum at Quartz Hill, the construction of petroleum processing plants and a gas pipeline, coal mining in the Beluga and other fields, an expanded fish and shellfish harvest, and development of the lumber industry. The recently completed Dow-Shell group report suggests that a $9 to 10 billion natural gas and petrochemical project may be feasible in the late 1980s, if key controlling factors change favorably. Increases in world oil prices and increased production of LPG ships for example, would make the project more feasible.

Although management and development of natural resources are primary aspects of the development picture, it is imperative that Alaskans focus on the potential and future requirements of its ports. Surely for Alaska the development of new industries, providing products and supporting increased employment, is directly related to the maritime industry's ability to export products to foreign and domestic markets and to import goods and foodstuffs to its workforce.

The Port of Seattle has enjoyed a long and significant trading relationship with Alaska ports. At more than one-quarter of the port's total trade, Alaska is truly our biggest customer. We support and would aid developments aimed at improving the balance of trade situation.

The sponsors of this conference have asked me to address several topics including:

1. the importance of proper organization in operating a port

2. the various ways for managing a port

3. the means for making a port financially strong

4. the potential of a state organization in assisting the ports

Before directly addressing these issues, I would like to briefly discuss some potentially irresolvable constraints facing Alaska ports.

A primary challenge of port development in Alaska stems from its geographic placement. Although Alaska has a strategic advantage in terms of its nearness to the populated markets of West Coast ports and Asia, it has suffered from its limited hinterlands and relative distance from the lower 48. Unlike the Port of Seattle, which serves as a bridge for Asian trade with the North, East and Midwest, Alaska ports have little opportunity for transshipment of goods other than to the Alaska hinterlands.

In this respect, Alaska ports function more as the entry and exit point of a cul-de-sac. Although ports like Seward, Valdez, and Anchorage ship cargo inland by rail and truck, most of Alaska's transport activity is waterborne coastal activity. When compared with the vast hinterland claimed by intermodal bridge ports like Seattle, Alaska ports have little or no opportunity to extend their hinterlands.

Many West Coast ports were able to divert cargo from the Panama Canal route to the Gulf Coast ports based on less expensive intermodal rates offered by combined sea-rail rates. In this manner, hinterlands traditionally tributary to East or Gulf Coast ports were opened to service by West Coast ports. This type of diversion of cargo, however, cannot be anticipated for Alaska ports.

One of the most serious problems attendant to geographic isolation and the lack of an extensive hinterland is the imbalance created when more goods enter than exit the port. While containerization offers a savings in freight costs based on reduced labor for loading and discharging cargo, the problems of backhaul in which boxes are returned empty to the originating port somewhat reduces the economy of containerization. A major and continuing concern of Alaska ports is cargo imbalance.

Historically, Pacific Northwest shipments of cargo have been four to five times higher than the receipts from Alaska. A more balanced trade flow is not impossible, but may be very difficult to achieve. The combined efforts of industry, business, transportation sectors, and ports will be needed to balance the shipment to receipt ratio. This challenge, and the part to be played by the maritime industry, brings me directly to the topics posed by this panel.

Four areas of port organization have direct bearing on the strengths of a port. Essentially, the four areas are: port governance; commission organization; port staffing; and funding. The way in which a port authority decides to model itself with respect to possible ways of functioning may very well set the course of its future potential. The history of Port of Seattle bears witness to pitfalls and benefits inherent in the various ways of operating a port.

Port governance is a major factor which may aid or hinder port development. More than 70 years ago, the residents of Washington, through their representatives, authorized the creation of public port districts. The clear intention of the Legislature was to promote autonomous authorities to combat the stranglehold on the waterfront created by private interests and monopolies, thus providing for and protecting free movement of international and domestic commerce through the harbor. The necessity for a strong authority, in Seattle's case to combat the monopoly created by railroad interests, is well documented. There are also current-day examples that point to the need for a centralized authority apart from city, state, or private control.

Alaska ports are, for the most part, managed by the local municipality or by private operators. While this arrangement may be satisfactory now, it may prove detrimental in the long run. Just recently, the municipality of Anchorage turned down an opportunity to ship coal over its waterfront to Korea due, at least in part, to a decision not to invest in what might have been very expensive terminal construction. In this particular case, the decision may have been justified. However, this experience may also indicate one of the pitfalls inherent in non-autonomous authority. Port districts that have autonomy in matters of development are generally much better equipped to respond to technological changes in the industry. They are also better prepared to make decisions which are directly related to the long-range well-being and development of the port.

The Port of San Francisco is another case where the port suffered essentially because of conflicts of interest and financial resources. While under state control, the Port was unable to make any decisions regarding substantial expenditures without the approval of the voters. Since the population base was located in the southern part of the state, where ports were under city jurisdiction, voters were generally unresponsive to the needs of state-funded ports. Additionally, the Port had to turn back nearly all of its revenues to the state, creating a further disincentive to make a profit. The institutional restrictions placed on the Port of San Francisco eroded and undermined its ability to respond to shipping trends and advances in technology.

Consequently, the nearby Port of Oakland, which was voted semi-autonomous status as a city department in 1927, overshadowed its neighbor. The type of governance which a citizenry chooses to adopt for its port may be one of the most significant and long-standing decisions affecting port development. A public port which is tied to party politics or parochial influences may never be free to do its job: to promote trade and expedite the movement of cargo.

The second area of concern which bears directly on a port's ability to function responsibly is the manner and type of commission or board of directors it holds. Commissioners for the Port of Seattle are elected by the voters of King County and are hence, responsive to them. Since we are not directly tied to a political party or a patronage system, we are able to represent those viewpoints which, in our best opinion, contribute to the well-being of the Port and the community.

Many of the California ports are directed by commissioners who owe their appointment to the city mayor. Obviously, the patronage system creates a different type of commission than that formed through nonpartisan election. In some systems, decisions are not made on the basis of long-range business goals. In addition to the normal conflicts arising in decision-making agencies, a port reliant on the political support of its parent authority may be forced into decisions that do not represent the best interest of the public port. One of the ways in which ports gain financial strength is by keeping a forward-looking business approach in decision-making.

In addition to being responsible to the voters for election, port commissioners must be responsive to their suggestions presented in public meetings. While this dimension of citizen participation may complicate proceedings, it should ultimately ensure a better and more acceptable decision for the entire community. The Port of Seattle Commission has operated as a policy making rather than operating board since the late 1950s. By adopting this management philosophy, the commission has effectively encouraged staff responsibility and management initiative.

Staffing is a third area of port organization that will aid or hinder the development of port facilities and services. The maritime industry has always used its own methods, but with the technologies developed in the last two decades, port planning has become an even more specialized endeavor. A port without technical expertise may not be able to adequately anticipate future shipping industry trends. As a public port, its mission as an expediter of cargo may be seriously undermined if it is not able to plan and develop terminals suitable for shipping companies.

Employing technical staff is yet another way in which ports gain financial strength by anticipating future requirements. Need for technical expertise in trade forecasting is a matter in which a regional or statewide organization might prove helpful. An example of this assistance provided to ports in Washington is the statewide port system study. Recently updated, it forecasts development requirements for Washington ports based on cargo forecasts and surveys of existing statewide terminals and facilities. This kind of forecasting is very helpful in avoiding overcapitalization or overbuilding as well as in assuring that adequate facilities are available when needed.

Since studies of this kind are expensive and frequently beyond staff capabilities of one port, a state port association might provide a means for dealing with this problem by pooling resources. Alaska ports might also consider the potential advantages of forming a statewide authority rather than many small authorities. It might be a preferable way to plan, fund and develop port facilities. Another way in which an association might assist in port facility development is as an advocate for the collective interests of the ports. By providing a unified voice, an association may be more persuasive, for example to legislators, than ports acting individually.

Although the way a port is governed, organized, and staffed contribute heavily to its ability to serve the maritime industry, a single factor--funding--may be the decisive factor in the success or failure of a port. In Washington, public port districts are authorized to fund capital projects by several methods. They have the authority to levy a millage of 45¢ per $1,000 of assessed valuation of property in a district, and they may issue general obligation bonds. Port districts also have power to create industrial development districts which can levy an additional 45¢ per $1,000 of assessed valuation of taxable property within the district. Another manner of funding available to Washington ports is through revenue bonds based upon revenue from projects which may be issued to the ability of the port to pay as long as projects are of a public nature. The authority to issue bonds, without interference by political powers, is critical to a port's financial well-being.

In return for the privilege of levying taxes and issuing bonds, public port districts provide economic benefits to the local and regional economy. In King County, the Port of Seattle contributes the following economic benefits: in 1980, federal, state, and local taxes paid by private firms were estimated at $55.3 million; taxes paid by jobholders were estimated at $93 million; and leasehold taxes paid by tenants renting port property were estimated at $1.6 million.

The customs duty on imports for the Seattle harbor was $213 million in 1980. In terms of jobs, it is estimated that 14,000 people are directly employed in maritime commerce, and 31,000 individuals employed indirectly in related jobs for a total of 45,000 combined jobs. Sales and revenue from wholesaling, manufacturing, and transportation services attributable to maritime commerce are estimated at $2,315 billion. In short, healthy maritime commerce will return economic benefits to the community that more than offset local funding and levy authorization. A port which is unable to grow or maintain its facilities cannot support an expanding regional economy.

SUMMARY

While there are no easy recipes for port development, there are a few ingredients that are essential. Funding for capital-intensive developments is an absolute requisite to ensuring a port's long-range growth. Without adequate sources of funding, ports may not be able to develop property or make renovations to existing terminals. In a "tight" bond market, local or state subsidies will take on added significance. The actions taken by a port's commissioners or directors should always consider its goal of promoting trade and providing useful facilities for the maritime industry. By considering long-range goals, public ports and private shipping firms may mutually benefit while servicing the greater public.

OCEAN TRANSPORTATION IN ALASKA: CHALLENGES FOR THE '80S

J. A. Baker
Executive Vice President
Alaska Division
Sea-Land Service, Inc.
Seattle, Washington

I first laid eyes on Alaska 16 years ago. Since then, my professional life has had something to do with this state and its transportation system. I've learned there's much more to Alaska than polar bears and Eskimos.

My company, Sea-Land Service, has also learned a good deal about the transportation needs of this state in the 17 years we have served it. We've formed a few opinions.

To start with, you have to look at what Alaska is from the point of view of a water carrier. While it may be connected to North America, from a transportation standpoint, it's an island, and a distant one at that.

Alaska's basic lifeline for supplies runs between Seattle and Anchorage or Seward, a distance of 1500 miles: 1500 miles of rough seas, rugged coastlines, occasional earthquakes, and sailors with strong constitutions.

Due to weather and road limitations, overland shipment is a risky undertaking. Air shipment is financially prohibitive for most commodities, and, although a rail link with the lower 48 has been discussed for years, it has yet to come to pass and is years away at best.

This leaves ocean transportation as the primary cargo link between Alaska and the rest of the world. As a relatively small market, isolated from other markets, at the end of a long, thin, dangerous trade route, Alaska would not seem to have much to offer a carrier. Yet, presently 10 water carriers service Alaska in the domestic trade. One of these carriers, Foss, has been servicing the state for over 90 years.

One reason for this is the relatively stable, if marginally profitable nature of the market, and its potential for growth. In our company's case, another reason has been the receptivity of this community to containerization. Alaska provided us with an early opportunity to make full use of the advantages of containerization.

As a major force in the Alaskan market, we are concerned that the state approach future development of its transportation system with care and foresight. We feel that Sea-Land can be of assistance toward this end.

On the other hand, there are a number of proposals that are currently being advocated that could imperil both the state's transportation system and the companies that are part of it. These are proposals that must be dealt with individually but they also are parts of a whole; parts of what keeps Alaska moving: its transportation network.

No short-term, single need should be used to dictate a policy that will work against the greater, long-term needs of the people of Alaska. More than any other state, Alaska depends upon transportation services for its survival. Its transportation-related decisions are most crucial.

As many of you may be aware, American President Lines and Aleut Alaska Shipping Corporation recently proposed instituting a domestic service between Seattle and Dutch Harbor using vessels heavily subsidized by the federal government. There is not a carrier presently involved in the domestic Alaskan trade that has not spoken out against this service, and opposition does not necessarily stem from strictly competitive considerations. This proposed service would strike at the very heart of the Alaskan transportation system.

At first blush, this might seem to be an overstatement. After all, the APL-Aleut Alaska proposal only involves the availability of 50 container slots every two weeks. But it actually involves much more. It involves principles of U.S. maritime law that have been in place for more than 45 years. It involves hundreds of millions of dollars that have been invested by lines already in the Alaskan trade and hundreds of millions more that should be invested in new equipment and facilities in the years ahead. Finally, it involves our tax dollars, and how they should be spent.

U.S. maritime law clearly distinguishes between a non-subsidized domestic maritime system and an international system that is eligible for certain types of federal subsidies. While Sea-Land accepts no subsidies for its ocean transport services, and while we are opposed in principle to operational subsidies for any maritime service, we still recognize that subsidies keep most of the remaining U.S. flag international carriers in business. But, a subsidized service is no bargain. The true costs are merely reallocated to the taxpayers. In 1980, $300 million in operating subsidies were paid to the eight ODS carriers, about $2 million per ship.

We also feel it is a system that inevitably weakens rather than strengthens carriers. History has proven that welfare, be it personal or corporate, does little to correct its own causes, and perpetuates its own need.

What APL is attempting is to retain this government aid for foreign service, and also gain extra business in Alaska's domestic trade. If this were permitted, it would open the door to more subsidized services to Alaska, and similar services in other domestic trade routes throughout the United States.

Such subsidized service could hurt Alaska in a number of ways. It could actually reduce service to certain areas of the state. Non-subsidized lines, running non-subsidized vessels with non-subsidized crews would, in the shortrun, be at a distinct price disadvantage. Furthermore, the uncertainty caused by this service could result in non-subsidized carriers putting off or canceling reinvestment projects for new equipment and facilities.

Ocean shipping has become a very expensive proposition. This is particularly true with Sea-Land. Our corporate philosophy calls for development of an expensive land-operating infrastructure in our service areas in order to maximize long-term profitability.

The primary market to be serviced by the APL vessels that will call on Dutch Harbor is not Alaska, but Japan. These vessels that now call on Dutch Harbor with cargo bound for or originating from a foreign port have already canceled scheduled calls on Dutch Harbor. I leave it to APL to explain why, but it isn't difficult to speculate. I can tell you from my own company's experience that a ship's cargo slot filled with goods destined for the Orient is more profitable than one filled with goods for Alaska.

Above all, no subsidy is needed here. If APL stops taking a government subsidy, over $30 million in 1980, it could enter the Alaska trade and compete like the other non-subsidized carriers.

I trust the people of this state will take these facts into account and act accordingly. All of us, public officials and private citizens, must work to prevent the extension of taxpayer subsidized services into areas where free enterprise is doing the job.

Another proposal soon to become reality is the state take-over of the Alaska Railroad. As an intermodal company, concerned with moving our customers' goods directly to their destination, Sea-Land is vitally concerned about this change

of management. It could prove to be a major boon to the state's transportation system, but there are several pitfalls that must be avoided.

Jim Davis, our general manager in Anchorage, recently testified on this topic before the Senate Committee on Commerce, Science and Transportation. Davis testified on August 10, 1981. As Davis stated, Sea-Land will support any proposal that will work to improve the service and the financial posture of the Alaska Railroad.

But, we cannot accept the institution of rate structures that favor one ocean carrier over another, or one port over another. The railroad is an essential link between various sections of this state. It moves goods necessary to continued growth of Alaska; goods that are carried to Alaska by a number of ocean carriers. An advantage to any one carrier or group of carriers by the state government will prove detrimental to all. A better operated, modernized, and more efficient Alaskan railroad could do much to improve transportation throughout this state...so long as it fosters a good relationship with all ocean carriers that feed the railroad its cargo.

There is one final area of potential development in this state in which I am particularly interested. It would have very little effect on Sea-Land's present operations, yet it is an area of development that our company knows best.

I am speaking of port development. Sea-Land learned about port development the hard way. When it went into business as a container carrier, there were no container ports, and most existing ports were not readily adaptable to lifting containers on and off vessels.

I understand there have been proposals made by some to develop as many as a dozen deepwater ports throughout Alaska, costing hundreds of millions of dollars. Proposals have been put forward to develop Seward, Whittier, Kenai, Homer and Valdez. Certainly, all of these ports are not necessary. There are barely that many deepwater ports in Washington, Oregon, and California combined. A decision to build new ports should not be a political one. It should be a sound and economic one. If we can assist by helping in the decision-making process, we'd be more than willing to do so. We have a stake in this state.

Sea-Land has provided such technical assistance around the world. When we started container operations, we had to develop new facilities that were efficient, not just from a port point of view but with the demands of the entire intermodal infrastructure in mind. In many cases this meant

bypassing traditional port areas, because of congestion or lack of rail or highway access. Instead of calling in New York City, we started calling across the river in New Jersey. Instead of San Francisco, we went to Oakland, and instead of Seward, we went directly into Anchorage. We made these decisions because we decided early that our job was to move freight as quickly and efficiently as possible.

We understand the capital required for port development. As extensive as Alaska's resources might be, care must be taken in applying them to port development. In Alaska, Sea-Land has invested over $35 million in its landside facilities. It's an investment we made only after being quite sure that a market for our services existed, only after we made detailed studies of what type of service we would need to provide and what we would have to invest to provide it.

To set up the type of infrastructure we needed to operate in Alaska took a capital investment that couldn't be supported by seasonal service. The cranes, the terminal, the road equipment, the maintenance and administrative facilities had to operate year-round to repay our investment. This inspired the first ever year-around service into Anchorage.

Our service to Alaska started in May 1964, when Cook Inlet started freezing up in December. The first vessel attempting to go through Cook Inlet stopped 50 miles out from Anchorage because of blizzard conditions and ice. Charles Hiltzheimer, then the head of Sea-Land's Alaska Division, and now chairman of the parent corporation, took a helicopter from Anchorage to the deck of the vessel. He personally gave the captain the authority to attempt to steam on to Anchorage, a decision made even more treacherous because two Coast Guard vessels sent to escort the ship into port had themselves been knocked out of commission.

That ship got through, and in the 17 years since then, we've continued to bring our ships through, in good weather and bad.

While Alaska may offer a more dramatic setting than other trades that Sea-Land opened up to containerization, it was not a unique situation. Our company's operations are premised on the belief that we move freight, not ships, and that technology should bend to the needs of the marketplace. This belief brought about entirely new needs in port and terminal facilities. They also have drastically increased the complexity and cost of these facilities.

Prior to any investment in an area, Sea-Land conducts extensive market surveys to determine among other things:

1. What is the present size of the containerizable market?

2. What might its potential be 10 or 20 years from now?

3. How much of that market might Sea-Land realistically expect to participate in?

4. What type of facilities and equipment would this market dictate?

5. Will these facilities duplicate already existing Sea-Land facilities in the immediate area?

These studies tell us not only whether or not we should enter into a market but how we can service it in the fastest and most efficient way, minimizing our costs and the rates we charge our customers. One reason we chose Anchorage as our main Alaskan port of call instead of Seward or other Alaskan ports was the result of just such a survey. The heart of the Alaskan market is, afterall, in Anchorage. Anchorage and surrounding suburbs contain over 50 percent of Alaska's population. Anchorage is also the hub of Alaska's rail and road network.

Only after the decision to enter into a market has been made and after the type of service to be provided has been determined do our facilities engineering teams come survey the area and lay the groundwork for capital construction.

Alaska would do well to follow this same course of action, and to follow another principle of our company. Sea-Land provides service to communities on the basis of need, not pride. By this I mean we will provide a service appropriate to a particular market. We will not call on a port hoping to develop a market that doesn't exist. Non-subsidized business doesn't work that way. This same approach should be used in developing new port facilities throughout Alaska. A port should not only be an expression of civic pride. It should be an expression of civic or regional need.

In conclusion, a fair and competitive atmosphere for transportation companies, tempered by a regional approach to planning transportation infrastructure, would, in our company's opinion, provide Alaska with the best of all possible transportation systems.

It would assure that transportation companies serving Alaska achieve profitability through efficiency of private enterprise, not government subsidization. And it would assure that Alaskans are served well, not wastefully, by a system that is designed to respond to its present and future needs.

CARRIER'S REQUIREMENTS FOR EFFICIENT ALASKA MARITIME OPERATIONS

Robert B. McMillen
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Seattle, Washington

The subject of this conference, "Maritime Commerce and Port Development in Alaska" has possibly more meaning to Totem Ocean Trailer Express than any other carrier at this meeting. TOTE is an Alaskan corporation whose only business is the movement of goods between the lower 48 and Alaska. Our efforts are dedicated to providing a service and participating in the commerce of the state of Alaska and we are not involved in any other geographical area. Our success is directly tied to the growth, economy, and economic well-being of this state.

TOTE entered the Alaskan trade in September 1975 with a single roll-on, roll-off trailer ship operating between Seattle and Anchorage. The Trans-Alaska Oil Pipeline was nearing completion and winter volumes began to fall off to pre-pipeline levels. Load factors were disappointing that first winter. Additionally, labor difficulties in Seattle involving our loading and unloading operations caused us to move these activities from Seattle to Tacoma in June 1976. Also in June 1976, we added a second weekly sailing for the summer period to provide more responsive service. In May 1977, we permanently added our second ship, and since then have offered two weekly sailings year-round from Tacoma to Anchorage moving a variety of goods in highway trailers into Alaska. Our two big trailer ships, the Great Land and the Westward Venture, have a capacity of approximately 400 40 foot trailers and 130 vehicles. Our Thursday morning and Saturday morning departures from Tacoma arrive in Anchorage on Sunday morning and Tuesday morning, respectively. With the exception of brief annual drydock periods, these twice weekly schedules are maintained on a reliable year-round basis.

To support these fast modern trailerships, TOTE also operates a fleet of 1,500 highway trailers of all varieties; serving the entire spectrum of shipments into this state. This equipment includes dry vans, refrigerated and insulated trailers, open tops, flatbeds, low beds, drop frame furniture vans, expandable trailers, and tank equipment. We also move significant numbers of motor carrier and shipper-owned equipment, as well as intermodal trailers and containers tendered by connecting rail and ocean carriers. The flexibility of this concept offers the maximum in intermodal

capabilities in connection with practically any inbound transportation mode or carrier.

Our operations in Alaska center around the terminal facilities in the Port of Anchorage and are directed by our management and administrative staffs both in the port and in our Anchorage offices on Warehouse Avenue. Discharge and reloading is accomplished by specialized hustler tractors driven by trained longshore drivers. The ramping system connecting terminal facilities with the vessel has been designed to allow constant loading and unloading despite the severe tidal ranges experienced in Cook Inlet. The yard layout at the port separates the inbound cargo to be delivered from the empty trailers and southbound loads going back to Tacoma. Also in the port area, a connecting track of the Alaska Railroad allows us to load our TTX piggyback cars for points served by the railroad in the Interior, primarily Fairbanks.

A gate inspection manned by longshore checkers efficiently inspects and checks trailers being moved into and out of the port by connecting Alaskan truckers. Most of these trailers are destined to consignees in the greater Anchorage area, but many go farther to points such as Kenai, Seward, and Homer on the Kenai Peninsula, or as far north as Prudhoe Bay for delivery to the North Slope oil fields.

Along with our connecting line motor carriers, we also maintain terminals in Fairbanks and Kenai, each with local TOTE managers and marketing and operating personnel. Satellite trailer pools are kept on a seasonal basis at Seward and Homer as well. All of the Alaska offices are connected through internal communications with Seattle, and Anchorage will shortly be equipped with computer terminals to take advantage of our trailer control, maintenance, and accounting programs. As you can see, we have a very real physical presence in terms of personnel, investment, and facilities in each of the major areas that we serve in Alaska.

Existing and future constraints to efficient operation of Alaska's maritime activities, and more importantly, its financial success and potential growth are either physical or political/administrative in nature.

Some of the physical constraints can and should be addressed to improve existing vessel efficiency and reduce fuel costs. Others are a fact of nature and cannot be controlled by anything we do. The two foremost of these are the severe tidal ranges, which prohibit the flexibility of operations we enjoy in Tacoma, and the ice problem in the winter. Our vessels are equipped to deal with the latter as a result of specialized features built at construction. We have engineered

our ramping system to attempt to deal with the tidal problem and have so far succeeded reasonably well. At some future point, specialized pier construction to allow our midship ramp to depress at severe low tides and continue operation (which is not now possible) can be considered. This is not a serious problem but several potential solutions exist which will ease our cost burden.

One physical constraint which can and should be dealt with, is removal of the existing shoal which creates a navigation hazard, burdensome scheduling constraints, and added fuel costs. Our vessels (and this applies to both Sea-Land and TOTE) cannot cross the shoal at low tide. Arrivals and departures must be coordinated to coincide with specific tidal windows to accommodate the shoal requirements. Dredging by the Corps of Engineers or other appropriate entity would allow arrivals and departures to be more closely planned for maximum fuel efficiency, and benefit all concerned while reducing the existing hazards. This problem has recently become even more pronounced with the discovery of a second and previously nonexistent shoal down the inlet from the first one.

The political/administrative constraints are more all-encompassing and involve a number of issues.

It is well known that the cost of operating in Alaska is high. Even within this general framework, TOTE's experience in operating at the Port of Anchorage reflects an unusually high differential between costs for services at Anchorage compared to costs for similar services in the Puget Sound area. These costs are a current--and apparently will be a future--problem with respect to efficient operation.

TOTE's experience is that services at the Port of Anchorage are more than twice the Puget Sound costs. This comparison does not include the extraordinary costs TOTE incurred in preparing the Port of Anchorage facilities to accommodate operation, mainly the construction of two trestles to bear the weight of TOTE's loading and unloading ramps. The cost of these trestles is further complicated because we constructed trestles at Terminal One for approximately $2 million, then the Municipality of Anchorage moved TOTE to Terminal Three, necessitating the construction of two additional trestles, for which TOTE must bear all the costs. --TOTE has received no significant reimbursement for its $2 million investment at Terminal One. When the cost of the trestles at Terminal One are added to TOTE's costs over the period it operated there, the comparison of port costs, Anchorage versus Puget Sound, become much worse than 2:1 and are actually in the area of 4:1 or 5:1 higher.

For this reason, TOTE has a policy of reviewing alternative port sites for either all or some of its current business. At present, TOTE's service is limited to the Port of Anchorage. In order to provide a dependable, predictable arrival schedule to Anchorage on a semiweekly basis, we are limited to one round trip per week per vessel. We have, in fact, at efficient fuel-burn rates, only 18 hours slack time built into each weekly round trip.

As the market grows, and the possibility of additional capacity becomes more viable, we believe the opportunity exists to provide service to other ports. We are currently analyzing several alternative ports of call relative to our existing traffic as well as that which might be attracted should additional tonnage be added to our fleet.

Discussions and communications have taken place with the Port of Valdez since 1976. We were consulted about the port development and are flattered that the roll-on, roll-off concept, along with containerization, have been considered in the investments they have made for their new port facilities. Similar discussions were held with the consultants examining potential growth for the Port of Sitka in Southeast Alaska. In 1978, along with the Canadian principals of White Pass and Yukon Railroad, we inspected the facilities at Skagway for possible service in connection with the Alaska natural gas transmission system. The availability of both highway and rail service from this port to the Yukon Territory and eastern Alaska offers a unique geographical potential for efficient seasonal delivery of construction equipment and materials.

We have also developed a viable connecting service with the Western Pioneer operation over the Port of Homer during the peak fish and shellfish seasons. This supplements existing service by motor carriers and vessels off the Kenai Peninsula as well as the direct services offered from Kodiak and Dutch Harbor by container operators. As the rail belt market grows, allowing for additional base cargo nucleus capacity, the potential of service to these other ports increases dramatically, if not by direct call, through efficient, effective connecting service of smaller vessel or barge operations. The movement of interior cargo through the Port of Valdez as an option to the Port of Anchorage is a much more likely short-term prospect, particularly with improvements to the Thompson Pass Highway route to Fairbanks.

TOTE did not earn a profit in its first five years of operation. It appears that 1981 will be the first year in which we will do so. A strong market has helped in achieving this and it appears the market growth will be sustained. TOTE is continually examining the feasibility of adding capacity to

the trade. To do so, however, regardless of the source of additional vessels, will require large capital commitments. Considering our past earning performance, this becomes more difficult to justify even in the face of a surging Alaskan economy. Whatever course is followed, we will require several years of improved performance that, among other things, will require rates that increase faster than costs. This is absolutely necessary to insure an acceptable return on the large investments needed to maintain and expand on our existing service.

Although the subject of rate increases is always a painful one, especially during these years of rampant inflation, it should be noted that over TOTE's existence in the trade, actual, effective rates have not increased in line with inflation. It took TOTE's first three years of operation, from September 1975 until September 1978, to establish ourselves as full participants in the Port of Anchorage traffic. During this time, the Anchorage C.P.I. rose 23 percent while our revenue per unit increased only 12 percent. During the post-pipeline slump, between 1977 and 1979, the total tonnage over the Port of Anchorage dropped 11 percent. The Anchorage C.P.I. rose 26 percent but TOTE's revenue per unit increased only by 17 percent. In fact, between the time of our entry into the trade through the end of 1980, consumer prices rose 52 percent in Anchorage and TOTE's revenue per unit increased only 45 percent.

As I said earlier, those were not profitable years for our company and I suspect not for our competitors either. Our short-term future appears brighter and we look forward to providing a viable, continuing ocean carrier service in the years to come.

SERVING REMOTE ALASKA COMMUNITIES

Sidney D. Campbell
Chairman of the Board
Foss Launch and Tug Company
Seattle, Washington

I am pleased to represent the tug and barge industry on this panel which includes my colleagues and respected leaders in other phases of maritime transportation.

As the program lists, and the chairman has noted, the subject assigned to me is "serving remote Alaska communities." The definition in the dictionary for "remote" reads--"located far from a specified place." Air travel, though it may not have actually shortened the distance, has pretty much changed that concept. Many of Alaska's remote sites, as we think of them, are only 30 minutes, or maybe an hour or so away from a sizeable city, not really remote any longer.

But this panel is addressing surface transportation and that takes us back to the earlier wording. A little personal background and observation, if I may.

When I made my first trip to Alaska as a deckhand on one of our tugs back in 1937, 44 years ago, the small ports and villages in Southeast, from Metlakatla on north through that region, were remote. Now I would venture to say that of all the calls we made: Ketchikan, Wrangell, Petersburg, Juneau, Sitka, and Chichagof, only Chichagof would now be classified as remote. Why? Because the mine has long been down and there's no longer any activity there, and so no need for service. The other stops we made those many years ago are now thriving cities with at least weekly or better service provided by ferries of the state marine highway system or by commercial vessel, and daily air flights. Excuse me if I keep getting back to air, but that mode is important to remember when we consider freight or cargo, particularly for smaller ports and their need for transportation and facilities.

With your indulgence, please let me describe very briefly our company's operations to, within, and from Alaska.

Foss Launch & Tug, under that name and/or Dillingham Maritime, provides contract towing and barging services. Our first trip to Cook Inlet was in 1925 with a barge load of pilings for the old Army dock here in Anchorage. Some of you will remember it as the only dock for years in this port, which now has such fine pier facilities.

Since 1925, our company and our industry have grown with Alaska. Back in 1929, we started distributing refined products for Union Oil in Southeast and have done so continuously since. Since 1938 we distributed similarly for Standard Oil, or rather Chevron now, from Dutch Harbor to Bristol Bay and Norton Sound ports. Service was interrupted during World War II when our equipment was requisitioned by the government for service in the Aleutians and elsewhere in the Pacific. Let me cite a few other examples. In the late '40s, construction boomed in Alaska and Kaiser Cement determined the need for a bulk cement plant in Anchorage. We pioneered that service with Kaiser in 1950, perhaps crudely, using World War II LST hulls as the barges for both transportation and storage. But they did the job.

We barged much of the construction material and equipment for contractors to the DEW line and White Alice sites; from Ocean Cape on the Gulf of Alaska, to Shemya on the Aleutian Chain, to Barter Island on the Beaufort Sea--certainly all remote sites. Later, we participated in the annual resupply of those DEW line and White Alice locations. There were sites without docks, and it was necessary to beach the barges for discharge. Most often the shores were unprotected from seas and weather.

When oil exploration began in earnest in the early and mid-'50s, we put Kerr-McGee and Phillips Petroleum into Icy Bay, which I always liked to identify as being the Gulf, halfway between Yakutat and Yagataga. We put Humble and Mobil into Wide Bay in Shelikof Strait and Pure Oil into Pavlof Bay.

In the early '60s, we made numerous beachings with barge loads of drilling rigs and supplies for Amoco on Cook Inlet sites, not far from Anchorage, yet remote. Later, for Amoco, we moved equipment and camps to the David River on the north side of the Alaska Peninsula west of Port Heiden. We provided the surface support for the Atomic Energy Commission supplemental test sites on Amchitka Island. These were but a few of our jobs to remote areas in Alaska.

Another one of our divisions is Foss Alaska Line, known to many of you as FAL. This is our common carrier operation providing year-round scheduled service to Southeast Alaska ports on a weekly sailing from Seattle by container barge. It is also capable of carrying any break-bulk cargo, including mobile home units and heavy construction equipment. We are very proud of FAL's time record.

FAL's service to western Alaska includes four trips annually during the ice-free season to Dillingham, Bethel, and Nome. Various other ports are served out of these base ports by arrangement with river operators, even helicopters, to feed

cargo from the base ports to points on the rivers and coast. These communities and those served out of Dillingham, Bethel, and Nome are truly remote in that they are distant from major population centers with no highway connections to the railbelt area, depending on seasonal surface transportation modes as available and air travel.

The other service provided by FAL is a year-round service to the Aleutians with calls at Adak and Unalaska/Dutch Harbor every three weeks. The operation at Adak is largely for the Navy and performed over Navy shore facilities. The operation at Unalaska/Dutch Harbor is over the new Aleut-APL dock. Other ports are served on an inducement basis such as Akutan, False Pass, King Cove, Chignik, Uyak and Uganik. Southbound, we carry canned salmon from Bristol Bay, the peninsula ports, Kodiak, Prince William Sound, and Southeast. We handle a sizeable amount of freeze out of Dutch Harbor and adjacent ports. We have recently geared up a barge with reefer units, at considerable expense, for frozen crab out of Dutch. At this time, it looks as though the catch may be disappointing and we will have a short load. Along with the weather, this is one of the hazards of the trade.

I have given you a resume of Foss' history and operations and it is not unlike others in our industry, except perhaps for the different areas served. I feel we in the tug and barge industry have met the challenges offered by shippers to the remote areas. A striking example is Crowley's sea lift operation to Prudhoe Bay that most of you are familiar with.

As oil, mineral, and other natural resources are found and transportation is required, we'll be there. Initially, we will beach our barges for discharge until dock facilities might be developed, as the oil companies have done at Prudhoe.

In regard to port facilities, it is our strong belief that where existing commercially owned and operated facilities are adequately meeting the needs of the port, a government body should not attempt to finance and build a competing facility without a hearing that would allow commercial ventures to present their position. To us, this is particularly important in Southeast Alaska where port developments at Juneau, Sitka, Ketchikan, and Petersburg are the result of large private investments.

