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RELEASED

Information On The Proposed Alaska Oil Pipeline

B-174944

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

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JUNE 27, 1973



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D C 20548

B-174944

The Honorable Les Aspin
House of Representatives

Dear Mr Aspin.

In accordance with your request of August 29, 1972, we are enclosing information concerning your nine questions on the proposed oil pipeline through Alaska. This report is also being sent today to Senator William Proxmire

Except for our opinion on the status of Alyeska Pipeline Service Co as a common carrier, we did not evaluate, nor are we expressing opinions on, the matters discussed in this report. As agreed with your office, we are presenting the information we have gathered from various sources without verification.

Our sources of information included the Department of the Interior, the Office of Emergency Preparedness, the Federal Power Commission, Dr Charles Chicchetti; a representative of Alyeska Pipeline Service Co., and officials of BP Alaska, Inc

We do not plan to distribute the report further unless you agree or publicly announce its contents.

Sincerely yours,

A handwritten signature in cursive script, reading "James B. Stacks", is written over the typed name.

Comptroller General
of the United States

INFORMATION ON THE PROPOSED ALASKA PIPELINE

QUESTION 1

What are the recent delivered prices of 26.0°-26.9° API sweet crude oil (less than .5%) and medium sulphur crude oil (1%) in New York, Chicago, and Los Angeles?

ANSWER

The following tables of representative prices of 26.0°-26.9° American Petroleum Institute (API) sweet crude (less than .5 percent) delivered in New York, Chicago, and Los Angeles and of 26.0°-26.9° API medium sulphur crude (1 percent) delivered to New York and Los Angeles were compiled and supplied to us by officials of the Office of Oil and Gas, Department of the Interior. The officials told us that no medium sulphur crude oil (1 percent) was delivered to Chicago and any such prices compiled would be hypothetical. They said that the posted prices at the well are as of November 15, 1972.

Delivered Prices of 26.0°-26.9° API Sweet Crude (less than .5 percent)

	<u>Price per barrel</u>
To New York from South Louisiana	
Posted price at the well	\$3 47
Gathering and loading charge	12
Tanker charge ATRS (note a)	<u>40</u>
Landed price, New York harbor	<u>\$3 99</u>
To Chicago from South Louisiana	
Posted price at the well	\$3 47
Gathering and terminal charges	10
Pipeline charge	<u>22</u>
Total delivered price	<u>\$3 79</u>
To Los Angeles from Coalinga, California	
Posted price at the well	\$3 10
Gathering and pipeline charge	<u>10</u>
Total delivered price	<u>\$3 20</u>

^a American Tanker Rate Scale.

The officials consider the South Louisiana and Coalinga fields to be the most representative for 26 0°-26 9° API sweet crude oil delivered to New York, Chicago, and Los Angeles.

Delivered Prices of 26.0°-26.9° API Medium
Sulphur Crude (1 percent)

	<u>Price per barrel</u>
To New York from Tiajuana, Venezuela (note a) .	
Quoted price (note b)	\$2.30
Transportation charges	.40
Customs charges	<u>.105</u>
Landed price, New York harbor	<u>\$2.805</u>
To Los Angeles from Kern River, California	
Posted price at the well	\$3.02
Gathering and pipeline charge	<u>10</u>
Total delivered price	<u>\$3 12</u>

^aMedium 26.0° API, 1.49 percent sulphur.

^bEstimated quoted arms-length price f.o.b. the shipping port in Venezuela.

The officials who supplied the above data said that the Tiajuana and Kern River fields can be said to be representative of fields which ship medium sulphur crude of 26.0°-26.9° API to New York and Los Angeles, respectively.

QUESTION 2

What are the sources of most of the crude oil used by refineries in New York (including New Jersey), Chicago (including Blue Island), and Los Angeles? What is the average transportation cost per barrel by source from these sources to these cities in the same time frame as question 1?

ANSWER

The following data was compiled and supplied to us by officials of the Office of Oil and Gas.

Foreign transportation charges apply to 26.0° API crude oil in August 1972. The officials said that, in some cases, about 5 cents should be added to the domestic transportation charges for gathering and handling, although this amount varies from field to field. They said also that transportation charges are average costs, varying somewhat from actual costs depending upon the form of transportation and the design and expense of the pipelines.

