

# ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

Final Environmental  
Impact Statement



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COMMENTS AND RESPONSES  
PART I **VOL. IV**

April 1976

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VOLUME IV  
COMMENTS AND RESPONSES

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The Notice of Availability of the Draft Environmental Impact Statement (DEIS) was published and approximately 2,500 copies were mailed to the appropriate Federal, state, and local agencies and citizens' groups for comments on November 29, 1975. As of March 17, 1976, 110 comments were received. Twenty-two responses were received from Federal agencies, 21 from state agencies, 23 from local and regional agencies, 21 from private citizens and citizens' groups, 10 from the gas industry, and 13 from other industries. Many of the comments included factual information which significantly differed from that contained in the DEIS. The Final Environmental Impact Statement (FEIS) reflects the extent to which the environmental staff concurred with this data; a number of minor changes were also made in response to the comments.

This volume includes reduced photocopies of the comments on the DEIS submitted to the Federal Power Commission (FPC) and, where appropriate, the responses of the environmental staff. The environmental staff responded only to those comments on the DEIS received prior to March 1, 1976. The statement does not include responses to comments which were, in fact, statements of position. However, all such statements of position were considered by the environmental staff in reaching the conclusions set forth in this statement.

Several comments included attachments, particularly copies of comments submitted to the Department of the Interior's DEIS on the Alaska Natural Gas Transportation Systems. These attachments have not been reproduced; however, copies are available from the Office of Public Information of the FPC.

It should be emphasized that both the DEIS and the FEIS present the opinions of only the environmental staff and not those of the entire FPC staff. The final position of the Commission staff will be contained in the brief prepared by staff counsel and will be determined from consideration of the FEIS as well as other relevant evidence in the record.

A list of those submitting comments is included on the following pages.

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Advisory Council  
On Historic Preservation

1522 K Street N.W.

Washington, D.C. 20005

Dec 24

December 23, 1975

TO	
FROM	
SUBJECT	
DATE	
FILE	
REMARKS	
CENTRAL FILES	

CP75-96,200

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Plumb:

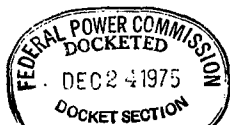
This is in response to your request of November 28, 1975, for comments on the draft environmental statement for the Alaska Natural Gas Transportation Systems in Alaska and California.

The Advisory Council has reviewed the statement and notes that the undertaking will affect numerous properties listed in the National Register of Historic Places or which may be eligible for inclusion in the National Register of Historic Places.

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (80 Stat. 915, 16 U.S.C. 470) and Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971, as implemented by the Advisory Council's "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800), Federal agencies must, prior to the approval of the expenditure of any Federal funds on an undertaking or prior to the granting of any license, permit, or other approval for an undertaking, afford the Advisory Council an opportunity to comment on the effect of the undertaking upon properties listed on or eligible for inclusion in the National Register. For your convenience, a copy of the Council's Procedures is enclosed.

Until the requirements of Section 106 and Executive Order 11593 are met, the Council considers the draft environmental statement to be incomplete in its treatment of historical, archeological, architectural and cultural resources. To remedy this deficiency, the Council will provide substantive comments on the undertaking's effect on cultural

See responses to the Advisory Council comments of 1/28/76 and 2/4/76.



The Council is an independent unit of the Executive Branch of the Federal Government charged by Act of October 15, 1966 to advise the President and Congress in the field of historic preservation.

Page 2  
December 22, 1975  
Mr. Kenneth F. Plumb  
Alaska Natural Gas Transportation Systems

resources through the steps detailed in the Procedures. Please contact  
Brit Allan Storey of the Council's staff at (303) 234-4946, to assist  
you in completing this process as expeditiously as possible.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Louis S. Wall".

Louis S. Wall  
Assistant Director, Office  
of Review and Compliance

Enclosure

Advisory Council  
On Historic Preservation

1522 K Street N.W.  
Washington, D.C. 20005

JAN 28 1976

Mr. Richard L. Dunham  
Chairman  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Dunham:

This is in response to your letter of January 20, 1976 concerning the Alaska Natural Gas Transportation System proposed by the El Paso Alaska Company, et al. (Docket Nos. CP75-96, et al.). By letter of December 22, 1975 (copy enclosed) we advised Mr. Kenneth F. Plumb, Secretary, Federal Power Commission (FPC) that the draft environmental statement (DES) prepared for the proposed undertaking was incomplete for it did not demonstrate compliance with Section 106 of the National Historic Preservation Act of 1966, nor Executive Order 11593, "Protection and Enhancement of the Cultural Environment" issued May 13, 1971. Because the DES identified numerous properties listed in or eligible for inclusion in the National Register of Historic Places compliance with Section 106 and Executive Order 11593 is required.

The "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) set forth the steps to be followed by an agency in obtaining Advisory Council comment. A copy of the Procedures is enclosed for your convenience. In order to expedite the consultation process detailed in the Procedures the FPC should, in consultation with the appropriate State Historic Preservation Officers, determine the nature of the effect of the undertaking on extant cultural resources and prepare the preliminary case report specified in Section 800.4(f). The preliminary case report should contain the following information:

1. a description of the properties included in or eligible for inclusion in the National Register to be affected by the undertaking, identifying the significant features of the properties;
2. an evaluation of the effect of the undertaking upon the properties included in or eligible for inclusion in the National Register;


3. an outline of measures taken in considering the undertaking's effect upon the properties included in or eligible for inclusion in the National Register, including:
  - a. an expression of the views of the State Historic Preservation Officer
  - b. an indication of the support or opposition of units of government, as well as public and private agencies and organizations
  - c. a review of alternatives which would avoid any adverse effects
  - d. a review of alternatives which would mitigate any adverse effects
4. The status of this project in your agency's approval process.
5. The status of this project in your agency's National Environmental Policy Act compliance process.

The case report should be completed and forwarded to the Council at your earliest convenience.

Pending receipt of the Council's comments, the Council requests that FPC refrain from taking any action with regard to the undertaking that will foreclose proper Advisory Council consideration of existing alternatives to avoid or satisfactorily mitigate any adverse effects on the properties in question.

Should you have any questions, please contact Brit Allan Storey of the Council staff at (303) 234-4946. The Council appreciates your cooperation in this matter.

Sincerely yours,

  
John D. McDermott  
Director, Office of Review  
and Compliance

Enclosures

Advisory Council  
On Historic Preservation  
1522 K Street N.W.  
Washington, D.C. 20005

CP75-96 ETAL

RECEIVED FEB 4 1976  
FEB 11 3 56 PM '76  
OFFICE OF  
ENERGY SYSTEMS  
FEDERAL POWER  
COMMISSION

Mr. Jack M. Heinemann  
Acting Advisor on Environmental Quality  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Heinemann:

This is in response to your letter of January 12, 1976, concerning the Alaska Natural Gas Transportation Systems draft environmental statement (DES). It appears that our letter of December 22, 1975, in response to the Federal Power Commission's (FPC) request for comments pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969 on the DES, was misunderstood by the FPC. The Advisory Council's authority to comment to Federal agencies on undertakings affecting properties included in or eligible for inclusion in the National Register of Historic Places is derived from Section 106 of the National Historic Preservation Act of 1966 and Sections 1(3) and 2(b) of Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971. Comments are provided to Federal agencies pursuant to the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) which were developed by the Advisory Council. Our expertise in reviewing environmental statements is in the area of whether compliance with the National Historic Preservation Act and the Executive Order has been demonstrated in the environmental statement. The DES submitted to the Advisory Council for review, as noted in our letters of December 12, 1975, and January 27, 1976, failed to indicate compliance with these authorities.

The Advisory Council is aware that the problems involved with the Alaska Natural Gas environmental issues are complex in nature and will require a high degree of cooperation and coordination between the various state and Federal agencies involved. From review of environmental documentation and conversations with FPC and Department of the Interior (DOI) staff, it would appear that the Advisory Council should receive a joint proposal from the FPC and the DOI with regard to the procedures that will be followed by the agencies and the applicants to avoid, protect, or mitigate adverse impacts to affected cultural resources.

See next page.

*The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.*

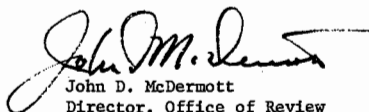
Page 2

Mr. Jack M. Heinemann  
Alaska Natural Gas Transportation Systems

Therefore, it is suggested that a meeting be arranged between our Denver staff and staff from FPC, DOI (including the Bureau of Land Management and the National Park Service), and any other involved Federal agency, to work out the steps to be taken in obtaining compliance.

In order to arrange the details of this meeting, please telephone me at 254-3380.

Sincerely yours,



John D. McDermott  
Director, Office of Review  
and Compliance

This has been done. FPC is cooperating with these agencies in formulating a program of mitigation in compliance with Advisory Council procedures.

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GENERAL COUNSEL

MICHAEL C. MANDEN

MINORITY COUNSEL

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

January 20, 1976

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 22 1976  
FEDERAL POWER  
COMMISSION

Mr. Kenneth Plum, Secretary  
Federal Power Commission  
825 North Capitol Street, N.E.  
Washington, D. C. 20426

Re: BNG-SOD-ALASKA

Dear Mr. Plum:

I have examined with interest the "Draft Environmental Impact Statement" prepared in connection with proposals to bring Arctic gas from Prudhoe Bay Field in Alaska to market areas in the lower 48 States.

Your environmental staff makes certain conclusions, one of which is that the Northern Border route of the proposed system should be routed along the Red River Corridor alternative route proposed by the Department of the Interior (I-255).

Other than the fact that it seems inappropriate to me for the staff which prepared the draft EIS to go beyond a discussion of the alternatives and publish its own conclusions, I find little in the draft EIS to support the conclusions. Apparently, it is based solely on the fact that the route suggested would be approximately 345 miles shorter than the prime proposed route (I-225).

I find no consideration given by the staff in arriving at their conclusion as to the route to other important factors. For example, the potential of the prime route to stimulate an

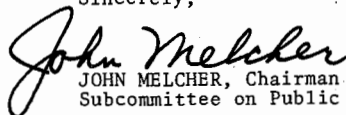
Mr. Kenneth Plum  
Page 2  
January 20, 1976

increase in exploration and possible development of oil and gas basins in northern Alaska, as well as the coal fields in Montana and elsewhere (I-215).

In the final EIS, it seems to me that the staff's conclusions should either be deleted or fully supported.

Kindest regards.

Sincerely,

  
JOHN MELCHER, Chairman  
Subcommittee on Public Lands



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

30 JAN 1976

Mr. Kenneth Plumb  
Secretary  
Federal Power Commission  
825 North Capitol Street  
Washington, D.C. 20426

RECEIVED  
OFFICE OF THE  
ADMINISTRATOR  
FEDERAL POWER  
COMMISSION  
JAN 31 1976

Dear Mr. Plumb:

The Environmental Protection Agency has completed its review of the Federal Power Commission's draft environmental impact statement (EIS) entitled "Alaska Natural Gas Transportation Systems," issued in November 1975. Our specific comments are enclosed.

We believe the FPC Staff has made a significant effort in preparing this draft EIS. However, the FPC has, by reference, adopted virtually all of the Department of the Interior's draft EIS for the Arctic Gas proposal. EPA's comments (enclosed) on that statement indicated our belief that the analysis relevant to determining the environmental impact of the project was, as a whole, inadequate. For those aspects of the Interior EIS adopted by the FPC in its EIS on the El Paso proposal, our comments remain the same.

A principal concern raised in our review of the Interior statement was the absence of an adequate analysis of potential environmental impacts due to the proposed pipeline design criteria. In our view, this critical subject has also not been satisfactorily addressed by the FPC. We remain concerned that the chilled pipeline design concept which characterizes the El Paso proposal has not effectively been demonstrated as a technology in arctic and subarctic areas. Accompanying this concern is a suspicion that those mitigating measures proposed for project impacts

may not be sufficient should the design criteria or construction techniques for the pipeline themselves prove inadequate.

The draft EIS discusses on pages II-257-261 the potential severity of geologic hazards along the pipeline corridor, including the problems posed by permafrost, frost heave, erosion and mass wasting. However, the mitigating measures proposed to address these hazards are contained in only two paragraphs on page II-319:

The pipeline design would include unique design features which would protect the environment and provide for the stability of the pipeline system. One of the unique design features is the use of a chilled gas concept which would maintain the gas temperature below the melting point of ice (32°F) and above the dew point of gas (-10°F). This would avoid the degradation of the permafrost which would occur if a hot gas pipeline were operated through permafrost areas. In order to maintain the pipeline temperature below 32°F, gas refrigeration plants would be installed at the discharge side of the first 11 of the 12 compressor stations.

Measures would be used to prevent possible problems caused by chilling the gas such as frost heave and ice encapsulation. Some of the measures which El Paso is considering for problem areas are using selective backfill material, which is not readily susceptible to forming permafrost, anchoring the pipe and insulating the pipe.

This brief response has not convinced EPA of the reliability of mitigating measures proposed to deal with the impacts which may accompany the unproven pipeline technology. In particular, these questions remain unanswered:

1. How will the thermal balance and attendant frost heave, pipeline integrity, permafrost integrity, and general environmental wellbeing be maintained for those sections of pipe in the ground during the periods in excess of two years before the introduction of chilled gas?

2. What effect will the frost bulb have on "spring break-up" at the stream crossings? How will it be mitigated?
3. Would a prototype pipeline testing project be able to determine the effect of proposed mitigating measures on actual impacts of construction?
4. What would be the effect of an elevated pipeline (similar to the trans-Alaska oil pipeline) in permafrost areas scheduled for construction?

EPA recommends, in light of these unanswered questions on pipeline technology and mitigating measures, that the FPC pursue and promote the establishment of a prototype pipeline testing project. This testing project could be developed during the time period already scheduled for engineering and design studies prior to construction. Without causing a delay in the proposed construction timetable, the prototype project would help insure that the planned mitigating measures will be stringent enough to guarantee the maximum level of environmental protection.

A prototype project should, as a minimum, involve the testing of buried pipeline segments in selected permafrost and stream crossing areas. A prototype effort of this kind was employed prior to the construction of the trans-Alaska oil pipeline and it resulted in a more technologically reliable and environmentally sound project. Until more definitive information is available (or at least scheduled to be developed in pre-construction testing), on the gas pipeline design criteria and their potential for environmental degradation, we believe the environmental analyses must be considered incomplete. Therefore, we urge the FPC to encourage the applicant to provide for such a prototype testing project prior to proceeding with the unproven chilled pipeline technology.

Our specific comments contain in detail some additional concerns with the project design and construction activities. However, we believe that these concerns can be attenuated with planning and modifications much less difficult than those required for the major problem area discussed above.

In order to accumulate more definitive information on the impacts of a chilled gas pipeline in arctic and subarctic environments, the environmental staff recommends that the successful applicant undertake an analysis of the Alyeska pipeline system and prototype projects conducted by the Alaskan Arctic and Canadian Arctic Gas Pipeline Companies. Specific areas of study should encompass but not be limited to the following:

- 1) What measure(s) are most effective in controlling or eliminating frost heave and ice encapsulation along the pipeline? Are any measures effective enough to virtually guarantee the integrity of a pipeline utilizing the chilled gas concept?
- 2) Can the thermal balance, permafrost, and pipeline integrity, as well as the general environmental wellbeing of the local area be maintained for sections of pipe in the ground in excess of 2 years prior to the introduction of chilled gas?
- 3) What effect(s) will formation of a frost bulb at stream crossings have on "spring breakup"? What measures, planned for implementation, are most effective at mitigating these effects?

Under normal circumstances the environmental staff would concur with the suggestions of the Environmental Protection Agency and the Council on Environmental Quality that a series of prototype segments be tested in areas of critical environmental sensitivity. In this particular case, however, the staff feels that the magnitude of the environmental and economic impacts which would result from such an endeavor would approach and in some respects surpass those associated with the construction of the pipeline as presently proposed. The environmental staff therefore, while in conceptual agreement, cannot support such recommendations.

As a result of our review, and in accordance with EPA procedures, we have rated the draft statement category 3 (Inadequate) pending information or a commitment to develop information on the significant and unanswered questions surrounding the chilled pipeline technology and proposed mitigating measures. Should you wish clarification of any of our comments, please let us know.

Thank you for the opportunity to review and comment on this proposed project.

Sincerely yours,

*Rebecca W. Hanmer*

Rebecca W. Hanmer  
Acting Director  
Office of Federal Activities  
A-104

Enclosures

THE ENVIRONMENTAL PROTECTION AGENCY'S  
DETAILED COMMENTS ON THE  
FEDERAL POWER COMMISSION'S DRAFT  
ENVIRONMENTAL IMPACT STATEMENT  
ENTITLED,

"ALASKA NATURAL GAS TRANSPORTATION SYSTEMS"

GENERAL

Our principal concern is over the absence of an adequate analysis of potential environmental impacts as a result of the proposed pipeline design criteria. The chilled pipeline design concept has not been effectively demonstrated as a technology in arctic and subarctic areas. Accompanying EPA's concern in this area is a suspicion that those mitigating measures proposed for project impacts may not be sufficient should the design criteria or construction techniques for the pipeline themselves prove inadequate. In particular, these questions remain unanswered:

1. How will the thermal balance and attendant frost heave, pipeline integrity, permafrost integrity, and general environmental wellbeing be maintained for those sections of pipe in the ground during the periods in excess of two years before the introduction of chilled gas?
2. What effect will the frost bulb have on "spring break-up" at the stream crossings? How will it be mitigated?
3. Would a prototype pipeline testing project be able to determine the effect of proposed mitigating measures on actual impacts of construction?
4. What would be the effect of an elevated pipeline (similar to the trans-Alaska oil pipeline) in permafrost areas scheduled for construction?

See response to EPA's discussion of the prototype on Page 3 of the cover letter.

The lengthy period of pre-operation burial of the pipe prior to introduction of chilled gas could possibly be reduced by connecting buried pipeline to refrigeration units, which would fill them with chilled air.

The frost bulb effect on spring breakup can be reduced by deeper burial, casing with concrete having high insulating values, and maintaining the pipeline gas at no lower temperature than necessary. The relatively rapid movement of the groundwater in the stream area would inhibit frost bulb development.

The effects of an elevated pipeline would:

- a) be the same as the oil pipeline is during construction;
- b) have little if any effect during normal operations;
- c) cause a reduced ability to spot potential leaks (via disturbance of soil or vegetation in buried pipelines) in the pipeline;
- d) mean that repair or maintenance during the summer would have little effect if a permanent work pad remains alongside the pipeline.

EPA recommends, in light of these unanswered questions on pipeline technology and mitigating measures, that the FPC pursue and promote the establishment of a prototype pipeline testing project. This testing project could be developed during the time period already scheduled for engineering and design studies prior to construction. Without causing a delay in the proposed construction timetable, the prototype project would help insure that the planned mitigating measures will be stringent enough to guarantee the maximum level of environmental protection.

A prototype project should, as a minimum, involve the testing of buried pipeline segments in selected permafrost and stream crossing areas. A prototype effort of this kind was employed prior to the construction of the trans-Alaska oil pipeline and it resulted in a more technologically reliable and environmentally sound project. Until more definitive information is available (or at least scheduled to be developed in pre-construction testing), on the gas pipeline design criteria and their potential for environmental degradation, we believe the environmental analyses must be considered incomplete. Therefore, we urge the FPC to encourage the applicant to provide for such a prototype testing project prior to proceeding with the unproven chilled pipeline technology.

Another of our major concerns regards the issue of pipeline maintenance, emergency or otherwise, during the summer months. It seems conceivable that extensive efforts to protect the environment during construction could be negated during a maintenance episode in the summer, particularly, if heavy equipment must be used. In this regard:

1. Is it feasible to share the same work pad constructed for the Trans-Alaska oil pipeline whenever possible?
2. What impacts would evolve from constructing a gravel work pad along the route wherever it could not be shared with the trans-Alaska work pad?

Also, natural gas is the principal fuel to be consumed in both the Arctic Gas System and the El Paso-Western System for transport of Alaskan natural gas

See response to EPA's discussion of the prototype on Page 3 of the cover letter.

Yes, the environmental staff feels that in certain locations the same work pad could be utilized. Studies, however, have not yet been done to determine the compatibility of a hot oil pipeline and a cold gas pipeline buried relatively close together. See the staff's recommendation.

El Paso has proposed to utilize primarily winter construction which would mitigate these impacts on the North Slope and south of the Brooks Range. It is estimated, however, that approximately 6.5 million cubic yards of gravel would be necessary in areas where the trans-Alaska pad would be unavailable.

to southern markets. Conservation of natural gas in the transportation system frees that amount of clean fuel for combustion in lieu of more polluting fuels. For this reason, EPA believes that the final EIS for the El Paso proposal should include staff calculation of total energy consumption (broken down by fuel) and energy efficiency of the two alternatives. The model for this comparison may be found in Energy Alternatives: A Comparative Analysis (CEQ).

In many cases energy conservation is coupled with direct environmental advantage. For example, the use of car pools and other traffic management schemes during construction simultaneously saves fuel and reduces combustion and fugitive dust emissions. The final EIS should propose as conditions for operation such methods of fuel use reduction.

The statement indicates that the bulk of the construction will take place in the winter months. Our understanding of the experience to date with the construction of the Alyeska pipeline is that the contractors have found winter time construction economically infeasible because of the large amounts of lost work time due to inclement weather, low worker productivity and a higher accident potential. This situation should be recognized in the description of the proposed action and the discussion of mitigation measures found on page 11-325 should be updated in the final EIS to reflect the costs of winter construction activity.

Finally, the draft EIS argues that air quality will be enhanced to the degree that natural gas supplied by the transportation system reduces the need to acquire and burn more polluting fuels. EPA believes it would be appropriate for the final EIS to discuss the distribution options for Alaskan natural gas which are available to Federal control. This is especially important in connection with air quality in the South Central Coast and South Coast air basins of California, where a proposed natural gas curtailment plan currently before the FPC could severely restrict the natural gas supplies now available to those areas.

Calculations of total energy consumption (broken down by fuel) and energy efficiency of the two alternatives is beyond the scope of this statement. However, the reference to CEQ's publication has been incorporated into Volume II, Section H of the FEIS.

The environmental staff agrees that limiting construction primarily to the winter months may be infeasible. Our comments on this situation can be found in "Alternatives to the Proposed Action," Section H.

The distribution of natural gas has been discussed in the socioeconomic portions of the FEIS. The FPC has before it a curtailment plan for California under consideration, given in Docket RP72-6. Importation of LNG will alleviate the need for curtailment to the extent that additional gas is available. In addition, the staff reiterates that Order 467 gives lowest priority to the use of natural gas for electric power generation.

## SPECIFIC

### Alaska

#### Air Quality Considerations

Volume II, page 314, Table 30, lists the emissions from gas-fired turbines in compressor stations in pounds per MMBTU. However, this does not provide pollutant ground level concentrations for comparison with applicable air quality standards. We believe that appropriate air quality modeling should be provided for establishing the impact of pollutant emissions in the environs of the compressor stations.

Also, the FPC should compare the emission rates from gas-fired turbines in compressor stations (II-314) with those emission rates contained in the EPA document: Compilation of Air Pollutant Emission Factors, AP-42. The factors presented in Table 30 are significantly lower than the AP-42 factors for all pollutants except SO<sub>2</sub>. We believe this discrepancy should be addressed in the final EIS. The final EIS should also present the estimated emissions from the liquefaction plant in pounds per day and tons per year of each pollutant (SO<sub>x</sub>, NO<sub>x</sub>, HC, CO, and particulate).

The final EIS should include an analysis of HC vapor emissions from various handling (compressors, transfer arms, etc.) and storage operations, as well as total evaporative emissions from tanker transport (NO<sub>x</sub>, SO<sub>x</sub>, HC, particulate), calculated according to factors in Energy Alternatives: A Comparative Analysis (CEQ), or by other referenced standards.

Emissions from handling and storage of Bunker "C" fuel oil should be calculated. The techniques to be employed for reducing evaporative losses should be described.

Residuals for the transmission system should be presented, with air pollutants calculated for each pipeline alternative route.

We suggest that the FPC commit the project applicant to a baseline ambient air monitoring project at Gravina Point, Nikiski, and Point Conception. In addition, a

See numbered responses on following page.

3. The process units will be designed to avoid emitting hydrocarbon vapors to the atmosphere. During upsets, however, hydrocarbon vapors may be discharged through the process plant pressure relief header, to an elevated smokeless flare stack for burning. A potential source of hydrocarbon emissions will be from the flare stack. The storage facilities will be designed according to EPA guidelines to minimize emissions, according to the applicant.
4. The environmental staff is of the opinion that emissions from Bunker C fuel oil are very limited in extent, and any calculations to show this are unnecessary. However, the environmental staff recognizes that vapor emissions from liquid hydrocarbon transfer operations are a major source of losses.
5. The environmental staff is of the opinion that the amounts of air pollutants produced by the operation of any pipeline are very small. For example, similar emissions from vaporizers and twin heaters produce a maximum of 0.06 ppm for NO<sub>x</sub> for the worst 1-hour concentration, when all sources are operating.
6. According to the applicant, meteorological and air quality measurements will be made both before and during construction as well as during operation of the proposed natural gas facilities. Data collection will occur mainly at the 12 compressor station sites in Alaska.

The source parameters listed in the following table were modeled using the Air Quality Display Model. This model will compute the annual average concentration in the locale near the compressor stations. Cordova and Middleton Island are the two nearest meteorological stations to Gravina Point, so meteorological data from these two locations were used as input to the program. This meteorological data is listed below.

SUMMARY OF ANNUAL STABILITY WIND ROSES:  
CORDOVA, ALASKA; HOURLY OBSERVATIONS, 1959-1962

Stability Class	Mean Wind Speed (Knots)	Frequency of Occurrence	Percent Occurrence	Percent Calms
A	(calm)	43	0.01	0.1
B	2.5	1000	2.80	1.3
C	3.6	3272	9.30	3.6
D	6.1	21914	62.50	10.5
E	5.4	1463	4.20	-0-
F	1.4	4001	11.40	7.2
G	0.5	3347	9.60	7.8
All	4.6	335040	100.00	30.6

SUMMARY OF ANNUAL STABILITY WIND ROSES:  
MIDDLETON ISLAND, ALASKA; HOURLY OBSERVATIONS, 1959-1962

Stability Class	Mean Wind Speed (Knots)	Frequency of Occurrence	Percent Occurrence	Percent Calms
A	(calm)	49	.01	0.1
B	4.1	689	2.00	0.4
C	5.3	2074	6.00	1.2
D	13.0	26702	77.00	3.5
E	6.7	2590	7.50	-0-
F	3.2	1976	5.70	1.8
G	0.5	3347	9.60	1.4
All	11.1	34699	100.00	8.6

Although differences in terrain at those stations and at Gravina Point may lead to significant differences in directional frequency of stability conditions and wind speeds, stability classes and wind speeds probably fall between those of Middleton Island and Cordova. The following assumptions were made in order to carry out the calculations:

- 1) The emissions of all sources were assumed to come from one point, even though the individual sources were located some distance apart, and
- 2) Continuous operation at full load was assumed. The calculated annual average maximum ground level concentration of NO<sub>2</sub> was approximately 4 ug/m<sup>3</sup>.

2. Particulate emissions for the LNG plant will be well below the applicable emission standards. The only significant NO<sub>2</sub> emissions will come from the process heaters, boilers, and gas turbines. SO<sub>2</sub> emissions from the previously listed sources will be minimal, as the gas burned will have a sulfur content of less than one grain per 100 scf.

Based on submissions by the applicant, a summary of the estimated stack emissions from the gas-fired equipment is shown in the following table.

<u>LNG PLANT</u>								
<u>STACK EMISSION SUMMARY FOR AVERAGE OPERATIONS OF EIGHT TRAINS<sup>(1)</sup></u>								
Service	Total Units Operating	Excess Air % wt.	Stack Height, ft.	Total Heat Input MMBtu/hr (HHV)	Total Flue Gas Rate, MM lb/hr	NO <sub>x</sub> (as NO <sub>2</sub> )		
						lb/hr (each unit)	lb/hr (Total)	lb/MMBtu
Gas Turbines for Propane Compressors	8	287	(2)	(2)	(2)	(2)	(2)	(2)
Supplemental Fired Waste Heat Boilers	8	120	150	10,850 <sup>(3)</sup>	13.76	271	2168	0.20 <sup>(4)</sup>
Gas Turbines For Electric Power Generators	6	287	100	1304.1	3.738	150	900	0.69
Regeneration Gas Heaters	8	20	100	111.3	0.106	2.8	22.4	0.20 <sup>(4)</sup>

- (1) Stream-day basis. (345-day on-stream factor for each train). Operations when loading an LNG tanker make up 40% of the operating time. The fuel gas has a total sulfur content less than 1 grain/100 scf.
- (2) Propane compressor turbine exhaust gases are discharged to the supplemental fired waste heat boilers.
- (3) The total heat input of 10,850 MMBtu/hr includes a heat input of 4710 MMBtu/hr to the propane compressor gas turbines and a heat input of 6140 MMBtu/hr from supplemental gas firing in the boilers.
- (4) Based on waste heat boiler and process heater manufacturers meeting the EPA "New Source Performance Guidelines" of 0.20 lb. NO<sub>x</sub>/MMBtu for gaseous fuel burning equipment.

continuous air quality monitoring program should be established as an operational condition at both LNG facilities.

The discussion describing the wind and stability conditions along the proposed pipeline route would be enhanced by including the stability-wind roses for Fairbanks, Big Delta, Gulkana, and Cordova. Star programs are available for all of these cities from the National Climate Center in Asheville, North Carolina.

The discussion on page II-70 indicates that stagnating meteorological conditions with light winds and low-level inversions may persist for at least two weeks in the continental climatic zone of Alaska. During such an extended episode, what would be the maximum areal extent of an ice fog plume due to operation of the compressor stations in this region?

Concerning stability conditions at the proposed LNG site located in Prince William Sound, the stability data from Cordova, less than 25 miles away, is more representative than the data listed in Table 6, page II-71, for Anchorage located 125 miles from the site.

What stability classes and wind speeds were used in the computation of the annual average and worst-1-hour NO<sub>2</sub> concentration estimates discussed on pages III-244 and 245?

Explanation is sometimes lacking where design considerations are central. The draft EIS asserts, for example, that vaporizers and trim heaters will be designed to minimize the formation of nitrogen oxides during operation. How will this be accomplished? How will minimization of NO<sub>x</sub> emissions affect other pollutants?

The discussion of air quality impacts should discuss the magnitude of the fugitive dust problem created by pipeline construction and the effectiveness of the proposed mitigation measures.

The discussion of ice fog and smoke on page II-70 should be corrected to note that ice fog conditions occur in winter and smoke conditions occur in summer. Table 6, at page II-71, should be amended to include the Pasquill stability categories for Fairbanks.

Stability data for Fairbanks, Cordova, and Middleton Island have been included in the FEIS.

Comment previously addressed.

Stability data from Cordova and Middleton Island has been used as input to the Air Quality Display Model in order to determine pollutant concentrations.

The worst 1-hour NO<sub>2</sub> concentration estimates occurred with inversion breakup conditions, "C" stability, and a 20 mph wind speed with all sources operating at full capacity. Sources operating at full capacity are expected to operate no more than 480 hours in 1 year. The annual average was calculated by using the wind speed data from Santa Barbara and all six stability classes.

According to the applicant, best available emission reduction techniques will be used in the design of the process heaters, boilers, and power generator gas turbines. Minimization of NO<sub>x</sub> emissions should not significantly affect other pollutants.

The magnitude of the fugitive dust problem as a result of construction activities and movement of equipment would be localized and short-term.

Table 6 has been amended to include stability data for Fairbanks.

### Water Quality Considerations

EPA is seriously concerned with the potential for water quality degradation as a result of the discharge of thermal effluents from the gas liquefaction plant proposed for the south Alaska coast. The proposal calls for a once-through cooling system at the plant with a thermal effluent estimated to be 21°F above the ambient seawater temperature. The discharge of such a significant thermal effluent can be expected to cause a substantial damage to the sensitive aquatic environment. We strongly urge that an alternative cooling system, such as environmentally acceptable dry cooling towers, be considered for utilization at this site.

An additional alternative which should be considered is the use of portions of the thermal effluent for industrial and mariculture purposes. The final EIS should discuss the use of dry cooling towers, mariculture, or both, as a more environmentally acceptable method to mitigate the impacts of the anticipated thermal effluent discharge.

There is an apparent discrepancy in the draft statement concerning the rate of effluent discharge from the liquefaction plant. Volume II, page 279, indicates that "about 658,000 gallons per minute of water would be drawn into the plant for the proposed once-through cooling water system." Then, the EIS states on page 346 of the same volume that "(c)ooling water intake and discharge for the liquefaction process would amount to approximately 1.1 million gallons per minute." The difference between these two figures is considerable and should be resolved in the final statement. The final statement should also include any necessary revisions to the aquatic impact analysis should the lower discharge figures have been incorrectly used in the original analyses.

Also, we recommend that the FPC staff collect enough information to allow for an adequate assessment of the impact of the 600 foot road/breakwater on near shore circulation. Impacts on marine biota should be thoroughly evaluated so that the final EIS can describe the magnitude of the impacts on different species.

Recommendation number 13 was made concerning this item in the DEIS.

This item was discussed in Section C.6.e in Volume II, and recommendation number 16 also dealt with mariculture.

The applicant has indicated that due to the elimination of the proposed ethane compressor steam condensers, the original calculated design flow for the seawater cooling system of 1,147,370 gallons per minute (gpm) was lowered to 658,670 gpm.

Page II-346 should be changed to read "658,000 gallons per minute."

Recommendations 14 and 17 in the DEIS in Volume II were made concerning this subject.

The environmental staff is concerned with this problem and has recommended that a study be made by the applicant prior to construction and submitted to the FPC.

As noted on page 281 of chapter II, the expected residual chlorine content of the seawater cooling system effluent will be "less than or equal to 1 ppm." EPA has calculated that a discharge concentration of 1 ppm at a flow of 658,000 gpm would result in four tons per day of chlorine being dumped into the estuary. The final EIS should indicate the impact which a chlorine discharge of this level may have on the ambient water quality in the vicinity of the outfall pipe. This is particularly important as EPA's proposed criteria for water quality indicate that concentrations of free residual chlorine in marine or estuarine waters in excess of 0.01 ppm are unacceptable.

The draft EIS does not indicate what specific water quality standards are applicable to the numerous streams that the proposed pipeline will cross. It also does not indicate what water quality problems currently exist in the vicinity of these crossings. This information should be presented in the final EIS for at least the major streams to be crossed. The discussion of water quality on page II-126 should also note that arctic lakes such as Galbraith Lake can become supersaturated during the spring, prior to break-up.

On page II-138, the DEIS asserts that permafrost underlies the entire area of the Yukon River Basin. According to the "Environmental Atlas of Alaska", much of this region is underlain by discontinuous permafrost. The final EIS should reflect this fact.

On page II-274, the statement that repeated small spills of fuels and lubricants along the proposed route could be as serious a water quality problem as a single large spill should be discussed in the light of the experience gained on the effects of small oil spills during the construction of the Alyeska Pipeline System.

1. The discussion of the chlorine discharge has been expanded in the "Impacts on Marine Biota" in the FEIS.
2. As the applicable water quality standards are a matter of public record and must be complied with by the applicant, the environmental staff believes their inclusion in the FEIS would make it unnecessarily unwieldy. Information regarding water quality problems at proposed pipeline crossings is unavailable, if such problems do exist. According to state water use classifications, all interstate waters except the coastal waters, are categorized classes A, B, C, D, E, F, and G. All other fresh waters of the state except one portion of Ship Creek and a portion of the Chena River near Fairbanks are generally in their original and natural conditions and as such are considered suitable to serve all classifications. Additional information is available in the Alaska Administrative Code, Title 18, Environmental Conservation, Chapter 70, Water Quality Standards.
3. The statement was made with reference to the areas drained by the Salcha, Chena, and Tolovana Rivers. Both this statement and a statement made earlier to the effect that the major portion of the Yukon River Basin is underlined with permafrost were obtained from river survey reports prepared by the U.S. Army Corps of Engineers, Portland District (1951 and 1959). Although Williams (Ground Water in the Permafrost Regions of Alaska, USGS Professional Paper 696, 1970) categorizes the region between the southern foothills of the Brooks Range and the Pacific coastal ranges as a discontinuous permafrost zone, he further suggests that the proportion of unfrozen ground is generally greater in the south than in the north. In lieu of specific information regarding the proportion of unfrozen ground in the Yukon River Basin or the "right side" Tanana River tributaries, it is assumed that the generalized statements made by the Corps of Engineers are accurate.
4. The environmental staff is unaware of any published information regarding a comparison of large and small oil spills relative to the Alyeska Pipeline System.

#### Land Use Considerations

Where the proposed gas pipeline parallels the Alyeska oil pipeline, it is not made clear in the draft EIS why the gas pipeline cannot be routed in the same or expanded right-of-way of the Alyeska pipeline. In addition, the 150 foot right-of-way discussed in the El Paso proposal is 30 feet wider than the right of way proposed in the Department of the Interior's draft environmental impact statement for the Alaska Natural Gas Transportation System. EPA urges the FPC to consider a right of way for the El Paso project no wider than necessary for the construction and maintenance of the pipeline and associated facilities.

The amounts of gravel and aggregate needed for construction of the Alyeska oil pipeline were significantly underestimated in the initial studies. In light of this experience, the FPC may wish to recheck the 6.5 million cubic yard figure presented in the draft EIS on page II-256. This figure is, in itself, much lower than even the early Alyeska calculation. If such an under-estimation of aggregate resources is discovered for the El Paso proposal, the FPC should then discuss the added environmental impacts of the gravel extraction process.

In the absence of a definitive El Paso plan for revegetation of the pipeline right of way, we urge the FPC to insure the long range integrity of this land by including specific revegetation criteria and requirements as a condition of any certificate granted to the applicant.

The draft statement indicates in several places that the development of the project will facilitate the ingress of population and industry to now "planned and unplanned frontiers." Experience gained from the Alyeska project illustrates the level of social dislocation, and resulting environmental problems (waste water treatment, drinking water supply, solid waste disposal, etc.), which accompany the rapid influx of population into once-remote arctic areas. We believe it would be environmentally beneficial to restrict, where possible, the access to frontier areas until adequate land use and community development plans are generated.

Moreover, a solid waste and sludge disposal plan for the basic construction and operation activities of the project should be made one of the conditions in any certificate issued to the applicant. Where the applicant

In many areas where the pipelines parallel one another, the gas pipeline would be routed in an expanded right-of-way of the Alyeska pipeline. In some instances, however, routing on an expanded right-of-way would violate environmental considerations or be physically impossible.

The staff has before it a proposal to route a pipeline in a 150-foot wide right-of-way. The Department of the Interior has no such proposal under consideration, and thus used 120 feet as a standard right-of-way width.

All sludge and solid waste disposal plans by the applicant would fall under the specific permit authority of the State of Alaska.

fails to provide such a plan on its own, it becomes the responsibility of the FPC to address the issue in the final EIS.

As noted earlier, winter construction may not be possible. Therefore the impacts of summer construction should be covered in some detail. Specifically, the statement should address the problems associated with obtaining 6.5 million cubic yards of gravel for the gravel pad. This much gravel may not be available from environmentally acceptable sources because of the large gravel use associated with the construction of the Alyeska pipeline. The applicant thus may want to use active river beds for gravel sources. This practice has not been permitted during the Alyeska construction and would probably not be permitted for the gas pipeline construction. Alternate construction procedures may therefore be necessary and they and their impacts should be discussed. Additionally, if indeed winter construction is used and gravel is not available, large volumes of water will be required to form the construction ice pad. Since this water requirement will come at the minimum flow season, the final EIS needs to give more attention to the availability of water and the potential impacts of its withdrawal.

The statement, on page II-11, indicates that the land requirements for the proposed project total 15,737 acres for temporary construction and, within that, 5,752 acres for permanent operation. The final EIS should indicate whether all of the 15,737 acres will be subjected to the "short term" and "medium term" impacts identified on page II-365. Likewise, will all of the 5,752 acres for permanent occupation be subject to the "long term" impacts identified on the same page?

The discussion in Sections F and G on what conditions constitute short- and long-term effects is sufficient to enable the reader to evaluate which effects would be applicable to temporary and permanent right-of-way disturbances.

## Alternatives

The extreme sensitivity of the Arctic environment, the slow regeneration of vegetation, and the delicate thermal balance of the permafrost which underlies the pipeline route require a much higher standard of care than normal construction techniques entail. We therefore concur with the FPC Staff recommendations detailed on pages II-521 and 526 and encourage such recommendations to be formally included by the FPC in any certificate issued for this project.

The statement mentions that portions of the pipeline could be buried in excess of 2 years before the introduction of the chilled gas. In permafrost areas this may cause both permafrost degradation and pipeline disruption by frost heave. The possibility of delaying construction in critical permafrost areas until the final winter before operations is a mitigating measure which we believe should be carefully considered. Also, as the statement does not include alternate pipeline construction possibilities in the alternatives section, we suggest that the feasibility of an above-ground suspended pipeline in permafrost areas be discussed in the final statement.

As part of the pipeline construction plan, El Paso proposes to plow any early snow off the right-of-way to accelerate freezing of the active layers. Since this may involve a disruption of the surface and damage to the tundra and underlaying permafrost, we question the necessity of the early snow removal. The principal reason as stated in the draft EIS, for using a winter-only construction schedule on permafrost areas is to protect the physical and biological integrity of the insulating organic layer of the tundra. Any construction-related activity which occurs before the layer is hard frozen would appear to jeopardize this objective.

EPA agrees with FPC staff that Alternative B between Mileposts 39 and 104 is superior to the proposed pipeline route, presuming that special conditions are placed on construction at the Cuyama River crossings.

EPA supports the staff requirements for construction, restoration, and revegetation procedures, though in all cases emphasis should be placed on the timely performance of remedial tasks to prevent progressive soil and vegetation loss. EPA urges that the final EIS include the applicant's own draft plan for minimizing construction impact.

See response to EPA's discussion of prototype on Page 3 of the cover letter.

The environmental staff feels that an aboveground suspended pipeline in permafrost areas is at this time an unrealistic alternative.

The environmental staff agrees that early removal of snow from the right-of-way may physically disrupt the underlying tundra and/or permafrost. It may be possible to use snow fences in selected areas to minimize accumulations, thus achieving the same goal without compromising the integrity of the active layers.

## Other Considerations

The discussion of noise impacts should be expanded, with graphics to indicate the Ldn-50 and Ldn-10 contours. It should also provide this information for the LNG plant site and indicate what effects this might have on adjacent recreation activities in the National Forest.

The Federal Energy Administration's Alaska Operations Office alerted us to another winter construction problem. They inform us that this winter there is a rather significant shortage of Arctic Diesel fuel and that the city of Fairbanks is having difficulty obtaining sufficient supplies for electricity generation. If winter construction is used, there will be a large demand for Arctic Diesel for the construction equipment and space heating which could aggravate this fuel shortage severely. The impact statement should address this issue in enough detail so that one can determine what actions are necessary in order to avoid a shortage which endangers public health and safety.

The discussion of the impacts on wildlife and marine animals should indicate the magnitude of these impacts, especially for the endangered marine mammals including the eight species of endangered whales.

The discussion of the LNG tanker berthing facilities on page II-352 indicates that the maximum approach velocity for the tanker, due to the design limits of the fender system, would be less than 1 foot per second (less than .68 statute mph) and that the approach angle must be less than 10°. This discussion should indicate whether such fine tuned piloting is possible or probable for such large vessels.

The discussion on page II-366 indicates that the construction impacts on some forms of wildlife may be significant enough to eliminate the species. This is the only place in which we found such a severe wildlife impact mentioned. If indeed such an impact is possible, the final EIS should indicate which species are likely to be eliminated and what the specific causes of such elimination would be.

Noise levels are maintained within required limits by means of mechanical controls. The following table outlines the noise level design limits for facilities at compressor station sites.

	<u>Facility</u>	<u>Continuous Noise Limit (dBA)</u>
1	Control Rooms	55
	Boundary of Complex	65
	Within 5' of Regular Working Area	85-90
2	Occasional Working Area	95
	Infrequently Occupied Areas Within Plant	105

Mufflers will be used on vents, jets, compressor inlets and control valves. There would be sound-insulated operating stations for full-time working exposure in areas with noise levels above 90 dB(A). Air fan noise will be reduced by using multiple blades and low speeds.

Noise impacts on adjacent recreation activities in the National Forest should be insignificant.

- 3
2. Construction-induced shortages are discussed in the "Economic Analysis" section. A shortage of diesel fuel, as well as other commodities, could occur.
- 4
3. Without exhaustive data on species population dynamics, habitat carrying capacities, and many other factors, all of which are beyond the scope of this EIS, the magnitude of impacts on wildlife and marine mammals cannot be quantified exactly. In most cases only the kind of impact expected upon a particular species is readily identifiable.
- 5
4. The marine terminal berthing facilities would be designed with the berthing capabilities of the LNG tankers as the prime consideration.
5. The discussion on Page II-366 dealt with the possible elimination of a small population of animals caused by reducing their numbers beyond their ability to reproductively compensate. Such an impact could occur to a local population at some point(s) along the pipeline, but it is unlikely that a whole species will be eliminated. None of the endangered species mentioned in the EIS are considered likely to become extinct as a result of population reduction caused by the proposed project.

California

Air Quality Considerations

As apparently no air quality data could be obtained for Point Conception, it may not be accurate to assert that "the percentage increase above baseline ambient concentrations of pollutants in the Point Conception area appears to be large" (III-244). The increase in each pollutant level must be known in order to gauge the impact of the vaporization facility at the Point Conception site.

We believe an ambient air quality analysis should be undertaken for the Oxnard terminal and vaporization facility. The choice between Pt. Conception and Oxnard as a terminal site requires a comparison of existing air quality, estimates of air quality impacts of future development (e.g., in the case of Oxnard, the impact of the Pacific Indonesia LNG facility), and an examination of local dispersion characteristics. The final EIS should propose supplemental monitoring as needed.

1. Because Point Conception is a rural location, the ambient concentrations of air pollutants are probably very low, even though no air quality measurements have been made at the site. Therefore, even a small increase of pollutant concentrations "would appear to be large," even though the emissions would not cause a significant environmental impact.
2. See response on preceeding page.
3. The impacts from the Pacific Indonesia LNG project will be discussed in the DEIS on the Oxnard site.

Air quality measurements have been very scanty at Point Conception, whereas several measurements have been taken in the vicinity of Oxnard. The following is an explanation of the local dispersion characteristics and existing air quality in the vicinity of Oxnard.

SEASONALS AND ANNUAL STABILITY CLASSES,  
POINT MUGU, CALIFORNIA

Pasquill Classification	Percent Frequency of Occurrence		
	Summer	Winter	Annual
A (Extremely Unstable)	0.76	0.12	0.04
B (Moderately Unstable)	9.46	5.07	7.90
C (Slightly Unstable)	15.55	11.88	14.12
D (Neutral)	46.11	40.16	39.66
E (Slightly Stable)	4.69	12.50	8.64
F (Moderately Stable)	23.43	30.26	29.26

(Reference: NOAA-STAR Program for Point Mugu, California, 1974.)

The above Table 3 indicates that slightly stable and moderately stable conditions (Pasquill stabilities E and F) occur about 37% of the time at Point Mugu. The D stability category is the most frequently occurring stability class along the coast. The mixing height of the atmosphere, which is defined as that depth through which relatively vigorous vertical mixing occurs, forms a lid to prevent dispersion of pollutants. Table 4 indicates that mixing heights in Santa Monica, which are representative of the southern California coast, are lower in the early morning hours during the winter months, so air pollution episodes would probably be more likely to occur during these times at Point Mugu.

Mean Seasonal  
Morning and Afternoon Mixing Heights For  
Santa Monica, California (1960-1964)  
(Meters)

Seasons - Months	Morning	Afternoon
Winter (Dec., Jan., Feb.)	422	803
Spring (March, April, May)	676	963
Summer (June, July, Aug.)	562	603
Fall (Sept. Oct. Nov.)	510	798
Annual	542	814

Air quality impact from the operation of the LNG site at either Oxnard or Point Conception would be minimal.

Stable atmospheric conditions are more prevalent at Point Mugu than at Vandenberg AFB, so the dispersion capabilities of the atmosphere would be better at Vandenberg. The following table indicates that no sulfur oxide or hydrocarbon data is available in the vicinity of the proposed route. It also indicates that the California standards for particulate matter were exceeded at Ventura and Oxnard, while the standards for NO<sub>2</sub> were not exceeded at any point.

Ambient Levels of Pollutants in the  
Vicinity of the Proposed LNG Site

Site	Particulate		NO <sub>2</sub> Annual Arithmetic Mean (ppm)
	Annual Geometric Mean (ug/m <sup>3</sup> )	Max. 24 Hr. Avg. (ug/m <sup>3</sup> )	
Point Mugu	67.8	153	.023
Camarillo 70 Palm Drive	76.1	168	.022
Ventura 3319 Telegraph Rd.	64.9	218	.045
Oxnard 141 South A Street	66.8	115	---

Reference: State of California, 1974.