In regard to this comment, I believe it emphasizes the purpose of this conference as I understand it: "to couple industry and government efforts in the development and operation of maritime ports in Alaska."

I would be remiss if I did not mention the matter that Jack Baker of Sea-Land, on this panel before me, described in detail. That is the amendment to the Merchant Marine Act of 1936 our friends at American President Lines are seeking. The suggested amendment would allow APL, a subsidized carrier, to engage in the domestic trade to and from Alaska on their voyages to the Far East.

Foss, along with some other nine non-subsidized carriers including TOTE and Crowley, are unalterably opposed to this special interest legislation. To allow APL to compete with non-subsidized carriers who have invested millions of their own dollars to provide service to Alaska is grossly unfair. Time on this panel will not permit any detailed discussion, but the Senate hearing set for October 6 in Washington, D.C., will allow all sides to present their arguments. We believe our position is the only equitable one.

Alaska has been good to us. We would like to think that our industry has been good for Alaska. In our industry's way, providing the unique capabilities tug and barge mode transportation offers, we have contributed toward the development of the remote areas. We look for that to continue.

ALASKA-WASHINGTON CONTAINER SERVICE

Agafon Krukoff
Aleut Corporation
Anchorage, Alaska

There is a need to improve the transportation system linking the Aleutian Chain and Western Alaska with the lower 48 states in order to promote economic development and improve the quality of life in remote communities. An improved transportation system will bring substantial economic benefits to Alaska, Washington, Oregon, and other states. There are a number of development projects scheduled for the Aleutian region in the next 10 years. It is essential that adequate transportation be provided not only to serve existing coastal community needs, but also for these future developments.

There is a new proposal for an improved transportation system for Western Alaska. A Native-owned shipping firm, Aleut Alaska Shipping Company, and American President Lines (APL), have proposed to combine Aleut Alaska's extensive regional coverage with APL's fast line-haul service between Seattle and Dutch Harbor, a service already available in conjunction with APL's regular international service between the Pacific Northwest and the Far East.

Unfortunately, in order for this new service to be established, there must be regulatory reform in Congress. The Merchant Marine Act of 1936 must be amended to permit APL to perform, without benefit of subsidy, line-haul service for Aleut. U.S. subsidized carriers such as APL are allowed under the Act to serve domestic offshore ports in Hawaii, Guam, and Puerto Rico from the U.S. mainland, if they repay the domestic portion of their subsidy to the U.S. government. However, there is an inconsistency in the Act in that they are not allowed to provide domestic service to and from Alaska. Alaskan interests and the carriers involved contend that the people of Alaska are entitled to the same transportation benefits as Hawaii, Guam, and Puerto Rico and are proposing that the same treatment be accorded Alaska under the 1936 Act.

Among the many specific benefits which would accrue as a result of the needed regulatory reform will be: dramatically faster transit time between Seattle and Dutch Harbor (reduced to 3.5 days from 15 to 21 days) for food and medical supplies and other vital consumer and industrial goods; lower, incrementally-based transportation costs which can foster U.S. participation in the price-sensitive bottomfishing industry and promote thousands of new year-round jobs in the

Pacific Northwest and Western Alaska; transportation to remote communities which can contribute to their economic development and to an improved quality of life; replacement of the costly government-operated Northstar III service with a more efficient service to those villages; and a shot in the arm for U.S. export competitiveness.

BACKGROUND ON THE CARRIERS

The Aleut Alaska Shipping Co., a wholly owned subsidiary of the Aleut Corporation, began operating in 1978 with three small break-bulk vessels serving Seattle and Western Alaska coastal communities. Its average round-trip voyage time ranges from 26 to 33 days with almost half the voyage time consumed by the line-haul between Seattle and the first and last Alaskan ports of call. As a commercial venture, this service has not proven profitable due to the long line-haul from Seattle and rising fuel costs. Recognizing these problems, Aleut Alaska sought to develop a more efficient and modern transportation system which would give improved service to local communities and be more profitable for the carrier.

American President Lines, Ltd. (APL), serves the export trade to the Far East from Dutch Harbor. APL has served the trans-Pacific trade for more than 100 years and presently operates 17 modern container ships and five other break-bulk/container vessels. APL's half century of history in Alaska extended from the 1880s until 1935, when a coastal steamship service no longer proved profitable. In 1979, APL began serving Alaska again in a solely international capacity, and committed itself to a $16 million investment for a container terminal and crane at Dutch Harbor, both of which are now fully operational.

Currently, APL hauls empty containers from Seattle for discharge at Dutch Harbor. There they are loaded, for export, with seafood products originating in Western Alaska. However, the 1936 Merchant Marine Act presently precludes APL from carrying domestic cargo between the lower 48 states and Dutch Harbor on its regular international voyages to and from the Far East.

CONNECTING CARRIER AGREEMENTS: A PROPOSED NEW SERVICE

Aleut Alaska has negotiated a connecting carrier agreement with APL which provides for Aleut Alaska vessels to operate a feeder service between Dutch Harbor and ports in the Aleutian Island chain and elsewhere in Western Alaska. APL will act as the long-haul carrier between Dutch Harbor and Seattle. Implementation of the Connecting Carrier Agreement,

which would provide the needed year-round, lower cost transportation between Seattle and Western Alaska communities, is contingent upon removal of these inequitable regulatory restrictions.

THE NEED FOR REGULATORY REFORM

U.S. flag subsidized operators are allowed under the 1936 Merchant Marine Act to serve the domestic offshore ports in Hawaii, Guam, and Puerto Rico from the U.S. mainland. There is an inconsistency, however, because they are not allowed under the Act to provide domestic service to and from Alaska. For example, two subsidized operators currently provide domestic service to Hawaii from the U.S. mainland on their U.S./Far East services. Alaskan interests and the carriers involved, therefore, seek for APL the same domestic rights to serve Dutch Harbor to and from Seattle on its U.S. Pacific Northwest/Far East service. For APL to do this, the domestic trading restrictions contained in Sections 506 and 605 of the 1936 Merchant Marine Act need to be reformed to provide for Alaska the same transportation benefits and legal parity accorded to Hawaii and other domestic offshore locations.

BENEFITS OF THE PROPOSED NEW SERVICE

The removal of the Merchant Marine Act's present inequitable domestic trading restrictions for Alaska will provide the following benefits for the communities of Western Alaskan and the Pacific Northwest:

SERVICE IMPROVEMENTS

Regularly scheduled, year-round ocean transportation would be provided. Existing ocean transportation services to small communities is at best sporadic and in some cases nonexistent, and equipment inventories have proven to be inadequate to handle the growing Alaska trade.

Transit time from Seattle to Dutch Harbor by APL vessels is only 3.5 days allowing sea transportation of perishable food products, improving the quality, variety, and availability of fresh food for western Alaskans. It will also assure the Alaskan populace a fast service for other goods, eliminating the need for an extended wait for needed repair parts, medical supplies and other basic necessities for human survival.

DEVELOPMENT OF BOTTOMFISHING INDUSTRY

Dutch Harbor, Alaska, is the center of one of the most productive fishing grounds in the world. Whereas high value products such as king crab and salmon are caught almost

entirely by U.S. fishermen, foreign fishing fleets are currently capturing the bottomfish resources (pollock, cod, and other flatfish).

For the U.S. to become a major participant in the Alaska bottomfish industry in competition with foreign fishing interests, improved transportation must be provided, and costs need to be reduced. Increased frequency of service and access to a large inventory of refrigerated containers will alleviate the pressure on the processor to provide cold storage for his product. The Alaska fish industry is extremely price sensitive. Even a small saving on freight rates or processing costs can mean the difference between an economic or uneconomic venture into the bottomfish industry.

An independent study[1] has estimated that the future development of the Alaskan bottomfish industry by U.S. fishermen and processors can create 20,700 new year-round jobs (2,500 fishing and 18,200 in shoreside processing plants). Support industries in Alaska, Washington, and Oregon will benefit from increased fish processing, fishing boat servicing, construction, port activity, rail, trucking, and other retail sales. It has been projected that the full utilization of Alaska's bottomfish resources by U.S. industry offers a direct and indirect potential of 30,000 new year-round jobs for Americans. Additional benefits would result from the multimillion dollar capital investment in housing, schools, ports, and communities which will have to be developed both to attract permanent residents and to accommodate industry growth.

STABILIZED/LOWER COSTS

Lower transportation costs will enhance the quality of living and the future development of the Aleutian communities. Transportation and distribution costs account for a large percentage of the higher food costs in Dutch Harbor and elsewhere in the Aleutian Chain. Such costs are frequently as much as two or three times the cost on the mainland.

The joint service can offer transportation prices based on incremental costs. On its Great Circle Route, APL's ships sailing from Seattle pass within 30 miles of Dutch Harbor. Deviation time is only about six ship hours. APL now carries empty containers to Dutch Harbor for loading of fish for Far East markets. Other operators must allocate the full vessel cost of the service including the long haul ocean portion to

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[1]Arthur D. Little, Inc., "The Development of a Bottomfish Industry, a Report to the Governor - Strategies to the State of Alaska," November 1978

and from Seattle. No dedicated vessel costs except for deviation costs would have to be allocated by APL to the cost of carrying Dutch Harbor domestic cargo to and from Seattle.

APL will repay to the U.S. government a portion of each voyage's operating and construction subsidies based on the ratio of the domestic revenue received to the total voyage revenue.

ELIMINATE COSTLY NORTHSTAR III SERVICE

The joint service offers the opportunity to end the costly, government operated Northstar III service to the Alaskan Native communities, and at the same time result in improved service to these communities.

The Bureau of Indian Affairs operates the Northstar III from Seattle into the far reaches of western and northern Alaska for the purpose of supplying the remote villages. Despite the intention of the agency to break even, it has not done so recently and has required increased government subsidy. This year the Bureau called for public bidding to evaluate the feasibility of the operation being conducted by the private sector.

Aleut Alaska has notified the Bureau of Indian Affairs of its intention to bid on the operation using its own equipment, once the Aleut Alaska/APL joint operation becomes feasible. Service to the remote villages would be signficantly improved both through a lowering of transportation costs and increased calling frequency.

IMPROVED SERVICE TO THE PRIBILOF ISLANDS

Aleut Alaska Shipping Company is contractually obliged to provide four yearly sailings from Seattle to the Pribilof Islands under its contract with the National Oceanic and Atmospheric Administration. This contract expires on June 30, 1984. Because of the questionable economic viability of the present Aleut Alaska operation, it is difficult to commercially justify continuation of the service. Withdrawal of service by Aleut Alaska Shipping Company would throw the NOAA contract back to public bidding, resulting in unquestionably higher costs.

The Aleut Alaska/APL joint operation, on the other hand, would make it possible to increase the service to the Pribilof Islands from four annual sailings to nine annual sailings. Transportation prices could be kept at present levels and in certain cases could be reduced.

CONCLUSIONS

The economies of Alaska and Washington (and the U.S. in general) will benefit considerably if the Merchant Marine Act's inequitable domestic trading restrictions are relaxed. Existing ocean transportation service is inadequate to meet the requirements of small Alaskan communities on a regular, reliable basis. Moreover, current restrictions against domestic service are hampering the development of a substantial bottomfish industry. Deregulation of the Alaska-Seattle shipping route will lead to ocean transportation service which is more competitive, frequent, efficient, and more responsive to the economies and communities it serves. It is anticipated that the new service will stimulate an increase in U.S. exports, thereby improving the nation's balance of payments position.

Facilities and Technology Panel

TRENDS IN MERCHANT SHIP DESIGN

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ECONOMIC CONSTRAINTS ON SHIP DESIGN

Economics is the area of greatest overall importance in the design of any commercial ship today. In fact, economic considerations are overridden only by certain compelling safety and regulatory requirements.

In order to optimize the entire transportation system, all terminal, port, and cargo handling facilities must be considered when designing the ship. However, this is not possible when the ship designer and ship owner do not control the port facilities which will be served by the vessel. Clearly, a ship's design can be considered optimum only as it relates effectively to the cargo volume available and the port characteristics assumed in the design. Many times, the best ship design, taken in and of itself, may not be compatible with the best port facility design. Therefore, if the ship owner does not have control over the port facilities, then a thorough and close coordination with port officials and understanding of port capabilities and limitations are necessary if transportation costs are to be optimized.

Since the early 1970s, the most important economic factor affecting ship design has been the continued spiraling cost of fuel oil. The tenfold increase in the price of fuel since 1973 has prompted many significant changes in ship design. These changes can be categorized as changes in size, hydrodynamic form, speed, and propulsion systems. I will comment briefly on each.

1. Size. Ships are becoming larger, longer, deeper and broader. The benefits of economies of scale dictate that ships must become as large as the market volume will allow. In most cases, design and construction techniques do not restrict the size of the vessels. Rather, ship size is limited usually by the logistics and economics of the goods transported and/or restrictions in channels, berths, or port facilities.

2. Hydrodynamic Form. In a reversal of the post World War II trend, increased attention is being paid to the hydrodynamic form of the vessel as it

relates to its overall efficiency. These considerations are tending to make vessels longer and sleeker, with more attention being paid to keeping the underwater surfaces smooth and clean.

3. Speed. The trend is to keep vessel speeds at the lowest level possible while still meeting the frequency requirements demanded by the cargo. Except for the liner trades where periodicity affects market share, voyage speeds are getting lower.

4. Propulsion Systems. Propulsion systems design and machinery selection require much more careful analysis of alternatives. The low speed diesel engine is replacing the steam turbine for the larger ocean-going vessels in the United States. The return to coal and other alternative fuels is seen as a possibility in the not too distant future.

As I said earlier, these factors in ship design affect the design of port facilities. I'd like to review some of these factors.

1. Port Dispatch. For any transportation system, minimizing port time obviously increases the economics of the ship system alone and, in most cases, should increase the economics of the total transportation system. However, in all systems one principle remains the same: reducing port time by handling cargo faster provides the ship with longer available voyage time, thereby reducing required voyage speed. Since all ships require disproportionately more power for higher speed, reducing voyage speed can have very significant effects on overall operating cost. For example: reducing speed of one of APL's typical containerships by a single knot (approximately 4 percent of voyage speed) can reduce its fuel consumption by up to 11 percent. To make the most of port dispatch, port facilities must be equipped with adequate berth space, cranes, and backland facilities to assure the highest productivity possible.

2. Port/Channel Size. With vessels becoming larger in length, beam, and breadth, larger facilities will also be required. Of primary importance is berth and channel depth. Severe economic penalties are constantly being paid in all our transportation systems for port facilities which are too shallow for optimum vessel drafts. The economies to be

gained by correcting these problems are enormous; yet, regulations and federal legislative burdens appear to restrict rapid implementation of change.

3. Facilities Utilization. Because facilities will be larger and require more capital equipment to quickly load and unload the vessels, berths and facilities will have to be better utilized in order to support the capital for their continued development. This will require cooperative efforts by both public and private groups to coordinate usage agreements.

TRENDS IN CONTAINER SHIP DESIGN

Container ship design has passed through several generations of design trends since the beginning of containerized cargo in the late 50s. Today design trends are largely dictated by the cost of fuel oil, which in recent years has become the largest component of the vessel operating cost. Modern container ship design has been toward increased capacity and, to some extent, reduced speed with a strong emphasis on operating efficiency. Several key areas of containership design have been the focus of maximizing vessel efficiency. The hydrodynamics of hull form have been optimized through the development of minimum resistance "lines" using appendages such as bulbous bows, stern bosses, stern tunnels, and transoms. Propeller design has been optimized and adapted to the wakefield within the safe limits of damaging cavitation and induced vibrations. Power plants have been fine-tuned to increase energy conservation. They have shifted to the low-speed diesel directly coupled to the propeller, resulting in savings of up to 30 percent over conventional steam plants burning the same grade of fuel oil. Changes in total plant design have further reduced the cost of operating auxiliaries through heat recovery systems used in generating electricity and in the manufacture of fresh water.

American President Lines has recently designed a 2,500 TEU diesel-powered container ship which is under construction at Avondale Shipyards in New Orleans. This ship is the result of the most advanced designs now available. Recognizing the trend-setting nature of this ship and assuming it to be representative of future generations of container ships, APL has required that shore terminals and support facilities be modified to adequately service these ships and optimize the cost-effectiveness of the entire system.

Modifications included raising and extending the outreach of existing container cranes, adding new cranes to increase productivity while alongside and to reduce vessel turn around times. In addition, backlands, expansion, and increased

container inventories were required to accommodate the increased throughput capacity of the new generation container ship. The typical terminal characteristics necessary to support this 2,500 TEU container ship include:

1. 1,000 foot berth length

2. 40 foot berth length

3. Cranes with 110 foot outreach capability

4. Total terminal productivity of 50 to 75 moves per hour

5. 50 acres of backup area

The economic benefit of these modern container ships is maximized by having them involved in a high volume, regularly scheduled line-haul service where the annual throughput is highest serving the smallest number of ports possible. In an optimum arrangement this type of fleet operation includes short-haul feeder ships linking up with the line-haul ships at major relay ports, then going on to serve smaller, low volume ports. These feeder ships vary in size depending upon the nature of the service. However, the most common designs are in the 200 to 500 TEU capacity range, and are often referred to as mini-container ships. Even smaller vessels, not originally designed for container service, may be used. These feeders are characterized by small crews, and often use twin screws for added maneuverability and utilization in restricted draft ports. Frequently, these feeders are self-sustaining with rotary or gantry container cranes.

Future containership designs, including the use of feeders serving Alaska, will, to a large extent, be determined by the growth and nature of the domestic and export markets. The selection of ship size and the development of the ports go hand in hand and are basically dependent on the volume of cargo to be handled. The key to success is the coordination of shipowners and operators with the port governing bodies in assuring that "system" economies are optimized when considering required changes to port facilities.

As an example of developing a transportation service to serve a market demand, which required a remote port facility to handle a large modern container ship, let me cite an experience of APL's. In 1979, 80.9 percent of Alaska's exports were destined for Japan. This included 121 billion board feet of logs, 276 billion board feet of lumber, 148 million pounds of seafood, and 55 trillion cubic feet of natural gas. India, Korea, the People's Republic of China,

and Taiwan received another 10.6 percent of Alaska's exports.

This large volume of cargo can be moved from only a handful of deepwater ports in Alaska.

Recognizing this, APL focused on the developing export market mentioned above for frozen fish and crab from Alaska to the Far East. To immediately meet this demand in the undeveloped port of Dutch Harbor, APL began handling 40 foot reefer containers using a barge fitted with two construction crawler-type cranes serving its large line-haul ships that sail on the Great Circle Route from Seattle to Yokohama. Therefore, outbound Alaskan cargo can be picked up at Dutch while adding virtually no distance to the voyage. In the following year during the off season, in connection with agreements made with the Aleut Corporation, APL immediately began building a container terminal on the island, with a permanent pier and a container crane. Today, Dutch Harbor stands as a fully developed container facility receiving frequent calls from APL line-haul ships suitable to accept these large vessels.

CAPABILITIES OF OCEAN-GOING BARGES

Moving cargo with tugs and barges offers several significant advantages over the use of ships: lower initial capital costs, reduced manning costs, and the ability to serve shallow water ports. In addition, the use of barges to provide feeder service to line-haul ships enables those ships to minimize port time, more easily keep to a schedule, and therefore, operate more efficiently.

In addition to tugs and barges, other vessel types such as integrated tug/barge (ITB) combinations, Lash ships and Seabees provide options to conventional hull cargo carriers. Based on proven experiences, however, it does not appear that any of these options could provide economic transportation service for Alaskan needs. Even the ITB that, in its initial development, has prospects of certain manning and operating cost advantages, has not proven itself to be an economic improvement over conventional systems.

In the Alaskan trade, barges carrying cargo between the coasts of California, Oregon, Washington, and Alaska are involved primarily with northbound cargo. This influences design and operation in two ways. First, a barge must be capable of carrying the optimum amount of cargo to maximize the one-way revenue. Thus, barges are designed to carry both below- and above-deck loads. Bulk, refined petroleum products, etc., are carried in hull tanks, while containers, vehicles, steel goods and other manufactured items are loaded on-deck if stability allows. The second effect is

adaptability to many different cargoes, so that any opportunity for southbound revenue can be utilized.

The shallow-water capability of barges is utilized whether dealing with ocean trade or local feeder service. Many Alaskan ports are entered through shallow channels that can only handle deep- or medium-draft vessels at high tide. The tide range is often so great that dockside basins must be dredged to accommodate ships during slack tide. Barges can transmit in shallower water and, depending on bottom conditions, can be allowed to sit on bottom during low tide. Recent barge designs incorporating shallow-draft characteristics include: a 3,600 deadweight ton self-unloading aggregate barge, with a lightship draft of 2 feet 8 inches and a loaded draft of 11 feet 8 inches; a 4,300 deadweight ton tank barge, with a loaded draft of 9 feet and a 11,500 deadweight ton bulk carrier with a light draft of 4 feet and a loaded draft of 19 feet.

Barges often do not have the cargo-handling gear commonly found on ships. This makes it necessary for ports to provide the means of loading and unloading.

The low freeboard of barges, (with the deck generally below the dock, especially when sitting on bottom), makes the handling of deck cargo easier, so short-boomed crawler cranes, or equipment involving similarly small capital investments, can be used.

As with most vessel designs, the trend is toward larger units. Towed barges, however, are limited in size in order to maintain control and maneuverability. Since the trans-ocean leg of a voyage outside Alaska accounts for most of the distance, the ability to move large deadweights at sea will dominate design trends, and ports will have to enlarge facilities to accommodate these barges. As hulls get larger, fewer small ports will be able to trade directly with other states or countries and will instead be forced to rely on feeder services to larger Alaskan ports.

A large portion of Alaskan waterborne commerce involves trade with foreign countries. While the barge itself may not be appropriate for trans-Pacific voyages, it can be used to transport cargo from shallow-water ports with limited cargo-handling facilities to major terminals visited by line-haul ships.

Exports exceed imports, and some shipping companies have capitalized on this outbound flow by establishing Alaskan calls on voyages from the U.S. West Coast to the Orient. Sea-Land's terminal at Kodiak and the APL terminal at Dutch Harbor mentioned earlier are both supplied by feeder barges.

Between ship calls at Dutch Harbor, containerized cargo is transported from remote out islands such as Akutan, Beaver Inlet, and Port Moller by an APL tug/barge feeder service. The development of Dutch Harbor serves as an example of the mobilization and development of a port facility to support a growing Alaskan market.

The barges calling exclusively at Alaskan ports and designed to operate in feeder service will generally be sized for compatibility with the port facilities. It is reasonable to assume that the use of medium-sized, shallow-draft barges will continue to minimize the impact on port development. However, if these barges were optimized without regard for the limitations imposed by ports, their size would probably increase to most economically carry the available cargo volumes, being limited only by the towing capabilities of the tugboats.

Feeder connections with line-haul ships are likely to increase the frequency of service at many small ports. This may warrant the installation of more efficient cargo handling equipment to minimize turn-around times. The introduction of refrigerated cargo from the West Coast may make it necessary to provide shoreside power for operating reefer units. So although the feeder ports may not need to increase in size, it may be necessary to upgrade the facilities in those locations.

DESIGN OF DRY BULK CARRIERS

There are many factors influencing the design of dry bulk carriers. Since this conference is oriented towards maritime commerce and port development in Alaska, those bulk carrier design factors relating to existing or possible future facilities in Alaska will be discussed.

Cargo handling has the largest impact on the capital and operating costs of the bulk shipowner and operator, and therefore, becomes a large portion of the transportation cost of the bulk material. Most ocean-going dry bulk carriers rely on shoreside equipment at both the load and discharge ports. For a given cargo handling rate, shipboard gear is more expensive to install, maintain, and operate than shoreside gear. Since a bulk ship in ocean service may have a round trip voyage profile which includes over 80 percent sea days, shipboard gear utilization is very low compared to the utilization that is possible for shoreside gear. Only dry bulk carriers which must serve underdeveloped ports, or under special circumstances, can justify the cost of shipboard bulk cargo handling.

Only a few bulk products are loaded using shipboard gear in this Alaskan region. Cement and logs have been typically loaded and unloaded in this manner due to the need to handle them at relatively underdeveloped ports. In ocean service, there is one type of dry bulk cargo ship which can economically use shipboard gear. That is the specialized ship which carries certain dry bulk cargoes which can be loaded and discharged in slurry form. This has been successful for shipping certain iron ore. Special shoreside handling equipment is required to prepare the dry bulk and to mix it with water to pump it into the special bulk carrier. The ship uses its pumps to decant or remove the excess water from its cargo holds. At the discharge port, the ship's pumps are used to mix water with the ore, and additional shipboard pumps are used to pump the slurry to shore. This bulk transportation system requires specialized ships and terminals at both the loading and discharge ports. In addition to iron ore, the slurry form of cargo handling may be viable for coal and other minerals.

Except for these above and a few other specialized cases, the least-cost transportation system for bulk commodities requires shoreside loading and discharge equipment. The capital cost of the cargo handling equipment is better recovered by having the terminal serve a number of vessels rather than having expensive shipboard gear that must be idle during the long periods at sea.

After the shipowner decides on the types of cargo he will be carrying and the intended route or routes to be served, plus any special cargo handling requirements, it is possible to design an optimum ship for the trade. If the quantity of cargo to be transported is not restrictive, then the best vessel will be the largest deadweight ship which can be handled at the load and discharge ports, and which can navigate the intended route. The most common size restriction is draft. Certain ports or canals may also impose limits on length and beam. In addition to the limitations on the maximum vessel dimensions, structural considerations and power considerations will also limit the ratios of the various dimensions.

The existing dry bulk terminals in Alaska impose draft limitations in the 35 foot range. These draft restrictions limit bulk ships to the 60,000 ton deadweight range. For deeper ports, bulkers can become larger and transportation costs can be reduced. Table 1 shows this trend.

It is significant to note that a 46 percent increase is required in freight rates for a fully used 35 foot draft vessel versus that for a 50 foot draft bulk carrier. Even more significant is that freight rates increase 65 percent

when a vessel designed and built to operate at 50 feet of draft is forced to operate at 35 feet.

The numbers point out clearly the impact of eliminating draft limitations on the economics of shipping bulk commodities. If transporting Alaskan coal is to become feasible, the issue of draft, along with others, must be dealt with to reduce the cost of coal to the marketplace.

ARCTIC OPERATIONS

Marine operations in the arctic require vessels that can cross ice and terminals which can function in the presence of ice floes. Vessels must be capable of many functions, from breaking thick ice at continuous speed, to traveling in freshly broken channels. Facilities must be designed either to withstand ice floes during restricted season operations or to remain operational year-round during periods of ice floe occurrence.

Designing a marine transportation system will, of course, require features different from non-arctic systems. These will include:

1. The flexibility to handle schedule variation which accompanies different and, as yet, unpredictable ice fields.

2. Prefabricated terminals which can withstand the ice floes and ice.

3. Vessel ice-routing techniques similar to weather routing available on major ocean shipping routes.

4. Hull designs incorporating different form and power depending on the degree of ice breaking or ice strengthening needed.

5. Vessels with additional maneuvering capability to avoid multi-year ice and pressure ridges.

6. Vessel and cargo survivability due to the higher potential for hull damage.

7. Reliable deck, navigation, and machinery systems which are suitable for cold weather and icing conditions.

8. Different habitability needs because of slow ice transit times and indoor confinement.

The technology exists. Ships can be designed and built to provide year-round marine transportation to the North Bering Sea and, after commercial experience and further research, year-round service to the North Slope is certainly possible. The biggest drawback today is the high cost of operating in this ice environment. But future demands for Alaskan resources will offset these incremental marine transportation costs.

Predicting hull resistance in ice is no longer a primitive science, and it is advancing at a rapid pace. The ice-breaking interests of many governments (U.S., Canadian, Japanese, Russian and European) are leading this advance. Desirable hull form and power requirements can be determined by testing models in a simulated ice field. Bow forms are designed for ice contact or ramming and low ice resistance. The stern section must balance the demands for optimal water flow to the propeller and avoiding propeller-ice contact. Experience from the Manhattan and other icebreakers suggests the desirability of preventing broken ice from sliding under the ship's bottom.

Full-scale structural testing, notably on the SS Manhattan, the MV Arctic, and the Polar-class icebreakers has and will contribute to hull scantling and appendage design. It is likely that the operator will obtain a service classification by geographic region and month of operation (similar to the Canadian Arctic Waters Shipping Pollution Prevention Regulations).

Machinery requirements call for high power, forward and reverse, associated with the ability to develop high torque at low speeds. At the same time, the plant must be economical while cruising in open water, which may occur more than 95 percent of the time.

The reduction of frictional resistance in ice using auxiliary systems is the motive for experiments (MV Arctic, as an example) with air bubbler systems and sophisticated hull coatings.

An arctic vessel will need an accurate picture of the changing ice situation in its immediate path. The optimal route will usually involve choosing the path of least resistance; most planners consider avoiding multi-year ice a necessity. Alternatively, it could be dangerous to sail unexpectedly into a large ice ridge or iceberg. Mapping the horizon in long periods of darkness (extended season) or in white-out conditions must be tackled by sophisticated instrumentation.

The measurement and prediction of ice features (types, ridges, thickness) and water depths to be encountered on different trade routes are significant areas for future

study. Much of the existing data applies to summer voyages (carried out by government icebreakers). The direction now clearly lies with extended season possibilities in the Arctic. For example, the Polar-class icebreakers have embarked on a four-year program to demonstrate year-round navigation beyond Prudhoe Bay.

Turning to the facilities, single-point mooring systems must be of such mass or anchored sufficiently to resist ice floe forces. If so designed, they can act as a floe break as well as an oil-loading terminal. Schemes have been proposed to protect bulk loadings and conventional cargo terminals either by proper siting, if possible, or by the construction of massive floe breaks. Ice in the protected water could be handled by tugs and/or air bubblers.

Permafrost must be considered not only for onshore facilities but also for any structure resting on the sea bed, such as pipelines or SPMs. High winds and surge conditions must also be accounted for in mooring and fendering systems.

Soon an operator will "break the ice" and prove year-round operations are practical to areas previously considered only suitable for summer shipping. With the risk removed and new experience refining design, the financial attractiveness of extended season shipping will become clear.

Table 1. Principle Characteristics of bulk carriers[1]

Draft, Scantling	ft	35.	40.	45.	50.
Length, B.P.	ft	719.5	797.5	897.2	996.9
Beam	ft	130.8	145.0	163.1	181.3
Depth	ft	48.0	55.8	62.8	69.9
Displ	tons	73,900	105,700	150,500	206,500
Lightship	tons	14,200	19,000	26,500	35,000
DWT	tons	59,700	86,700	124,000	171,500
Cargo at Max Draft	tons	57,950	84,631	121,427	168,342
Cargo at 35 Ft Draft	tons	57,950	69,159	82,233	95,243
Shaft Power	hp	14,300	17,600	22,700	28,400
Construction Cost	US $M	38.7	46.2	58.9	73.4
Full Draft Operations					
Cost Per Cargo-Ton (18% CRF)	$/ton	20.78	17.29	15.52	14.23
35 Ft Draft Operations					
Cost Per Cargo-Ton (18% CRF)	$/ton	20.78	20.37	22.10	23.43

[1]Assumptions used in developing table:

1/ Hull forms based on restricted draft bulk carrier designs presented in D.P. Roseman, et al. "Characteristics of bulk products carriers for restricted-draft service." SNAME trans. 1974.

2/ Cargo handling with shoreside equipment. Cargo handling rate (load or discharge) 5,000 tons per hour, 16 hours per day.

3/ Voyage: Cargo - 5,000 miles
Ballast - 5,000 miles

Service Speed 14 knots.
Sea Time per trip = 30 days.

4/ Machinery--low speed diesel; fuel rate = 0.320 lb/hr 90 percent MCR power for 14 knots with 15 percent service allowance.

5/ Construction cost based on 1981 construction in Japan.

6/ Fuel cost = $29.50/bbl = $195/ton.

7/ Port cost = $0.14 x (max. displacement) port days.

8/ Crew size = 24.

9/ Operational days per year = 355 days.

COASTAL ENGINEERING CONSTRAINTS TO PORT DEVELOPMENT

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This discussion of coastal engineering constraints to port development was preceeded by a discussion of trends in merchant shipping. A discussion of modern port facilities comes next. This programming is appropriate because I will talk mostly about the components of the port complex that serve ships rather than cargo. Collectively, those components provide a protected water area in which a vessel is safe in stormy weather and through which vessels safely and efficiently move between the open sea and the port terminals. This is the harbor. The harbor is the focus of the coastal engineer's attention and its design is his contribution to port development. In the United States, most harbors are developed by and at the expense of the federal government; but currently proposed cost sharing legislation would change that; port terminals where cargo transfer takes place are developed by and at the expense of others. Before I talk specifically about coastal engineering constraints, problems, and solutions, I want to spend a couple of minutes generalizing and philosophizing.

Ports serve many purposes because they are many things. They are intermodal transfer centers, here commerce changes carriers. They are terminal points, here the journey ends or begins for many cargoes. They are windows to the sea, here people interact with the sea. They are service centers, here the myriad of people, machines, and things that keep commerce moving and regulate its flow concentrate. They are instruments of economic policy, here industries locate. They are instruments of social policy, here cities spring up and jobs are created. Because they are all of these and more, all members of society, not just those living or working in the harbor area, are affected by them and are dependent on them. It follows that all have a vested interest in their well-being and in their effects. It also follows that those who plan, design, build, operate, and use them must do so with constant awareness of the needs and aspirations of all affected and dependent interests.

Man has been going down to the sea in ships for a long time. Early on he found harbors vital to his trade with neighbors and to his conquests of them. He also found that naturally protected water areas with channel depths adequate for his ships were not always where he needed harbors. As ships and

civilization grew larger, he found this increasingly the case. The shores of the Mediterranean are dotted with the remains of artificially protected harbors used by nearly forgotten peoples. I am told that the Roman historian Strabo wrote that an Emperor was "deceived by his architects" into building a mole in one of his harbors to end an annoying silting problem. After he built the mole, the harbor promptly shoaled up. This presumably occurred about a decade before the birth of Christ. It was undoubtedly a common experience. At other early harbors, breakwaters and jetties constructed to provide protection from the sea failed under its onslaughts. Engineers generally learn from mistakes and engineering science evolves from engineering art as observations and experiences accumulate and are related in orderly and rational arrangements. In the oceans, and particularly near their coasts, the complexities of the observed phenomena and the site specificity of the experiences simply made such arrangement unachievable. For tens of centuries, raw empiricism and rules of thumb totally dominated coastal engineering action and thought. Then the demands of national survival and amphibious warfare during World War II forced much of the world to focus on the physics of the ocean. During the four decades since then, insights into the physical processes active in the oceans have expanded rapidly and an ever growing body of coastal engineering science has emerged. We now know a lot, but we still don't know enough.

During those same decades that saw coastal engineering sciences advance rapidly, society, and particularly American society, was re-evaluating and changing its goals. If national expansion, resource development, and economic growth were once the sole preoccupation of America as more argue (and others dispute), they certainly are not today. Today America is a multi-goaled society that evidences deep and continuing concern about the quality of the physical and social environments. America once ignored, or accepted, the impacts harbor development has on those environments. Today, America does not readily do so. Sharp increases in the costs of harbor construction and maintenance have also been evident. Part of these increases are associated with national environmental concern but not all are.