<u>Location</u>	<u>Thousands of barrels (Jan through Aug 1972)</u>	<u>Source</u>	<u>Percent of total</u>	<u>Transportation charges per barrel</u>
New York City (all New Jersey refineries)	115,221	Domestic		
		Louisiana	14 8	\$0 40 (0 761 after 12-6-72)
		Texas	4 6	40 (761 after 12-6-72)
		All other	<u>2 6</u>	
		Total	<u>22 0</u>	
		Foreign		
		Caribbean	25 4	23
		West Africa	24 2	53
		Middle East	16 6	1 09 (Persian Gulf)
				54 (Mediterranean)
		North Africa	<u>11 8</u>	49
		Total	<u>78 0</u>	
Chicago (all Illinois refineries)	196,727	Domestic		
		Texas	38 2	22
		Louisiana	28 9	22
		Oklahoma	8 3	24
		Illinois	5 6	125
		New Mexico	4 1	22
		All other	<u>6 4</u>	
		Total	<u>91 5</u>	
		Foreign		
		Canada	8 3	46
		Middle East	0 1	not available
		Libya	<u>0 1</u>	not available
		Total	<u>8 5</u>	
Los Angeles (all California refineries)	358,495	Domestic		
		California	64 3	0 10
		Alaska	10 9	60
		Utah	<u>1 8</u>	40
		Total	<u>77 0</u>	
		Foreign		
		Indonesia	9 4	78
		Persian Gulf	11 9	1 07
		Venezuela	1 5	44
		All other	<u>0 2</u>	
		Total	<u>23 0</u>	

QUESTION 3

What are the prices of crude oil delivered to New York and Los Angeles in 1975, 1980, and 1985, as projected by the Department of the Interior and by Dr. Cicchetti? What are the bases for these projections?

ANSWER

Officials of the Department of the Interior have informed us that they have not projected the prices of crude oil to be delivered to New York and Los Angeles in 1975, 1980, and 1985.

Dr. Charles Cicchetti told us that he had made such a projection only for 1975 and that it was included in his monograph entitled "A Benefit-Cost Analysis of the Trans-Alaska Pipeline and Its Principle [sic] Alternatives," a copy of which he supplied to us.

The monograph projected the price of only a specific grade of oil delivered to the west coast from the Persian Gulf as follows

<u>Projected Average Cost per Barrel for Persian Gulf</u> <u>Oil Delivered to the West Coast</u>	
	Iranian Light 34° API (1.4 percent sulphur) <u>1975</u>
Production	\$0.11
Payments to foreign governments	1.27
Other costs	<u>.30</u>
F.O.B. arms-length price	1.68
Transportation costs	<u>.45</u>
Total cost to the United States, delivered	2 13
U.S. tariff	<u>.105</u>
Delivered price of 34° API crude	2 24
Adjustment of \$0.015 per degree of API to convert to 26 0°	<u>.12</u>
Delivered price of 26.0° API crude	<u>\$2.12</u>
Delivered price of 26.0° API crude exclusive of U.S. tariff	<u>\$2.01</u>

QUESTION 4

What does Alyeska estimate the reinjection cost for the trans-Alaska gas will be, when the Alaska oil production rate is 600,000 barrels per day, 1 million b/d and 2 million b/d? What are the bases for these cost estimates?

ANSWER

Alyeska, being a pipeline company exclusively, would not be involved in the operation of the reinjection of gas

The Vice President, Production and Planning, BP Alaska, Inc., one of the oil leaseholders, has advised us that a study made as of September 1971 by an outside firm of consultants estimated the capital cost for a reinjection plant to be \$175 million. This plant would be designed to process solution gas from 1.6 million barrels of oil a day.

The official said that operating costs of this gas reinjection plant would be about \$6 million a year regardless of the rate of oil production. He said that this was an "unsupported, broad-brush" estimate but that it was analogous to the operating costs of similar plants.

He stated that, beginning with the production of oil, gas reinjection would continue for about 3 to 4 years, after which the oil companies would expect to sell the gas at the wellhead to whoever had built a gas pipeline. He said that, when gas sales start, the reinjection plant would be used for processing gas sales except for a portion costing from about \$15 million to \$20 million which could be used only for reinjecting gas.

QUESTION 5

What are the official OEP, FPC and Interior Department estimates of the amount of foreign liquified natural gas and synthetic natural gas delivered at New York and Los Angeles in 1975 and 1980?