Fog, smoke, and haze are prevalent at Oxnard. The site experiences a significant amount of time each month when visibility is reduced below 7 miles. Data indicates that the greatest number of days with restricted visibility occurs during the months of July and August, with 51.4 and 51.7% restriction to visibility, respectively.

### Water Quality Considerations

We encourage the FPC to consider the development of a seawater exchange system between the vaporization plant and a facility such as the Ormond Beach generating station. Such an exchange would help reduce the temperature differential between the vaporization plant effluent and the receiving waters. As now proposed, the discharge of 300,000 gallons per minute of effluent, 12°F cooler than the receiving water, may have significant environmental effects. Another preferable method of minimizing the effects of effluent temperature would be to extend the outfall pipes to a depth which would assure a less pronounced thermal differential. The distinct seafloor drop off the Southern California coast makes either site readily suited for this task.

With respect to tank spill and fire containment programs, it would be useful to see an analysis of causes of accident and a complete account of the anticipated success of each principal element in the entire control network, broken down by function, with presentation (where appropriate) of alternative or supplementary control methods. More detail would also be welcome in the presentation of safety systems. The final EIS should address the need for LNG spill containment trenches where Western has not proposed trench construction (e.g., at the transfer lines in the plant area). There appears to be no reference to marine fire fighting equipment. What is available and what effectiveness can be expected?

The environmental staff has recommended a seawater exchange system with the Ormond Beach Generating Station.

The location of the effluent outfall has not been specified. However, the staff believes the EPA's suggestion regarding the outfall location has merit and should be investigated. A recommendation to this effect has been included in Section I.

The safety systems proposed for the LNG plant were discussed in the "Mitigating Measures" section of Volume III of the DEIS. In addition, spare and backup systems were discussed in that section. The firefighting equipment at the marine terminal was discussed on Page III-268; however, the final sizing of the equipment has not yet been determined.

### Alternatives

The FPC staff preference of Oxnard over Point Conception as the vaporization terminal site requires further justification in the form of existing air quality projections for peak development of the Oxnard-Port Hueneme area. Future land use in this portion of Ventura County as well as anticipated ship movement in the Santa Barbara Channel must be presented and related clearly to the potential for violations of National Ambient Air Quality Standards, to the probability of ship accident, and to the estimate of maximum catastrophe in the event of explosion or fire.

As with our comments on the Alaska portion of the project, we support FPC staff recommendations for mitigating measures discussed on pages 375-381. EPA supports the staff requirements for construction, restoration and revegetation procedures, though in all cases emphasis . . . should be placed on the timely performance of remedial tasks to prevent progressive soil and vegetation loss.

The environmental staff's Safety Analysis has been expanded in the FEIS. With respect to air quality, the LNG plant would use natural gas as a fuel of which carbon dioxide and water vapor (both classified as nonpollutants) are the primary effluent. It is therefore expected that impacts on air quality would be minimal.

EXECUTIVE OFFICE OF THE PRESIDENT  
COUNCIL ON ENVIRONMENTAL QUALITY  
722 JACKSON PLACE, N. W.  
WASHINGTON, D. C. 20006

January 30, 1976

Dear Mr. Plumb:

The Council on Environmental Quality has reviewed the Federal Power Commission's draft environmental impact statement (EIS) on the "Alaska Natural Gas Transportation Systems", and offers the following comments for your consideration.

At the outset, we believe that the FPC should be commended for its efforts to make the draft EIS manageable in size and readable in its presentation. Background information on the proposed gas pipeline routing decision and the display of reasonable pipeline routing alternatives in the draft EIS, were, we believe, well calculated to assist the decisionmaking and planning process of the FPC.

Although we believe that the aspect of the EIS covering the pipeline proposal and its alternatives is commendable, we are also aware of the criticisms that the Environmental Protection Agency has made of the way in which the EIS deals with the new gas pipeline technology being proposed. We believe that EPA's criticisms should be given the FPC's most careful attention in the preparation of the final statement.

In addition, the Council has a serious concern with the analysis in the DEIS of the risks to public safety posed by the potential shipment of large quantities of liquefied natural gas from Alaska to southern California. This issue receives summary treatment and gets little analysis in Appendix C as well. As a consequence, Section C of Volume I, which presents comparative assessment of the two alternative proposals, fails to come to grips with

Under normal circumstances the environmental staff would concur with the suggestions of the Environmental Protection Agency and the Council on Environmental Quality that a series of prototype segments be tested in areas of critical environmental sensitivity. In this particular case, however, the environmental staff feels that the magnitude of the environmental and economic impacts which would result from such an endeavor would approach and in some respects surpass those associated with the construction of the pipeline as presently proposed. The environmental staff, therefore, while in conceptual agreement, cannot support such recommendations. Thereby in order to accumulate more definitive information on the impacts of a chilled gas pipeline in arctic and subarctic environments, the environmental staff recommends that the successful applicant undertake an analysis of the Alyeska Pipeline System and prototype projects conducted by the Alaskan Arctic and Canadian Arctic Gas Pipeline Companies.

The environmental staff's Safety Analysis has been expanded in the FEIS.

public safety and says little which could not be said in general about some other proposed LNG terminal site. In addition, the risk assessment in Appendix C of Volume III does not present the kind of meaningful analysis necessary for informed decisionmaking by the FPC on this important matter.

NEPA requires that agencies and the public have the benefit of a full measure of understanding of the potential environmental impacts of their actions prior to an agency decision. In the Alaska Natural Gas Transport System EIS, we believe the potential or possible effects of accidents must be fully revealed for each alternative -- not only for the two principal transportation methods being analyzed, but for each of the three alternative terminal sites in California. In no other way can the potential adverse and beneficial aspects of each alternative be revealed to the Commission.

As an analytic full disclosure document, the DEIS should not only assess the probable consequences should a serious LNG accident occur at alternative terminal sites, but should also recite the more serious consequences which may result from less likely events. The use of the single probability model in the EIS does not reveal other important risks and assumptions which should bear on a final decision. For example, while it is important to disclose that as many as 3,000 persons would likely be within the industrial area of Los Angeles Harbor where ignition of methane gas would be most certain if a massive spill of LNG occurred, it is also important to know something of the population beyond that hypothetical boundary, in case ignition occurs later, after additional dispersion of the gas.

See the previous response.

See the previous response.

Another example of the type of error which a more complete analysis avoids is revealed by comparing the total population which could be placed at risk at the three proposed sites. The Point Conception site, which is remotely located, would place at risk at most 100 persons, because the nearest town is over 25 miles distant. The City of Oxnard, (population 70,000) is about one mile from the proposed terminal. What portion of the present Los Angeles population could be placed at risk is unknown, but it may well be greater than the 3,000 persons portrayed in the EIS. The staff analysis concludes that the risk to the public is comparable at the three proposed LNG terminal sites, yet nowhere in the analysis are the different populations considered. While it is entirely fitting that these analytical results be presented for consideration in the EIS, it is also fitting, and in our view necessary to produce an adequate EIS, that the decisionmaker know that an accident at the three sites could well involve a different number of persons by many orders of magnitude. This information could have a very important influence on the ultimate Arctic Gas or El Paso Alaska decision or on the choice of the LNG terminal site itself.

See the previous response.

We believe it would be highly useful for the FPC to supplement its analysis with a worst-case type of analysis. That is, to assume that an LNG tanker accident and other subsequent events have occurred and then analyze the respective sites according to the possible consequences of the accident. Use of the worse-case analysis would be consistent with analyses already done for the LNG storage and liquefaction facilities at Point Gravina. This type of comparative analysis would serve to characterize the sites in a more useful way, one that is not permitted by the form of analysis now employed. Thus, certain limiting assumptions (e.g., that ignition of the vapor cloud will occur 96 percent of the time before the vapor cloud can drift ashore) which tend to mask the potential consequences of

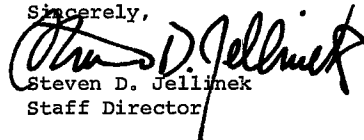
an accident would not be employed. Other assumptions (e.g., limiting the land area which could be covered by a vapor cloud and hence the number of people exposed) which understate accident consequences should be relied on cautiously or not at all. Finally, some attempt should be made to recognize the presence of additional or secondary sources of hazards which may compound the damage or loss of life. For example, the FPC analysis recognizes the high level of tanker traffic carrying petroleum products in Los Angeles harbor, one of the busiest in the United States. It further states that the harbor area is industrial in nature. Conversely, the same analysis indicates the Point Conception site is essentially remote and free of other sources of hazards. In the present analysis, no secondary sources of hazards are even considered. These and other factors which bear on the suitability of the alternative sites should be described in the EIS.

We readily acknowledge that certain consequences which we have mentioned are no more quantifiable, with certainty, than some of the probabilities employed in the FPC staff analysis. Nevertheless, we believe they should be identified as factors which may worsen or possibly mitigate the effects of an LNG accident, and which reveal the boundaries of risks.

In summation we believe the worst case type of analysis we have recommended, if used in conjunction with the risk assessment done by the FPC staff, would greatly improve the analysis of public safety in the DEIS.

If you have any questions concerning our comments, please feel free to call on us.

Sincerely,

  
Steven D. Jellinek  
Staff Director

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

See the previous response.



RECEIVED  
FEDERAL ENERGY ADMINISTRATION

WASHINGTON, D.C. 20461

JAN 27 9 50 AM '76

FEDERAL POWER COMMISSION JAN 27 1976

OFFICE OF THE ASSISTANT ADMINISTRATOR

FEA 75-609

Mr. Kenneth F. Plumb  
Office of the Secretary  
Federal Power Commission  
Washington, D.C. 20426

Dear Mr. Plumb:

This is in response to your letter of November 28, 1975,  
requesting comments on the draft environmental impact  
statement (EIS) titled "Alaska Natural Gas Transportation  
Systems."

Our comments on the subject are presented in the Enclosure.  
We hope that they are of use to you in preparing the final  
EIS.

Sincerely,

Roger W. Sant  
Assistant Administrator  
Energy Conservation and Environment

Enclosure

Enclosure

Comments - Volume I

The two volume study titled "Alaskan Natural Gas Transportation Systems": Economic and Risk Analysis was performed by the Aerospace Corporation, not the Department of the Interior.

The assumptions adopted on method of price roll-in of Alaskan gas weaken the model used for FPC's projections. These ignore the likelihood that each of the two Alaskan gas systems may eventually have some impact on all regions of the U.S., not just on those areas which physically get Alaskan gas. For example, it is possible that an El Paso system bringing expensive Alaskan gas into California could conceivably keep gas prices lower in the Midwest, which could continue longer to draw on lower-priced West Texas and Permian Basin gas than if some of that gas were diverted to California. Or if the Arctic Gas route were chosen, and routed more expensive Alaskan gas to the Midwest, California might draw longer on less expensive Gulf Coast gas.

The wellhead prices assumed for oil and gas appear to be low. Inasmuch as they play an important role in the results pertaining to the net economic benefits and socioeconomic analysis, indication of the sensitivity of the results of these analyses to higher prices should be provided for each system.

In the Aerospace study, net economic benefits are evaluated on the basis of 2.5 Bcf/d throughput whereas 3.5 Bcf/d is employed in the socioeconomic model. The producers estimate a production capability of 2.5 Bcf/d for the present Prudhoe Bay field. Higher gas production than 2.5 Bcf/d would reduce the amount of oil recoverable, at least by primary methods. This factor should be discussed.

The study of the potential market for Alaskan North Slope and Kenai/Cook Inlet State royalty gas is overly limited in scope. It should also treat the issue from the perspective of the lower U.S. for each scenario.

Reference is made to a table H-25 on page I-159, but this table cannot be located.

The discussion on construction schedules beginning on pages I-205 and I-229 makes no mention of when each system initially goes on stream or at what level of throughput.

Benefits are calculated as though the Alaskan gas were allocated so as to maximize the benefits from that gas. Naturally, we cannot be sure that allocation will materialize. However, to assume that it will not, that is, that a mistake will be made later, is not an appropriate way to conduct the analysis at this first stage. For to do so may result in an initial decision that will force the non-optimal later decision.

Three levels of wellhead prices for oil, that is \$6, \$9, and \$12, were assumed. A careful appraisal of the analysis will show that the net economic benefits do not depend upon the wellhead price of gas.

The purpose of the analysis of potential use of Prudhoe Bay royalty gas in Alaska was to examine potential impacts in Alaska. Thus, consideration of a lower 48 perspective was not felt to be necessary or appropriate.

Table to which the designation H-25 referred was table I.B.3.b. VII-2 in the DEIS.

Due to the uncertainty of the situation at this time, no definite quantification can be made.

# Comments - Volume II

On page II-2 an estimate of the end use locations for the consumption of the delivered natural gas is presented. According to the referenced article in The Oil and Gas Journal, the end use estimation was based on the assumption that the Alaska-Canada pipeline route would be constructed. Therefore, the applicability of these figures to the Trans-Alaska proposal is questionable and should be discussed in detail.

Further, it would be desirable to indicate in a regional analysis these areas of the country which are most affected by current or expected natural gas curtailments. This should be coupled with a comparative evaluation of how each proposed transportation system would satisfy these natural gas shortfalls.

On page II-64, "Future Plans Related to Distribution of Alaskan Gas" is discussed. It is stated that EL Paso's present project schedule estimates first deliveries of gas to the lower 48 states in mid-1981. This information should be accompanied by an indication of the amount of gas throughput and the number of the years from the start of construction of the Project.

On the same page, it is stated that "under this preliminary proposal, El Paso would deliver either directly or by displacement 1.55 MMcf/d...to markets east of the Rocky Mountains." This figure does not agree with the indicated letters of agreement as to how the Prudhoe Bay gas will be sold. Although no firm purchase contracts have been negotiated, preliminary indications are that about 70 percent of the gas will be committed to markets east of the Rockies and 30 percent west.

On page II-257, the EIS states that the pipeline construction "will have some impact on the permafrost," but does not give any estimation as to what degree of seriousness these impacts may have. A discussion specifically addressing the probable impacts that the pipeline may have on the permafrost should be included in the final EIS.

The draft EIS does not mention the Columbia Glacier, a 425-square mile glacier, near Valdez. Recent reports by the U.S. Geological Survey have shown that this glacier may be near the commencement of a major glacial recession and large

The article did assume that the Alaska-Canada route would be constructed; however, the article also stated that both producers and purchasers say that if the El Paso project is selected, similar amounts of gas would be made available to midwestern and eastern markets either through physical movement of the gas or through exchanges.

Both of these subjects were addressed in the hearings.

The degree of seriousness of impact on permafrost is highly variable, depending on the local soil conditions, the degree of care exercised by the contractor, the involvement of water in the permafrost degradation, and the duration of the anomalous condition. Data are unavailable for a more specific judgment.

See page II-495 in the DEIS.

icebergs could be released into Prince William Sound as a result of glacial retreat.<sup>1</sup> It has been estimated that icebergs as large as one hundred feet in draft could escape over the shoals to be transported into Valdez Bay by the prevailing currents. Most icebergs are detectable by radar, but occasionally some are not. The icebergs that may not be detectable are obviously the ones which could pose serious problems to the tankers transporting liquefied natural gas (LNG) from Gravina Point to the United States West Coast. The final EIS should carefully assess the potential for iceberg collisions.

The draft EIS states on page II-286 that, "the applicant has not provided a definitive plan for the revegetation of the pipeline right-of-way." This lack of a definitive plan for revegetating the pipeline right-of-way could have serious implications, particularly in the tundra region. Successive revegetation in such fragile and undisturbed ecosystems as the Arctic tundra is only speculative and has never been proven. The applicant has given the decision-maker no data as to how it is planned to revegetate the disturbed area. Therefore, the EIS should discuss the environmental consequences of such a failure to revegetate affected areas.

On page II-358, the navigation and collision avoidance systems of the LNG tanker fleet are discussed. A matter of considerable import is the effectiveness of such systems. The literature indicates that the provision of such systems does not preclude collisions. In part, this is due to inherent deficiencies in existing equipment and technology. However, the major contributing factor is indicated to be human error. The latter is reported to account for about 85 percent of groundings and collisions. Mention should be made of this consideration.

It should also be noted that the probability of collision is related to the density of ship traffic. Contemplated future developments will increase ship traffic and the prospect of collisions. For example, the area between Hinchinbrook Island and Middle Island, which lies southeast and adjacent to the ship track, has been selected for offshore leasing.

<sup>1</sup>Carter, L., Icebergs and Oil Tankers: USGS Glaciologists Are Concerned, Science, November 14, 1975

The environmental staff agrees that successful revegetation in disturbed areas is of prime concern in mitigating environmental impacts and has proposed restoration and revegetation procedures.

Since the collision avoidance system on the proposed tankers would automatically warn of a potential collision situation, and since highly trained personnel would monitor and operate such equipment, the human error factor would be significantly reduced.

The sale of these leases will be attended by an increase in ship traffic. The discovery of oil and/or gas on these leases would result in a further increase in traffic and traffic density. There are also two proposals before the FPC to ship LNG to the West Coast from the Cook Inlet/Kenai Peninsula area. At the southern terminus of the proposed route developments associated with NPR-1 (Elk Hills), could also lead to an increase in ship traffic. These prospective developments include an increase in production and shipment of Elk Hills crude from Port Hueneme. Such increases in oil and LNG tanker traffic could appreciably increase the potential for oil spills and environmental damage therefrom and should be discussed in the final EIS.

In general, the draft EIS should provide a more complete description of the marine transportation route. While information is provided on tanker operations at the Alaska and California ends of the route, the majority of the oceanic route is not described. Information on the environment along the marine route, impacts of routine tanker operation, and the probability and environmental consequences of collision should be presented. While realizing that the FPC may have no responsibilities for or jurisdiction over the marine transport of natural gas, the integrity of the El Paso Alaska System, in major part, depends on marine transport.

FPC's environmental staff concludes that the best Arctic Gas system route should be the Fairbanks corridor alternative. Yet this may not be a feasible alternative. It is unknown whether Canada would welcome, or even allow, a U.S. Trans-Canadian pipeline that does not help Canada access its own MacKenzie Delta gas. If both the Fairbanks and the MacKenzie spurs are proposed, the additional \$2.5 billion cost does not appear economically justifiable.

#### General Comment

No discussion was found regarding the following fact that the proposed El Paso gas pipeline and Alyeska oil pipeline at certain points along their southern portions may lie in such close proximity as to make it difficult to make repairs in the event of rupture and to pose a hazard to each other in the event one fails.

Ship transportation of LNG in international waters is a nonjurisdictional issue and is beyond the scope of this EIS. The environmental staff, however, has considered ship transportation of LNG in coastal waters, and it is expected that the impacts in international waters are similar. The discussion of impacts relative to LNG spills has been expanded in the FEIS.

It is not unusual in the lower 48 states for several pipelines to be located in close proximity to one another. This in no way hinders maintenance and repair operations nor poses a significant hazard to the integrity of the remaining pipelines should one fail.

The draft EIS does not address the relative abilities of the proposed routes for the favored alternatives to transmit natural gas from areas other than the Prudhoe Bay Field; many other areas in Alaska are currently being explored for future development of natural gas resources. Also, the extent to which various pipeline routes will stimulate exploration in heretofore unexamined areas is not discussed: the relative potential of a natural gas transportation system to serve and stimulate the development of other natural gas resource areas bears on the desirability of the various proposed systems. These factors also bear on the overall cumulative environmental impact of the proposal and should be considered in that context.

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JAN 13 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Plumb:

REF: Alaska Natural Gas Transportation Systems

This is in response to your letter of November 28, 1975, requesting comments on the Draft Environmental Impact Statement (DEIS) on the proposed Alaska Natural Gas Transportation Systems. The proposals entail bringing Arctic natural gas from the Prudhoe Bay Field in Alaska and the MacKenzie Delta region in Canada to market areas in the lower 48 States.

In accordance with the Council on Environmental Quality Guidelines, our review concentrated only on those areas for which the Nuclear Regulatory Commission (NRC) staff has special expertise or jurisdiction by law. Therefore, only the impacts of the proposed legislation on the radiological health and safety of the general public and on any NRC licensed facility were assessed.

In this regard, we viewed the proposed natural gas transportation systems with concern. The effects of large accidental spills of liquid natural gas (LNG) have been the subject of a continuing NRC analysis. This analysis is necessary because of the potential seriousness of such an accident occurring near a nuclear power plant. To date our analysis is justifiably conservative and provides the basis for the enclosed comments. In general, these comments address the accident analysis presented within the DEIS.

NRC recognizes the need for systems to transport Alaskan natural gas to the lower 48 States. Thus, we are continuing to develop techniques to ensure the safe operation of nuclear power plants which may be affected by a large accidental LNG spill. While these techniques have not been finalized, they may result in a significant cost to the involved electric utilities. Therefore, it would appear prudent to weight more heavily these impacts on nuclear power plants, as well as on other properties, before reaching a final decision on the Alaskan natural gas transportation systems.



Mr. Kenneth F. Plumb

- 2 -

Thank you for the opportunity to comment on this draft environmental statement.

Sincerely,

*for* *Wesley A. Moore*  
Daniel R. Muller, Assistant Director  
for Environmental Projects  
Division of Reactor Licensing

Enclosure:  
As stated

cc: Council on Environmental Quality (10)

ENCLOSURE 1

JAN 14 1978  
FEDERAL  
NRC STAFF COMMENTS ON FPC DEIS FOR THE  
ALASKAN NATURAL GAS TRANSPORTATION SYSTEMS

1. The proposed LNG terminal site in California which is preferred by Western LNG Terminal Company is the Point Conception site. Use of this site would not cause a significant risk for the Diablo Canyon Nuclear Power Plant (located in San Luis Obispo County), since neither the LNG tanker traffic nor the proposed pipeline route would pass closer than approximately 25 miles from the plant. Additionally, implementation of the proposed LNG route using the Point Conception site would have no discernable impact upon the nuclear power industry, since at present no nuclear facility has been proposed at Prince William Sound, Alaska, or along the Santa Barbara County, California, coastline.
2. The FPC staff considered five sites on the California coast as acceptable for LNG terminals. Three of these (Oxnard, Mandalay, and San Onofre) are located adjacent to electrical generating stations. Site safety evaluations did not consider the possible penetration of LNG storage tanks by missiles generated by the failure of turbines at these generating stations.
3. Within the DEIS, the FPC staff located two preferred sites adjacent to the San Onofre Nuclear Generating Station. The risk to the safety of this station due to the close proximity of an LNG terminal would certainly exceed NRC criteria. It should also be noted that the seismic design basis of the proposed LNG terminals is significantly less stringent than that of the nuclear generating station.
4. LNG evaporation rates used in the DEIS are much lower than those reported by the American Petroleum Institute for smaller test LNG spills. Water-to-LNG heat fluxes of 10,000 to 30,000 BTU/ft<sup>2</sup>-hr have been reported; whereas, the evaporation rate computed in the DEIS is consistent with a heat flux approximately a factor of ten less than those observations. The distance traveled by a flammable cloud could therefore be substantially greater than those presented in the DEIS.
5. The FPC staff does not consider the consequences of an LNG spill in detail, since they assume that any hazard is limited to the areas having flammable gas. For deflagrations of the magnitude considered, thermal radiation would endanger unprotected people and wood, and asphalt building materials at considerable distances beyond the burning volume. Convective wind fields associated with the fires' thermal column could also be a threat to inhabitants and their property over a much larger area.

The environmental staff has not provided a quantitative assessment for any one alternative site regarding the probability of impact to an LNG storage tank due to a projectile, including that of a missile generated by the failure of turbines at generating stations. For the purpose of site selection analysis, all alternative sites are assumed to have the same probability of being struck by a projectile.

Comment reflected in Section H-2d of Volume 3 of the FEIS.

The time to evaporation is taken from Hoult, which discusses the approximations used in the formula. The most serious approximation is the neglect of the heat flow from the water to the cold plume. Thus, the evaporation will be faster than computed in the DEIS, and the plume will be a threat for a shorter length of time than shown in the DEIS. As a result, we have taken a conservative approach to the extent of the downwind hazard and overstated it.

The detailed studies performed by Science Application Inc. for the thermal radiation hazard from LNG fires indicate that this hazard is applicable to about the 20 percent of the population outdoors over an area large enough to include the radiation level equal to 5700 BTU/ft<sup>2</sup>/hr. This level will blister exposed skin in 5 seconds. The area included is a function of spill size and vapor plume travel. For the analysis presented in the FEIS, the additional effect of thermal radiation is small.

6. The effects on the environment of large spills that do not ignite are not mentioned. Natural gas transport has always suffered from a significant loss rate, and the atmosphere has many natural sources and sinks of methane. However, the assumption that methane is harmless to the environment may not be true when thousands of tons are released at one time and place.

As an additional source of analysis techniques for estimating LNG spill effects, we would recommend "Analysis of Potential Effects of Water-Borne Traffic on the Safety of the Control Room and Water Intakes at Hope Creek Generating Station" and its supplements. This report was prepared by A. D. Little, Inc. for the Public Service Company of New Jersey, and was submitted to NRC in support of the proceedings for the Hope Creek Nuclear Generating Station.

The spill and plume analysis presented in the FEIS shows a negligible probability of truly large spills ( 0.5 tank of LNG). Thus any analysis of effects on the environment from "thousands of tons released at one time and place" is not necessary.

Recommendation noted for Comment No. 2.



DEPARTMENT OF AGRICULTURE  
OFFICE OF THE SECRETARY  
WASHINGTON, D. C. 20250

JAN 19 1976

JAN. 1 5 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

Dear Mr. Plumb:

We have had the draft environmental impact statement for the Alaska Natural Gas Transportation System, Docket Nos. CP75-96, et al., reviewed in the relevant agencies of the Department of Agriculture, and comments from Soil Conservation Service and Agricultural Research Service, both agencies of the Department, are enclosed.

Forest Service, also an agency of the Department, has not yet finished its review and will communicate with you directly if it has any comments.

Sincerely,

  
FOWDEN G. MAXWELL

Coordinator  
Environmental Quality Activities

2 Enclosures

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CENTRAL FILES

## SOIL CONSERVATION SERVICE

Comments on  
Draft Environmental Impact Statement  
Alaska Natural Gas Transportation System

1. 111-16, third paragraph - The proposed plan to revegetate areas disturbed by pipeline construction is excessively brief. This section should be expanded to make it clear that such techniques as rapid seeding, mulching, and fertilizing will be used as required to prevent excessive erosion.
2. 111-239, last paragraph - The treatment of impact on agricultural areas here and at other locations described in the report is inadequate. A clear measure of the kind, acreage, and quality of involved farmlands should be displayed. Estimates of the effects of lost farm production and a clear description of how these effects will be mitigated should be provided.

These areas were discussed in the "Mitigating Measures" section of the DEIS, and in addition the staff made recommendations in Section I.

The farmlands involved are dynamic in terms of crops, varying from year to year and season to season, with the exception of orchards. Except for orchards, pipeline construction effects on cropland would be temporary (lasting only a year). The amount of farmland affected would be relatively small. Farmers would be compensated for losses of crops.

The staff has also recommended in Section I that experts in erosion control and conservation of soil fertility be consulted.

AGRICULTURAL RESEARCH SERVICE

Comments on  
Draft Environmental Statement-FPC  
Alaska Natural Gas Transmission System

We are, of course, concerned over the possible damage to vegetation, water, and the fragile soils resulting from this construction. The problems faced by the applicant in minimizing the adverse effects are similar to those faced by the planners of the Aleyeaka oil pipeline. The applicant should evaluate the results of the environmental safeguards taken by the oil pipeline project and incorporate the best of those into his plans.

The environmental staff agrees and has recommended that El Paso incorporate the results of the Alyeska experience into the environmental design of the gas pipeline system.

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE  
RECEIVED

Washington, D. C. 20250

JAN 23 8 15 AM '76

FEDERAL POWER COMMISSION

JAN 23 1975

8420



Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Sir:

We have reviewed the Draft Environmental Statement - FPC Alaska Natural Gas Transmission System.

We are concerned that the El Paso proposal indicates a terminal site on Point Gravine and Page I-33 uses an assumption "that all necessary governmental permits would have been provided" by January 1976. We are not in a position at this time to provide assurances which will validate the assumption.

A portion of the proposed El Paso project crosses the Chugach National Forest in an area inventoried as roadless and undeveloped. In 1972 the Forest Service conducted an inventory of all National Forest lands to identify those that still retained Wilderness characteristics and could be considered for Wilderness during the land use planning process. Some 1,449 areas were inventoried. As a result of an intensive analysis, 274 were selected for future study to determine if they should be recommended to Congress as Wilderness. As a part of the overall inventory and evaluation process, the Forest Service developed two policies related to the inventoried areas.

1. For those areas selected for study, the Forest Service will not permit activities which will alter the Wilderness characteristics of the area until the Wilderness Study is complete and long-term management determined.

2. For the non-selected areas, one of which is involved in this proposal, the Forest Service will not permit activities which will alter the Wilderness characteristics of the area until an environmental statement has been developed. The alternative of designating the roadless areas as Wilderness will be evaluated as part of the environmental statement.

Assumption on Page I-33 of the DEIS referred to provides starting date for the analysis. The following sentence provides the necessary modification in case the actual initiation is at a later time.

This requires a legal determination. It involves the National Forest, Wilderness, Roadless and the EYAK Village Corporation (under the Alaska Native Claims Settlement Act) vs. the mandate of the Natural Gas Act (15 U.S.C. 717 et. seq.) and the Mineral Leasing Act of 1920, as amended by P.L. 93-153. The latter act authorizes and encourages the Secretary of the Interior to coordinate with the Secretary of Agriculture to issue a permit for the purpose of transporting natural gas, etc.

These policies were committed to the Congress and the public to ensure adequate consideration of the Wilderness resource for these areas. The FPC-DEIS cannot be construed as meeting these commitments.

The National Forest lands involved in the proposal are not available for such use until the elements of the policy have been met. If, as a result of the planning process, the Administration recommends to the Congress the Wilderness alternative, no use can be made of the area until the Congress determines whether it should be designated Wilderness. Once recommended as Wilderness, the area will be available for use only if the Congress declines to make the designation.

The environmental statement should be revised to reflect the policies regarding the roadless area involved on the Chugach and identify the uncertainty of the availability of the area for the use. This would not preclude a final decision regarding the method by which gas would be moved from the North Slope to the Lower 48. It would, however, involve a delay of a year or more after an application for a pipeline and terminal site had been received by the responsible agency.

Additional information should be included on Page II-305 or 306 to put the matter on ownership/jurisdiction in the proper context. It needs to be pointed out that most of Gravina Peninsula has been selected by EYAK Village Corporation under the Alaska Natives Claims Settlement Act (see enclosed map). This includes the Point Gravina Site and adjacent land. Title to these lands will probably be conveyed to the Corporation, and they will lose their National Forest status. This does not dispense with the roadless area problem entirely, however. The proposal would still create a need to cross several miles of Chugach National Forest roadless area involving an EIS as previously stated.

In our view, the discussion on Page II-306 is inadequate when it says "Perhaps the most significant impact would be the short-term construction . . . ." The most significant impact would be intrusion by development on a roadless area which needs to have its Wilderness characteristics fully studied. Development would forever preclude utilization of Wilderness values which may be present.

On Page I-245, the El Paso alternative to utilize the oil pipeline corridor all the way to Valdez was dismissed rather summarily. The brief discussion and listing of reasons dismissing this alternative belie the fact that Valdez is still the southern terminus of the oil pipeline. The siting at Valdez occurred despite detailed analysis taking into account all the reasons given for rejecting Valdez as a terminus for the gas line. The Valdez siting would have the advantages of an intensive vessel control and navigation network, an already developed and populated area containing or having better potentials for labor, attendant facilities such as schools, hospitals, etc., and

A statement addressing the identified concern has been added to the FEIS, Vol. I, Comparative Assessment, "El Paso Project - Construction Schedule" section.

See revised subsection, "Impacts on Land Use."

In addition to Page I-245, the reasons for the rejection of the Valdez site were given in greater detail on Pages II-447 and II-448 of the DEIS where it stated that the rugged topographic conditions at the Valdez site, which would require extensive site preparation and disposition of large quantities of spoil material, and the possibility of seismic damage resulting from slide-induced waves do not make the site suitable for terminal construction or operation.

lesser environmental impacts generated through a bilateral use of an existent utilities corridor. In general, we believe this alternative needs some added attention.

On Page II-303, it is implied that because staff found no cruise data, estimates had to be made. Cruise data are available, however. Therefore, we suggest the second full paragraph would be more accurate if rewritten to say:

Cruise data available indicates 33,000 board feet per acre in timber stands. Since not all of the 33 miles of the route across the National Forest is timbered, it is estimated that 6,000,000 board feet, or less, of timber would be lost to right-of-way clearing.

On Page II-457, second line, the word attitudes could be construed as negative. Our attitude is positive when considered in planning and is responsive to the public. It should be rewritten to say, "... on the Chugach National Forest plans and the attitude of the public in protecting Wilderness characteristics."

We concur with the conclusion of the Federal Power Commission staff analysis that the proposed Oxnard site and pipeline route would cause the least damage to the environment and have the least potential for socio-economic impacts among those alternatives discussed for southern California (Pages III, 350-356).

The proposed pipeline route alternatives originating from the Point Conception area that cross Los Padres National Forest would be environmentally unacceptable. The area along the proposed routes is extremely unstable and subject to mass failures. It would not be wise to allow major construction here. Due to the unstable soils, off-road vehicle use should not be allowed along the pipeline route; thus, this alleged "benefit" is in fact an adverse impact.

The most feasible route through the area would be the FPC staff alternative "B" (Pages III, 292-293), which is partially within the constructed right-of-way of State Highway 166. The highway is an existing scar on the landscape and a source of environmental damage from land sliding and reservoir siltation. However, it is slowly stabilizing, and additional major damage would probably not occur along Highway 166 if the pipeline route were restricted to the road prism.

Based on the preponderance of information available to us, any of the proposed pipeline routes across the Los Padres National Forest would cause major adverse impacts. If the LNG proposal is the alternative selected for Arctic gas transportation, we would concur with FPC staff that the Oxnard site should be the route choice.

The comment should read, "The U.S. Forest Service has noted that cruise data available indicates 33,000 board feet per acre in timber stands. Since not all of the 33 miles of the route across the Chugach National Forest is timbered, they estimated that 6,000,000 board feet, or less, of timber would be lost to right-of-way clearing."

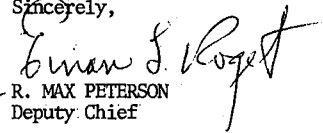
Comment reflected in Section H-2d of Volume 2 of the FEIS.

4

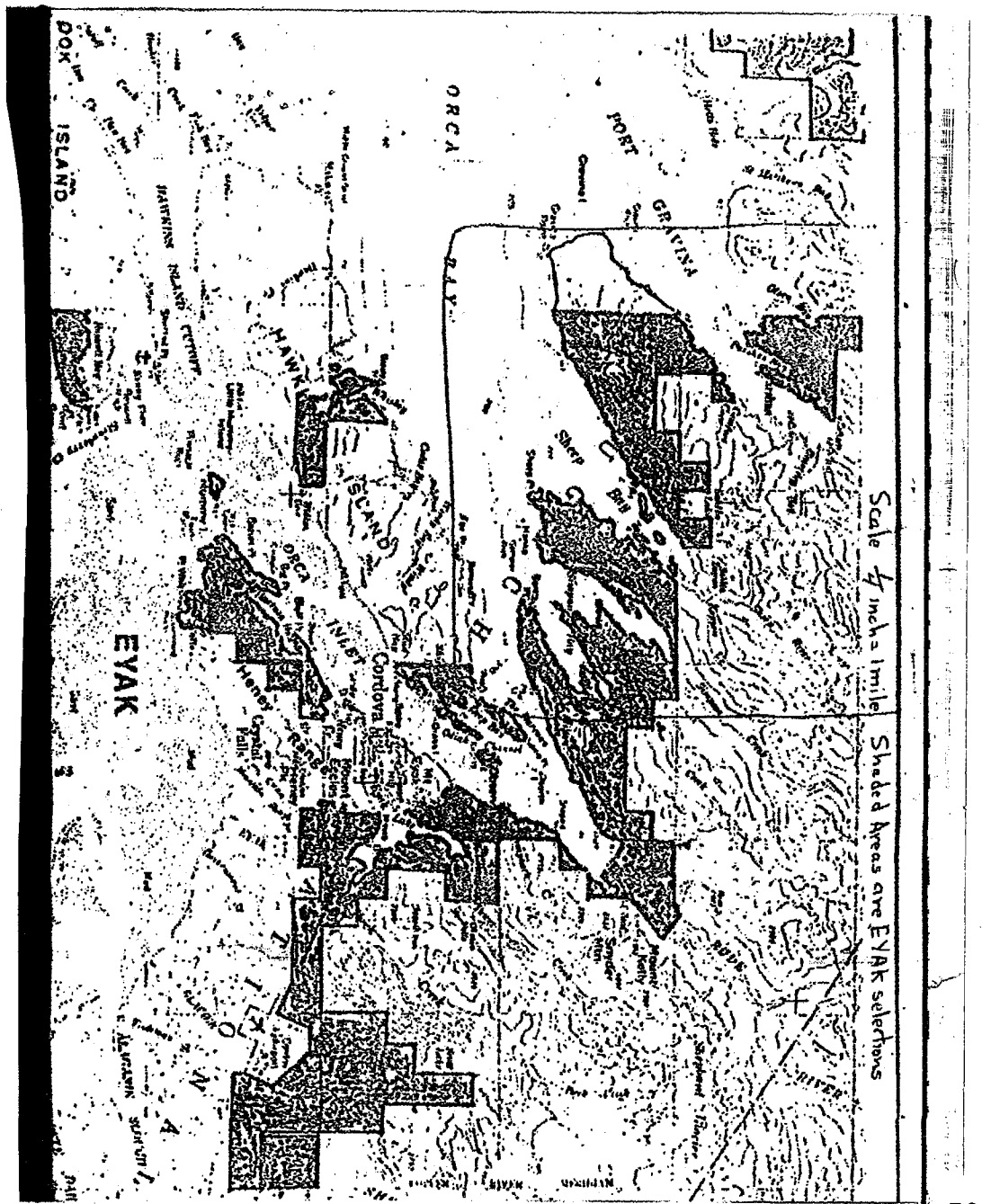
We believe these additions and modifications will lead to a more complete and meaningful final EIS.

We appreciate the opportunity to review and comment on this Environmental Statement.

Sincerely,

*for*   
R. MAX PETERSON  
Deputy Chief

Enclosure



UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

311 Old Federal Building, Columbus, Ohio 43215

January 9, 1976

Secretary  
ATTENTION: BNG-SOD-ALASKA  
Federal Power Commission  
Washington D.C. 20426

RECEIVED  
OFFICE OF THE  
SECRETARY  
FEDERAL POWER  
COMMISSION  
JAN 13 1976

Gentlemen:

We have received the Draft Environmental Impact Statement prepared by your staff in connection with proposals to bring Arctic gas from the Prudhoe Bay Field in Alaska and from the MacKenzie Delta Region of Canada to market areas in the lower 48 states.

Since this draft environmental impact statement is not directly identified with Ohio, we have no comments to offer.

Sincerely,

*Robert E. Quilliam*

Robert E. Quilliam  
State Conservationist





DEPARTMENT OF THE ARMY  
DETROIT DISTRICT, CORPS OF ENGINEERS  
BOX 1027  
DETROIT, MICHIGAN 48231

NCEED-ER

81 JAN 1976

Secretary  
Federal Power Commission  
ATTN: BNG-SOD-ALASKA  
Washington, D. C. 20426

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 23 3 11 PM '76  
POWER COMMISSION

Dear Sir:

Reference is made to the Draft Environmental Statement concerning the Alaska Natural Gas Transportation Systems transmitted by your letter of November 28, 1975.

The proposed pipeline system apparently crosses the southern boundary area of the Detroit District. Three counties, portions of which lie within the Detroit District's jurisdiction, are listed as having sites for compressor stations. However, the counties through which the proposed pipeline will pass are not listed. The aforementioned counties are Mercer and Hardin Counties, Ohio, and Wells County, Indiana.

There is insufficient information and map detail in the draft statement for us to determine if the pipeline crosses parts of those counties within the Detroit District. More detailed descriptions or maps will have to be presented in order for us to determine the areas of navigable waters and wetlands through which the pipeline will pass.

As you know, under Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403), permits issued upon recommendation of the Chief of Engineers are required for work performed in or affecting navigable waters of the United States. Also, under Section 404 of the Federal Water Pollution Control Act (86 Stat. 816, P. L. 92-500) permits issued from the Secretary of the Army, acting through the Chief of Engineers, are required for the discharge of dredged or fill material into navigable waters and adjacent or contiguous wetlands.



NEED-ER

Secretary, Federal Power Commission

21 JAN 1976

If the pipeline should traverse water resource areas under our jurisdiction, permit applications for the proposed work should be submitted allowing sufficient time for their review and assessment before anticipated construction work.

Thank you for the opportunity to review this statement. We hope that these comments will be of assistance in preparation of the final environmental impact statement.

Sincerely yours,

  
for P. McCALLISTER  
Chief, Engineering Division

copy furnished:  
Staff Director (Water Resources)  
C. E. Q.  
722 Jackson Place, N. W.  
Wash., D. C. 20006



DEPARTMENT OF THE ARMY  
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS  
630 Sansome Street, Room 1216  
San Francisco, California 94111

SPDPD-R

15 JAN 1976

SUBJECT: Draft EIS, Federal Power Commission, Alaska Natural Gas Transportation Systems

HQDA (DAEN-CWR-P) WASH DC 20314

1. Comments on the draft environmental impact statement are submitted in accordance with DAEN-CWR-P letter dated 3 December 1975, subject as above.

2. The major concern of this office deals with that portion of the project described in Volume III of the EIS and comments which follow pertain to that part of the document.

a. Navigational and permit considerations:

(1) The description of fog and visibility as contained in Table 5, Page III-29, does not show where the data was measured nor does it show the years (inclusive) for which data is presented. Additional data, if available, should be noted.

(2) Page III-23: Data covering locations of critical wind measurement sites and years (inclusive) of data collection should be presented in the report. Reference to Tables 3 and 4 appears to indicate that data for the years 1970 and 1968, respectively, are the only years of record covered. Additional data, if available, should be included.

b. Environmental considerations:

(1) Page III-161: The environmental impacts, if any, upon military operations should be discussed in the EIS where pipelines cross military reservations.

(2) Page III-181: Expulsion of hydrostatic test discharge waters would appear to have an impact upon wetlands downstream of pipeline crossings. This should be discussed in the report.

c. Appendix D, Page III-426: Add Section 404 of the Federal Water Pollution Control Act Amendments of 1972 as being a Corps of Engineers jurisdictional responsibility.

FOR THE DIVISION ENGINEER:

  
ROBERT M. RUFVOLD  
Colonel, CE  
Deputy Division Engineer

CF: SPLED-E  
SPNED-E

According to the applicant, these data are for the general offshore area. The source of the data is the U.S. Naval Weather Service Command. The period of record is 1854-1968.

According to the applicant, wind measurements have been taken by ships, over the period from 1854 to 1968. These observations are summarized by area. The area covering the Point Conception site extends from 34° to 36°N latitude and from the coast to 125° W longitude.

As stated in Section C.9.b in Volume III of the FEIS, approval for the pipeline right-of-way across Edwards Air Force Base would have to be obtained from the Base Commander and various Federal agencies in Washington, D.C. Any potential impacts upon military operations would be determined by these governing bodies.

See the environmental staff's responses to the Resources Agency of California comments on water quality concerns.

Section 404 of FWPCA Amendments of 1972 should be added to the Corps of Engineers' jurisdictional responsibility in Appendix D of Volume III.



DEPARTMENT OF THE ARMY  
RECEIVED OFFICE OF THE CHIEF OF ENGINEERS  
WASHINGTON, D.C. 20314

REPLY TO  
ATTN: JAN 21 9 58 AM '76

DAEN-CWR-P FEDERAL POWER COMMISSION

16 January 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
ATTN: BNG-SOD-ALASKA  
Washington, D. C. 20426

OFFICE OF THE CHIEF OF ENGINEERS  
SYSTEM OPERATIONS  
DIVISION

JAN 23 1976

Dear Mr. Plumb:

As requested in your letter of 28 November 1975, we have reviewed the Draft Environmental Impact Statement on the "Alaska Natural Gas Transportation Systems." We offer the following comments:

Both the Arctic Gas System and the El Paso Alaska Company's proposed pipeline corridors would bisect numerous streams and wetland systems within the State of Alaska. Either system will thus be subject to the new Department of the Army permit program for regulating the discharge of dredged or fill material under provisions of Section 404 of the Federal Water Pollution Control Act Amendments of 1972. Permit applications are to be submitted to the appropriate Corps of Engineers District offices for processing. Such applications should include pertinent environmental, social and economic information needed to make an adequate assessment of the crossings.

We have reviewed the Draft Environmental Impact Statement with respect to existing or planned military installations and there does not appear to be any conflict with Department of Defense interest at this time. Coordination with the Department should be undertaken prior to pipeline construction to avoid possible conflicts which cannot presently be foreseen.

Thank you for the opportunity to review this statement.

Sincerely yours,

*John R. Hill, Jr.*  
JOHN R. HILL, JR.  
LTC, Corps of Engineers  
Assistant Director of Civil Works,  
Environmental Programs



UNITED STATES DEPARTMENT OF COMMERCE  
The Assistant Secretary for Science and Technology  
Washington, D.C. 20230

January 22, 1976

Dr. Jack Hinneman  
Federal Power Commission  
825 North Capitol Street, N.W.  
Room 4308  
Washington, D.C. 20426

Dear Dr. Hinneman:

The draft environmental impact statement, "Alaska Natural Gas Transportation Systems," which accompanied your letter of December 1975, has been received by the Department of Commerce for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

General Comments

- o Geodetic control survey monuments may be located along the proposed pipeline routes. If there is any planned activity which will disturb or destroy these monuments, the National Ocean Survey (NOS) requires not less than 90 days notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments.
- o This proposal has significant implications for coastal zone management in both Alaska and California. The Office of Coastal Zone Management finds that the proposers were negligent in several areas.

First, there does not appear to be any discussion upon the relationship of the proposed action to land use plans, policies, and controls for the affected area; specifically, no mention is made of coastal zone management.

The Alaska program is now in its second year, and concentrating primarily upon data gathering and management.



California: As stated in Section B.9.a in Volume III of the DEIS, the coastal area between the mean high tide line and the base of the coastal bluffs is zoned Beach Development by the Santa Barbara County Planning Department. The permitted uses in a BD zone are highly restrictive.

Alaska: The applicant's docket reveals coordination with numerous offices in Alaska that would likely administer the coastal zone management program, e.g., Office of the Governor, Department of Natural Resources, joint Federal-State Land Use Planning Commission, Department of Environmental Conservation, etc. We understand that the coastal zone management program is rather new and is currently in the Office of the Governor, Division of Policy Development and Planning. The applicant that receives the certificate of public convenience and necessity for the gas pipeline should coordinate with the Division of Policy Development and Planning and/or the office administering the coastal zone management program.

The California Coastal Zone Conservation Commission (CCZCC), on the other hand, has completed its program and is now awaiting legislative action. Meanwhile, interim regulations exist in California that could apply to this proposal. No mention, however, of either program or of these interim controls is made.

The final comment concerns the distribution of the DEIS for review. While the Alaskan Division of Policy Development and Planning did receive a copy, the California Coastal Zone Conservation Commission did not. Because of their advanced planning role, the CCZCC should definitely be contacted for their input.

- o The DEIS does not adequately carry out the requirements of the CEQ Guidelines on preparation of environmental impact statements (Fed. Reg. Vol. 38, No. 147, Aug. 1, 1973). Section 1500.8(4) requires "A rigorous exploration and objective evaluation of the environmental impacts of all reasonable alternative actions --". The environmental impacts of reasonable alternatives to North Slope gas such as increased offshore drilling and production are not examined. Section 1500.8(8) requires "An indication of what other interests and considerations of Federal policy are thought to offset the adverse environmental effects of the proposed action --". The concept of Energy Independence, for example, is one consideration which could be addressed here.
- o The socio-economic section beginning on I-40 is simplistic and fails to address the problem. Natural gas supply is treated as any other commodity rather than part of an energy package in short supply and with certain substitutability limits. It does not consider possible balance of payments problems if foreign oil must make up the 1% of energy usage due to lack of North Slope gas.
- o Selected social impacts on Alaska (p. I-89) are gratuitous. The competence of FPC in the discipline of sociology is open to some question.
- o The project under discussion proposes to follow the

The interim controls proposed by the California Coastal Zone Conservation Commission which are applicable to the proposed LNG terminal were discussed in Section H.f of the DEIS in Volume III. In addition, the Coastal Commission has several policies which would govern the protection of coastal agricultural lands and which would assure long-term agricultural land use.