With that bit of background in mind, let's turn to port development today. Almost all harbors require man-made protection and mechanically deepened channels. These are concerns of the coastal engineer. They are essential to the safe and efficient passage between the open sea and the terminals. They modify the physical environment. They may affect the chemical and biological environments. Construction and maintenance are costly. On the one hand, conservatism in design handicaps the project in its competition with other investments for scarce funds. On the other hand, the

consequences of accidents and/or inefficiencies in transit between the sea and the terminal are apt to be unacceptable. After all of the tradeoffs are made, the harbor must:

1. safely accommodate the traffic using it;

2. survive and function in the physical environment in which it is located;

3. be cost effective; and

4. not alter the physical, chemical, and biological environments in unacceptable degree.

Satisfaction of these conditions require the coastal engineer to reach understandings that are elusive at best and unreachable at worst. So like all engineers, the coastal engineer makes the best approximation possible. Some new tools are available to improve those approximations. Some tools that have been around for awhile but have not been widely used are also available to improve those approximations. I want to briefly mention four.

1. Field data collection

2. Physical and numerical modeling

3. Risk analysis

4. Dredging management

Perhaps the greatest frustration to harbor and port development is the scarcity of reliable data. In the typical instance, little information about the bottom conditions, the shoreline history, the sediment transport processes and their history, waves, currents, and their interactions is available. When we ask Corps of Engineers coastal engineers to list their needs, wave information is always right up on top. There has never been a systematic program aimed at determining wave climatology in nearshore U.S. waters. Some gage data are available but they are generally site specific and usually cover relatively short-time periods. Additionally, gages have a disconcerting habit of failing under extreme event conditions. It's really not surprising that so little wave data has been collected. Wave gaging is expensive. Until recently, wave direction could not be instrumentally determined and wave gages require considerable maintenance. Harbor development is apt to be dependent on statistics derived from visual observations made from shipboard and from hindcasts made by primitive models. Neither are very good but, up to now, we have managed with these kinds of wave data and the more than 200 operating ports in the U.S.

attest to that. But dredging used to be very inexpensive and breakwater construction costs used to be managable and concern about environmental impacts used to be minimal. The conservatism in design that used to cover us is now a luxury we cannot often afford. Fortunately, there is light at the end of the wave climatology tunnel. Instruments, data transmission and storage, and data analysis have improved and continue to improve. Consequently, the reliability of collected data has improved a great deal and even more improvement can be expected. At the same time, collection costs are dropping. Importantly, about five years ago, the Corps of Engineers initiated a program designed to provide complete wave climatology for all four U.S. coasts using advanced mathematical models. The wave information system is basically a series of models driven by about 20 years of meteorological records. The model family generates waves in mid-ocean, propagates them toward the American continental shelf, and transforms them as they cross the continental shelf and approach shore. Test runs comparing hindcast waves with waves measured by offshore data buoys show good correlation and encourage confidence in the competence of these sophisticated models. The corps will also deploy index gages in nearshore waters to further verify and calibrate the models. At this moment, the greatest weakness in the system is the model that simulates the behavior of waves in shallow water. This particular model is still on the primitive side because the physics involved are not totally understood. That problem is getting concerted attention and improvement of that model is certain. The establishment of the wave information system should not, must not, lure harbor and port developers away from field collection of wave data. Site specific measured data covering enough time to yield valid statistics are best. Hindcast data are relatively a poor second even when sophisticated models are used. But the number of gages required to obtain a proper and adequate representation of the wave field is apt to be large. Additionally, the time period over which measurements need to be made is long. In the absence of lengthy, accurate records, hindcast data reinforced by site specific data collected over a relatively short time period are a good practical compromise. Information on bottom conditions, shoreline history, and sediment transport must be collected too. With wave climatology, we can make crude approximations of sediment transport but I must emphasize the word crude. Reliable estimates are not now possible without field data collection. The importance of an organized coherent field data collection program simply cannot be overemphasized.

Physical hydraulic models have been used for at least a couple of centuries. As understanding of scaling laws and of scale effects increased dramatically during the last half century, such models are now particularly valuable in harbor

and port design. One important benefit of increased understanding is insight into the limitations of physical models. We use them nowadays with a confidence impossible a few years ago. Physical models, in the words of Dr. Basil Wilson, are nature's own computer. Unlike man-made computers, they often refuse to accept erroneous input. Their simulation of an event is fully visible and the operator can often visually determine that something is awry. They are great engineering tools and repay their cost many fold. Like most analytical tools, physical models are changing. To be more precise, the input events are changing. Until quite recently, all models were operated with monochromatic sinusoidal waves. As all of us know, such waves are not found in nature. Real world waves are complex spectra comprised of large numbers of waves of differing periods, lengths, heights, and directions. Today's sophisticated wave generators simulate real world waves and thereby test structures under real world conditions. Physical models are expensive and their construction and operation are time-consuming actions. The light at the end of this tunnel comes from mathematical models. Because the physics of hydraulic processes are rather well known now, computers can be, and are, programmed to simulate most hydraulic functions quite competently. These simulations are accomplished at a fraction of the cost of physical modeling. Corps' researchers, and others, are working on mathematical models to simulate sediment transport. Considerable progress has already been made for fine grained sediments. This is most important. Success will indeed signal a quantum jump in shoaling analyses and in shoreline change prediction capability. Physical models cannot presently provide quantitative data on sediment transport; even the qualitative data from physical models can be suspect.

Early in this discussion, I suggested that a harbor is an area in which ships are safe in stormy weather and through which they safely and efficiently pass between the open sea and port terminals. This suggests that it is possible that a ship accept some risk and inefficiency while in the harbor. And indeed it can. Harbor improvement at federal expense has always been subject to a benefit-cost test in which the former must equal the latter. So evaluation of risk has always been a part of harbor development planning. Much of the time the evaluation has been simplified by assumption of easily expressed conditions and consequences. The time has come for more sophistication. The application of sophistication requires both a willingness and a capability. We must be willing to test various conditions and combinations of conditions, willing and capable of assessing the probability of those conditions, and capable of determining their consequences. We have a considerable part of the capability but badly need more. Traditionally, planners and designers have tended to adopt a design wave statistically expected to

occur one time during the economic life of the project. A more sophisticated approach would look carefully at the consequences of designing for a wave that might be expected to occur more frequently, at the consequences of using different design waves for different components of the harbor, at the consequences of occasional port terminal closings during the economic life of the project. Some projects have traditionally been designed to limit passage by larger vessels to favorable tide conditions but not all have. Evaluation of the consequences of requiring vessels to ride the tides can reduce channel depths and thereby lower construction and maintenance dredging costs. Traditionally, many breakwaters have been designed for no overtopping by a wave expected to occur once during the economic life of the project. Evaluation of the consequences of occasional overtopping may lower crest evaluations and save big money on breakwater construction. These are some sophistications, there are many others that will come to inquiring minds.

Finally, dredging management has received little attention over the years. No device or machine devised by man has moved as much earth as the Humble dredge. Despite the tremendous contribution dredgers have made in shaping the world to man's ends, dredges and dredgers have received almost no attention from anyone other than fellow dredgers. Toy stores are full of bulldozers, scrapers, shovels, etc., but I've never seen a toy dredge. The names of the inventors of the steam engine, the steamboat, the airplane, and the automobile assembly line are household words, but none of us can name a single dredger. I'm not pleading for belated recognition of the dredging industry, I'm simply saying that we have not yet made the effort to improve dredging technology across the board that we now need. Because dredging has remained the almost exclusive province of those who operate dredges, advances in technology have generally been in equipment and they have been impressive. But dredging planning has traditionally focused on digging here and dumping there, "there" being some place convenient. Environmental concerns have added a new facet. Now "there" must be a place where the environment will not be threatened. Seldom in the evolution of a harbor plan does anyone ask what useful purpose the dredged material can serve. And it most often is a useful and useable material, a resource normally wasted. Traditionally, some dredged material has been used to reclaim water areas by building fast land for terminals or industry. Seldom has dredged material been used to alter offshore bathymetry to modify the effect of waves on the shoreline and redirect shore processes. Some dredged sand is placed on nearby beaches to slow their erosion and stabilize them for recreational use but even more dredged sand is dumped at sea. Recently one of the Corps' senior operations engineers told me that commercial

shrimpers concentrate over one of his dredged material disposal areas. I suspect, and so does he, that this is not coincidental. Yet I have never heard of biologists and engineers collaborating to intentionally use dredged material to build fishing banks. At today's dredging prices, these practices, these ignorances, are no longer affordable. We must stop saying "where can we dump it?" and start asking "what can we use it for?"

In conclusion, I suggest that the real coastal engineering constraints on harbor and port development are the weaknesses in our perception of what's going on in the sea, of what goes on when a vessel transits between sea and terminal, of what it costs us, the imperfection of the technology needed to deal with the sea and the ships that sail it, and our reluctance to move on from time honored practices and traditions. We now have most of the tools we need. We now need the will to use them and the commitment to improve them.

MODERN PORT FACILITIES

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San Francisco, California

Whenever someone mentions "modern port facilities" one automatically tends to think of container terminals. However, there are other modern port facilities, such as bulk terminals and fishing harbors, that are more pertinent to what is happening in Alaska today. Therefore, my presentation will emphasize bulk terminals, breakwaters for small boat harbors, and touch on other new developments such as semi-submersible roll-on, roll-off ramps and automated container barges. At the end of my presentation, I will discuss briefly the merits of the latest generation of automated container terminals.

I should also mention that my presentation is directed more toward the city manager, planning director, or port commissioner types, who are likely to hire consultants, rather than toward consultants themselves. Therefore, my presentation will tend to be more informative than technical. At the same time, I hope that I will not insult your intelligence when I revert to some basics in describing certain port concepts.

BULK SHIPPING TERMINALS

The ever increasing potential of coal exports from the Beluga and Usibelli coal deposits to Japan and other Pacific Rim countries has led me to emphasize bulk shipping terminals in my presentation.

Figure 1 describes a typical dry-bulk (coal) shipping terminal. The bulk material arrives from the mine in unit trains of approximately 100 rail cars and proceeds along a terminal loop track through a car dumper. Most car dumping installations are the rotary type rather than the bottom dump type. This is primarily because the bottom dump cars usually weigh more, cost more, and are more expensive to maintain. In the rotary type, the rail cars have rotary couplings which allow the dumper to rotate the cars approximately 150 degrees and dump their contents into a pit from which the material is conveyed to a stacker and deposited in a stockpile. The individual cars are never uncoupled from the train.

A rail-mounted stacker deposits the material in a stockpile from which it is retrieved later by a reclaimer and conveyed

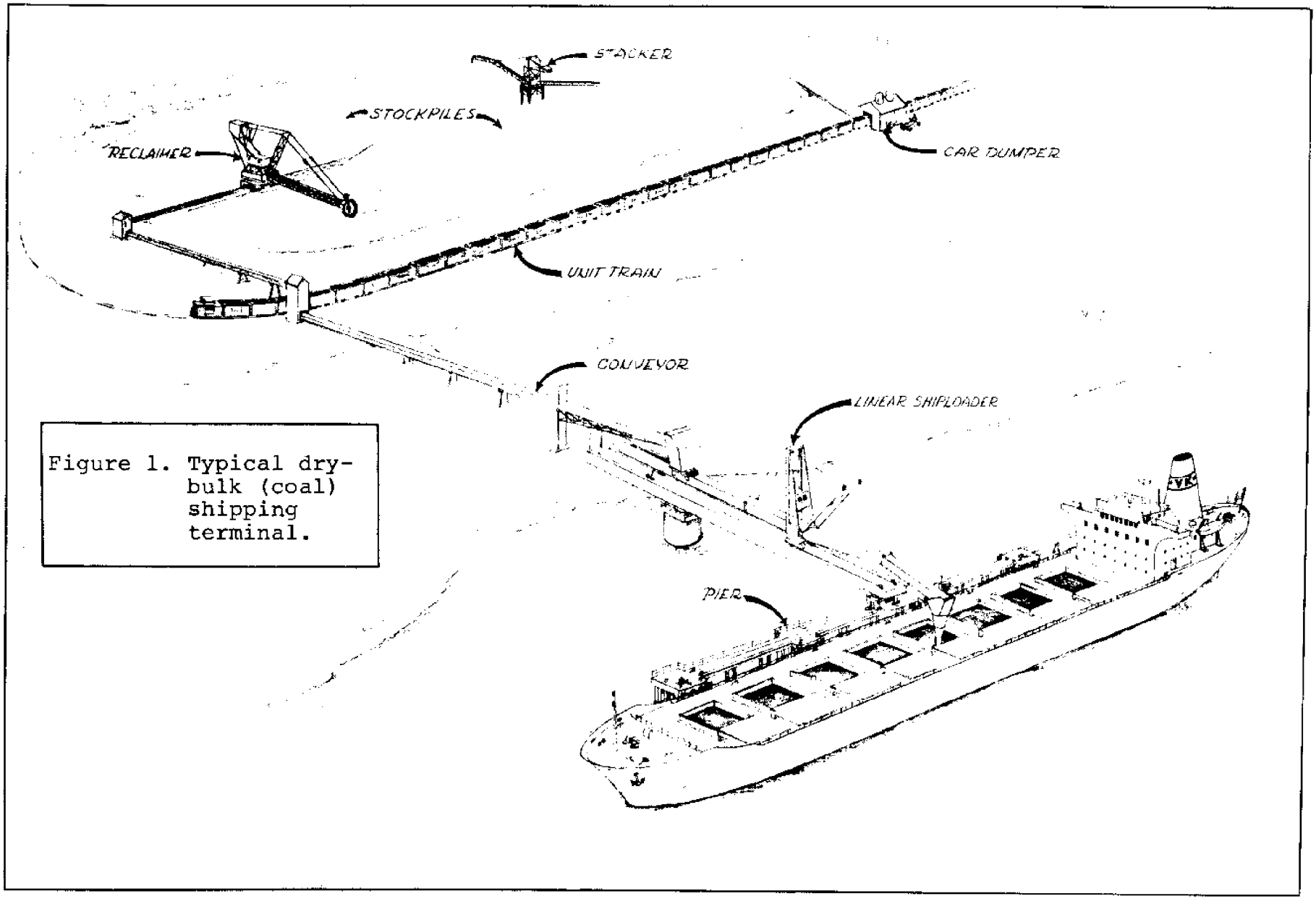


Figure 1. Typical dry-bulk (coal) shipping terminal.

to a shiploader for loading aboard a bulk carrier. Often the stacking and reclaiming functions are combined into a single piece of equipment, appropriately called a stacker/ reclaimer. In such case, you cannot unload a train and load a ship at the same time unless you have more than one stacker/ reclaimer unit. However, provisions are usually made to bypass the stacker and load the material directly from train to ship, but at a much slower rate.

The typical terminal area requirement is approximately 100 acres in order to accommodate a 6,000 foot loop track with a maximum curvature of 12.5 degrees, dictated by most railroad companies. A rule of thumb for stockpile capacity is 10 percent of the annual throughput of the terminal.

As a clarification, it should be mentioned that the bulk material does not necessarily have to arrive at the terminal by train. If the mine from which it originates is within reasonable distance of the marine terminal, it could be transported to the terminal by overload conveyor or by truck.

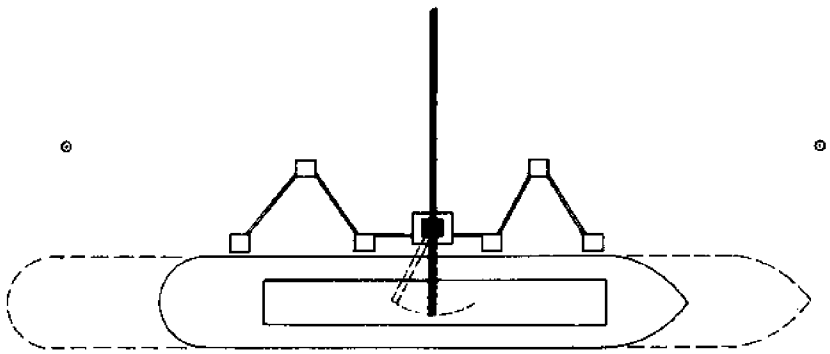
Let us concentrate now on the shiploading facility itself. Figure 2 shows four typical shiploading facilities.

The stationary type, which requires the shifting of the vessel during loading operations, is usually justified only when the relatively small volume of less than a million tons of materials are loaded annually. Consequently, it usually requires the least amount of capital investment of the four systems shown.

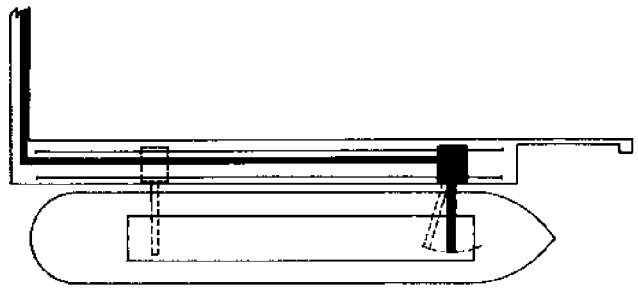
The traveling (gantry) type of shiploader was the standard for years until the evolution of the radial and linear loaders. The traveling gantry loader itself is usually less expensive than the loading equipment for either the radial or linear systems. However, it requires considerably more substructure to support the equipment than the other two systems. Therefore, when you consider the total cost, equipment plus the structure, the radial and linear systems usually prove to be more economical.

The radial shiploading system could be compared to the windshield wipers of your car. It requires far less sub-structure than the traveling (gantry) type. However, two loading units are usually required to load vessels larger than 60,000 deadweight tons.

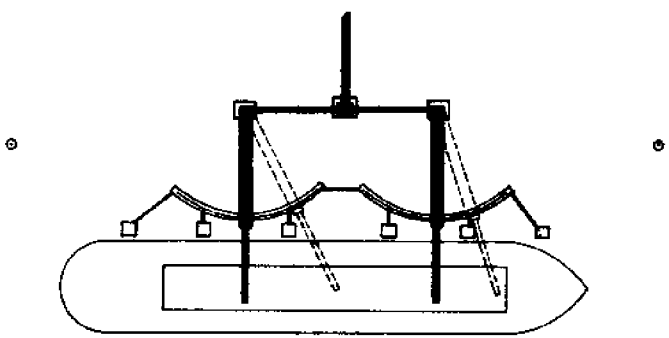
The linear system is the most recent evolution in shiploading systems, credited to Soros Associates, consultants for bulk materials handling and shiploading systems. (Having once worked for Soros, I can vouch for their credibility as one



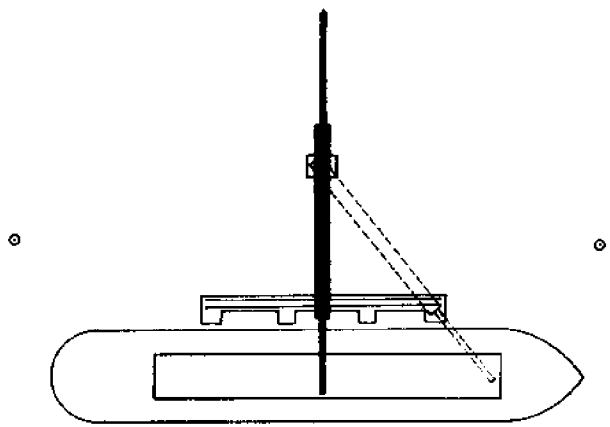
STATIONARY



TRAVELING (Gantry)



RADIAL



LINEAR

Figure 2. Four typical ship loading facilities: stationary, traveling, radial, and linear.

of the world's leading firms in the design of bulk marine terminals.) By having the front leg of the shiploader travel in a straight line, a single piece of shiploading equipment can cover the area requiring two pieces of equipment in the radial system. The substructure requirements are also reduced since the ship mooring and fendering structures can be combined with the equipment support structures.

BREAKWATERS

Just about every small boat harbor in Alaska is contemplating expansion. As opposed to large bulk terminals, small boat harbors require breakwaters for protection from wave action. Figure 3 describes four typical breakwater designs used to provide such protection around the world.

The rubble-mound type has been around since time began and is, in my estimation, still the most effective breakwater. It actually absorbs wave energy as opposed to merely reflecting it. If a rock quarry is within a reasonable haul distance of the harbor construction site, and if the sea bottom can support the weight of the breakwater, rubble-mound is the way to go. The drawback of the rubble-mound is that its cost varies almost as the square of the depth. Since at most locations in Alaska the deep water is very close to the shoreline, the rubble-mound breakwater proves to be uneconomical when compared to other systems.

The sheet-pile breakwater, either steel or concrete, has emerged as the most practical alternative to the rubble-mound. It is subjected to a great pounding from wave action since it has practically no wave energy-absorbing qualities. When constructed of steel, it should include a cathodic protection system to protect the steel from early deterioration. Do not use special steels which are supposed to develop self-protecting coating as the steel weathers. As witnessed at an installation in San Francisco Bay, such protective coating is washed away by wave action as soon as it is formed. One should also be cautioned about using textbook engineering when designing a sheet-pile breakwater. Keep in mind that the allowance for the degree of accuracy to which the piles can be driven in open water should be much larger than what could be accomplished at an onshore site.

The caisson type breakwater is usually the most expensive of the four alternatives shown. It can also be of either steel or concrete construction. This type of breakwater is usually constructed to protect major commercial harbors where its high cost can be justified. Most of these are found on the coasts of Spain, France, and Portugal.

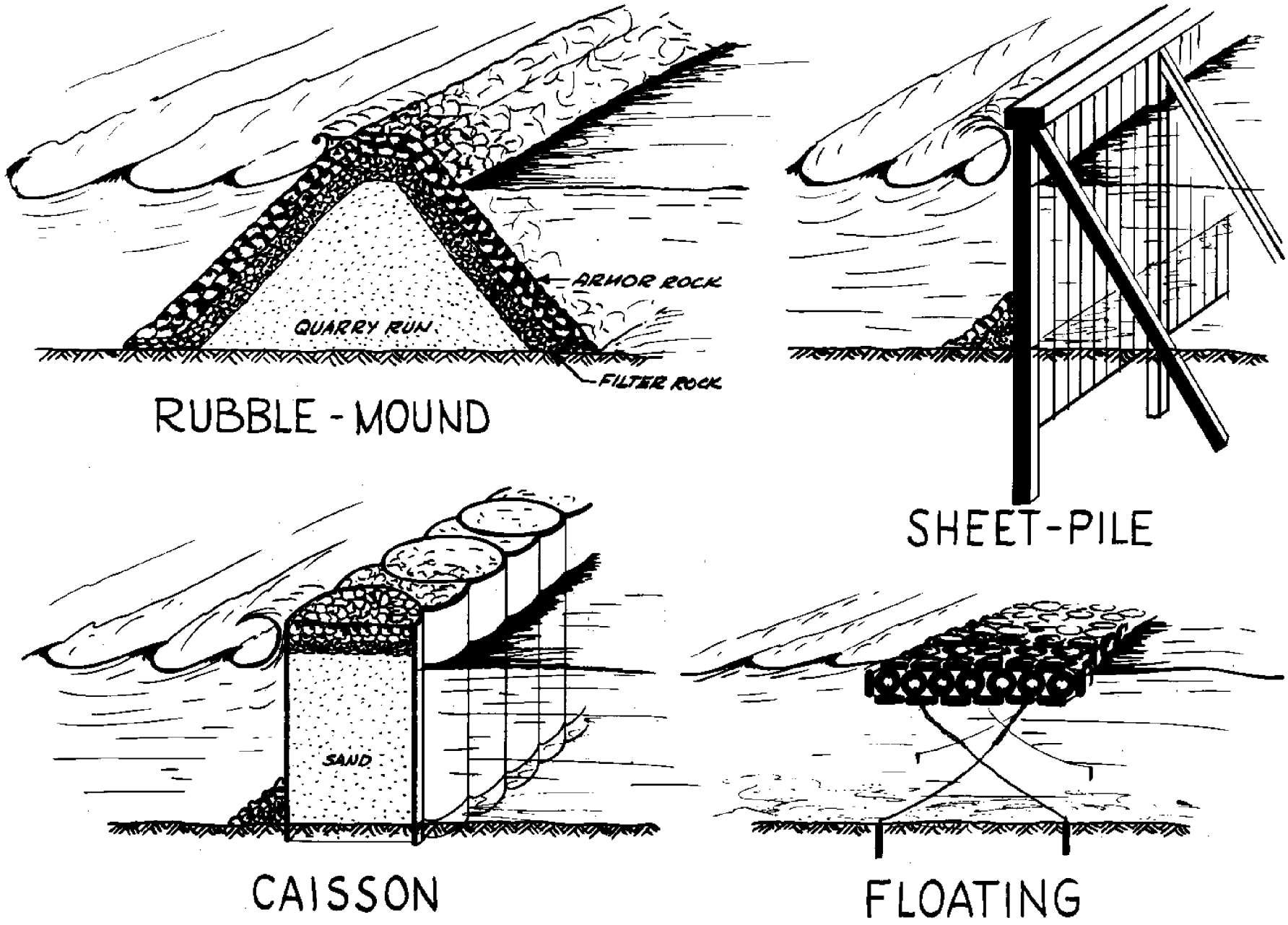


Figure 3. Four typical breakwater designs.

The floating breakwaters have been in an evolutionary stage for some time. Some of these, like the tire-maze floating breakwater at Pier 39 in San Francisco have been miserable failures. Yet, some of the newer generation floating, concrete-module type breakwaters have been fairly successful when installed in areas of moderate wave height (less than three feet) where the wave period is less than four seconds. The obvious advantage of the floating breakwater is its low initial cost. However, beware of high maintenance costs and the breakwater's ineffectiveness in higher waves and long period waves. In Alaska, beware also of ice accumulation in winter months that could sink a floating breakwater.

CONTAINER TERMINALS

As I mentioned in the beginning, most people tend to relate "modern marine terminals" to container terminals. Further, "modern" is usually also associated with the words "automated" and "computerized." In my book, the word "modern" is not necessarily synonymous with either "efficient" or "economical." There have been recently two so-called "modern" container terminals constructed at the Ports of Los Angeles and Richmond, California. In my opinion, the terminal equipment operations have been computerized to the point that the system is susceptible to too many potential failures. They seem to have lost sight of the fact that marine terminals are operated by longshoremen and stevedores and not by a bunch of Ph.D.'s from Stanford. I wish them luck, but I have severe doubts about the ultimate success of these terminals. I like to see automation and computerization in the areas of documentation control, in maintenance scheduling, and spare parts inventory control. However, actual yard operations should be kept simple, a word more likely to be synonymous with "efficient" and "modern."

SMALL COMMERCIAL PORTS

Alaska's climate and terrain are in many respects similar to those of the Scandinavian countries. These countries are dotted with small ports which serve as feeder ports to larger ports such as Goeteborg, Stockholm, and Helsinki. Rather than making large capital investments in full-blown container facilities and expensive container cranes ($3.5 to $4 million each), these ports are using inexpensive roll-on, roll-off systems as a practical alternative. To cope with the extreme tidal ranges, which are also prevalent in Alaska, these ports utilize floating, semi-submersible roll-on, roll-off ramps for loading/unloading container ferries and barges. Such systems can be installed at half the cost of a conventional container crane. Further, these floating ramps can be towed to ice-free locations during the winter. Similar systems should be considered for many Alaskan ports instead of the expensive lift-on, lift-off systems.

PORT PLANNING TECHNIQUES

Arthur H. Yoshioka
Port of Seattle
Seattle, Washington

The Port of Seattle and the ports in Alaska have had a long-standing historical relationship which has seen good and bad times. The terminals in Seattle have counterpart terminals in various ports throughout Alaska. Furthermore, the facilities range from sophisticated container terminals to fishing docks, public, and private facilities. So, there is a very direct and obvious physical interrelationship. These physical relationships reflect the economic and human basis for their existence and the dynamic forces at work over time between the two areas. So, we're different ends of the same problem or opportunity, and many of the same people are involved.

My experience in port planning and development over the last 20 years parallels many events familiar to Alaskans, including the efforts of Alaska Steam to implement containerization through the "lollipop" system and their subsequent fade into history. The start of Sea-Land in our port, which was directly due to the Alaska market of the early 1960s, meant the successful opening of containership service to Anchorage through ice-choked Cook Inlet and subsequent service to the Orient. The opening of Prudhoe Bay, the arctic sealift, the staging of construction modules, and the shipment of pipe to Valdez were significant events affecting both areas. In the late 1960s, Foss Alaska Terminal 115 container barge terminal, expanded service in Southeast Alaska and refined the innovative lift-on, lift-off, roll-on service at a modern terminal. Crowley Maritime's rail/barge service was initially developed at Terminal 19 in Seattle, and then at Terminal 1, and continues as a substantial part of the service between Seattle and Alaska. The Alaska Marine Highway terminal at Pier 48 made the ties between Southeast Alaska and Seattle very close and effectively enhanced the passenger, as well as freight, interchange between the two areas. Fishermen's Terminal has been a facility of long historical standing with its primary function of servicing the fishing fleet working Alaska's marine resources. All of these have stood the test of time because they filled a need in a competitive situation. Furthermore, they were created in a timely fashion and improved incrementally as necessary.

These are some of the many significant activities involving Alaska which have enhanced the economic well-being of Seattle, Alaska, and the port directly, over my period of time in the industry. Are there any lessons or insights to be gained

here as a result of my Seattle experiences as they may relate to Alaska activities and to the planning and development process in retrospect? I believe there are, although I am certainly not an expert on Alaska's specific needs or its most appropriate planning objectives, goals, techniques, and facilities. Some analogies may be enlightening and may enable one to raise the appropriate questions.

Twenty years ago the Port of Seattle was at a low ebb. Steamship companies were leaving Seattle; facilities were outmoded or had deteriorated; business was stagnant; prospects were dim, and people were pulling in different directions. However, there was a new commitment by the leadership to turn things around, to stimulate development, and to get community support. It is my impression that Alaska is at a similar but more optimistic stage in terms of opportunities. However, Alaska has more diverse points of view than Seattle in the early 1960s, at least for maritime development and how to achieve it.

For Alaska the problems are large-scale but the opportunities are also substantial. The key here, I believe, is leadership, vision, commitment, and a process to pull people together with common goals.

What are the opportunities? Where are the potentials in terms of resources and market opportunities? Who are the major actors with the ability to commit resources? What are the ingredients for achieving success?

Is the thrust to be a statewide network? Should the planning and implementation be centrally controlled? What is the job of the private sector? Should port facilities develop, how far in advance should infrastructure develop? What are the priorities and how are they to be resolved?

ECONOMIC FEASIBILITY

Seattle in the 1960s, as I mentioned, was in the doldrums. There was difficulty with increasing the flow of commerce. Our local market was not sufficiently large to generate local cargoes and attract the steamship companies to call on Seattle with regular service. The Midwest was a large market without its own direct ice-free port, and thus a potential market for Seattle. Port warehousing services provided a means to influence the Midwest customer, enabling us to entice the water carrier to provide regularly scheduled service. Such service provided a means to develop consistent and expeditious waterborne commerce. Facilities got on-line just ahead of commitment on a speculative basis, and so our goods were on the shelf, promoting a favorable decision from carriers to use our port rather than our competitor's.

Is it wise to build facilities ahead of demand even as an economic development tool? To, in essence, stimulate activity by investment ahead of demand? Normally this is not good practice. However, it may be justified if there has been careful planning and assessment of potentials. The risks have to be responsibly assumed.

Seattle's speculation was shaped by alternative possibilities: by only building base facilities in one case; and by a growth situation, in another. It was only a matter of time for demand to be realized. We also had substantial unused credit to help finance such investments. Alaska, with its vast underdeveloped resources and with equally sparse transportation infrastructure, is a tempting situation. This is especially the case with the new wealth resulting from oil revenues. Under these circumstances, greater care needs to be exercised to ensure that wise choices are made in the best investments. It would seem to me that the most promising and beneficial public investments in infrastructure are those that in the long run will enhance the development of the natural resources where the greatest private investment is possible and which will be increasing the state's wealth, in value added terms.

We have used port system studies in Washington to estimate future waterborne commerce movements. The studies, sponsored by the Washington Public Ports Association, are used to anticipate how cargo will be carried, to assess how the ports could accommodate future demands, and to identify port facility needs. Furthermore, a cooperative development committee consisting of port representatives gives peer review of port facility projects, reducing duplication and improving environmental and regulatory success. Whether such a system has merit and is practical for Alaska, you will have to answer yourself.

The association has also used a regional approach to study issues and economic questions and, on a number of occasions, has found the method worthwhile. In any event, broad economic studies are needed periodically in order to delineate in a quantified way the various opportunities that are available. Such studies are not sufficient to justify port investments; but they are often the basis for identifying opportunities which justify in-depth, specific studies preparatory to investment.

I am not aware of any comprehensive computer base models that have been used successfully to model networks on a large-scale continuing basis. Such efforts require extensive manpower support systems to develop the necessary data and to maintain and operate such systems. Computers are used extensively in economic analyses of various sorts and are

essential in developing forecasts of waterborne commerce. Furthermore, they are essential for handling a large information base for statistically evaluating and tracking inventory-type information and financial alternatives. They are also being used in specific container terminal designs. But in terms of planning analysis, which requires more creative and synthesizing opportunities with little historical development, it would seem to me of lesser importance.

PLANNING TECHNIQUES

The nature of the development desired, the existing political factors, and the particular planning problems involved, will determine the planning techniques. What changes and insights have occurred, what are some techniques that advance the state of the art, or are claimed to do so?

For one, port planning and the planning process have become well established. Twenty years ago there were only a handful of ports with planning departments. Today, most medium and large ports have planning staffs. The amount of information required to accomplish the tasks has increased and the budgets have multiplied by a factor of almost 20. Much of the explosion in planning has come because of the need to do a better job to support management decisions and to accomplish goals. However, much more has resulted because of regulatory requirements and meeting the environmental pressures for balancing the major developments. A definite trend to reduce excessive regulatory requirements is apparent. Experience in planning analysis and administration of such controls, and in the coordinating requirements of coastal zone management and environmental laws, has resulted in a more practical balance. This is a desirable adjustment though not yet completed. Planning efforts of a positive, rather than defensive, nature are much more beneficial since good resource development for an improved quality of life is a difficult enough task.

Port planning specialists have developed to do the technical work, along with private consulting firms which assist in accomplishing needed tasks. The Maritime Administration's technical port studies and reports have been beneficial. Also, schools such as MIT, USC, and UW, in their port management studies, along with AAPA, WPPA, and PCAPA seminar and technical studies, have played an important role in developing and passing on technical planning information.

We have found private consultants to be beneficial, particularly in the specialty areas of environmental analysis. Quantitative analysis is also an area that will be a growing specialty as port terminal systems become more refined and as there is more pressure to squeeze greater efficiency out of such capital costly systems.

As part of the environmental movement, citizen participation has become a necessary part of planning. Heavy requirements to educate the public and note their concerns and ideas are part of today's planning environment. This is not likely to abate to any great extent. The need to explore innumerable alternatives to meet environmental, citizen, and financial decision requirements will make it more imperative to computerize alternative scenarios. Such developments should allow more computer-assisted, interactive decision making and testing to occur.