ANSWER

Office of Emergency Preparedness (OEP)

An OEP official told us that there were no official OEP estimates of the amount of foreign liquified gas (LNG) and synthetic natural gas (SNG) to be delivered at New York and Los Angeles in 1975 and 1980. There were, however, staff estimates which were based on submissions and discussions with project proponents in industry. These estimates showed the volume of LNG which would be imported by 1980, rather than that which would be imported in 1975 and 1980. The official said that the OEP staff estimated that very little would be imported by 1975, a significant volume of LNG imports would start in 1977, and most of the volume would be imported closer to 1980.

The OEP staff estimated that, by 1980, 4.3 billion cubic feet per day of LNG would be imported to the east coast and 2 to 3 billion cubic feet per day would be imported to the west coast.

The OEP officials said that these estimates were

"Based on projects formulated in late 1972 and known to OEP, though not always documented. The ultimate source of imports is in some cases unresolved, these figures are only approximations. They are not official estimates and in no way represent projections. Other than the El Paso project certified by FPC, no base-load project has official USG [U S. Government] approval."

With regard to SNG imports, the OEP official gave us a "summation of project proposals made known to OEP" which shows the estimated production of SNG to be as follows

	Billion cubic feet of SNG per day	
	<u>By 1975</u>	<u>By 1980</u>
Projects made known to OEP not underway		
From imported crude oil	1.0	2.0
From imported naptha	1.5	3.0
Projects underway		
From natural gas liquids imports	.8	8

Federal Power Commission (FPC)

An FPC official told us that there were no official estimates of foreign LNG and SNG to be delivered in New York and Los Angeles in 1975 and 1980. However, the FPC staff has prepared estimates which are included in its publication entitled "National Gas Supply and Demand, 1971-1990, Staff Report No. 2." The FPC staff estimated that 2 trillion cubic feet of LNG (including 146 billion cubic feet from Alaska) would be imported in 1980--all to the east coast except that the Alaskan LNG would be shipped to California. This estimate was based on projects which had been filed with FPC and on prospective projects which were obtained from data in newspapers, trade journals, and personal communication with the trade. For 1975 the estimate for LNG was 300 billion cubic feet.

Included also in Staff Report No. 2, dated February 1972, is a list including the quantities of imported feedstock for production of SNG and their related projection estimates. An FPC official told us that the list would be much larger as of the date of our discussion, January 10, 1973, but that FPC did not have more current estimates available.

For whatever value it may have, a summary of the list shows feedstock imports totaling 587 thousand barrels a day producing 2,054 million cubic feet of SNG a day. In some instances the list was blank for either the quantities of feedstock or the production, and neither figure was included in the foregoing totals. A breakdown of the dates of feedstock imports and SNG production between 1975 and 1980 could not readily be derived from the list.

Department of the Interior

An official of the Office of Oil and Gas supplied us with the following information.

The amount of LNG to be imported into the United States by 1975 is expected to be nominal. Although several projects are planned or underway for the importation of large base-load supplies of LNG under long-term contracts (20 years or more), none of these projects are expected to be operational by 1975. Between 1975 and 1980, to fill the gap between supply and demand for gaseous fuels, the official foresees a significant growth in LNG imports, amounting to perhaps 1 trillion to 1.5 trillion cubic feet by 1980. This estimate is based on a realistic assessment of LNG projects currently proposed or underway and excludes such possible sources as Russian imports. Major LNG imports are estimated to require some 5 to 7 years leadtime before they become operational. This timelag excludes delays that may be encountered in getting regulatory or other governmental approval. Most LNG imports will be delivered to the east coast. For the west coast market, no LNG imports are foreseen by 1975.

By 1980 it is very likely that some utilities will be receiving LNG imports, but it is very difficult to predict at this time what these imports will amount to. One prediction is that 300 billion to 400 billion cubic feet of LNG will be imported by 1980, but the amount could be much more or even less. Much of this depends on (1) the outcome of the Alyeska oil pipeline, (2) the construction of a gas pipeline from the North Slope of Alaska through Canada to the U.S. Midwest and Pacific Northwest borders, and (3) the availability of additional Canadian gas imports.

About 40 reforming plants to convert a variety of materials to SNG have been announced to date. Although some of these plants will use domestic sources of petroleum feedstock, the bulk of the supply will be foreign and most of it will be crude oil. Plants that will be using crude oil will also be making fuel oil. None of these plants will be located on the west coast, but some SNG will very likely be delivered there by those gas companies planning to build SNG plants in the Southwest and having pipeline systems extending into the west coast market.

By 1975 SNG plants will very likely produce some 1 trillion cubic feet of gas if current proposals become operational. It is highly unlikely, however, that many of these projects will become operational by 1975. Currently seven plants are underway with a total volume capacity of about 800 million cubic feet a day. By 1980 production may go as high as 2 trillion cubic feet or more if all 40 plants go into operation.