The California Coastal Zone Conservation Commission was sent numerous copies of the DEIS, both on a state and regional level.

The alternative of increased offshore drilling and production is examined in more detail in the "Alternatives" volume of the U.S. Department of the Interior Final Environmental Impact Statement. The additional information will address the concept of energy independence.

Any of the standard literature on energy efficiency makes it clear that all our fuels are wasted because they are underpriced; that at least 20 percent and perhaps as much as 30 percent of 1980's projected fuel use could be eliminated by efficiency improvements more cheaply than it could be supplied from any available source; and that gas is wasted more than other fuels because it is underpriced more than other fuels. There is no hint that gas is not an indispensable part of some activities, and the fuel of choice in many others; but the fact remains that large volumes of gas are consumed in places where it is prized not because it is clean or controllable, but only because it is cheap. As nearly as can be estimated, this "large volume" is roughly 25 percent of the total gas consumption in the lower 48 states. We concur with Commerce that gas has certain substitutability limits, but they are surely not within the 4 to 7 percent range of present use that we have accurately characterized as marginal, or incremental. The answer we found, using the data, assumptions, and methods described in the DEIS, are that 1990 "Earnings" (in 1971 dollars under the BEA regional analysis) would be \$249,000,000 higher if the gas were evenly distributed across the lower 48 states; that this contribution would be only \$183 million if the gas went to the 9 states along the "El Paso Route"; and that the contribution would be \$329 million if the gas went to the 20 states along the "Arctic Route." Commerce says we "do not consider possible balance of payments problems if foreign oil must make up the 1% of energy usage," but if this fuel cost us \$2/MBTU, or \$1.7 billion per year, why would we choose to buy it? (After all, the fuel wouldn't be used if we were charging ourselves nearly that much for our own fuel resources.)

existing Alyeska oil pipeline right-of-way yet the DEIS overwhelms one with duplication of what DOI has already examined several times over. It also ignores legislation that authorized the present right-of-way and, by implication, mandated the recovery of North Slope energy at least by this corridor if not alternatives and further specific means of transportation.

In summary, the DEIS lacks some of the comparisons and evaluations that would make it a decision-making tool.

Specific Comments

- o Pages I-230, paragraph 2(a)I, and II-253, paragraphs 2 and 3, would be improved if they gave some quantitative estimates of the extent of the area over which the fog would form around proposed compressor stations.
- o Page II-72, regarding marine climatology along the LNG route, would be improved if it gave more information such as numerical data (or references) on the frequency of gale force winds and high waves.
- o Page II-358; In describing the electrical needs of the tanker there appears to be an error in Volume II where the ships service diesel generator and the emergency diesel generator are concerned. It is recommended that the last sentence of the first paragraph on page II-358 be changed from "This generator" etc., to "The emergency diesel generator" etc.
- o Page III-29, Table 5:
  1. The location for this visibility data is not given. It is not clear whether the information applies to Point Conception or Vandenberg Air Force Base. If this location is away from the immediate coast, the data probably underestimate the frequency of poor visibility over water at the marine facility. Since fog is highly variable over short distances, the location of these observations is important.
  2. The December figure given under the column heading "# of Observations" appears to be erroneous.

The extent of the area over which fog would form around proposed compressor stations would depend on several meteorological factors including the ambient temperature, pressure, wind-speed, atmospheric stability, dew point and the temperature of the emissions. In any case, the extent of the fog would be relatively small.

Published information on wave conditions is available for the Gulf of Alaska (U.S. Naval Weather Service Command, 1970) but is not available for the Orca Bay region of Prince William Sound. The applicant has estimated wave conditions near Gravina and has calculated maximum wave heights for various events. The applicant has also calculated the recurrence interval of extreme winds in the vicinity of Gravina Point.

Comment accepted.

According to the applicant, these data are for the general offshore area. The environmental staff feels they should be representative of conditions at the proposed LNG site.

All months should be moved up one line in Table 5. The word "annual" should appear where the word "December" now appears. The total number of observations is then 27,106.

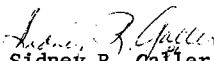
- 4 -

3. No reference for the data is given.

- o Volume III, page III-173, second paragraph:  
Visibility statistics given here do not agree with those  
in Table 5, page III-29.

Thank you for giving us an opportunity to provide these  
comments, which we hope will be of assistance to you. We  
would appreciate receiving six (6) copies of the final  
statement.

Sincerely,

  
Sidney R. Gailer  
Deputy Assistant Secretary  
for Environmental Affairs

The source of the data is the U.S. Naval Weather Service  
Command, May 1970, "Summary of Synoptic Meteorological  
Observations; North American Coastal Marine Areas."

The visibility statistics given in Table 5 will agree with  
those on Page III-173 if the above-listed corrections are  
made to the table.



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**NATIONAL MARINE FISHERIES SERVICE**  
P. O. BOX 1668 - JUNEAU, ALASKA 99801

January 13, 1978

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attn: BNG-SOD-ALASKA

Dear Sir:

The National Marine Fisheries Service has reviewed the draft environmental impact statement for Alaska Natural Gas Transportation Systems, Volumes I, II, III, and has no comment to offer.

This letter represents the views of the National Marine Fisheries Service only. The formal statement of the Department of Commerce should reach you shortly.

Sincerely,

Harry L. Rietze  
Director, Alaska Region



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**

*National Marine Fisheries Service*  
P. O. Box 1668, Juneau, Alaska 99802

Date : January 13, 1976

Reply to Attn. of: FAK21

To : EE, Office of Ecology and Environmental Conservation  
Through: F3, Associate Director for Resource Management

*Harry L. Rietze*  
From : Harry L. Rietze  
Director, Alaska Region

Subject: Review of DEIS #7512.02 - Alaska Natural Gas Transportation Systems,  
Volumes I, II, III (FPC)

The draft environmental impact statement for Alaska Natural Gas Transportation Systems, Volumes I, II, III, which accompanies your memorandum of December 17, 1975 has been received by the National Marine Fisheries Service for review and comment.

The statement has been reviewed and we have no comments to offer.



HEALTH AND  
ENVIRONMENT

ASSISTANT SECRETARY OF DEFENSE  
WASHINGTON, D. C. 20301

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 21 10 27 AM '76  
FEDERAL  
POWER COMMISSION

23 JAN 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Plumb:

This is in response to your request of November 28, 1975, concerning the Department of Defense's comments on the Federal Power Commission's draft environmental impact statement for the construction of a natural gas transportation system in Alaska. We apologize for the late submittal of our comments as the closing date was January 16th. We understand, however, that our comments will still be considered, and we appreciate your thoughtfulness.

In general, the Department of Defense has no objection to the draft environmental impact statement or to the project that the statement discusses. We do have, however, a significant concern which cannot be alleviated with the limited data in the draft environmental impact statement. Our concern centers around the actual location of the proposed pipeline as it passes through real estate that the Department of the Army currently controls. Explicit site specific information, geographic coordinates, and detailed design data were not included in the draft environmental impact statement. Accordingly, the Department of Defense cannot determine the pipeline's exact position along its proposed route.

We understand that the pipeline may be emplaced through the areas of Fort Wainwright, Fort Greely, the Black Rapids training area, and the Yukon training area. There are significant safety hazards in those areas. For example, the training area in Fort Greely may pose hazards to the pipeline and to the military, depending upon the exact location of the pipeline, since live ammunition is often used in the Army's training activities.



Prior to any agreement concerning construction of the pipeline on Army controlled real estate, the Department of Defense would have to consider its mission requirements and personnel safety. Accordingly, we request that the Federal Power Commission or the agency proposing the construction of the pipeline make specific detailed proposals to our affected installation commanders prior to Department of Defense agreement on pipeline construction. I suggest that representatives of the El Paso-Alaska Co., or the Federal Power Commission, contact the US Army District Engineer, Alaska, who is responsible for the arrangement of rights of entry to Army controlled real estate. The District Engineer, Col Charles Debelius, is located in Building 21-700, Elmendorf Air Force Base, Anchorage, Alaska. His telephone number is (907) 279-1132.

Once again, thank you for the opportunity to review this important environmental impact statement and for considering our comments.

Sincerely,



George Marienthal  
Deputy Assistant Secretary of Defense  
(Environmental Quality)

cc: District Engineer, Alaska

The Department of the Interior in Part VI, Volume 12, Pages 453 through 520 of their DEIS on the Alaska Natural Gas Transportation Systems provides segmental maps (Scale: 1 inch  $\approx$  2.25 miles) of the proposed pipeline's position.

As recipient of the certificate of public convenience and necessity, the applicant would be required to contact the owners of all lands proposed to be crossed for permission to construct on the respective lands.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20201

RECEIVED  
Mar 15 4 34 PM '76  
OFFICE OF THE SECRETARY  
FEDERAL POWER  
COMMISSION  
1976

Comments received too late for environmental staff's evaluation.

Dr. Richard F. Hill  
Acting Advisor on Environmental  
Quality  
Federal Power Commission  
441 G Street, N. W.  
Washington, D. C. 20426

Dear Dr. Hill:

We have reviewed the draft Environmental Impact Statement concerning the Alaska Natural Gas Transportation System.

The proposed system will, if constructed as described, have serious and irreversible impacts on many irreplaceable natural resources, as well as upon the socio-economic status of many small communities. While it is perhaps true that most of the socio-economic impacts cannot be avoided over the short term, we nevertheless urge the applicant to work closely with all governmental bodies through whose jurisdictions the pipeline will pass to ensure an early and continuing exchange of project development planning data and projections. This exchange will enable local communities to anticipate these impacts and to plan ways to prevent or mitigate them before they occur, rather than attempting to deal with them after they occur.

Although the statement identifies the potential impacts on the local health, medical, educational and other public services, it does not offer any suggestions for mitigation. One of the problems with a project of this magnitude is the "temporary" nature of the personnel in any location. We urge the applicant to give special emphasis to the hiring and training of local workers, wherever possible, to minimize the socio-economic impact of transient labor.

Dr. Richard F. Hill  
Page 2

Little attention is given to discussing possible disruptions and overloads on local public services. It would seem appropriate that the applicant initiate some early planning efforts with the various public officials responsible for providing such service in order to ensure a minimum of disruption. There may be adequate need to provide mobile health and medical facilities to accommodate the construction crews. This is particularly apropos to the many small communities in Nevada and Eastern California which even now have difficulty providing these services to the stable population.

There is no mention in the draft impact statement of the possibilities of earth slides due to the location of the pipeline along the San Andreas fault, which may endanger life and property in the area. We feel this hazard should be identified and systematically addressed in the final document.

Also, the final statement should address the secondary environmental impacts the disturbance of water resources and animal wildlife, possible spills, as well as the disruption of plant life will have on the Alaskan native.

Thank you for the opportunity to review the statement.

Sincerely,



Charles Custard  
Director  
Office of Environmental Affairs



## United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

In Reply Refer To:  
ER-75/1153

FEB 4 1976

Dear Mr. Dunham:

We have reviewed the Federal Power Commission's draft environmental impact statement for the Alaska Natural Gas Transportation Systems, Docket No. CP 75-96 et. al., and wish to note our appreciation for the extension of time provided by your agency to complete this complex action. Our comments below will pursue the organizational format of the FPC statement for better clarity in referencing those three volumes and understanding their relationship to the volumes in Interior's related statement. Some comments are more broadly based than others and cover major items of concern in each volume. Detailed comments of a more technical and editorial nature are appended separately thereafter.

### General Comments

There are a number of areas where substantial improvement in subject matter coverage could be developed for the final environmental statement. Among these are cultural resources, wildlife, vegetation, recreation, and aesthetics. The principal focus should be placed upon improvement of the impact analysis for each subject, but it is also evident that the background, data, or environmental setting descriptive material is weak. For example, the recreational and aesthetic environmental settings are not described fully in Volumes I and II for either the proposal or its alternatives. The omission of Prince William Sound and Cook Inlet is of particular concern. Significant recreational and commercial resources are involved in these areas. We urge that improvements to the document concentrate upon more explicit description of size, extent, quantity, and any outstanding parameter of these resources and impacts. The significance of each impact can be understood only if some further analytical attention to measurement or descriptive relevance is undertaken.

The staff feels that an exhaustive description of the environmental setting of all of south-central Alaska would serve no useful purpose. There is no need to contrast localized impacts, which are generally very difficult to quantify in the first place, with the resources of the entire Cook Inlet and Prince William Sound area. It is sufficient that local impacts be discussed as they pertain to local resources.

NOISSINHO NE/NOI

Feb 4 1976

RECEIVED  
OFFICE OF THE  
SECRETARY



Although the narrative portions of the statement are valuable, the figures used to illustrate the proposed and alternative pipeline routes particularly present insufficient detail to allow an accurate assessment of social and environmental impacts arising from pipeline placement and construction. In general, the final EIS should contain more detailed maps; topographic maps showing greater detail than that of Figure 42, for example, would be helpful in assessing the relative degree of soil disturbance and resultant esthetic impact.

The location of native villages and hunting territories affected by pipeline development and terminal construction and operation, together with the population of natives, should be better portrayed and analyzed. Approximately 11 villages and 2,300 Alaskan natives appear to come within the range of potential effects. The impacts on native subsistence resources of the El Paso proposal cumulatively taken together with the TAPS project need to be considered.

The draft statement recognizes that there exists substantial potential for adverse impact to occur to significant cultural properties. The Federal Power Commission staff has recommended that a programmatic approach be adopted to ensure that cultural resources are properly safeguarded. Such an approach is viewed favorably by this Department and should specifically provide for compliance with E.O. 11593 and the Advisory Council on Historic Preservation's procedures.

The statement evaluates the environmental impacts on the State of Alaska and associated waterways in Volume II and the environmental impacts associated with the Point Conception LNG terminal and related pipeline facilities in Volume III. However, the tankers and the environmental characteristics along the sealanes between the two terminals are not described in any of the three volumes, and potential environmental impacts along the sealanes are not analyzed. This is a serious omission for marine mammals, anadromous fisheries, and other resources.

Likewise, the alternatives considered include alternative pipeline routes and terminal locations, but alternative linkages between the terminals (e.g., larger or smaller ships, gas fired propulsion systems, or barges either conventional or submersible and either towed or pushed) are not considered and should be because of major differences in environmental effect.

The environmental staff agrees and has provided more detailed maps in the FEIS.

For the sake of brevity, these villages are not listed in the FPC FEIS. The 11 villages and their populations are shown on page 686, Part IV, Vol. 2 of the U.S. Department of Interior DEIS on Alaskan Natural Gas Transportation Systems. A statement about the cumulative impact of the Alyeska oil pipeline and El Paso has been incorporated in the subsection entitled "Native Economy" in the socioeconomic impact section of the FEIS.

The environmental staff is now in the process of developing a detailed programmatic approach for the protection of cultural resources with BLM, the Advisory Council, and the Office of Archaeology and Historic Preservation.

Ship transportation of LNG in international waters is a nonjurisdictional issue; however, the staff has analyzed ship transportation in coastal waters. It is expected that the impacts in international waters would be similar.

For purposes of the site selection analysis, vessels of the 125,000- to 165,000-cubic meter capacity were assumed, along with a heat exchange system using water as a medium. In essence, the main engineering features of the proposed LNG plants and vessels were assumed to be constant.

Other areas which need improvement in the final statement include the following:

- a. Specific data are lacking in certain critical impact areas which deserve description and assessment. In Alaska these areas include Atigun Pass, the new routes through undisturbed U.S. Forest Service lands leading to Gravina, and the pipeline crossing of Cook Inlet (technical problems regarding bottom scour, etc.).
- b. There is very little descriptive correlation of the proposed El Paso gas line in Alaska with previous work done on the Alyeska project or BLM and other agency land planning efforts. The relationship to this planning should be made clear.
- c. Correlation with the Department of the Interior FES should be updated to incorporate changes being made in the DOI final statement.

The environmental staff agrees that information is lacking, and additional studies would be necessary in developing more detailed data in these areas.

We suggest that all discussive evaluations of the relative impacts of the El Paso Alaska System and the Alaskan Arctic Gas Pipeline System (across Canada) should clarify what area of impact is under consideration. Several statements suggest that only impacts on areas within the United States have been considered. This appears to be confirmed by the statement on page I-173, paragraph 1, which compares impacts of the El Paso-proposed trans-Alaska gas pipeline with impacts of the trans-Canadian Arctic Gas pipeline and its alternatives. In the discussed evaluation it is clear that only the impacts on Alaska are under consideration, but elsewhere this needs clarification.

An issue addressed in this review is that of winter construction in an arctic environment. The draft environmental impact statement prepared by the FPC seems to accept, without serious reservation, the feasibility of large-scale construction operations during the arctic winter. The Interior report, "Alaskan Natural Gas Transportation Systems: A Feasibility Study, 1975," found that there are some very serious risks involved. In particular, productivity, engineering, and logistical problems will significantly hinder and, at times, will prevent pipeline construction during winter months north of the 60° parallel. Alyeska Service

Company experience over the past two winters would tend to confirm the problems of major winter construction in the Arctic. As a minimum there is significant risk of construction delays and cost overruns if winter construction is attempted. The statement should consider the environmental implications of arctic gas pipeline construction in Canada and Alaska, based on summer construction techniques, as well as winter techniques, so that worst case conditions are revealed if winter construction proves inadequate.

#### VOLUME I

In this volume we wish to note the following major points for further consideration and intensified evaluation.

##### Impact on Salt Marshes

Siltation from work on the right-of-way would seriously impact salt marshes between Valdez and Gravina Point. These marshes are extremely productive habitats in their unaltered state. They are not even mentioned in the vegetation section. The Fish and Wildlife Service has contracted studies on the salt marshes in the vicinity of the oil pipeline terminal. FWS might wish to contact them for information that is currently available.

The salt marshes are critical habitat for a number of waterfowl species. They are very important to an apparently sedentary and unidentified population of Canada geese. This population is not large but it is unusual and needs to be given extra consideration until a determination of its identity and status can be made. It is not mentioned in the statement and potential effects upon it should be reviewed.

##### Impact on Eagles and Deer - Gravina Point

The Gravina Point site and its sphere of influence is located in the part of Prince William Sound where the densest nesting concentration of bald eagles occurs. The movement of LNG carriers in this area will have significant

The alternative of summer construction is discussed in Volume II, Section H.

The salt marshes in question around the mouth of the Gravina River are about 2 miles from the proposed pipeline at its closest approach and about 5 miles downstream from the proposed crossing of the Gravina River. Siltation from the work is therefore not likely to be significant in the marsh area, which is already subject to daily siltation influences from tidal movement and annual influences from the river's spring runoff.

impact. This is alluded to in the site comparison section, but not mentioned in the wildlife sections. Again, more careful evaluation is needed.

The Gravina Point site is also the winter range for a substantial portion of the small Sitka black-tailed deer population resident on the mainland portions of its Prince William Sound range.

#### National Parks, Forests, Refuges, and Rivers

In discussing alternative routings of the Arctic Gas System, the DES, on page I-221, examines one alternative which would take the pipeline from the Fort Yukon area up the Yukon Valley into Canada. Such a routing would impact three proposals for nationally significant conservation areas made by the Secretary of the Interior in the Alaska Conservation Act of 1975, now before Congress. These three proposals are for a Yukon Flats National Wildlife Refuge, a Porcupine National Forest, and Yukon-Charley National Rivers, that would be a unit of the National Park System. There is no discussion of how this alternative might affect those proposals, or the conflicts in management that would occur.

#### Economic Analysis

Since the publication of the draft EIS, the Department of the Interior has sent to the Congress a report as required by P.L. 93-153 and an attached staff study titled, "Alaskan Natural Gas Transportation Systems: A Feasibility Study." This study provides an updated and improved benefit/cost analysis. We recommend that the Federal Power Commission examine carefully the revised benefit/cost analysis in the Feasibility Study sent to the Congress in December, and establish a liaison with the Department to clear up any misunderstanding or confusion in the preparation of the study.

The economic analyses in Volume I, particularly with respect to use of Prudhoe natural gas in Alaska, are of necessity premised on rather crude assumptions of gas supply and price. We believe it would be of value to examine some alternate sets of assumptions. For example, it is likely that the current wellhead value of Cook Inlet gas is at least two to three times the \$.15 per mcf assumed on page I-154.

Impacts to bald eagles were discussed in the last paragraph in the seabird section of the DEIS.

Note addition in FEIS discussion.

See section entitled "Supplemental Analysis" in Vol. I, Appendix C, for an expanded discussion of wellhead price.

Also, it would seem likely that if a major LNG project such as El Paso proposes is constructed, the project itself would set the market value for other gas (such as Cook Inlet) accessible to present and potential LNG plants.

Use of the term "socio-economic" in subheadings under Heading B, "Economic Analysis," seems inappropriate, as the material therein is basically economic. The socio-economic analysis for Alaska should be preceded by a brief rationale explaining why it was placed in this volume. Impacts on both natives and non-natives are covered; however, in view of the enormous changes the proposed action, along with the Alyeska oil pipeline, will have on the native way of life, a little more analysis of potential impacts on natives is called for.

### Alternatives

It is stated that "the El Paso proposal would impact a greater number of communities than would the Arctic Gas Pipeline" (p. I-138, par. 2), and that "the magnitude of the impact from El Paso is several times that from Arctic Gas" (p. I-147, par. 2), the latter statement referring to impacts during the construction period. Since the Arctic Gas proposal would entail construction of about three times as many miles of pipeline north of latitude 49°N than the El Paso proposal, it seems evident that total terrestrial impacts of the former must generally be much greater than of the latter. If the relative impacts of the two proposals are to be covered, as they have been throughout Volume I, we believe that NEPA requires an evaluation of such impacts without regard to national boundaries. If the evaluations are wholly confined to impacts within the United States, they should be clearly identified as such.

The section starting on page I-165 contains a brief evaluation of an alternative route to the "Arctic prime route." However, no mention that there are multiple alternatives to this prime route was found until page I-219. At that point, it is mentioned for the first time that four alternative route corridors have been proposed by Alaskan Arctic Gas for the routing of the pipeline through Alaska

The term "socioeconomic" has been retained in FEIS subheadings inasmuch as both social and economic impacts are discussed.

The environmental staff feels that the level of analysis presented is commensurate with the amount of data available related to expected impacts on the native way of life.

The environmental staff has accepted the Canadian discussion from the U.S. Department of the Interior Environmental Impact Statement. The generalized impacts identified are not restricted to national boundaries.

and Canada, and that a fifth possible alternative route has been suggested by the Bureau of Land Management (p. I-219), par. 3a). We feel that this background information should precede any discussion of alternative routes.

## VOLUME II

### Description of the Proposed Action

It has been estimated that 6.5 million cubic yards of gravel or crushed rock would be required for the proposed pipeline across Alaska. The only information that has been provided on the sources of this material is that it would be obtained "from borrow sites authorized by governmental agencies." We believe that past experience in arctic and subarctic construction has shown that impacts of obtaining borrow material can be among the most severe impacts of construction projects. Consequently, we feel that the final environmental statement should be more specific about proposed general locational sources of borrow material and the impacts of this action.

The relationship of the proposed gas pipeline to the Alyeska oil pipeline location and facilities is in need of clarification. It has been stated that "between 85 and 95 percent of the proposed route of the El Paso pipeline could be within the utility corridor designated for use by the Alyeska Oil Pipeline." Consideration should be given to more intensive description and portrayal of significant planning relationships between the El Paso proposal and other activities. This section presently reads as if the gas pipeline is an entirely new project in the region. There is almost no reference to the Alyeska pipeline project and its access roads, pipeline pad, and facilities which certainly overlap much of the gas pipeline needs. In the route description, there is no clear and full reference to BLM and other land planning agency relationships which could affect line location along the present corridor. It isn't until pages II-247 and 248 are reached that any slight recognition of relationship first occurs.

One of the few statements pertinent to the foregoing question is that special techniques are to be developed and submitted to the Department of Interior where the oil and gas pipelines cross or are close (p. II-326). However, other statements suggest that the two pipelines would be distinctly separated. For example, it is stated that "nearly all the proposed El Paso pipeline south of the Brooks Range would require the clearing of brush and forest cover"

Prior to construction, Alyeska proposed to use 46.5 million cubic yards of gravel or crushed stone. To date, this figure has grown to nearly 83 million cubic yards. El Paso's proposal estimates that 6.7 million cubic yards of gravel would be required. Tentative locations for borrow material are presented in Figures 2 through 35, Section 2A.2, Appendix to Volume IV of El Paso's application. The environmental staff assumes that some of the same sites as used by Alyeska will have to be used, but all sites will have to be approved by the State of Alaska.

El Paso should be required, where possible, to maximize the use of the existing utility corridor and work pad of the Alyeska pipeline following discussions and approval by the State of Alaska, the Department of the Interior, and other agencies.

(p. I-242, par.2), yet the proposed gas pipeline follows essentially the alignment of the oil pipeline for most of this distance. The FPC staff has recommended that "the applicant should utilize Alyeska access roads, airfields, communication systems and construction camp sites to the maximum extent possible" (p. II-521, #7). However, we have found no indication of how much of such common usage of facilities is envisioned as possible. In particular, we feel that the possible reduction of impacts by common usage of such facilities needs to be evaluated in order to compare the alignment proposed by the applicant with the new alignment south of Livengood that has been proposed by the FPC staff. The environmental statement should provide a detailed evaluation of methods proposed or recommended to minimize impacts by use of TAPS facilities, including an evaluation of any alternatives that are under consideration with respect to such common usage.

In spite of the recommendation that TAPS access roads and other facilities be used to the maximum extent possible, the environmental statement gives the impression that construction would be done largely by means of compacted snow roads in winter. We have found little or no mention of proposed use of existing TAPS access roads and gravel pads in order to facilitate construction and possibly to permit lengthening of the construction season. For example, it is stated that "the pipeline would normally be constructed during the winter" (p. II-12, par. 2) and that "construction during the winter permits use of a compacted snow pad as a working surface" (p. II-13, par. 5). Again, these questions of ease of access, necessity of snow roads, and length of the construction season should be evaluated in comparing the route proposed by the applicant with that preferred by the FPC staff.

Information on shipping routes in the vicinity of the proposed terminal at Gravina has been provided (p. II-61), but we found no such information for the preferred site at Nikiski. In addition, we found no information on the controlling depths in approach channels to both sites. It is noted that information on vessel traffic is not yet complete (p. II-501, table 37) and that ice problems at Nikiski are still under evaluation. These questions involving suitability of the sites for tanker operations appear critical to final selection of a terminal site and, therefore, of a final pipeline route, and it is assumed that such information will be complete in the final environmental statement.

Potential sources of borrow material for construction of the proposed LNG terminal at Gravina have been identified as

See second response to comments on page 7.

Comment reflected in Section H-2 of Volume II of the FEIS. Also, see Table 37 of the DEIS.

The environmental staff does not anticipate the need for large volumes of borrow at the Nikiski site since, unlike the Gravina site, relatively little grading would be necessary.

being at the mouth of Simpson Creek or in Rude River (p. II-255). However, no mention of sources of borrow material at the preferred Nikiski site has been found.

At submerged stream crossings "the pipeline would be buried from 5 to 14 feet below the waterway to prevent exposure by river bottom scour" (p. II-320). A list of 70 major submerged crossings (p. II-118) shows burial depths greater than five feet at only nine crossings. No information is given on how the burial depth was determined. Detailed local information from the stream crossings would be required to estimate the maximum likely scour but there is no indication that this was available for this report.

The potential for reduction or complete interruption of ground-water underflow in permafrost areas as a result of the "frostbulb" around the pipeline (p. II-286) needs clarification. The size of the expected frostbulb is not given, thus it is not possible to judge whether most of the adverse effects could be avoided by burying the pipe deeper under streambeds than is contemplated. If winter ground-water flow parallel to streams is to be substantially or entirely halted, the statement should more carefully examine the following: (1) the potential for buildup of extensive subsurface and surface ice during the life of the project, and subsequent potential of abnormal channelization and accelerated scour across auefs during spring breakup; (2) impacts of flow interruption on downstream availability and use of water; (3) effects on quality of ground water when highly mineralized water associated with permafrost no longer has as much opportunity for dilution; and (4) typical or probable extent of permafrost thawing as a result of such impounding of ground water.

For interstream areas where permafrost is at shallower depths than it is adjacent and beneath streams, a better presentation of the movement of any perched water above the permafrost table is needed to make possible the evaluation of ponding of subsurface water on the upslope side (p. II-273), and the resultant acceleration of the thawing of permafrost.

The potential impact on ground water of pollution from oil spills is mentioned in a number of places in the text. Training of personnel is given as a mitigating measure; we believe that the possibilities for remedial action should also be more fully considered in the statement.

Detailed information on the proposed stream crossings is not available at this time.

A detailed discussion of frostbulb-related impacts which do not pertain to vegetation would be inappropriate in the section to which the Department of the Interior referred. See the environmental staff's response to the following comment.

Ground thermal simulations of the proposed buried pipeline at river crossings are unavailable. The applicant proposes to make these studies during the design phase of the project and, if problems areas are indicated, to incorporate preventative measures such as deeper burial, backfilling with granular materials, or increasing the insulation on the pipe. While preliminary thermal regime math model studies have been conducted for "interstream" areas, the specifics were not provided to the staff. The applicant indicated that a frostbulb would be expected, but that groundwater movements would not be "seriously impaired." A discussion of suprapermafrost water movement was included in Section B.5 of Vol. II of the DEIS.

See Volume II, recommendation section.

On the Location of Facilities in Alaska we would recommend a better map showing the location of all ancillary sites that are listed on pages II-11 and II-12.

With respect to the LNG plant, marine terminal, and fleet, the housing development for workers is not described or shown on a map. This is essential information for this development has the potential for great secondary impacts as well as significant primary impacts. How access will be handled is undescribed. An airstrip or new road appears a necessity if residences are established at Gravina. Actions such as these will cause significant impacts to wilderness, recreation, economics, and wildlife values in this area over and above the actual plant site operation.

Cargo handling and safety features of the proposed 165,000 cubic meter LNG tankers are described fragmentarily in different sections. However, the statement should include a much fuller description of the proposed tankers. We recommend this be all at one location in the document so that potential environmental impacts can be evaluated knowledgeably. The present text, for example, does not specify the type of propulsion fuel or the bunkering system to be used. Information pertaining to these items is only casually mentioned in the LNG terminal description in Volume III. The fuel oil capacity given on page II-58 as 8,200 long tons is more than 50,000 barrels. This capacity could have significant impacts in the vicinity of the loading port if mishandled.

#### Future Plans and Abandonment

The discussion does not indicate how much additional land is available for future expansion at Gravina or how its continued availability will be assured. It indicates that a marine terminal could be expanded by constructing additional berths but does not indicate the maximum number of berths that could be constructed and safely used.

Reference is made to Land Use Planning Commission recommendations, but not to other plans. For example, BLM has completed a first generation land plan for the corridor which contains many designations and use zones, yet no mention is made here or elsewhere in the EIS of proposed coordination with BLM. Before the final EIS is completed, FPC should be thoroughly briefed on the BLM corridor plan and discuss that plan with BLM managers in Alaska.

See the "Alternatives" volume of the U.S. Department of the Interior's FEIS which contains 33 maps which locate these facilities.

Information on the housing development can be found on Page II-28 of the DEIS.

The possibility of a road from Cordova to the Gravina site was mentioned on Page II-459 of the DEIS. In addition, pressure to build an airstrip would also occur, although El Paso has not as yet proposed one. These and other points discussed in the alternate site assessment led to the environmental staff's selection of an alternate LNG terminal site.

Pages II-353 to II-364 in the DEIS described the LNG tankers. Boil-off gas from the cargo tanks would provide most of the fuel requirements except during service speed when Bunker-C fuel oil would supplement fuel needs.

El Paso has a 700-acre greenbelt area of the 1,200-acre site in which to expand. Also, the DEIS stated that three or more berths could exist at the proposed terminal.

FPC coordination with the BLM office in Alaska, regarding the land use plan for the corridor, reveals that the plan is a conceptual plan subject to basic prerequisite decisions, e.g., the location of the gas pipeline.

## Description of the Existing Environment

Under the Topography and Physiology, Geology, Water Resources and Vegetation sections, the description is unduly long. We believe it should be limited to those aspects for which environmental impacts will be discussed in the following section. The amount of descriptive background material under the Aquatic Biota and Wildlife headings could also be reduced. Material missing is the quantitative parameters of these resources and conditions.

We should like to call attention to Atigun Pass. It is very narrow and there may not be room for both the oil pipeline and the gas line. This is the type of area that should be discussed in greater detail in this part of the document. Problems could arise at Atigun Pass because of this narrowness that would require use of another pass or possibly tunneling. Such actions would expand environmental effects. Also, on the BLM land plan, the Atigun Pass area has been identified as a potential management area with primary objectives for wildlife and recreation. Some coordination seems called for.

Extensive brown bear use areas are identified on Alaska Department of Fish and Game maps along the route from Thompson Pass to Gravina. These should be depicted and taken into account in evaluating environmental effects.

The description of esthetic resources on page 250 does not include the Gravina Point site where the development of a 100-acre LNG plant and marine terminal is proposed. We believe this area, as well as potentially affected portions of Prince William Sound, should be described.

## Impact on Indian Subsistence Resources

Our review indicates the social and economic impacts to native peoples have been generally addressed, but that the effects of this proposal on Indian natural resources, either their use of depletion, or changes on Indian lands, is not addressed. An overall statement of use or proposed use of these subsistence resources should be provided and effects evaluated.

## Impacts on Aesthetic Values

Under Section C.13.b (p. II-313), Aesthetics, the visual impact of construction and development to travellers using the main State ferry and tourship routes should be recognized and described.

The environmental staff feels that such coordination should be handled via the U.S. Department of the Interior.

See change in Volume II, Section C, on impacts to bears.

See revised Section C, subsection entitled "Impacts on Land Use."

Impacts on native subsistence resources have been discussed in subsection entitled "Native Economy" in the main section dealing with socioeconomic impacts in Alaska.

See revised section.

### Impact on Vegetation

The discussion on vegetation impact is not quantitative about amount and type removed and reads as if the Alyeska project had not been constructed. The possibility of using the Alyeska pad, and thus paralleling the oil pipeline rather than constructing a new right-of-way, is not discussed at any point. Significant differences in effects seem likely between the two circumstances.

### Impact on Endangered Species

Paragraph f. Endangered Species, on page II-299, is incorrect. Arctic Peregrines are present along the Sagavanirktok River as noted in Part e. The potential effects should be thoroughly evaluated.

### Impact on Bears

The discussion on page II-295 of impacts on grizzly and brown bears is very general. Such a discussion is probably all right for much of the route over which bears have been impacted previously. However, specific impacts should be pointed out for the Alaskan brown bear in intensive use areas between Thompson Pass and Gravina. These areas have not previously been impacted and contain a significant population. Construction in these areas will have significant impact on the brown bear population; yet, their presence is not identified or the effect evaluated in the impact section on page II-295, nor specific information given about this conflict.

### Impact on Seabirds

Adequate discussion of potential impacts on specific species or populations is lacking under both headings for Seabirds and Marine Mammals on pages II-297 and II-298. No dimensions or degree of significance to the impacts are provided.

### Impacts on Land Use

The paragraph on page II-302 references passing through 809 miles of wilderness. Technically, this is correct from a regional standpoint but, unless the pipeline corridor is totally separate from the Alyeska construction strip, the development will take place in already developed corridor area. The Alyeska pipeline project, roads, highways, villages, and service centers will be in proximity to the gas pipeline

The applicant has stated that due to the characteristics of the chilled gas pipeline, a shorter and more accessible route than the Alyeska alignment could be built. Where the pipelines are compatible, they would follow the same route. About 78 percent of the gas pipeline is within 1 mile of the oil pipeline. Access to the gas pipeline would be primarily via the Alaska State Highway system which includes the Alyeska haul road. The Alyeska oil pipeline would be crossed by the gas pipeline 25 times.

Part f mistakenly included only impacts caused to endangered species by the project's marine terminal and shipping aspects. See change in Volume II, Section C, part f.

See change in section on impacts to bears.

most of the entire distance except for the section from Thompson Pass to Gravina, which is undisturbed wilderness.

#### Impact on Archeological and Historical Resources

The statement recognizes that substantial additional effort 1 must be expended to identify presently unrecorded cultural (historical, archeological, and architectural) properties, to determine the significance of known and presently unrecorded properties, and to develop measures to avoid or mitigate adverse impact to them. Due to lack of information, the statement admits that it is impossible to qualitatively and quantitatively assess the proposal's probable impact to cultural resources. To meet this situation, the Federal Power Commission staff has recommended (pp. II-522-523 and III-379) that a programmatic approach be adopted for implementation of the procedures developed pursuant to the National Historic Preservation Act of 1966 and E.O. 11593 to ensure that cultural resources are properly safeguarded. We recommend that FPC adopt the approach recommended by the staff with a revision to include consultation with the Department of the Interior (Departmental Consulting Archeologist, National Park Service, Interior Building, 18th and C Streets, N.W., Washington, D.C. 20240) and the Advisory Council on Historic Preservation. A memorandum of agreement would be signed with ACHP outlining the overall approach to be taken as project planning progresses.

It appears that implementation of such a programmatic 2 approach would greatly reduce the incidence and magnitude of adverse impact to cultural resources now reported in the draft statement. The text of the statement should therefore be amended to reflect the lowered impact accrued from implementation.

#### Impact on Cook Inlet

Construction problems and natural hazards involved in the 3 16-mile marine crossing of Cook Inlet's Knik Arm proposed by the FPC staff have not been evaluated. It has merely been stated that "the cost of crossing Cook Inlet with a pipeline would partially negate Nikiski's pipeline distance advantage" (p. II-497, par. 2). However, we have found no estimate of either the environmental costs or the engineering problems.

#### Long-Term/Short-Term Relationships

No information has been provided on the relationship between short-term uses of man's environment and the maintenance and

1 See previous response to comment on Page 2, Paragraph 3.

2 See revised Volume II, Section C.11.

3 In studies performed for the staff, no earthquake fault was found at the crossing location or any reason for alarm due to other geological conditions. Tradeoffs for underwater crossings versus pipeline burial in well-drained soils were considered and are shown in the following chart:

Sites	Distance from M.P. 389.5 in Utility Corridor (miles)		
	Actual	Weighted*	Marine Crossing**
Gravina Point	419	419	0
Nikiski	369	417	16
Cape Starichkof	422	470	16
Resurrection Bay East	406	424	6

\* The weighted distance was calculated as follows:

$$(\text{actual distance} - \text{marine crossing}) + 4(\text{marine crossing}) = \text{weighted distance}$$

\*\* There are several other considerations that would be used in a full cost comparison including tunnelling, stream crossings, river crossings, aerial crossings, wetland construction, steepness of grade, lack of road or railroad access, utility corridor, etc. This level of detail was beyond the scope of this study.

enhancement of long-term productivity, with respect to construction of a gas pipeline across Alaska (p. II-368).

#### Irreversible and Irretrievable Commitments of Resources

The matrix analysis and discussion is an interesting concept; however, it is very confusing and incorrect when closely read. The categories are too imprecisely defined and could readily be disputed. For example, the stripping, clearing, and terrain modifications are not reversible actions on many areas. Likewise, removal of gravel from streams has long-term implications and is not readily reversible. Aesthetic impact on 30 miles of the Chugach National Forest has long-term irreversible social implications with regard to wilderness values. Aesthetic impact (long-term) will occur over the entire route, not just the 30-mile section. The relationship of a seismic wave to the proposal and to irreversible commitments which curtail short-term uses is indirect at best.

We suggest that the more significant long-term commitments be differentiated from lesser ones and discussed at more length, providing the quantified parameters of the commitment cumulatively accounted for. In this fashion the relevance of different commitments can be quickly understood.

#### Alternatives

In evaluating the different alternative routes examined by this document, Section H overlooks park and related proposals designated by the Alaska Conservation Act of 1975. For example, only in discussing an alternative pipeline to western Alaskan ports does the DES mention the proposed Gates of the Arctic National Park (p. II-380). This alternative is not specific as to routing and might impact other proposals besides the Gates of the Arctic.

Careful examination for all routes considered by the document should be given to crossing or proximity relationships to the Alaskan d-2 proposals before the Congress.

Alternative routes through the Brooks Range (Alternative a) discussed on pages II-378 and 379 would also impact the proposed Gates of the Arctic National Park. Both the Itkilik and John River routes would traverse the heart of the proposal area. This is not mentioned and the effects of such crossing should be indicated.

The adverse impacts identified as being associated with specific alternative proposals were not intended to represent an all-inclusive listing. Generally, only the major impacts which resulted in the rejection of a specific alternative were given in the report.

Alternative f (discussed beginning p. II-383) would route the gas pipeline down a broad, tentatively designated multi-mode utility corridor generally following the Alaska Railroad from south of Fairbanks to Cook Inlet. However, the routing does not remain close to the railroad for its entire length. In many places it would impact fresh, unspoiled country, some of which may have significant scenic and recreational values. The Yanert Valley, for example, has been noted as having special value for primitive types of outdoor recreation and is an area complementary to Mount McKinley National Park. The impact on such areas should be analyzed and discussed. A further example may be noted in the failure to examine the visual impact such a routing might have as viewed from the Park.

The routing traverses a Cooperative Planning and Management Zone proposed in the Alaska Conservation Act of 1975 as an area "within which resource use and development are critical to the proper protection, management, and interpretation of the park." Nothing is said in the DES about how the alternative routing would affect this zone and its protection of environmental values.

#### No Action or Postpone Action

This section (p. II-498) does not contain a very meaningful discussion of environmental impacts in Alaska and the lower 48 States which may result from failure or delay in providing for movement of North Slope Natural Gas. Impact of the gas at the market end is an important effect of the proposal.

#### Appendix

It is recommended that Appendix B be corrected with the addition of the following material (p. II-539). Department of the Interior responsibilities for Federal lands include the following:

- a. Issues permanent and temporary rights-of-way on federally owned lands for route and associated facilities.
- b. Sells gravel and material.
- c. Issues special land use permits (SLUP's).
- d. Provides stipulations for all pipeline related activities on Federal lands.

Comment accepted. These responsibilities should be added to Appendix B of the FEIS under the Department of the Interior.

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- e. Monitors entire pipeline process - before, during, and after construction.
  - f. Coordinates pipeline construction with the other resource values.
  - g. This section should also indicate the jurisdiction and approval authority if Indian water rights are affected, altered, or permanently affected.

#### Mitigation

A major mitigating measure which has not been discussed throughout the statement is the need for close coordination of the proposed project with previous Alyeska construction and BLM and other agency land managers such as the State. Probably the most important technical aspect in this regard is a discussion of the feasibility and capability to lay the gas line from Alyeska's work pad. Where the line does not follow the corridor, the same concept of coordination with previous highways and disturbed areas will be an important mitigating factor.

Many of the points above pertaining to Alaska could be corrected or improved in the FPC final through coordination with on-the-ground land managers in Alaska. We recommend that Mr. Sal DeLeonardis, Chief of BLM's Alaska State Office Planning and Coordination Staff, be the contact point in this regard.

#### VOLUME III

##### Description of the Proposal

It is stated early in Volume III that the four 550,000-barrel tanks proposed for construction at Point Conception would be designed to withstand a horizontal acceleration of 0.25 g (p. III-8). However, it is stated later that "the maximum bedrock acceleration at the site would be in excess of 0.7 g for the maximum probable event at either of the two closest portions of the Santa Ynez fault(s)" (p. III-176). This figure should be corrected or clarified, as it has been shown on table 40 (p. III-361) that the maximum bedrock acceleration associated with the Santa Ynez fault would be 0.25 g at the Point Conception site. A publication that should be consulted

To the extent possible, the staff has used all available information from the Alyeska project. The Department of the Interior in their FEIS also utilize such information and will incorporate it into their stipulations which are under preparation.

The number in column 3 of Table 40, Page III-361 should be changed from 0.25g to 0.7g.

and referred to with regard to faulting near the site is Ziony, J. I., et. al., 1974, Preliminary map showing recency of faulting in coastal southern California, U.S. Geological Survey, MF 585.

It is stated that construction of an LNG terminal at Point Conception would require two million cubic yards of excavation and one million cubic yards of filling, the remaining one million cubic yards to be disposed of "in an offsite area" (p. III-12, last par.) which has not been specified. In addition, dredging would evidently be required, but "no information concerning dredge spoil amounts has been provided" (p. III-264, par. 4). It would be advisable to provide information on dredging requirements and spoil disposal plans and impacts in the final statement.

Estimates of potential tsunami runups at the proposed LNG terminal at Point Conception appear to have been based on data from Santa Barbara, the runups having been estimated as 6.2 feet in the event of a 100-year tsunami and 12.6 feet in the event of a 500-year tsunami (p. III-178, par. 5). Since water-temperature data from Gaviota have been given (pp. III-78 to III-81), and that locality is only 12 miles east of the proposed terminal site, historic data on tsunami runups at Gaviota should be noted in the environmental statement, at least. A runup as high as 50 feet reportedly was experienced at Gaviota on December 21, 1812 (Richter, C. F., 1958, Elementary Seismology, W. H. Freeman and Co., p. 113).

It is stated that the FPC staff has no knowledge of any detailed foundation studies for the Point Conception site, while there have been for other proposed sites. It is stated further that "such studies . . . are essential to the determination of subsurface structures and a complete assessment of the ecological risks at any site" (p. III-176, par. 4). Consequently, it appears advisable to include a stipulation that such subsurface investigations be conducted at that site.

Information on the design of a proposed 1,000-foot-long U-shaped rock breakwater that would be constructed at Point Conception was not found in the draft statement (p. III-201). In addition, it is not certain whether a breakwater would also be required at the preferred Oxnard site and, if so, what its design and impact would be.

It is surprising that information on drainage and soil depth at the Point Conception site has been omitted from table 40

A recommendation in Volume III of the DEIS called for onsite disposal and use of the excess material.

Review of the detailed seawater exchange system design would yield dredging information; however, the information is not available at this time.

The estimate of 50 feet of runup in 1812 was inferred from descriptive reports that included no such data. In addition, the estimate was made several years after the fact. While this estimate has often been cited, its accuracy has been repeatedly questioned. The temperature data for Gaviota are from a Marine Advisor's survey conducted in 1971; the NOAA/NOS has no tidal records for this town (except for approximately 1 month in 1933) and no temperature records at all for this location.

The applicant has stated that such studies will be performed. (Response to question 49 of FPC Data Request Dated 4-25-75.) A recommendation in the FEIS concerns this subject.

Detailed design information of the breakwater is not available. A recommendation regarding such design is in the FEIS.

A breakwater is not proposed at Oxnard.

It would appear that this comment is answered by the comment noted two paragraphs above.

(p. III-359), yet is provided for the other four sites, particularly since the Point Conception site is the one proposed by the applicant.

#### Impact on Reservoir Sites

The Point Conception revaporization plantsite with pipeline to existing gas transmission facilities could affect Bureau of Reclamation activities. We have the following comments on that portion of the document.

Figure 1 (Location of Facilities map) provides insufficient detail to determine the LNG terminal site and pipeline route. The nearest city (Lompoc) should be shown along with other details to guide the reader. Figure 26, page III-88, would make a better location map. In any case, a map should be provided so the reader can determine by minor measurements whether a particular property will be affected by the proposal. If the maps were meant to provide only general guidance in advance of detailed route surveys, the maps should note the fact.

It appears that the proposed pipeline route from the Point Conception revaporization plant to the Arvin Pressure Limiting Station will cross proposed Lompoc Reservoir sites being considered for the Bureau of Reclamation's Lompoc Project. The pipeline route depicted also crosses the proposed conveyance line to Cachuma Reservoir from the end of the Coastal Branch of the California State Aqueduct. The City of Lompoc is presently investigating Salsipuedes Dam on Salsipuedes Creek. This project's reservoir is near the proposed pipeline and should be mentioned along with the Bureau of Reclamation and State proposals in the final environmental impact statement.

#### Impact on Water Supplies

The draft environmental statement suggests that wells will be drilled at the LNG terminal "if there is sufficient usable water on the site." This is potentially a water deficient area and additional ground-water withdrawals could have a serious, even critical, effect on the ground-water basin depending on the quantity of water withdrawn. A discussion of this problem should be in the final environmental statement as well as a discussion of the effects of not being able to obtain water from the potential sources mentioned in paragraph 2 above if the wells are not built.

Refer to the comment on foundation studies on previous page, third paragraph.

Figure 1 in Volume III should read: "General Location of Facilities." More detailed maps are used throughout the DEIS where necessary, such as Figures 26 and 27 and in Section H.1.

A discussion of this topic has been added to the FEIS in the section on "Impact on Hydrology."

As indicated in several places in the DEIS, information pertaining to groundwater at the proposed LNG site is essentially nonexistent. However, based on geologic similarities between the proposed site and Corral Canyon (approximately 30 miles to the east), statements made by the USGS concerning seawater intrusion at Corral Canyon may be indicative of the situation which could exist at Point Conception. At Corral Canyon, the pumping of groundwater from wells in stream valley alluvium or Monterey shale has not resulted in seawater intrusion although, speculatively, it could if pumping from these aquifers was sufficiently intensive. However, most of the wells at Corral Canyon are farther inland and tap aquifers that are stratigraphically below the Rincon Shale. These aquifers are protected from seawater intrusion by the nearly impermeable Rincon Shale.