Is the planning sufficiently advanced for Alaska to utilize advanced techniques? Probably not in the generalized public sector where the variables, including the political factors, are so many. Also, the extensive staff support required to develop and maintain data for quantitative model simulations are extensive. However, where the stakes are large and have attracted major private investor companies, such as in resource development areas, extensive applications are suitable and in some cases already occurring.

One example of computerized simulation which has a specific application is the Computer Aided Operations Research Facility. Such an analytical tool was used in verifying the conditions for tanker traffic to Valdez. The Port of Seattle is looking at such an aid for its Duwamish widening and deepening project. There, a proposed 250 foot wide channel would be benefited by simulating travel and subsequent verification of channel widths, alignment currents, tides, and obstructions. With the clear trend of diminished federal aid and assistance for all forms of transportation and development, it will be incumbent for all to be cost effective in whatever is done.

So what do these observations mean today and for the future? The complexity of Alaska planning requirements and the great opportunities will require much coordination. It will require clarity of vision from its leaders so the planning process will have a focus to be most effective. The judgmental process would seem most important, but the technical innovations in specialized tasks, from a planning standpoint, could find fertile and useful ground in Alaska. But the efforts must be balanced. Technical processes in today's changing situations need, most of all, to be time sensitive.

Legislation and Regulation Panel

PROBLEMS OF PORT DEVELOPMENT IN ALASKA

John Kelsey
President, Valdez Dock Company
Valdez, Alaska

Mr. Chairman and members of the panel, guests and ladies and gentlemen, my name is John Kelsey. I am a third generation Alaskan, born in Valdez, Alaska. I have lived there all my life except for four years at Stanford University and four years in the United States Navy during World War II, serving as a line officer in various capacities, including captain of an ocean-going Navy vessel.

I am a co-partner and manager of the Valdez Dock Company, a firm that has owned and operated docks in Valdez since about 1903, handling cargoes of up to 1,000 tons per day. For more than half a century, my company was also the agent for the Alaska Steamship Company and represented other steamship companies as well. We have been in the petroleum business since the early 1920s and have been the wholesale distributor or commission agent for Standard Oil Company of California or Chevron U.S.A., Inc., since 1927. At the present, we are operating Chevron's tank farm and marine terminal in Valdez, one of the largest in the state.

The Valdez Dock Company owned and operated two docks which were destroyed in the 1964 earthquake. We have constructed and currently operate another dock in New Valdez some three miles to the west of the location of the old townsite. It is used predominantly as a petroleum facility for handling ships and barges and is the home port for a Chevron Shipping Company tanker which distributes refined petroleum products from our terminal to communities and canneries between Juneau and Skagway and along the vast coastline to Dutch Harbor on the Aleutian Chain. For most of my working years, I have been involved in my firm's activities, and that experience, coupled with other activities such as the chairmanship of the Valdez Port Commission and serving as mayor of Valdez for several terms, leads me to believe I have an investment in matters of port development.

These are exciting times for Alaska and Alaskans. In fact, most times in our great state are exciting for Alaskans and that is one of the reasons we stay here, through the good and not-so-good times. The not-so-good times seem to be fading for much of the state. This can be explained, in part, by the fact that our population is settling in since a gradual growth in our economy has meant people can afford to stay, and, very importantly, so can their children. With

this growth have come the benefits of better and more health facilities, better communications, educational advancements, cultural advantages, and transportation improvements. And it is transportation which concerns us at this conference, or that part of transportation which connects with our shores.

Our people, the Native population and later arrivals, have settled most often on the water, either on coastal areas or on rivers where transportation is easiest, in order to secure food and other necessities. Because of our many communities along our long coastline, it is natural to think in terms of building ports for access to the rest of the state and other parts of the world. But these thoughts need some control. Now that we as a state are awash in money, or so it seemed until OPEC got to monkeying around, there is a trend for our widely separated communities, with their own particular interests, to go all out to develop capital projects with ports high on the wish list, each community contemplating a grant or, at worst, a low interest loan from the state to build their project. This too is natural thinking, but now that we are growing up somewhat as a state in our various dealings, it is time we used a more mature approach to spending huge sums for a project. Let us not build a port because another community has one, or some strong leader is pushing for his or her own aggrandizement.

Port decisions should consider both the importance of the consumer served and the long-term costs and uses involved. Just because there is money in the state treasury now which can possibly be tapped for a project, and it would look marvelous out there on one's waterfront, doesn't mean there will be funds available to operate, maintain, repair, and upgrade it in the future. It doesn't even mean that the use will be long-term. So I urge any community contemplating a port development project to look and plan most carefully. Typical considerations to be addressed are:

1. Who will benefit from the project?

2. What are the true costs of construction, operation, maintenance, etc.?

3. What transportation connections exist beyond the community to transport goods?

4. Who will serve the port with ships and barges?

5. Will the project fit into the large picture in terms of the state as a whole?

6. Will military cargoes be involved?

7. What is the competition involved?

Of first magnitude of importance to any port development is the need to secure the absolute best expertise available to produce feasibility studies, making certain that consultants engaged do not echo wants rather than hard facts. More than one opinion is desirable, especially for a major project. Studies should not be based upon, or be contingent upon, political pressures or money available through the state or federal troughs for the pet projects of our politicians. For years Alaska's transportation systems and port developments have been subjected to this scenario, and there have been some mistakes made. In addition, I believe we should be cautious in basing studies on expanding population. It would take several decades or more for Alaska to have a million people living here even at the present rate of population growth.

There are certain facts which should be acknowledged:

1. You don't wait until the ship is on the horizon to provide a dock. Lead time must be considered.

2. Many huge projects are hovering in the wings waiting for the right combination or circumstances to bring them into being. To name a few:

   a. The petrochemical industry

   b. The gas line project

   c. Development of strategic minerals

   d. Coal mining and export

   e. Continued and expanded development of our oil resources

Do these justify immediate port development? Quite possibly they do. Fortunately, some conversations are underway between many groups on various kinds of infrastructure for these projects and more is needed. Of growing importance to our state is the potential for shipment of Alaska's resources to the Pacific Rim market because of our favorable geographical position. This potential could have great influence upon port development projects and coastal communities should follow developments in this area carefully.

How should we go about addressing our problem of putting our port development projects into being after the needs are

established? Frequently we hear of a statewide transportation authority or of port authorities embracing many communities. I would question the wisdom of such a move. Alaska's many different regions, so widely separated, have particular circumstances which are better addressed and controlled by a local organization. The potential for abuse in a large port authority, particularly if there is much money to spend, is great and could defeat what individual communities would like to achieve.

Assuming decisions are made, and timetables are worked out for best accomplishment of the projects, what happens then? Permits, rules, regulations, etc., are the order of the day for any particular project and they can be mind-boggling, devastating and intimidating. This is not to say we do not need some controls. It would be the height of immaturity to discard all concerns for our environment in the zeal to build a port. But we do need to streamline the process and get it out of the overlap and conflict area. We need to simplify the language and procedures and develop a means of presenting the reasons for certain rules in understandable and acceptable terms. Perhaps we need to develop an intelligent, carefully planned, one-window approach so that we do not neglect the areas of need and so that we do not lose the value of certain checks and balances among agencies. But we desperately need to do away with the turf-protecting attitudes of agencies, the jealousies of keeping control, the circumstances which end up with conflicting rules so the applicant or operator is damned whichever way he goes. The same goes for monitoring and long-term regulations. There certainly ought to be a way to compromise, in the best sense of the word, without polarizing protectors and aggressive developers, so neither "side" loses unduly.

Because I have been asked to talk to you about legislation and regulation, let me give a brief listing of some of the more important agencies which become involved in port development, as follows:

1. The Corps of Engineers
2. The Environmental Protection Agency
3. The United States Coast Guard
4. The Federal Maritime Commission
5. The Alaska Department of Environmental Conservation
6. Local and borough organizations

7. The Division of Fish and Wildlife under the Alaska Department of Public Safety

8. Coastal Zone Management under the Office of the Governor

9. Department of Natural Resources

10. Department of Commerce and Economic Development

11. Department of Labor

12. Department of Transportation and Public Facilities

13. Federal Communications Commission

These are only some of the agencies to be dealt with in any port development. There are others that do get involved and anyone can exert great influence upon a project.

As we all know, industry's job is to operate within all the many laws and regulations that are promulgated by Congress and the Alaska Legislature, and enforced by the other agencies. Herein lies the problem. Let me give you some examples of the problems facing those currently doing business in Alaska:

1. A dual standard often exists in the enforcement of the regulations by the agencies. For example, in Valdez, it appears the eyes of the world are upon us. Most of the agencies are very strict in enforcing rules and clean-up of only a few drops of spilled oil is required. An oil spill report is demanded with a threat of fines. Oil spills, even of some magnitude, in almost any other community or area of Alaska are overlooked, ignored, or minimized. The extent of enforcement appears to be in direct relationship to the distance the incident occurs from enforcement agency representation.

2. There is a duplication of jurisdiction which results in unnecessary costs. An example of this is the current effort by the Environmental Protection Agency to impose its oil pollution regulations on one large Alaska facility already regulated in this specific area by the United States Coast Guard, the Alaska Department of Environmental Conservation, the Office of Special Projects of the Bureau of Land Management and the State of Alaska Pipeline Coordinator's Office of the Alaska Department of Natural Resources. In spite of a memorandum of understanding between the Secretary

of Transportation and the Administrator of the Environmental Protection Agency as contained in federal EPA regulations on oil pollution prevention 40 CFR 112, et al., which clearly states that this facility is subject to Department of Transportation jurisdiction of which the United States Coast Guard is the regulating agency, the EPA is now demanding a much redundant "spill prevention control and countermeasure plan." There are already several comprehensive oil spill prevention plans which would satisfy these requirements except in format. I ask, what is the sense of this overlapping and additional cost when the Coast Guard is well staffed, qualified, and able to carry out this duty? Certainly the additional cost and regulation will not achieve a better operation.

3. To some, the idea of additional regulation has great attraction. Perhaps it is thought that this kind of action looks good in the eyes of the voters and leads to re-election of politicians or perpetuates the jobs of the bureaucrats. Let me give you just one example of where such action inhibits competition and increases costs to the public. I refer specifically to regulations by the Alaska Department of Environmental Conservation which require oil terminals, whether on the coast or inland, that have a capacity of 10,000 barrels or larger to have or to show:

   a. Proof of financial responsibility

   b. A spill clean-up contingency plan

   c. Proof of an oil spill training program

Proof of financial responsibility is to show, through insurance or self-insurance, that you have a minimum of $10.00 per each barrel of storage per incident. This is $100,000 in the minimum case. The contingency plan cost is a minimum of $6,000 per terminal to develop. Annual training at each terminal is likely to cost at least $1,000 per year. It is obvious that a small operator cannot easily comply with such regulations and certainly large corporations will have second thoughts, causing them to discontinue business at some locations or conduct their business in such a manner that their exposure and liability is reduced. Is this the kind of action that creates competition and lowers prices to the public? In my opinion, this is overkill regulation and the cost to industry to comply is obviously going to be passed through to the consumer.

I have touched upon matters germane to the oil industry. There are other problems in this area that time does not permit me to address. In the matter of handling other cargoes, I wish to point out that there are problems too. Accordingly, let me give you a few examples:

1. The handling of Class A explosives over port facilities falls under United States Coast Guard regulation and is strictly enforced, following the Perth Amboy catastrophe. A table of distances formula is used to limit the amount of this cargo that may be handled by each vessel to a port facility. This regulation is very restrictive and, depending upon distance from the nearest living quarters, often results in a port being unable to handle this class of cargo. Interestingly enough, if this cargo is loaded on a truck or a rail boxcar, control is virtually nonexistent. I have known of many cases where this cargo has been parked in very populated areas where an explosion would have killed a great many people and created havoc with the environment.

2. I have mentioned political pressures in the matter of building ports. The handling and routing of cargoes are also sensitive to such pressure. Years ago, the trucking industry was in its infancy but it began to make its activity felt by hauling freight from Valdez to Fairbanks. The then Secretary of the Interior, who was in charge of both the Alaska Railroad and the Alaska Road Commission that maintained the Richardson Highway between Valdez and Fairbanks, instituted a toll of $6.45, or thereabouts, on each ton of freight hauled by truck to Fairbanks. I see similar pressures today by our state administration, and perhaps the Legislature, in attempts to force grain shipments to be loaded into trucks at Big Delta; hauled north 90 miles and discharged into silos, which are scheduled to be constructed by state funds; then loaded into railcars, which are scheduled to be provided by state funds; thence hauled south almost 500 miles to Seward to be discharged into silos, which are scheduled to be constructed by state funds; to await loading on to ships for shipment to market. Instead of the multimillion dollar cost to the state and all the additional handling, the grain could easily be shipped south 275 miles, in the original truck, to Valdez where a silo will be made available at no cost to the public, provided by Valdez and its citizenry. The savings to the state in capital

expenditures alone, per the schedule in Senate Bill 162, would be $7.5 million. Of course, the transportation cost should be less, unless the state chooses to subsidize the haul over the railroad or causes a toll to be placed on the shipments to Valdez.

These are but two examples of questionable actions that take place. Time does not permit citing additional examples, however, one needs only imagination to suggest how often this sort of thing takes place.

Let me pose these questions: What is going to happen after the state takes over the Alaska Railroad? It will then control both the rail and highway transportation into Alaska's Interior, resulting much the same situation as existed before statehood when the Department of the Interior controlled both systems. Will history repeat itself in the matter of tolls and special interest groups? What will be the effect on port planning and development? If this is the way we allow freight to be routed, then it is obvious the decisions will be made by politicians and those folks who have an ax to grind or special interests to satisfy. Is that the way we wish our private enterprise system in Alaska to work? Surely, there are ways to remedy such poorly advised activity and preclude it from happening. We must find that key if we are to have sensible port development in Alaska.

In the matter of proposed legislation that will affect port development, let me say that much of what I see on the horizon leaves me cold. I do not subscribe to the idea that new legislation always solves problems. Quite frequently in matters of port development, it complicates things and possibly prevents development when such action is clearly indicated. I believe that the Coastal Zone Management Act, which is unyielding and unworkable, falls into this category. It is my opinion that there are already sufficient, capable, and qualified agencies and authorities to handle coastal management. The movement to repeal this legislation seems to make sense and would bring about considerable savings to the public.

We are beginning to hear more and more about possible legislation creating user fees for services and facilities, such as navigational aids and rescue services by the United States Coast Guard. I believe this to be a very impractical proposal fraught with impossible problems and a lack of public support. Therefore, I do not forsee this proposal as being successful. Should it be successfully passed, I can forsee many problems presented to port operators and, of course, increased costs.

There is an area of legislation being considered that I think has some merit and which others also deem to make sense. I would term it corrective legislation to reorganize some agencies that have demonstrated an inability to perform according to legislative intent because of cumbersome formats or other problems inherent in the organization.

We have all heard about industry, especially the oil industry, attempting to operate in a more responsible manner. I believe industry has reacted to this public outcry and has made great improvement. Perhaps more is needed in some areas. I think the time is ripe now for government, all government, to listen to the public and remedy the problems still facing us. Given the proper attitude on the part of those involved and the current federal posture in such matters, I am certain much can be accomplished.

PERMITS: WHY WE HAVE THEM AND WHAT MIGHT BE REQUIRED

R. Woodruff Angst
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Yesterday we heard comments about planning for ports, about examining in depth and then balancing the various elements in a port development project, about facilities for vessels and cargoes, and about the need for a vehicle to get permits. I would like to share a few thoughts with you about permits and the permitting process.

Following the depression in the 1930s and the tremendous mobilization of people and industry during World War II, the United States experienced a strong economy, a favorable climate for development, and a rapidly growing population. However, society perceived this growth as too rapid and without control or direction. The world we lived in was becoming smaller and we insisted upon higher standards for nearly every issue affecting our lives. These standards were frequently defined in laws requiring permits. As a result, a project that required one permit in the 1960s now requires a half dozen permits. Some industrial operations require three dozen permits. These permits, issued by a variety of agencies at all levels of government, represented government's response to a serious public concern about various issues.

We also experienced the growth of the environmental movement during the 1960s. Clean-up efforts by Boy Scouts and concern for endangered species evolved into Earth Day, court cases, and legislation.

Damage to the environment, strains on resources, and disruption of preferred life-styles resulted in the adoption of laws and policies to prohibit, limit, or delay development and to redirect or to reshape growth patterns. The major concern of society was how to manage growth. The United States Congress responded to the concern by enacting laws such as the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Coastal Zone Management Act, the Fish and Wildlife Coordination Act, the Endangered Species Act, and the National Environmental Policy Act.

Government agencies also responded, promulgating regulations as the various laws were enacted. By the late 1970s, regulation was a growth industry. Budget expenditures for traditional areas of regulation, which included finance and

banking, general business, and industry specific regulation, increased 166 percent from 1971 to 1980. During the same period, the leading "growth products" were the newer areas of social regulation; budget expenditures increased 300 percent for consumer safety and health, 600 percent for job safety, and 1,200 percent for energy and the environment. However, the proliferation of regulations and permits also became a serious public concern and a major burden to the developer. Therefore, it is most appropriate that we discuss the permit requirements for port development.

The development of a major port involves federal, state, and local governments and requires their close cooperation. In addition to the three federal agencies represented on this panel (Environmental Protection Agency, U.S. Coast Guard, and Corps of Engineers) which have direct regulatory involvement in licensing a major port, many other federal, state, and local agencies have jurisdiction for activities related to a port development. Individually, the requirements of these agencies add to the developer's burden. However, the most significant problem is not the individual regulatory requirements; rather, it is the cumulative affect of all requirements with inconsistent language in statute and regulation, and the absence of a systematic and effective process for interagency decision making.

According to Webster, a permit is defined as a document granting permission. Please interpret this term to include licenses, registrations, certifications, and plan reviews. Permitting, or permit issuance, is a process.

In Alaska, permits are issued at all levels of government. Local governments have the greatest variety of permits, building codes, management plans, and zoning requirements. However, there is no interagency review and rarely public notice requirements. Therefore, local permits can be issued most quickly, usually immediately or within a few days.

Our state government issues a variety of permits. Since many of these permits often require interagency review and public notices, a couple of months may be needed for their issuance.

The federal government usually does not issue many permits for a project. However, many federal permits have requirements for public notice and extensive interagency reviews by federal, state, and local agencies. Therefore, these permits require several months or years before they are issued.

The purpose of the public notice is to inform a developer's neighbors and the general public of the project. As the laws are now written, there is a strong emphasis on public

participation. The notices enable greater public involvement in a project; however, each notice exposes the project to criticism and delay.

Notices published in newspapers potentially have the largest audience including businesses, special interest groups, and the average citizen. Characteristically, these notices are brief and appear only on the days a paper is published.

Notices which are mailed address a definite, predetermined audience. Often this audience has an interest in the project as adjacent landowners or prior water appropriators. Depending upon the printing capability of the issuing agency, these notices can provide a more complete description of the project and can appear at any time.

Most notices provide a 30 day comment period. However, language in the laws requiring notices is inconsistent. The number of notices, the frequency of notice, and the office responsible for the notice all vary. Therefore, the length of time from the date a notice is prepared to the date the comment period closes may range from 30 to 60 days.

Interagency review of permit applications is often required by federal and state laws. The purpose of the review is partly to gather factual information and largely to assure compliance with applicable standards, and to assure consistency with related programs. Generally, responses are written comments; sometimes the response is a prerequisite to a decision. The interagency review occurs as part of or concurrent with the public notice process. This review period rarely takes longer than the public notice process unless the reviewing agencies need additional information from the applicant.

The authority to issue permits has been retained by the headquarters of some agencies and delegated to subordinate offices in others. This means that permits might be issued in a local field office or in the agency's larger offices in Anchorage, Juneau, Seattle, or Washington, D.C. As a result, applicants often have a difficult time determining what permits are required and who should be contacted in the agencies for assistance. Unfortunately, developers learn about the requirements and get the permits in a piecemeal fashion and extra time is needed for the long-distance communications.

Because the agencies are scattered over a wide geographic area and the time needed to get a permit may vary from a few hours to a few years, it is essential that developers do some planning before beginning a new venture. There are factors other than the regulatory process which influence

the time required to develop and begin operation of a major facility. Let's not forget that shipping and construction are seasonal activities in Alaska and each has specific time requirements. Let's not forget to assess the availability of our own resources, the local and world economy, and the potential market for products that might pass through our port. Let's not forget problems with suppliers and labor or the possibility of legal challenges and adverse weather. As stated yesterday, the individual developer must consider all of these factors and then make a decision.

Can anything be done to relieve the regulatory burden? The obvious answer is yes. We, as a society, must address the fundamental issue of whether or not regulatory programs initiated by Congress and developed by federal agencies and the states should be continued. However, some regulatory reform is needed now and the current permit process can be simplified. To do so, we must identify real problems and address the cause of each problem rather than put bandages on symptoms.

I do not think we need new, alternative processes. Rather we need to make the system work given the realities which exist in Alaska.

We can and do make information about the regulatory process and permit requirements available to developers. I'll come back to this point.

Forms are the fundamental instrument for obtaining and exchanging information. We can adopt better forms management practices and, for little cost, we can have forms professionally designed to reflect program needs and to be easily used by both parties. The master permit application recently designed by the state agencies for placer miners is an excellent example of what can be done. (For your information, this form received national recognition in the forms industry and has brought national attention to the state's regulatory reform effort.)

We can learn to manage our records. Whether we use hard copy, micrographics, or data processing, mismanagement of our records is costly, time-consuming, and results in ineffective service.

Developers, as well as government agencies, can be more innovative at the early planning stages. Through NEPA we can use the environmental impact statement, or other documents such as plans of operation, to initiate the regulatory process. Preparation of the documents should include scoping regulatory requirements as well as data collection. The documents, perhaps, can be used as a master application to initiate the review process.

We must develop greater interagency cooperation. Efforts to consolidate applications (as was done for placer miners), to consolidate public notices (as the Department of Environmental Conservation has begun with the Office of Coastal Management and the Corps of Engineers), and to assume federal programs must continue and can succeed.

And, we must streamline procedures. This can be done by consolidating applications, public notices, and interagency reviews, by eliminating duplicate work, and by eliminating redundant correspondence.

Finally, house cleaning in the language of statute and regulations, not so much to eliminate requirements but to consolidate them and standardize the language for requirements, will help these efforts.

Some progress has already been made. Alaska Permit Information Center has been established to help developers identify the regulatory requirements which must be met. One stop shopping is possible. Through offices in Anchorage, Fairbanks, and Juneau, the Permit Center can identify:

1. The agencies which may have jurisdiction.

2. The permits which may be required (I emphasize "may" because the Permit Center cannot speak for an agency and the developer often has not determined how the project will be operated).

3. The person in each agency who should be contacted for technical assistance and permit issuance.

The staff in these offices can't help if the developer is "window shopping;" they can help if the developer has a specific proposal.

Let me give you the name and phone number of the person to call in each office:

1. In Anchorage, call Regina Sanders at 279-0254.

2. In Fairbanks, call Carmen McCumby at 452-2340.

3. In Juneau, call Joan Hughes at 465-2615.

Each office will accept collect calls and is equipped with a code-a-phone so that calls can be received after regular business hours. The staff generally can respond to an inquiry quickly, depending on the amount of research necessary to confirm requirements for your particular proposal. In effect, this service eliminates the expensive, time-

consuming, and uncertain process of identifying permit requirements in a piecemeal fashion.

There are other services provided by the Permit Center which can help developers:

1. The Directory of Permits is a descriptive inventory of federal, state, and local permits needed for the construction and operation of projects in Alaska. This publication is updated annually; revisions, corrections, and additions are available as a supplement each January from Printmore Corporation in Anchorage. However, the directory cannot be considered the final authority on permits in Alaska and cannot be substituted for contact with the appropriate agency.

2. Pre-application conferences are hosted upon request so that developers can meet agency representatives and learn of the requirements which must be fulfilled. These conferences are not a judgmental meeting. Rather, they are an effective means of discussing potential problems at an early stage of the development process.

3. A master application process may be initiated by developers who choose to use this strategy to get several state permits concurrently. The process allows for the simultaneous review of a project by all state agencies and the applicable local government and results in the issuance of all state decisions by a previously determined date.

4. Lists of all the permits which may be required for a project are developed for major projects occurring in Alaska. In addition to the required permits, the appropriate regulatory agency and a brief description of each permit is included.

Four of the lists are available for you today. The lists are for breakwaters, waterfront warehouses and dock facilities, the construction of marine haul-out and repair facilities, and the operation of marine haul-out and repair facilities (see appendix).

These lists identify the permits which might be needed for port development, although information probably is more inclusive than anyone would need for a project. When it is determined exactly what facilities will be included in the port and exactly how those facilities will be built and operated, then specific permit requirements can be determined. The Alaska Permit Information Center often can identify the

permits; however, the agencies with jurisdiction must make the final determination.

Let me close with a very brief description of my department's responsibilities. I'll let the other members of the panel discuss the concerns and responsibilities of their respective agencies.

The statutory responsibility of the Department of Environmental Conservation is for public health, air quality, water quality, and solid and hazardous waste disposal. Therefore, the department is involved with all development projects in Alaska from the early stages of planning and design, through construction and operation, to termination.

Given a proposal for a port, the department's regional office staff will provide technical assistance to the developer during the early planning and design stages. They will evaluate permit applications and recommend decisions. Whenever necessary, they will conduct monitoring programs and initiate enforcement actions.

However, the fundamental land use question of whether or not a port will be built must be decided by the local government with zoning authority. The lead agency granting permits for construction is the Corps of Engineers. The availability of land will be determined by the appropriate landowner. The role of the Department of Environmental Conservation is secondary to these, although its advisory comments and permits strongly influence how the port will be developed and operated.

The kind of concerns which the department wants addressed before it issues a permit include:

1. What erosion and sediment accumulation will occur?

2. How will wastes be captured and contained to prevent impacts on surrounding air, land, or water?

3. Will local utilities be used and are they adequate?

4. What facilities will be needed and available for personnel and the public?

5. Will fuels or other hazardous materials be stored or transferred?

6. Will the facilities have to comply with PSD requirements and New Source Performance Standards?

There are 13 permits which the department might issue for a port development; these are:

1. Air Quality Control Permit to Operate
2. Air Quality Control Permit to Open Burn
3. Solid Waste Management Permit
4. Processing and Disposal of Hazardous Waste
5. Permit to Interfere with Salmon Spawning Streams and Waters
6. Plan Review and Approval of Sewerage and Sewage Treatment Works
7. Wastewater Disposal Permit
8. Certificate of Reasonable Assurance
9. Surface Oiling Permit
10. Oil Discharge Contingency Plan
11. Proof of Financial Responsibility
12. Plan Review and Approval of Public Water Systems
13. Plan Review and Inspection of Public Establishments

Except for facilities which must comply with the new source performance standards and PSD requirements, the department's permits generally can be issued within a 60 to 90 day period. Permits that do not have a public notice requirement can be issued within 30 days and often are issued within a week.

APPENDIX

BREAKWATER -(State, Federal and local permits that may be needed in Alaska. The final determination of which permits will be required will depend on the final design and plan of operation for the project and will be made by the responsible agencies. Permits required also depend on the type of land used. This list includes State, Federal and Indian Lands. Contact the local offices nearest your project for assistance. The area code throughout the State is 907.)

PREPARED BY: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 7/81

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	STATE APPROVALS & AGENCIES	
	OFFICE OF THE GOVERNOR	
Alaska Coastal Management Program Certificate of Consistency	Division of Policy Development & Planning Dave Haas, State Clearinghouse Pouch AW Juneau, Alaska 99811 Phone: 465-3563, 3564, 3565	Establishes coastal policies, rules, responsibilities, if no local program approved, State standards will apply for projects in the coastal zone.
	DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT	
Articles of Incorporation	Dept. of Commerce & Economic Dev. Corporation Section Pouch D Juneau, Alaska 99811 Phone: 465-2530	Persons wishing to form a corporation or a cooperative must register with the Department. Corporations: Filing fees are based on number and value of shares. $100 biennial corporation tax required. Cooperative: License fee is based on the number and par value of stock.
Foreign Corporations-Certificate of Authority	Dept. of Commerce & Economic Dev. Corporation Sections (Address same as above)	A Certificate of Authority is required of a corporation incorporated outside Alaska who wishes to establish corporate existence in Alaska. It gives the authority for the corporation to transact business in Alaska.
Construction Contractor License	Dept. of Commerce & Economic Development Division of Occupational Licensing Pouch D Juneau, Alaska 99811 Phone: 465-2546	License needed to act as a construction contractor in Alaska - bonding and insurance required. Annual renewal date of license is June 30th.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF ENVIRONMENTAL CONSERVATION	
Certificate of Reasonable Assurance - (Water Quality Certification)	Dept. of Environmental Conservation (Contact Local Office)	Certification of Compliance with Alaska Water Quality Standards during work, discharge or placement of structures in waters.
Permit to Interfere with Salmon Spawning Streams and Waters	Dept. of Environmental Conservation (Contact Local Office)	Permit required for any activity which may obstruct, divert, pollute, dam, barricade, conserve, impound or render the waters inaccessible or uninhabitable for salmon.
	DEPARTMENT OF FISH & GAME	
Anadromous Fish Protection Permit	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval required for any work in a listed anadromous fish river, lake or stream.
Critical Habitat Area Permit	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval required for any work or development in a critical habitat area.
Fishways for Obstructions to Fish Passage	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval needed for any obstructions across a stream.
State Game Refuge Permit	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval needed for any work or development in refuge area.
	DEPARTMENT OF LABOR	
Prevention of Accident & Health Hazards - Inspections	Dept. of Labor Div. of Occupational Safety & Health (Contact Local Office)	Inspections are conducted at work places where people are employed and at construction work sites where private contractors are in charge of the job. The Department also provides consultation services on individual safety and health matters.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF LABOR (Continued)	
Fired and Unfired Pressure Vessels - Inspections	Dept. of Labor Wage & Hour Division/Mechanical Engineering Division (Contact Local Office)	Inspections are conducted on the construction, installation, and operation of pressure vessels.
Foreign Labor Requirements	Dept. of Labor P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-4531	Employers wishing to hire foreign employees to work in Alaska must file an alien labor certification request at the local State Employment Office.
Unemployment Insurance	Dept. of Labor Employment Security Division P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-2787	Individuals, companies, and organizations who have one or more workers in covered employment for any part of a day must register with the Department.
Worker's Compensation Act	Any Licensed Insurance Broker - or Dept. of Labor Worker's Compensation Division P.O. Box 1149 Juneau, Alaska 99811 Phone: 465-2790	Any employer with one or more employees working within the State must buy a worker's compensation insurance policy and submit proof of insurance to the Department.
	DEPARTMENT OF NATURAL RESOURCES	
Leasing of Lands Other Than for the Extraction of Natural Resources	Dept. of Natural Resources Division of Forest, Land, & Water Mgmt. (Contact Local Office)	Lease required for exclusive use of State owned lands for a long or short-term period. This also applies to tidelands and submerged lands.
Material Sale (Applies to sand, gravel, rock, peat, etc.)	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	To obtain material from State land for use on project.
	DEPARTMENT OF REVENUE	
Alaska Business License	Dept. of Revenue Pouch SA Juneau, Alaska 99811 Phone: 465-2333	Must obtain a license to conduct business in the State.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF REVENUE (Continued)	
Nonresident Affidavit and Tax Security Requirements	Dept. of Revenue Tax Security & Business License Unit Pouch SA Juneau, Alaska 99811 Phone: 465-2329	Nonresidents transacting business in Alaska must submit an affidavit and provide the following tax liability security: 1. A Tax Liability Security Bond; or 2. proof of ownership of real property and twice the amount of estimated taxes; or 3. prepayment of estimated taxes and license fees in advance. Security must be renewed annually.
	FEDERAL PERMITS & AGENCIES	
	DEPARTMENT OF AGRICULTURE	
Mineral Material Permit - National Forest	Dept. of Agriculture U.S. Forest Service (Address listed below)	Permit needed to obtain sand and gravel on Federal land.
Special Use Permit	Dept. of Agriculture U.S. Forest Service (Address listed below)	Permit needed to utilize U.S. Forest Service land.
Permission to Cross Lands and Easements Owned by the U.S.	Dept. of Agriculture U.S. Forest Service Chugach National Forest 222 East Northern Lights Blvd. Anchorage, Alaska 99502 Phone: 279-5541	Permission required to cross lands and easements owned by the U.S. and administered by the Forest Service. (This applies to lands having National Forest status.)

- or -

Tongass National Forest
Forest Supervisor
Ketchikan Area - Federal Bldg.
Phone: 225-3101

Chatham Area
P.O. Box 1980
Sitka, Alaska 99835
(Covers Sitka, Juneau, & Skagway)
Phone: 747-6671

Stikine Area
Box 309
Petersburg, Alaska 99833
Phone: 772-3841

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF DEFENSE	
Discharge of Dredged or Fill Material into U.S. Waters	U.S. Army Corps of Engineers P.O. Box 7002 Anchorage, Alaska 99510 Phone: 279-4123 or 752-4942	Permit needed for any dredge or fill material in U.S. waters including wetlands. Permit cost is $100 for commercial use or $10 for noncommercial use.
Structures or Work in/or Affecting Navigable Waters	U.S. Army Corps of Engineers (Address same as above)	Permit needed for any work or placement of structures in U.S. waters.
	DEPARTMENT OF THE INTERIOR	
Rights-of-Way (Indian Land)	Dept. of the Interior Bureau of Indian Affairs Southcentral Area Superintendent P.O. Box 120 Anchorage, Alaska 99510 Phone: 271-4088	Must have consent of landowners to gain an easement over Indian lands.
	- or -	
	Fairbanks Area Superintendent Federal Bldg. & Courthouse 101 12th Avenue Box 16 Fairbanks, Alaska 99701 Phone: 452-1951 Ext. 222	
	Bethel Area Superindendent P.O. Box 347 Bethel, Alaska 99559 Phone: 543-2726	
	Nome Area Superintendent P.O. Box 1108 Nome, Alaska 99762 Phone: 443-2284	
	Southeastern Area Superintendent Box 3-8000 Juneau, Alaska 99802 Phone: 586-7454	
Rights-of-Way for Bureau of Land Management Lands	Dept. of the Interior Bureau of Land Management (Address same as below)	Permit required for persons wishing to gain access to or through federal lands under the jurisdiction of BLM.
Vegetative Mineral Material	Dept. of the Interior Bureau of Land Management District Office 4700 East 72nd Avenue Anchorage, Alaska 99502 Phone: 344-9661	Permission required for obtaining gravel, sand or rock located on public lands for use on project.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF THE INTERIOR (Continued)	
National Wildlife Refuge Lands - Special Use Permit	Dept. of the Interior U.S. Fish & Wildlife Service 1011 East Tudor Road Anchorage, Alaska 99503 Phone: 276-3800	Permit required for easements, roads, utilities, in Wildlife Refuge lands.
	U.S. DEPARTMENT OF TRANSPORTATION	
Structures which may Interfere with Airplane Flight Paths - Notice of Proposed Construction or Alteration	U.S. Dept. of Transportation Federal Aviation Administration Air Traffic Division 701 "C" Street Box 14 Anchorage, Alaska 99501 Phone: 271-5892	Notice is required for construction of any structure which may interfere with airplane flight paths.
Application for Private Aids to Navigation	Department of Transportation Commander 17th Coast Guard District Aids to Navigation P.O. Box 3-5000 Juneau, Alaska 99802 Phone: 586-7368	Application for private aids to navigation is required to insure that the aids conform to standard waterway markings and do not interfere with Coast Guard aids. Developer must contact the USCG prior (2 weeks) to the construction of a breakwater project so notification can be made to the general public.
	DEPARTMENT OF THE TREASURY	
Use of Explosives - Permit & License	Dept. of the Treasury Bureau of Alcohol, Tobacco & Firearms Room G-79 U.S. Courthouse 4th & "F" Street Anchorage, Alaska 99501 Phone: 271-5701	Permit required to obtain explosives from outside the user's State and for the user's own use.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	FEDERAL BUREAUS & COMMISSIONS	
	U.S. ENVIROMENTAL PROTECTION AGENCY	
Environmental Impact Statement	U.S. Environmental Protection Agency 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	The Environmental Impact Statement must explain the purpose and need for the project and is required to ensure that environmental information is available to public officials and citizens.
Permit to Discharge into Water - National Pollutant Discharge Elimination System (NPDES)	U.S. Environmental Protection Agency (Address same as above)	Permit needed for any activity or waste water system which discharges into a waterway.
Oil Storage Facilities - Oil Spill Prevention, Containment & Countermeasure Plans (SPCC)	U.S. Environmental Protection Agency (Address same as above) Phone: 271-5083	Spill Prevention Control Plans are required by agency of any onshore or offshore oil storage facilities.
	LOCAL GOVERNMENT	
	If a project, or a portion of a project, is located within the boundaries of any local government, (city, borough, etc.), the developer should contact local authorities regarding their permit and zoning requirements.	