QUESTION 6

What studies have been made of the cost of building an oil pipeline through Alaska and a gas pipeline through Canada, as compared to a parallel oil and gas pipeline through Canada? What are the differences in cost, as concluded by these studies?

ANSWER

We are aware of two studies that have been made comparing the cost of building an oil pipeline through Alaska and a gas pipeline through Canada with the cost of building both an oil and a gas pipeline through Canada. Several estimates have been made of the cost of building only an oil pipeline through either Alaska or Canada or only a gas line through Canada.

The studies relating directly to the question were made by Jack O. Horton, former Deputy Under Secretary of the Interior, and Richard D. Nehring, former economic analyst with the Department of the Interior. These studies are included in the "Hearings on Natural Gas Regulation and the Trans-Alaska Pipeline" before the Joint Economic Committee (92d Cong., 2d sess.).

Alyeska has prepared an estimate of the cost of constructing a trans-Alaska oil pipeline which, updated to June 30, 1972, shows a cost of \$3.1 billion with additional delay cost of \$180 million a year. In September 1971 Alyeska submitted to the Secretary of the Interior a cost estimate of a trans-Canada oil pipeline, which was prepared by applying the then-current working estimates for the trans-Alaska pipeline to different distances and conditions to be encountered on a route across Canada. This estimate totaled \$5.415 billion.

Alyeska representatives told us that Alyeska did not intend to build a gas pipeline but that the companies will sell gas at the wellhead to whoever builds such a line.

We were informed that two Canadian companies also had made pipeline studies. Canadian Arctic Gas Study, Ltd., made a study of a trans-Canada gas pipeline and Mackenzie Pipeline Research, Ltd., made a feasibility study of a

trans-Canada oil pipeline to Edmonton, Alberta, Canada. Because each study applies to only one facet of the question and because of the international aspect, we have not contacted either of these companies.

In his monograph entitled "Alaskan Oil. Alternative Routes and Markets," Charles J. Cicchetti estimates the cost of a trans-Alaska oil pipeline to be from \$1.75 billion to \$2 billion in 1971 dollars. He estimates the cost of a trans-Canada oil pipeline from the North Slope through the Mackenzie Valley to Edmonton to be from \$2.2 billion to \$2.5 billion at the 1971 dollar value. He designates this as the "first segment of a trans-Canadian oil pipeline" and indicates that it would constitute about 66 percent of an oil pipeline from the North Slope to Chicago.

QUESTION 7 (first part)

What forecasts are available of the demand and supply of oil in the Midwest and West Coast for 1980 and 1985? What are the bases of these forecasts?

ANSWER

An estimate of the supply and demand of oil in 1980 and 1985 was prepared by the Bureau of Mines, Department of the Interior, in October 1971 and appears to be the most recent available forecast by geographical areas. These forecasts are included in the Department's "Analysis of the Economic and Security Aspects of the Trans-Alaska Pipeline, Volume II." Subsequent forecasts by the Department and the National Petroleum Council provide data for the Nation as a whole without regard to geographical areas.

In the Bureau of Mines projections, Petroleum Administration for Defense (PAD) Districts II and V represent the Midwest and the west coast, respectively. The District V forecasts include the projected supply of oil amounting to 1.5 million barrels a day in 1980 and 2 million barrels a day in 1985 from the Alaskan North Slope.

Bureau of Mines officials told us that the supply forecasts for each year are overestimated because of the postponement of offshore leasing, the delay in delivery of Alaskan oil resulting from postponement of the construction of the trans-Alaskan pipeline, and the latest interruption of crude oil from the Middle East which has caused Texas and Louisiana wells to operate at capacity much sooner than was anticipated, thereby lowering future supplies. However, the forecasters believe that their demand projections are still valid.

The supply and demand forecasts are presented below and are followed by an explanation of the bases of these estimates.