Water-source alternatives other than those indicated in the DEIS have not been provided by the applicant. Consequently, a discussion of the effects of alternative proposals is impossible.

### Induced Industrial Development

There is no mention of the potential effects on the environment that might occur should natural gas-related industries (nitrogen fertilizer or chemical plants, for example) choose to locate along the pipeline route. Some discussion on this point would appear to be appropriate.

### Impact on Recreation

The environmental impacts to recreation resources also require additional analysis and quantification at the proposed Point Conception LNG terminal as well as along the pipeline route. It is unclear what the impact of the colder effluent water upon water-based recreation will be.

### Impact on Wildlife

The statement is made that the mule deer population is declining due to the encroachment by humans and destruction of habitat. The impact section, however, does not mention the loss of habitat of mule deer in construction of the pipeline and LNG plant. Only mule deer migration routes are mentioned but, if mule deer populations are already declining because of habitat losses, the loss of 3,400 acres of habitat for the right-of-way could be significant (p. III-104:7,I).

### Impact on Freshwater Species

This paragraph states that the pipeline route will cross 43 rivers, or other water courses, some of which contain anadromous fish species mainly steelhead trout. It is important that anadromous fish streams be identified and that the anadromous species also be identified. The California Department of Game and Fish should have population surveys for most anadromous streams. These figures should be cited (p. III-111,7,b,V).

### Impact on Rare and Endangered Marine Species

It is mentioned that "sea otters are also found in this region." The impact section, however, does not mention the effect of the destruction of kelp beds on sea otters. The California population of sea otter is just beginning a comeback from severe over-harvesting; any destruction of habitat for this creature could be considered a significant impact (p. III-122,7,c,III).

Normally, very little induced industrial development occurs along a gas transmission pipeline right-of-way. For the most part, the proposed pipeline system would traverse undeveloped mountainous and desert regions which would tend to further preclude any extensive development along the pipeline right-of-way.

It would be difficult to assess the impact of the cold water effluent on water-based recreation in the area, particularly since the applicant has not specified the exact location and design of the outfall and the impact is not known. Natural temperature distributions and current patterns would affect the degree of impact on water-oriented sports. It is not believed that a cold water discharge would significantly affect boating, scuba diving, surfing, or swimming.

The environmental staff is of the opinion that the loss of mule deer habitat would be negligible in terms of available habitat. Habitat loss would not be permanent, with the exception of permanent access roads and appurtenances associated with the proposed pipeline. Habitat lost due to pipeline construction would stretch over a long, narrow area further minimizing impact on deer numbers.

The discussion of impacts to freshwater species has been expanded in the FEIS.

A discussion of impacts to sea otters has been added to the discussion of "Impacts to Rare and Endangered Species" in the FEIS.

Birds and Mammals

A statement is made that a certain amount of time will be needed to construct the pipeline. It should be noted that the time of year could be more important in its impact on birds than the total amount of time. If the pipeline is constructed during the breeding season, the impact of construction would be more severe. Since the possibility exists that endangered or sensitive raptors are nesting in the areas adjacent to the construction site, it is recommended that construction be limited to time when there is no nesting observed (p. III-197,7,b,I).

AlternativesNo Action or Postpone Action

The section examining this alternative does not contain a meaningful discussion of the alternative or its impacts (p. III-375). A more realistic examination of gas supply effects on the market area might at least be examined.

We believe it would be appropriate for the final statement to examine an alternative using electric power in lieu of gas for pumping and compressor stations and liquification in Alaska. This would recognize a major potential for conservation of natural gas.

We appreciate the opportunity to review this environmental statement and hope these comments will be of assistance in the preparation of the final statement.

Sincerely yours,



Deputy Assistant Secretary of the Interior

Honorable Richard L. Dunham  
Chairman, Federal Power Commission  
Washington, D.C. 20426

Enclosure

The environmental staff has made recommendations in the FEIS concerning such mitigating measures.

The issues regarding gas supply and market analysis are being treated in the hearings separately by another group within the FPC, and those issues are not discussed in detail in the EIS.

The source of the electrical power for such uses would most likely come from the combustion of natural gas or petroleum products in generating plants. Such energy conversion and the required transmission systems would result in loss of energy potential and cause an increase in energy consumption rather than conservation that is asserted in this comment. The construction of electrical transmission lines would be required, further increasing construction costs and environmental impact. It should be noted that Alyeska is constructing a 135-mile long, natural gas pipeline from Prudhoe Bay to fuel its first four pumping stations.

## Detailed Item Comments

### VOLUME I

#### Page I-6.

- a. The map on "page II-23" of the Department of the Interior DEIS was deleted in the final EIS.
- b. The Department of the Interior final EIS rewording emphasizes the point made under Item b ("Part of producer's").
- c. This schedule has been misinterpreted by FPC; however, the DOI final EIS clarifies and correctly presents the proper schedule as proposed by Arctic Gas.

#### Page I-7.

- d. Seismic sensors in Figure 1.1.5-4 were inadvertently presented in the DEIS. The final EIS has deleted this from the figure.
- e. This was done in the DOI final EIS.
- f. This was done in the DOI final EIS.
- i. This was done in the DOI final EIS.
- k. This was handled in the DOI final EIS by deleting part and rewording part.
- l. This was done in the DOI final EIS.

### Volume I, General Economic Analysis and Comparison of the System

A comparison is made of the relative economic impact of the two proposals. The economic model projections are dependent upon the assumptions used and leave some question as to the reality of these projections. There is also some confusion in the use of descriptive symbols. At one point, for example, M is used for millions, as in MBtu (millions of Btu's), and then shortly afterwards MCF is used which is a standard term for a thousand cubic feet.

#### Page I-78. d. Native Economy

This discussion misses the ramifications of the Alaska Native Claims Settlement Act and the entrance of native corporations into major business enterprises. Some discussion of current native economics as a result of ANCSA should be added.

Page I-89. Selected Social Impacts of Alyeska

We suggest absolute figures for crime and other impacts be provided along with percentages in order to help gauge the magnitude of the problem.

Page I-112. Paragraph 1

The MAP data base covers from Statehood to when?

Page I-197. Paragraph 2

Alyeska currently schedules oil transport to begin July 1977 (not 1978).

Page I-257.

A glossary is not provided for this or any of the 3 FPC volumes.

VOLUME II

Page II-174. b) - Second paragraph - Yukon River Drainage

This paragraph stresses the importance of the salmon and the uniqueness of their 2,000 miles spawning migration. The species involved are important, but they are not mentioned.

Page II-230. Paragraph 4

Anchorage is east of Cook Inlet.

Page II-246.

The Chatanika Campground, a State of Alaska facility, should be added following the Tatlina River Campground.

Page II-249.

The West Fork Recreation Site is in existence so this should be moved back to page 246 between the Livengood and Tolovanna River listings. This campground contains five units.

Page II-254. b) Gravina LNG Site

There is no discussion of the grading required for residential development including possible access roads, sewage facilities, and an airfield.

These have been provided in Table C-1.

Comment accepted.

The Yukon River supports major runs of both king salmon and chum salmon.

We agree. The comment should read as indicated.

We agree. The comment should read as indicated.

We agree. The comment should read as indicated.

Page II-255. a) Resources

This statement is probably incorrect depending on the amount of gas that is made available from the line for metallic mineral processing. Availability of this fuel could mean the difference between no development and development for potential mineral deposits, many miles on each side of the route.

There has been no indication of availability of this natural gas to any area in Alaska, with the possible exception of Fairbanks.

Page II-256. Paragraph 4

As mentioned in the general comments, this is one of the points where more specific discussion is required. The 6.5 million cubic yards of gravel seems to be based on completely new construction of much of the pipeline route - roads, pads, etc. Again, the project should be more closely discussed in relation to the Alyeska project. Pump stations, roads, construction camps, communication systems, etc., probably will be reused; however, this is not discussed.

Page II-271. Paragraph 5

The trans-Alaskan corridor route should be specific enough to discuss areas where additional gravel is likely to be needed. The identification of these needs and specific locations is critical to understanding the cumulative effects of the Alyeska project and the gas line project. For instance, how much gravel will be needed from the Sagavanirktok River which has been heavily used by Alyeska?

According to the most recent information available to the environmental staff, neither sites to be used by the applicant as gravel sources nor potential joint (El Paso and Alyeska) sites have been selected.

Page II-278. Paragraph 2 b) Reduced Dissolved Oxygen

The impact envisioned as a result of water withdrawal is based on the unlikely assumption that the Alaska Department of Fish and Game would authorize such use.

Page II-299. e) Unique Ecosystems, Paragraph 4

There is also an active nesting area near Sagwon which BLM has designated for protection. This site was deemed important enough to require movement of an oil pump station and closing of the airport during the critical nesting period.

The proposed pipeline route is over 1.5 miles west of Sagwon at its closest approach to that town and passes through the foothills on the opposite side of the Sagavanirktok Valley from Sagwon, the airport, and the Alyeska pipeline.

Page II-319. 1. Pipeline System, Paragraph 3

This paragraph is the only place we found in the EIS that related the gas pipeline uses and needs to the Alyeska

construction except for a brief reference to cumulative gravel use impacts. This discussion should be expanded considerably to explain the ability of the gas line to utilize Alyeska construction. As mentioned above, has the possibility of placing the gas pipe on the opposite side of the oil pipeline been considered? Is this feasible? If not, it should be explained.

Page II-366. Last paragraph

The impacts of berm, roads, and field embankments, etc., would remain as permanent features of the landscape indefinitely. Even with complete rehabilitation, certain features and secondary aspects such as vegetation changes will be evident for hundreds of years. Certain impacts are permanent; i.e., tunnels and major earthwork at the LNG site.

Three possible minor errors are noted: (1) "Havaus" should probably be "Havas" (p. II-64, #1); (2) "grye" should be "gyre" in two places on page II-75 (par. 5, lines 2 and 3); and (3) "solarization" should be "polarization" on page III-235, last line.

VOLUME III

Page III-231.

The document should retitle Section III-C.9. as "Land Use and Recreation" to reference clearly the impacts upon recreation and vessels in coastal waters as the result of construction of the proposed 4,600' trestle (p. III-236) and to parallel Section III-B.9. under "Description of the Existing Environment."

Page III-426. Appendix D. Agencies and Their Jurisdictions

The list of Department of the Interior responsibilities provided under the page II-539 comment above should be repeated here, with the possible exception of Item b pertaining to gravel and materials.

It has not yet been determined to what extent El Paso's proposed route would share facilities with the existing Alyeska support facilities. Additional construction camps will undoubtedly be required, but sites have not yet been selected. Tentative locations for El Paso's borrow sites are given in Figures 2 through 35, Section 2A.2, Appendix, Volume IV, of El Paso's application. Final borrow sites have not yet been selected.

The environmental staff agrees that many of the topographical alterations made as a result of pipeline and surface facility construction would be visible for many years after project abandonment.

Comments accepted, where noted.

The revision has been noted in Volume III, Section C.9, in the FEIS.

Comment accepted. Appendix D in Volume III of the DEIS should be changed to reflect these additional USDI responsibilities.



United States Department of the Interior

ALASKA POWER ADMINISTRATION

P. O. BOX 50

JUNEAU, ALASKA 99802

IN REPLY REFER TO:

700

January 12, 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attention BNG-SOD-ALASKA

Dear Mr. Plumb:

The Interior Department's office of Environmental Project Review furnished us review copies of the FPC Draft Environmental Impact Statement on Alaska Natural Gas Transportation Systems.

Our office recently completed an environmental assessment for transmission systems for the proposed Upper Susitna hydroelectric project. Our assessment is a supporting study for the Corps of Engineers project report and environmental impact statement for the Susitna Project.

Some of the alternative gas line routes evaluated in your DEIS are also covered as potential electric power transmission corridors in our environmental assessment. We are enclosing a copy of the assessment for your information (see Section I of the enclosed appendix report of the Corps dated December 12, 1975).

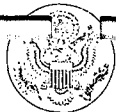
Sincerely yours,

Robert J. Cross  
Acting Administrator

Enclosure



Save Energy and You Serve America!



DEPARTMENT OF STATE

Washington, D.C. 20520

BUREAU OF OCEANS AND INTERNATIONAL  
ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

January 23, 1975

Mr. Richard L. Dunham  
Chairman  
Federal Power Commission  
Washington, D. C. 20426

FEDERAL POWER  
COMMISSION

RECEIVED  
OFFICE OF THE CHAIRMAN  
JAN 23 1 30 PM '75

Dear Mr. Dunham:

I am replying to your letter of January 20 to Mr. Herter, as well as to the Commission's memorandum of November 28, 1975, which circulated the Draft Environmental Impact Statement on the Alaska Natural Gas Transportation Systems.

We have reviewed the draft and find it carefully and well done. There are few areas covered which deal with any issues unique to the Department of State's competence or mandate, and only one on which we would make a comment.

The draft EIS makes an effort to analyze the impacts on marine flora and fauna from the normal operations of the terminal plants in Alaska and California. It also makes an effort to analyze both the risk and potential damage to human life of a major spill at or near the terminal facilities. There appears, however, to be no serious analysis of the potential impacts on marine life resulting from a catastrophe on the high seas, or even in coastal waters (which is presumably more "probable" in view of the heavier traffic there). The Department is not in a position to assess whether or not such potential misfortune would pose a significant threat to the environment. However, in view of the numerous journeys contemplated over a significant stretch of high seas, it would appear to us appropriate to consider the matter more carefully in order to be able to make a sound judgment. We assume that EPA and/or the Coast Guard will address such an issue in more, and more technical, detail.

Sincerely,

Lindsey Grant  
Director  
Office of Environmental Affairs

A discussion of the impact of LNG spills on seabirds, marine mammals, and endangered species was discussed in Volume II, Section C.8 of the DEIS.

The direct impact of a large LNG spill on phytoplankton and zoo plankton would be insignificant on an area basis. Additionally the dead of both groups would be added to the detritus and not lost to the system.

In the proper combination of circumstances, the impact of a large LNG spill could be serious on fish of the epipelagic zone. If, for example, migrating smolt or adult salmon were involved in a spill, a large segment of a year class from one spawning area could be lost. This could have a significant long-term impact.

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

**ALASKAN REGION**  
632 SIXTH AVENUE  
ANCHORAGE, ALASKA 99501  
TELEPHONE 272-8561



December 24, 1975

Secretary  
Federal Power Commission  
Washington, D.C. 20426

ATTN: BNG-SOD-ALASKA

Dear Mr. Secretary:

We have completed our review of Volume II, El Paso Alaska System,  
Draft EIS.

The following comments are offered for your consideration as you prepare  
your Final EIS.

B.-10. Land Use, (Page II-230); The population statistics used in  
this section appear to be from the 1970 census report. In many instances  
there have been significant changes in the population statistics as noted  
by the population data used for FY 1975 State Revenue Sharing (copy  
enclosed). Your population statistics for Fairbanks (14,771) on Page  
II-230 and the data for Fairbanks (45,000) on Page II-237 should be  
correlated.

B.-10(F). Transportation, (Page II-235); We find this section inade-  
quate in its description of the existing airport system. Your reference  
to the Fairbanks Airport and the scheduled air service at Delta Junction,  
Glennallen, Valdez, and Cordova would lead one to suspect that you antici-  
pate no need or requirement for utilization of the Air Transportation  
System serving the northern half of the route of the proposed project.  
We think a closer analysis will show that there will be enough impact to  
require expanding your statement to include a reference to this portion  
of the system.

We suggest that you use another term to describe what you refer to as  
"Bush Aircraft Service" (Page II-236). We are not aware of a standard  
definition of the term and feel that it does not meet your purpose, which  
appears to be to describe a part of the Air Transportation System.

Also, (Page II-236) while Valdez is not connected to southeastern Alaska  
by other than the Marine Highway System, the Richardson and Glenn Highways  
provide highway connection and vehicle access to the Alaska Highway and  
the lower 48 states.

The population figure for Fairbanks is 14,771. This comment  
should read, "Fairbanks, the second largest city in the state  
has all of the facilities one would expect in a medium-size  
city." The U.S. Bureau of the Census reported that the State  
Revenue Sharing figures are estimates and that a Special State  
Census is scheduled for September 1976.

The sentence on Page II-236 should read, "Although Alaska is  
noted for limited scheduled general aviation service (better  
known as bush pilot aircraft service in Alaska), scheduled air  
service is available at Delta Junction, Glennallen, Valdez,  
Cordova, Prudhoe Bay and about 12 other places."

The paragraph on Page II-236 should read, "Valdez and Cordova  
are on the Alaska Marine Highway System, but not directly connect-  
ed to Southeastern Alaska or the lower 48 states. Valdez is  
connected with the Alaska Highway System by the Richardson High-  
way. Cordova, however, is more isolated and must utilize the  
Marine Highway System in order to benefit from other roads of  
the Alaska Highways."

We also find that your chapter on Environmental Impact of the proposed project has not provided any insight into any potential impact on the Air Transportation System or land use, resulting from establishment and use of aviation facilities. Considering that you are planning for the establishment of fifty helipads as a part of the project and three construction camps north of 66° north latitude, there would appear to be some potential impact. The managers of the Transalaska Oil Pipeline project transport all personnel destined for locations north of the five mile camp by air.

We also find that this section has not provided any insight into potential impact on the State Highway System. Recent disclosures have told of the large sums of money that will be required to restore the highway surface at the end of the oil pipeline project. We feel that this subject should also be reviewed in your statement.

Thank you for the opportunity to review and comment on your Draft EIS.

Sincerely,

  
WILLIAM T. MULLALY  
Chief, Planning Staff

Enclosure

See Vol. I, Section B.3; also, land use impacts for the El Paso proposal are identified in Vol. II, Section C 10. Land use impacts associated with air transportation system would be similar to that at present plus the Alyeska project. The use of 50 private helipads would be insignificant in the total transportation system in Alaska.

See Vol. I, Section B.3 and Vol. II, Section C.10; also, the State Highway System is funded by the road-user in the form of state and Federal gasoline taxes. In addition, it is currently contemplated that the haul road will be given to the state after completion of the construction period.

	<u>POPULATION</u>	<u>ESTIMATED SQ. MILES</u>	<u>INCORPORATION DATE</u>
City and Borough of Juneau	17,356	3,100	July 1, 1970
City and Borough of Sitka	6,700	2,900	December 2, 1971

**CLASSIFICATION**

<u>CLASSIFICATION</u>	<u>*POPULATION</u>	<u>ESTIMATED SQ. MILES</u>	<u>INCORPORATION DATE</u>
<u>None Rule</u>			
North Slope Borough	4,498	89,281	July 1, 1972
<u>Second Class</u>			
Barstow Bay Borough	1,247	1,200	October 3, 1962
Chigik-Taga River Borough	5,083	700	September 17, 1964
Chukchi Sound Biat Borough	50,317	700	January 7, 1974
Greater Anchorage Area Borough	134,416	430	January 1, 1974
Kenai Peninsula Borough	25,000	2,000	January 1, 1964
Ketchikan Gateway Borough	10,387	1,230	September 6, 1963
Kodiak Island Borough	16,679**	1,900	December 30, 1963
Ketchikan-Buaine Borough	9,600	2,300	January 1, 1964
<u>Third Class</u>			
Palmer Borough	1,980***	2,200	August 23, 1968

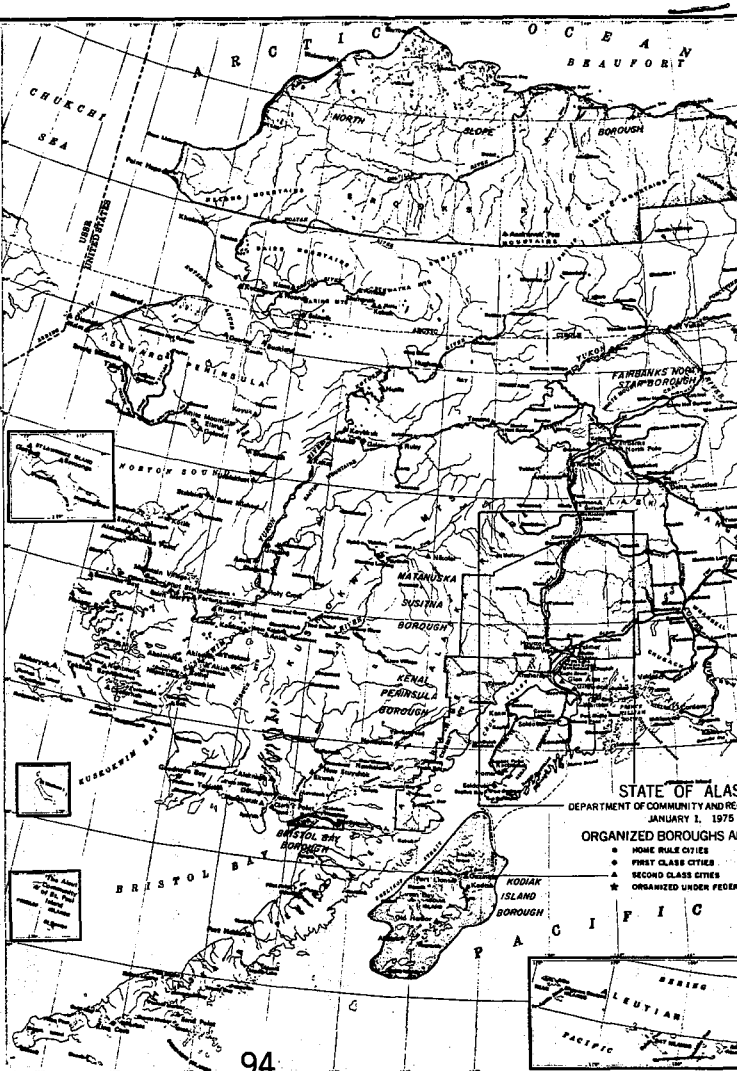
Third Class

Borough	1980**	2,200	August 29, 1968
Fairbanks North Star Borough	1,980***	2,200	August 29, 1968

\*Portions of Fort Wainwright have been annexed to the City of Fairbanks, Elson Air Force Base is excluded from the Fairbanks North Star Borough.

\*\*Excluding residents of Kodiak Naval Station (base proper).

\*\*\*Excluding residents of the Klukwan Indian Reservation and Petroleum Distribution office,aines Terminal and Pumping Station (base proper).

[illegible]

FEDPWRCOMM WSH

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PMS SECRETARY FEDERAL POWER COMMISSION  
WASHDC 20426  
RE DOCKET NUMBERS CP75-96 ET AL I WISH TO COMMENT  
UPON THE DRAFT IN ENVIRONMENTAL IMPACT STATEMENT  
I JOINED PRICE WILLIAM SOUND AQUACULTURE CORPORATION,  
CITY OF CORDOVA, CORDOVA CHAMBER OF COMMERCE, EVAK  
CORPORATION, CHUGACH NATIVES INC., AND OTHER PRINCE WILLIAM  
SOUND ENTITIES AND INDIVIDUALS TO URGE FPC APPROVAL  
OF THE GRAVINA POINT TERMINUS AND LNC PLANT SITE.  
THE CORDOVA AREA LIES WITHIN MY STATE SENATE  
DISTRICT. WHILE THE DRAFT ENVIRONMENTAL IMPACT STATEMENT  
PURPORTS TO SPEAK TO SOCIO-ECONOMIC INTERESTS OF CORDOVA  
RESIDENTS, INCLUDING FISHERMEN AND NATIVES, THE FACT IS

THAT THE GRAVINA POINT SITE HAS BROAD LOCAL SUPPORT.  
THE EVAK CORPORATION, FOR EXAMPLE, A NATIVE VILLAGE  
CORPORATION ORGANIZED UNDER THE ALASKA NATIVE CLAIMS  
SETTLEMENT ACT, IS ON RECORD AS FAVORING THE GRAVINA  
POINT TERMINUS, WHICH LIES WITHIN ACREAGE THAT NATIVE  
CORPORATION HAS SELECTED UNDER THE ACT. THE NATIVE  
REGIONAL CORPORATION, CHUGACH, INC. ALSO SUPPORTS THE  
GRAVINA POINT SITE, CORDOVA FISHERMEN, WHO ARE NOW  
WORKING IN A DISTRESSED ECONOMY, DID OPPOSE THE  
TRANS-ALASKA OIL PIPELINE VIGOROUSLY OUT OF CONCERN  
FOR EFFECTS UPON PRINCE WILLIAM SOUND. BUT THEY SUPPORT  
THE GAS ROUTE PROPOSED BY EL PASO ALASKA TERMINATING  
AT GRAVINA POINT. THEY KNOW THAT THE SHIPMENT OF LIQUIFIED  
GAS INVOLVES NO SIMILAR RISKS TO THE ECOLOGY OF THE

SOUND AND THEY HAVE EXPRESSED SUPPORT FOR THE GRAVINA  
POINT TERMINUS WHICH CAN HELP DIVERSIFY THE CORDOVA  
ECONOMY ON A SOUND AND PERMANENT BASIS. IN ADDITION,  
THEY LOOK FORWARD TO THE POSITIVE EFFECTS THAT A NEW  
LOCAL ENERGY SOURCE CAN MEAN IN CORDOVA. WE ALASKANS  
OFTEN SEE REPORTS WHICH REACH CONCLUSIONS ABOUT  
FISHERY INTERESTS, NATIVE CULTURE AND OUR WISHES  
WHICH WERE APPARENTLY WRITTEN WITHOUT CONSULTING ALASKANS.  
THE DRAFT ENVIRONMENTAL IMPACT STATEMENT APPEARS TO SUFFER  
FROM THIS SERIOUS DEFECT IN SO FAR AS CORDOVA IS CONCERNED.

JALMAR KERTULA MAJORITY LEADER CHAIRMAN SENATE COMMERCE  
COMMITTEE ALASKA STATE SENATE JUNEAU

0523 EST

FEDPWRCOMM WSH

## CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION

1540 MARKET STREET, 2nd FLOOR  
SAN FRANCISCO, CALIFORNIA 94102  
PHONE: (415) 397-1001

POWER COMMISSION

JAN 17 1978

RECEIVED  
OFFICE OF THE  
SECRETARY

Robert Arvedlund  
Environmental Impact Statement Project Director  
Federal Power Commission  
825 North Capitol Street  
Room 7103  
Washington, D.C. 20426

Re: California Coastal Zone Conserva-  
tion Commission Staff Comments on  
FPC Alaska Natural Gas Transporta-  
tion Systems Draft Environmental  
Impact Statement

Dear Mr. Arvedlund:

The comments presented herein represent the views of the Coastal Commission staff only. The State and Regional Coastal Commissions are made up of part-time Commissioners, and meet only twice monthly. The pressures of ongoing coastal permit review proceedings and completion of the coastal planning program have precluded actual Commission review of the Draft EIS. Therefore, the California Coastal Commission's formal position on the siting of LNG marine terminals and regasification plants along the California coastline must remain that presented directly in, or inferable from, the California Coastal Plan, copies of which have already been forwarded to your office.

Within the Coastal Plan, the following headings and accompanying findings and policies should be given particular attention as bearing most directly on the selection and design of LNG facilities sites:

LNG Facilities, pp. 137-138  
Heated and Cooled Discharges, pp. 33-34  
Sand Movement and Shoreline Structures, pp. 43-45  
Agriculture, pp. 54-61 (with particular reference to future land use  
in Ventura County)  
Protecting Visual Resources, pp. 69-75  
Orderly, Balanced Development, pp. 79-83  
Recreation, pp. 158-166

In addition, please refer to the following Plan Maps, Map Notes, and Supplemental Notes (Color Legend for maps is immediately inside the back cover of the volume):

Plan Map 39, pp. 370-371  
43, pp. 378-379  
58, pp. 412-413

To further keep you abreast of current developments in the California coastal planning and management program, I am sending under separate cover materials our

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staff has prepared regarding proposed areas for acquisition by the State in the Mandalay, Ormond Beach, and San Onofre locations suggested for possible LNG facility siting. The Coastal Commission hearing on those proposals will be held next week.

Reservations About Commenting on Draft EIS at This Time

The principal concern of the Coastal Commission and staff in reviewing the Draft EIS for the entire Alaskan gas transportation system centers on Volume III, Western LNG Point Conception Terminal. The staff objects, however, to having to comment on the conclusions and recommendations of this EIS prior to the availability of the site specific Draft EIS's that will shortly be forthcoming on the proposed Los Angeles and Oxnard LNG sites. Although this Draft EIS does, for the most part, identify and discuss the potential impacts caused by siting an LNG facility at Point Conception, equal attention is not given to the Oxnard site alternative, which the FPC staff recommends as the preferred alternative, the Los Angeles site, which the FPC staff dismisses from further consideration on the basis of seismicity factors, or the San Onofre and Mandalay sites, which the FPC staff accords a higher preference rating than the Point Conception site.

Since full analysis of the Oxnard and Los Angeles sites will presumably appear in the separate EIS's soon to be released specifically on Western LNG's applications at those sites, our staff feels the proper time to comment on the overall FPC staff recommendations and conclusions as to the best southern terminals for the El Paso proposed system, and on the relative merits of the El Paso proposal and the Arctic Gas proposal, is after having reviewed those Draft EIS's together with Volume III of this EIS.

Accordingly, our staff comments will be limited to the subject of the adequacy of the Draft EIS's treatment of various issues or site features.

Primacy of the Safety Issue

The Coastal Commission's adopted Coastal Plan policy on the siting of LNG terminal facilities includes the following language regarding safety: "Until the risks inherent in LNG terminal operations can be sufficiently identified and overcome and such terminals are found to be consistent with the health and safety of nearby human populations, terminals shall be built only at sites remote from human population concentrations. Because of the public safety concerns and the goal of protecting against unnecessary development in a remote, pristine area, other development in the vicinity of such an LNG terminal shall be prohibited. At such time as LNG marine terminal operations are found consistent with public safety, terminal sites in developed or industrialized port areas may be approved." This policy was known to the FPC staff during their preparations of the Draft EIS, and is accurately quoted in the document.

The Coastal Commission did not adopt its policy so heavily emphasizing the public safety issue without lengthy deliberation. The Coastal Commission staff did not perform its own safety analysis, or have a safety risk analysis performed at its behest. Rather, the staff reviewed the available literature on the safety question, and interviewed experts both within and outside of industry, and made the follow-

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ing observations:

- (a) the "worst case" accident scenarios postulated in the available literature involve a greater release of energy than might occur in a major accident in any industrial activity with which LNG operations are typically analogized. (A fully loaded 165,000 cubic meter LNG carrier has the equivalent of 3.61 billion cu. ft. of vaporized natural gas in its tanks. As a point of comparison, the peak day winter season firm requirement for gas in all of Southern California in 1973-4 was an estimated 4.7 billion cubic feet.);
- (b) the "worst case" accident scenarios postulated present the potential for severe conflagration or explosion in populated areas away from the immediate site of the accident due to the physical properties of LNG and LNG vapor plumes, and involve a potential for severe harm to people or property at some distance from such an accident site through radiation;
- (c) there is very substantial disagreement among experts who have studied LNG transportation operations and related risks as to the degree of risk accompanying such operations. There is disagreement in particular as to what model best describes LNG vapor plume dispersion, the probability factor to be assigned to ignition of the plume prior to its drifting over proximate population, and the downwind flammability limits. (See, for example, Jaquette, D.L., Possibilities and Probabilities in Assessment of the Hazards of the Importation of Liquefied Natural Gas, The Rand Corporation, P-5411, April, 1975, and Murray, F.W., Atmospheric Dispersion of Vaporized Liquefied Natural Gas, The Rand Corporation, P-5360, February, 1975, for discussions of the areas of disagreement among study conclusions.)
- (d) although there has not been an instance of major accident involving LNG marine transportation, the history of such operations is still relatively short; and such history as does exist is based on operations using considerably smaller LNG vessels and involving far less frequent port visits than presently planned for the West Coast LNG terminals.
- (e) neither the natural gas industry nor the appropriate federal regulatory authorities have thus far acknowledged any need for Vessel Traffic Systems or for other extraordinary navigational safety measures at any of the proposed California LNG terminal facilities in order to insure an extra measure of safety in LNG terminal operations; and this is true notwithstanding the inclusion of a Vessel Traffic System among the risk reduction factors in the FPC risk analysis model used to find the risk level at developed California terminal sites acceptable (See page III-407 et seq.; the Draft EIS should candidly acknowledge that although the Coast Guard is indeed developing VTS systems for U.S. harbors, Southern California ports are far down the prioritized list of

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parts scheduled to receive such a system, and with the exception of Los Angeles /Long Beach harbors, the other FPC staff preferred LNG terminal sites are almost certainly not listed at all.)

In reviewing these observations, the Coastal Commission and staff developed a strong sense that if the nature and degree of risks are as subject to dispute as they indeed are; if the "worst case" accident is indeed as severe as described; and if there are feasible siting alternatives that can altogether avoid the possibility of a disaster that could cause substantial loss of life, then prudence requires protection of the public safety, even at a substantially greater cost in dollars and in adverse environmental impacts, by selection of a terminal site away from population concentrations.

If at some point the safety issue can be removed, whether through fuller evaluation of the safety problem and successful resolution of the stark discrepancies among risk study conclusions, operational experience at remote sites or in developed ports in other parts of the world on a scale comparable to what is proposed for California, or improved design and operational standards, then the fundamental siting strategy preferred by the Coastal Commission would shift. Siting would be based on minimum adverse impacts to the natural environment, minimum adverse socioeconomic impacts, maximum protection of coastal zone resources, avoidance of severe seismic safety risk, and so forth.

The Coastal Commission staff feels strongly that since the safety issue is paramount, since the preoccupation with safety skews facility siting strategy, and since discrepancies in risk analysis conclusions are causing great confusion among public policy makers, it is incumbent on the FPC staff in this Draft EIS to contribute to the resolution of the conflict among experts, and not to add further to the problem by inadequate treatment of the safety issue.

Adequate treatment of the safety issue would include at least the following:

- (a) a fuller justification for the model used, and for the assumptions of probabilities assigned to each factor (e.g. how large the sample data set, how reliable the data); discussion as to whether the products that are identified are indeed independent, and as to the reliability of the assumption of independence; a fuller exposition of uncertainty values, so that the values are based on something more than "general familiarity with these factors" (Page III-416), wholly unsupported by detailed statistical analysis of the data.
- (b) a thorough analysis of the strengths and weaknesses of the models used in studies reaching different conclusions; a comparison of assumptions, uncertainty values, etc., used in studies reaching different conclusions; a complete defense of the FPC staff methodology and model.
- (c) a risk analysis of several events such as the collision of two

The environmental staff appreciates your problem and has spent considerable research effort studying expert opinions and conclusions. Our experience is that most so-called experts have been hired to present a point of view shared by their client and are not unbiased. Only by your independent analysis will you be able to judge the bias of such opinions. An EIS is not the vehicle for weighing all opinions and comparing all risk models that exist. Instead, FPC is charged with presenting its independent analysis and its conclusions.

Staff disagrees that their treatment of the safety issue is inadequate. Specifically:

- (a) The reliability of the data is unknown, and the uncertainties are unknown also.
- (b) EIS is not a vehicle for weighing all opinions. Staff will defend its work in hearings.
- (c) Such collisions are not relevant to LNG, and the EIS does not speculate on what might have happened had LNG been involved. It is possible that if LNG had been involved, these accidents would not have happened because of the greater care taken to observe the safety precautions.

oil tankers beneath the Golden Gate Bridge; the vessel collision in Tokyo Harbor involving an LPG carrier and resulting in large fire; the ramming of an offshore oil platform by an oil tanker in the Gulf of Mexico (1975); the recent near-collision in midair of two loaded jumbo jetliners, given air traffic programming, radar systems, and ground-to-air traffic monitoring and communication; the recent accidental release of chlorine gas in the Los Angeles area. In examining the statistical probability of any of the in-harbor oil tanker collisions, the discussion should continue on to consider what might have happened had one of the vessels involved been an LNG carrier rather than an oil tanker.

- (d) an analysis of measures society now takes through public policy formulation to minimize or altogether eliminate risk to human life, such as test-firing of missiles over oceans or deserted areas; removal of major airports from crowded downtown areas, and designation of approach routes over water where possible; setting of strict seismicity siting and design criteria for nuclear fission power plants; setting of highway speed limits; and comparison of the remote siting strategy for LNG facilities.

In conclusion, the Coastal Commission staff does not feel that the Draft EIS has sufficiently dealt with the safety issue to justify having dismissed safety concerns as the principal factor in its site evaluation.

#### Relationship Between LNG Proposals and Other California Coastal Energy Development

The Draft EIS does not place the proposed LNG activities along the California coastline in the context of other pressures for energy-related development along the coast. Of greatest significance in this regard are (a) the planned Alaskan oil tanker traffic presently programmed for the Port of Long Beach, which will add substantially to vessel traffic along the same routes planned for LNG traffic; and (b) offshore oil development in the Santa Barbara Channel and in the Southern California Borderlands area. New development in the Santa Barbara Channel may result in as many as 10-21 new platforms, additional service vessel traffic, and additional oil tankering and barging; further exploratory drilling in the Channel will create further hazards. Some of the leases programmed for exploratory activities lie either within or between the Channel shipping lanes. In the Southern California Borderlands area, the leases thought most promising lie directly outside the mouth of San Pedro Harbor; lease development will have to be carefully coordinated with vessel traffic planning. The FPC should present its consideration of navigational routes and navigational aid systems within this expanded context. This is of particular importance if Oxnard is chosen as the terminal site and the intent is to route the LNG vessels through the Santa Barbara Channel.

The Draft EIS presents evidence that an LNG facility will substantially add to electric power requirements in the South Central and South Coast areas. The same is true for at least some of the offshore oil development now moving forward. The Draft EIS should reflect an awareness of the aggregate impacts of

- (d) There is no way to eliminate risk to human life from human activities. An EIS on LNG is not a vehicle for analyzing public policy with regard to missiles, airports, nuclear power plants, or speed limits compared with LNG. Each subject has its own unique, characteristic hazards and mitigating measures. Staff feels that the only meaningful comparison for the public is with everyday risks such as those shown in Appendix C, Table 5 of the FPC FEIS, and that the most meaningful quantity for comparison is probability of fatality per person per year, as discussed in Appendix C. Staff cannot analyze all California risks for the Coastal Zone Commission. That is their job.

The maintenance of navigational safety along the coast is the responsibility of the U. S. Coast Guard, which does a good job of maintaining it in the face of increasing coastal marine traffic. If the Coastal Zone Commission is genuinely concerned with excessive marine traffic concentration, then Point Conception would be the logical choice for an LNG terminal. This is also consistent with their stated policy that "terminals shall be built only at sites remote from human population concentrations." Oxnard is not a choice consistent with that policy. Also if oil is to arrive by tanker from Alaska, perhaps all those offshore oil platforms with their traffic are not necessary.

electric power requirements growth along the coast related to coastal energy development, and identify the potential for joint planning. For example, offshore development of the Santa Ynez Unit by Exxon directly offshore of the Pt. Conception LNG terminal site will require construction of an electricity substation that could also serve the LNG plant requirements.

1

Vessel Traffic and Navigational Safety

Volume II, p. II-358 says, "The navigation systems would be used in conjunction with land-based radar targets in the Prince William Sound Vessel Traffic System and along the proposed tanker route to California." Where are these land-based radar units to be located? Are there any in California planned?

2

If an LNG terminal is built in California to receive Alaskan LNG, will the terminal also service foreign LNG vessels from supply sources other than Alaska?

3

Page II-362 notes that the Ports and Waterways Safety Act of 1972 gives the Coast Guard responsibility to set the standards of design, construction, operation, and maintenance of LNG tankers. Has the Coast Guard done so? If so, when? Citation to Federal Register? The Draft EIS would be more complete with some discussion of what the Coast Guard has promulgated in this regard?

4

See numbered responses on following page.

What are the guarantees that the new LNG carriers described in the Draft EIS are the only ones that will be used in the Alaska-California trade if the El Paso projects obtains approval?

5

What are the stopping and turning performance capabilities of the largest new LNG carriers planned for use in this trade?

6

Are there visibility conditions at Point Conception, or in the eastern end of the Santa Barbara Channel (for the Oxnard site) which would preclude an LNG carrier from proceeding or from putting into port? If so, what would be the procedure followed by the vessel during the shut-down period?

7

In discussion of the possible use of the Oxnard or L.A. sites, full discussion should be given to the need for Vessel Traffic Systems for the Santa Barbara Channel and San Pedro Harbor. In evaluating all of the California sites from L.A. north, fuller discussion is required of the procedures for southbound, loaded LNG carriers crossing the northbound shipping lanes to put in.

8

9

Requirement for Only One LNG Terminal

At pages III-354, 355, the Draft EIS presents, in the "Conclusions" section, a very brief discussion about the sufficiency of one LNG terminal for handling the LNG anticipated at this time from the El Paso, Pacific Alaska, and Pacific Indonesia projects, and concludes that one terminal can indeed accommodate those three projects. The Coastal Commission staff agrees with that finding. The Coastal Plan policy quoted at page III-355 does, however, admit of the possibility ;

1. As stated in Section C.12 in Volume III of the DEIS, no expansion of generating capacity would be required for this project. Insufficient information is available to determine possible joint uses of electrical facilities.
2. A LORAN-C system for navigational position fixing is presently being installed by the Coast Guard and will serve the Pacific Coast from Baja California to the Gulf of Alaska. The LORAN-C system has a longer range and much greater accuracy than the existing LORAN-A system and will be operational in 1977.
3. Under the staff's proposal for a single combined LNG terminal, LNG from Indonesia would be unloaded at the LNG terminal.
4. The basic regulatory requirements for the design, construction, and testing of LNG tankers can be found in 46 CFR Subchapter D, Part 38, and various other subchapters of 46 CFR which apply to commercial vessel safety. In addition, the U.S. Coast Guard participated in the development of the IMCO Gas Code which was formally adopted internationally in November 1975 and which will basically apply to all LNG tankers for which the building contract is placed after October 31, 1976. The Coast Guard is presently writing new regulations which will apply to LNG tankers; such regulations will be very similar to those in the IMCO Gas Code and will be included into 46 CFR in Part 154. The new regulations are expected to be included in 46 CFR in the fall of 1976.
5. As stated in the DEIS, the proposed project calls for all new ships of the 125,000- to 165,000-cubic meter capacity range. If other vessels were utilized, of foreign or U.S. registry or design, such vessels would be required to comply with the appropriate U.S. Coast Guard regulations.
6. The stopping distance of the 165,000-cubic meter LNG tankers would be 1,760 feet at 6 knots and 10,270 feet at the service speed of 18.5 knots. The turning circle diameter at 6 knots, which is the maneuvering speed of the tankers, is expected to be on the order of  $2\frac{1}{2}$  times the length of the tanker; however, since the LNG tankers would be much longer than most tankers yet also have a larger rudder angle, this number is approximate.
7. It is expected that only severely reduced visibility conditions could result in the LNG tankers not being able to dock safely. It is possible that the U.S. Coast Guard would establish limits relative to the degree of visibility necessary for berthing. If low visibility conditions were present at the time of docking, the tankers would be required to maneuver more slowly, and it is possible that they would be under tugboat assistance for greater distances from the berth than would normally occur in clear weather. If berthing was not possible for any reason, an LNG tanker could legally anchor outside the 3-mile limit or an anchorage area could be established by the Coast Guard.
8. The Coast Guard would determine the need and/or requirements for a VTS system for the Santa Barbara Channel and San Pedro Harbor.
9. The LNG tankers proceeding to Point Conception would never enter the Santa Barbara Channel vessel traffic lanes. The procedures for LNG tankers to cross the northbound lanes in order to approach the Oxnard site will be discussed in the DEIS on Oxnard.

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that system security of supply considerations may at some point justify the need for two terminal sites. Under some supply scenarios, Southern California could become dependent on LNG for a very substantial percentage of its total gas requirement. A major malfunction at the single point of entry for LNG supply could make California largely dependent for some period of time on stored reserves.

We recommend that this topic be treated much more fully in the body of the report, rather than be tossed off in the Conclusions section.

Security Against Sabotage

The problem of providing security against sabotage or acts of terrorism is one that has been persistently, if quietly, raised in recent months as LNG projects have become a more significant part of the national energy supply strategy. Although for understandable reasons the problem may be given a low profile in public documents and debate, and the possible security measures may be best left unpublicized, it would seem irresponsible not to involve State and local policy makers in discussions that do address the problem. The Coastal Commission staff suggests, too, that some effort be made to structure this consideration into the safety risk analyses done for LNG operations.

Secondary Impacts in California

Much of the potential socioeconomic impact associated with siting the LNG terminal at Pt. Conception is well described. Some topics that might be given further treatment include the problems that might result in Santa Barbara County upon the sudden termination of construction activities associated with the Pt. Conception facilities and the pipeline; discussion of whether there will be any adverse environmental impacts from local sand and gravel operations supplying the enormous quantities of concrete for the LNG plant; identification of places of manufacture of pipeline and LNG plant sub-assemblies, and the employment impacts of such off-site activities, if any, in California; discussion of whether availability of LNG in large volumes from Alaska, together with the quantities of Alaskan oil arriving on the West Coast, might stimulate growth of additional petrochemical industry in California.

Does the FPC staff foresee the opening of an LNG terminal in Southern California leading to pressure to develop an LNG terminal in San Francisco Bay so that Northern California might also take advantage of the availability of LNG shipments?

Seawater Exchange Systems

In its comparative site analysis, the FPC staff places a premium on the potential of a prospective LNG vaporization plant to exchange seawater thermal differentials with an adjacent power plant, but never discusses at all the feasibility of such arrangements, the potential problems, the exchange system design (single pass? closed cycle?), the overall reduction in mortality to marine life, the need for a full-size back-up system for each plant in the event of down time, the overall system economics, etc. The Coastal Plan recommends that LNG plants be required to use other industrial plant heated effluent "where feasible". Our staff had

Comment reflected in Section H-2 of Volume III of the FEIS.

In the risk model this factor would enter as an increased probability of an accident. In general, physical security is the responsibility of the ship or plant operators. Staff agrees that it is important, but no more so than security of the Alaska oil and gas pipelines themselves. The oil line from Prudhoe Bay passes over the Yukon River on a bridge. El Paso proposes to use this bridge for the gas line also. If these lines are looped for increased flows, then there could be as many as four big lines exposed together. This exposed "jugular vein" will be an attractive target for sabotage, and has been used an argument for having the gas line elsewhere -- through Canada, for example.

These topics are beyond the scope of this impact statement.

While the environmental staff is aware that thought has been given to a San Francisco LNG terminal, no actual suggestion of this is presently known to exist.

For purposes of analyzing alternative LNG sites, it was assumed that if an adjacent power plant existed with sufficient volumes of heated water, then it was further assumed that the particular arrangements were feasible. The basic guideline used was that if cool water were mixed with existing heated water effluent, the resulting environmental impact would be less than that caused by the heated effluent alone. Other than this, a quantitative approach was beyond the scope of the site selection analysis.

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hoped that the Draft EIS's discussion of this siting criterion would shed more light on the feasibility of this possible mitigation strategy. Has this type of seawater exchange been contemplated at LNG sites on the East Coast? in Japan? elsewhere?

Effects of Cooled Water Discharge

The Coastal Commission staff supports the FPC staff's observation that, with all the pressure to construct these LNG facilities using seawater as the base load vaporization heat source, the investigation needed to determine the possible impact of the cooled water discharge on marine life, and techniques for mitigation of any such effects, has simply not been done. Without such work, marine impact assessment related to seawater vaporization is speculative.

Intake and Outfall Systems for Seawater Vaporization Systems

At pages III-204-6, the Draft EIS discusses the impacts on marine life of the LNG terminal operation. The Draft EIS seems to identify the fish return system as the principal mitigating measure to minimize entrainment. No fish return system, however, has ever been demonstrated to be effective. Small or juvenile fish would have the least chance to survive because they would tire trying to swim against the current; adult fish would likely be more successful.

Of greater importance than a fish return system may be the use of velocity caps on the intake port, and the location of the intake port in less productive deeper water offshore. Location and design of the intake port, including traveling screens, should be based upon careful studies of marine organism distribution in the offshore waters.

The failure to include specific information on the design, location, and construction procedures aspects of the seawater intake-outfall system, acknowledged by the FPC staff at page III-203, is inexcusable. Such information should be included for each of the preferred sites in the Final EIS.

Pt. Conception Site

Generally, the Coastal Commission staff concurs in the Draft EIS's findings regarding the probable impacts of constructing and operating the LNG terminal at Pt. Conception. Were it not for the acute concern regarding the public safety aspects of LNG terminal operation, Point Conception would be among the last places along the coast the staff would consider siting a major industrial facility, for reasons that include major intrusion of a large-scale industrial facility into an undeveloped area, with threatened induced change in land use of a much larger area than the mere plant site; plant construction impacts, including road widening, traffic, noise, dust, destruction of marine and terrestrial organisms and habitats, and the potential for a small boom-bust cycle

Although it has probably been contemplated, no such exchange system is presently proposed or operational.