FLOW CHART - STATE & FEDERAL AGENCY CONTACT FOR THE CONSTRUCTION OF A BREAKWATER IN ALASKA

Prepared By: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 7/1981

E V E L O P E R C O N T A C T S:

- **Local Government** -- Local Government Zoning and Permit Requirements
- **Ak. DNR** -- Leasing of Lands - Park Lands - Material Sale
- **U.S. Forest Service** -- Permission to Cross Lands/Easements owned by the U.S. - Special Land Use Permit - Mineral Material
- **U.S. BLM** -- Rights of Way for BLM Lands
- **U.S. BIA** -- (Indian Lands) - Rights-of-Way
- **U.S. EPA** -- Environmental Impact Statement - Oil Storage Facilities (SPCC) - Permit to Discharge into Waters
- **U.S. Corps of Engs.** -- Dredge or Fill Material in U.S. Water - Structural/Work in or Affecting U.S. Waters
- **Ak. Dept. Env. Cons.** -- Certificate of Reasonable Assurance - Permit to Interfere with Salmon Spawning Streams and Waters
- **Ak. Dept. Fish & Game** -- Anadromous Fish Protection Permit - Critical Habitat Area Permit - Fishways for Obstructions to Fish Passage - State Game Refuge Permit
- **Ak. DPDP** -- Certificate of Consistency (CZM)
- **U.S. Coast Guard** -- Application for Private Aids to Navigation

Ak. DCED

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Ak. Dept. Labor

Fire & Unfired Pressure Ves.
Health/Hazards Inspection
Unemp. Insur.
Workmen's Comp.
Foreign Labor

Ak. Dept. Revenue

Ak. Bus. Lisc.
Non-resident Affidavit &
Tax Security Requirements

USCG

Bridges Over Waters

USFAA

Structures in Air Flight Paths

US Treas.

Use of Explo.

U.S. Dept. Interior

Wildlife Refuge Lands

WATERFRONT WAREHOUSES & DOCK FACILITIES -(State, Federal and local permits that may be needed in Alaska. The final determination of which permits will be required will depend on the final design and plan of operation for the project and will be made by the responsible agencies. Permits required also depend on the type of land used. This list includes State, Federal and Indian Lands. Contact the local offices nearest your project for assistance. The area code throughout the State is 907.)

PROJECT: Proposed warehouses with offices on docks. It will have ramps to floating docks with pilings for work boats, tugs, etc. Includes oil and gas storage tanks, boat grids and roads to warehouse parking area. The facilities will utilize the local town's water, electrical and solid waste utilities. The warehouses may store general or hazardous material and include some refrigeration units. Facilities may be used for importing or exporting property between states or countries.

PREPARED BY: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 7/81

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	STATE APPROVALS & AGENCIES	
	OFFICE OF THE GOVERNOR	
Alaska Coastal Management Program Certificate of Consistency	Division of Policy Development & Planning Dave Haas, State Clearinghouse Pouch AW Juneau, Alaska 99811 Phone: 465-3563, 3564, 3565	Establishes coastal policies, rules, responsibilities, if no local program approved, State standards will apply for projects in the coastal zone.
	DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT	
Articles of Incorporation	Dept. of Commerce & Economic Dev. Corporation Section Pouch D Juneau, Alaska 99811 Phone: 465-2530	Persons wishing to form a corporation or a cooperative must register with the Department. Corporations: Filing fees are based on number and value of shares. $100 biennial corporation tax required. Cooperative: License fee is based on the number and par value of stock.
Foreign Corporations-Certificate of Authority	Dept. of Commerce & Economic Dev. Corporation Sections (Address same as above)	A Certificate of Authority is required of a corporation incorporated outside Alaska who wishes to establish corporate existence in Alaska. It gives the authority for the corporation to transact business in Alaska.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT (Continued)		
Construction Contractor License	Dept. of Commerce & Economic Development Division of Occupational Licensing Pouch D Juneau, Alaska 99811 Phone: 465-2546	License needed to act as a construction contractor in Alaska - bonding and insurance required. Annual renewal date of license is June 30th.
DEPARTMENT OF ENVIRONMENTAL CONSERVATION		
Air Quality Control Permit to Open Burn	Dept. of Environmental Conservation (Contact Local Office)	Permit needed to burn debris, brush, trees, garbage, rubber, oil wastes, etc.
Certificate of Reasonable Assurance - (Water Quality Certification)	Dept. of Environmental Conservation (Contact Local Office)	Certification of Compliance with Alaska Water Quality Standards during work, discharge or placement of structures in waters.
Plan Review for Sewage Systems or Water & Wastewater Treatment Works	Dept. of Environmental Conservation (Contact Local Office)	Plans must be reviewed prior to construction, installation, modification or operation of systems.
Disposal of Hazardous Waste	Dept. of Environmental Conservation (Contact Local Office)	Permit needed for diposal of toxic or hazardous material.
Surface Oiling Permit	Dept. of Environmental Conservation (Contact Local Office)	Permit needed for oiling any roads at project.
Permit to Interfere with Salmon Spawning Streams and Waters	Dept. of Environmental Conservation (Contact Local Office)	Permit required for any activity which may obstruct, divert, pollute, dam, barricade, conserve, impound or render the waters inaccessible or uninhabitable for salmon.
Oil Discharge Contingency Plans	Dept. of Environmental Conservation (Contact Local Office)	Contingency plans are required for oil storage facilities of 10,000 barrels or more of petroleum products, tank vessels, and offshore exploration or production facilities. Contingency plans are renewed every 3rd year of operation.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
DEPARTMENT OF ENVIRONMENTAL CONSERVATION (Continued)		
Proof of Financial Responsibility (Oil Storage Facilities, Tank Vessels, Tank Barge, Oil Barges, Offshore Exploration Facilities)	Dept. of Environmental Conservation David Knuth Oil Pollution Control Pouch O Juneau, Alaska 99811 Phone: 465-2653	Proof of financial responsiblitiy must be submitted as follows: 1. Storage facilities - onshore - $10 per barrel or $1 million, whichever is greater. 2. After July 1, 1981, offshore exploration or production facilities - at least $35 million per facility. 3. After January 1, 1981, tank vessels or tank barges involved in the Trans-Ak. Pipeline oil - $14 million per vessel. 4. Any other oil barge - at least $1 million per barge. 5. Any other tank vessels - at least $20 million. NOTE: Financial responsibility may be demonstrated by self insurance, insurance, surety or guarantee. The applicant and insurer, surety, or grantor shall appoint an agent for service of process in the State. Proof of responsibility must be demonstrated yearly.
DEPARTMENT OF FISH & GAME		
Anadromous Fish Protection Permit	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval required for any work in a listed anadromous fish river, lake or stream.
Critical Habitat Area Permit	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval required for any work or development in a critical habitat area.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF FISH & GAME (Continued)	
Fishways for Obstructions to Fish Passage	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval needed for any obstructions across a stream.
State Game Refuge Permit	Dept. of Fish & Game Habitat Division (Contact Local Office)	Approval needed for any work or development in refuge area.
	DEPARTMENT OF LABOR	
Prevention of Accident & Health Hazards - Inspections	Dept. of Labor Div. of Occupational Safety & Health (Contact Local Office)	Inspections are conducted at work places where people are employed and at construction work sites where private contractors are in charge of the job. The Department also provides consultation services on individual safety and health matters.
Fired and Unfired Pressure Vessels - Inspections	Dept. of Labor Wage & Hour Division/Mechanical Engineering Division (Contact Local Office)	Inspections are conducted on the construction, installation, and operation of pressure vessels.
Foreign Labor Requirements	Dept. of Labor P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-4531	Employers wishing to hire foreign employees to work in Alaska must file an alien labor certification request at the local State Employment Office.
Unemployment Insurance	Dept. of Labor Employment Security Division P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-2787	Individuals, companies, and organizations who have one or more workers in covered employment for any part of a day must register with the Department.
Worker's Compensation Act	Any Licensed Insurance Broker - or Dept. of Labor Worker's Compensation Division P.O. Box 1149 Juneau, Alaska 99811 Phone: 465-2790	Any employer with one or more employees working within the State must buy a worker's compensation insurance policy and submit proof of insurance to the Department.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF NATURAL RESOURCES (Continued)	
Land Use Permit	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	Permit needed for temporary non-exclusive use of State tidelands and uplands.
Leasing of Lands Other Than for the Extraction of Natural Resources	Dept. of Natural Resources Division of Forest, Land, & Water Mgmt. (Contact Local Office)	Lease required for exclusive use of State owned lands for a long or short-term period. This also applies to tidelands and submerged lands.
Rights-of-Way Easement	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	Authorization required for rights-of-way easement and construction or improvements on easements established on State lands.
Material Sale (Applies to sand, gravel, rock, peat, etc.)	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	To obtain material from State land for use on project.
Burning Permit	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	Permit required for the burning of any material during the fire season, which is May 1st to September 30th.
Access Route Permit	Dept. of Natural Resources Division of Parks 619 Warehouse Avenue, #210 Anchorage, Alaska 99501 Phone: 274-4676	Permit is required to gain an easement across State park lands or waters.
State Park Non-compatible Use Permit	Dept. of Natural Resources Division of Parks (Address same as above)	Permit required for a proposed project on State park lands and waters.
	DEPARTMENT OF PUBLIC SAFETY	
Life/Fire Safety Plan Check for Construction/Occupancy of Buildings	Dept. of Public Safety Division of Fire Prevention (Contact Local Office)	Approval of the plans of buildings are required for fire protection and safety. This applies to commercial, industrial business, institutional or other public buildings or residential buildings containing four or more dwelling units.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF PUBLIC SAFETY (Continued)	
		Fees are required if value of construction exceeds $25,000. Fees are 40% of building permit fee (Uniform Building Code). Altered/revised plan checks also have associated fees.
Permit for Oversize/Overweight Vehicles or Loads	Dept. of Public Safety Division of State Troopers (Contact Local Office)	Permit required for the movement of vehicles/or loads exceeding legal size on State owned highways.
	DEPARTMENT OF REVENUE	
Alaska Business License	Dept. of Revenue Pouch SA Juneau, Alaska 99811 Phone: 465-2333	Must obtain a license to conduct business in the State.
Nonresident Affidavit and Tax Security Requirements	Dept. of Revenue Tax Security & Business License Unit Pouch SA Juneau, Alaska 99811 Phone: 465-2329	Nonresidents transacting business in Alaska must submit an affidavit and provide the following tax liability security: 1. A Tax Liability Security Bond; or 2. proof of ownership of real property and twice the amount of estimated taxes; or 3. prepayment of estimated taxes and license fees in advance. Security must be renewed annually.
	DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES	
Utility Permit - Encroachment within Highway Right-of-Way	Dept. of Transportation & Public Fac. Division of Highways Regional Utilities Engineer (Contact Local Office)	Permit required to construct or place any utilities on, in or over a highway.
Encroachment Permit	Dept. of Transportation & Public Fac. Right-of-Way & Land Acquisition Agency (Contact Local Office)	Permit required to construct, change or maintain an encroachment across or along a public highway or right-of-way.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	FEDERAL PERMITS & AGENCIES	
	DEPARTMENT OF AGRICULTURE	
Mineral Material Permit - National Forest	Dept. of Agriculture U.S. Forest Service (Address listed below)	Permit needed to obtain sand and gravel on Federal land.
Special Use Permit	Dept. of Agriculture U.S. Forest Service (Address listed below)	Permit needed to utilize U.S. Forest Service land.
Permission to Cross Lands and Easements Owned by the U.S.	Dept. of Agriculture U.S. Forest Service Chugach National Forest 222 East Northern Lights Blvd. Anchorage, Alaska 99502 Phone: 279-5541	Permission required to cross lands and easements owned by the U.S. and administered by the Forest Service. (This applies to lands having National Forest status.)
	- or -	
	Tongass National Forest Forest Supervisor Ketchikan Area - Federal Bldg. Ketchikan, Alaska 99901 Phone: 225-3101	Chatham Area P.O. Box 1980 Sitka, Alaska 99835 (Covers Sitka, Juneau, & Skagway) Phone: 747-6671	Stikine Area Box 309 Petersburg, Alaska 99833 Phone: 772-3841
	DEPARTMENT OF DEFENSE	
Discharge of Dredged or Fill Material into U.S. Waters	U.S. Army Corps of Engineers P.O. Box 7002 Anchorage, Alaska 99510 Phone: 279-4123 or 752-4942	Permit needed for any dredged or fill material in U.S. waters including wetlands. Permit cost is $100 for commercial use or $10 for noncommercial use.
Structures or Work in/or Affecting Navigable Waters	U.S. Army Corps of Engineers (Address same as above)	Permit needed for any work or placement of structures in U.S. waters.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF THE INTERIOR	
Land Lease Authorization - Indian Land	Dept. of the Interior Bureau of Indian Affairs (Address listed below) Southcentral Area Superintendent P.O. Box 120 Anchorage, Alaska 99510 Phone: 271-4088	Approval required for leasing Indian lands.
	- or -	
	Fairbanks Area Superintendent Federal Bldg. & Courthouse 101 12th Avenue Box 16 Fairbanks, Alaska 99701 Phone: 452-1951 Ext. 222 Bethel Area Superindendent P.O. Box 347 Bethel, Alaska 99559 Phone: 543-2726 Nome Area Superintendent P.O. Box 1108 Nome, Alaska 99762 Phone: 443-2284 Southeastern Area Superintendent Box 3-8000 Juneau, Alaska 99802 Phone: 586-7454	
Rights-of-Way (Indian Land)	Dept. of the Interior Bureau of Indian Affairs (Address same as above)	Must have consent of landowners to gain an easement over Indian lands.
Rights-of-Way for Bureau of Land Management Lands	Dept. of the Interior Bureau of Land Management 701 "C" Street Box 13 Anchorage, Alaska 99513 Phone: 271-5060	Permit required for persons wishing to gain access to or through Federal lands under the jurisdiction of BLM.
Vegetative Mineral Material	Dept. of the Interior Bureau of Land Management District Office 4700 East 72nd Avenue Anchorage, Alaska 99502 Phone: 344-9661	Permission required for obtaining gravel, sand or rock located on public lands for use on project.
National Wildlife Refuge Lands - Special Use Permit	Dept. of the Interior U.S. Fish & Wildlife Service 1011 East Tudor Road Anchorage, Alaska 99503 Phone: 276-3800	Permit required for easements, roads, utilities, in Wildlife Refuge lands.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	U.S. DEPARTMENT OF TRANSPORTATION	
Alaska Railroad - Permit & Construction Agreement	U.S. Dept. of Transportation Real Estate Officer The Alaska Railroad Pouch 7-2111 Anchorage, Alaska 99510 Phone: 265-2465	Permit required for access to or through railroad rights-of-way or land.
Permit for Bridges over Navigable Waters	U.S. Dept. of Transportation U.S. Coast Guard 17th Coast Guard District P.O. Box 3-5000 Juneau, Alaska 99802 Phone: 586-7368	Permit required for building a temporary or permanent bridge or causeway over waters.
Private Aids to Navigation	Dept. of Transportation U.S. Coast Guard 17th Coast Guard District P.O. Box 3-5000 Juneau, Alaska 99802 Phone: 586-7368	Private aids to navigation are required to be installed on man-made facilities in or over navigable waters if the USCG determines the facilities to be obstructions to navigation. Artificial islands and fixed structures, including mobile offshore drilling units, built for the development of seabed resources require private aids to navigation. No fee, public notice or hearing required. Submit application 30 days before work on site commences.
General Permit for Facilities to Handle Dangerous Cargo (as defined in Title 33, Port 126.07 Code of Federal Regulations)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office, Addresses listed below) Western Alaska 701 "C" Street, Box 17 Anchorage, Alaska 99513 Phone: 271-5137	An aurthorization granted by regulation through the U.S. Coast Guard Captain of the Port 17 (COTP) conditional upon the observance and fulfillment of applicable safety regulations. The conditions set forth in Title 33 Code of Federal Regulations part 126.15 must be strictly observed at all times. The COTP will conduct a thorough inspection and survey of the waterfront facility prior to authorizing the general permit. Annual reinspection and biannual surveys will be conducted.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION

U.S. DEPARTMENT OF TRANSPORTATION (Continued)

	Prince William Sound	Southeast Alaska	Ketchikan Area
	P.O. Box 486 Valdez, Alaska 99686 Phone: 835-4791	612 Willoughby Juneau, Alaska 99802 Phone: 586-7288	% USCG Base Ketchikan Ketchikan, Alaska 99901 Phone: 225-4496

Application and Permit to Handle Hazardous Materials (CG-4260) (Applies to Facilities and Vessels)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office, Addresses listed above)	This application and permit is required by Title 33 Code of Federal Regulations part 126.17 when carrying or storing Commercial or Military Class "A" explosives and nitro-carbo-nitrates and certain ammonium nitrates. Permit may apply to both vessel and facility.
Letter of Intent (Waterfront Facilities Handling Bulk Petroleum)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office Addresses listed above)	The Letter of Intent must be submitted to the COTP 60 days prior to the initial transfer operations of bulk petroleum products. Title 33 Code of Federal Regulations part 154.110 provides further details.
Operations Manual (Waterfront Facilities Handling Bulk Petroleum)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office Addresses listed above)	The manual should be submitted with the Letter of Intent for review by the COTP. Further information may be found in Title 33 Code of Federal Regulations part 154.300.
Welding and Hot Work Permit (CG-4201) (For all Waterfront Facilities)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office Addresses listed above)	The permit authorizes welding, burning or other hot-work to be performed on the waterfront facility or on vessels moored thereto while hazardous materials are present or handled.
Structures which may Interfere with Airplane Flight Paths - Notice of Proposed Construction or Alteration	U.S. Dept. of Transportation Federal Aviation Administration Air Traffic Division 701 "C" Street Box 14 Anchorage, Alaska 99501 Phone: 271-5892	Notice is required for construction of any structure which may interfere with airplane flight paths.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF THE TREASURY	
Use of Explosives - Permit & License	Dept. of the Treasury Bureau of Alcohol, Tobacco & Firearms Room G-79 U.S. Courthouse 4th & "F" Street Anchorage, Alaska 99501 Phone: 271-5701	Permit required to obtain explosives from outside the user's State and for the user's own use.
Customhouse Broker's License	Dept. of the Treasury U.S. Custom Service 620 East 10th Avenue Anchorage, Alaska 99501 Phone: 271-4043	A person must obtain a Costomhouse Broker's License in order to transact customs business on behalf of others.
Customs Bonded Warehouse	Dept. of the Treasury U.S. Customs Service (Address same as above)	An owner or lessee wishing to establish a bonded warehouse must make written application to the District Customs office giving the location, describing the premises and stating the class of warehouse to be established. There are eight different classes of warehouses. Applicant should contact the agency for assistance on application.
	FEDERAL BUREAUS & COMMISSIONS	
	U.S. ENVIROMENTAL PROTECTION AGENCY	
Environmental Impact Statement	U.S. Environmental Protection Agency 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	The Environmental Impact Statement must explain the purpose and need for the project and is required to ensure that environmental information is available to public officials and citizens.
Permit to Discharge into Water - National Pollutant Discharge Elimination System (NPDES)	U.S. Environmental Protection Agency (Address same as above)	Permit needed for any activity or waste water system which discharges into a waterway.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	U.S. ENVIRONMENTAL PROTECTION AGENCY (Continued)	
Disposal of Hazardous Waste	U.S. Environmental Protection Agency Solid Waste Section 1200 Sixth Avenue Seattle, Washington 98101 Phone: (206) 442-1260 - or - 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	Approval must be granted prior to discharge or disposal of any hazardous or toxic waste.
Oil Storage Facilities - Oil Spill Prevention, Containment & Countermeasure Plans (SPCC)	U.S. Environmental Protection Agency (Address same as above) Phone: 271-5083	Spill Prevention Control Plans are required by agency of any onshore or offshore oil storage facilities.
	FEDERAL COMMUNICATIONS COMMISSION	
Radio and Wire Communications - Construction Permits and Licenses	Federal Communications Commission Engineer-in-Charge P.O. Box 2955 Anchorage, Alaska 99510 Phone: 276-7455	Licenses and permits are required to construct, install or engage in wire and/or radio communications.
	INTERSTATE COMMERCE COMMISSION	
Freight Forwarder Permit	Interstate Commerce Commission Bureau of Operations Washinton D.C. 20423 Phone: (202) 275-7252	A permit is required if a person wishes to transport or to arrange the transportation of property across state boundaries for compensation. The following items must be submitted to the Commission: 1. An application and permit fee; 2. a surety bond or a Certificate of Insurance or qualification of a self insurer; 3. a summary of the authority the applicant seeks for publication in federal register. A 30 day comment period follows after date of publication. Oral hearings may be required, if necessary.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	LOCAL GOVERNMENT	If a project, or a portion of a project, is located within the boundaries of any local government, (city, borough, etc.), the developer should contact local authorities regarding their zoning and permit requirements.

FLOW CHART - STATE & FEDERAL AGENCY CONTACT FOR THE CONSTRUCTION AND OPERATION OF WATERFRONT WAREHOUSES & DOCK FACILITIES IN ALASKA

Prepared By: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 7/1981

DEVELOPER CONTACTS:

- **Local Government** -- Local Government Zoning and Permit Requirements
- **Ak. Dept. of Revenue** -- Alaska Business License - Nonresident Affidavit and Tax Security Requrements
- **Ak. DNR** -- Leasing of Lands - Park Lands - Material Sale - Burning Permit - Easements
- **U.S. Forest Service** -- Permission to Cross Lands/Easements owned by the U.S. - Special Land Use Permit - Mineral Material
- **U.S. Dept. Interior** -- Rights of Way for BLM Lands - Rights-of-Way for Indian Lands - Wildlife Refuge Lands - Vegetive Mineral Permit
- **U.S. Dept. Trans.** -- Alaska Railroad Lands - Permit & Construction Agreement
- **U.S. EPA** -- Environmental Impact Statement - Oil Storage Facilities (SPCC) - Permit to Discharge into Waters - Disposal of Hazardous Wastes
- **U.S. Corps of Engs.** -- Dredged or Fill Material in U.S. Waters - Structures/Work in or Affecting U.S. Waters
- **Ak. Dept. Env. Cons.** -- Certificate of Reasonable Assurance - Permit to Interfere with Salmon Spawning Streams and Waters - Air Quality Control - Plan Review for Sewage or Water Systems - Oil Discharge Contingency Plans - Surface Oiling Permit
- **Ak. Dept. Fish & Game** -- Anadromous Fish Protection Permit - Critical Habitat Area Permit - Fishways for Obstructions to Fish Passage - State Game Refuge Permit
- **Ak. DPDP** -- Certificate of Consistency (CZM)
- **Ak. Dept. Public Safety** -- Life/Fire Safety Plan Check for Construction/Occupancy of Buildings
- **U.S. Coast Guard** -- Private Aids to Navigation - Permit for Facilities Handling Dangerous Cargo or Hazardous Material - Letter of Intent & Operations Manual (Bulk Petroleum Facilities) - Bridges or Causeways - Welding

Ak. DCED
Articles of Incorp.
Construction Contractors License
Foreign Corps.

Ak. Dept. Labor
Fire & Unfired Pressure Ves.
Health/Hazards Inspection
Unemp. Insur.
Workmen's Comp.
Foreign Labor

Ak. Dept. Pub. Safety
Oversize/ Overweight Vehicles

Ak. Dept. Trans.
Utility Permit
Encroachment Permit

USFAA
Structures in Air Flight Paths

US Treas.
Use of Explo.
Customs Broker's License
Customs Bonded Warehouse

US ICC
Freight Forwarder Permit

US FCC
Radio & Wire Comm. Permits/ Licenses

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez) - (State, Federal and local permits that may be needed for the construction of facilities in Valdez, Alaska The final determination of which permits will be require will depend on the final design and plan of operation for the project and will be made by the responsible agencies. Permits required also depend on the type of land used. Contact the local offices nearest your project for assistance. The area code throughout the State is 907.)

PROJECT: The facility will be located in the old town of Valdez. There is a 99-year lease on the land for the project. The facility will use water from an established well and generators for power. The project will be developed by private interests.

PREPARED BY: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 8/81

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	STATE APPROVALS & AGENCIES	
	OFFICE OF THE GOVERNOR	
Alaska Coastal Management Program - Certificate of Consistency	Division of Policy Development & Planning Dave Haas, State Clearinghouse Pouch AW Juneau, Alaska 99811 Phone: 465-3563, 3564, 3565	Establishes coastal policies, rules, responsibilities, if no local program approved, State standards will apply for projects in the coastal zone.
	DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT	
Articles of Incorpation	Dept. of Commerce & Economic Dev. Corporation Section Pouch D Juneau, Alaska 99811 Phone: 465-2530	Persons wishing to form a corporation or a cooperative must register with the Department. Corporations: filing fees are based on number and value of shares. $100 biennial corporation tax required. Cooperative: License fee is based on the number and par value of stock.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF COMMERCE & ECONOMIC DEVEOPMENT (Continued)	
Foreign Corporations - Certificate of Authority	Dept. of Commerce & Economic Dev. Corporation Sections (Address same as above)	A Certificate of Authority is required of a corporation incorporated outside Alaska who wishes to establish corporate existence in Alaska. It gives the authority for the corporation to transact business in Alaska.
Construction Contractor's License	Dept. of Commerce & Economic Dev. Division of Occupational Licensing Pouch D Juneau, Alaska 99811 Phone: 465-2546	License needed to act as a construction contractor in Alaska - bonding and insurance required - June 30th is annual renewal date of license.
	DEPARTMENT OF ENVIRONMENTAL CONSERVATION	
Air Quality Control Permit to Open Burn	Dept. of Environmental Conservation (Contact Local Office)	Permit required to burn debris, brush, trees, garbage, rubber, oil waste, any material which gives off black smoke or odors, also includes flaring.
Air Quality Control Permit to Operate	Dept. of Environmental Conservation (Contact Local Office)	Permit Needed to omit air contaminants.
Certificate of Reasonable Assurance - (Water Quality Certification)	Dept. of Environmental Conservation (Contact Local Office)	Certification of Compliance with Alaska Water Quality Standards is required during work, discharge or placement of structures in waters.
Plan Review for Sewage Systems or Water & Wastewater Treatment Works	Dept. of Environmental Conservation (Contact Local Office)	Plans must be reviewed prior to the construction, installation, modification or operation of systems.
Solid Waste Disposal Permit	Dept. of Environmental Conservation (Contact Local Office)	Permit required for the disposal of solid waste or hazardous material.
Surface Oiling Permit	Dept. of Environmental Conservation (Contact Local Office)	Permit required for oiling any roads at project.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF LABOR	
Prevention of Accident & Health Hazards - Inspections	Dept. of Labor Div. of Occupational Safety & Health (Contact Local Office)	Inspections are conducted at work places where people are employed and at construction work sites where private contractors are in charge of the job. The Department also provides consultation services on individual safety and health matters.
Fired and Unfired Pressure Vessels - Inspections	Dept. of Labor Wage & Hour Division/Mechanical Engineering Division (Contact Local Office)	Inspections are conducted on the construction, installation, and operation of pressure vessels.
Foreign Labor Requirements	Dept. of Labor P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-4531	Employers wishing to hire foreign employees to work in Alaska must file an alien labor certification request at the local State Employment Office.
Unemployment Insurance	Dept. of Labor Employment Security Division P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-2787	Individuals, companies, and organizations who have one or more workers in covered employment for any part of a day must register with the Department.
Worker's Compensation Act	Any Licensed Insurance Broker - or Dept. of Labor Worker's Compensation Division P.O. Box 1149 Juneau, Alaska 99811 Phone: 465-2790	Any employer with one or more employees working within the State must buy a worker's compensation insurance policy and submit proof of insurance to the Department.
	DEPARTMENT OF REVENUE	
Alaska Business License	Dept. of Revenue Pouch SA Juneau, Alaska 99811 Phone: 465-2333	Must obtain a license to conduct business in the State.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
Nonresident Afidavit and Tax Security Requirements	DEPARTMENT OF REVENUE Dept. of Revenue Tax Security & Business License Unit Pouch SA Juneau, Alaska 99811 Phone: 465-2329	Nonresidents transacting business in Alaska must submit an affidavit and provide the following tax liability security: 1. A tax Liability Security Bond; or 2. proof of ownership of real property and twice the amount of estimated taxes; or 3. prepayment of estimated taxes and license fees in advance. Security must be renewed annually.
Merchant Vessels - Certificate of Inspection	FEDERAL PERMITS & AGENCIES U.S. DEPARTMENT OF TRANSPORTATION Dept. of Transportation U.S. Coast Guard Marine Safety Office (Address listed below) Western Alaska 701 "C" Street, Box 17 Anchorage, Alaska 99513 Phone: 271-5137	Inspections are required of vessels carrying passengers, cargos, hazardous materials, and tank ships and tank barges carrying petroleum and chemical products. Applications for U.S. vessels and foreign vessels may be obtained at any USCG Office. Blue print review and physical inspection will be conducted prior to the issuance of an original certificate. Blue print of vessel must be submitted. Annual reinspections will be conducted. Must notify USCG before drydocking and if repairs are going to be done.

Prince William Sound
P.O. Box 486
Valdez, Alaska 99686
Phone: 835-4791

Southeast Alaska
612 Willoughby
Juneau, Alaska 99802
Phone: 586-7288

Ketchikan Area
% USCG base Ketchikan
Ketchikan, Alaska 99901
Phone: 225-4496

Kodiak Area
% USCG Subport Center
Box 33
Kodiak, Alaska 99619
Phone: 487-5888

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF TRANSPORTATION (Continued)	
Letter of Intent (Waterfront Facilities Handling Bulk Petroleum)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office Addresses listed above)	The Letter of Intent must be submitted to the COTP 60 days prior to initial transfer operations of bulk petroleum products. Title 33 Code of Federal Regulations part 154.110 provides further details. (Regulations should be reviewed. Contact the agency if there are any questions.)
Operations Manual (Waterfront Facilities Handling bulk Petroleum)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office Addresses listed above)	The Operations Manual must be submitted with the Letter of Intent for review by the COTP. Further information may be found in Title 33 Code of Federal Regulations part 154.300.
Welding and Hot Work Permit (CG-4201) (For all Waterfront Facilities)	Dept. of Transportation U.S. Coast Guard Marine Safety Office (Contact Juneau, Ketchikan, Anchorage or Valdez Office Addresses listed above)	This permit authorizes welding, burning or other hot-work to be performed on the waterfront facility or on vessels moored thereto while hazardous materials are present or handled.
Structures which may Interfere with Airplane Flight Paths - Notice of Proposed Construction or Alteration	Dept. of Transportation Federal Aviation Administration Air Traffic Division 701 "C" Street Anchorage, Alaska 99501 Phone: 271-5892	Notice is required for construction of any structure which may interfere with airplane flight paths.
	U.S. ENVIRONMENTAL PROTECTION AGENCY	
Clean Air Act - Prevetion of Significant Deterioration of Air Quality Program	U.S. Environmental Protection Agency (Address same as above)	Approval required for facilities which will emit air pollutants.
Permit to Discharge into Water - National Pollutant Discharge Elimination System (NPDES)	U.S. Environmental Protection Agency 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	Permit needed for any activity or waste water system which discharges into a waterway.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	U.S. ENVIRONMENTAL PROTECTION AGENCY (Continued)	
Disposal of Hazardous Waste	U.S. Environmental Protection Agency Solid Waste Section 1200 Sixth Avenue Seattle, Washington 98101 Phone: (206) 442-1260 - or - 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	Approval must be granted prior to discharge or disposal of any hazardous or toxic waste.
New Source Performance Standards	U.S. Environmental Protection Agency 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	Contact agency for approval on the construction or modification of any source of air pollution (applies to industry and production facilities).
Oil Storage Facilities - Oil Spill Prevention, Containment & Countermeasure Plans (SPCC)	U.S. Environmental Protection Agency (Address same as above) Phone: 271-5083	Spill Prevention Control Plans are required by agency of any onshore or offshore oil storage facilities.
	FEDERAL COMMUNICATIONS COMMISSION	
Radio and Wire Communications - Construction Permits and Licenses	Federal Communications Commission Engineer-in-Charge P.O. Box 2955 Anchorage, Alaska 99510 Phone: 276-7455	Licenses and permits are required to construct, install or engage in wire and/or radio communications.

LOCAL GOVERNMENT

If a project, or a portion of a project, is located within the boundaries of any local government, (city, borough, etc.), the developer should contact local authorities regarding their permit and zoning requirements.