Forecast of Supply and Demand of Oil in the Midwest
(Petroleum Administration for Defense (PAD District II))
By Thousand Barrels Daily

	<u>1980</u>	<u>1985</u>
Supply		
Production		
Crude oil and natural gas liq-		
uids (NGL)	1,240	1,090
Other hydrocarbons	10	10
Receipts from other districts	<u>3,710</u>	<u>4,474</u>
Crude oil and NGL	1,997	2,084
Refined products	1,713	2,390
Processing gain and unaccounted		
(note a)	90	90
Imports (note b)	<u>1,290</u>	<u>1,688</u>
Crude oil and NGL	1,200	1,528
Refined products	<u>90</u>	<u>160</u>
Total supply	<u>6,340</u>	<u>7,352</u>
Demand:		
Domestic product demand	6,210	7,290
Shipments to other districts	<u>116</u>	<u>50</u>
Crude oil and NGL	10	-
Refined products	106	50
Crude loss	2	2
Exports	<u>12</u>	<u>10</u>
Total demand	<u>6,340</u>	<u>7,352</u>
Refinery capacity for crude oil	4,200	4,500

^a Processing gain is the volume increase resulting from changes in the molecular characteristics of the crude occurring during processing. Discrepancies between crude reported as delivered to refineries and the amount received are included as "unaccounted."

^b Represents the difference between total demand and domestic supply.

Forecast of Supply and Demand of Oil in the West Coast
(Petroleum Administration for Defense (PAD) District V)
By Thousand Barrels Daily

	<u>1980</u>	<u>1985</u>
Supply.		
Production		
Crude oil and NGL	2,545	2,920
Other hydrocarbons	25	30
Receipts from other districts	<u>113</u>	<u>50</u>
Crude oil and NGL	-	-
Refined products	118	50
Processing gain and unaccounted (note a)	90	100
Imports (note b)	<u>537</u>	<u>952</u>
Crude oil and NGL	357	652
Refined products	<u>180</u>	<u>300</u>
Total supply	<u>3,315</u>	<u>4,052</u>
Demand		
Domestic product demand	3,130	3,850
Shipments to other districts	<u>60</u>	<u>87</u>
Crude oil and NGL	-	-
Refined products	60	87
Crude loss	2	2
Exports	<u>123</u>	<u>113</u>
Total demand	<u>3,315</u>	<u>4,052</u>
Refinery capacity for crude oil	2,700	3,200

^aProcessing gain is the volume increase resulting from changes in the molecular characteristics of the crude occurring during processing. Discrepancies between crude reported as delivered to refineries and the amount received are included as "unaccounted."

^bRepresents the difference between total demand and domestic supply.

The Bureau of Mines' forecasts are part of a 15-year projection of the production, demand, and imports by PAD districts. The 15-year projection is included in the Department's "Analysis of the Economic and Security Aspects of the Trans-Alaska Pipeline." The oil price analysis was based on the following assumptions.

1. Throughout the forecast period the economic climate, relative to price and environmental restraints, will not change appreciably.
2. U.S. refining capacity is forecast to increase approximately 10 percent every 5 years and is expected to be operated at capacity. In all cases, imports were used to supplement domestic refinery operations.
3. The domestic product demand forecast is based on population growth and per capita consumption. Distribution of demand to PAD districts is based on historical patterns.
4. Excluding the North Slope area, production will be at virtual capacity from 1975 to 1985. North Slope production is forecast at 1.5 million barrels daily in 1980, increasing to 2 million barrels daily in 1985.
5. Conversion of resources to reserves will proceed at a slightly higher level than the 15-year period ended January 1, 1971. Improved recovery from producing reservoirs will result from technological advances and initiation of secondary and tertiary recovery operations.
6. The forecast does not consider domestic synthetic petroleum to be a supply source.
7. A national import program will be established.
8. Canadian exports to the United States will be subject to some constraints.

Demand forecasts

To determine their projections, Bureau of Mines officials used future population estimates prepared by the U.S. Bureau of Census and per capita consumption trends based on historical data.

Future population figures for 1980 and 1985 were prepared by arbitrarily selecting a figure between those found in the Series D (2.45 children per woman) and the Series E (2.11 children per woman) projections of the Bureau of the Census. (Each assumption on which a projection is based is designated as a "Series ") Per capita consumption trend lines were prepared by computer on the basis of the 5- and 10-year periods ended in 1970 and were used to project, on a straight-line basis, a new trend line which fell between the previous 5- and 10-year trend projections. The per capita consumption figure for each year was then multiplied by the population figure for the same year to determine the total consumption per year. This total was divided among the five PAD districts according to the use of the percentage of the total demand that each district has historically shared.

To verify this total demand projection, the forecasters totaled the projected consumption by sectors. In projecting the demand by sectors, the following assumptions were made.