The environmental staff's recommendation in the DEIS concerning the applicant's proposal for an entrainment system was made specifically because of anticipated impacts associated with such a system. The system was recommended because it is the most effective system for reducing entrainment impacts with which the environmental staff is familiar.

The applicant has indicated that the design of the proposed intake and outfall system would be based on the results of a 2-year oceanographic study. Consequently, the environmental staff has recommended that prior to the start of any construction, the results of the oceanographic study and the detailed design features of the vaporization system be submitted to the Commission for review.

The long list of reasons for not choosing Point Conception appears to indicate that the concern for safety provided by a remote site is not overly strong among the Coastal Zone Commission staff. Also, the scenic beauty of Prince William Sound, Alaska, is striking and worth preserving, but El Paso chose Port Gravina nevertheless. It is the FPC staff that does not favor these two terminals, scenic beauty being one of the strong reasons in both cases. The Coastal Zone Commission apparently cares little if Alaska beauty is despoiled by the LNG industry.

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in Santa Barbara County; pre-emption of a section of the coastline presently used by recreational boaters, commercial fishermen, kelp harvesters, and surfers; destruction of the scenic beauty of a substantial stretch of coastline; undue stress on such municipal services as freshwater supply and electricity supply, among others.

The Draft EIS covers these concerns, for the most part. There are some aspects of the Pt. Conception description that could stand further elaboration. Some of them have already been touched on in discussion above as being deficiencies in the discussion generally. Others are mentioned briefly now.

There is periodic mention throughout the Pt. Conception discussion of the desalination unit. The EIS does not, however, describe the function of this unit, its sponsor, its size, its capacity, etc. At page 220, Vol II, the EIS indicates that the desalination facility can provide for the freshwater for water and sewage operations at the plant. This is reiterated at III-247; but at III-248, the EIS says, "Western LNG has not determined what sources of freshwater are available to meet the water requirements for construction and for normal operations of the LNG terminal." Is this referring to operational needs other than the domestic water supply and sewage needs earlier said to be accounted for by the desalination facility? If not, then what needs are referred to? for what, and in what quantity? (There is a similar reference at Page III-172.)

At page III-174, the Draft EIS notes briefly, "The breakwater and the marine trestle would alter the existing pattern of longshore sediment transport. Possible effects include increased deposition to the west of the facilities and a decrease in sediment supply to the east. This would result in erosion of beaches to the east toward Santa Barbara." Thereafter, the topic does not surface again in the EIS. There are ways of designing to minimize the interference with sand transport by trestles, breakwaters, etc.; and such measures should be required as mitigation, whether the LNG facility is at Pt. Conception, Oxnard, or elsewhere where a trestle and breakwater are required. See Coastal Plan Policy 19, p.44. This should be dealt with at pp. III-265, 266 of the D-EIS.

At page III-178, the EIS indicates that in the event of tsunami, "...the marine terminal would be vulnerable to wave forces," without time to warn or to remove a docked vessel to a safe distance before the wave arrived. Well, what result?

At page III-222: how many workers for the Pt. Conception to Arvin pipeline?

At page III-247: what percentage of the county daily water requirement do the construction period freshwater requirements at the plant site amount to?

At pp. III-269, 270: it is never quite made clear how the LNG vessels get to the landward side of the northbound shipping traffic. With regard to the proposed approach to the terminal, and the use of LORAN-C and the LORAN tower, has that been proposed by the applicant or the Coast Guard?

Drake

It would appear that this site has even less to recommend it than Pt. Conception.

1. The desalinization unit is no longer proposed by the applicant.
  - a) The first sentence in the last paragraph of Page III-8 should be changed to read:  
  
"Water for domestic and sanitary use would be supplied at a rate of 42,000 gallons per minute from either onsite wells or via a pipeline from an outside source."
  - b) The reference to water supply on Page III-172 is correctly stated.
  - c) In the sections on "Socioeconomic Impacts" and "Impacts on Local Utilities" the discussion of water supply has been changed to reflect removal of the desalinization unit.
2. The environmental staff has made a comment in the FEIS concerning this subject.
3. On Page III-179 it was indicated that a 100-year wave is expected to be 6.2 feet high or less. The LNG tanker berth would be designed to withstand waves with a significant wave height of 4 to 6 feet while an LNG tanker was berthed. It is not expected that major damage would occur to either the LNG tanker or the berth if such a 100-year tsunami hit an LNG tanker at the dock; however, some damage would probably occur to the outer hull or the fendering system.
4. Comment reflected in the "Socioeconomic Impacts" section of the FEIS. In addition, see Page III-223 of the DEIS.
5. Daily water requirements during construction phases may vary so widely that using an average daily requirement may be misleading and has been eliminated from the discussion.
6. The LNG tankers would pass from a point 15 miles west of Point Arguello to a point 4 miles west of Point Arguello in an easterly direction at which time they would turn southeast along the coast toward Point Conception.
7. The LORAN-C system is being installed by the Coast Guard. The LORAN-A tower at Point Arguello will be removed in 1979 when all ships will have LORAN-C capability.

Mandalay

Among other things, the proposed site appears to conflict with current State acquisition proposals. Refer to materials sent under separate cover, and to Coastal Plan Map 43. The Mandalay Steam Generating Station is considered a minor siting travesty; it's life should not be further extended by linking it in a mutual dependency relationship with a new base load LNG terminal through a seawater exchange system.

Oxnard

Most comment will be reserved until the site specific Draft-EIS on the Oxnard site has been published. Many of the concerns our staff will likely have about the site were raised by the non-site specific comments hereinabove at pp. 1-8, or by the comments about the Pt. Conception site.

A general comment about the future land use in the Oxnard Plain area of Ventura County: the Draft EIS may have over-estimated the degree to which some of that area may become industrialized. Notwithstanding existing zoning in the area, there is a strong effort underway at present in the California Legislature to pass a bill that would restrict the conversion of prime agricultural lands to non-agricultural uses. That bill is known as A.B. 15, and is sponsored by Assemblyman Charles Warren. Please refer also to Coastal Plan Policies 30-37, and to Plan Map 43 and Map Notes.

Los Angeles

Most comment will be reserved until the site specific Draft-EIS on the L.A. site has been published, and until further information is obtained regarding the firmness of the FPC staff's position on elimination of the L.A. site from further consideration for seismic reasons.

The South Coast Regional Coastal Commission staff submitted the following comments: In rejecting the Los Angeles site from further study, the FPC staff found with regard to the Palos Verdes Hills fault that "approximately two events of magnitude 3 to 4 occur on this fault each year." South Coast Commission staff assumes that this finding is based on studies conducted by Yeng for USC in which he detected for the period May, 1971 to December, 1973, four earthquakes of magnitude 3 to 4 and several smaller events presumed to be on the PVH fault. These earthquakes occurred northwest of the site, no closer than 8 miles. The FPC staff also states that "surface displacement at the site, due to a magnitude 7 event on the PVH fault, is estimated at 4 feet". Where is the justification for the magnitude 7 event? The only reference to magnitude South Coast staff can find states that "the Palos Hills fault is active, with a maximum credible earthquake of magnitude 5", (Yeng, 1973). This value is lower than the value of magnitude 6.5 given by Dames and Moore (1973, 1974) and the value of Greensfelder (1973) of magnitude 7.2, which Greensfelder has since retracted, agreeing that a better value is a magnitude 6.5 event. Also, the South Coast staff was unable to reference the Draft EIS estimate as to the surface displacement for the magnitude 7 event (FPC staff cites Yerkes, et al., 1974). The recent Rand Corporation report, Energy Alternatives for California: Paths to the Future,

Comment reflected in Section H-2 of Volume III of the FEIS.

On the basis of the length of the fault, it was possible that a magnitude 7 earthquake could occur on the assumption that only one-fourth of the fault was involved. Surface displacement was then estimated from Earthquake Engineering by M. G. Bonillo, shown in the reference section of the FEIS.

Arvedlund, Federal Power Commission, p. 11

(December, 1975), also discounts the Los Angeles Harbor site because of its proximity to a highly populated area and the heavy tanker traffic in the harbor complex.

San Onofre

The major failure of the Draft EIS analysis is that, at page III-331, the FPC staff "assumes" that the plant can be constructed to the same standards of safety as the San Onofre Nuclear Generating Station (SONGS), but acknowledges that the FPC staff has little information concerning the safety standards that were applied to SONGS and no expertise in determining the risk of the combined operation of SONGS and the LNG vaporization facility. That analysis must necessarily be the most significant part of the site evaluation, and deserves more attention than has been given it in forwarding the San Onofre site as a preferred alternative. Given the lack of precedent for siting an LNG facility next to a nuclear reactor, the strength of the local opposition to SONGS, and the on-going conflicts regarding access to the San Onofre State Beach in front of SONGS (see below), it is unlikely that the San Onofre proposal will receive positive reaction from either the Nuclear Regulatory Commission, the electric utility industry, or the local public.

Under the heading "Active Faults" in Table 40, Page III-361, the closest active fault listed, excluding the Christianites fault, is said to be 22 miles distant from the site. The Atomic Energy Commission, however, used the "Rose Canyon" or "Santa Monica to Baja zone of deformation", which is only 5 miles offshore, as the nearest potentially active fault, and postulated that accelerations of up to .66 g could be expected at the site. This may change the FPC's staff analysis of the safety aspects of the San Onofre site.

Although Table 40, page III-367 mentions the San Onofre State Beach, it makes no mention (nor is mention made elsewhere in the Draft EIS) of what restrictions to beach access might be necessary where the cryogenic pipeline comes ashore. The Coastal Commission staff would object strongly to restriction of beach access, unless such restriction had already been imposed by the Nuclear Regulatory Appeals Board in the SONGS proceedings. (The NRC Appeals Board required control over and restrictions on access to the beach in front of SONGS because of the safety problems associated with people sitting on the beach. The Appeals Board has not yet determined what those restrictions will be.)

Under the heading "Existing Zoning" in Table 40, page III-367, it is stated that the proposed LNG site is on property leased to Southern California Edison and zoned industrial. The Coastal Commission staff believes the site is leased to the electric utilities on a short-term basis only, and only as a lay-down and fill area, and that the area is not "zoned" industrial. Rather, the County simply identifies the area as military.

Table 40, page III-369, lists the population density as 25,800 within a 5 mile radius, and states that 50 percent is military personnel. Our staff believes

Comments from the Nuclear Regulatory Commission regarding this topic have been incorporated into Section H-2 of Volume III of the FEIS.

Comment reflected in Table 40.

It was assumed for purposes of the site selection analysis that no restrictions to beach access were necessary where the cryogenic pipeline comes ashore.

As noted on the same page of Table 40, the San Onofre site is almost entirely under military control. However, comment accepted and reflected in Section H-2 of Volume III of the FEIS.

that is in error. The City of San Clemente itself has a 1974 estimated population of 22,000. The City's General Plan projects a future population of 51,000 for the City alone.

The Draft EIS makes no mention at all of the length of the trestle at San Onofre to reach suitable water depths. In contrast to most of the California coast, the shelf at San Onofre is relatively shallow, so the trestle may have to be quite long. The EIS should include a bathymetric map and an estimate of trestle length.

The Draft EIS makes little mention of the fact that Interstate Highway I-5, which passes close by the proposed site, is one of the most heavily traveled routes in the entire state, and has substantial ocean vistas. Any facility should be designed to preserve ocean views from the highway.

Thank you for the opportunity to comment on this Draft EIS. We look forward to receiving the forthcoming documents on the Ormand and L.A. site proposals.

Very truly yours,

*Richard Hammond*  
Richard Hammond  
Legal Counsel

According to Intersea, the entire 22,000 residents of the city of San Clemente are not within the 5-mile limit.

This data was given in the Intersea study which stated that an offshore trestle of approximately 1.5 miles in length would be required.

Interstate Highway I-5 is listed in Table 40, Page III-367, as bordering the site.

CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION

1540 MARKET STREET, 2nd FLOOR  
SAN FRANCISCO, CALIFORNIA 94102  
PHONE: (415) 557-1001



January 29, 1976

Robert Arvedlund  
Environmental Impact Statement Project Director  
Federal Power Commission  
825 North Capitol Street, Room 7103  
Washington, D.C. 20426

Re: California Coastal Zone Conserva-  
tion Commission Staff Comments on  
Alaskan Natural Gas Transportation  
Systems Draft EIS—Attachment of  
Coastal Commission Staff Materials  
on Recommended Acquisition Areas

Dear Mr. Arvedlund:

I am sending the enclosed materials under separate cover because they will not transmit clearly by telecopier, and in order to minimize the inconvenience caused to the regional FPC staff who have generously agreed to transmit other comments to you by the telecopier process.

The Coastal Commission is still in the process of considering areas for acquisition by the State of California. Next Tuesday, February 3, the Commission will hold a lengthy hearing on proposed acquisition areas in the South Central, South Coast, and San Diego Regions. These proposals in several instances suggest potential conflict with the Draft EIS selection of five preferred sites for LNG facilities.

Enclosed are the Coastal Commission staff materials on acquisitions proposals in the Mandalay, Ormond Beach, and San Onofre areas.

Very truly yours,

*Richard E. Hammond*  
Richard E. Hammond  
Legal Counsel

CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION

1540 Market Street, San Francisco 94102 — (415) 557-1001

January 16, 1976

TO: All State Commissioners  
FROM: E. Jack Schoop, Chief Planner  
SUBJECT: Hearing on Proposed Acquisition Areas

As you know, a public hearing on the proposed acquisition areas for the South Central, South Coast and San Diego, and Regions has been scheduled for February 3, 1976 at 10 a.m. These areas were tentatively adopted as acquisition sites by the Commission and have been included as tentative recommendations in the maps and map notes of the Coastal Plan. Acquisition is proposed to be financed primarily by a bond issue in November 1976. As yet, there are no priorities among the recommended sites.

The purpose of this hearing is to gather additional information on these sites prior to making a final recommendation to the Governor and the Legislature.

Attached are background reports on most of the 103 sites scheduled for consideration at the February 3 hearing. Each report contains a worksheet with data on the size and estimated cost of the site, its resource and recreational values, the development pressure currently in evidence, and other pertinent information. Worksheets on the Irvine and Ballona Lagoon sites will be mailed separately along with a report of the South Central Regional Commission's final recommendation, now scheduled to be made in their January 23 meeting.

In the South Coast materials, worksheets have not been included for a number of items listed in the acquisition notice, as follows:

- Site 126, Long-term acquisition program (Malibu area)
- Site 133, Inspiration Point to Point Fermin
- 136, Royal Palms
- 137, Point Fermin
- Site 145, Edison property, Huntington Beach
- Site 155, Aliso Canyon

These were originally proposed by the South Coast staff as priority II or III sites. During the State Commission preliminary acquisition action, they were designated as possible long-term acquisitions, and were included in the Plan under this designation. They have been included on the acquisition notice so that persons disagreeing with the tentative "long-range" designation would have an opportunity to express their opinions.

ACQUISITION PROPOSALS  
—South Central, South Coast and San Diego Regions—

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\* Region recommends acquiring only trail and access rights of way.

\*\* Precise acreage not computed as site not recommended for inclusion at this time.

## ACQUISITION WORKSHEET

SL ESTED PRIORITY \_\_\_\_\_

1. Name of Area Mc Grath State Beach Coastal Plan Map No. 432. Location South of Ventura, East of Oxnard3. Acres 108 in 2 Ocean Frontage \_\_\_\_\_ Major Features of Site \_\_\_\_\_  
parcels4. Distance from Ventura : 4 miles; 1 hours by car \_\_\_\_\_  
Low rolling sand dunes on southern 28 acre parcel; the 80 acre parcel between the  
campground and McGrath Lake is generally flat with some low dunes and is a good camp  
site.5. Resource Values Natural dune landforms over a portion of the area

\_\_\_\_\_ Statewide significance \_\_\_\_\_

6. Recreational Potential Larger parcel would constitute a logical extension of  
the camping facilities in present state park Statewide significance x7. Endangerment, Development Pressure Substantial development has occurred in  
beachfront sites in this general area in recent years. Standard Oil has a  
leasehold adjacent to the lake, and has some facilities there.8. Proposed Use Addition to existing state parkDevelopment (if any) Campsites and related facilities.

9. Prior Reference or Recommendations \_\_\_\_\_

10. Potential Management Authority State Dept. of Parks and Recreation

Status \_\_\_\_\_

11. Cost of Acquisition \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)

Cost of development \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)

12. Funding Alternatives \_\_\_\_\_

13. Parks, Preserves in Area San Buena Ventura State Beach (day use) to north;  
Mugu Lagoon some miles to south14. Alternative Acquisition Opportunities A smaller acquisition is possible,  
but would not provide equal camping opportunities15. Remarks McGrath is a nicely designed, popular and well used park, easily  
accessible from the Los Angeles metropolitan area by either Hwy. 1 or 10116. Attachments: x Maps \_\_\_\_\_ Photographs \_\_\_\_\_ Additional Explanatory Memo \_\_\_\_\_

## ACQUISITION WORKSHEET

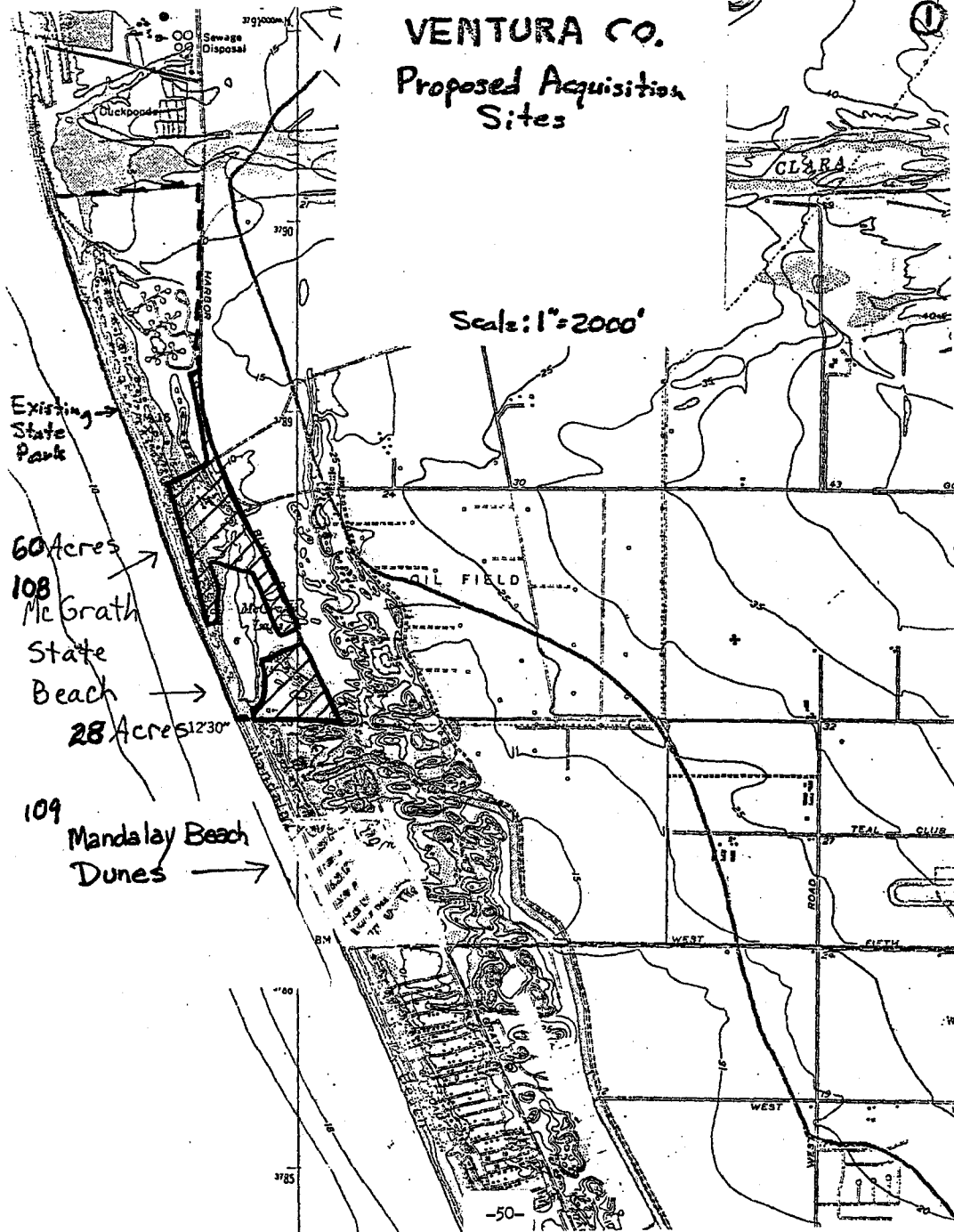
SUGGESTED PRIORITY

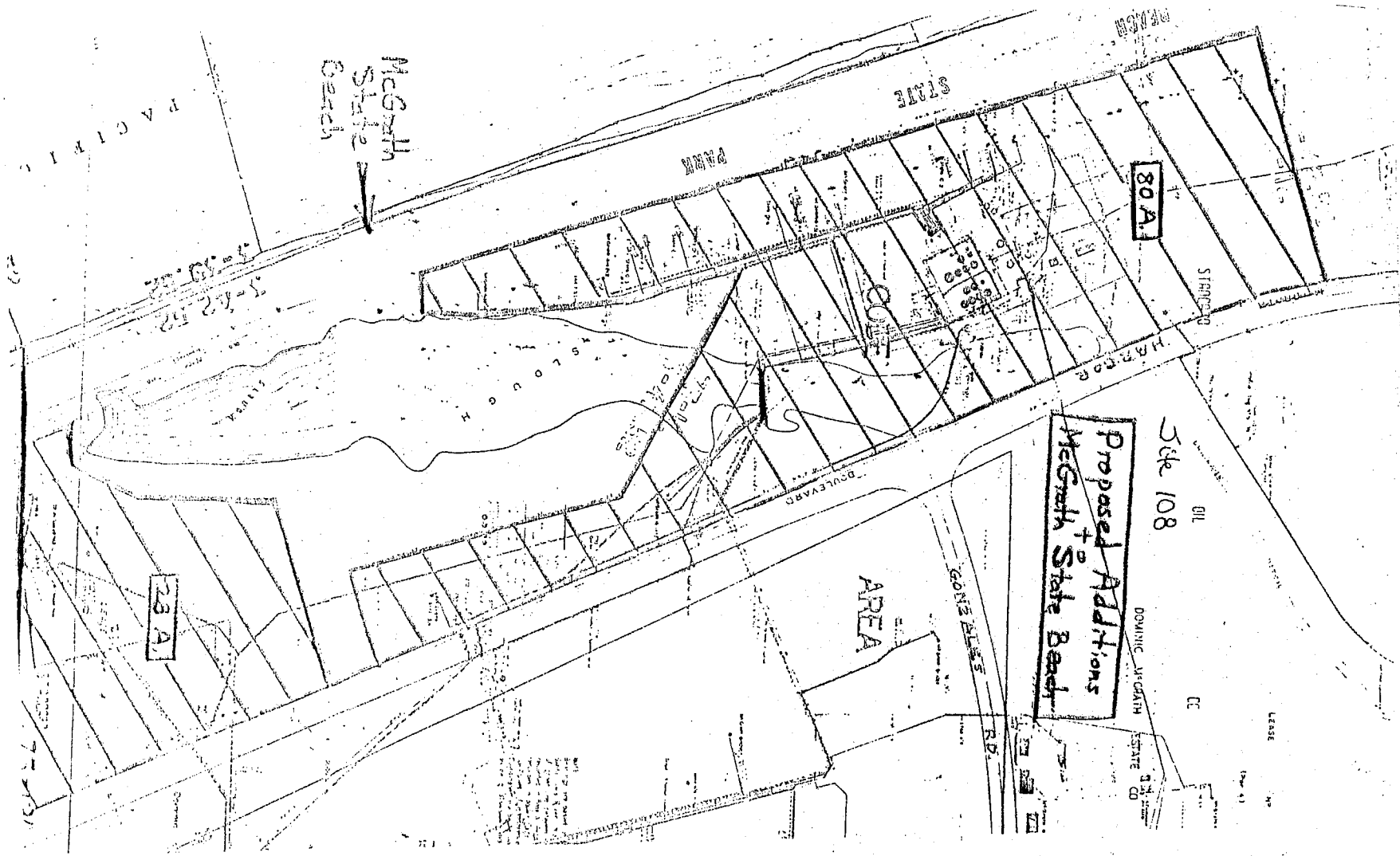
1. Name of Area Mandalay Beach Dunes Coastal Plan Map No. 43
2. Location West of City of Oxnard, South of Ventura
3. Acres 40 Ocean Frontage \_\_\_\_\_ Major Features of Site Approximately 1/3 dunes and beach; balance is flat
4. Distance from Oxnard : 3 miles; \_\_\_\_\_ hours by car
5. Resource Values One of two sites with remaining primary sand dunes from Port Hueneme to the Ventura River Statewide significance \_\_\_\_\_
6. Recreational Potential Substantial. This would be a logical segment if a bike trail could be developed linking public parks Statewide significance with marinas and other points of interest.
7. Endangerment, Development Pressure \_\_\_\_\_
8. Proposed Use Active use park  
Development (if any) \_\_\_\_\_
9. Prior Reference or Recommendations Ventura County Recreation Element (1975) recommends that Mandalay Beach Park have a high priority.
10. Potential Management Authority State or county  
Status under acquisition
11. Cost of Acquisition \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)  
Cost of development \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)
12. Funding Alternatives Now under acquisition by State in cooperation with the city of Oxnard and Ventura County.
13. Parks, Preserves in Area McGrath State Beach to north, Mugu Lagoon to South
14. Alternative Acquisition Opportunities This and expansion of McGrath are unique opportunities for this area.
15. Remarks Should be protected until present acquisition can be completed. Good access via Harbor Blvd., this area's major coastal arterial. Not included in Regional staff recommendations because acquisition reportedly complete.
16. Attachments: Maps Photographs Additional Explanatory Memo

Site 109

VENTURA CO.  
Proposed Acquisition  
Sites

Scale: 1"=2000'





1. Name of Area Oxnard Plain Agricultural lands Coastal Plan Map No. 43
2. Location Between the cities of Ventura and Oxnard
3. Acres 3800 (less Ocean Frontage none Major Features of Site  
than fee acquisition)  
Productive agricultural land.
4. Distance from Ventura : 2 miles; \_\_\_\_\_ hours by car
5. Resource Values Prime quality agricultural lands. They also serve as  
open space helping define urban areas. Statewide significance techniques  
for preservation could be of  
statewide significance
6. Recreational Potential \_\_\_\_\_ Statewide significance  
\_\_\_\_\_ Statewide significance
7. Endangerment, Development Pressure There has been substantial scattered  
urbanization of prime land in this area, and current general plans and  
annexation proposals would allow substantially more.
8. Proposed Use Continuation of agricultural uses  
Development (if any) none
9. Prior Reference or Recommendations \_\_\_\_\_
10. Potential Management Authority \_\_\_\_\_  
Status \_\_\_\_\_
11. Cost of Acquisition \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)  
Cost of development \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)
12. Funding Alternatives \_\_\_\_\_
13. Parks, Preserves in Area McGrath State Beach; Oxnard area beaches  
to south
14. Alternative Acquisition Opportunities Other parcels in this general area could  
be chosen, but especially the smaller of these is well located to provide an open  
space buffer area.
15. Remarks Regional staff recommends that these parcels not be placed on the  
acquisition list, but that agricultural protection be achieved through the local  
implementation programs of the Coastal Plan.
16. Attachments: \_\_\_\_\_ Maps \_\_\_\_\_ Photographs \_\_\_\_\_ Additional, Explanatory Memo

## ACQUISITION WORKSHEET

ESTIMATED PRIORITY \_\_\_\_\_

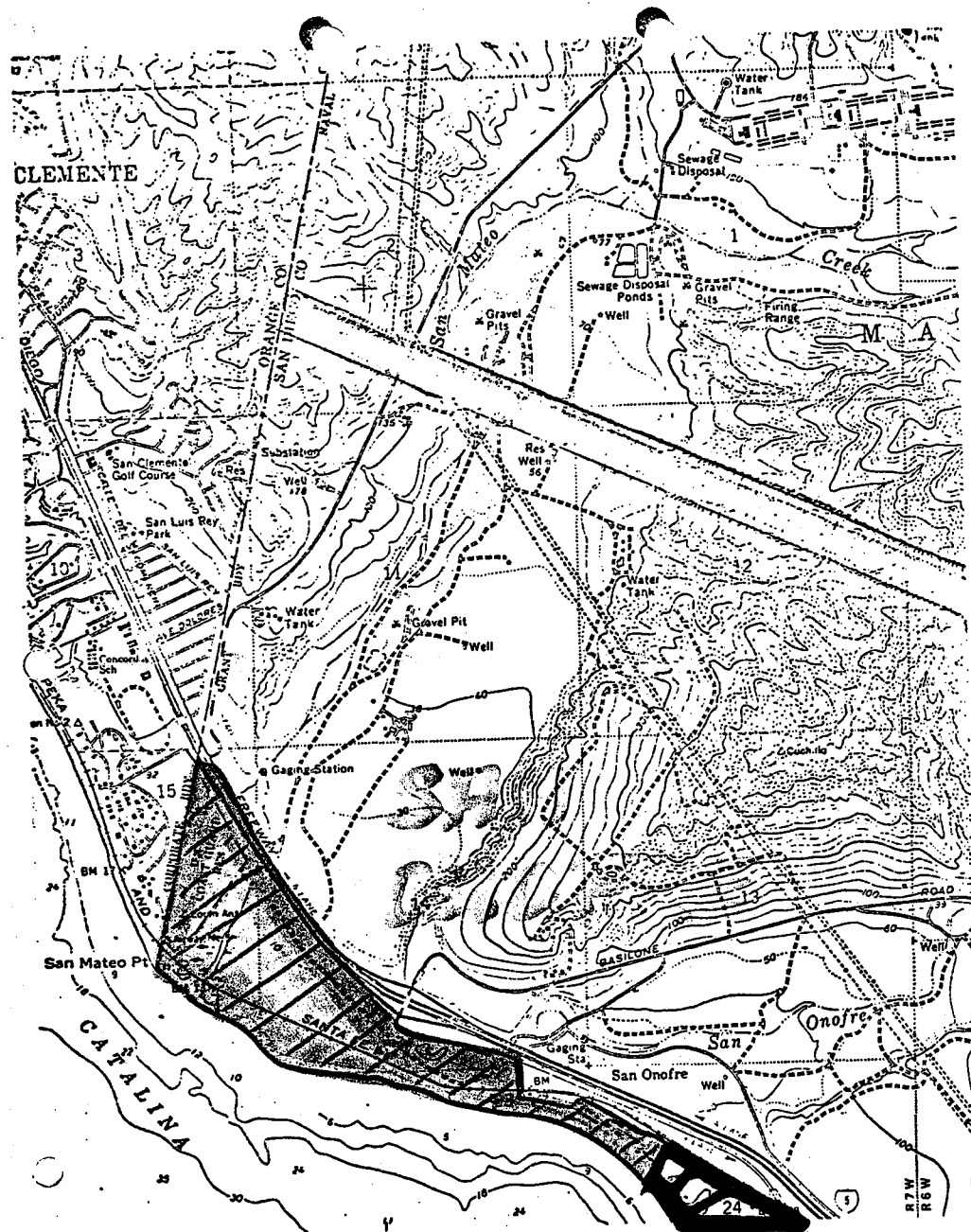
1. Name of Area Ormond Beach Coastal Plan Map No. 43
2. Location North & South of the Edison Ormond Beach Generating Plant
3. Acres 63 Ocean Frontage 3,000' Major Features of Site (all in downcoast parcel)  
Sand Dunes, salt marsh
4. Distance from Ormond and Port Huene miles; \_\_\_\_\_ hours by car
5. Resource Values Habitat areas presently support limited quantities of 2  
rare and endangered species Statewide significance \_\_\_\_\_
6. Recreational Potential Controlled access to beach could be allowed and  
regional access to beach could be improved Statewide significance \_\_\_\_\_
7. Endangerment, Development Pressure Past use for vehicular recreation has  
harmed the site's habitat values
8. Proposed Use Habitat protection and assured controlled non-vehicular public  
access  
Development (if any) would be minimal if any
9. Prior Reference or Recommendations Ventura County Recreation Element  
proposes limited use.
10. Potential Management Authority State or County.  
Status \_\_\_\_\_
11. Cost of Acquisition \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)  
Cost of development \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)
12. Funding Alternatives \_\_\_\_\_
13. Parks, Preserves in Area Ormond area beaches; Point Mugu State Park
14. Alternative Acquisition Opportunities None known that offer the same  
opportunity for habitat protection for rare species in this area.
15. Remarks This presently little-known area will become increasingly important  
as population grows and if present access restrictions continue on Federally-  
held beaches in the vicinity.
16. Attachments: ☒ Maps ☐ Photographs ☐ Additional Explanatory Memo

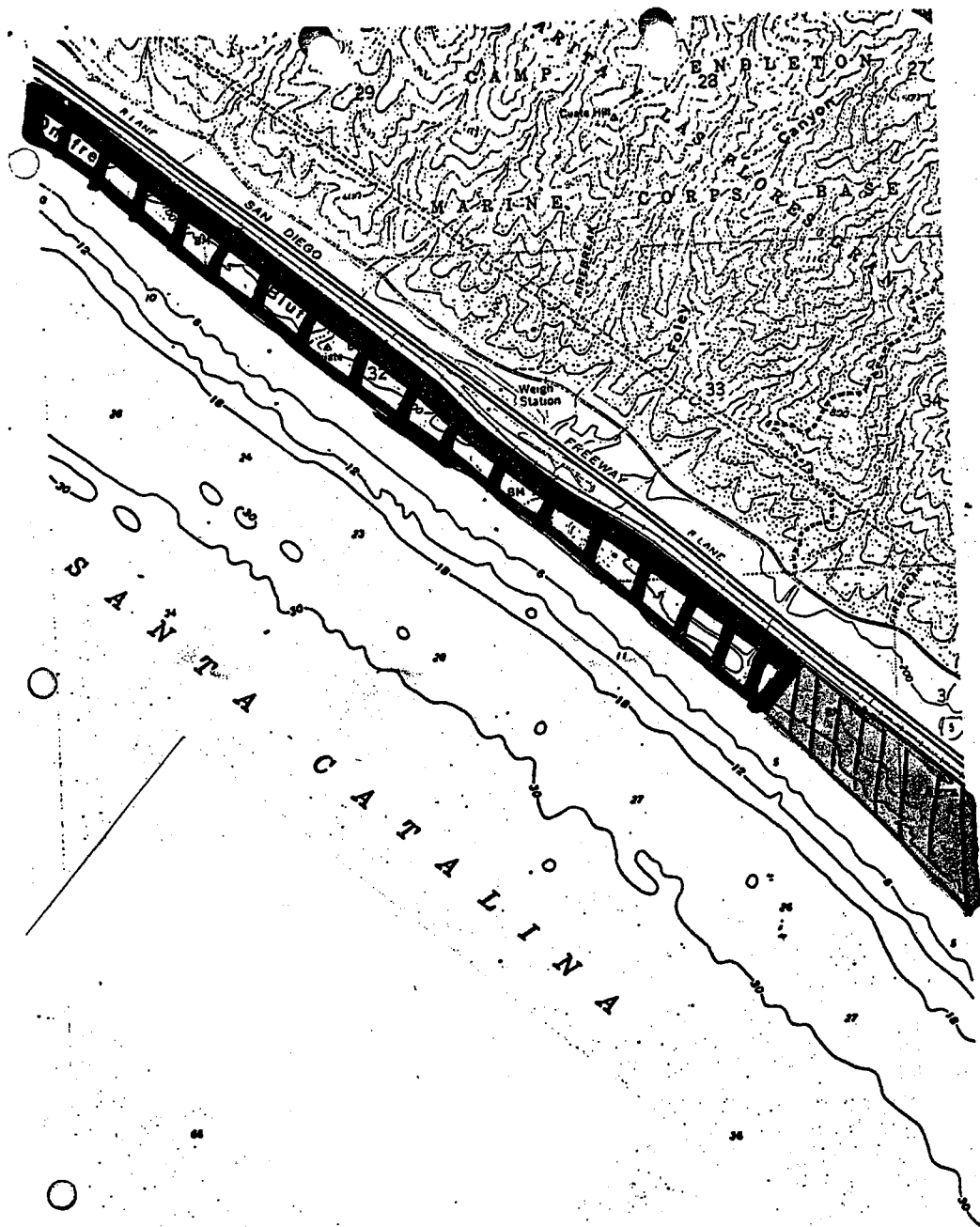


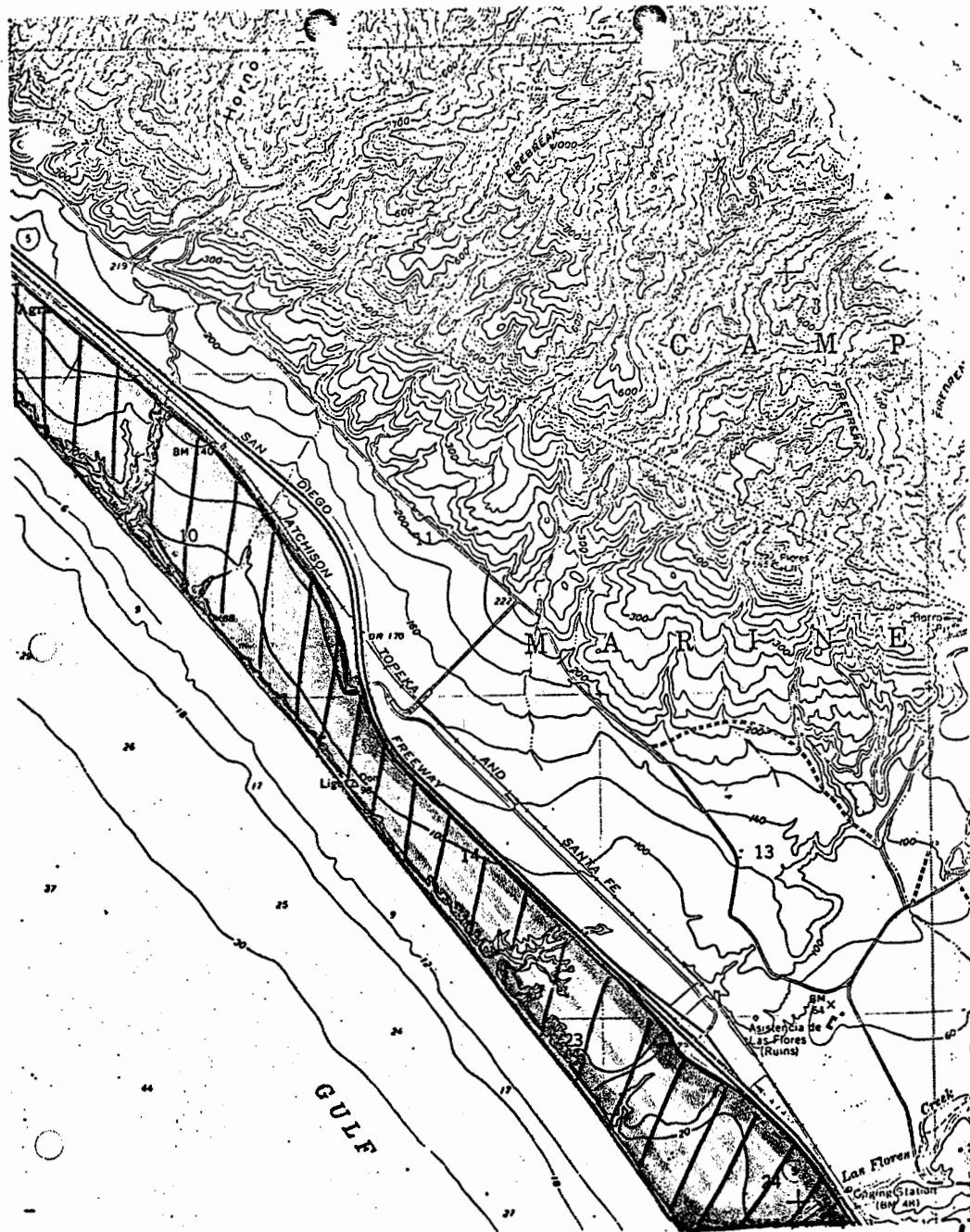
ACQUISITION WORKSHEET

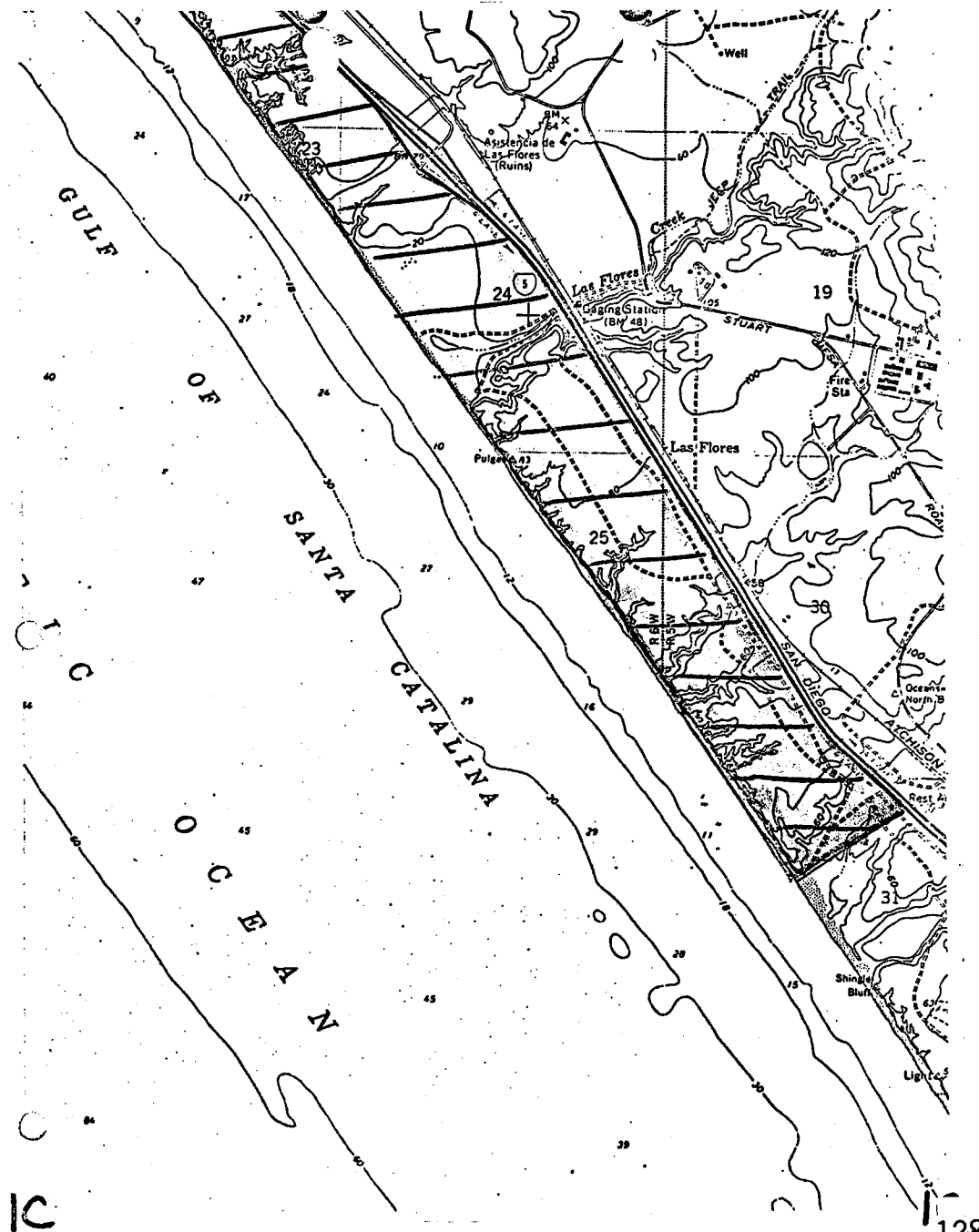
SUGGESTED PRIORITY \_\_\_\_\_

1. Name of Area San Onofre State Park Coastal Plan Map No. 58
2. Location County line south 7 miles
3. Acres 247 Ocean Frontage 7 miles Major Features of Site Beach and uplands including San Mateo and Las Flores Creeks
4. Distance from San Diego : 50 miles; 1 hours by car
5. Resource Values Beach and steep coastal bluffs covered by chapparal, native vegetation Statewide significance \_\_\_\_\_
6. Recreational Potential Excellent addition to State Beach, ideal for low density recreational use. Statewide significance x
7. Endangerment, Development Pressure NONE--area used by Marine Corps for occasional maneuvers. Some camping permitted in area.
8. Proposed Use Expanded beach recreation  
Development (if any) Development of access routes on limited basis
9. Prior Reference or Recommendations Regional Commission recommendation
10. Potential Management Authority State Department of Parks and Recreation  
Status No immediate plans for transfer
11. Cost of Acquisition \$1 (transfer) (preliminary) \$1 (revised)  
Cost of development \_\_\_\_\_ (preliminary) \_\_\_\_\_ (revised)
12. Funding Alternatives Transfer of land
13. Parks, Preserves in Area San Onofre is the major coastal park in northern San Diego County. This acquisition would expand the park.
14. Alternative Acquisition Opportunities Best available site for public beach acquisition in northern San Diego County.
15. Remarks \_\_\_\_\_
16. Attachments: x Maps \_\_\_\_\_ Photographs \_\_\_\_\_ Additional Explanatory Memo \_\_\_\_\_











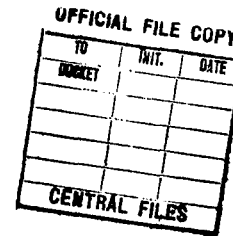
JANET SAUTER  
SECRETARY

**PUBLIC  
SERVICE  
COMMISSION**

STATE OF NORTH DAKOTA

BISMARCK 58505

February 2, 1976



Federal Power Commission  
Washington, D. C. 20426

ATTENTION: Allan W. Anderson, Jr.  
Commission Staff Counsel

Dear Mr. Anderson:

RE: El Paso Alaska Company, et al. Docket No. CP 75-96 et al.

This is our response to your communication of January 28, 1976, addressed to all State Regulatory Authorities.

Section 49-06-01 of the North Dakota Century Code provides as follows:

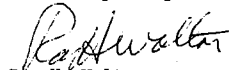
"49-06-01. VALUATION OF PROPERTY AS BASIS FOR DETERMINING REASONABLENESS OF RATES—RAILROADS AND MOTOR CARRIERS MAY BE EXCEPTED.—The commission, for the purpose of ascertaining just and reasonable rates and charges of public utilities, or for any other purpose authorized by law, shall investigate and determine the value of the property of every public utility, except railroads and motor carriers, used and useful for the service and convenience of the public, excluding therefrom the value of any franchise or right to own, operate, or enjoy the same in excess of the amount, exclusive of any tax or annual charge, actually paid to any political subdivision of the state as a consideration for the grant of such franchise or right, and exclusive of any value of the right by reason of a monopoly or merger. The value of the property of railroads and motor carriers may, in the discretion of the commission, be required in establishing just and reasonable rates and charges. However, unless the commission determines that the value of the property of railroads and motor carriers is pertinent and essential in the establishment of just and reasonable rates and charges, such valuation shall not be made. The commission shall prescribe the details of the inventory of the property of each public utility to be valued."

Since the "used and useful" concept is prescribed by statute, the Commission takes the position that it could not allow the flow through of all costs associated with this project. Until the property becomes "used and useful" it is not a part of the rate base.

February 2, 1976

In conclusion, North Dakota would not allow the North Dakota distribution companies to pay the surcharge and charge it back to the customers of the utility.

Yours very truly,

A handwritten signature in dark ink, appearing to read "Ray H. Walton". The signature is written in a cursive, flowing style.

Ray H. Walton  
Commerce Counsel

RHW:emk

Comments received too late for environmental staff's evaluation.

March 8, 1976

STATE INTERGOVERNMENTAL CLEARINGHOUSE "LETTER OF COMMENT"  
ON PROJECT REVIEW IN CONFORMANCE WITH OMB CIRCULAR NO. A-95

To: Federal Power Commission

STATE APPLICATION IDENTIFIER: 7512089602

Mr. Jack M. Heinemann  
Federal Power Commission  
Division of Environmental Quality  
Washington, D.C. 20426

Dear Mr. Heinemann:

Subject: Draft Environmental Impact Statement by the Federal Power  
Commission for the Alaska Natural Gas Transportation Systems.

This Draft EIS was received in our office on December 8,  
1975.

In the process of the A-95 review, the attached comment was received  
from the North Dakota Wildlife Federation.