City of Valdez
P.O. Box 307
Valdez, Alaska 99686
Phone: 835-4313

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	U.S. DEPARTMENT OF TRANSPORTATION	
Private Aids to Navigation	Dept. of Transportation U.S. Coast Guard 17th Coast Guard District P.O. Box 3-5000 Juneau, Alaska 99802 Phone: 586-7368	Private aids to navigation are required to be installed on man-made facilities in or over navigable waters if the USCG determines the facilities to be obstructions to navigation. Artificial islands and fixed structures, including mobile offshore drilling units, built for the development of seabed resources require private aids to navigation. No fee, public notice or hearing required. Submit application 30 days before work on site commences.
Structures which may Interfere with Airplane Flight Paths - Notice of Proposed Construction or Alteration	U.S. Dept. of Transportation Federal Aviation Administration Air Traffic Division 701 "C" Street Box 14 Anchorage, Alaska 99501 Phone: 271-5892	Notice is required for construction of any structure which may interfere with airplane flight paths.
Letter of Intent - (Waterfront Facilities Handling Bulk Petroleum)	U.S. Dept. of Transportation U.S. Coast Guard Marine Safety Office 612 Willoughby Avenue Juneau, Alaska 99801 Phone: 586-7280	The Letter of Intent must be submitted to the COTP 60 days prior to initial transfer operations of bulk petroleum products. Title 33 Code of Federal Regulations part 1154.110 provides further details. (Regulations should be reviewed, contact the agency if there are any questions.)
Operations Manual (Waterfront Facilities Handling Bulk Petroleum)	U.S. Dept. of Transportation U.S. Coast Guard Marine Safety Office (Address same as above)	The Operations Manual must be submitted with the Letter of Intent for review by the COTP. Further information may be found in Title 33 Code of Federal Regulations part 154.300.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF THE TREASURY	
Use of Explosives - Permit & License	Dept. of the Treasury Bureau of Alcohol, Tobacco & Firearms Room G-79 U.S. Courthouse 4th & "F" Street Anchorage, Alaska 99501 Phone: 271-5701	Permit required to obtain explosives from outside the user's State and for the user's own use.
	FEDERAL BUREAUS & COMMISSIONS **U.S. ENVIRONMENTAL PROTECTION AGENCY**	
Environmental Impact Statement	U.S. Environmental Protection Agency 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	The Environmental Impact Statement must explain the purpose and need for the project and is required to ensure that environmental information is available to public officials and citizens.
Clean Air Act - Preveniton of Significate Deterioration of Air Quality Program	U.S. Environmental Protection Agency (Address same as above)	Approval required for facilities which will emit air pollutants.
Permit to Discharge into Water - National Pollutant Discharge Elimination System (NPDES)	U.S. Environmental Protection Agency (Address same as above)	Permit needed for any activity or waste water system which discharges into a waterway.
Disposal of Hazardous Waste	U.S. Environmental Protection Agency Solid Waste Section 1200 Sixth Avenue Seattle, Washington 98101 Phone: (206) 442-1260 - or - 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	Approval must be granted prior to discharge or disposal of any hazardous or toxic waste.
New Source Performance Standards	U.S. Environmental Protection Agency 701 "C" Street Box 19 Anchorage, Alaska 99513 Phone: 271-5083	Contact agency for approval on the construction or modification of any source of air pollution (applies to industry and production facilities).

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	U.S. ENVIRONMENTAL PROTECTION AGENCY (Continued)	
Oil Storage Facilities - Oil Spill Prevention, Containment & Countermeasure Plans (SPCC)	U.S. Environmental Protection Agency (Address same as above) Phone: 271-5083	Spill Prevention Control Plans are required by agency of any onshore or offshore oil storage facilities.
	FEDERAL COMMUNICATIONS COMMISSION	
Radio and Wire Communications - Construction Permits and Licenses	Federal Communications Commission Engineer-in-Charge P.O. Box 2955 Anchorage, Alaska 99510 Phone: 276-7455	Licenses and permits are required to construct, install or engage in wire and/or radio communications.

LOCAL GOVERNMENT

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FLOW CHART - STATE & FEDERAL AGENCY CONTACT FOR THE CONSTRUCTION OF A MARINE HAUL-OUT & REPAIR FACILITY IN VALDEZ, ALASKA

Prepared By: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 8/1981

DEVELOPER CONTACTS:

- **Local Government** -- Local Government Zoning and Permit Requirements
- **Ak. Dept. of Revenue** -- Alaska Business License - Nonresident Affidavit and Tax Security Requirements
- **Ak. Com. & Econ. Dev.** -- Articles of Incorporation - Construction Contractor License - Foreign Corporations
- **Ak. DNR** -- Leasing of Lands - Material Sale - Burning Permit - Easements
- **U.S. EPA** -- Environmental Impact Statement - Oil Storage Facilities (SPCC) - Permit to Discharge into Waters - Disposal of Hazardous Wastes - Clean Air Act - New Source Performance Standards
- **U.S. Corps of Engs.** -- Dredged or Fill Material in U.S. Waters - Structures/Work in or Affecting U.S. Waters
- **Ak. Dept. Env. Cons.** -- Certificate of Reasonable Assurance - Permit to Interfere with Salmon Spawning Streams and Waters - Air Quality Control - Plan Review for Sewage or Water Systems - Oil Discharge Contingency Plans - Surface Oiling Permit - Solid Waste Disposal
- **Ak. Dept. Fish & Game** -- Anadromous Fish Protection Permit - Fishways for Obstructions to Fish Passage
- **Ak. DPDP** -- Certificate of Consistency (CZM)
- **Ak. Dept. Public Safety** -- Life/Fire Safety Plan Check for Construction/Occupancy of Buildings
- **U.S. Coast Guard** -- Private Aids to Navigation - Letter of Intent & Operations Manual (Waterfront Facilities Handling Bulk Petroleum)

- **US FCC** — Radio & Wire Commun. Licenses/ Permits
- **Ak. Dept. Labor** — Fire & Unfired Pressure Ves. Health/Hazards Inspection Unemp. Insur. Workmen's Comp. Foreign Labor
- **Ak. Dept. Trans.** — Utility Permit Encroachment Permit
- **USFAA** — Structures in Air Flight Paths
- **US Treas.** — Use of Explo.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez) - (State, Federal and local permits that may be needed for the operation of the facility in Alaska. The final determination of which permits will be required will depend on the final design and plan of operation for the project and will be made by the responsible agencies. Permits required also depend on the type of land used. Contact the local offices nearest your project for assistance. The area code throughout the State is 907.)

PREPARED BY: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 8/81

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	STATE APPROVALS & AGENCIES	
	DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT	
Articles of Incorpation	Dept. of Commerce & Economic Dev. Corporation Section Pouch D Juneau, Alaska 99811 Phone: 465-2530	Persons wishing to form a corporation or a cooperative must register with the Department. Corporations: Filing fees are based on number and value of shares. $100 biennial corporation tax required. cooperative: License fee is based on the number and par value of stock.
Foreign Corporations - Certificate of Authority	Dept. of Commerce & Economic Dev. Corporation Sections (Address same as above)	A Certificate of Authority is required of a corporation incorporated outside Alaska who which wishes to establish corporate existence in Alaska. It gives the authority for the corporation to transact business in Alaska.
	DEPARTMENT OF ENVIRONMENTAL CONSERVATION	
Food Service Permit	Dept. of Environmental Conservation	Inspection and permit required for all permanent, temporary and mobile food service activities regardless of whether there is a charge for the food. (This applies to work camps, also.)
Certificate of Reasonable Assurance - (Water Quality Certification)	Dept. of Environmental Conservation (Contact Local Office)	Certification of Compliance with Alaska Water Quality Standards is required during work, discharge or placement of structures in waters.
Solid Waste Disposal Permit	Dept. of Environmental Conservation (Contact Local Office)	Permit required for the disposal of solid waste or hazardous material.
Plan Review and/or Health Inspection of Public Establishments	Dept. of Environmental Conservation (Contact Local Office)	Pre-operation inspection is required of the facilities to ensure compliance with the health and sanitation standards.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF ENVIRONMENTAL CONSERVATION (Continued)	
Oil Discharge Contingency Plans	Dept. of Environmental Conservation David Knuth, Oil Pollution Control Pouch 0 Juneau, Alaska 99811 Phone: 465-2650 or 2651	Contingency plans are required for oil storage facilities of 10,000 barrels or more of petroleum products. This also applies to tank vessels and offshore exploration or production facilities. Contingency plans are renewed every 3rd year of operation. Proof of financial responsibility must also be submitted.
Proof of Financial Resopnsibility (Oil Storage Facilities, Tank Vessels, Tank Barge, Oil Barges, Offshore Exploration Facilities)	Dept. of Environmental Conservation David Knuth Oil Pollution Control (Address same as above)	Proof of financial responsibility must be submitted as follows: 1. Storage facilities - onshore - $10 per barrel or $1 million, whichever is greater. 2. After July 1, 1981, offshore exploration or production facilities - at least $35 million per facility. 3. After January 1, 1981, tank vessels or tank barges involved in the Trans-Ak. Pipeline oil - $14 million per vessel. 4. Any other oil barge - at least $1 million per barge. 5. Any other tank vessels - at least $20 million. NOTE: Financial responsibility may be demonstrated by self insurance, insurance, surety or guarantee. The applicant and insurer, surety, or grantor shall appoint an agent for service of process in the State. Proof of responsibility must be domonstrated yearly.
	DEPARTMENT OF FISH & GAME	
Anadromous Fish Protection Permit	Dept. of Fish & Game Habitat Protection Service (Contact Local Office)	Approval required for any work in a listed anadromous river, lake or stream.
Fishways for Obstructions to Fish Passage	Dept. of Fish & Game Habitat Protection Service (Contact Local Office)	Approval needed for any obstructions across a stream.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF ENVIRONMENTAL CONSERVATION (Continued)	
Permit to Interfere with Salmon Spawning Streams and Waters	Dept. of Environmental Conservation (Contact Local Office)	Permit required for any activity which may obstruct, divert, pollute, dam, barricade, conserve, impound or render the waters inaccessible or uninhabitable for salmon.
Oil Discharge Contingency Plans	Dept. of Environmental Conservation David Knuth, Oil Pollution Control Pouch O Juneau, Alaska 99811 Phone: 465-2650 or 2651	Contingency plans are required for oil storage facilities of 10,000 barrels or more of petroleum products. This also applies to tank vessels and offshore exploration or production facilities. Contingency plans are renewed every 3rd year of operation. Proof of financial responsibility must also be submitted.
Proof of Financial Resopnsibility (Oil Storage Facilities, Tank Vessels, Tank Barge, Oil Barges, Offshore Exploration Facilities)	Dept. of Environmental Conservation David Knuth Oil Pollution Control (Address same as above)	Proof of financial responsibility must be submitted as follows: 1. Storage facilities - onshore - $10 per barrel or $1 million, whichever is greater. 2. After July 1, 1981, offshore exploration or production facilities - at least $35 million per facility. 3. After January 1, 1981, tank vessels or tank barges involved in the Trans-Ak. Pipeline oil - $14 million per vessel. 4. Any other oil barge - at least $1 million per barge. 5. Any other tank vessels - at least $20 million. NOTE: Financial responsibility may be demonstrated by self insurance, insurance, surety or guarantee. The applicant and insurer, surety, or grantor shall appoint an agent for service of process in the State. Proof of responsibility must be domonstrated yearly.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF FISH & GAME	
Anadromous Fish Protection Permit	Dept. of Fish & Game Habitat Protection Service (Contact Local Office)	Approval required for any work in a listed anadromous river, lake or stream.
Fishways for Obstructions to Fish Passage	Dept. of Fish & Game Habitat Protection Service (Contact Local Office)	Approval needed for any obstructions across a stream.
	DEPARTMENT OF LABOR	
Prevention of Accident & Health Hazards - Inspections	Dept. of Labor Div. of Occupational Safety & Health (Contact Local Office)	Inspections are conducted at work places where people are employed and at construction work sites where private contractors are in charge of the job. The Department also provides consultation services on individual safety and health matters.
Fired and Unfired Pressure Vessels - Inspections	Dept. of Labor Wage & Hour Division/Mechanical Engineering Division (Contact Local Office)	Inspections are conducted on the construction, installation, and operation of pressure vessels.
Foreign Labor Requirements	Dept. of Labor P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-4531	Employers wishing to hire foreign employees to work in Alaska must file an alien labor certification request at the local State Employment Office.
Unemployment Insurance	Dept. of Labor Employment Security Division P.O. Box 3-7000 Juneau, Alaska 99811 Phone: 465-2787	Individuals, companies, and organizations who have one or more workers in covered employment for any part of a day must register with the Department.
Worker's Compensation Act	Any Licensed Insurance Broker - or Dept. of Labor Worker's Compensation Division P.O. Box 1149 Juneau, Alaska 99811 Phone: 465-2790	Any employer with one or more employees working within the State must buy a worker's compensation insurance policy and submit proof of insurance to the Department.

MARINE HAUL-OUT AND REPAIR FACILITY (in Valdez)

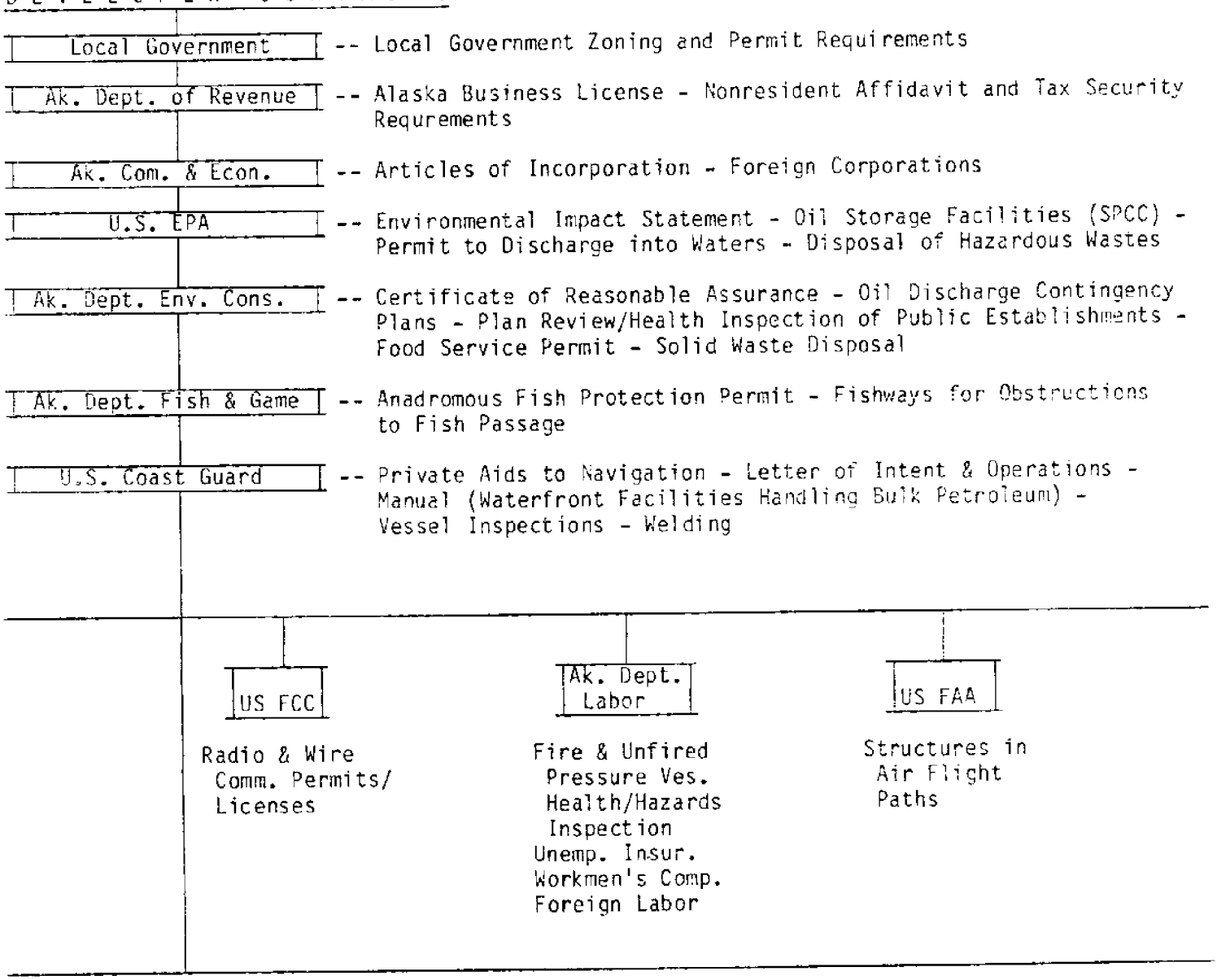
REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF NATURAL RESOURCES	
Leasing of Lands Other Than for the Extraction of Natural Resources	Dept. of Natural Resources Division of Forest, Land, & Water Mgmt. (Contact Local Office)	Lease required for exclusive use of State owned lands for a long or short-term period. This also applies to tidelands and submerged lands.
Rights-of-Way Easement	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	Authorization required for rights-of-way easement and construction or improvements on easements established on State lands.
Material Sale (Applies to sand, gravel, rock, peat, etc.)	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	To obtain material from State land for use on project.
Burning Permit	Dept. of Natural Resources Division of Forest, Land & Water Mgmt. (Contact Local Office)	Permit required for the burning of any material during the fire season, which is May 1st to September 30th.
	DEPARTMENT OF PUBLIC SAFETY	
Life/Fire Safety Plan Check for Construction/Occupancy of Buildings	Dept. of Public Safety Division of Fire Prevention (Contact Local Office)	Approval of the plans of buildings are required for fire protection and safety. This applies to commercial, industrial business, institutional or other public buildings or residential buildings containing four or more dwelling units. Fees are required if value of construction exceeds $25,000. Fees are 40% of building permit fee (Uniform Building Code). Altered/revised plan checks also have associated fees.
	DEPARTMENT OF REVENUE	
Alaska Business License	Dept. of Revenue Pouch SA Juneau, Alaska 99811 Phone: 465-2333	Must obtain a license to conduct business in the State.

REQUIRED APPROVAL	REGULATORY AGENCY	DESCRIPTION
	DEPARTMENT OF REVENUE (Continued)	
Nonresident Afidavit and Tax Security Requirements	Dept. of Revenue Tax Security & Business License Unit Pouch SA Juneau, Alaska 99811 Phone: 465-2329	Nonresidents transacting business in Alaska must submit an affidavit and provide the following tax liability security: 1. A tax Liability Security Bond; or 2. proof of ownership of real property and twice the amount of estimated taxes; or 3. prepayment of estimated taxes and license fees in advance. Security must be renewed annually.
	DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES	
Utility Permit - Encroachment within Highway Right-of-Way	Dept. of Transportation & Public Fac. Division of Highways Regional Utilities Engineer (Contact Local Office)	Permit required to construct or place any utilities on, in or over a highway.
Encroachment Permit	Dept. of Transportation & Public Fac. Right-of-Way & Land Acquisition Agency (Contact Local Office)	Permit required to construct, change or maintain an encroachment across or along a public highway or right-of-way.
	FEDERAL PERMITS & AGENCIES **DEPARTMENT OF DEFENSE**	
Discharge of Dredged or Fill Material into U.S. Waters	Dept. of Defense Corps of Engineers P.O. Box 7002 Anchorage, Alaska 99510 Phone: 279-4123 or 752-4942	Permit needed for any dredged or fill material in U.S. waters.
Structures or Work in/or Affecting Navigable Waters	Dept. of Defense Corps of Engineers (Address same as above)	Permit needed for any work or placement of structures in U.S. waters.

FLOW CHART - STATE & FEDERAL AGENCY CONTACT FOR THE OPERATION OF A MARINE HAUL-OUT AND REPAIR FACILITY IN VALDEZ, ALASKA

Prepared By: Alaska Permit Information Center
Alaska Department of Environmental Conservation JPC 8/1981

DEVELOPER CONTACTS:



THE COAST GUARD ROLE IN PORT OPERATIONS

Captain John C. Hanson
Chief, Merchant Marine Safety Division
Seventeenth Coast Guard District
Juneau, Alaska

Today I wish to speak about a side of the Coast Guard that is not well known to the general public, but is very familiar to those of you who make your day-to-day living on the waterfront. Yes, the Coast Guard does have responsibilities in the areas of search and rescue, fisheries enforcement, and drug interdiction. But we also have lesser known and less visible responsibilities in material inspection of vessels and waterfront facilities, dangerous goods handling and stowage, environmental protection, port access routes, security of vessels and waterfront facilities, licensing and documenting seamen, vessels documentation, pollution prevention and clean-up, and many other phases of the marine industry.

As you can see, these responsibilities cut across all activities in a port area. Now, the surprising thing is that with such a varied involvement in port operations, the Coast Guard exerts direct control of port development only in rare instances. If you build a bridge over navigable waters, then the Coast Guard will issue the permit. If you wish to construct a deepwater port, the Coast Guard will review your application and make recommendations to the Secretary of Transportation, who issues the permit. Except for these two instances, the Coast Guard indirectly influences port development through the operational constraints or control that we may impose. That is not to say that indirect influence cannot be effective. Your son is away at college and fails to write regularly. In your next letter, add a postscript, "I am sure the enclosed check will be helpful." Then neglect to include the check and I am sure he will promptly contact you by the best means available. That is effective indirect control.

PORT DEVELOPMENT AND OPERATION

I am not going to bore you with citations from the statutes and regulations. I do propose to discuss in general terms the responsibilities of the Coast Guard and the contacts you can expect to have with Coast Guard personnel in your day-to-day efforts to develop and operate port areas. We are all aware that the responsibilities with which the Coast Guard is presently charged may, in the future, be given to other agencies. However, to the best of my knowledge, I will describe the situation as it exists.

There are generally three program areas which are directly involved with port operations:

1. Commercial vessel safety which deals with the design, construction, manning, operation, and repair of commercial vessels.

2. Safety and security of port facilities.

3. Marine environmental protection.

With regard to the first, commercial vessel safety: If you have many millions of dollars, and you decide to build a tanker to engage in the oil trade from Valdez, the Coast Guard would:

1. Review and approve the plans for your vessel.

2. Inspect the vessel during construction in the shipyard.

3. Specify the required manning for the vessel.

4. When completed and ready for service, issue the required certificates, both national and international which identify the vessel and allow it to engage in its trade in an orderly manner.

5. Document the vessel as a merchant vessel of the United States.

6. Throughout the life of the vessel, from time-to-time reinspect its condition and renew the required documents as necessary.

The purpose of all this is to prevent damage to or loss of life and property at sea by insuring that the vessel meets minimally acceptable national and international standards throughout her life. No one will disagree that it is easier to prevent casualties than to remedy the damage after one occurs. Not only is money and suffering saved, but you don't have to worry about the paper work associated with investigative reports to government agencies and to your own company safety department as well. This, very briefly, gives you some indication of the degree of involvement of the Coast Guard in the design and operation of commercial vessels.

The second area of concern to the Coast Guard is security and safety of waterfront facilities and port areas. For us "old timers," this conjures up visions of armed waterfront patrols and armed beach patrols eager to prevent any possible

sabotage of the war effort. Though we do not see this today, there is some concern over possible dangers of terrorist activities. Our primary efforts, however, are concentrated on maintaining reasonable and safe standards of operations along, over, and around the waterways and facilities. The general objective of this program can be described as "to safeguard the nation's ports, waterways, port facilities, and vessels, persons, and property in the vicinity of the ports from accidental or intentional destruction, damage, loss, or injury."

To accomplish this overall objective, you can expect to see us involved in your activities dealing with:

1. The handling, stowage, and transportation of hazardous materials. This includes not only the more exotic operations such as LNG loading at Kenai but also stuffing containers with packaged dangerous goods; cartons of insecticides, cans of lighter fluid, etc.

2. Waterfront facilities, their location, construction and operations. This is an instance where we can and sometimes do exert indirect influence. If you wish to construct a new port facility to handle a dangerous product or products, you will become involved in the process of obtaining permits for such construction. The Coast Guard will not issue the final permit, but will provide input on the proposed construction to other agencies involved in the process. We will be commenting on the conditions which may be imposed to insure that vessels may safely call at and transfer cargo at the proposed facility. In commenting on or making recommendations concerning port facility design and location, we will consider some of the following general conditions:

    a. Channel characteristics: depth of water, width, traffic patterns, anchorage areas, weather, tides, and currents.

    b. Location: land area available, security, fault zones, access for emergency response.

    c. Public interest: population density, adjacent hazardous facilities, economic impact, local zoning.

    d. Environmental considerations.

3. You will find us conducting periodic inspections of your facilities to insure that the minimal conditions concerning aisle width, firefighting equipment, separation and segregation of cargoes, and handling procedures are properly observed. Such inspections are, when possible, conducted in the company of the local fire marshal who has as great a concern for waterfront fires as does the Coast Guard.

4. I mentioned before the responsibility for inspection of U.S. flag vessels from inception, throughout their useful life, until scrapped. Part of this will include random monitoring of cargo transfer procedures when using your facilities. Those of you who will be involved with foreign flag vessels as agents, stevedores, ship chandlers, etc., will find that we do not overlook them. Though our authority insofar as foreign flag vessels has always existed, it was given more emphasis and direct guidance by the Port and Tanker Safety Act. Concerned with serious incidents involving foreign flag vessels in U.S. ports and off our coast, Congress asked the Coast Guard to undertake greater inspection activities with regard to these vessels. You will find us inspecting their cargo systems, navigational gear, manning, and transfer procedures much as we check these items on U.S. vessels.

5. Port access routes and vessel traffic systems. The Coast Guard is, of course, the agency which operates VTS in various ports throughout the country where it has been determined that they are beneficial, contribute to orderly and safe maritime traffic, and are in the best interests of the public. The expansion of these systems is doubtful, at least in the near future, but where an analysis of traffic patterns and recurring or potential conflicts between various users of our waters dictate, some form of traffic control may result. We find the use of port access routes or fairways and voluntary traffic lanes most helpful. In Alaska we presently have the VTS in Valdez and voluntary routing in Kachemak Bay. We forsee no further controls in the near future, but outer continental shelf and port development may alter this.

MARINE ENVIRONMENTAL PROTECTION

Under the old Refuse Act of the 1890s, the Coast Guard has shared responsibility for controlling pollution of the nation's waterways for many years. However, it was not a

program which was vigorously pursued. In the last decade, as concern for the quality of our waters has grown, the Coast Guard has been given many new responsibilities in this area and they include:

1. Prevention of pollution from routine transfer and vessel operations. Much of this has previously been mentioned and consists of random inspections and monitoring of facilities, vessels, and transfers.

2. Clean-up of pollution once it occurs. When all our efforts to prevent casualties and operational mishaps fail, pollution occurs and clean-up is necessary. Responsibility for insuring that this is completed satisfactorily is divided between ourselves and EPA. Generally, EPA is responsible for inland spills and the Coast Guard for coastal spills, which are generally defined as those involving waters subject to tidal influence. If the spiller is known and undertakes clean-up, we merely monitor efforts to insure they are satisfactory. If the spiller is unknown, or refuses or cannot clean-up, then the Coast Guard, or EPA in the case of an inland spill, will conduct the clean-up. Of course, after it is complete, the costs are added up and the spiller is billed for the public funds expended.

ADMINISTRATION OF THE POLLUTION FUND

This fund, established by Congress, is administered by the Coast Guard and intended to insure that funds are readily available to finance clean-up action involving oil spills. It is available to the Coast Guard and to EPA, for coastal and inland spills respectively, and pays costs when the spiller is unidentified, or cannot or refuses to conduct clean-up operations. Funds expended are recovered to the maximum extent possible.

There are other funds intended to cover clean-up costs from specific sources, some are directly administered by the Coast Guard.

1. Offshore Oil Pollution Compensation Fund pays clean-up costs and certain damages for spills resulting from OCS activities. It is financed by a levy on oil produced on the OCS.

2. Deepwater Port Fund pays clean-up costs and certain damages from spills at deepwater ports. Financed by a levy on oil transferred at the deepwater port.

Just for general information, there are other funds for certain purposes which are administered by other agencies. The Fisherman's Compensation Fund, administered by the Department of Commerce, pays for damages to fishing gear as a result of OCS activity. The Trans-Alaska Pipeline Service Fund covers TAPS oil from its origin at Prudhoe until it is delivered ashore in a U.S. port. The Super Fund is administered by EPA and is used for response to chemical spills, hazardous waste/dump sites, etc.

Having described very generally the areas where you can expect to come in contact with the Coast Guard in our day-to-day regulatory efforts, the obvious question is, "who is my contact for discussion of any problems which may arise?" The best man for you to meet and get to know is the captain of the port. He is the man with all the described responsibilities and authority that goes with them. He can either solve your problem for you or recommend another person to contact who may have more detailed knowledge of your particular situation. In Alaska, there are just three Coast Guard captains of the port, located in Anchorage, Valdez, and Juneau. It has been said that one of the biggest liars in the world is the man who says, "I am from the Federal government and I am here to help you." I hope you don't find that our COTPs fit this description, and I do hope you will look on them as friends with whom you can discuss problems in port operations with the expectation of getting accurate and helpful advice.

THE CORPS OF ENGINEERS REGULATORY PROGRAM

James E. Caruth
Chief, Regulatory Functions Branch
U.S. Army Corps of Engineers
Anchorage, Alaska

The Department of the Army, acting through the Corps of Engineers, is responsible for administering several federal laws that regulate certain types of activities in the waters of the United States. The authorities for the regulatory program are based primarily on various sections of the River and Harbor Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972.

Terms that I will be using in my presentation that should be defined from the onset are "navigable waters of the United States" and "waters of the United States."

"Navigable waters of the United States" are those waters subject to the ebb and flow of the U.S. tide shoreward to the mean high water mark, and/or those which are presently used, formerly used, or susceptible to use, to transport interstate or foreign commerce.

"Waters of the United States" are: 1) all waters, including their adjacent wetlands, that are part of a surface tributary system to and including navigable waters of the United States, 2) interstate waters and their tributaries, including adjacent wetlands, and 3) all other waters of the United States not previously mentioned that are not part of a tributary system to interstate waters or navigable waters of the United States, the degradation or destruction of which could affect interstate commerce. The landward limit of jurisdiction in tidal waters, in the absence of adjacent wetlands, is the high tide line. The landward limit of jurisdiction in all other waters, in the absence of adjacent wetlands, is the ordinary high water mark.

Our primary jurisdiction under the River and Harbor Act of 1899 is Section 10. This section requires that a permit be obtained from the Corps of Engineers for the construction of any structure in or over any navigable water of the U.S., the excavation from or dredging of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters. As you can see, any construction or work to be performed for port development seaward of the mean high water line must be authorized by a Department of the Army permit under Section 10.

In 1972, Congress passed the Federal Water Pollution Control Act Amendments (FWPCA). This legislation was enacted with the expressed purpose of restoring and maintaining the chemical, physical, and biological integrity of our nation's waters. This act established, under Section 404, a permit program to be administered by the Corps of Engineers for the discharge of dredged or fill material into the waters of the United States. Amendments were made to the FWPCA in 1977, and it is now referred to as the Clean Water Act. All structures or work in navigable waters of the United States which involve the discharge of dredged or fill material require both Section 10 and Section 404 permits. Two different authorizations are required; however, only one permit document is processed. All discharges of dredged or fill material for construction between the mean high water line and the high tide line of tidal waters and/or in wetlands adjacent to navigable waters of the U.S., require a Section 404 permit only.

Often in port development, substantial dredging is required to improve navigation and moorage. Some or all of the material must be disposed of in ocean waters. Ocean waters are those waters lying seaward of the onshore line reached by the ordinary low tides. Special problems arise when offshore rocks, islands, or other bodies exist, and the line may have to be drawn seaward of such bodies. This is the case in many areas along the coast of Alaska. Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 requires that a permit be obtained from the Corps to transport dredged material for ocean dumping. Dredging material from navigable waters of the U.S. also requires a permit under Section 10 of the River and Harbor Act.

The foundation of the regulatory program of the Corps of Engineers is the public interest balancing process. Until 1968, the Corps' sole criterion for deciding whether or not to grant a permit was the potential impact on navigation. The change in policy to also assessing additional factors including fish and wildlife, conservation, pollution, aesthetics, ecology, and the general public interest, was in response to the growing national concern for environmental values and to aid our coordination with related federal legislation, such as the Fish and Wildlife Coordination Act. With the passage of the National Environmental Policy Act (NEPA) in 1970, consideration of the environmental issues became mandatory. The many new laws, executive orders, judicial decisions, and policy changes since the passage of NEPA, have dictated that the Corps review become even more extensive to insure that a project is definitely in the public interest.

Processing Department of the Army permits proceeds as follows:

1. An application must be submitted to the Corps which includes drawings of the proposed activities requiring a permit(s).

2. The application and drawings are reviewed for completeness.

3. A 30-day public notice is issued, when the application is found to be complete, to solicit comments from the public and interested agencies.

4. The public interest is determined through the Corps' own review and comments received.

5. A decision on granting or dening the permit is made.

Processing Department of the Army permits takes from 90 to 120 days on applications not delayed by other factors. Delays can be caused by valid request for extensions of time for commenting, preparation of a detailed Environmental Assessment and/or Environmental Impact Statement, public hearings, referrals to higher authority, non-response of the applicant to adverse comments or objections received, and requests for additional information.

An applicant for a port facility should request pre-application consultation with the Corps Regulatory Office. We will provide advice on studies or other information that may be required. We will also arrange a meeting with affected agencies (federal, state, and local) and the public, if necessary, to discuss the proposed activity. This early process can help the applicant assess the viability of the more obvious alternatives as the application is prepared, and provide guidance on the data required for processing.

The intent of the federal laws which the Corps of Engineers administers is to protect navigation and to restore and maintain the nation's water quality. Our program is not designed to stop development, but rather to regulate development so that those projects that are in the public interest can be allowed without sacrificing significant natural resources. With the support and cooperation of all involved in port development, we can attain this goal and allow development to continue in our nation's waters.

EPA'S ROLE IN PORT DEVELOPMENT

James Sweeney
Director, Alaska Operations Office
Environmental Protection Agency
Anchorage, Alaska

INTRODUCTION

I would like to thank the University of Alaska Sea Grant Program for arranging this very timely conference and for inviting the Environmental Protection Agency to participate in this series of panel discussions. This conference is addressing a very pertinent problem since Alaska is just beginning to realize its potential as an area for major port developments.

There is no doubt in my mind that major port developments which will have significant implications in terms of environmental impacts and quality of life standards will be occurring in Alaska in the near future. In the next few minutes, I would like to highlight the major regulatory programs related to port development in which EPA is involved, the environmental concerns for Alaskan port development, and our experience in some of the first major developments occurring in Alaska.

First, I would like to dispel a commonly held perception that EPA represents a major stumbling block to port and other industrial development. Some people feel you can't have industrial development without sacrificing the environment. There is no doubt that port development of the magnitude envisioned in Alaska will have environmental impacts. However, we do not believe this is an either/or proposition, such as jobs versus the environment. We honestly feel that with advanced planning coupled with careful study and design, major port facilities can and will be developed in an environmentally sensitive manner. Through early coordination with local officials, this can be done in a timely manner.

EPA PROGRAMS RELATED TO PORT DEVELOPMENT

There are a number of programs or activities related to port development that may require the involvement of EPA, including the National Environmental Policy Act (NEPA), Clean Water Act, Clean Air Act, and Ocean Dumping Act. One or more of the requirements of these Acts may come into force for major port developments. I will try to summarize some of the more important provisions of these Acts quickly.

NEPA

It is safe to assume that an environmental impact statement or at least an environmental assessment will have to be prepared by a federal agency for most major port projects. The exact details and parties involved in an EIS would depend on the specific siting and design for a project. In most cases, an agency other than EPA would be the lead agency in preparing an EIS, for example the Corps of Engineers when a 404 permit is needed. When an EPA permit is also needed, EPA often will be a cooperating agency in the EIS process.