1. For the 15-year period 1970-85, oil used for generating electricity is expected to show increased growth rates of about 2.3 percent over the preceding average annual increase during the 5-year period, but a lower volume of growth is expected beginning in 1980 as nuclear generation becomes important and coal technology is advanced.
2. Household use of oil is expected to continue to increase about 2.9 percent annually until 1980-85 when household formations in the 25 to 35 age group will peak, after which a lower growth rate will result.
3. Oil for commercial purposes is expected to follow historical trends.

- 4 Industrial demand for oil as a raw material used to manufacture other chemicals will show a decreasing annual growth rate from about 7.5 percent in 1960-70 to 5.4 percent in 1980-90, and oil used by industry for fuel and power will continue at a rate comparable to the 1950-70 period of 1.4 percent.
- 5 The use of oil for transportation will decrease from an average annual increase of 4.3 percent in 1950-70 to about 4 percent in 1970-85. Factors taken into account in this decrease were (a) less use of private and commercial planes and more use of jets, (b) an increase in the use of residual fuel oil because the Merchant Marine Act of 1970 is expected to increase tankerage, and (c) projected motor gasoline usage

Obvious differences among the five sectors were adjusted by judgment

Supply forecast

The supply forecast was based primarily on the assumption that the trend of the 15 years immediately before the forecast of 1970 in converting resources to reserves would continue at a slightly higher level due to the improved recovery operations from producing reservoirs. This increase will be accomplished by technological advances and the use of secondary and tertiary recovery operations.

For projecting supply forecasts in 1980 and 1985, the Bureau of Mines officials developed, on a State-by-State basis, the production capacity of existing reserves at the time of the forecast as well as the then-current and prior rates of discovering new reserves. The forecasts were based on this data and on a further assumption that the reserve-to-production ratio should not fall below 6 to 1.

Import forecast

The amount of oil that a district needs to supply its projected demand will have to be secured basically by production, receipts from other districts, or imports from foreign sources. A district's excess refinery capacity determines the composition between crude and refined products of inter-district shipments and imports. Interdistrict shipments are

based on historical patterns subject to the limitations of changing demand and supply in the other districts. The total import forecast represents the demand still to be satisfied after interdistrict shipments and is determined solely by the deficit between demand and supply.

QUESTION 7 (second part)

Have any estimates been prepared of the extent to which a significant part of the demand for crude oil on the West Coast in 1980 and 1985 can be met by crude oil from Cook Inlet of South Alaska? If so, what are the bases for these estimates?

ANSWER

We obtained estimates from a major oil company and from the U.S. Geological Survey on the amount of oil that the Cook Inlet and South Alaskan oil fields will be able to provide to the west coast in 1980 and 1985.

An official of one of the leading oil producers in Cook Inlet estimated that production will be 100,000 barrels per day in 1980 and 50,000 barrels per day in 1985 in the Cook Inlet/South Alaskan oil fields. These projections were based on the declining rates of the producing wells and the currently proved reserves.

The Chief, Office of Energy Resources, U.S. Geological Survey, told us that no significant production could be expected from the Gulf of Alaska until after 1985 and that Cook Inlet had already passed its peak production. He believed that all Cook Inlet crude oil probably goes to the west coast.

He stated that estimates for 1980 and 1985 were impossible to make with any degree of accuracy because of forthcoming operational decisions, such as leases, reactions to environmental impact statements, and future Government regulations. However, he concluded on the basis of American Association of Petroleum Geologists' data on estimated reserves and cumulative production rates that, even with optimum conditions, Cook Inlet could produce a maximum of no more than 400,000 barrels per day and that by 1980 or 1985 the production would not likely exceed 200,000 barrels a day.

QUESTION 8

Is Alyeska a common carrier, as defined by law? Do pipelines crossing Federal lands have to be common carriers? Are there any limitations on the abilities of the companies which own Alyeska to sell their interests? If so, what are the applicable limitations?

ANSWER

We understand that Alyeska is a joint venture consisting of a consortium of four pipeline companies, each of which is a subsidiary of a major oil company, and three oil companies which propose to organize a stock company to be their representative in the consortium. In the proposed pipeline project, each oil company would pump crude oil from its wells through its own feeder lines to the northern terminus of the pipeline near Prudhoe Bay, Alaska. From there, Alyeska would transport the unrefined oil 780 miles through a 48-inch line to its tank farms at Valdez, Alaska, where the oil would be loaded into vessels for ocean transportation to its ultimate destinations. Alyeska would be responsible for constructing, operating, and maintaining the pipeline, although it would own none of the pipeline facilities.