This document and attachment constitute the comment of the State In-  
tergovernmental Clearinghouse, made in compliance with OMB Circular No.  
A-95.

Sincerely yours,

*Bonnie E. Austin*  
Miss Bonnie E. Austin  
Associate Planner

BEA/ds

Attachment

## NDSIC FORM B (9/71)

FROM: STATE INTERGOVERNMENTAL CLEARINGHOUSE  
STATE PLANNING DIVISION  
STATE CAPITOL  
BISMARCK, NORTH DAKOTA 58501

ENVIRONMENTAL IMPACT STATEMENT TO BE REVIEWED

TO: North Dakota Wildlife Federation

P. O. Box 1694

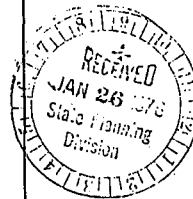
Bismarck, ND

ISSUED

BY: Federal Power Commission

PNRS NO.

Date Received



DATE: January 15, 1976

NAME OF

PROJECT: Draft EIS: Alaska Natural Gas Transportation Systems

The attached Environmental Impact Statement is referred to your agency for review and possible comments. If you consider it satisfactory, please check the box labeled, "no comment." Otherwise, please check one of the other appropriate boxes. Your cooperation is asked in completing this memo and returning it to the State Intergovernmental Clearinghouse within 10 days from date of receipt. If no response is received within 15 days of date of notification it will be assumed you have no comment.

☐ No comment

☐ Meeting desired with applicant

☒ Comments submitted herewith

.....

1. Specific comments which are to be attached to the review statement which will be submitted by the State Intergovernmental Clearinghouse: (Use reverse side or separate sheets if necessary)

2. Reasons why meeting is desired with applicant:

Reviewer's  
Signature: H. R. Morgan,

Chairman, Energy and Environment Committee  
North Dakota Wildlife Federation, Inc.

Date: 1-23-76

Title: \_\_\_\_\_ Tele: 701-223-8384

# North Dakota Wildlife Federation

200 West Main  
P. O. Box 1694  
Bismarck, North Dakota 58501

Publishers of FLICKERTALES  
North Dakota's Leading Environmental Publication

Phone 223-8741

January 23, 1976

## REVIEW

### Alaska Natural Gas Transportation Sys- tems Draft Environmental Impact Statement Prepared by Federal Power Commission

The North Dakota Wildlife Federation is a non-profit organization made up of some 6,500 citizens concerned with the utilization and management of the state's natural resources (including wildlife). We are the North Dakota affiliate of the National Wildlife Federation.

The Federation appreciates the opportunity to comment upon this draft statement.

Comments will be confined to the Alaskan Arctic Gas Pipeline system proposal as that is the one which effects North Dakota most directly, from a standpoint of both supply and land disturbance.

With this in mind, the NDWF has limited its comments to consideration of proposals included in Volume I--General Economic Analysis.

Of the two proposed systems being considered for transporting natural gas from Prudhoe Bay, the Federation agrees with the Staff of the Federal Power Commission's environmental conclusions favoring the Northern Border route along the Red River Corridor proposal of U.S.D.I.

An earlier review by the North Dakota Wildlife Federation, filed September 10, with reference to the DEIS, Northern Border proposal, indicated the Federation's opposition to routing through the state's unique Badlands and repeated river crossings. Routing the pipeline along the Red River Corridor to a point near St. Vincent, Minnesota, thence south, would eliminate such objections. Such routing would make gas available to North Dakota's high populated east, and in no way disturb highly productive agricultural lands or tourist attractions in the southwestern portion of the State.

If the Red River Corridor route is selected, there is no reason for the Federation to comment upon other environmental proposals of the DEIS. Please refer to the North Dakota Wildlife Federation Statement of September 10, 1975 on the DEIS, Alaska Natural Gas Transmission Statement, Part V, Northern Border, Volumes 1, 2 3 of three.

February 20, 1976

James A. Rhodes  
Governor  
Ned E. Williams, P.E.  
Director

RECEIVED  
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DRAFT  
FEDERAL POWER  
COMMISSION  
Alaska Natural Gas Transportation Systems - FPC

Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

**OhioEPA**

Attn: BNG - SOD - ALASKA

CP 75-96

Dear Mr. Plumb:

The Ohio Environmental Protection Agency has been charged, by the Governor, with lead agency and review coordination responsibilities for the State of Ohio on Federal Environmental Impact Statements. The above mentioned Draft Environmental Impact Statement has been reviewed by sections of this Agency, and the Ohio Department of Economic and Community Development. The following comments constitute those received from the above agencies and have been coordinated under the auspices of the State Clearinghouse.

This document has been reviewed both from the standpoint of the impacts generated by the project itself, and as it relates to the concurrent proposal for a pipeline directing Alaskan natural gas to the Midwest.

Regarding the environmental impact of the project itself, we wish to state that we support the FPC recommendations on siting the terminals at the alternative locations. The alternative sites will be more amenable to the industrial make up of the LNG terminal than the proposed sites given in the Draft EIS.

A major concern expressed by reviewers dealt with the economic impact of the proposal on our State. The original Northern Border Pipeline proposal gave direct supply of the Alaskan natural gas to Ohio. This Draft EIS however, gives no such direct supply to Ohio. Statements concerning transfer agreements and the "trickle-down" effect of having the natural gas transported to and used in California and the western States does not instill confidence that Ohio will receive additional supplies of natural gas.


GENERAL FILING COPY  
FEB 23 1976

Kenneth F. Plumb  
February 20, 1976  
Page 2

The FPC recommendation concerning termination of the Northern Border Pipeline at Chicago presents this same problem. While termination at Chicago would relieve Ohio of any construction related environmental impacts, it would also relieve Ohio of any direct supply gas. Given that the Northern Border EIS indicated that major environmental impacts were likely to occur in the Western States and not in the Midwestern States we would be more amenable to a proposal which followed the FPC recommendation to Chicago and then extended the pipeline to its original destination at Delmont Pennsylvania. This would mitigate the impacts (both primary and secondary) which would occur in the Western States as well as provide natural gas to the more industrialized Midwestern States.

Your consideration of this proposal is requested. We thank you for the opportunity to review this document and look forward to receiving the Final EIS.

Very truly yours,

  
Ned E. Williams, P.E.  
Director

NEW/cp

The factual data to justify this conclusion has been presented in Phase I of the formal hearings in the testimony and cross-examination of Messrs. David C. Lathom and James M. Kiely.



## OHIO RIVER BASIN COMMISSION

Suite 208-20  
Cincinnati, Ohio 45202

36 East Fourth Street  
513/684-3831 (FTS)

January 14, 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

Dear Mr. Plumb:

Thank you for your letter of November 25, 1975, inviting comments of the Ohio River Basin Commission on the Draft Environmental Impact Statement (EIS) for the Alaska Natural Gas Transportation Systems. In my opinion, the EIS has been properly coordinated with the Commission members.

The Ohio River Basin Commission staff has reviewed the draft EIS and finds no indication that the proposed action would not be compatible with the ORBC Comprehensive Coordinated Joint Plan (CCJP) as it exists today. In terms of potential conflict with the projects and programs in the CCJP, the El Paso route, which uses existing pipelines, would be more compatible than the new construction required for the Artic Gas route of the EIS submitted earlier by the U.S. Department of the Interior.

The Commission looks forward to a continuing cooperative effort with your Department and appreciates your action in keeping us well informed.

Sincerely,

*Fred E. Morr*  
Fred E. Morr  
Chairman

cc: Council on Environmental  
Quality  
Angelo M. Monaco, FPC



COMMONWEALTH OF PENNSYLVANIA  
GOVERNOR'S OFFICE  
OFFICE OF THE BUDGET  
HARRISBURG, PA. 17120  
P.O. Box 1323

ENVIRONMENTAL IMPACT REVIEW  
PENNSYLVANIA STATE CLEARINGHOUSE  
Phone: 717-787-8046

January 16, 1976

Title: Draft EIS-El Paso Alaska Company

Location: Nationwide

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

Applicant: Federal Power Commission

PSCH project number: 75-12-3-001

Dear Mr. Plumb:

The Governor's Budget Office, as the State Clearinghouse for the Commonwealth of Pennsylvania, has received and transmitted to various State agencies, including the Department of Environmental Resources, copies of the environmental statement mentioned above.

Attached to this letter please find the comments of the Department of Environmental Resources and the following State agencies:

Please consider these the official response of the Commonwealth in this matter.

Sincerely,

*Rosemary E. White*  
Rosemary E. White  
Project Review Coordinator  
Pennsylvania State Clearinghouse

REW/let

COMMONWEALTH of PENNSYLVANIA



DEPARTMENT OF ENVIRONMENTAL RESOURCES

P. O. BOX 1487

HARRISBURG, PENNSYLVANIA 17120

January 12, 1976

The Secretary

SUBJECT: Review and Evaluation of PSCH No: 75-12-3-001 Alaska Natural Gas Transportation System DEIS

TO: Rosemary White, Project Coordinator  
Pennsylvania State Clearinghouse

FROM: *Maurice K. Goddard*  
MAURICE K. GODDARD  
Secretary of Environmental Resources

The Department of Environmental Resources offers the following comments concerning the above referenced Draft Environmental Impact Statement:

Of the two gas transportation systems which are under review in the subject impact statement, the one which would bring the natural gas by pipeline directly from northern Alaska via Canada to the states in the Great Lakes Region, namely the Arctic Gas System, is greatly preferable in terms of both fewer environmental hazards and greater benefit to users.

The El Paso-Alaska System, while shorter in miles of pipeline construction, would involve many risks and considerable environmental disruption. It would cut north-south across Alaska imposing environmental disruption to many areas which are biologically sensitive. It would cross several active seismic zones, including the port on its southern terminus, an area which disastrous earthquakes have occurred in recent years. This route would then require loading facilities at the difficult port of Gravina, a situation ripe for spillage and for tanker accidents in the Prince William Sound Area. The tankers would then have to move down to the California coast, with the inherent dangers of tanker shipping, and then be involved with a new unloading port with attendant hazards of dockage and spillage. Then there would have to be distribution pipelines throughout the southwest which in itself is ironic, since that is not the area of the country that is greatly short of natural gas.

The Trans-Canada route of the Arctic Gas System, while somewhat longer in pipeline mileage, nevertheless is simpler, less hazardous in potential handling of shipping spills and imposes less environmental damage. This route does not get involved with any significant seismic zones, nor does it involve loading and unloading facilities. Particularly important is the fact that the Trans-Canada route brings the natural gas to that region of the U.S., namely the Great Lakes states (including Pennsylvania), which is the area that is now and will continue to be short supply of natural gas. Except for the additional initial cost of construction due to greater pipeline distance, there is no question that the Trans-Canada route is far more preferable in terms of lesser risks and greater benefits.



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comprehensive analyses of the following should be incorporated in the Final EIS. The analyses and requested information should be developed in detail for each route and then the routes compared, as they affect California:

1. Impacts on air quality as related to the natural gas supply available to California from the project.
2. Consideration of additional LNG terminal sites, especially sites located away from metropolitan areas.
3. Information and impacts regarding additional alternative gas line routings from alternative LNG terminal sites.
4. Hazards associated with anticipated increased shipping traffic.
5. Impacts on public health, safety, and social welfare.
6. Impacts on fish and wildlife resources.
7. Impacts on water quality.
8. Impacts of potential seismic and other geologic hazards.
9. Impacts on employment and the economy.
10. National security and reliability considerations.
11. Costs and timing of delivery of natural gas.
12. Governmental assurances that California would receive adequate volumes of gas at reasonable prices.

#### GENERAL COMMENTS AND CONCERNS

The State of California is well aware of the critical problem of the State's near-term gas shortage and considers the future of natural gas development to be of the highest priority. Conversion from natural gas to other less desirable fuels adversely affects air quality in critical air basins. Every effort must be made to meet the shortage but not without giving full consideration to all policy options. Some of these options are development of alternative energy sources and energy conservation.

- 1 The Resources Agency of California asks for a complete impact statement on each proposed site. It is felt that such a procedure is impractical and not suggested by NEPA. The site selection study done for the FPC has attempted to make such comparisons, and the results are within the DEIS (Pages 305-320).
- 2 This issue was analyzed in Section H-2 of Volume III of the DEIS.
- 3 See previous response.
- 4 Comment reflected in the Public Safety analysis and/or safety studies attached to the FEIS.
- 5 See previous response.
- 6 This information was provided on Pages III-195 to 213 and III-275 to 280.
- 7 This information was provided on Pages III-181 to 184.
- 8 This information was provided on Pages III-174 to 180 and Pages III-288 and III-295.
- 9 See response to item 6 above.
- 10 This issue is beyond the scope of the EIS.
- 11 See previous response.
- 12 See previous response.

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The present supplies of natural gas in and to California will continue to decline. It is essential, then, that federal policy makers and/or Congress, reach an early decision on a natural gas transportation route and system. California supports delivery of North Slope gas at the earliest possible date in conformance with environmental protection.

The State finds it difficult to review major energy proposals independent of any federal energy policy or any apparent concerted effort by one federal agency to relate its own proposals to energy facilities proposed by other agencies. Examples are (1) development of geothermal resources on California lands; (2) leases of outer continental shelf for oil production; (3) transportation of liquefied natural gas (LNG) into California; (4) use of coal and oil shales in other states that would serve California's needs; and others.

The State has immediate concern with any proposal affecting the availability of natural gas and should be a party to any discussion or decision involving the supply and distribution of natural gas to California. The State would like to suggest that in order to resolve this problem, representatives of the Bureau of Land Management, the Federal Power Commission, and the State join in a series of federal-state hearings and decision-making meetings in appropriate locations to consider all proposed natural gas facilities, once the full facts on each are known. It would appear that this same situation also exists on a national basis.

The statement identifies a major alternative proposal, elimination of construction of proposed pipelines from the Canadian border to California, which could result in substantially decreased investment and environmental impact, but does not provide a detailed discussion of the relative merits of this alternative. The FPC draft EIS goes so far as to recommend this particular alternative. Instead of supplying a comprehensive description and comparison with the shipping alternative, it recommends that such a description be included by the U. S. Department of the Interior (USDI) in their final EIS. Since the alternative would eliminate construction of proposed pipelines from the Canadian border to Northern and Southern California, the State of California has a direct interest in the consideration of the alternative in a draft EIS with opportunity for study and comment, rather than in the form of a Final EIS which could require court action for amendment. If the FPC and the USDI cannot resolve the responsibility for preparing and distributing this description it would be better to require both agencies to assume responsibility for the completeness of their respective EISs than to evade the requirement for draft circulation of discussions of significant alternatives.

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The EIS does not contain an analysis based upon an expressed national energy policy created in consultation with the affected states. Any choices made to devote substantial segments of the national effort to development of specific energy sources should be made in the larger context of available means and alternatives.

The FPC EIS provides extensive coverage of a proposed liquid natural gas (LNG) regasification plant at Point Conception, as proposed by the applicant company. The FPC staff analysis identifies other sites as environmentally preferable, but does not include equivalent detailed discussions of these sites. A minimum acceptable analysis would include a detailed description of one site and clear, systematic listing and discussion of all points of significant difference for other seriously proposed sites.

Consultation with the State of California should be substituted for guesses about the positions of state agencies. The State of California has an interest in the other sites because they offer different potentials for growth, concentration of other petroleum facilities and shipping terminals, public hazard, and resource damage.

The EIS does not provide adequate discussions of impacts as required by NEPA. Detailed descriptions of environmental effects of proposed actions should be supplied for those cases where the final EIS will be the document for informing decision-making bodies of the environmental consequences of their decisions. In particular, a variety of omissions in the description of the impacts of the proposed seawater heat supply and discharge for the regasification system should be filled in with sufficient detail to provide the information required for consideration of the required National Pollutant Discharge Elimination System permits. Data on ship traffic at proposed alternative sites and information on refueling and plant operation should be supplied in sufficient detail to permit evaluation of the effect of site choice on air quality in critical air basins and on increased hazards of shipping accidents and associated oil spills. This shipping information should include discussion of the effects of expected weather conditions on safe operation of alternative sites, of the effects of increased ship traffic of fuel barges and LNG tankers in combination with other ship traffic changes anticipated in association with Alaskan oil imports and outer continental shelf drilling activities, and of the effects of increased shipping from other associated LNG imports proposed for consolidation at the site of the Alaskan import regasification plant.

#### Previous Reviews

The State has reviewed elements of the Alaska Natural Gas Transportation System, in part, in the past. In August 1975 the State

The environmental staff disagrees that equivalent detailed analysis is not provided for the alternative sites. (See Figure 46 and Table 40 of Volume III of the DEIS.)

The environmental staff has consulted with the State of California and has received no clear dividing line as such. As a result, the environmental staff has had to assume their position in certain issues.

The environmental staff disagrees that the EIS does not provide adequate discussions of impacts as required by NEPA. The data on ship traffic, refueling, and plant operation at the alternative sites would be essentially identical to the data described for the Point Conception site. Table 40 contains information on existing vessel traffic and navigational conditions at six alternative sites. Comment is also reflected in the Public Safety analysis and/or safety studies attached to the FEIS.

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commented on the Draft and Addendum to the Environmental Impact Report, Western LNG Terminal Company, Berth 308, Los Angeles Harbor. The Resources Agency was very concerned about placement of the LNG facility in Los Angeles Harbor. Attachment B, a copy of the State's comments to the applicant, is included for your information.

On November 21, 1975, the State commented to the U. S. Department of the Interior, Bureau of Land Management on the "Draft Environmental Impact Statement, Alaska Natural Gas Transportation System". The State indicated in its comments that a number of significant issues needed further consideration and that we would defer our final expression regarding support of any single undertaking until more information was available. Attachment C, a copy of our November 21, 1975, letter, is included for your information.

It is noted in Vol. I, page I-1 that your staff relies on the U. S. Department of the Interior draft document for its environmental assessment of the Arctic Gas System. It is urged that full consideration be given to our comments as outlined in Attachment C.

#### DETAILED COMMENTS

Following are more detailed comments by subject areas.

#### Economic Concern

The economic analysis is restricted to comments on effects of the entire project and effects on Alaska. Lack of data on California's share of natural gas as well as the economic effects of the regasification plant at Point Conception render this report an inadequate presentation for economic analysis impacting California.

Lacking are the relative economic impacts to California from the two alternative routes; namely, the El Paso route including direct imports to California and Arctic Gas, which does not directly supply California. The analysis shows zero impact of the latter by noting, "the entire nation would share in the benefits of Alaskan gas by displacing gas from lower 48 sources to regions not directly receiving the Alaskan gas."

The analysis assumes that the price of "fuel" is a market-clearing price. This has the effect of understating the impacts, especially in the early 1980's, especially if Congress does not completely deregulate both "old" and "new" gas. By that time California's shortage of natural gas could be so large that some industries would close down in the absence of natural gas. This impact, however, might be avoided by appropriate State and Federal measures to encourage more efficient use of natural gas. The Natural Gas Task Force of the State of California Energy Commission is currently studying these measures.

Comments received from the Resources Agency of California are not entirely clear. (They seem, for instance, to have overlooked the California impact shown in Table I.B.2-7.) The environmental staff responds to three significant points:

- (1) The use of market-clearing prices overlooks the serious shortages of gas and their possible avoidance through conservation. This is true only in the sense that energy should be used with optional efficiency whether or not Alaskan gas is available. (One would not, for example, state that without Alaskan gas, conservation will be imperative, but with Alaskan gas, the nation can continue its wasteful ways.) The sense of the model is that increased fuel availability results in greater fuel use, partly through lower production costs with greater sales. Less fuel means higher fuel price-- with lower product sales and also greater energy efficiency. "Shortages" do not seriously alter the long-run differential impact.
- (2) "Fuel" conservation is not applied specifically to gas. This, unfortunately, is quite true. In particular, we do not have data on broad inter-fuel substitutability yet.
- (3) Use of 1971 prices understates impact. This is also true; but some correction has been made to the constant-dollar fuel price relative to other goods and services. The

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The report notes effects of generally higher prices of "fuel" in encouraging conservation of fuel; but does not note this possibility specifically for natural gas. This applies to both regulation and deregulation conditions as the regulated price of natural gas will gradually increase as gas companies develop more expensive domestic sources.

The estimation of impacts uses 1971 as the base case - which produces unrealistically low projected natural gas prices. This also has the effect of understating impacts. There is an attempt to adjust this but the resultant fuel price is still much too low.

#### Fish and Wildlife Concerns

Should the overland pipeline be constructed, the State recommends a number of measures to protect wildlife habitat. These recommendations are to be found in Attachment A at the back of this letter.

The State is also concerned about the deleterious impact on fish and wildlife resources that would result from location of the LNG facility at Point Conception and along the pipeline corridors to the Arvin substation near Bakersfield. This is discussed in Attachment A.

Attachment A expresses in detail comments which are to be considered as an integral part of these comments.

The State requests an opportunity to discuss with the project sponsor the details of the proposed circulating seawater system and the disposition of the excess fill material should the El Paso Alaska System Point Conception LNG terminal alternative be selected.

Please contact Mr. E. C. Fullerton, Director, Department of Fish and Game, 1416 Ninth Street, Sacramento, California 95814 (916-445-3535) to discuss fish and wildlife matters.

#### Water Quality Concerns

An adequate discussion of water quality in California must be incorporated into the final EIS. An example of our concern is the disposal of the huge amount of water used to hydrostatically test the new pipelines upon construction in California. The water will surely contain a high level of contaminants. Other water quality related concerns are expressed in various parts of this letter.

environmental staff thinks that scaling all listed values by the GNP deflator will lead to a fairly accurate estimate.

See the environmental staff's response to Page III-376, number 5 comment from the California Department of Fish and Game.

The applicant has indicated that the selection of construction techniques for water crossings, site specific information regarding shorelines, streambanks, etc., specific sources of hydrostatic test water, and specifications for hydrostatic testing have, as yet, not been determined. However, with the finalization of plans for stream crossings and hydrostatic testing, the applicant would be required to submit these plans and applicable mitigating measures to the appropriate responsible agencies prior to the issuance of required permits by these agencies.

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Vessel Traffic and Oil Spills

The report states that approximately 308 deliveries of the 165,000 cubic meter vessels would occur at the terminal each year. However, there is no analysis of the effect this increase in coast-wise shipping will have. In addition, the report states that approximately 63 vessel visits to offload bunker "c" fuel would occur, in addition to arrivals of other support vessels. The report should contain a discussion of the effects of all increases in vessel traffic as a result of the LNG terminal. That discussion should also analyze the impacts associated with vessel traffic increases generated from increased production from state oil and gas leases, OCS-Santa Ynez production, Prudhoe Bay-Valdez-L.A. Harbor oil transmission. All these projects will tend to increase the likelihood of a tanker accident.

The size of the bunker "c" fuel line is not given. Also, the oil spill impact discussion is minimal and insufficient. Oil spill effects should be discussed. Clean-up, containment and contingency plans should be developed and appended to the report.

Terminal Concerns

The final report should contain sufficient information on the location, design and construction procedures for the seawater intake-outfall system. In addition, there will likely be a large number of fish entrained in the seawater intake system. Some estimate should be given as to amounts and varieties. The report should also expand the discussion of the impacts associated with a biocide accident at the seawater intake line.

The report should expand on the terminal's impact on recreational use of the ocean and beach areas in the immediate vicinity; i.e., how much beach area will be lost to recreationists, fishing, loss of kelp resources, etc. Also, what precautions will be taken to prevent accidents during construction.

The construction of a breakwater adjacent to the trestle will likely have an impact on sand movement in the vicinity and this impact should be discussed. In addition the structure will likely cause an artificialization of the ordinary high water line in the area.

The report should expand its very brief discussion on the climatology of the region and the effect strong winds, fog, heavy seas, and the like, will have on terminal operations. Projected downtime due to inclement weather conditions should be discussed.

Comment reflected in the Public Safety analysis and/or safety studies attached to the FEIS.

Information on the potential effects of an oil spill is available in a report to the President by the Council on Environmental Quality entitled OCS Oil and Gas-- An Environmental Review, issued in April 1974. In addition, cleanup, containment, and contingency plans for the Point Conception Bunker "C" fuel-oil transfer facilities would require Coast Guard approval in accordance with 33 CFR, Parts 154 to 156.

Relative to the location and design of the seawater intake and outfall system, see the recommendation in the FEIS. Relative to fish entrainment, see Recommendation 5. An expanded discussion about acrolein had been included in Volume III, Section C.5.c.

Access to the beach area is highly restricted (as noted on Page III-151 of the DEIS). The environmental staff believes that possible adverse impacts concerning recreation are adequately covered in the DEIS and FEIS. The section on impacts to "Marine Biota" has been expanded in the FEIS to include a discussion of impacts to kelp harvesters and commercial fisheries, and in addition, recommendations concerning those areas are included in the DEIS and FEIS.

See the environmental staff's comments to Page 9, fourth paragraph of California Coastal Zone Commission comments and the impact section concerning topography, geology, and soils in the FEIS.

It is not expected that visibility, wind, or wave conditions at the proposed marine terminal location near Point Conception (as described in the DEIS) would cause significant downtime or interfere to any great extent with LNG tanker operations.

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The report lists 16 species of vertebrate animals as either rare, endangered or protected in the vicinity of the pipeline/terminal. The report should expand on the measures that will be taken to ensure that damage to these species is avoided or mitigated. This applies equally to those marine species that may be affected by the terminal and outfalls.

California Coastal Zone Conservation Commission Concerns

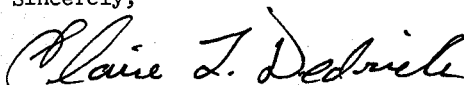
We are advised that the Commission has transmitted its concerns directly to your Commission on January 30, 1976.

Conclusion

Until the above mentioned concerns are addressed and more information is available in your Final EIS, the State will defer expression regarding support of any single undertaking. Again we request that the Final EIS incorporate responses to all areas of concern that are discussed in this letter, and in anticipated future correspondence from this State regarding the DEIS.

Thank you for the opportunity to review and comment on the draft statement.

Sincerely,



Secretary for Resources

Attachments

cc: Council on Environmental Quality  
722 Jackson Place N.W.  
Washington, D. C. 20006  
Attention: Mr. J. Brubaker

Director of Management Systems  
State Clearinghouse  
Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814  
(SCH No. 76011263)

Certain aspects of the impacts to rare, endangered, or protected species have been expanded in the FEIS, and recommendations have also been proposed in the FEIS.

ATTACHMENT A

COMMENTS ON THE DRAFT  
ENVIRONMENTAL STATEMENT FOR THE  
ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
BY CALIFORNIA DEPARTMENT OF FISH AND GAME  
(SCH No. 76011263)

Fish and Wildlife Concerns

Department of Fish and Game has reviewed the statement and has the following specific comments and recommendations.

1. Alternatives for the Arctic Gas System - Should the PGT-PG&E pipeline be constructed, the Department recommends the following measures to protect wildlife habitat:
  - A. Soil disturbed by trenching or allied operations should be revegetated as soon as possible.
  - B. Operation of ground equipment off the pipeline right-of-way should be avoided wherever possible, especially in critical habitat areas and areas inhabited by rare or endangered plant species.
  - C. An inventory of rare and endangered plant species along the pipeline route should be prepared prior to initiation of construction of the pipeline, and a maintenance plan which assures the protection of these species should be prepared.
  - D. In critical habitat areas, access to project service roads should be controlled.

Alternatives for the El Paso Alaska System - As concluded on pages III-350-356 of the Draft EIS, the construction and operation of an LNG facility at Point Conception would result in much greater damage to biological resources than would the location of the facility at any of several alternate sites. The following deleterious impacts on fish and wildlife resources that would result from location of the LNG facility at Point Conception could be reduced or eliminated by location of the facility at an alternate site:

- A. Fish and wildlife resources would be deleteriously affected by the construction and maintenance of a 142 mile long connecting pipeline corridor through a largely undeveloped area with substantial fish and wildlife values, including several rare or endangered species. Utilization of this corridor would require the clearing of 2300 acres of land, with 1300 acres remaining cleared for the life of the project. The deleterious impacts resulting from pipeline construction would be substantially reduced by the siting of the LNG facility at an alternative location. At the

Oxnard and San Onofre sites, by comparison, the length of connecting pipeline needed is only 50 and 53 miles, respectively; and the pipeline route would follow existing rights-of-way for 96 and 100 percent of this distance, respectively.

- B. Construction of an LNG facility at Point Conception would result in significant loss of wildlife habitat due to site development, road construction, and electrical transmission line corridors, as well as the pipeline construction losses noted above. In addition, long-term land use changes in the area, due to the introduction of a large industrial facility in an area presently rural and undeveloped, would result in further wildlife habitat losses. These deleterious impacts could be largely avoided by siting the LNG facility at an alternative site which is already committed to industrial uses and whose wildlife values have already been degraded by man's activities. The Oxnard, San Onofre, and Los Angeles Harbor alternative sites would all be preferable to the Point Conception site, in this respect.
- C. Construction and operation of an LNG facility at Point Conception would subject the marine environment of the area to the deleterious effects of development and waste discharge. The Point Conception area marine environment is unique in that it is the range limit for many species of colder and warmer water fish, which mix in the area during different times of the year. This area also supports valuable populations of *Macrocystis* (giant kelp), abalone, and other marine species with substantial sport and commercial importance. These resources would be deleteriously affected by the construction of a marine terminal in the kelp bed and the discharge of cooled water from an LNG facility. Alternative sites such as Los Angeles Harbor and Oxnard, however, would sustain fewer deleterious effects from the construction and operation of LNG facilities. These areas possess less valuable marine communities which have already been influenced by the effects of development and waste discharges.
- D. Location of an LNG facility at Point Conception would require the construction and operation of a circulating seawater system to warm the liquified natural gas, which would deleteriously affect the marine environment by entraining and subsequently killing fish and planktonic organisms and by introducing a cooled-water discharge to the area. These deleterious effects could be largely avoided by locating the LNG facility near an existing thermal discharge from a power plant, such as at the Oxnard and San Onofre alternate sites. By combining the circulating seawater systems of the two facilities, not only would

the deleterious effects of a separate cooled-water LNG discharge be largely avoided, but the thermal effects of the existing power plant discharge could be reduced as well. Combining the warm and cooled-water discharged would neutralize the thermal effects of both. This opportunity does not exist at the Point Conception site.

Should the Point Conception location be selected for an LNG facility despite the greater damage to fish and wildlife resources, there would be three alternative pipeline corridors from the Point Conception site to the Arvin substation near Bakersfield at the terminal of the connecting pipeline. The Department agrees with the staff of the FPC that alternatives B and C, as outlined in the DEIS, should be implemented. Alternative B would avoid major impacts on rare or endangered species of plants and animals and on valuable wildlife habitat. This route would parallel more existing roads and pipeline corridors, and impacts on Cuyama River riparian vegetation could be minimized with proper planning. Alternative C would avoid adverse impacts to the Tejon Hills and would follow more existing roads and pipeline corridors. In addition, there are two alternatives for location of the proposed pipeline from Arvin to Cajon. The Department again supports the FPC staff recommendation between alternatives D and E, if adequate mitigation of adverse impacts is provided. It should be noted, however, that even the best alternatives for pipeline routing from the Point Conception site would result in far worse impacts on fish and wildlife resources than would the pipeline routes of the alternative sites at Oxnard, Los Angeles Harbor, or San Onofre.

2. Adequacy of the Draft EIS - The Department recommends that the following comments be addressed in the final EIS for this project:

- A. General comments - More information is needed in the DEIS regarding the specifics of pipeline routing from alternative LNG terminal sites under consideration. While these alternative sites are clearly preferable to the Point Conception site, additional information is necessary to insure that the best route for the connecting pipelines from the alternative sites can be identified. This information is also necessary to better enable determination of the best alternative site and any mitigation measures which may be required for that site.

It is also recommended that the DEIS include fish catch statistics compiled by the Department of Fish and Game for the areas near the proposed LNG facility. Ten-year data on commercial catch and kelp harvest would be desirable for fish catch blocks 643, 658, 657, and 656.

Part of the proposed route from Arvin to Cajon would traverse proposed critical habitat for the California condor. See the environmental staff's responses to Endangered Species Productions Inc. comments concerning the California condor.

The environmental staff is of the opinion that sufficient information was provided in the DEIS to allow the appropriate decisionmakers to assess the environmental impacts.

Additional information has been provided in the impact section on "Marine Biota" in the California portion of the FEIS.

B. Specific comments - These comments refer to:

Page III - 183, 203 - Details of the proposed circulating seawater system for the LNG facility, especially the placement and configuration of the intake structure, should be included in the final EIS.

Page III - 185, first paragraph - All aspects regarding the disposition of the excess 1,000,000 cubic yards of fill material should be discussed in the final EIS.

Page III - 185, last paragraph - This section and the project description section dealing with the proposed pipeline corridors are too vague to enable full assessment of the potential impacts on fish and wildlife resources. Larger scale maps delineating pipeline routes in more detail are needed in order to obtain this information.

Page III - 193, last paragraph - The statement that many populations of rare or endangered plants impacted by this project would probably reseed themselves and thereby not become extinct is questionable. Certain of these species may not be able to reseed themselves because of adverse pipeline construction impacts such as the removal of fertile topsoil and the exposing of less fertile sub-surface soils. One method of preventing this occurrence is to stockpile and replace fertile topsoil and follow with specific revegetation efforts such as the removal of competing vegetation and any necessary watering.

Page III - 195-200 - This section gives the impression that the ultimate result of this project on wildlife populations would be a slight increase in carrying capacity within habitat adjacent to the project. While for certain species over a short period of time the carrying capacity of adjacent habitat may increase slightly, the ultimate impact of the destruction of wildlife habitat by this project will nevertheless be the loss of those wildlife populations dependent on the destroyed habitat.

Page III - 200, second paragraph - The impacts relating to construction of access roads, pipeline routings along ridges, and new off-road vehicle trails need to be discussed in terms of the total acreage of each major habitat type expected to be destroyed. This information is necessary in order to adequately evaluate the impacts of this type of habitat loss on wildlife populations.

Page III - 208, first paragraph - Inferring the effects of project destruction of 1.1 square miles of San Joaquin kit fox habitat from overall fox population density estimates of one per square mile is incorrect. If critical habitat areas such as sites used for dens, feeding, or watering

Recommendations concerning this have been included in the FEIS on California.

The environmental staff has made a recommendation concerning disposal of excess overburden materials.

The detailed maps requested are not available at this time.

The statement has been changed in the FEIS. In addition, recommendations concerning the protection of rare species have been included in the FEIS.

The environmental staff does not agree that this section gives the impression that an increase in carrying capacity in adjacent area would occur.

This information was provided in Table 24 on Page III-186 of the DEIS.

Recommendations in both the DEIS and FEIS concern the protection of rare, endangered, or protected species.

purposes were destroyed, the impact on kit fox populations could be much more significant than this paragraph implies.

Page III - 208, second paragraph - Prior to pipeline construction, studies should be conducted to determine whether Mojave ground squirrels are present within areas of habitat that would be destroyed by pipeline placement. If the studies show they are present, the pipeline routing should be altered sufficiently to avoid any adverse impacts.

Page III - 264, last paragraph - This section fails to propose adequate mitigation for project destruction of about 300 acres of wildlife habitat associated with construction of the LNG facility. Planting of ornamental trees for visual screening purposes will not mitigate the loss of wildlife habitat. Adequate mitigation could involve a combination of actions such as planting native vegetation beneficial to wildlife and acquiring and improving wildlife habitat in adjacent areas to maintain wildlife populations equivalent to pre-project levels.

Page III - 273, third paragraph - The Department believes that a firm commitment by the project sponsor to implement an adequate revegetation program, involving initial planting and maintenance until vegetation is able to sustain itself, is necessary. Such a commitment is necessary to assure that the desired mitigation will be accomplished.

Page III - 273, third paragraph - Capture and relocation of kit fox prior to pipeline construction would provide inadequate protection. Because the basic problem would be habitat loss, a more desirable course of action would be to alter the pipeline routing to avoid critical areas.

Page III, 271-274, Mitigation Section - This section should consider one additional easily implemented method for mitigating some adverse impacts on wildlife habitat. We recommend that revegetation should proceed along the pipeline corridor immediately following the construction crew activity in order to return the corridor to full utilization by wildlife as soon as possible.

Page III - 278, second paragraph - Unless a specific revegetation program is implemented, pipeline construction could have a long-term rather than a short-term impact on certain species of wildlife whose requirements for dense cover are rather specific.

Page III - 376, no. 5 - The Department would appreciate an opportunity to discuss the proposed seawater intake and fish return system with the project sponsor prior to a final decision of its configuration.

See previous response.

A recommendation concerning revegetation at the LNG site has been added to the FEIS. The areas adjacent to the LNG plant site are private property, and the applicant would probably not even be allowed access to them.

As noted in the DEIS, this section contains only those mitigating measures which the applicant has proposed. Therefore, it would be highly misleading if the environmental staff included other measures which it might deem necessary. For the environmental staff's proposals on restoration and revegetation, see the recommendations in the FEIS. These measures would be in addition to the applicant's proposals.

A recommendation to use critical habitat areas as a pipeline routing criteria is in the DEIS and FEIS. In addition, this subject was discussed in the "Alternate Pipeline Route" section of the DEIS.

See the environmental staff's response to the comment concerning Page III-273, two paragraphs above on this page.

The environmental staff agrees that the applicant should discuss the design features of the proposed circulating seawater system with the Resources Agency of California and the California Department of Fish and Game.

Page III, 377, no. 7, 8 - The Department recommends that mitigation be required for any loss of giant kelp (Macrocystis) or commercial and sport fishing opportunity resulting from the construction and operation of the proposed project.

Page III - 427 - Blasting in the marine environment would require a permit from the Department of Fish and Game.

This is discussed in the impact section on "Marine Biota" in the FEIS concerning the Point Conception LNG terminal.

Comment accepted. This information should be added to Appendix D in Volume III.

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Ocean Development  
Department of Parks and Recreation  
Department of Water Resources

EDMUND G. BROWN JR.  
GOVERNOR OF  
CALIFORNIA



Air Resources Board  
Colorado River Board  
San Francisco Bay Conservation and  
Development Commission  
Solid Waste Management Board  
State Lands Commission  
State Reclamation Board  
State Water Resources Control Board  
Regional Water Quality Control Boards  
Energy Resources Conservation and  
Development Commission

Comments received too late for environmental staff's  
evaluation.

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THE RESOURCES AGENCY OF CALIFORNIA

SACRAMENTO, CALIFORNIA

MAR 2 1976

Mr. Kenneth F. Plumb  
Secretary  
Federal Power Commission  
825 North Capitol Street  
Washington, DC 20426

Dear Mr. Plumb:

In a letter dated February 11, 1976, the State of California transmitted comments to you regarding the Federal Power Commission's Draft Environmental Impact Statement regarding the Alaska Natural Gas Transportation System (Docket No. CP-75-76 et al). In that communication we indicated that we anticipated submitting additional comments on the draft environmental impact statement within the following 45 days.

Attached herewith are supplementary comments from the State Water Resources Control Board which should be considered along with our previous comments. Please be advised that we may submit additional comments within that 45-day period indicated in our letter of February 11, 1976.

Sincerely,

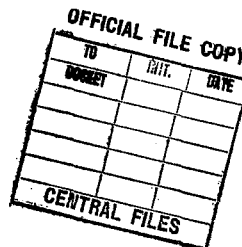
CLAIRE T. DEDRICK  
Secretary for Resources

By *L. Frank Johnson*

Attachment

cc: Council on Environmental Quality  
722 Jackson Place, N.W.  
Washington, DC 20006  
Attention: Mr. J. Brubaker

Director of Management Systems  
State Clearinghouse  
Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814  
(SCH No. 76011263)



STATE WATER RESOURCES CONTROL BOARD  
RECEIVED SUPPLEMENTARY STAFF ANALYSIS  
OF THE  
MAR 10 10 53 AM '76 DRAFT ENVIRONMENTAL IMPACT STATEMENT  
ON THE  
FEDERAL POWER COMMISSION ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
BY THE  
SCH 76011263

The following comments have been prepared by the State Board staff following a review of the subject statement as circulated by the Federal Power Commission on November 28, 1975. The Draft Environmental Impact Statement (DEIS) incorporates, by reference, the previously circulated DEIS on the Alaska Natural Gas Transportation System by the U. S. Department of Interior (USDI). Therefore, the comments consider problems with the use of both draft statements for the purpose of the proposed FPC action on the application of El Paso-Alaska Company.

This analysis is a supplement to comments transmitted to the Resources Agency on January 28, 1976, for inclusion in the State comment letter.

The explanation of the relationship of the Federal Power Commission's Draft Environmental Impact Statement (FPC-DEIS) to the earlier U. S. Department of the Interior's Draft Environmental Impact Statement (USDI-DEIS) is poorly defined and contains several ambiguous statements. Since the purpose of the EIS's is to provide decision makers with information on a choice of conveyance methods, a clear comparison of environmental impacts of all major alternatives is necessary.

The pipeline routes described in the USDI-DEIS should be supplemented in the FPC-DEIS by clear cross referencing and systematic comparisons of overall impact with the liquid natural gas (LNG) ship transport proposals contained in the comparative volume (FPC-DEIS, I-197 to 257). Pages I-3 and I-4 of the FPC-DEIS indicate acceptance of all but a few minor components of the USDI-DEIS by the FPC staff. Even if acceptance of the USDI-DEIS by staff is equivalent to incorporation by reference in the FPC-DEIS, the FPC is not relieved of the responsibility to discuss identified alternatives which are not adequately treated in either of the existing documents. The most significant pipeline alternative left undiscussed is the proposal to distribute gas in the lower 48 states by displacement or transmission within existing systems and to eliminate the construction of laterals to the California market and the proposed extension beyond the Chicago area to the east (see comments on USDI-DEIS, part VI (c), page I-17, FPC-DEIS and pages I-198 to I-200, I-225, 226, FPC-DEIS).

Neither the FPC nor the USDI has accepted responsibility for preparing a complete EIS providing systematic discussion of the relative merits of land pipeline and ship LNG transport. Neither agency has provided a detailed

discussion of the above mentioned alternative, which appears to offer substantial economic and environmental advantages over any of the systems described in detail in the two existing draft EIS's.

The economic analysis provided by the FPC indicates a significant advantage for the pipeline proposal described in the USDI-DEIS under all but the most pessimistic assumptions (FPC-DEIS I-29). The economic comparison is not extended to cover the displacement alternative with elimination of pipeline construction in the lower 48 states. The "comparative volume" of the FPC-DEIS (pages I-197 to I-257) fails to provide a systematic comparison of impacts, costs, and benefits of pipeline and LNG ship transport. It concludes by recommending choices between two alternatives, neither of which has received detailed discussion: the displacement alternative for land pipeline transmission and the Oxnard site for the LNG terminal in California (FPC-DEIS, page I-256). A minimum adequate discussion would provide detailed descriptions of the nature and expected environmental impacts of all seriously recommended alternatives and systematic comparisons of the relative advantages and disadvantages of the recommended dissimilar solutions. The conclusions section ends by passing the responsibility for full discussion of the environmental consequences of the recommended alternative to the environmentally concerned groups and individuals who will be commenting on the draft EIS (page I-257 FPC-DEIS).

The bulk of volume I is an economic analysis of the effects of various choices of plans for disposition of Alaskan gas supplies. The following comments are not a detailed critique. They only show that the existing discussion is a questionable tool for decision making. Page I-29 summarizes the results of the analysis by determining net economic benefits to the United States for the Alaska-Canada pipeline and the LNG ship transport system under three sets of assumptions, a base case, an optimistic case, and a pessimistic case. The pipeline alternative provides greater benefit under the base and optimistic cases and less benefit under the pessimistic case. The net differences are 0.3 billion dollars in favor of the pipeline in the base case, 3.2 billion dollars in favor of the pipeline in the optimistic case, and 0.5 billion dollars in favor of LNG transportation in the pessimistic case. A variety of information which could easily produce significant shifts in the estimates reported was apparently ignored in arriving at these conclusions. The report examines planned LNG imports by the El Paso-Alaska, Pacific-Indonesia, and Pacific-Alaska Projects, but does not consider the Pacific-Australia and El Paso-USSR (eastern) projects identified in Table 8-9, Volume VI, page 39 of the USDI-DEIR or the already existing Alaska-Japan LNG export project (Ocean Industry, November 1975). The Alaska-Japan project is particularly important because it indicates the enormous flexibility of LNG ship transport as compared to pipeline transport. American LNG sold overseas would have effects on the balance of trade which would magnify the effect of the sale upon the net economic benefit and enormously complicate the necessary analysis. The Australian and USSR proposed imports to the west coast would influence the size, siting, and associated impacts of the proposed combined facility for LNG regasification. Since the margins of difference suggested by the FPC analysis are small compared to the total dollar amount, neglect of complicating factors can be expected to produce significant discrepancies in cost benefit estimates.

The site description provides some discussion of weather conditions at Point Conception and notes the frequent occurrence of high velocity winds (page III-25) and severe waves (page III-73). No attention is given to the effect of weather upon loading and unloading of hazardous materials except for a general account of procedures if heavy weather occurs. The report should estimate the amount of time that wind and sea states sufficient to interfere with LNG and fuel oil operations can be expected. Seasons occur at Point Conception where weather conditions could interfere with the flow of materials sufficiently to interrupt operation of the plant and so give rise to the thermal shock associated with interruption of seawater heating circulation. Discussion of weather problems at Point Conception should be correlated with a similar discussion for the Alaskan port of origin, since winter weather conditions at either end of the shipping route may not permit the proposed continuous operation of the regasification plant.

The report discusses some aspects of LNG spill hazards, but does not contain an adequate description of spill hazards associated with the establishment of a major refueling station handling Bunker C fuel oil. An oil spill discussion including predictions of routine, largest expected, and largest possible spills, spill contingency plans, expected adequacy of clean-up procedures under predicted sea state variation, and special toxicity problems associated with Bunker C fuel should be included as specified in the U. S. Coast Guard Guide to Preparation of Environmental Analyses for Deep Water Ports 1975, Chapter 5, Accident Potential and Oil Spill Analysis. This discussion should cover the largest predicted traffic flow under the recommended conditions of combined operation of the site for handling all expected LNG imports to California.

In line with the requested discussion of increased oil spill risks, the report should discuss the effects of proposed ship and barge traffic increases on the general pattern of coastal shipping. The proposed sources of fuel oil and barge routes should be identified. Increases in Los Angeles air basin pollutants should be identified if fuel is transported from there. The increased risk of shipping accidents and associated oil spills resulting from LNG tanker traffic, fuel barge traffic, and their interaction with the expected ship traffic increases resulting from Trans Alaska Pipeline Oil shipments should be discussed. Quantitative predictions should be supplied for air quality effects associated with plant operation, fuel transfer, routine in-plant malfunctions, increased ship traffic, and increased associated activities. This set of predictions should be analyzed for site specific contributions to Southern California air quality problems at each proposed location.

The discussion of the marine environment, the expected effects of the seawater system, and the possible mitigation measures is inadequate to satisfy the requirements for evaluation of environmental impacts prior to establishment of discharge requirements under the National Pollutant Discharge Elimination System. The Point Conception area is one of the most isolated spots on the California Coast and its natural resources have been protected primarily by difficulty of access. The presence of the LNG plant and the associated marine activities will create a significant potential for degradation of the marine environment.

Descriptions of the proposed intake and outfall lines for the seawater system should be provided. The authoring federal agency has the responsibility to develop such information if it is not provided by the applicant. Information on plume size and shape, expected dispersion under alternative wind, tide, and current configurations, effect on bottom dwelling organisms of the dense cold outflow, oxygen content after the sulfite/acrolein reaction, and chemical composition of the effluent would be required to assess biological effects of the cold-water discharge. The possibility of extending the outfall to deeper cold waters or to a submarine canyon should be considered as a method of mitigating thermal shock.

The baseline survey of the marine biota should be of sufficient quality to permit assessment of both chronic and acute changes. Specifications for such a baseline study are contained in the California Water Resources Control Board State-Regional Board Marine-Estuarine Technical Committee report: Oceanographic Study Specifications for the Monterey Peninsula Water Pollution Control Agency Clean Water Grant Project, January 1976.

The biological transects and discussions presented on pages III-113 to III-122 do not contain enough detail to be used to assess changes occurring as a result of installation of the plant at Point Conception. No detailed information is provided for the other sites. As reported, the biological studies provide only gross qualitative information and could not be used to assess species composition shifts to be expected from cold water introduction unless such shifts were catastrophic. Early detection of long-term or low-level changes associated with steady increments of toxic ions or biocides requires detailed, quantitative baseline surveys.

The seawater discharge offers several potential negative impacts on the marine biota which are not adequately discussed in the DEIS: thermal shocks, metal ion leaching from the regasification piping, and chemical products of the acrolein/sulfite biocide system.