Usually, at the same time an EIS is being prepared, the applicant will submit necessary permit applications to EPA. The EIS and permitting process for large and controversial projects can take up to two years for project analysis and authorization. However, more ordinary projects can be done in a much shorter time, six months to one year.

CLEAN WATER ACT

National Pollutant Discharge Elimination System (NPDES)

If a port development involves the discharge of waste water, an NPDES permit is required. A permit application must be submitted to EPA at least 180 days prior to the anticipated commencement of discharge. The type of information needed in an application depends on the size and importance of the discharge, e.g., does the discharge contain toxic pollutants? In evaluating the discharge, EPA considers the technology available for control of pollutants and the impact of pollutants on the receiving water. A 401 certification by the Alaska Department of Environmental Conservation and a CZM consistency determination by the Office of Coastal Zone Management are needed before EPA can issue an NPDES permit.

Dredge and Fill Permit (404)

I will not repeat the information presented by Jim Caruth of the Corps of Engineers regarding the 404 permit program. The most important consideration from EPA's standpoint is the project's consistency with the EPA 404(b)(1) guidelines which spell out environmental factors to be evaluated for permit applications. For a 404 permit to be issued under EPA's guidelines:

1. There must be a demonstrated need for the project,
2. the project must be water dependent, or

3. the least environmentally damaging alternative must be built.

Section 311: Oil and Hazardous Materials

The provisions of Section 311 of the Clean Water Act have already been highlighted by Captain Hansen so I will say no more on oil and hazardous material requirements.

CLEAN AIR ACT

A Prevention of Significant Deterioration (PSD) permit may be needed for a major port development if air pollution emissions exceed certain cutoff limits. Up to one year's worth of monitoring data may be needed prior to application submittal if a PSD permit is needed. After determining that an application is complete, EPA has one year in which to issue the permit. It has been taking about six months for Region X to issue these PSD permits and none have been denied to date. In evaluating the permit, EPA must consider the technology available to control air pollutants and assure that air quality increments established by Congress are not exceeded.

OCEAN DUMPING ACT

The Ocean Dumping Act, properly titled the Marine Protection, Research, and Sanctuaries Act, requires an EPA permit prior to the discharge of spoil material into open waters. Open waters consist of the ocean outside the closure line. Inside the closure line, a 404 permit is needed for disposal of dredge spoil.

Basically, if a spoil material contains no toxics, ocean disposal is acceptable as long as a disposal site is located where it would have the least environmental impact. If dredged spoils are contaminated, bioassays of the material would be needed to determine its toxicity. If bioassays demonstrate no significant toxicity, EPA will consider open water disposal. If the material is toxic, an alternative to ocean disposal will have to be found.

In Alaska our experience to date has been that most dredged spoils have been clean.

ENVIRONMENTAL CONCERNS FOR ALASKA PORT DEVELOPMENT

As previously mentioned, it is EPA's opinion that most port developments can be done with an acceptable level of environmental impact. Some of the environmental impacts which may be associated with a major development are as follows:

IMPACTS OF WATER QUALITY

Construction of a port facility, such as a marina, can seriously reduce water circulation and result in a depression of the dissolved oxygen level in the water. For the most part, this can be avoided through selection of an alternative which allows good flushing action and water circulation. During the planning stages, it is often necessary to model various alternatives to assure that the best project is selected.

OIL AND HAZARDOUS MATERIAL SPILLS

One of the most serious environmental problems facing a port facility is the potential for catastrophic spills of oil and hazardous materials. The chronic oil spills which result in persistent sheens in port areas are also of concern. The catastrophic spill can be avoided or at least the damage minimized by proper contingency planning. The chronic oil sheens can be minimized by an education program and the attention of port authorities to the problems.

FILLING OF VALUABLE AREAS

Perhaps the most significant environmental impact associated with port development is the need to place fill materials in productive wetland and intertidal areas. If not properly considered, valuable fish and shellfish spawning and rearing areas can be lost. To avoid this situation, the resource values of an area must be thoroughly documented and understood. The most important and productive biological areas must be protected to the extent possible and a mitigation program implemented if certain losses cannot be avoided.

AIR POLLUTION

Certain types of port development, such as coal handling, can result in significant air pollution emission. Ships can emit black smoke, particulates, and SO_2. In addition, port developments can attract other sources of air pollutants, such as automobiles, which may significantly contribute to air pollution problems.

EXPERIENCE TO DATE IN ALASKA PORT DEVELOPMENT

EPA has had experience in at least two major port development projects in the last year, namely the Port of Valdez dock facilities and the Fourth of July Creek project at Seward.

PORT OF VALDEZ

Initially it appeared that there would be a very significant environmental concern for the project proposed by Valdez. Early in the planning process, however, state and federal agencies met with Valdez officials. Through a process of balancing environmental concerns with the needs of Valdez, a project acceptable to all parties was agreed to. By this planning, all regulatory permits for the projects were obtained and the project is now being constructed.

FOURTH OF JULY CREEK, SEWARD

A number of environmental values were identified which would be affected by the Fourth of July Creek project. Again, by being involved early in the project, a mitigation plan acceptable to all parties was developed and needed permits have already been issued.

SUMMARY

This presentation gives you a brief overview of the regulatory process and environmental impacts associated with port development. Once again, I would like to emphasize EPA's open-door policy in discussing these projects. The earlier we know about projects, the better we can identify our concerns and work cooperatively to ensure that environmental analyses are complete and that adverse effects are appropriately mitigated. We can then expedite our permitting processes to ensure that there are no unnecessary delays. The success we point to can be directly attributed to people coming in to discuss their plans with us in the formative stages. We've then been able to build very productive working relationships that have benefitted us all.

LEGISLATOR'S PERSPECTIVES

Bette M. Cato
Alaska House of Representatives
Box 755
Valdez, Alaska

I am very pleased to be able to come and give you my impressions and my perspectives as a legislator concerning port development. Harvey mentioned that I am a retired school teacher. I have been involved with Alaska's water since I arrived in Kenai in 1956, and got my first job sliming fish at Libbey's cannery. I then continued on to college, taught at Kenai; then came to Anchorage, taught at East High for four years, again on the water; and then moved to Valdez and taught there for ten years. Consequently, virtually all my experience in Alaska has been associated with water, water problems, ports, and that sort of thing. I thought I had retired. Believe me, I didn't.

I was asked to talk about the legislative perspective, having to do with legislation and regulation. Individuals and entities have diverse reasons for arriving at their points of view about a capital project. These perceptions are girded by various factors, such as economy of the area, development of that economy, self-serving interests, and on to a statewide involvement, hopefully ending with a transportation system. As we all know, ports are developed in many, many different fashions. I want to speak a little bit about the legislative process, especially on what to do before coming to the legislature for state monies and assistance.

We hope all alternate avenues have been explored by the people who desire to establish a port in their locality. These avenues could be private enterprise development, loans to municipalities, cooperation in a joint venture, possibly between private enterprise and Native corporations; private enterprise, and also municipal bonding. However, because of the enormity of a port project, quite frequently these avenues cannot really fulfill the requirements. People come to the state for aid because we're speaking here of a port development system. We must take into consideration the total picture, a statewide transportation infrastructure. One essential factor is that our infrastructure must utilize the various modes of transportation in such a way that the products are transported to market in the most economical and timely manner.

Port planning should take into consideration several items. Is there need? Is there a resource to be marketed or a product to be imported? Is there a clearly defined transportation corridor to deliver the product to the port and the backhaul to transport it to where it's needed? Ports should

be defined by their purpose, strategic location, handling capabilities, draft capabilities, and the geographic proximity to that resource.

Part of what I'm saying here is that there should be an actual reason for having a port not development for the sake of development. I think this is something that Mr. Kelsey referred to and the reason I am referring to it is because quite frequently legislators can become extremely parochial. This is also sometimes called regionalism. As all of you are aware, our legislature is composed of 60 individuals. In order to sell something in the legislature, you have to convince 59 other people that that project is feasible, that it will mesh into an overall picture, benefitting the entire state.

Not that it's extremely difficult not to be parochial. The district that I represent is the Fifth District, which is Prince William Sound. Sometimes I get all kinds of interesting comments like, Betty, how can you represent Seward, Whittier, and Valdez, because of the competition between those ports?" Well, it is difficult sometimes. However, in my vision of Alaska and the development of Alaska, there is room for all of those ports and ultimately, perhaps, there will be need for even more deep-water ports. I am not going to leave out Nikishka either because it has a definite port.

If we could remove parochialism or regionalism and have a statewide development plan, it would be beneficial to the entire state and its people. Because we try to carry out the desires of our constituents, quite frequently capital improvement projects do not relate to a statewide infrastructure. I realize that in the political world these things are going to occur. They've been there since the beginning of time; they'll be there until the political process is dissolved, which I don't think is likely.

Although Alaska is huge, rich in resources and ingenuity, and extremely right for development, we have definite deficiences in the transportation system. The importance of long-range planning cannot be stressed too much. We're all aware of the old statement that all roads lead to Rome. In our beautiful state I think we can aptly say that all roads lead to a port.

Port facilities should not have to compete despite the media fabrication that they do. For example, the Fourth of July Creek marine facility in Seward is designed for a different purpose than the sea-train port in Whittier that connects with the railroad. The container port facility in Valdez is also for a different purpose; as is the port development for Dutch Harbor--anticipated port development for the fisheries.

The well-developed Port of Anchorage has its own role to play in statewide port development planning. To me, each port has a particular function that will serve that area and ultimately serve the state.

When we talk about statewide involvement, we should have recognized the need to correlate with the national thinking and from there to international involvement because the resources of Alaska place us in the position, at the present time, to accommodate the world market, particularly the Pacific Rim countries.

I would like to go on from there and talk just a little bit about regulations. We need to recognize that port development is essential to Alaska; that it should be done in a timely manner, with long-range planning, and most importantly with consideration of the rest of the transportation infrastructure involved in taking the product to market.

The regulations are made by agencies. I would like everyone to recognize the fact that the legislature does not propose regulations. Regulations are proposed by the agencies, and a copy is given to the legislature. If we, in reviewing them, find that there are some problems with them, we can go talk to that agency, ask for a change in that regulation and sometimes get one, sometimes not.

Last week, I received a set of regulations from the Department of Transportation, dealing with driveway, railroad, and utility permits. This set of regulations consisted of 44 pages. I feel confident that the departments of Fish and Game and Natural Resources possibly Community and Regional Affairs, Environmental Protection might also have a set of regulations addressing this topic. I agree wholeheartedly with one of the previous speakers who said we need to streamline the regulation and permit process. On reviewing these regulations, it would seem to me that the Department of Transportation and Public Facilities will find it hard to comply with their own regulations. The point that I am attempting to make is that very possibly we are being regulated to the point of no return.

I would like to share something with you concerning the House Transportation Committee since you're here because you want to be. I think most of you know the state did not have standing committees on transportation until last year. The Senate now has a Senate Transportation Committee; the House has a House Transportation Committee. It is actually beyond my conception as to why during all these years of statehood, transportation being the key to anything in Alaska, there hasn't been a committee on it. However, I would like to

share with you one of the goals of the House Transportation Interim Committee. I always keep in mind that you set a goal sometimes just a little bit higher than you anticipate and climb like the dickens to get there. This goal is to put in place, at least on paper, a statewide transportation infrastructure, relating the resources to the road to market, utilizing whatever modes of transportation are needed to market that resource. The resources have been identified. We have studies. Many show every resource in Alaska. The transportation corridors have also been identified. They need to be correlated, and then an infrastructure set in place. It is essential that a statewide program in this area be seriously addressed. I bring out these points because I think they are vital to port development. Port development, by itself, would be absolutely of no use unless there was a way to utilize that port, and that must be through a transportation infrastructure in Alaska.

Donald E. Gilman
Alaska Senate
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Kenai, Alaska

The introduction rather emphasized that I was vice-chairman of the Senate Transportation Committee as a freshman. As the only freshman senator in the 11th Legislature, I kind of patted myself on the back and said "hey, you're doing okay."

Then I began to see what the role of a vice-chairman of a committee was, particularly vice-chairman of a committee that is chaired by Senator Bill Ray. On the Senate Transportation Committee, Senator Kertulla, who is president of the Senate serves; and Senator Dankworth who is the chairman of the finance committee serves, as well as Senator Sackett who is also on the finance committee. I found out very quickly that my role on the Senate Transportation Committee consisted of three things. First, I had to make sure that we had some coffee; then we had to have pencils on the table, finally, I was there to make a quorum. Added to this were any other "activities" Senator Ray might wish me to carry out. There was one "activity" in the 165 days. He forgot his glasses and couldn't read what the agenda for the meeting that afternoon and gave it to me to read. So I did have one assigned task that went into the record book.

You can tell a freshman senator easily. All you have to do is look at the car that he is driving. There are 62 legislature license plates; mine is 59. If it wasn't for Grussendorf, Vaska, and Sutcliffe, I would be 62.

I have had some contact with many of the gentlemen at the table over the years as mayor of the Kenai Borough. Somebody was asking, I think, how do you get in contact with regulatory agencies? I can tell you one easy way and that is have an oil spill. They had a little oil spill in English Bay out of the tanks that feed the school. I think five to ten gallons got into Kachemak Bay, which happened to be a critical habitat area. I heard from DEC, the Coast Guard, EPA, and the governor's office. I can't remember who it was that got the company that was assigned to clean it up, but it sure wasn't somebody that we hired. Did a good job. I think we had three tanks holding around 7,000 gallons of oil; 5,000 of it is still in the tanks and it only cost us about $232,000 to get the rest cleaned up.

I'm a Senator from Kenai; however, we've gone through some reapportionment recently. And the district that I now serve has been broadened to include Valdez, Whittier, Seward, Homer, Kenai, and southwest Anchorage. If I should have to,

or choose to run again, then somebody can ask me how to spell heartburn and I'll say grain terminal. Three of the major deepwater ports in southcentral Alaska, and probably north of the 60th parallel, are in that district, four if you count Whittier along with Homer, Valdez, and Seward. Also in that area, there's a little place called Nikiski and Drift River. In Valdez, all of the oil and gas that has been or is now being transported either inside or outside of the state would be found; plus 65 percent of all the man-days of sports fishing in the state, and about 27 to 30 million salmon caught in that district this year. So you can see why I would be interested in port development.

The ports are the economic lifeline of all of those communities that I have mentioned and I couldn't stand here and not react to some of the statements that Mr. Kelsey made when he started.

I think the grain terminal controversy is a damn good example of how we do things in this state. We made a state decision and set a policy, I don't know how may years ago, saying that by 1990, we are going to put 500,000 acres under cultivation. We started an agricultural program and we did it in a vacuum, an absolute vacuum. And as this legislature convened, one of the first things we were confronted with was 60,000 tons of grain from Big Delta. Well, I was raised on a ranch and I know that if you have 25,000 acres of barley and you don't make any money, you are going to have some grain. You can sell it but you have to be able to ship it to sell it. So, the administration said we have to build a terminal, then we have to buy some railroad cars and we have to have a storage place in Fairbanks and we think we can do that for about $7.5 million. Now, I'm not faulting Valdez for getting into the grain business, or trying to. I do know that they have worked very aggressively for all types of development. I do know they're trying to develop their port to be the hub for an interior transportation system, but nobody told us that Valdez was considering a grain terminal. In fact, I didn't know it until I read it in the paper during the last days of the legislature, and I sat on both the Resources and Transportation Committee. We don't communicate. We don't have anything planned. We don't articulate as local officials, as an ex-local official, I know it's like playing a poker game. You play everything close to your vests. You're not telling anybody what you're trying to do, because Anchorage might get it.

There is another factor involved here, and that's the use of public money, whether it be state money or local money. Valdez is in a very unique position because of the state tax laws. The entire terminal in Valdez pays 20 mils taxation. The assessed value of that is something in the neighborhood

of $1.25 to $1.5 billion. The industry pays somewhere between $25 and $30 million a year property tax on that, regardless of what the mil rate is in Valdez. The city can subtract the city tax and pay the rest to the state. Generally ports aren't built with general obligation bonds. The City of Valdez was pledging the full faith and credit of all the privately owned property within their jurisdiction to pay that terminal off. Now sure, they can tax to pay the bonds off or they can dedicate revenues to pay the bonds off but is a revenue issue; therefore, they can put themselves in a favorable position, if they so choose, for freight rates across the dock. They could put themselves in a favorable position to do that. I am not criticizing. I'm just pointing out that these are the types of things that are happening now within this state.

If, in my opinion, we had known that Valdez was thinking of building or was working with a company that would transport that grain and store the grain, I think everyone of us would have taken a very different look at what was going to happen. The interesting thing about it is, Seward was not even lobbying for the grainery to be built. It was something that was entirely away from their jurisdiction. This is a good example of how we do things in this state. We make decisions in a completely different area, such as agricultural decisions, and then don't try to figure out what the ramifications of it will be until it is too late. By then we had money in it.

I'm glad to see that the Commerce Committee in the House is going to address Senate Bill 84. That's the amazing world of regulation. I think that's going to pass and I voted for it, but I voted for it with some reservations. I don't think the state Legislature or the Congress or probably city councils and assemblies should, because of the way we make those decisions, pass that type of regulation. It's a knee-jerk reaction and mark my words, that bill will be changed in the House side. It will not go through as the Senate passed it. It will be changed in the House side and we'll have a conference committee, maybe even a free conference committee, and God knows what's going to come out the other end. Now it's too bad that the administration could not put most of it into effect because the main portions of the bill need to be done. There needs to be a streamlined permit process. That's what the bill attempts to do. But we, in our infinite wisdom, will probably try to build that into something so that the cure is going to be worse than the disease. We need to watch it very carefully.

I think the state will probably, in some form or fashion, whether it's this session or the next, assume control of the railroad. Captain Stanley told me that one of the questions

asked was what is the state doing for rural Alaska's port development? What's the legislature thinking about? And I have to go back to the same statement that I made about the grainery. We're really not doing anything specifically in the sense of a plan. It simply has been an appropriation process that's been dictated by regionalism. I'm not saying that's all bad, because I got my share last year, but we do not have a direction that we're committed to at this point. I think there are some ancillary things that might be working toward some solutions. One of those is the possibility that this year we will be working on the idea of extending local governments into the unorganized borough. Whether they will be the same type of local government as you now know it, is a question mark. The state does not operate any Alaska ports. Rather, it is a function of the local government; and therefore, we are going to have local governmental assistance in rural development and particularly in the ports.

I think coastal zone management is being phased out as we know it today. It will phase-out simultaneously with the Division of Policy Development and Planning. I am not sure how that's going to take place. Again, that is all connected with local government development in the outlying areas. We had some hearings about a repeal of the Coastal Zone Management Act last year. The commitment for Coastal Zone Management came from two places. It came particularly from the rural areas that may be affected by outer continental shelf development. The second endorsement came from the Governor. He said he'd veto any repeal action so that was that.

There is an idea that has been discussed because people and legislators are concerned about how much money we are spending, where it is being spent, and how do we make some kind of sense out of it, and how do we prioritize? Senator Ray received a letter suggesting that the state create something like the Corps has used for years to evaluate the cost benefit analysis for port developments and other major capital improvement ideas. To determine if there is a dollar return for a dollar spent, before the legislature can actually appropriate money for the projects. That goes against the grain of most legislators because, I think, right now the Corps is 27 years behind from the authorization process to when something is built. Most legislators would not be willing to concede that; however, it does have some merit. There has to be a way to prioritize the spending of the state and the state's spending limitation. I haven't heard much about that but its going to put a whole new complexion on where we go and how we get there.

But I still don't know any place in this state that has ever built a marine facility, whether it is a small boat harbor,

terminal, or dock, that isn't being used without needed improvements. As a closer I would say, that at least in our committee we're going to take a look at all of the bond issues between 1978 and 1980 where matching money for federal funds has been authorized by the voters. We know that the federal dollar is getting tighter and tighter, affecting not only port development but also airports. We will try to determine if we have essentially misled the public when we placed those on the ballot as matching funds. Did people think they were voting for an airport in a certain place, when they really weren't. They were voting for 10 percent or 15 percent of the funds for that airport.

QUESTIONS

MR. BYRD

Mr. Chairman, my name is Milton Byrd. I represent the Frontier Companies of Alaska. We are a family of construction and hauling companies. We've been here for 30 years and during the past decade have concentrated our efforts on the North Slope.

My question is directed to two of the panelists, Mr. Kelsey and Mr. Angst. My question's going to take the form of generalized observation on the issue we've been discussing. I'll be interested in your comments on my observation.

It seems to me, if we think about history of the development of our society, it has been built in large part by a particular kind of personality: aggressive, enterprising, risk-taking, dynamic, creative, innovative. Now that kind of development, admittedly, has come at some cost. How much is, of course, debatable.

If we set that kind of development at one end of a continuum, what would the other end of a continuum look like? It would be a mass and a mess of regulations. It would be an army of bureaucrats who would direct every move, every step, every desire, every action of those enterprising bridge pavers. It would, in effect, drive out that enthusiasm for development. There are those who believe that we have arrived at this end of the continuum.

In listening to the discussion this morning, assuming that assessment to have some validity, I have heard some creative observations by those in the regulatory enterprises which I would characterize as bandaids where radical surgery is needed.

I've heard suggestions that we do more talking, that we do more coordinating, that we do more meeting, that we try to find a way to make this elaborate, cumbersome system work. It seems to me that we may need a radically different approach. It seems to me that we may need an injection of more freedom into the system with the opportunity for those who are damaged to collect damages, if we do indeed cause such damage. It seems to me, in addition, that we need a system of accountability for that bureaucracy of regulators; target dates by which their actions would have to be completed. Missed target dates should mean damages assessed against the agency on behalf of the company or reasonable cost or some multiplier of those costs.

What I'm suggesting, and I recognize it's debatable, is that we have come to a serious impasse. The problem is a serious one. It is a complex and difficult one. Do we not need now some radical form of surgery? Mr. Kelsey and Mr. Angst, please?

MR. ANGST

I think I'd agree with your observation that the situation before us is not a healthy one, if I could paraphrase it in that way. I think you're correct that our society has gotten to where it is today because there was the enterprising individual who came to the New World and had a chance to make it through his own blood, sweat, and tears. When there's a risk, there's a chance someone's going to get burned. But there's also a chance that the individual is going to gain. If that gain can be shared with his society, then we all benefit in the standard of living, the changeable materials that we enjoy around us today.

I disagree to a point on the other end of your spectrum being the great masses of confusion, bureaucracies, and regulation. I think the other end of the spectrum is the low standard of living or the lack of products or services; a wallowing apathy. And I think that when we came out of World War II with mobility in this country and around the world, the greater communication, the tremendous industrial power plant that we had cranked up to its greatest potential, we were imposing on our society something that perhaps we weren't quite ready for. And they said, God, I don't want this. I don't want the guy next to me smoking and I don't want your garbage dumped in my back yard and I don't want beyond-lot sewage disposal but with the high density of our population, with the mobility and the opportunity to see how the other guy lives, people were coming back, as my father did from the European theater, bringing bacon and eggs for breakfast instead of oatmeal. We were bringing back things that people were interested in and in some cases what they wanted protection from. We wanted some standards. The bureaucracy cranked up and we had the growth of industry and regulation. And it came in the middle.

Industry is, Don and Betty pointed out, often coming to the legislature saying "Give me some bucks, help me out." We heard some comments about that yesterday and my reaction is what happened to the individual that wanted to take that risk? We talk about making great gains if we take great risks. It seems to me that no one wants to pay the price that they lose on that risk. The poker game isn't the true poker game that Don talked about. We're holding our hand

close to our vest but we're jockeying for position as long as we can win. But as soon as there's a chance we're to lose, we're running to the other guy. We're not going to our school districts and to our assemblies and saying, "I expect reading, writing, arithmetic." We're not going to our churches and our schools and to our service organizations--Boy Scouts, Girl Scouts or whatever, "let's teach responsibility, let's teach discipline. Let's teach respect. Let's teach motivation." So kids in the school cut out of the classroom, don't do their homework, and they're using their free time to smoke and drink in the halls and go down to the local store and buy some food and do whatever.

I throw the challenge back to you, Milton. Where is the real problem in our society? There is a problem with regulation. I'll be the first to admit it because I'm the guy that has to make the system work. But I get chewed on by you and I get chewed on by my commissioner and by the legislature. I'm caught in the middle. There is a problem. I think there are things we can do but I think, to address the point you raised, there's a more underlying philosophical problem in our society. I think you and I share the guilt and responsibility on that problem, and I think you and I, together, better decide if we want discipline. Do we want to accept responsibility? Are we going to be respectful of the other guy, the job that he's doing, risk he's willing to take, and the consequence he's willing to endure for that risk?

That would be my response.

MR. KELSEY

Milt, I am coming from the same side of the spectrum, I think, as you are. In my address, I attempted to keep the interest of the group here by mentioning a few words on a one-window approach. There is a frustration on the part of industry and on the part of those of us that are attempting to conform and still make a buck.

I think that the regulatory agencies and the people that run them are more than willing to work with us if we come forward and do the job that's expected of us. I think the answer is communication and education. Educate us on what we have to do. I think it's been addressed here today. I think these folks have told us that there are ways that we have to do things. To go back to what you said early in your talk, those of us that are energetic, anxious, motivated, and willing to make the risk have got to settle down, do the paperwork that the Legislature and Congress have decided

that we must do in order to put our projects together and to carry them into operation.

I think the answer is better communication, a better rapport between us and the regulatory industries.

Keynote Speakers

TRANSPORTATION IN ALASKA

Thomas B. Crowley
Chairman of the Board, President
Crowley Maritime Corporation
San Francisco, California

Maritime transportation has always been a very important factor in the Alaskan economy and always will be because of Alaska's geographic position.

Joshua Green, Sr., the founder of Peoples National Bank of Washington, who recently passed away at the age of 105, came to San Francisco in 1898 and asked my father where he could find some sailing vessels to carry passengers to the Klondike. My father took him to Oakland Creek and showed him a couple of old whalers which Josh bought and used to carry miners to the Klondike.

On the strength of this move and his steamboating activities on Puget Sound, he founded the Peoples National Bank which is a substantial bank in the Pacific Northwest.

Following the Klondike, there were many different steamship companies running to Alaska. Prior to and after World War II, the Alaska Steamship Company, owned by the Skinner interests, was the largest. Alaska Steamship was purchased from the Guggenheim interests when they abandoned copper mining at Kennicott. The trade has been served by various and sundry others since then. In recent years, Sea-Land and Totem Ocean Express are the largest carriers to Alaska and come through Cook Inlet directly to Anchorage where they use the port facilities and distribute cargo.

The winter ice in Cook Inlet was once thought to be impenetrable on a regular basis, but Sea-Land, with its more powerful ships, commenced regular service in 1964 and has continued it ever since. In my opinion, the oil drilling platforms in Cook Inlet act as permanently fixed ice breakers with the currents ebbing and flowing at 8 knots or so, helping break up the ice and enabling the Port of Anchorage to be used all year.

There are various smaller tug and barge companies running more or less regular service to many points in Alaska. Generally, the service throughout the state by water takes care of the needs of the communities. All these services are operated under the protection of the Jones Act which mandates the use of American built, manned, and owned vessels in the domestic trades of the United States. The people of

Alaska who were here at the commencement of World War II fully realize the importance of continuing these restrictions.

In recent years, the needs of the oil industry have developed various transportation systems by tug and barge. Our company has been particularly active in this trade, serving Cook Inlet, the Gulf of Alaska, and the arctic coast in the summer with various types of transportation, including the moving of large pre-built modules to the oil fields for installation and use in the development of the state's oil reserves.

Our earliest penetration of Alaska's arctic coast was in 1958 when we started resupplying the coastal DEW line sites. At that time, we worked in conjunction with Jack Bullock out of Kotzebue, Alaska, and resupplied the DEW line sites as far as the Canadian border.

From our experiences in the ice on these DEW line resupply jobs, we learned enough to transport 7,000 tons of oil drilling equipment to Foggy Island from Anchorage for British Petroleum in the summer of 1969 after the discovery of oil at Prudhoe Bay. The relatively shallow draft of tugs and barges allow them to stay in the shallow water inside the polar ice pack along the arctic coast. This system of transportation is more feasible than deep-draft, self-propelled vessels and has enabled the oil companies to develop the Prudhoe Bay oil fields.

We look forward to the continued exploration and discovery of more oil along the arctic coast and intend to be involved in the maritime transportation necessary for further development. We understand there are substantial potential beds in the Beaufort, Chukchi, and Bering Seas and look forward to continued participation in maritime transportation to these developments when they occur.

Penetration of the winter ice on Bering Sea year-round will be a much more difficult job than the penetration of Cook Inlet has been for Sea-Land and Totem. Only the future will tell if this will be economically feasible on a year-round basis.

Our company has developed an ice-breaking barge, the Arctic Challenger, that can be pushed by two large tugs and is quite effective in penetrating ice-choked areas. The problem, however, is pressure from the floating ice, which will close in behind any ice-breaking vessel. Then the ice-breaking vessel has to carry the cargo itself rather than the cargo being carried by a tug/barge unit following. The areas to be penetrated in the Bering Sea will probably have deeper water than the arctic coast provides, and may be amenable to

the use of large deep-draft self-propelled vessels if deep-draft ports or loading stations can be made available.

On the other hand, the volumes of cargo required to make large vessels economically sound will not be evident in the early years of the field development. It is probable that the oil produced in the Bering Sea will be taken out by ice-breaking tankers capable of penetrating fairly heavy ice.

Transporting various materials such as ore, coal, concentrates, and so on, by marine equipment from the Bering Sea will necessitate a tremendous amount of shore-based terminal development. Until transportation through ice-choked water can be proven, it will not be advisable to construct terminals to handle these natural resources. The world demand for these natural resources will have a substantial impact on the development of marine transportation, but my personal opinion is that it is well down the road. The Bering Sea is somewhat limited in that almost all its ports front on very shallow-draft areas that necessitate lighterage or very substantial terminal facilities that can withstand heavy winter ice.

The backbone of heavy commodity transportation in inland Alaska is the Alaska Railroad. It was authorized by Congress in 1914 and was intended to run from southern ice-free ports to the arctic coast. It only runs as far north as Fairbanks but some day must be extended across the Yukon Flats, at least to the south slope of the Brooks Range. It should then extend east and west along the south slope of the Brooks Range to the Bering Sea and the Canadian border. Further extension north through the Brooks Range would depend on resources located there, but, in time it will be necessary.

This is a costly project but rail transportation on a ton/mile basis is much cheaper than trucking and is the only practical method of opening up the natural resources of Alaska to the rest of the world. Currently, truckers in Alaska use the railroad for piggybacking on the long haul because it is cheaper, and they would use it wherever the tracks went.

Our company connects the Alaska Railroad up with the U.S. railroad system by carfloating from Whittier and Seattle. Another tug and barge company connects the Alaska Railroad with the Canadian National Railway at Prince Rupert. These are the lowest cost methods of connecting this trackage up with the lower 48 and Canada.

There is talk that the state may take over the Alaska Railroad. Whoever does so has the privilege and responsibility of opening up the Interior of this great state to ports and

terminals at tidewater. It will cost a lot of money to extend the railroad, but it is the cheapest and best method to assure vital transportation.

The Yukon River has potential, but only as a seasonal operation. In addition it cannot get into the foothills and mountains that contain the resources. Due to the draft of water, the ice, and other factors, the railroad is a cheaper, all-year method of transportation.

Marine transportation of natural gas from remote areas such as the Bering Sea poses two alternatives: shipment of liquified gas, or shipment of natural gas that has been processed into ammonia, urea, or chemicals. These two uses of natural gas would necessitate specialized forms of transportation different from one another.

I am of the opinion that LNG will someday be transported from the Valdez area to California and that this method of transportation will compete successfully with through-gas pipeline systems that are subject to the political winds of change in countries other than the United States.

There are many small tug and barge transportation companies that serve the many different geographic points in Alaska. They perform a very vital function not often recognized by the regulatory authorities of the state government. I think it would be important to point out here that under our free enterprise system it is fundamental that commercial operations show a profit adequate to further the construction of new modern equipment and good service to the outlying communities. Too often, people object to a fair freight rate and expect the transportation company to perform the services at little or no profit. In my opinion, this is somewhat shortsighted and in the long run costs the consumer more by foregoing the advantage of new, modern, efficient, equipment and methods of doing business.

It is most interesting to see the recognition in the Maritime Alaska '81 Conference of the need for effective and efficient transportation in the 49th state for its proper development and economic growth.

HARBOR PLANNING IN HAWAII

David K. Higa
Chief of Harbors Division
Hawaii Department of Transportation
Honolulu, Hawaii

It is a pleasure to be able to address this conference on maritime commerce and port development in Alaska. A lot of information and knowledge has been exchanged during the excellent panels held here. There's been a lot of reference to the lower 48 states, but actually there's one more state out in left field directly below Alaska. Today, I would like to share with you the harbor planning experiences which the 50th state, Hawaii, has had over the past years.

Our state's islands are surrounded by the ocean. We are dependent on waterborne transportation for our sustenance since 80 percent of the goods we require are imported, and 98 percent of this is by water. Water highways linking Hawaii with the rest of the world form an economic lifeline which requires that proper planning on an integrated systemwide basis be developed and implemented.

We are fortunate in Hawaii in having only three levels of government: federal, state, and county. We have no municipalities or districts, and major government functions such as welfare and education are centralized at the state level. Statewide transportation facilities and services are provided by the Hawaii Department of Transportation through its highways, airports, and harbors division.

To understand what's happening at our harbors, one should go through the whole planning process to see what it took to get to the final result. Since our port system throughout the state is an essential transportation link, it is appropriate to go through our entire portfolio.

At the northern end of the island chain, on Kauai, we have two ports. Port Allen handles about 89,000 tons of cargo. The main port at Nawiliwili handles about 766,000 tons of cargo annually.

We have berths at Pier 2 handling containers and interisland barge operations at Pier 1. A roll-on, roll-off pier was added last year.

The Nawiliwili Harbor area is being improved to increase the cargo handling area. Additional paved area, utility and roadway relocations, and security fencing is underway. With

the development of a small boat commercial berthing area on the south corner planned in the future, the harbor should be able to better handle large and small craft requiring facilities. In the future, the container and cargo handling areas can extend farther inland. An earlier 1995 master plan has been modified somewhat with future harbor developments scheduled for completion by the year 2000.

Moving to the south end of the island chain, the big island of Hawaii also has two ports--Hilo and Kawaihae. Barges also called at Kailua-Kona in the past. Hilo handles about 1.273 million tons of cargo annually. Pier 1 was originally fully covered by a cargo shed but one-half of it was removed to allow for overseas roll-on, roll-off cargo handling along with sugar and other general cargo. Pier 2 is used for interisland barge operations, and a two-way roll-on, roll-off platform between Piers 1 and 2 has been constructed. To create additional space for cargo handling, an old bag sugar warehouse has been demolished and appropriate lighting provided.

The earlier 1995 master plan for the port has been modified to a new goal horizon. The future overseas container operational area must be obtained by filling in a port of Radio Bay. If container cranes are desired, the Pier 1 apron needs to be strengthened as indicated in the year 2000 plan.