On the basis of these facts, we conclude that the proposed transportation would be interstate in nature and in our opinion, Alyeska is a common carrier as defined in the Interstate Commerce Act (49 U.S.C. 1(3)(a)). However, insufficient administrative and judicial precedents concerning the practicalities of pipeline construction and operation preclude an accurate forecast of the extent to which the duties of such a common carrier might be enforced.

In our opinion, pipelines crossing Federal lands have to be common carriers. To construct a pipeline across public lands, except those lands held by the Department of Defense, a company must obtain the approval of the Secretary of the Interior under the provisions of section 28 of the Mineral Leasing Act of 1920, as amended (30 U.S.C. 185). As a condition to the grant of a right-of-way under this act, the applicant must agree to construct, operate, and maintain the proposed pipeline as a common carrier.

We do not have access to the agreement among the Alyeska oil companies. The Associate Solicitor, Public

Lands Division, Department of the Interior, told us that although the Department does not have a copy of the agreement it "has access to a copy" but was not authorized to make it available to us. He stated, however, that the Alyeska agreement provides for "easy" transfer of the participation shares among the present parties to the agreement but in the permit for construction of the pipeline the Department intends to impose very tight restrictions on transfers of shares to other parties. He stated also that such transfers must have the prior approval of the Secretary of the Interior and that the Department will require that it be informed in advance of all transfers, including those among the present parties to the agreement.

QUESTION 9

Are forecasts available of the demand for foreign crude oil and gas, both in percentage and absolute terms, in Districts I, II, III, IV, and V as established by Presidential Proclamation 3279 in 1975 and 1980? If they are, what are the bases for these forecasts?

ANSWER

The Bureau of Mines prepared a forecast dated October 20, 1971, showing for 1975, 1980, and 1985 the estimated domestic crude oil demand and supply and the related required imports of foreign crude oil. The estimates were prepared by PAD districts and were included in the Department of the Interior's "Analysis of the Economic and Security Aspects of the Trans-Alaska Pipeline, Volume II." A Department official said that forecasts of the demand for foreign gas by districts had not been prepared by the Department.

More recent energy reports issued by the National Petroleum Council ("U.S. Energy Outlook," Dec. 1972) and by the Department ("United States Energy Through the Year 2000," Dec. 1972) do not show the demand requirements by districts.

The following table shows the 1971 Bureau of Mines forecasts of demand for foreign crude oil and refined product in relation to the total U.S. demand in 1975 and 1980 in absolute terms. The table shows also the percentages of such foreign demand computed from the Bureau of Mines forecast.

The forecast of foreign crude oil demand in 1975 and 1980 by districts represents the difference between the total domestic demand and the total domestic supply. The bases for forecasts of the domestic supply and demand were explained in response to question 7. The allocation of the amounts between imports of crude oil and refined products was based on a projection of the availability of refining capacity in each of the five districts which was based on the assumption that U.S. refining capacity will increase approximately 10 percent every 5 years while continuing to operate at full capacity.

FOREIGN CRUDE OIL¹ AND REFINED PRODUCT FORECAST
(WITH NORTH SLOPE OIL INCLUDED IN DISTRICT V) IN
RELATION TO THE TOTAL UNITED STATES DEMAND² IN 1975 AND 1980

Petroleum Administration For Defense (PAD) Districts	Forecasted Demand ³ For Imports (Thousand Barrels Daily)			Percentage of Imports to Total Medium U S Demand ⁴		
	Foreign Crude ¹	Refined Products	Total	Foreign Crude	Refined Products	Total
<u>1975</u>						
I	1,200	2,405	3,605	6 26	12 54	18 80
II	995	60	1,055	5 19	0 31	5 50
III	1,388	100	1,488	7 24	0 52	7 76
IV	55	25	80	0 29	0 13	0 42
V	<u>1,102</u>	<u>150</u>	<u>1,252</u>	<u>5 75</u>	<u>0 78</u>	<u>6 53</u>
Overall totals	<u>4,740</u>	<u>2,740</u>	<u>7,480</u>	<u>24 73</u>	<u>14 28</u>	<u>39 01</u>
<u>1980</u>						
I	1,469	4,806	6,275	6 31	20 63	26 94
II	1,200	90	1,290	5 15	39	5 54
III	2,074	144	2,218	8 91	62	9 53
IV	85	35	120	36	15	51
V	<u>357</u>	<u>180</u>	<u>537</u>	<u>1 53</u>	<u>77</u>	<u>2 30</u>
Overall totals	<u>5,185</u>	<u>5,255</u>	<u>10,440</u>	<u>22 26</u>	<u>22 56</u>	<u>44.82</u>