Temperature in the Point Conception waters runs near 55°F for most of the year. A 12 degree drop will produce a plume of 43°F water, cold enough to interfere with the life processes of most local organisms. Thermal shocks resulting from plume motion and from the cessation of plume formation during plant down-time should be discussed both for the LNG plant alone and for the proposed combined operation of the plant and the cooling system of a power-plant. The combined operation offers the possibility of both hot and cold shocks as either the powerplant or the LNG plant temporarily suspends operations. Such shocks would be expected to be particularly significant in the Point Conception area since many organisms exist near the extreme limits of their temperature tolerances at the overlap between northern and southern forms.

The engineering discussion for the LNG plant points out that nickel steel would be required to withstand contact with the cold LNG. Composition of alloys in the regasification system should be examined to determine the expected release of corrosion products into the excurrent seawater plume. Recent experiences with the Diablo Canyon Nuclear Powerplant have indicated that alloys supposed

4. capable of resisting seawater corrosion can release toxic quantities of metal ions as slug discharges after a period of shutdown when seawater stands in contact with large surface areas of piping. Toxic levels of nickel have been reported in powerplant effluents and the possibility of such releases from the LNG plant should receive special attention. Activation of corrosion processes by the acrolein/sulfite system and complex ions formed by this system should be examined. If other ions such as chromium may be released, they should be discussed.

The consequences of full or partial failure of neutralization of the acrolein biocide should also be discussed. The discussion should cover failure of the sensing devices controlling stoichiometric neutralization, the toxicity curve of neutralization failure from discharge of pure acrolein to discharge of pure sulfite at the concentrations that could be produced by equipment failure or improper operation, and the minimum concentrations of acrolein necessary to provide full protection to the operating plant.

The report indicates that 100 percent mortality can be expected for organisms passing through the seawater system, and that animals encountering the traveling screen will be rejected from the system in an injured state leading to early mortality (III-205). The magnitude and seasonal variation of the expected losses of fish, plankton, eggs, and larval forms should be described. Kill rates and numbers of organisms lost per year of continuous operation should be calculated. Larval and reproductive stages are seasonally abundant and should be taken into account in this analysis to determine any potential depressant effect on local sport fishing and commercial sea urchin harvesting.

Construction of the docking facilities would disrupt kelp harvesting activities for more than just the single harvest suggested by the mitigation measure on page III-377. The EIS should provide maps of the area cut off from production, the area made inaccessible to kelp harvesting boats, and should discuss the hazards associated with forcing small boats away from shore when they travel along the coast past the LNG site (III-236).

Dredging required for construction of the pier and small-boat harbor should be described. Volume estimates of required dredging, the configuration of the small boat harbor, locations and techniques for spoil disposal, and frequency of maintenance dredging should be described in sufficient detail to permit estimation of the magnitude of any threats to water quality.

Vulnerability of the outfall piping to stress and fracture caused by liquefaction of intermittent sand substrate under seismic shock should be discussed for the Point Conception site and for other sites which possess similar geologic configurations. Some explanation should be provided for the use of seismic design figures which match the maximum probable prediction (III-8) when a maximum possible event has been observed on the nearby White Wolf fault. Occurrence of this event (III-52) suggests that predictions of maximum probable magnitudes may be too small to serve as safe design criteria for equipment storing and processing hazardous materials.

Discussions of the effects of massive spills of LNG followed by ignition appear to neglect the effects of radiative ignition of other inflammable material, of fire storms triggered by the initial methane fireball, and of movement of the methane cloud under high winds after ignition. Two kinds of safety analysis are required for any project handling large volumes of inflammable gas. The first, which is roughly approximated in attachment 1, page II-545 and Appendix C, page III-404, calculates the percentage incremental risk to the population. The second, which is almost completely hidden within the first, calculates the size and the probability of the new catastrophic events which are made possible by introduction of the new activity. The analysis presented for the California coast progressively restricts the radius of damage in more densely inhabited areas, and thus reduces the predicted number of casualties. As noted above, the lack of consideration of events propagated from the original fireball makes this assumption highly questionable, and opens new possibilities for analysis of the desirability of the Oxnard and Los Angeles sites. Both the risk assessments performed for the FPC and the assessment performed for the Port of Los Angeles omit the hazards resulting from deliberate sabotage. This omission emphasizes the artificiality of a percentage risk assessment distributed through time. When choice of a remote site could substantially reduce the risk of a disaster, the risk analysis should include comparisons of the maximum and the reasonably expectable damage resulting from deliberate selection of the most unfavorable conditions.

Proposed wastewater treatment facilities and ballast water treatment facilities should be described in sufficient detail to indicate the adequacy of the proposed systems to prevent water quality impacts. This discussion should include provision of alternative treatment or holding tanks to prevent bypassing of untreated wastes to the receiving waters.

Gradual release of hydrostatic testing water and protection against release of toxic materials in solution in these waters should be specified as mitigation measures.

Pages III-399 and III-404 were missing from the copy provided for review.

# STATE OF ALASKA

## DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

JAY S. HAMMOND, GOVERNOR

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JUNEAU 99811

January 30, 1976

RECEIVED  
FEB 2 10 35 AM '76  
FEDERAL POWER COMMISSION

Mr. Kenneth Plumb  
Secretary  
Federal Power Commission  
Washington, D.C. 20426

Dear Mr. Plumb:

Enclosed is the State of Alaska's comments on the draft environmental impact statement entitled "Alaska Natural Gas Transportation Systems." This impact statement was reviewed by numerous individuals and departments within the State government, and the comments represent a compilation of each departments' concerns.

Sincerely yours,

*Avrum M. Gross, by AB*  
Avrum M. Gross  
Attorney General

AMG:db  
Enclosure

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FEDERAL POWER COMMISSION

COMMENTS OF THE  
STATE OF ALASKA ON  
THE DRAFT ENVIRONMENTAL IMPACT  
STATEMENT OF THE FEDERAL  
POWER COMMISSION ON ALASKA  
NATURAL GAS TRANSPORTATION SYSTEMS

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General Comments

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FEDERAL POWER COMMISSION

The El Paso, Arctic Gas and alternative routes recommended by the staff should be analyzed and presented in comparable fashion in the final impact statement. The draft impact statement attempts to accomplish this for the El Paso and Arctic Gas routes by using similar formats for the discussion of adverse impacts. (Vol. I, pp. 198-254). However, the treatment accorded each pipeline route within a particular environmental impact category is not similar. For example, under the section on "Geology and Soils" for the El Paso route (Vol. I, P. 230-31), the impact statement reports large amounts of gravel and sand will be required and that this gravel will be obtained from riverbeds. Under the corresponding section for the Arctic Gas route no comment is made concerning the needs of that project for sand and gravel. It is obvious, that Arctic Gas will also require large quantities of sand and gravel and this should be so stated.

In addition to the need to present a complete catalog of the impacts in a comparable fashion, the final impact statement must provide a comparative assessment of these impacts. The draft impact statement only informs one that an impact may or may not exist; it does not however, enable one to compare the relative impact of each pipeline. For example, the impact statement reports that both pipelines may create problems with ground water flow. However, it is not possible to determine if ground water disruption is likely to be more serious for the El Paso route or the Arctic Gas route; and why?

The improved and expanded analysis of adverse impacts suggested above must be presented for the two routes recommended by the staff as well as for the Arctic Gas and El Paso routes. The draft impact statement does not adequately document the reasons underlying the staff's recommendation.

A number of areas need additional discussion and study. An analysis of the overall energy budget of each project should be included in the final impact statement. This analysis should consider the amount of energy required by each system to put the physical facilities in place, as well as the energy required to operate the system. The problems of thermal discharge and chlorine discharge from the LNG plant need further

Note addition of statement concerning gravel requirements for Arctic Gas project in "Geology" section of FEIS.

analysis and alternatives to the present plan should be discussed. The discharge of chlorinated cooling waters might pose a serious threat to fisheries. Additionally, the source of hypochlorite should be considered including the possibility that hypochlorite may be generated on-site from sea water.

There is a lack of integration of various related impacts to produce a single statement of the impact of the proposed action on a segment of the environment. For example, gravel dredging for construction, ice dams and bottomfast ice resulting from the buried cold pipeline, and construction equipment fuel spills may not individually destroy a stream habitat, but the cumulative stress imposed on a given stream environment may do so. The DEIS evaluates each impact (resulting from a given stress) by itself; whereas, there may be a high probability of several stresses together resulting in a total impact greater than the sum of each individual impact. Similarly, the draft impact statement does not adequately address the gas pipeline's relationship with other large scale development projects which are likely to occur simultaneously. Most significant among these projects is outer continental shelf development and possible Pet. 4 exploration and development.

The draft impact statement, in its analysis of socio-economic impact, seems to assume that short run imbalances between local expenditures and revenues will be off-set by state revenues. This is certainly one possibility, however, alternative methods of off-setting this imbalance are also possible and should be discussed, including partial funding of extraordinary costs by the pipeline company.

The draft impact statement summarizes a Resources Planning Associate study concerning possible uses of natural gas within Alaska. Because this study contains many weaknesses both in basic assumptions and methodology, we have undertaken to provide specific comments on the study itself rather than the summary contained in the impact statement. Some general comments on the study are presented here. The study fails to present a complete and thorough quantitative analysis. A proper quantitative analysis would include analysis of the savings in transportation costs of such products as metal ores if, primary and secondary processing occurred in Alaska versus transporting the bulk ore out of State. Admittedly, this is a major undertaking, but is necessary, since to conduct only a partial quantitative analysis, results in biased and misleading conclusions. The study did not consider all reasonably foreseeable uses of gas. In particular, the study should have examined a possible cement plant, another fertilizer operation, a nickel-copper mine and

See the environmental staff's response to the Environmental Protection Agency's comment pertaining to the discharge of chlorine.

Short-term imbalances could be met by a variety of sources or measures, but state resources will be substantially augmented by oil revenues and appear to be the most readily accessible source.

See section entitled "Supplemental Analysis" in Volume I, Appendix C, for a discussion of the points raised in this comment. The 5-page attachment to this letter containing comments on the RPA study was appreciated and utilized in preparing the "Supplemental Analysis" section in Appendix C. However, an individual response has not been prepared for each comment made since the comments were specifically directed to the RPA study and not to the DEIS. A quantitative analysis of transportation costs was not felt to be necessary for the scope of analysis presented in the FEIS.

smelter. The study assumes today's demand, which is clouded with uncertainty and therefore cautious and embryonic, will be the same in the future. This simply is not so. Conditions in five to ten years are likely to change substantially in favor of making Alaska a more attractive market in which to use natural gas.

Volume I

- P33 The draft impact statement assumes the U.S. will absorb 75% of the cost of facilities in Canada. This should be contrasted with the Department of Interior assumption that 82% of such costs will be absorbed by the U.S.
- P82 The DEIS, in the last paragraph on present housing conditions, suggests that a surplus of housing might exist during the post-Alyeska period. The Department of Housing and Urban Development, however, has projected a continued shortage of housing, especially in the Fairbanks region. HUD notes that total current (November 1975) housing starts account for only 36 percent of the projected incremental demand for housing which will remain by April of 1977.

- P86 The last line on page 1-86 states Cordova appears to be able to absorb new demands on its public utilities as a result of a current program of utilities and improvement. However, Cordova's public utilities may not be able to meet the demands envisioned. Cordova's population has doubled since 1970 as a result of both natural growth and municipal annexation. A major portion of the city's capital improvements program is directed toward providing and upgrading services to its existing residents. The sewage treatment plant has a design capacity of approximately 4,000 population. With some additional improvements, the water distribution system could accommodate the same 4,000 person population level.

The El Paso report projects a long-term increase of 1,800 people to Cordova's population. This would result in a post-construction population of roughly 4,200 people. Existing utility plants would be operating at or above capacity continuously to supply this population level, with no margin for equipment failures, extreme weather conditions or other emergencies.

During the construction phase of the El Paso project, peak population is forecast to reach 7,100 people above present levels.

The environmental staff was unable to locate this report. The Anchorage Office of HUD referred us to their report of June 1975, which anticipated a continued tight housing market. However, in reflecting on current unpublished data, the HUD official in Anchorage suggested that surpluses of housing were developing as the Alyeska effort decreased.

Pages I-85 and I-86 were inadvertently reversed in order. The correction has been made.

See the section discussing impacts on selected private services.

See above response.

See above response.

(El Paso, Mid-1975 Socio-economic Report P44-51) It is clear that this figure far exceeds the present capacity of Cordova's utilities, and some measures to mitigate these impacts and augment the existing utilities should be considered in order to prevent Cordova from incurring much higher short-term costs than the long-range population alone would require.

The DEIS analysis fails to address possible local competition for public services and utilities as a result of outer continental shelf petroleum development. Cordova is planned by industry as one of the primary staging and service bases for supporting development of the Gulf of Alaska's outer continental shelf. If Federal leasing takes place in the Gulf of Alaska during 1976 (as scheduled), the El Paso project would create impact demands during the 1978-1980 period which will be in addition to a high level of outer continental shelf exploratory activity. This must be considered by the DEIS in order to obtain a more accurate picture of probable demands on municipal services and Cordova's ability to meet those demands.

P86-7

The surmise, in paragraph 3 on page 1-86, that the "public utilities sector has been able to meet the rising demand for its services generated by the Alyeska construction" appears to be based on a report dated July 1974. (The reference in the footnote on page 1-86 is in error -- the Fairbanks Impact Information Center's Report No. 2 was printed in July of 1974, not 1975.) In the past year and one-half, though, the Fairbanks Municipal Utility System's services have become hardpressed to meet demands. Impact Information Center Report No. 20, September 17, 1975, indicates that Fairbanks Municipal Utility System's water treatment plants are operating at or near design capacity. In the month of July, for example, amounts of water in excess of design capacity were delivered during one-half of that month, with one of the two plants operating at 122 percent of design capacity for the entire month. It is apparent, then, that a continuation of this level of demand will necessitate additional capital expenditures in Fairbanks's public utilities. Any incremental population growth would certainly create a need for capital expansion.

See above response

If Outer Continental Shelf petroleum development, with Cordova as a primary staging and service base, begins prior to or occurs simultaneously with construction of a trans-Alaska gas pipeline, the base case would be different. The demand for municipal services would be higher in Cordova, but it is not clear how rapidly Cordova could move to augment its services. OCS development is considered in the accelerated MAP model projection.

The error has been corrected.

This report goes on to state that there was no possibility of a water shortage in the near future. Nevertheless, the Fairbanks Municipal Utility System was planning a new 2.5 million gallon storage tank.

In the last paragraph on page 1-110, the DEIS makes assumptions about the State's future allocation of revenues that gloss over certain economic problems. In effect, the DEIS states that a local revenue/expenditure shortfall is acceptable, as the State will have surplus revenues to meet those shortfalls. This does not recognize the existence of other pre-existing public needs which might receive political priority and assumes a course of events over which the regulatory agency has no control. It is possible that municipalities could face a very real economic "crunch" that would not be addressed by the State. It would be more useful in the DEIS presented an indication of the amount of local shortfall expected during the alternative natural gas transportation projects; such an estimate would be helpful in designing policies related to socio-economic impacts and mitigation measures.

P109-10 Paragraph 1 on page 1-110 states the assumption that the demand for local services may be falling, due to the completion of the Alyeska project, at the time a natural gas transportation project commences. However, as noted in the introduction, this "excess supply" may not appear. The current population projections used by El Paso and the State of Alaska project no decline in State population during the post-Alyeska period and the Arctic Gas population projections of January 1974 foresee an actual post-Alyeska decrease of only 1 percent of the State's total population.

If the public service demands related to rapid population growth do not decrease in the post-Alyeska period, the DEIS conclusions regarding local governmental finances may need revision. This is especially true if the economic slowdown following completion of the Alyeska pipeline would result in a reduction of revenue from local sources. The DEIS suggests that local property and sales tax revenues may cease to expand or, in the case of sales tax, decline once the high-paying pipeline employment ceases. This would serve to increase local municipal reliance on State funding, as local revenues would continue to fall further behind local service expenditures (assuming public demands are met).

The state may not have surplus revenues but will experience a large increase its revenues when oil flows in the Alyeska oil pipeline. The state may choose not to support a local government revenue shortfall during gas pipeline construction, but the state did provide some impact monies to localities during the Alyeska construction. Projecting the size of a shortfall would be most difficult since it depends not only on needed additional expenditures but also on the level of state support and other local revenues.

If Alaska's population does not decline after completion of the Alyeska project, it is unlikely that the demand for local services would fall.

In fiscal year 1975, sales tax revenues amounted to less than 5 percent of total local government receipts in Alaska. If this revenue source declines after Alyeska is completed, the reliance of local governments on the state for receipts would increase only a small amount.

P115 The assumption that throughput will be 3.5 bcf/d probably overstates initial throughput. This in turn results in an overstatement of production taxes (state revenues) and also employment and population increases. It should also be noted that the model does not incorporate depreciation of the pipeline. Consequently, State revenues are also overstated for this reason. Employment and population impacts are likewise overstated.

P115 The assumption of a wellhead value of \$5.00 per barrel of oil is inconsistent with the assumption of \$9.00 wellhead value on p.33.

P208 The Statement that the airfields, roads and communication network associated with the Arctic Gas project would stimulate prospecting in the arctic needs classification. Exploration is already being carried on extensively through the use of aircraft. However, a gravel road, if constructed along the right-of-way because a snow road proves unworkable, might stimulate adventurous travelers.

P215-16 The most significant impact of the Arctic Gas project on land use values is not identified. The Arctic Gas project will irreversibly impair the wilderness value of the National Arctic Wildlife Range.

P218-19 Venting of vapors and gas, either routinely or during an emergency shutdown, will also affect air quality.

P236 While the El Paso route will no doubt have some effect on caribou, that impact seems to be overstated, at least in comparison to the Arctic Gas route. The El Paso route does not affect any major caribou migration routes or calving grounds as does the Arctic Gas route. Riparian habitat may not significantly affect moose where the willow or other browse reestablishes itself.

P243-244 The air quality problems resulting from the compressor stations and work camps should be discussed in greater detail here, or elsewhere in the impact Statement. Such problems should be discussed in relation to "no significant deterioration controls."

Throughputs have been revised. Depreciation should be taken into account or future state revenues would be overstated and, as a result, employment and population may be overstated.

The wellhead value has been revised for the socioeconomic analysis.

Note additional statement added to Volume II "Land Use" section in FEIS.

Note addition made to statement in Volume II "Air Quality" section of FEIS.

Volume II

- P24 Consideration should be given to the source of water for use in the living quarters and the alternatives of using wells rather than trucking water.
- P230 The romantic characterization of Alaska as a "treeless wilderness, sparsely populated, with some small village establishments in which local inhabitants exist primarily by fishing and hunting" is perhaps reinforced by the use of extremely outdated population figures. These populations appear to be based on 1970 data and do not reflect the more recent data presented in Volume 1, Section B.3(a) of the DEIS.
- The third paragraph erroneously places the Matanuska Valley in the interior region, rather than in the Anchorage area.
- The introductory section on land use mentions the land planning efforts of the North Slope Borough and the Fairbanks North Star Borough without giving an adequate impression of the real extent of those governmental units and their relation to the cities that they include. This lack, combined with poor population data and the inference that there is no organized borough in the Anchorage area, gives a very poor picture of the existing land use and planning situation.
- The superficial treatment of land uses within the established communities also provides no basis for comparing land use needs associated with the proposed projects with land availability or suitability for development.
- P271 The problems created by a frost bulb at stream crossing is discussed here, but actions for mitigating this impact are not discussed in the section on mitigation.

- 1 The applicant has indicated that the exact locations for water withdrawals have not been selected. Sources would be studied and submitted to the Department of the Interior and the State of Alaska for approval.
- 2 Throughout the subsection, it is evident that the treeless wilderness of the north slope gives way to more development farther southward. Even the trees are larger farther southward. In regard to the population, the U.S. Bureau of the Census reported the population density of Alaska at 0.5 persons per land square mile -- the most sparsely populated of the 50 states. In comparison, Wyoming, the next least densely populated state has 3.4 persons per square mile, according to 1970 figures. Should the population double in the planned 1976 Special Census for Alaska, it would still be the least densely populated state.
- 3 We agree. The intent was to note the Matanuska Valley was noted for individually large produce and that it was located in the interior as opposed to the coastal facade. However, the comment should read, "The agricultural Matanuska River Valley, noted for unusually large produce is south of the Alaska Range."
- 4 It is not the purpose to present the full scope of activity of local planning efforts but to identify it and provide some indication or measure of achievement. This we believe has been accomplished by indicating that the North Slope Borough initiated efforts in 1972 to develop a comprehensive plan and enact a zoning ordinance for some of the villages; and that the Fairbanks North Star Borough has a zoning ordinance, a general plan and a comprehensive plan. The applicant was silent regarding land use planning activity in the Anchorage area, apparently because Anchorage was generally outside of their study corridor.
- 5 We believe the description is commensurate with the perspective of the proposal. For example, the El Paso pipeline would require only 5,752 acres for the life of the project in a state of 586,412 square miles. Furthermore, at this it is not possible, nor the intent of the EIS to identify special land uses within a community.
- 6 The applicant has indicated that no specific studies of the problems created by a frostbulb at stream crossings nor ground thermal simulations of buried pipelines at river crossings have been conducted. Such calculations would be made during the detail design phase of the project. River crossings would then be assessed on an individual basis utilizing such calculations in conjunction with existing literature, arctic engineering judgment, and field experience obtained by Alyeska and the applicant.

P302-06 This section concentrates on the land use needs associated with the pipeline right-of-way and direct construction activity, while ignoring entirely the secondary land use impacts of support services and increased population. These associated land use impacts could prove critical, especially for those areas in which large increases in population are projected. The importance of the land use needs of support services and increased population and the problems that rapid changes in land use demands and patterns create must not be overlooked. This could be critical in Cordova's case, especially if development of the outer continental shelf results in a competition for land suitable for industrial and community uses.

P367 Estimates or expected limits on "disturbances" and "heated water discharges" and the like should be known and given, including estimates on the nature and extent of associated environmental consequences. The heated water discharges are of particular interest and concern due to the potential for harming the biota.

P373 Reference to latitude 56° (Alaska) is arbitrary as a cut-off for summer traffic promoting land subsidence, gullyng and slumping. If this is to acknowledge damage that can be wrought by project related activities on permafrost areas, those areas should be clearly delineated, with the probable nature and extent of damage referred to in Vol. II, pp. 257-261 appropriately shown.

Gullyng and slumping will not be limited to those areas north of 55° latitude (Alaska) although permafrost areas within Alaska are the most sensitive of all areas to be affected by summer traffic. However, disturbance of certain saturated Rocky Mountain and Northern Plains soils is also a serious problem, particularly when disturbance occurs during the spring season.

If such a major seismic event is not unlikely, potential consequences should be listed including: 1) degree of damage that could be realized, 2) probability of line or facility fire, explosion or other effects, and the resultant hazards to population centers and the environment, 3) types, possible locations, and severity of physical hazards associated with a seismic event of this magnitude.

7 We agree that the population increase will result in secondary land use impacts. While secondary impacts may not be as quantifiable as one would prefer, they are treated in Volume I, subsection entitled "Projected Socioeconomic Impacts in State of Alaska."

8 These areas were discussed in the section on "Impacts to Marine Biota," Volume II of the DEIS, and will be discussed in the FEIS to the extent possible based on the information which is available. Recommendations concerning the heated water discharge are also included in the FEIS.

9 Reference to latitude 55°N can be deleted. If as much as 30 percent of the acreage involved in constructing and operating the pipeline is subject to permafrost problems, then some 5,300 acres would be impacted.

10 See Pages II-269, 270.

11 If a major seismic event occurred, damage could be extensive and danger of fire, etc., a reasonable probability.

419-430

In the discussion on environmental conditions, the following comments should be given consideration:

- a. Seismicity and/or landslide-induced destructive waves are not limited to local origins or to subaqueous landsliding. Adjust the last two paragraphs on page 419 to avoid ambiguity on this subject.
- b. There is no comment on the potential hazard of rime ice accumulation on vessels.
- c. There is no comment on the potential for outburst floods from ice-dammed lakes occurring at prospective sites in regions 4 and 5 (Post and Mayo, Ice Dammed Lakes and Outburst Floods in Alaska, U.S. Geological Survey, Hydrologic Investigation Atlas HA-455, 1071).

Comment reflected in Section H-2 of Volume II of the FEIS.

Only the Halibut Cove site was found to be endangered by outburst floods. (See Page II-483.)

P444

Reference to Juneau and Haines top recorded windspeed is not indicative of the severity of the winds that flow out of interior mountain passes primarily during the winter season. While seaward extent is generally limited, these winds expose large coastal areas and vessels to strong, turbulent gusts and rapid rime-icing. At the entrance to Taku Inlet, rime-ice has formed to several feet in thickness along the shoreline (personal communication, employees of Alaska Power Administration, 1975).

The wind value for Juneau given is from the Juneau airport, which is sheltered from the full extent of this wind, and somewhat sheltered from the full effects of strong southeasterly to southwesterly cyclonic winds. The same storm is responsible for the maximum wind statistic given in the EIS for Juneau, November 1968, was also responsible for an estimated peak windgust of 130 mph at Ketchikan. This may be more typical of maximum wind potential in Region 5.

No clear indication is given of the hazards to sea going vessels wrought by high seas frequently encountered in the Gulf of Alaska, regions 4 and 5.

Comment reflected in Section H-2 of Volume II of the FEIS.

Review Notes: RPA Alaskan Gas Use Potential Study

Errors in the list of references cited in Appendix A are indicative of the lack of attention to detail of the study and familiarity with the study area:

A-1 - James DeDenso...

A-2 - Anthony Motley - Commissioner Alaskan Department of Revenue.

1-3 - The three semi-final capital sites are excluded by RPC analysis.

1-5 - Alternative #4 has serious new construction problems compared with Alternative #3. The Livengood-Nenana Willow-Cook Inlet, underwater Cook Inlet and Kenai landing point-to-Nikiska segments would all require access and construction across new country. The Nikiska segment might coincide with new pipeline proposals for gas and oil supply to Anchorage.

The alternatives for the trans-Alaska pipeline (oil) considered and rejected the route to Redoubt Bay, near the approach of Alternative #4 to Cook Inlet.

The Alyeska pipeline route was selected for the following reasons: (page 12, Vol. 5) "Shortest total length, best accessibility from existing roads, better soil conditions, easier construction of access and haul roads, relatively few difficult stream crossings and a minimum of difficult construction areas."

The Redoubt Bay route considered then would have crossed the Susitna River near Willow rather than follow the east side of the river as in Alternative #4. The construction along the railroad right-of-way would require numerous crossovers to avoid sidehill cuts, railroad structures, lakes and rivers. A great deal of the area between Redoubt Bay and Willow is swampy and crossed by major streams (page 18, Vol. 5).

Construction costs under this alternative would drive the cost of the system out of the feasibility range. Similarly, the alternatives to the Arctic gas plan other than the prime route would add capital cost recovery factors which change the cost projections. Alternative #2 may be the highest cost route for that system.

A further consideration on the trans-Canada plan will be delay. The cost would have to include both lost production for the delay period and the inflated cost of construction owing to delay. Periodic annual revision of capital cost estimates in the order of \$1 billion per year have been normal.

The assumption that the potential for industrial use is confined to petrochemical or residential use neglects the changes time may bring. It is probable that the national demand for mineral resource products will expand during the approximately five year span necessary to construct and put a pipeline system into operations.

Each passing year will bring national mineral resource raw materials shortages into sharper focus. An integrated mine, smelter and transportation facilities system to supply these products may have attained the feasibility point before either system could deliver gas to South-48 markets.

Mineral resource products and fuel consumption will lag pipeline capability by several years, but the route choice now can determine feasibility. The potential should be examined from a more logical and realistic standpoint.

Analysis of branch pipelines is superfluous to the problem at hand. Residential use limits would also limit the potential for optimum benefit.

P. 2-2. The available annual volume would be 151 billion CF and 103 billion CF. The reference to 143 and 142 billion cu. ft. given in the text should be checked. Our assumptions, after the Alaska natural gas transportation system DEIS, show 3.5 billion cu. ft. per day capacity and 436 million cu. ft. per day royalty share or 159 billion cu. ft. of royalty gas available annually. (While these differences are small they may indicate a tendency to shave numbers to favor one plan or another.)

The gas price discussion is also especially important in terms of energy cost for industrial processing.

P. 2-3. The assumption that gas would be reinjected if the cost of transportation squeezes price below the cost of production, may need further refinement. There will also be a definite cost for reinjection. The incremental cost of production less the cost of reinjection should be considered as the marginal floor price.

P. 2-4. It would seem that volumes more closely related to the 3.2 MMCFD (used here) or the 3.5 MMCFD used in the draft EIS, would effect both production cost and wellhead value sufficiently to shade results.

P. 2-5. The assumption that there would no wellhead price to instate users seems questionable. This would be a fine subsidy to encourage instate use of gas, but does not seem likely under the current attitude toward industrial profits. Maximum use of royalty gas will also include maximum industrial use with benefits to the State flowing from property tax employee income taxes, and corporate profits taxes.

A more reasonable set of assumptions for this scenario would price the gas at wellhead plus transportation to the take-off point and assume user industry or utility transport from that point to plant or residence. If the State were to subsidize the industrial use in the manner assumed by R.P.A., the cost at the takeoff point would only include transportation to that point.

P. 2-6. State royalty gas take off to feed a Haines area nickel-copper reduction plant and iron pellet plant metallurgical center would be most feasible under this alternative. (#2) Takeoff for copper reduction plants south of the Brooks Range and in the Northway vicinity would also be among very probably energy uses.

For alternative #3, takeoffs at Big Delta and the south flank of the Brooks Range would serve industrial purposes to best advantage. RPA has already assumed (introduction and P. 2-7, 4.) that closer residential or industrial use would be served best from Cook Inlet.

Alternative #4 doesn't make much sense by any set of criteria. The south flank Brooks Range site would still be served, however.

The fluctuating load situation outlined under the branch pipeline assumption would be typical of purely residential or seasonal industrial use. Industrial loads and uses for processing mineral resources would be less variable and well within industrial problem solving capability.

Exhibit 2-2 shows 20 years of field, therefore, facility life. The cost assumptions (Appendix C-1) however, continue the payback period for 25 years. The table also needs further explanation of fluctuating El Paso product volumes and straight line gas Arctic volumes.

Pipeline life can be expected to continue far beyond either projection.

Exhibit 2-4. This should be footnoted to reflect the incremental value difference between production cost and cost of reinjection.

3-1. The demand for processing mineral raw materials has been neglected. This lacks realism, in view of rapidly developing shortages in domestic product capability.

P. D-2. Elimination of zinc industry on the basis of scarcity in Alaska reflects a serious ignorance of the potential situation. Zinc occurrences are known and could be developed. Mount Eilson, in Mt. McKinley National Park, is one such deposit. Another occurs on Sedanka Island, and zinc is a common associate with other base metals and hard rock gold and copper ores.

Aluminum treatment should be eliminated both because of scarcity and because the reduction process would require electrical, rather than pyro metallurgical energy. Alaskan mineral resource potential is sufficient to absorb excess of energy over export markets over the long-term future. Aluminum can be produced where hydro-power excesses occur.

P. D-3. The advantages of abundant supplies of favorable energy and the transportation savings possible through local processing of mineral products have not been given serious consideration. The option, however, should be open. The importance of these factors could be quite significant before the gas becomes available to other areas, and will become more important with time.

No negative decisions were reported for the firms surveyed. Further there is no assurance that the supply will be available for consideration in feasibility studies which might point to positive interest.

3-4. The only really pertinent reasons for lack of mining interest are the current lack of surface transportation and uncertainty over land status and State tax policy.

The national interest will require a more positive effort toward mineral production as shortages develop over time.

Who gave RPA its expert advice on shipment of iron ore pellets? The Klukwan ore mineral is a highly stable iron oxide compound. Pelletizing merely binds the finely divided particles of the recovery process into more easily handled form. Pelletized ore from the Lake Superior district (Michigan and Minnesota) is stored and in transit for periods of time at least as long as it would take to ship iron ore pellets to the West Coast.

P. B-5. We have considered a rather different scenario for mineral processing with the added advantage of potential for production of phosphate fertilizer by combining byproduct sulfuric acid from the smelting process with North Slope phosphate at a smelting plant near the pipeline.

P.P. 3-6,7. The potential for processing copper-nickel concentrates from the Brady Glacier and Bohemia Basin deposits at Haines can add feasibility for reconstructing the currently abandoned military fuel pipeline to gas transmission standards. The smelter and Klukwan iron development there would yield substantial resource production while providing an economy of scale to justify pipeline construction.

A petrochemical plant in the same area would add volume and transportation economy. A savings in transportation cost over the trip south by tanker would be realized for all products. While petrochemical processing is the obvious use, at this time, for Alaskan gas energy, the application of this energy to process other Alaskan resource products will yield larger returns to both the State and national economies. Use of natural gas to operate a cement plant should be among the potential applications. RPA has devoted far too little attention to the alternatives.

P. 3-7. Large Fuel Users: The assumption of no wellhead cost for instate gas usage defeats part of the purpose of fuel availability. A main purpose for having royalty gas available will be enhancement of royalty gas revenue to the State. The wellhead price plus reduced transportation cost could still result in substantial saving to users.

The use of natural gas for electrical generation, especially if extra construction is needed to deliver fuel for this single purpose, should be discouraged. Three times the energy deliverable must be burned. The chemical value and process efficiency for combination with or refinement of other resource products make gas too valuable to be wasted in this manner.

4-2. The estimate of 200 new jobs, relating to the copper mine in the Kobuk-Shungnak-Ambler areas, should be reconsidered. The mineralization indicated in that area will support a much greater work force and a small underground mine would be uneconomical in the current labor market. The 200 workers projected might represent some early phase of development work. The transportation facilities necessary for economical mining in the areas will also make possible, production from one or more large open pit or large scale underground operations. Each of these would employ 600 to 750 or 1,000 workers. A similar work force would be required if a metallurgical reduction plant is also included. The real saving in transportation costs, and, therefore, the opportunity for profit, comes in the volume and weight saving between ore concentrates and reduced metal.

Alternative #2 would be the most advantageous to the Alaskan economy, but also difficult to justify as a feasibly constructable pipeline route. An F.P.C. decision which prescribed this route might eliminate the trans-Canada plan from consideration on the basis of cost. This route was discarded for that reason when considered for oil pipeline construction.

The assumption of 1,500 mine and plant workers at Klukwan is much higher than the 900 estimated in a rather exhaustive feasibility study. The addition of a copper-nickel reduction plant near Haines could bring the mineral industry basic employment into the 2,000-2,500 range, however.

P. 4-5. The fallacy of the assumption that royalty gas would be supplied free of wellhead price has been noted. The idea is good, but the current tone of State government does not favor gifts or incentives to industrial users. Price reductions could be justified only if more than offset by other revenues or benefits from the operation in question.

The final statement on page 4-5 reflects some realism. The contention that basic industry jobs cost money to the taxpayers needs closer examination. While this is no doubt true for government employees and seasonal (part time workers), long-term industrial jobs would bring in more tax revenue than they absorb. The State revenues generated by pipeline employment, for instance, were surprising to the Department of Revenue. The very low proportionate part of the labor force in basic

industry in the past has obscured the value of steady productive employment and property.

The numbers used in the assumption list, (P. B-3) may be correct, but the examples given for derivation are confusing.



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JAN 16 9 26 AM '76  
Public Utilities Commission  
FEDERAL  
STATE OF CALIFORNIA POWER COMMISSION

ADDRESS ALL COMMUNICATIONS  
TO THE COMMISSION  
CALIFORNIA STATE BUILDING  
SAN FRANCISCO, CALIFORNIA 94102  
TELEPHONE: (415) 557.

0558

FILE NO.

January 15, 1976

To All Parties on Service List in El Paso Alaska  
Company, et al., FPC Docket No. CP75-96, et al.:

Re: FPC Draft Environmental Impact Statement  
Regarding Alaska Natural Gas Transportation  
Systems

Enclosed please find a copy of COMMENTS OF THE PEOPLE  
OF THE STATE OF CALIFORNIA AND THE PUBLIC UTILITIES  
COMMISSION OF THE STATE OF CALIFORNIA ON THE DRAFT  
ENVIRONMENTAL IMPACT STATEMENT RELATING TO THE ALASKA  
NATURAL GAS TRANSPORTATION SYSTEMS. We would appre-  
ciate your sending us a copy of any comments submitted  
by you with respect to the FPC Staff's Draft Environ-  
mental Impact Statement.

Very truly yours,

Frederick E. John  
Associate Counsel

FEJ:im

Enclosure

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL POWER COMMISSION

FILED  
OFFICE OF THE SECRETARY

JAN 16 9 27 AM '76

FEDERAL  
POWER COMMISSION

COMMENTS OF THE PEOPLE OF THE  
STATE OF CALIFORNIA AND THE  
PUBLIC UTILITIES COMMISSION OF THE  
STATE OF CALIFORNIA ON THE DRAFT  
ENVIRONMENTAL IMPACT STATEMENT RELATING TO  
THE ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

RICHARD D. GRAVELLE  
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FREDERICK E. JOHN

5066 State Building  
San Francisco, California 94102

Attorneys for the People of the  
State of California and the Public  
Utilities Commission  
of the State of California

January 15, 1976

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL POWER COMMISSION

COMMENTS OF THE PEOPLE OF THE  
STATE OF CALIFORNIA AND THE  
PUBLIC UTILITIES COMMISSION OF THE  
STATE OF CALIFORNIA ON THE DRAFT  
ENVIRONMENTAL IMPACT STATEMENT RELATING TO  
THE ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

The People of the State of California and the Public Utilities Commission of the State of California (California) hereby submit their comments on the FPC Environmental Staff's Draft Environmental Impact Statement (DEIS) regarding the Alaska Natural Gas Transportation Systems. California's comments will be restricted to those sections of the DEIS that more directly relate to California.

The key elements of the FPC Staff's DEIS include: (1) a summary of, and comments on, a study prepared for the Department of the Interior (DOI) entitled Alaskan Natural Gas Transportation Systems: Economic and Risk Analysis; (2) a brief analysis of the Arctic Gas system, with substantial reliance on the DEIS by DOI relating to this system; (3) a detailed analysis of the El Paso Alaska system, including the marine terminal and regasification facilities proposed by Western LNG Terminal Company in southern California; and (4) recommendations for changes in both the Arctic Gas system and the El Paso Alaska system.

At the outset it is noted that in its DEIS the FPC Environmental Staff did not reach a conclusion as to whether the Arctic Gas system or the El Paso Alaska system is environmentally preferable. The Staff indicated it would delay selection of "the preferred route" until it received all comments on the DEIS (I-257). In this respect, it should also be noted that the DOI DEIS, the major portions of which are adopted in the FPC Staff DEIS, made no choice between the Arctic Gas system and the El Paso Alaska system.

Based on the FPC Staff DEIS, and the DOI DEIS, it appears that the major routes upon which an ultimate choice will be made are as follows:

- 1.

## I. ARCTIC GAS SYSTEM

A. Applicants' Proposal. A 195 mile buried pipeline would extend from Prudhoe Bay on the Beaufort Sea Coast of northern Alaska, eastward through the Brooks Range and Arctic Wildlife Range, to the Alaska-Canada border (Alaska Arctic Gas Pipeline Company).

From the Alaska-Canada border a pipeline would extend east and south across the narrow Yukon neck to a point near Travaillant Lake in the Northwest Territories. From Travaillant Lake the pipeline would extend in a generally southern direction to a point near Caroline Junction, Alberta. At Caroline Junction the pipeline would bifurcate, with the western leg extending south to Kingsgate, British Columbia, just above the northern Idaho border, and the eastern leg extending to Monchy, Saskatchewan on the Montana border. This section of the Arctic Gas system through Canada would total 2430 miles in length (Canadian Arctic Pipeline Company Limited).

To transport the Alaskan gas to the midwest and eastern regions of the lower 48 states, a 1619 mile pipeline would extend from Monchy through Montana, the Dakotas, Minnesota, Iowa, Illinois, Indiana, Ohio and West Virginia to a terminus near Delmont, Pennsylvania. Along this route there would be eleven connection points to deliver gas to companies serving areas east of the Rocky Mountains (Northern Border Pipeline Corporation).

To transport Alaskan gas to areas in the lower 48 states west of the Rocky Mountains, two pipeline systems would extend from Kingsgate. Pacific Gas Transmission Company (PGT) and Pacific Gas and Electric Company (PG&E) have proposed four alternate systems to transport between 200 MMcf/d and 1200 MMcf/d to areas in the Pacific Northwest and to California. PGT and PG&E would expand their existing systems and would parallel their existing rights-of-way from the Idaho-Canadian border, through Idaho, Washington, Oregon and California, to a terminus at Antioch, California near San Francisco.

Interstate Transmission Associates (Arctic) (ITAA) proposes a 390 mile pipeline extending from Kingsgate to Rye Valley, Oregon. Gas would be delivered from the ITAA system to markets in southern California and in the Pacific Northwest through existing systems of Northwest Pipeline Corporation (Northwest), El Paso Natural Gas Company (El Paso) and through the proposed system of PGT and PG&E described above.

B. DOI DEIS. No changes recommended.

C. FPC Staff DEIS. A pipeline of approximately 735 miles would extend from Prudhoe Bay to the Canadian border. The first 460 miles would extend from Prudhoe Bay, adjacent to the Alyeska oil pipeline right-of-way, to a point northeast of Fairbanks (Livengood). From that point the pipeline would extend southeasterly along the Alaskan Highway for 275 miles to the Canadian border (Alaskan Arctic Gas Pipeline Company) (I-221, I-255).

In Canada the pipeline would extend in a southeasterly direction past Whitehorse to Watson Lake in the Yukon Territory and eventually join the applicants' proposed route at Windfall, Alberta. At that point the pipeline would extend southeasterly via the Red River Corridor through Alberta, Saskatchewan and Manitoba entering the United States near St. Vincent, Minnesota in the northwestern part of the state (Canadian Arctic Pipeline Company Limited) (I-219 through 222).

From St. Vincent, Minnesota the pipeline would extend approximately 125 miles in a southerly direction to a point near Ada, Minnesota. From Ada the route would extend approximately 625 miles in a southeasterly direction through Minnesota, Iowa and Illinois to a point of termination at Kankakee, Illinois just south of Chicago (Northern Border Pipeline Company) (I-222 through 225).

The Northern Border line would terminate at Kankakee, Illinois. Existing facilities in the lower 48 states, together with exchange agreements, would be used to distribute the Alaskan gas, until such times as additional volumes of natural gas become available to warrant further extension of the Northern Border facilities. Also, the Northern Border facilities would be scaled down to accommodate the initial 2 Bcf/d to be delivered from Prudhoe Bay (I-226, 227).

Neither the PGT-PG&E nor the ITAA proposals would be constructed at this time. Instead, all of the Prudhoe Bay volumes destined for the western United States would be delivered into the Northern Border system and be delivered by displacement to California through existing unused capacity of the systems of El Paso and Transwestern Pipeline Company (Transwestern). Reserves in the Permian Basin and Hugoton-Anadarko areas could be diverted for use on the west coast, while equivalent volumes of Alaskan gas would be delivered to the midwest via the Northern Border system (I-226).

## II. EL PASO ALASKA SYSTEM

A. Applicants' Proposal. An 809 mile pipeline would extend from Prudhoe Bay southeasterly to Gravina Point on the eastern side of Prince William Sound on the southern coast of Alaska. Liquefaction of the natural gas would take place at a facility to be built at Gravina Point. The LNG would be transported by cryogenic tankers from Gravina Point to Point Conception on the coast of southern California. Revaporization of the LNG would take place at a facility to be built at Point Conception. Pipelines would be constructed from Point Conception to Arvin and Cajon in southern California. Existing facilities of PG&E and Southern California Gas Company (SoCal) would be used to transport the gas to the existing facilities of El Paso and Transwestern at the California-Arizona border. The gas would be transported through El Paso's and Transwestern's facilities eastward to the Permian, Hugoton-Anadarko and Gulf Coast regions. A series of exchanges and displacements through existing facilities would occur in the midwestern and southwestern portions of the lower 48 states.

B. DOI DEIS. No recommended changes.

C. FPC Staff DEIS. The pipeline in Alaska would follow El Paso Alaska's proposed route from Prudhoe Bay to a point approximately 50 miles northwest of Fairbanks, a total distance of approximately 390 miles. At this point the pipeline would extend south to Dunbar and follow the DOI designated Multi-Mode Utility Corridor (MMUC) Alaskan Railroad State Highway to Nikiski on the Kenai Peninsula in the Cook Inlet area of southern Alaska.

The liquefaction, storage and marine terminal facilities would be built at Nikiski on the Kenai Peninsula, instead of Gravina Point on the Prince William Sound. In southern California the marine terminal, regasification and storage facilities would be built at Oxnard, California, instead of Point Conception. The Oxnard terminal would be the only LNG terminal constructed in California at the present time to receive the volumes of LNG associated with the El Paso Alaska project (2400 to 2800 MMcf/d), the Pacific Indonesia project (500 MMcf/d) 1/ and the Pacific Alaska project (200 to 400 MMcf/d) 2/.

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1/ See Pacific Indonesia LNG Company, FPC Dockets Nos. CP74-160, CP74-207; Western LNG Terminal Company, FPC Docket No. CP75-83-3.

2/ See Pacific Alaska LNG Company, FPC Docket No. CP75-140; Western LNG Terminal Company, FPC Docket No. CP75-83-2.

### III. SPECIFIC COMMENTS ON THE DEIS

California applauds the FPC Staff's efforts at making specific recommendations regarding changes to be made with respect to both the Arctic Gas and El Paso Alaska systems. However, California believes that the FPC Staff DEIS does not contain sufficient analyses to support the Staff's recommendations, especially as they relate to the use of the Fairbanks Corridor and the Red River Corridor and the abandonment of the western leg of the Arctic Gas system.

A. Arctic Gas System. California is not convinced that the FPC Staff DEIS has shown that elimination of the western leg of the Arctic Gas system is either environmentally or economically preferable to the retention thereof. 3/

The Staff's FEIS should include the following elements:

- (1) a more specific verbal and pictorial description of its proposed pipeline route through Alaska and Canada;
- (2) a more detailed description of the pipeline extending from the MacKenzie Delta and where it interconnects with the Staff's proposed route through the Fairbanks Corridor;
- (3) a detailed description of all facilities needed to implement the Staff's displacement alternative to transport Alaskan reserves to California and the states in the Pacific northwest;
- (4) a detailed description of the sources of gas in the lower 48 states which would provide California with its exchange gas. An analysis should also be made as to the future production available from these sources and a proposed method of allocating the costs of transportation of this exchange gas;
- (5) a detailed analysis of the environmental and socio-economic impact of the Staff's proposed alternative route through Canada;
- (6) a proposed allocation between United States and Canadian markets of the costs of transporting MacKenzie Delta gas under the FPC Staff's proposed alternative route through Canada; and
- (7) a detailed breakdown of the capital costs of implementing the Staff's proposed Arctic Gas system from Prudhoe Bay to San Francisco and/or Los Angeles, California.

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3/ California reiterates its opposition to more than one pipeline system extending from Kingsgate, British Columbia to transport gas to California. On October 22, 1975, California served its comments on the DOI DEIS. Copies of these comments were served on the FPC Staff in El Paso Alaska Company, et al., Docket No. CP75-96, et al. and are incorporated by reference herein.

The environmental staff has provided more detailed maps in the "Comparative Assessment" volume.

See number 5 below.

The factual data to justify the environmental staff's conclusion in the DEIS has been presented in Phase I of the formal hearings in the testimony and cross-examination of Messrs. David C. Lathom and James M. Kiely.

See above response.

The environmental staff has accepted the Draft and Final Environmental Impact Statement prepared by the U.S. Department of the Interior which analyses these impacts.

See response to number 3.

See response to number 3.

The FPC Staff should also respond to DOI's statements in its DEIS that (1) construction along the Fairbanks Corridor, rather than the primary route proposed by Arctic Gas, would result in decreased MacKenzie Delta production due to the lengthy and costly (additional \$2.5 billion) pipeline necessary to transport Delta gas to the main pipeline (DOI DEIS III - 1513, 1613) and (2) the facilities along the Wolf Lake and Fairbanks Corridor would have substantially greater impacts, in Canada, than those along the prime route (DOI DEIS III - 1786). The FPC Staff should also specify the additional costs to build a western leg from Edmonton or Wolf Lake, Alberta, as opposed to Caroline Junction, Alberta, assuming a western leg is necessary in the future and must be constructed off of the Red River Corridor alternative.

See response to number 3, preceding page.

As stated above, the FPC Staff DEIS adopts major portions of the DOI DEIS with respect to the Arctic Gas system. Representatives of DOI have stated at the hearing in the El Paso Alaska proceeding before the FPC that the DOI DEIS will be substantially modified by the DOI FEIS (Tr. 11983). California urges that the FPC Staff analyze the DOI FEIS prior to the preparation of its own FEIS.