Kawaihae Harbor handles about 502,000 tons of cargo annually. The interisland barge operations area will be expanded by paving additional areas and relocating the office facilities into the overseas terminal area. This harbor has the capability of expanding to accommodate future traffic. The coral stockpile area can be developed also for maritime industrial and boat harbor purposes as indicated in the 1995 master plan. The harbor basin area was designed large enough to enable it to meet future requirements as contemplated in the year 2000 plan.

On Maui, we have only one port facility at Kahului although there have been studies of a supplementary port facility on the leeward side near Kihei, and there used to be an operating barge landing at Hana. Kahului Harbor is now the second largest in terms of cargo and shipping volume handling 1.9 million tons of cargo per year.

At the overseas Pier 1 area we have cut out the middle third of the cargo shed to accommodate overseas roll-on, roll-off container ships. The container yard in back was also expanded. If lift-on, lift-off container capability is required, the pier would need to be reinforced and perhaps an additional offshore area filled in.

To create additional space for interisland cargo operations, nearly six acres of backup land was acquired. A bulkhead and pier 500 feet long and a 120 foot tugboat berth were constructed. This allows berthing of two roll-on, roll-off barges, two fishing boats, and two tugs. Coupled with the work to provide a perimeter roadway and fencing of the backup area, this should provide greatly expanded cargo and ship handling capability. The 1995 master plan has been modified somewhat and the harbor could be improved by the year 2000 as indicated with the option for supplementary facilities on leeward Maui a possibility.

On Molokai there are three ports. One at Hale O Lono is privately owned. One at Kalaupapa services the settlement there and handles about 1,400 tons annually. The other, at Kaunakakai, handles 179,000 tons annually. Improvements to expand capability of Kaunakakai are being examined, including more cargo area and an additional cargo shed.

On Oahu the major state port facility is at Honolulu and it handles about 7.75 million tons of cargo.

Basic planning and improvements at Honolulu have been with the assistance of a multi-modal task force that includes maritime, aviation, and government officials, and community and business invitees. The group updated an earlier 1985 master plan to a 1995 horizon. The task force, after several years of deliberation and consideration of the pros and cons of numerous alternative scenarios, developed a series of recommendations on maritime and related activities that were accepted by Governor Ariyoshi in April, 1976 as a long-range plan.

Honolulu Harbor has developed and changed over the past 150 years and will continue to be the predominant cargo handling facility for the state. Until 1958, there was no container handling capability. In 1958, container service with 20 containers on deck was initiated. From that year with a start of 920 containers, we have grown to 30,000 in 1963, doubling to 60,000 in 1967, and doubling again to 120,000 in 1973. Ships now carry 1,200 containers with even larger capacities expected in the future.

These changes have necessitated continued increases in container yard space and facilities to handle the progressively increasing peak loads.

When the state's major container facility at Fort Armstrong in Honolulu Harbor could no longer meet Matson's space requirements, part of it was moved to Sand Island. However, this resulted in inefficient split operations at two locations.

The Fort Armstrong area at Piers 1 and 2 is congested with containers even in the Pier 2 shed, and there is no land available for expansion. Earlier plans for development at Fort Armstrong called for seaward landfill, but this cannot be implemented because of concerns for the need to preserve natural surfing sites.

A sequential relocation program to implement the multi-modal task force plan is underway. Step 1 of this "musical chairs" plan was to provide interim relief at the congested Fort Armstrong container facility by squeezing in container spaces in buildings, between buildings, and on every inch of land available, while at the same time embarking on a major expansion program at Sand Island to permit a more energy efficient consolidated operation. Container facilities at Sand Island will be increased from 48 acres to at least 157 acres, with initial developments programmed for the next several years. Physical constraints and land use allocations limit the extent to which container facilities can be provided on Sand Island. Much of Sand Island will be used for parks, sewage treatment facilities, maritime industrial/trade zone activities, and the existing 46 acre Coast Guard base.

Construction of the Sand Island container yard was just completed a few weeks ago and a dedication ceremony was held on September 3, 1981.

This project added 1,400 feet of pier; 37 acres of container yard, roadways, and utilities; and a container freight station to the existing facilities on Sand Island. Matson constructed maintenance, tower, gatehouse, and reefer facilities as part of this joint state and private undertaking of around $30 million, and moved their cranes across the harbor as a part of this operation. Additional improvements to fill in the remaining areas are planned in future years, expanding the total Sand Island container yard to over 150 acres, making it one of the largest contiguous container facilities.

On the water side of Sand Island, the Corps of Engineers has dredged the main channel to 45 feet and the interior basins and channels to 40 feet. Additional state dredging along Sand Island was also done.

There is a two-lane bascule bridge serving Sand Island. Efforts are being made to limit its hours of operation to reduce the holdup of land traffic that must often wait, burning added fuel, while the bridge is up. While water traffic can use the main channel at Fort Armstrong, land traffic must go over the bridge. A second bridge is in the planning stages.

The construction of a revetted wall along the harbor entrance, protecting Sand Island State Park and capping an eroded shoreline, was a federal-state project effort. Development of an extensive state park on Sand Island is continuing.

Interisland barge operations in Honolulu are now accommodated on about 19 acres of port land at Piers 24 through 29. The facilities are inadequate for the present break-bulk operation. Lack of contiguous expansion space, together with the shift to container operations, requires relocation to another area. The multi-modal task force recommended Piers 39 and 40 which have sufficient backup area for roll-on, roll-off container operations.

But there are impediments to carrying out any plan. Foreign Trade Zone No. 9 fully occupies the Pier 39 shed. The Pier 39 yard is often filled with autos. An office building and several acres of critical backup land at Pier 40 are still being used by the Army. The Pier 40 shed and yard are filled with Hawaiian Marine Lines cargo and containers. Steps are being taken to obtain title to the Piers 39 and 40 complex.

Step two will be the relocation of the Foreign Trade Zone operations at Pier 39 to Pier 2. Hawaiian Marine Line container and cargo barge operations at Pier 40 will also be moved to the Fort Armstrong area vacated by Matson's move to Sand Island.

This will free the Piers 39 and 40 area for relocation of the presently congested interisland operations at Piers 24 to 29.

Concurrently with the Foreign Trade Zone, other cargo operations will move to Pier 2. The trade zone will occupy the landward half of the shed, and the seaward half will be used for general cargo as well as portions of the Fort Armstrong container yard. Other sections of the yard will be used for containers, autos, roll-on, roll-off, and other cargo.

The task force recognized the need for park uses along the waterfront and recommended that 19 acres of existing Food Distribution Center facilities at Kakaako be retained but that expansion be provided elsewhere. This would allow for use of an area originally contemplated for Food Distribution Center facilities for park purposes instead.

It has been proposed that a shoreline strip park at the Fort Armstrong container facility be provided for access to the surfing sites fronting the breakwater.

After the relocation of interisland operations from Piers 24 through 29, existing ship repair facilities at Piers 13 and 14 in the downtown-waterfront interface area and other berthing activities can be accommodated at Piers 24 to 29. The relocated ship repair activities would supplement an enlarged ship repair area at Piers 41 and 42.

This clears the Piers 13 and 14 area for uses more appropriate for a downtown-waterfront interface. We want to make Honolulu Harbor more accessible and more people oriented. Promenades, beautification of the passenger ship terminal area, shuttle ferry service to Sand Island, pedestrian overpasses, a World Trade Center, shops, restaurants, and fishing vessel piers are among the many improvements being considered.

Planning of the Piers 2 to 18 downtown interface area by the Department of Transportation and the Aloha Tower Plaza, and Hawaii World Trade Center by the Department of Planning and Economic Development, has resulted in plans which retain the Piers 8, 9, and 10/11 berths for passenger/cruise ship or vessel operations and propose a showplace trade and business center focusing on the Aloha Tower, a historic landmark at Honolulu Harbor.

The possible calls of cruise ships to the passenger terminal area add further to the redevelopment potential of the Aloha Tower Complex as a people oriented facility for business, trade, and most importantly, maritime functions. The return of cruise ship activities between the islands has also increased the demand on berthing and backup space at the various neighbor island ports.

We have seen our Honolulu Harbor facilities in the area purchased from Dillingham over a decade ago undergoing extensive use. Pier 18 is now used for commercial fishing boat backup. Construction of a new Pier 17 was recently completed and a new Pier 16 is in the design stage. The growing interest in fishing in the Pacific could generate many demands for berths beyond the capability of Honolulu Harbor and Kewalo Basin. Kewalo Basin is now crammed with a mix of cruise, charter, and fishing boats. A study group has made recommendations for development of commercial fishing facilities at Kewalo and Honolulu Harbor.

The Pier 19 area was modified to allow huge roll-on, roll-off stern ramp ships to call in addition to the sugar ships. Lumber barges call at Pier 20 which had the old shed removed several years ago to create open yard area.

The Pier 23 grain berth serves the growing flour mill operations. The Pier 24 to 29 complex is bursting over with Young Brothers' operations and will need to be moved.

The Pier 31 and 33 facility accommodates container/cargo operations. Pier 34, along with the private Pier 30, serves bulk petroleum ships. Pier 34 also serves cement barges. Scrap is handled at Pier 35 and pineapple barges are at Pier 36. Pier 35 is also used in the off-season for fishing boats.

Pier 41 is used for ship repair activities. The university occupies the Snug Harbor area.

Long-range expansion for the Food Distribution Center, Foreign Trade Zone, and ship repair activities were envisioned as possiblities at the Kapalama Military Reservation.

Honolulu Harbor, as we foresee the development envisioned in the 1995 multi-modal task force plan and as modified by the Statewide Harbor System Study, should be adequate in the short-range for some aspects of cargo handling, but not all.

Just as the neighbor islands have more than one port, a satellite port facility or annex to Honolulu Harbor is required. We actually have a private barge harbor and the state's major offshore private oil moorings already at Barbers Point. These private facilities handle around 6.3 million tons of petroleum products. An energy corridor links the Barbers Point area with Honolulu Harbor. So, in essence there is already a harbor complex at Barbers Point. Much of the area required for the harbor enlargement has already been quarried.

We are trying to plan the development of a harbor adequate to handle today's traffic but with room to handle future growth without redoing the whole thing.

A lot of cargo now coming to Honolulu Harbor would be better handled at Barbers Point, such as coal for cement manufacture at Barbers Point. Right now we have to track around 100,000 tons per year all the way from Honolulu Harbor to Barbers Point.

While the extensive container facilities at Honolulu Harbor, at both Sand Island and Fort Armstrong should meet the needs of the major users today, the work to date will nearly encompass all of the available areas. There will not be enough room for expansion, for additional operators, or for development of Hawaii as a potential transshipment center of the Pacific.

There has been concern over handling cargoes such as petroleum and explosives in Honolulu Harbor. Fortunately, with the development of the state energy corridor between Barbers Point and Honolulu, and the private offshore moorings and

refineries at Barbers Point, the level of petroleum handling at Honolulu has stabilized and even been reduced. With a full-fledged harbor rather than the tiny barge basin at Barbers Point, petroleum and explosive handling at Honolulu Harbor close to the downtown area could be reduced even further.

The facility planned for Barbers Point could ultimately be developed with many berths and cargo handling areas but in phases commensurate with demand. Bids were opened for the project by the Corps of Engineers.

Our current port system and the planned improvements should be able to handle goods and fuels, produce faster ship turnaround in port, and allow slower, more fuel efficient sea voyages in the same time frame. However, the ever-rising costs of petroleum and the ultimate exhaustion of such fossil fuels have prompted a major renaissance of interest in alternative fuels and conservation efforts which may require further modifications to our port system.

Such alternatives as geothermal or volcano-made electricity; ocean thermal energy conversion using ocean water temperature differential to create net electrical power; biomass crops such as baggasse from sugar cane, pineapple trash, eucalyptus or haole koa trees, macadamia nut shells, or coffee pulp; solar heating; photovoltaic systems; hydropower; and wind energy could alter the projections upon which earlier planning studies were based.

So the need to continually plan for the future, considering future technologies continues. In this respect we are continuing our planning efforts to better cope with the future with the assistance of the Maritime Administration in our ongoing Hawaii Cooperative Port Planning Study.

Workshop Summaries

WORKSHOP SUMMARY

PORT REQUIREMENTS FOR RESOURCE DEVELOPMENT

Based upon the topics of interest that were listed in the questionnaires circulated during the panel presentations, workshop discussions focused upon a number of specific issues. The charge to the workshops was to define the problems or situations and then to suggest solutions or courses of action.

TOPICS FROM THE QUESTIONNAIRES

Participants in the conference were given the opportunity to list concerns in the areas of panel presentations in the earlier portion of the conference. In the area of resource development, the following is a list of these concerns. (Not all of which were subsequently addressed in the workshop):

1. Who should build port facilities (government, industry, others)?

2. Resource information is needed for port and local community planning in anticipation of various resource development projects.

3. The relationship between the railroad and ports should be studied.

4. Market information on a number of important Alaskan resources (particularly coal) is needed at the local level for planning purposes.

5. There is a possibility of wasteful competition among ports in the southcentral region, and this issue needs some attention.

6. The needs of fishery development should be included in any port development planning.

7. Defense and disaster contingency planning should consider a variety of topics ranging from strategic resources and military facilities to the more mundane problems of adequate community resources in natural disasters.

8. Streamlining the intermodal systems and the infrastructural requirements is an important precursor to development.

9. Impacts of resource development upon local resources and the available infrastructure are important concerns. To date they have not been adequately addressed.

10. There is a need to better coordinate resource development projects and the requisite port developments to accommodate all interests.

11. The benefits and costs of various port authority forms merit further attention as ways to achieve local, regional, and statewide goals in both port development and resource-specific projects.

12. More information for examining the feasibility of various port projects needs to be available to a host of interested agencies, organizations, and individuals.

13. Concern was expressed on both sides of the Aleut/APL issue in Dutch Harbor. More information and study seems to be warranted.

14. Due to differences in local priorities and needs, there is a need to be flexible; to pick the appropriate technical solution to any problem from the spectrum which includes the latest in high technology and more appropriate technologies that meet local goals and do less violence to life-styles.

15. Tourism is recognized as an industry which is heavily resource dependent and one for which some consideration might be given in specific port projects.

16. There are broad data and information needs in addition to more effective communication of agency and industry information.

17. The onshore impacts of offshore developments need more attention.

WORKSHOP DISCUSSION TOPICS

Approximately 30 people attended the workshop on port requirements for resource development. The discussion included the following:

1. Port planners and others concerned with local and statewide activities need detailed resource assessment and development information that is not available now or obtained in the most timely manner.

2. There is a need to have at hand an up-to-date inventory of port facilities and other resources. Presumably it would also be a good idea to have information on the projects that are in various stages of design or construction.

3. Worthwhile resource development projects will at times require positive government participation. In other areas, the industrial entities can be expected to carry the entire cost of the project. Suggested alternatives included direct participation in the financing, construction of facilities, and issues such as tax incentives and the removal of royalty provisions.

4. With time, our shorelines will become increasingly more important for a host of uses and purposes. Adequate sites for industrial development and port projects are needed in advance of their actual development. Some system of anticipating future needs in both these areas would be of considerable value.

5. There is a need for better planning to avoid conflicts between the use of two or more primary resources in the same areas. There are technological solutions available as well as those resulting from better planning and coordination.

6. Our society would benefit from objective reviews of port and related resource development projects. These reviews should go beyond technical and economic feasibility including the impacts upon the local communities, their needs, and social concerns.

7. From a local perspective, citizens often have the feeling that they are being overwhelmed and ignored in favor of the existing decision-making process and indeed in the measures by which a project is being evaluated. Some more refined system which incorporates a greater degree of local control and input would help alleviate these fears and meet local goals that might go beyond simple economic considerations.

8. Often the important problems revolve around questions of the adequacy and timeliness of the available information. Local communities, as opposed to state agencies or large industrial organizations, often are not prepared to make confident judgements either way in these situations. A greater sharing of information is indicated.

9. There are important questions of resource ownership, particularly in the Bering Sea, which affect the sort of resource development we can expect to see and the requisite port projects.

10. Ports can and do play broader roles in the regions' economic performance. It would be useful to recognize the port's potential contribution that may mesh with other activities the government undertakes to meet broad socioeconomic goals. It is conceivable that the economic feasibility of such efforts may be elusive but the project will still have merit.

11. There is a need to plan for and dampen the impact of the expected boom and bust cycles that attend resource development projects. These impacts can be of a statewide nature or they may fall most heavily upon a local area with considerable repercussions.

12. Often feasibility in the design of port facilities will be the key. Later changes in the economic climate surrounding an intial project lead to a change in the use of docks, transportation systems, and storage facilities.

SPECIFIC RECOMMENDATIONS

Toward the conclusion of the workshop, the group attempted to draw together a number of comprehensive recommendations. These were organized under three headings:

1. Port development and coordination functions and efforts.

2. Resource assessment issues.

3. Transportation and community services infrastructure needs.

PORT DEVELOPMENT AND COORDINATION FUNCTIONS AND EFFORTS

The workshop group felt that while there were a number of functions or activities to improve matters, we were not of the opinion that one, overall organization should or even would be capable of fulfilling all of these. Therefore, rather than call for the creation of a monolithic agency, we would prefer to deal with the job that needed to be done and let the structure or the lack of structure flow from there. This means that the following points were viewed as independent but nevertheless having some bearing upon the perceived need for better development and coordination.

1. There is a need to provide a process by which port and resource development projects can undergo thorough, comprehensive review by a disinterested and apolitical group, taking into consideration a wide spectrum of needs and goals.

2. There is a severe need to increase the communication among ports and potential users. This communication will take the form of dialogue and sharing pertinent planning information.

3. We must be prepared and searching for opportunities to take advantage of the synergetic possibilities among ports, transportation systems, and different resource development plans.

4. There is also a need for a greater flow of information to the general public so that their participation is on an informed and rational basis given the range of state and local goals.

5. There is a need for an entity to serve as an advocate for port development.

6. We must learn to accommodate more opportunities for more input at the local level and in the joint attainment of economic and industrial goals as well as the more elusive but vital community service needs.

7. We must find ways of increasing our research and analytical capabilities particularly of the social and economic aspects that go beyond the considerations in direct project feasibility.

8. We must better anticipate the needs and impacts of resource development on a timely basis and with greater equity.

9. We must find ways to avoid redundancy in port facilities. This is especially important in the use for public funds.

RESOURCE ASSESSMENT

The recommendations in the area of resource assessment involved the possibility of accumulating and using information on resources as well as creating forums for broader consideration of the problems and opportunities accompanying development projects:

1. There should be a clearinghouse established for pooling and sharing existing information relevant to resource development. This information should assist in evaluating impact and requirements as well as the physical and economic assessment of the sorts of resources under consideration.

2. Ideally, a planner needs to know the answers to questions such as how much of a particular resource is available, when will it be exploited, its form or quality requirements, markets, etc.

3. We need a forum to more fully explore the opportunities and problems that are emerging as viable projects and to blend these with the other goals of the public and private sectors.

TRANSPORTATION AND COMMUNITY SERVICES INFRASTRUCTURE NEEDS

Often the feasibility or the desirability of a project is conditioned by the existing or projected transportation and community services infrastructure. From the point of view of the developer, these are often critical, and from the point of view of the community, these are precisely the areas where the impact of development will be felt first. What exists more frequently as a problem, may actually present a real opportunity to blend and meld goals and needs, or at a minimum, ameliorate some of the more negative aspects from a variety of perspectives. Therefore, the workshop group felt that the following points warranted careful attention:

1. These infrastructure issues were immensely important and need to recieve more attention.

2. While we should be concerned with the return on investment, we also must look for the creative and synergistic possibilities in meeting all goals.

3. We must be aware of the important social and economic costs and benefits in any project of this nature and attempt to accommodate better.

WORKSHOP SUMMARY

PORT ADMINISTRATION, OPERATIONS, AND FINANCE

Various studies were conducted in Washington regarding types of port government before the current system was developed. Particularly useful is a study compiled by Dr. David Olson, professor of political science at the University of Washington. Operation of Seattle and other Washington ports is compared to others in the United States at the local, state, and federal levels. It provides extensive background for comparing relative efficiency in a number of areas under a number of conditions.

Developing energy is an important part of Alaska's future port development. Hydropower in particular is a trade draw.

Alaska port interests must also be involved with other modes of transportation to connect the port to the various hinterlands. Road systems, extension of the railroads and inland river transport system are examples of these.

Marketing is important for ports. The ports industry has to be competitive with other forms of moving goods.

Consideration of regional or state port authorities might be an answer to planning problems. Mr. Adlum reported particular success with the regional authorities established in Washington state.

However, Alaska port officials and state Senator Donald E. Gilman pointed out that under the state constitution a strong governor and local government are endorsed. Local governments are vested with considerable authority, making development of independent authorities with taxing power very difficult. Without altering the state constitution, it would be nearly impossible. Kodiak harbormaster Mr. McCorkle pointed out the difficulties encountered with standardizing operations in Alaskan ports much less getting them under one authority. He and other Alaska officials pointed out the massive regional differences, distance between ports, and differences in cargo handled that make uniformity almost impossible.

Mr. Adlum noted that the independent port authority is suggested because the most efficient ports in the United States are governed that way. Mr. Pullen noted that it is easier for the Maritime Administration to work with a port association than with individual ports. In that way they assure that a grant project or study takes into consideration a number of points of view and that the results will benefit many ports.

Panel members indicated that Alaska needs to work toward a balance of trade and reducing handling costs. Planning can make the difference in efficient use of port facilities. If Alaska's resources can be developed, there will be an outbound market for them to help match the inbound market. Mr. Henrikson pointed out that resources are only part of the plan, you must also have tools for transportation and a port. He gave the examples of Oakland and Seattle as places where the ports were ready and able to grow along with economic changes. It is essential that ports have the ability to move along with the demand. There were divided opinions over whether subsidizing development of the facility in order to attract business or working to increase capabilities as demand increases were the best ways to increase outbound traffic from Alaska.

Keeping up with changes in business and technology are also important considerations in effective port development. Mr. Adlum noted that the Port of Seattle was the top west coast port after World War I. However, by the end of World War II, San Francisco was the number one facility. He attributed this to Seattle's failure to keep up with technology. In fact, he said, that port eventually was abandoned and a new facility started in order to catch up with the times. Again the key is planning. In more recent history, the Port of Oakland has surpassed the Port of San Francisco through better planning.

Mr. Higa suggested that the Alaska Department of Transportation might consider purchasing an interest in existing ports to provide an equalizing factor as DOT did in Hawaii. He also said commerce projections were quite helpful in planning facilities and improvements to meet expected demands. He suggested that Alaska facilities collect statistics on facilities and capabilities available at each port. In this way, commerce projections can be used to match and divide expected commerce among the ports.

TOPIC AREAS

1. Who should assess the need for port terminals in Alaska?

2. Who should be involved in the administration and planning of ports in Alaska?

3. Who should determine the level of commerce which justifies the level of service, a facility, or a port?

4. Who should provide required terminal facilities: state, local, or private interests?

5. Who should provide the funds for port development and operation?

WHO SHOULD ASSESS THE NEED FOR PORT TERMINALS IN ALASKA?

PROBLEMS:

1. Where to get input for assessment?

2. How do you get private input for needs?

3. Do you need a consultant to do the study?

4. Can you make sure local governments have final say on conclusions about need?

PROPOSED ANSWERS:

1. The group was quite interested in Mr. Higa's experience in Hawaii. He said assessment is coordinated by the Hawaii Department of Transportation through local steering committees. They are careful to see that private industry, as well as other users of the proposed facility, are represented on these committees.

2. There was a strong feeling among the attendees that local governments should have the final word on any plans, but that DOT assistance would be appreciated to assure local studies were complete and accurate.

3. Ms. Wong of the Alaska Department of Transportation pointed out that the state is already involved in this assessment to some degree through its regional planning studies. More localized plans can be developed through this framework. She also said these plans are used to recommend capital improvements to the legislature.

WHO SHOULD BE INVOLVED IN THE ADMINISTRATION AND PLANNING OF PORTS IN ALASKA?

PROBLEMS:

1. Politics get involved in the planning process.

2. It is difficult for smaller ports to come up with master plans because of the expense and staff requirements.

3. The need to assure local participation and approval of plans.

4. There need to be provisions for handling dangerous cargoes.

5. Assurance that new projects are used to their full advantage.

SOLUTIONS:

1. Most discussion was centered around the role of local and state governments in the process. Port officials from Alaska said they would find it difficult to develop master plans on their own. They would like assistance from consultants or state specialists but would be willing to develop the plan on a local level.

2. Panel members pointed out the importance of an overall master plan. There is some activity on this at the state level, because of increased public interest in port development and improvement. Most felt that an Alaska master plan could only be handled through the state since the area to be covered is so large.

3. Local participation in the planning process was also a primary concern. Mr. Higa was again consulted. He said local representation is quite important on the steering committees used by Hawaii DOT planners. Many felt the city councils should have approval on plans and again confirmed that cities were willing to take an active part in developing the plans. Kodiak is funding a consultants' report on Kodiak facilities. With this study, they plan to apply for a state grant to produce a master plan for their area.

4. Coast Guard representatives indicated that all plans needed to take into consideration handling explosives and other dangerous cargoes. Although there is a good record for safe handling of these materials on the water, port facilities in Alaska are unable to handle them safely.

5. It is hoped that facilities will be used effectively through development which meets the needs of the communities and industries they serve.

WHO SHOULD PROVIDE THE REQUIRED TERMINAL FACILITIES: STATE, LOCAL, OR PRIVATE INTERESTS?

PROBLEM:

1. These aspects of the question were also discussed under the planning section and the answers were similar.

ANSWER:

1. There seemed to be a consensus that all of those involved should help bear the cost: state, local, and private interests.

WHO SHOULD DETERMINE THE LEVEL OF COMMERCE WHICH JUSITIFIES: A LEVEL OF SERVICE, A FACILITY, A PORT?

PROBLEMS:

1. Deciding to do a market study.

2. Local vs. state influence.

3. Politics tend to get in the way.

SOLUTION:

1. All those involved in maritime commerce should bear part of the decision.

WHO SHOULD PROVIDE THE FUNDS FOR PORT DEVELOPMENT AND OPERATIONS?

PROBLEMS:

1. Competition for private port facilities.

2. Locating the needed source of funding.

3. Competition from other ports seeking funds.

SOLUTIONS:

1. Discussion of financing for port facilities indicated a share plan was in order where users, the local interests, and the state should bear some part of the financial burden. Mr. McKinney pointed out that the cost incurred by the port, including that for expansion, would be passed on to the consumer. He indicated that ports were failing in their mission if they added too much to consumer costs. He felt that the state should provide some funding if the port serves more than one area, as does the Port of Anchorage.

2. DOT representatives indicated that a grant plan would probably incur opposition while a loan program might not. More attention would probably be given to a port that arrived with a plan, including a feasibility study, that indicated the amount required and the port's plan for payment.

3. The question of raising revenue to pay for improvements led into a side discussion. Mr. McKinney asked how ports could repay a loan without taxing ability. DOT representatives indicated business revenues would take care of it. Mr. Adlum noted that in Washington, ports generated tax income that more than offset the amount of taxes levied. He indicated that bonds were issued and paid back with interests, but that where possible, they attempted to get users to pay for the facilities. DOT reiterated that the advantage to a loan program is that it removes some of the political advantage often enjoyed by larger areas when applying for grants.

4. Mr. Henrikson and others noted that private industry is likely to invest in an area where they see money coming out. That is, they will invest in port development where they see an opportunity to increase their revenue as a result, giving the coal and oil companies as examples.

5. Mr. Higa said funding has to go through the state in Hawaii. Recently they have been using bonds, which means the port system has to make enough to pay off the debt, and is self-sufficient in that way. It means raising tariffs, but these are uniform throughout the system. These rates apply only to the state system. Each ports' land use tariff (rental) is based on actual market value of the land.

6. Mr. Henrikson said he would like to see less regulation and more guidance from the state in this area. This would include making sure all parties involved participate in planning, development, and financing.

7. Ms. Wong indicated there are problems with a tax-based system when you have smaller ports. Oftentimes there is not enough population to support a port through taxes, yet there may be a large industry there requiring extensive port facilities. At the same time, the cost to the private sector for providing a facility may be too high, or there

may not be enough land available. These are problems fairly specific to Alaska.

8. There seemed to be agreement that local ports should take whatever funding is available.

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George V. "Corky" McCorkle	Port of Kodiak
David K. Higa	Hawaii Department of Transportation, Harbors Division
W.D. McKinney	Port of Anchorage
John H. Davies	A.B.S.
Warren J. Mantz	Pacific Shipper
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Sid Campbell	Foss Alaska Line
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Debi Wong	Alaska Department of Transportation/PF
Nancy Gross	Akutan
Ken Forsser	SPG-Anchorage

WORKSHOP SUMMARY

PORT FACILITIES

Infrastructure support was thought to be the problem in port development; but two of the panel members, Mr. Kiisk and Mr. Pentimonti, countered that was not the case. Volume of commodity is the controlling factor, not infrastructure. Economics will dictate the volume and the type of vessel which will meet that volume. Any company interested in the commodity will install the most economical alternative.

There was also discussion on five state identified bottom-fishery ports and the need for supplemental ports, concluding that planning must take into account the location of the resource in relation to the shipping lanes and not allow political factors to curtail planned development.

There was strong indication from those from the Aleutian Islands that its fishery resources are the breadbasket of Alaska. But, a small group represented by a single legislator cannot go against the larger communities with multiple representation in the Legislature. Panel member Mr. Yoshioka indicated one way to get around this problem was to have a revenue base like the Port of Seattle. There, they have several revenue resources available to the port commission such as taxes, general obligation bonds, and revenue bonds. With these methods of funding, the port commission can assign priorities to the development of the port facilities in order to meet the various markets. The port is able to expand a little at a time, tailoring the operations to meet consumer needs, generally through leased facilities.

It was then suggested that an integrated and coordinated effort should be undertaken to determine Alaska's best locations for ports. Upon identifying the problems and listing the solutions associated with those ports, action should be taken to implement a plan by moving immediately to design and construction. The state needs to come up with a basic transportation system for regular service to remote communities. A suggestion was to meet this need through the use of feeder loops from feeder ports to the main ports of call. An overall plan needs to be coordinated with the Legislature and other governmental bodies. Concern was expressed that the government, when it steps in, can disrupt the choices available to private enterprise by not properly considering the consequence of their actions.

Two problems discussed were that small communities do not have proper service, and Alaska can help the United States with mineral wealth, but should it be develop or stay as is?

One proposed solution was that the areas most likely to develop as ports in line with natural resources availability should be developed.

The workshop participants were then challenged by a Norwegian consultant. The experience of development of fishing ports in Scandinavian countries was based on where the fish were located and not on a benefit-to-cost ratio; these ports are still competitive. Things that should be taken into consideration in Alaska are the need for government investment as up-front money and what part of port facilities should be operated and controlled by the state.

At the completion of the general discussion, the workshop participants formed small work groups to discuss six topic areas in defining problems and proposed actions. The six topic areas were:

1. Port needs of remote Alaska communities.
2. Port interface with community infrastructure, railroads, and highways.
3. Port needs related to commercial fishing.
4. Technical data transfer for port development.
5. Systematic regional planning.
6. State port authority.

The following is a summary of the work groups' independent discussions of the six topic areas. The problems and actions listed were presented by individuals among the work groups and were not the result of a consensus.

PORT NEEDS OF REMOTE ALASKA COMMUNITIES

PROBLEMS

1. The present lighterage systems and inefficient cargo handling cause excessively high cargo costs to remote communities.
2. Existing or proposed facilities for raw material export do not necessarily accommodate import of general cargo.
3. Small Alaskan communities generally lack the means (credit or local capital) to initiate needed port improvements.

4. The lack of regular freight service causes hardships.

5. The lack of backhauls and the seasonal nature of waterborne cargo service unbalance conventional economic analyses.

6. State planning efforts are too general, lack direction and specific priorities.

7. Inadequate port facilities at remote communities retard community growth and discourage investment.

8. Many mineral resources are not now exported due to lack of suitable port facilities.

PROPOSED ACTION

1. Pass legislation requiring carriers to identify potential areas for expanded services.

2. Establish a clear state policy on community qualifications for state funded port facilities.

3. Provide for grants to communities and carriers to expand maritime services.

4. Establish state provided or subsidized marine service to remote communities.

5. Insure that multipurpose port facilities are provided.

6. Place high state priority on marine service to remote communities.

7. Establish a clear state port development strategy and implement it.

8. Begin mineral extraction in remote areas to draw private marine service.

PORT INTERFACE WITH COMMUNITY INFRASTRUCTURE, RAILROADS, AND HIGHWAYS

PROBLEMS

1. Railroad service is needed at many more communities.

2. There is a lack of systematic statewide planning for infrastructure and inland transportation.

PROPOSED ACTION

1. The state should assume ownership of the Alaska Railroad.

2. The Alaska Railroad should be improved and extended.

3. Port planning should be integrated with infrastructure, railroad, and highway planning.

4. Local communities should take a more active role in planning their infrastructure.

PORT NEEDS RELATED TO COMMERCIAL FISHING

PROBLEMS

1. Private investment in freezer facilities is needed in many communities.

2. Shipment of fisheries products is inadequate.

3. Repair facilities for commercial fishing vessels are needed in Alaska.

4. Most existing fishing ports are inadequate and need improvement.

PROPOSED ACTION

1. Spur investors to establish more fisheries-related marine services in Alaska.

2. Expand existing fishing ports and harbors.

3. Encourage backhaul of fisheries products to improve other domestic service.

4. Improve communications with processors.

5. Provide for faster export of fisheries products.

TECHNICAL DATA TRANSFER FOR PORT DEVELOPMENT

PROBLEM

1. Data is presently unreliable and unavailable.

PROPOSED ACTION

1. Develop a data bibliography which identifies available data sources.

2. Establish a statewide data collection system for design of marine structures.

SYSTEMATIC REGIONAL PLANNING

PROBLEMS

1. There is presently no statewide plan for port development and concern was expressed that the statewide port study underway will not look at all local port needs and will, therefore, be missing many of the issues.

2. The State Department of Transportation and Public Facilities is structured on a regional basis with little centralized coordination to assign priority to port projects.

3. There is no centralized state agency to evaluate needs and feasibility statewide and to establish state funding.

PROPOSED ACTION

1. Develop a systematic statewide port plan without politics.

2. Establish a state level port planning commission independent of the present state transportation commission which is also concerned with roads, airports, etc. This commission of appointed officials should be separate from the Alaska Department of Transportation and Public Facilities.

STATE PORT AUTHORITY

PROBLEMS

1. A politically controlled port authority would be tempted to cater to population centers and abandon the outlying communities.

2. There is a need for a combined effort between the state and local communities.

PROPOSED ACTION

1. Don't establish a port authority, but form a port association with local communities and the state, to be modeled after the Washington State Port Association (one port - one vote concept). The Alaska Municipal League is a body that could initiate such action.

2. Create a state group of technical advisors that could not be influenced by politics.

3. Confine the present state system to planning and funding for the moment. Perhaps in the future it could be expanded to some form of state authority.

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