Source Tables 3-A through 3-F, Department of Interior, An Analysis of the Economic and Security Aspects of the Trans-Alaskan Pipeline, Division of Fossil Fuels, dated October 20, 1971

¹Including natural gas liquids (NGL)

²Total U S demand includes domestic product demands, shipments of crude oil, NGL and refined products between PAD districts, crude loss, and exports

³Absolute - not dependent upon any other factor (i.e. supply)

⁴Total medium U S demand for 1975 is 19,180 thousand barrels/day
Total medium U S demand for 1980 is 23,290 thousand barrels/day

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United States Senate

COMMITTEE ON APPROPRIATIONS

WASHINGTON D C 20510

August 29, 1972

The Honorable Elmer B. Staats
Comptroller General of the United States
U. S. General Accounting Office
Washington, D. C. 20548

Dear Elmer

The Alaska pipeline, as I am sure you are aware, is an extremely controversial issue. The Department of the Interior has analyzed the question and concluded that it would be economically superior to construct the pipeline through Alaska, rather than through Canada. By contrast, a study by Dr. Charles Cicchetti of Resources for the Future, Inc., sharply disagrees with this conclusion.

To assist us in considering this matter further, it would be helpful if you would furnish us a report containing answers to the following questions

1. What are the recent delivered prices of 26.0° - 26.9° API sweet crude oil (less than .5%) and medium sulphur crude oil (1%) in New York, Chicago, and Los Angeles?
2. What are the sources of most of the crude oil used by refineries in New York (including New Jersey), Chicago (including Blue Island) and Los Angeles?

What is the average transportation cost per barrel by source from these sources to these cities in the same time frame as question 1?

3. What are the prices of crude oil delivered to New York and Los Angeles in 1975, 1980, and 1985, as projected by the Department of the Interior and by Dr. Cicchetti? What are the bases for these projections?
4. What does Alyeska estimate the reinjection cost for the trans-Alaska gas will be, when the Alaska oil production rate is 600,000 barrels per day, 1 million b/d and 2 million b/d? What are the bases for these cost estimates?

APPENDIX

The Honorable Elmer B Staats

August 29, 1972

5. What are the official O.E.P , F.P.C., and Interior Department estimates of the amount of foreign liquified natural gas and synthetic natural gas delivered at New York and Los Angeles in 1975 and 1980?
6. What studies have been made of the cost of building an oil pipeline through Alaska and a gas pipeline through Canada, as compared to a parallel oil and gas pipeline through Canada? What are the differences in cost, as concluded by these studies?
7. What forecasts are available of the demand and supply of oil in the Midwest and West Coast for 1980 and 1985? What are the bases of these forecasts?

Have any estimates been prepared of the extent to which a significant part of the demand for crude oil on the West Coast in 1980 and 1985 can be met by crude oil from Cook Inlet or South Alaska? If so, what are the bases for these estimates?

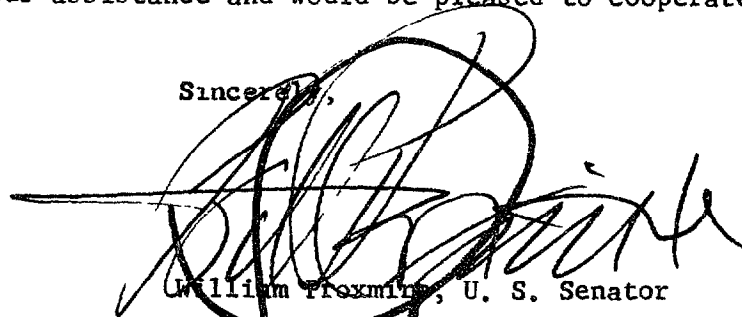
- 8 Is Alyeska a common carrier, as defined by law?

Do pipelines crossing Federal lands have to be common carriers? Are there any limitations on the abilities of the companies which own Alyeska to seel their interests? If so, what are the applicable limitations?

- 9 Are forecasts available of the demand for foreign crude oil and gas, both in percentage and absolute terms, in Districts I, II, III, IV, and V as established in Presidential Proclamation 3279 in 1975 and 1980? If they are, what are the bases for these forecasts?

We appreciate your assistance and would be pleased to cooperate in any way possible.

Sincerely,

A large, stylized handwritten signature in black ink, which appears to be "Bill Proxmire". The signature is written over the printed name and title.

William Proxmire, U. S. Senator

Les Aspin, Member of Congress