At II, 376-377 the FPC Staff sets forth nine engineering criteria used in selecting a best pipeline route to transport natural gas from Prudhoe Bay to a coastal-based liquefaction and marine terminal facility in southern Alaska. It appears that the FPC Staff first made a choice among locations for a liquefaction facility in southern Alaska and then chose the best pipeline route to reach that location, using the criteria set forth at II, 376-377 (See I-256). It also appears that the FPC Staff's proposed pipeline route was based primarily on its desire to use existing rights-of-way where possible.

While the pipeline route to Nikiski would be 50 miles shorter than the route to Gravina Point (809 miles), the FPC Staff DEIS recognizes that the cost of crossing Cook Inlet with a pipeline would partially negate the Nikiski's pipeline distance advantage (II-497).

The DEIS states that its suggested alternate would not require any changes in the pipeline, compressor station and ancillary facility construction and operation procedures from those techniques and procedures proposed by El Paso Alaska for use along the prime route. However, California has been unable to identify any cost comparisons in the DEIS between the pipeline route proposed by El Paso Alaska and the pipeline route proposed by the FPC Staff. California recommends that such cost comparisons be included in the FEIS. If the costs of constructing the pipeline proposed in the FPC Staff DEIS are significantly greater than the costs of constructing the pipeline proposed by El Paso Alaska, the FEIS should indicate those areas where the benefits to the environment outweigh the increased costs.

In its Trans-Alaskan Gas Pipeline-LNG Project Site Selection Report, El Paso Alaska rejected Nikiski as a possible site

"...primarily because of the heavy concentrations of ice which occur in the upper reaches of Cook Inlet during the winter. The occurrence of high velocity currents was also considered to represent a disadvantage of this site (p. 151)."

The FPC Staff DEIS recognizes these problems (II-484, 487). However, it also points out that Phillips Petroleum Company presently operates a liquefaction facility at Nikiski for the exportation of LNG to Japan. (See Marathon Oil Company, FPC Docket No. CP74-537, Phillips Petroleum Company, FPC Docket No. CI74-538). Obviously, Phillips did not consider the heavy concentrations of ice or the high velocity currents as impediments

The criteria set forth at II, 376-378 do not depend on the specific location of the LNG site. Use of existing rights-of-way, while preferable, is not the sole criterion. In addition, the staff chose an LNG site in conjunction with a pipeline route, not separately.

A quantitative cost comparison is beyond the scope of the alternative study. Cost is a qualitatively treated issue inherent with different pipeline lengths, tunneling, additional water crossings, etc.

to the construction of a liquefaction facility and marine terminal at Nikiski. (II-442, 487; see also II-441 for mitigating measures incorporated at the Phillips facility at Nikiski with respect to the problem of ice formation).

Consideration should also be given to the fact that Pacific Alaska LNG Company plans to build a liquefaction facility at Nikiski in order to process 200 MMcf/d to 400 MMcf/d of natural gas produced from the Cook Inlet area of Alaska (Pacific Alaska LNG Company, FPC Docket No. CP75-140; Western LNG Terminal Company, FPC Docket No. CP75-83-2). If the El Paso Alaska project is approved, consideration should be given to a combined facility at Nikiski for both the Pacific Alaska and El Paso Alaska projects. Such an approach would parallel the approach suggested by the FPC Staff with respect to the Oxnard regasification facility in southern California.

The FPC Staff DEIS includes a risk analysis for massive LNG spills from storage tanks at Prince William Sound, Alaska (II-545 through 569). However, there is no similar risk analysis for Nikiski, Alaska or for any of the potential sites of regasification facilities in southern California. (Point Conception, Oxnard and LA Harbor). The FPC Staff FEIS should include a similar risk analysis for each of these locations.4/

California reserves any judgment at this time as to whether Oxnard is preferable to Point Conception or L.A. Harbor, assuming only one regasification facility is built on the coast of California to vaporize LNG from the El Paso Alaska, Pacific Indonesia and Pacific Alaska projects. Further consideration must be given as to the safety aspects involved.

Insufficient consideration has been given in the DEIS to the gas supply problem from an outage at the regasification facility, assuming 3.3 to 4.0 Bcf/d of LNG were entering California on an average basis or 5 Bcf/d of LNG were entering California on a peak load basis. In this respect it should be noted that Western LNG Terminal Company is preparing studies in both the El Paso Alaska and Pacific Indonesia proceedings regarding the facilities necessary, and the capital costs involved, to transport LNG from the El Paso Alaska, Pacific Indonesia and Pacific Alaska projects into one terminal on the coast of southern California. These studies, being conducted at the request of the FPC Staff in both the El Paso Alaska and Pacific Indonesia proceedings, will deal with Point Conception, Oxnard and L.A. Harbor. California must analyze these studies before taking a final position regarding the necessity of more than one regasification facility in California.

4/ It is California's understanding that the FPC Staff plans to issue its DEIS in both the Pacific Indonesia and Pacific Alaska proceedings in either late January or early February, 1976. If these documents include risk analyses for Oxnard and L.A. Harbor, they should at least be incorporated by reference in the FEIS to be prepared in the El Paso Alaska proceeding.

Comment reflected in Section H-2g of Volume II of the FEIS.

Comment reflected in staff's Public Safety analysis and/or safety studies attached to the FEIS.

At the present time California has made no determination whether the Arctic Gas system is preferable to the El Paso Alaska system, or vice versa, from an environmental or safety standpoint. California must await amplification of the FPC Staff's recommended changes in the Arctic Gas system before making any conclusions as to which of the competing proposals is less disruptive to the environment.

CONCLUSION

California respectfully requests that the FPC Staff give careful attention to the comments submitted herein, as well as to the comments of other interested parties, in preparing its FEIS on the Alaska Natural Gas Transportation Systems.

Respectfully submitted,

/s/ RICHARD D. GRAVELLE

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Richard D. Gravelle

/s/ J. CALVIN SIMPSON

\_\_\_\_\_  
J. Calvin Simpson

/s/ FREDERICK E. JOHN

\_\_\_\_\_  
Frederick E. John

Attorneys for the People of  
the State of California and  
the Public Utilities Commission  
of the State of California

January 15, 1976

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document by mailing copies thereof to all parties of record in El Paso Alaska Company, et al, Docket No. CP75-96 et al. in accordance with the requirements of the Commission's Rules of Practice and Procedure.

Dated at San Francisco, California, this 15th day of January, 1976.

/s/ ANDREW J. SKAFF

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Andrew J. Skaff

Of Counsel for  
People of the State of California  
and the Public Utilities Commission  
of the State of California

LANDS COMMISSION

## TE LANDS DIVISION

CEANGATE — SUITE 300  
BEACH, CALIFORNIA 90802

No.: (213) 590-5201



File Ref.: W 4300

January 15, 1976

Secretary  
Federal Power Commission  
Washington, D.C.

Attention: BNG-SOD-ALASKA

Dear Sir:

Alaska Natural Gas Transportation Systems-  
Draft Environmental Impact Statement by  
FPC Staff - Comments.

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 21 10 20 AM '76  
FPC LANDS DIVISION

1. In "FPC Environmental Staff Conclusions", page I-256, it is stated that "the PGT-PG and E and ITA (A) routes should not be constructed at this time since the volumes of Alaskan natural gas which could be committed to these companies could be handled by means of exchange of gas agreements".  
  
The DEIS should furnish factual data justifying this conclusion, and suggest the time when, if ever, the proposed lines would be needed.
2. The effect of the cooled sea water leaving the vaporizers on marine life needs further discussion. Extreme temperature differences between the ambient sea water and the effluent can be reduced by using diffusers on the outfall line. Entrance of fish and marine organisms into the cooling water intakes can be reduced by proper design.
3. In choosing between the Arctic Gas System and the El Paso Alaska System, it should be considered that the latter will have the capability to receive and distribute LNG from foreign sources long after Alaska's supplies are depleted.
4. An assessment of the impact on air quality caused by any LNG terminal should include pollutants from tankships while at berth in the "ready" condition.

The factual data to justify this conclusion have been presented in Phase I of the formal hearing in the testimony and cross-examination of Messrs. David C. Lathom and James M. Kiely.

The discussion of the cold water discharge has been expanded in Volume III, Section C.5.c of the FEIS.

EPA's "Point Max" program has been used to calculate the worst 1-hour concentration of SO<sub>2</sub>. The worst case of 1-hour concentration would be approximately 743 micrograms per cubic meter, occurring 0.5 km from the ships under B stability and 3m/s wind speed which are rare meteorological conditions. This concentration is small compared to 1310 micrograms per cubic meter, the one-hour California standard. Therefore, the impact should be of little significance, since the baseline concentration of SO<sub>2</sub> at Point Conception would be expected to be very low in the first place.

To: Secretary  
Federal Power Commission

-2-

1/15/76

5. Assess the probability and effect of wastes from tankships moored at the terminal.
6. Assess the effect of the terminal on commercial coast fishing and kelp harvesting industry.

Sincerely,

*D. J. Everitts*  
D. J. EVERITTS  
Manager, Energy and Mineral  
Resources Development

JDM:bff

Federal law prohibits the dumping of solid wastes and the discharge of sewage from the LNG vessels in United States' waters.

Discussion of this subject is provided in Section C.7, "Impacts to Marine Biota," in the FEIS.



# STATE OF IDAHO

## DIVISION OF BUDGET, POLICY PLANNING AND COORDINATION

STATEHOUSE  
BOISE, IDAHO 83720

February 20, 1976

RECEIVED  
OFFICE OF THE  
SECRETARY  
FEB 21 1976  
FEDERAL POWER  
COMMISSION

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Att: BNG-SOD-ALASKA

Dear Sir:

The Idaho State Clearinghouse has reviewed the Draft Environmental Impact Statement prepared by the Federal Power Commission's staff, OGC El Paso Alaska Company, et al, Dockets No CP75-96, et al.

Copies of the documents were reviewed by Ken Stolz, Physical and Natural Resource Planner for the Division of Budget, Policy Planning and Coordination, the Public Utilities Commission and the Department of Fish and Game. A State Application Identifier number was assigned - 01255722.

Comments were received from Ken Stolz and are enclosed for your consideration. Also enclosed for your benefit and information are comments received regarding CP74-292 and CP74-293, Interstate Transmission Associates (Arctic), Pacific Interstate Transmission Company and Northwest Alaska Company.

We appreciate the opportunity to review.

Sincerely,

*Michelle Liebel*

Michelle Liebel,  
State Clearinghouse

*fl*

lf



STATE OF IDAHO

DIVISION OF BUDGET, POLICY PLANNING AND COORDINATION  
BOISE, IDAHO 83720

CECIL D. ANDRUS  
GOVERNOR

H. W. TURNER  
ADMINISTRATOR

TO: *[Signature]*  
Ken Stolz  
Natural and Physical Resource Planner

DATE: December 17, 1975

FROM: State Clearinghouse  
Bureau of State Planning and Community Affairs  
Statehouse  
Boise, Idaho 83720

RE: Alaska Natural Gas Transportation System

SAI # 01255722

The enclosed draft environmental impact statement is referred to you for review and comment in accordance with the U. S. Office of Management and Budget Circular A-95. If your agency has an interest in this document and wishes to comment on it, please check the appropriate box (es) and return this memo, with your comments, to the State Clearinghouse no later than January 12, 1975.

☐ No Comment

☐ Contacted Applicant

☐ I Was Already Aware of This Project

☒ Comments Attached

Reviewers Signature *[Signature]* Date 2/17/76  
Title Natural & Physical Resource Planner

*From an environmental standpoint a route that follows the existing pipeline except for the Moyie River section appears the most desirable.*

March 28, 1973

C  
O  
P  
Y

Mr. Robert Salter  
Vice President  
Pacific Intermountain Transmission Co.  
720 W 8th Street  
Los Angeles, CA 90017

Dear Mr. Salter:

Recently the Department of Lands had occasion to review the "Canada-U.S. Border to Nevada-California Border Pipeline System Environmental Report" prepared for Interstate Transmission Association (Arctic).

Should your company receive the FPL permit, easements will be required from this Department for all rights of way over State owned lands including the beds of all navigable rivers. In addition, any work in the beds of navigable waters will be subject to review as an encroachment. The rules set forth in the enclosed booklet will apply.

Very truly yours,

FOR THE DIRECTOR

Winston A. Wiggins  
Land Specialist

NAW/bv  
Encl.

cc: Ken Stolz

STATE OF IDAHO

CECIL D. ANDRUS  
GOVERNOR  
IDAHO TRANSPORTATION BOARD  
CARL C. MOORE - CHAIRMAN  
LLOYD F. BARRON - VICE CHAIRMAN  
ROY I. STROSCHEIN - MEMBER  
DARRELL V. MANNING  
DIRECTOR



DIVISION OF HIGHWAYS

E. D. TISDALE, P. E., ADMINISTRATOR

TRANSPORTATION DEPARTMENT

P. O. BOX 7129  
BOISE, IDAHO 83707

January 13, 1975

Mr. Ken Stolz  
State Clearinghouse  
Division of Budget, Policy  
Planning & Coordination  
Statehouse  
Boise, Idaho 83720

Dear Ken:

This office has reviewed the enclosed environmental report covering the Alberta - California Pipeline System. The report is very comprehensive and well done.

We wish to point out that any crossing of the Idaho State Highway System must be in compliance with the "Policy for the Accommodation of Utilities Within Rights of Way of the Federal-Aid Highway Systems in the State of Idaho".

We appreciate the opportunity to review the report.

Yours very truly,

B. E. SESSIONS, P. E.  
Chief of Development

*R. T. Gwin*

R. T. GWIN, P. E.  
Environmental & Corridor  
Planning Supervisor

Enclosure

SAFE TRANSPORTATION MEANS PROGRESS



**STATE OF MONTANA**

**DEPARTMENT OF  
FISH AND GAME**

Helena, Montana 59601

January 20, 1976

Secretary  
Federal Power Commission  
Washington, D. C. 20426

ATTN: BNG-SOD-ALASKA

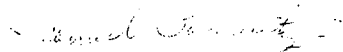
Dear Sir:

On November 28 we received a copy of the draft environmental impact statement regarding proposals to bring Arctic gas from the Prudhoe Bay field in Alaska to areas in the lower 48 states. This document was reviewed by our regional office, and their comments are attached for your information.

Please note that our recommendation has been based on the fact that the Northern Border Pipeline Company has repeatedly stated the pipeline will not make gas available to the state of Montana, and our recommendation assumes that portion to be final. In the event that it is altered we would reassess our position, since it would change significantly the benefits the state of Montana might expect from such a project.

I hope our comments will be of use.

Sincerely,

  
James A. Posewitz, Administrator  
Environment & Information Division

JAP/sd

cc: Environmental Quality Council  
Mike Aderhold

STATE OF MONTANA  
DEPARTMENT OF FISH AND GAME  
HELENA, MONTANA

RECEIVED  
JAN 19 1976  
ENVIRON. RESOURCES

*Office Memorandum*

TO : Wes Woodgerd      Attention: Jim Posewitz      DATE: 1-16-76  
FROM : Dick Johnson by Mike Aderhold  
SUBJECT: DRAFT EIS -- ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

The Federal Power Commission's three-volume, 1,259-page Draft EIS was reviewed the week of Jan. 12, 1976. What follows is a summary of the proposed project, its probable impacts in Montana, some of the FPC's conclusions, and the personal opinion of the R-6 E&I Officer.

THE PROPOSED PROJECTS

Two major projects have been proposed to move Prudhoe Bay gas to the consumer. One project, referred to as the Arctic Gas System, proposes to transport the gas through 5,551 miles of buried overland pipeline from northern Alaska through northern and western Canada, to three ultimate delivery locations in the 48 conterminous United States. The second project, referred to as the El Paso Alaska System, proposes to move this gas south from the Prudhoe Bay Field through buried overland pipeline across the State of Alaska to a port on the southern Alaskan coast. There the gas would be converted to liquid natural gas (LNG) and shipped via cryogenic tanker across the northeastern Pacific Ocean to a delivery point on the coast of California. The gas would then be regasified and distributed by buried overland pipeline for eventual consumer use.

IMPACTS OF THE PROPOSED PROJECTS IN MONTANA

1. (I-208) Wind erosion of disturbed soils and gully erosion following construction would change the pipeline right-of-way topography and also cause secondary impacts by transporting the soil to other locations.
2. (I-208) The installation of the pipeline and its associated airfields, roads, and communications network would stimulate prospecting and development of additional oil and gas reserves and mineral deposits in the arctic and may be a stimulus to the development of coal deposits for possible gasification in Montana and North Dakota.
3. (I-209) Disturbance and mixing of the soil profile would alter its structural characteristics, microbiological activity, and the soil-climate relationships. This mixing of subsoil on the surface of the backfilled ditch would retard the full restoration of the site and cause a long-term loss of soil productivity affecting crop growth and grazing capacity.

4. (I-209) Wind erosion of exposed soils along the ditch could be a major impact where detached fine silt and clay particles were exposed. Water erosion would form gullies and increase sediment yield from the disturbed soil.
5. (I-209) Wind erosion potential is also high along the 650 miles of the Northern Border route across the spring wheat region of Montana and North Dakota. Soil losses could be considerable and could cause severe seedling damage and make revegetation of the right-of-way very difficult.
6. (I-209) Construction and operation of the proposed natural gas pipeline system would present potential water resource impacts at each stream crossing resulting from interruption of streamflow, erosion and sedimentation, and introduction of industrial chemicals and pollutants.
7. (I-210) Erosion resulting from construction site activity would cause a temporary reduction in downstream water quality as would the use of large volumes of domestic water and discharge of sewage at each construction camp.
8. (I-210) Fuel and lubricant spills from construction machinery, compressor stations, construction camps, etc. would pollute surface water and possibly groundwater supplies.
9. (I-211) Vegetation and terrain surface integrity would be destroyed along the pipeline right-of-way and at construction camps. At landing sites, towers, permanent roads, and other permanent facilities, the impact would be long-term.
10. (I-211) Vegetation would be destroyed and/or altered by one or more of the following: construction of winter roads; the alteration of associated drainage patterns; forest, grass and tundra fires; fuel and methanol spillage; sulfur dioxide emissions; and off-road vehicle use for pipeline emergency repairs.
11. (I-211) Cropland production loss on the right-of-way would be considerable while construction was underway, but would be back to near normal levels within a few years.
12. (I-212) If project disturbance would force an animal from a critical portion of its range or change its habitat, population numbers could be reduced. Disturbance factors would include noise from construction, maintenance and operation machinery; aircraft used in line inspection; and increased numbers of people in the area.
13. (I-212) Project caused disturbance would drive birds from their nesting and resting areas and, in the case of waterfowl, could affect the molting and fall staging periods resulting in a possible drop in population numbers.
14. (I-212) Bird populations could also be adversely affected by habitat destruction resulting from water quality degradation through pollution and increased silt loading as well as vegetative changes or destruction.

15. (I-213) Pollutants such as construction camp sewage plant effluents, spills of petroleum products, methanol spills, and pesticides; blasting near fish spawning areas where eggs are present; and increased or decreased water temperatures resulting from vegetative changes or pipeline operation would also adversely affect fish populations.
16. (I-213) Destruction of each additional increment of the few remaining "natural areas" found scattered throughout largely cultivated areas along the pipeline route would further reduce the diversity and abundance of wildlife remaining in the settled areas of the country.
17. (I-216) The nature of the proposed project construction is such that if certain precautions are not observed, any cultural resource sites in the path of the pipeline, access roads, compressor stations or other facilities could be damaged or destroyed. In most cases, the damage would be a direct consequence of site disruption and excavation by man and machine without knowledge of the paleontological or archaeological values present, but in other cases the impact would come as a consequence of increased access and vandalism to unprotected historic sites.
18. (I-218) Compressor station operating noises would be long-term. Compressor noise emissions could be audible for a radius of 6,000 to 7,000 feet.
19. (I-218) Natural gas is easily flammable, becomes explosive when confined, and when purified is odorless and can act as an asphyxiant.
20. (I-218) The propane which would be used as a refrigerant is also flammable and, being denser than air, poses an even greater threat of fire than natural gas.
21. (I-219) Repair activities at some locations, and in some seasons, may cause damage to the environment more severe than that resulting from the initial construction. This is particularly true in the areas of continuous permafrost in Alaska. Emergency repairs in the arctic would involve the movement of heavy equipment across the tundra without regard to the condition of the soil and without benefit of snow-ice roads. In winter, repair procedures would result in the destruction of plants and the insulating organic mat protecting the soil, with subsequent thaw consolidation and erosion a probable result. Summer repairs would cause considerable damage to arctic vegetation and soils, and would cause severe disturbance to migrating caribou and waterfowl.

#### CONCLUSIONS OF THE FEDERAL POWER COMMISSION

1. (I-17) Preliminary FPC staff investigations indicate that it is entirely possible that the new facilities required by the Arctic Gas all-land proposal need not extend beyond the Chicago area in the east, and that the two major laterals to the California market areas are not needed in the west. It appears that various combinations of displacement, reverse flow and modest additions of new facilities could be utilized to deliver North Slope Alaskan Gas to all major lower 48 market areas through existing natural gas transmission facilities. The environmental consequences of this substantially reduced Arctic Gas project should be considered in the Department of the Interior's Final EIS.

2. (I-40) The socio-economic impacts of Alaskan Gas delivery to the contiguous states will clearly be marginal. The volume of gas, roughly 2.5 BCFD (Billion Cubic Feet per Day) will constitute from 4% to 7% of U. S. consumption of natural gas in the 1980-1990 time frame, and less than 1% of total fuel consumption.

In the case of such long-run variations, always assuming reasonable planning horizons, a difference of 1% in total fuel or 5% in gas availability does not have a qualitatively different effect on economic aggregates than a change of 1% or 5% in the production of such other "necessities" as wheat or automobiles. Money is not transferred from consumers to gas producers and is not spent by the producers, but instead goes from consumers to the providers of alternative goods and services, who will generally tend to employ from the same labor force and purchase from the same gross product as the gas producers would have.

3. (I-255) The Northern Border route of this system should be routed along the Red River Corridor alternative route proposed by USDI. This route would enter the United States near St. Vincent, Minnesota and follow the Mid-Western Gas Transmission Company pipeline for about 125 miles south to the vicinity of Ada, Minnesota. From Ada the route would extend approximately 625 south and east through Minnesota, Iowa, and on to Kanakee, Illinois just south of Chicago. The pipeline should terminate at this point and utilize existing facilities together with exchange agreements to distribute the gas until such time as additional volumes of natural gas become available which would warrant further extension of the facilities.

#### REGION SIX OPINION

The benefits of the Alaska Natural Gas Transportation System to Montana appear to be: 1) about 10-15 permanent jobs, 2) 75-100 temporary (less than 1 year) unskilled and semi-skilled jobs, 3) significant economic benefits to the counties affected due to construction activity, and 4) life-of-the-project tax benefits to the counties involved.

The Northern Border Pipeline Company has stated several times that the state of Montana will not get a tap on their line. Weighing the above benefits against the costs summarized in the second section of this memo, and assuming Montana will not get Prudhoe Bay Natural Gas, the cost to our state, in my opinion, far exceeds the benefits.

The Federal Power Commission has recommended that this gas line bypass Montana and instead enter the U. S. near St. Vincent, Minnesota. In light of the above, I endorse this recommendation.

After reading the Economic Analysis Section of the FPC's EIS (I-27 to I-194), it is apparent that fossil fuel solutions to this country's energy problems are shortsighted. The continued growing supply of fossil fuels, at ever greater financial and environmental costs, defers our attention from more permanent non-fossil fuel alternatives.

*Mike*  
MICHAEL W. ADERHOLD  
REGIONAL ENVIRONMENT OFFICER

Conclusion drawn from the "Economic Analysis" section is one that we did not place there and we do not understand.

MWA/drn

P.S. The three volumes will be hand carried to Helena.



STATE OF NEVADA  
GOVERNOR'S OFFICE OF PLANNING COORDINATION  
CAPITOL BUILDING, ROOM 4B  
CAPITOL COMPLEX  
CARSON CITY, NEVADA 89710  
(702) 885-4865

January 15, 1976

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Re: bng-SOD-ALASKA - Our SAI #NV-76800027

Dear Sir:

Thank you for the opportunity to review the Draft Environmental Impact Statement on the above referenced project.

The State Clearinghouse has processed the draft statement and has no comment. Based on the information contained therein and the responses of interested parties, the proposed project is, as of this date, found not to be in conflict with the State's plans, goals or objectives.

Sincerely,

A handwritten signature in cursive script, appearing to read "Bruce D. Arkell".

Bruce D. Arkell  
State Planning Coordinator

BDA/db

STATE OF NORTH DAKOTA  
ALLEN I. OLSON

701-224-2210

RECEIVED

FEB 2 7 49 PM '76  
FEDERAL POWER COMMISSION  
Attorney General  
State Capitol  
Bismarck, North Dakota 58505  
January 28, 1976

GERALD W. VANDEWALLE  
CHIEF DEPUTY ATTORNEY GENERAL  
CIVIL DIVISION

CALVIN N. ROLFSON  
DEPUTY ATTORNEY GENERAL  
CRIMINAL DIVISION

JOHN E. ADAMS  
LYNN E. ERICKSON  
ROBERT P. BRADY  
GARY S. HELGESON  
DALE V. SANDSTROM  
DAVID S. NISS  
WILLIAM J. DELMORE  
ASSISTANT ATTORNEYS GENERAL

CURTIS B. HANSEN  
ROBERT A. BARNETT  
SPECIAL INVESTIGATORS

DORMILEE DIEDE  
ADMINISTRATIVE ASSISTANT

Office of the Secretary  
Federal Power Commission  
825 North Capitol Street  
Washington, DC 20246

RE: El Paso Alaska Company, et al.  
Docket Nos. CP75-96, et al.

Dear Mr. Secretary:

Enclosed for filing in the above-styled proceeding is a Comment on the Federal Power Commission Draft Environmental Impact Statement on the Alaskan Natural Gas Transportation System by Congressman Mark Andrews of North Dakota, Senator Quentin N. Burdick of North Dakota, and Allen I. Olson, Attorney General for the State of North Dakota.

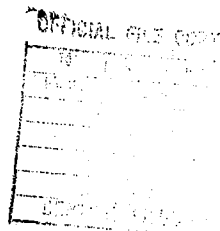
Sincerely,

*Gary S. Helgeson*  
Gary S. Helgeson  
Counsel for  
Congressman Mark Andrews  
Senator Quentin N. Burdick  
Attorney General Allen I. Olson

po  
Enclosure

cc: Honorable Nahum Litt  
Presiding Administrative Law Judge  
Federal Power Commission  
825 North Capitol Street  
Washington, DC 20246

Brian J. Helsler, Esquire  
Commission Staff Counsel  
Office of the General Counsel  
Federal Power Commission  
825 North Capitol Street  
Washington, DC 20246



UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL POWER COMMISSION

In the Matter of                     }  
  }  
El Paso Alaska Company, et al.    }   Docket Nos. CP75-96, et al.

COMMENTS OF  
CONGRESSMAN MARK ANDREWS OF NORTH DAKOTA  
SENATOR QUENTIN N. BURDICK OF NORTH DAKOTA  
ALLEN I. OLSON, ATTORNEY GENERAL FOR THE  
STATE OF NORTH DAKOTA  
ON THE  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
OF THE  
FEDERAL POWER COMMISSION  
ON THE  
ALASKAN NATURAL GAS TRANSPORTATION SYSTEM

The Staff, at page I-255 of its Draft Environmental Impact Statement, recommended that the Red River Corridor, through Minnesota, alternative route be utilized by the Northern Border Pipeline Company in construction of its pipeline. In view of the fact that Staff's recommendation directly affects the interest of North Dakota, the State of North Dakota wishes to again reiterate its position regarding the Northern Border Pipeline and provide the parties to this proceeding with its comments on Staff's suggestion.

In their Statement of Position, filed May 2, 1975, before the Federal Power Commission, Congressman Mark Andrews, Senator Quentin N. Burdick, and Allen I. Olson, Attorney General for the State of North Dakota, asserted that the State of North Dakota would oppose the Northern Border Pipeline unless there were satisfactory provision for supplying the future natural gas needs of North Dakota consumers and until satisfactory guarantees were made to meet the demands of the people of North Dakota for the protection of their lands, water, air, property and quality of life. Full compliance with state environmental laws would serve to satisfy the needs of North Dakota and assure protection of its interests. In reiterating its position, the State of North Dakota further asserts that the construction and operation of the Northern Border Pipeline shall in no way pre-empt state laws, rules and regulations, regarding natural resource development, conservation and environmental protection, or any other proper exercise of state police powers.

Although the State of North Dakota may not necessarily agree with Staff's judgment in placing its recommendation of an alternative route in its Draft Environmental Impact Statement, the State does have an interest in the substance of Staff's suggestion. Unless the demands

of the people of North Dakota regarding Northern Border Pipeline can be met by action taken in this proceeding, by separate agreement with the companies themselves, or by any other appropriate means, alternative routes (like that recommended by Staff) may serve as a solution to North Dakota's problems.

Respectfully submitted,

CONGRESSMAN MARK ANDREWS  
SENATOR QUENTIN N. BURDICK  
ATTORNEY GENERAL ALLEN I. OLSON

BY:

  
GARY S. HELGESON  
OF COUNSEL

Dated:

RECEIVED

FEB 2 1 50 PM '76

VERIFICATION

FEDERAL POWER COMMISSION

STATE OF NORTH DAKOTA

COUNTY OF BURLEIGH

} ss.

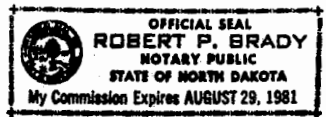
GARY S. HELGESON, having been duly sworn, deposes and says that he is a Special Assistant Attorney General for the state of North Dakota and attorney for Congressman Mark Andrews, Senator Quentin N. Burdick and Attorney General Allen I. Olson, intervenors herein; that he has read and signed the foregoing Comment on Draft Environmental Impact Statement of said intervenors; that he is authorized to do so; and that all statements therein are true and correct to the best of his knowledge, information and belief.

*Gary S. Helgeson*  
GARY S. HELGESON  
OF COUNSEL FOR

Congressman Mark Andrews  
Senator Quentin N. Burdick  
Allen I. Olson, Attorney General  
for the State of North Dakota

Subscribed and sworn to before  
me this 29<sup>th</sup> day of January, 1976.

*Robert P. Brady*  
NOTARY PUBLIC



CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding in accordance with the requirements of Section 1.17 of the Rules of Practice and Procedure.

Dated at Bismarck, North Dakota, this 29th day of January, 1976.

  
GARY S. HELGESON

Of Counsel For

Congressman Mark Andrews  
Senator Quentin N. Burdick  
Attorney General General Allen I. Olson



ROBERT W. STRAUB  
GOVERNOR

OFFICE OF THE GOVERNOR  
STATE CAPITOL  
SALEM 97310

January 14, 1976

OFFICIAL FILE COPY

TO	DATE	FILE
DOCKET	mm	
CENTRAL FILES		

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Attention: BNG - SOD -ALASKA

Dear Sir:

Thank you for submitting the Draft Environmental Impact Statement for the Alaska Natural Gas Transportation System, El Paso Alaska Company, Docket No. CP 75-96 for our review. The draft has been reviewed and the following comments are made to assist your staff in the preparation of the final report.

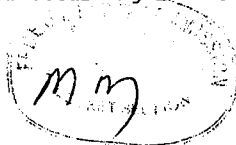
1. The State of Oregon passed legislation in the form of Senate Bill 483 during the 1975 Legislature that provides for comprehensive state leadership in energy planning, distribution and utilization. In so doing, the siting, construction and operation of energy facilities shall be accomplished in a manner consistent with the protection of the public health and safety.

Pipelines that are sixteen inches or greater in diameter and five miles or longer in length used for the transportation of natural or synthetic gas are described as energy facilities. Energy facilities are required to receive a site certificate from the Energy Facility Siting Council of Oregon. The Council, acting as a one-stop siting authority, has 12 months to review the certificate application prior to submitting its conclusions and/or approvals.

2. The El Paso Alaska proposal would physically avoid Oregon during routine operation as outlined in the report but with a minor modification of the plan it could have a significant impact on the Pacific Northwest. The report erroneously states: "It is apparent that the Pacific Northwest area could not develop a pipeline system soon enough to meet the present schedule and quantity of LNG proposed to be delivered to the west coast of the continental U. S." The delays that are now occurring in the natural

An appropriate statement concerning this information has been added to the FEIS, Vol. I, Comparative Assessment, "Arctic Gas System - Construction Schedule" Section.

The environmental staff agrees that there is adequate time to explore the possibility of regasification of LNG in Oregon; however, the environmental staff disagrees that there is adequate time to develop a pipeline system soon enough to meet the present schedule and quantity of LNG proposed.



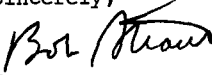
gas project from the Prudhoe Bay Field have extended the time element. There is now adequate time to explore the possibility of regasification of the LNG at the first available U. S. port, thereby reducing the shipping distance by approximately 50% and resulting in a 0.5% savings in cargo boiloff.

3. The El Paso tanker fleet would make approximately 308 deliveries yearly with an accident probability of  $4.4 \times 10^{-3}$  accidents per transit. With such a high probability it would appear that the statement should provide an analysis of LNG loaded ship repair along the shipping route. The Coast Guard is in the process of creating a vehicle traffic system for U. S. Harbors but this analysis does not pertain to traffic on the high seas.

4. The proven reserves of the Prudhoe Bay Field appear to have been overestimated by about twenty percent. If additional reserves are not proven, serious economics penalties will arise from over-design of the transportation system. This has been evident in the current revisions of project proposals to the FPC by the Alaska Natural Gas Transportation pipeline companies and in the FPC recommendation that the PGT-PG&E and ITAA routes should not be constructed at this time due to inadequate supplies of natural gas. The urgency for pipeline siting rule completion for the State of Oregon has been recently reduced by pipeline applicant's actions.

5. Calculation of the Lower Flammable Limit is presented in two sections of the statement. The Point Gravina analysis is extensive and provides adequate information. The second assessment is done for the southern terminus of the shipping route but it is not adequate. The mathematical format appears to be sufficiently different that the extent of combustion from an accidental release of a large volume of LNG is reduced using the second set of equations.

Sincerely,

  
Governor

RWS/jh  
cc: Department of Energy

The accident rate quoted is derived from accident data in rivers and harbors and does not apply to traffic accidents on the high seas, where the accident rate would be expected to be considerably less. Characterizing this accident probability as "high is a value judgement. For 308 deliveries per year the average interval between accidents are not the type that would cause any spillage of LNG.

The environmental staff disagrees that the assessment for the California terminals is inadequate, although additional development of the probability model has been undertaken for the FEIS. The Point Gravina assessment was done by a contractor prior to the FPC model development. The FPC model is based on a non-Gaussian vapor plume, and from similar plume model development by Science Application, Inc., appears to be a reasonable approximation to their complex model. Thus, the Point Gravina and California assessments are different, and each is adequate in its own way.



UNIVERSITY OF ALASKA  
FAIRBANKS, ALASKA 99701

December 22, 1975

Secretary  
Federal Power Commission  
Washington, DC 20426

Dear Secretary:

Re: BNG-SOD-ALASKA -- Cultural Resources

I write to comment on your Draft Environmental Impact Statement (DEIS) for the Alaska Natural Gas Transportation Systems published in November 1975.

My remarks pertain to the impact and protection measures for cultural resources, with specific attention to the portion on Alaska.

I am pleased to say that, contrary to another DEIS recently prepared by the Department of the Interior, I find your compliance with existing federal laws and regulations to be exemplary. My compliments to the preparers.

As a result of my recent experience as supervisory archeologist during the construction of the trans-Alaska oil pipeline, I wish to offer the following suggestions as emendations to the assessment and recommended mitigation.

- I. Along the pipeline corridor, one or more significant potential causes of impact on archeological sites was the search, acquisition, and mining of mineral materials, specifically gravel and rock.

---II, 307; III, 242; materials sources should be included in the listings of impacts.

- II. Archeological surveillance of actual construction, particularly the supervision and survey of areas to be affected by re-designs and re-routes is necessary to insure that the impact of construction on sites missed during the prior archeological sample survey is minimal. We found several sites impacted by construction which had not been discovered by surveys prior

See revised Vol. II, Sec C.11 and revised Vol. III, Sec. C.10.

December 22, 1975

to construction. Only surveillance of actual construction activities could mitigate this impact.

---II, 523 should be reconciled with III, 379#20.

- III. The education of construction personnel to recognize sites and archeological materials is not feasible, given a mobile work force and the frequent distance from the ground at which operators work. Far more important to the success of the mitigation effort is the education of supervisory and planning personnel, so that ample time is provided for archeological survey prior to planned construction or re-routing. Field engineers may be particularly insensitive to the logistic and other needs of the archeologist working in this context, and constitute a far greater threat than operating engineers. In particular, education efforts and the needs of communications and planning should be aimed at low-level management and at the contractor's supervisory personnel, who have been known to advise that sites be covered up or destroyed quickly so that construction is not delayed. The major effort should be aimed at mitigation prior to the start of actual construction to avoid these problems.

---III, 379#20 (g) should include provision for education of supervisory personnel.

- IV. The Final Environmental Impact Statement should identify properties located within the area of the lines which may be eligible for inclusion in the National Register of Historic Places by identifying all properties possessing historical, architectural, archeological or cultural value within the area of the undertaking's environmental impact [see Procedures for the Protection of Historic and Cultural Properties; Advisory Council on Historic Preservation; as published in the Federal Register Vol. 39#18 Part 2, 25 January 1975; section 800.2 and 800.4--part(a) (2)]. This may only be accomplished by an intensive review of knowledge of such cultural resources including those obtained by recent work in the area for the Alyeska Pipeline Service Company and the Bureau of Land Management.

- V. The Final Environmental Impact Statement should contain means for mitigating the secondary impacts due to site vandalism, as mentioned at: I, 241; II, 307 and III, 242.

- VI. The Final Environmental Impact Statement should contain means for mitigating the secondary impact due to soil creek and erosion, which pose definite threats to cultural resources in this environment.

---II, 307-309 should include soil erosion as an impact on cultural resources.

The environmental staff's recommendations for both pipelines have been revised.

See above.

See above.

See above.

Federal Power Commission

- 3 -

December 22, 1975

Again, the Draft makes an exceptional start towards an appropriate assessment of the potential impact on cultural resources and points the way with recommended measures to mitigate this potential impact. With the addition of the above points, your final statement should certainly comply with the letter and the spirit of existing laws and guidelines and should provide the needed protection for Alaska's extensive but fragile cultural resources.

Sincerely,



Dr. Albert A. Dekin, Jr.  
Institute of Arctic Biology

AADbw

cc: Council on Environmental Quality  
Alaska State Historic Preservation Officer  
Officer of Environmental Project Review, Department of the Interior



UNIVERSITY OF ALASKA

FAIRBANKS, ALASKA 99701

January 27, 1976

A. Stewart Holmes  
Resource Economist  
Federal Power Commission  
Washington, D.C. 20426

Dear Mr. Holmes:

Perhaps this is the most appropriate time to register my complete dissatisfaction with the manner in which social impact assessments are made in environmental impact statements. While the authors of the FPC DEIS social impact discussion have done a commendable job of gathering available data, there are many facets of social impact that are totally ignored.

Social impact assessments should be based on detailed community projections of population and employment demands. While statewide economic effects can be discussed on a regional basis, there is no analogous way to present aggregate social effects; it depends on the specific communities that are involved. Given detailed projections on the community level, however, it would be possible to present an overall picture of social impacts.

An adequate social impact assessment must also consider community impacts from the perspective of present community conditions. The FPC statement assumes that the impacts of a gas pipeline will "merely echo...the same impacts generated by Alyeska" (I-143). It is erroneous to assume that communities will return to a baseline status. Some social impacts may not be repeated. For example, belated improvements to the Fairbanks phone system may well be sufficient to handle any demands associated with gas pipeline construction activities. Other social impacts may be not only repeated but may also assume larger proportions. For example, temporary solutions to school overloads, such as portable classrooms, may not remain usable for the period of gas pipeline construction. Taxpayers may be unwilling to purchase replacement units with the result of classroom overflows that are larger than during the oil pipeline construction phase.

These comments were requested by the FPC and U.S. Department of the Interior under contract to the Institute of Social Economic and Government Research, University of Alaska. See responses to specific comments below.

See the revised section on "Selected Social Impacts of Gas Pipelines."

PLEASE REPLY BY AIRMAIL

Many social impacts may be more aptly described as being cumulative than as being repetitive. If solutions to Alyeska impacts have not been found, the impacts of gas pipeline activities would pose an additional burden on the community. The FPC statement should not only look at past social impacts but also review the steps that have been taken to ameliorate such impacts and make some judgements about the probable consequences of additional demands placed on the community. The current controversy in Delta Junction over the provision of public services is a case in point. A strong public backlash against tax support for needed services is related to the gap between increasing service demands and the inability of local taxpayers to handle the burden. The additional demands posed by gas pipeline activities could aggravate the crisis.

See responses to specific comments below.

Aside from physical responses to social impacts, an adequate social impact assessment should address changes in community values and expectations. I grant that information in this area is sketchy; my current research efforts will hopefully improve our base information. Nevertheless, local observers agree that the community no longer holds the same attitudes it did before the construction of the oil pipeline. Many residents underestimated the personal costs they would incur and can be expected to be ambivalent or opposed to further disruptions. For others the opposite is true. Certainly, social impacts in large part are in the eye of the beholder; a "repetition" of Alyeska impacts may be perceived in ways quite different from initial experiences.

The social impacts visited on a community depend on the role that community plays. Big Delta and Tok, for example, have served as truck stops during the construction of the oil pipeline. These communities would become major supply depots if the Fairbanks-Alaska Highway route is chosen. I have addressed some of the effects of community roles on the incidence of social impacts in my report to the Department of Interior. The FPC statement should recognize this issue.

Social impact assessments should address long-range changes set in motion by construction activities. These changes may include the conversion of Anchorage and Fairbanks to highly urbanized regional service centers. The ability of the community to absorb such a change must be considered. For example, the ice fog problem in Fairbanks has become a source of intense dissatisfaction and personal problems. This as a direct result of population increases. Barring a solution, the carrying capacity of Fairbanks may already have been reached. The long-range effects may be to drive residents further into undeveloped areas, increasing service costs and environmental impacts.

Other communities, such as Kaktovik, may experience short-term economic benefits with attendant rises in personal expectations. A downturn in the economy following construction activities may leave people frustrated and perhaps increase the rate of migration to urban wage markets. The long-range result would be to deplete Alaska's rural community human resources.

Social impact assessments must recognize that communities differ in culture, experience, attitudes, and infrastructure. Of particular importance in Alaska are differences between Eskimo, Athabascan, and white communities and differences in the amount of exposure communities have had to urban social and economic inputs. The experience of native highway communities, such as Gulkana or Chistochina, has been much different than that of isolated communities, such as Anaktuvuk Pass. I refer you to my report to Interior which begins to discuss community variations.

A discussion of the merits of alternative pipeline routes should include differential social effects. Nowhere in the FPC statement is there stated the logic which led to the staff conclusions concerning preferred routes. The only criteria given are those on page II-376 which totally ignore social considerations.

Finally, an EIS should include mitigating measures for social impacts. For example, will funds be provided for temporary increases in operating expenses of communities and a fair share of required capital improvements? Will these funds be applicable to induced as well as direct effects? Will impact projections used by communities for planning be backed up by appropriate compensation if they are wrong? Will the builder be liable for longterm changes of a drastic nature, such as the loss of subsistence resources? Will the builder be required to consult with local communities in order to guarantee some degree of local self-determination? The FPC DEIS only briefly touches on socioeconomic mitigating measures (II-334) without sufficient detail or review of the success of comparable measures followed by Alyeska.

I should briefly note that on page I-3 the FPC accepts all of Interior's DEIS for the Alaskan Arctic Gas Pipeline System. Consequently, comments on the Interior statement apply to the FPC statement as well.

My detailed comments on the information contained in the FPC DEIS are based largely on a discussion with Mim Dixon, Director of the Fairbanks Impact Information Center, since Center reports have served as the primary source in the statement.

I-82: I would question the meaning of the term "rapidly" in terms of projected needs, particularly when the type and cost of housing is considered. The recent HUD study of projected

The FPC staff does not accept Interior's socioeconomic analysis unless otherwise noted.

housing needs for Fairbanks in 1977 may be of some help in this regard.

If this is in reference to the HUD Situation Report of June 1975, the staff has reviewed this report.

This section has been revised.

Pages 85 and 86 were out of order. The error has been corrected.

This section has been revised.

This section has been revised.

This has been noted.

- I-84: Regarding hospital expansion, the Teamster's Union in Fairbanks has expressed an interest in building facilities for its members. If the Union becomes strengthened by gas pipeline activities and decides to build a separate facility, the operations of the Fairbanks Memorial Hospital may be jeopardized. If, on the other hand, the Teamsters contribute to the expansion of the Fairbanks hospital, the community as a whole may benefit.
- I-85: You need to move your heading from I-86 forward.
- I-86: The problems with telephone and electric services in Fairbanks are far from over. While it is true the utilities foresaw no problems, Fairbanks telephone service, in fact, is still disrupted and several power alerts and outages occurred during the latter part of 1975. Your statement should mention the fact that some community utility systems have suffered from a lack of proper management. The report cited in footnote five appeared in July 1974, not 1975, and is now outdated. GVEA, for example, recommended in the fall of 1975 that its users purchase individual generators for emergency use.
- I-88: Pipeline workers have patronized local bars and restaurants in Valdez, driving away the local clientele (from Baring-Gould, Michael, University of Alaska, Anchorage Senior College). An increase in nighttime recreation opportunities has not necessarily been a benefit to local residents. In fact, the sensational reports of what has, in reality, been only minor, watered-down adult entertainment facilities are seen as a direct affront to many long-term Fairbanks residents.
- I-89: You should note that high-paying pipeline security jobs have resulted in a large drain of local law enforcement personnel; including, most recently, the Fairbanks' Chief-of-police.
- I-90: Fairbanks is probably not a major R&R center. Many pipeline workers feel that local merchants are exploiting the market and avoid extended stays in Fairbanks. Persons who are seeking pipeline employment or have just left the pipe do appear to use Fairbanks, particularly if they are from rural Alaskan communities. Your discussion of alcoholism is inadequate, considering the scope of the problem. There has been a lack of coordination between alcoholism programs directly associated with the pipeline, programs in

Fairbanks, and emergency detox facilities. Increases in income, in community and family stress, and the lack of proper facilities for transients have all contributed to the alcoholism problem. While disruptions in the core area of Fairbanks may be the most visible manifestation of drinking problems, the most severe problems may be occurring in homes, both in Fairbanks and the rural villages.

This section has been revised.

I-91: I would question the statement that divorce complaints are a "direct" result of Alyeska pipeline impacts. New people coming to Fairbanks do not seem to be more prone to divorce. The separation of family members, increased financial independence, frustrations encountered in the community or as a result of feelings of relative deprivation (even among professionals), all may contribute to increases in the divorce rate. The precise causal links have yet to be established.

This section has been revised.

I-92: Confusion over the incidence of child neglect and abuse cases still remains. While available statistics do not show an increase, the number of caseworkers has imposed its own limitation on the number of cases that become active. In addition, many cases probably go unreported. You should mention that many schools have been forced into double shift situations with both positive and negative effects. Increases in the cost of living and rising standards of comparison have resulted in many dual career families, many of whom appear to have young children.

I-94: While I appreciate the humor of the concluding statement, your choice of quotes unfortunately diffuses perhaps the most important social impact of all. The philosophical resignation expressed in the statement sharply contrasts with frequent bitter comments of long-term residents forced by cost of living increases and incompatible lifestyles to leave Fairbanks.

This quotation was selected not for humor but for the succinct and graphic statement it makes on the changes that are taking place within Alaska.

I-139: The El Paso route would not affect Kaktovik significantly.

I-143: I have already commented on the fallacy of this statement. Concerning Kaktovik, the location of a supply depot in or near the village would destroy the village as it presently exists without substituting a viable long-term economic base.

This section has been revised.

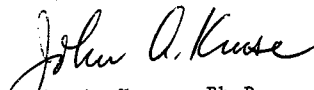
I hope that the above comments serve to make a case for an improved procedure for social impact assessment. You no doubt appreciate the need for better data. Time, funds, and persons trained in the appropriate social sciences should be made available to develop the necessary data; in large part, it does not presently exist. A better interpretation and integration of

UNIVERSITY OF ALASKA

-6-

social data is also required. While social impacts cannot be aggregated to present a net cost or benefit, certainly it is possible to apply a coherent analytical framework and set of weights that would enable decision-makers to judge the relative merits of alternative routes. I urge you to incorporate these improvements in your final statement.

Sincerely yours,



John A. Kruse, Ph.D.  
Assistant Professor of Survey Research  
Institute of Social, Economic and  
Government Research

JAK/wms

cc: Mimi Dixon

WASHINGTON STATE

# HIGHWAY COMMISSION

DEPARTMENT OF HIGHWAYS

Highway Administration Building

Olympia, Washington 98504 (206) 753-6005



Daniel J. Evans - Governor

G.H. Andrews - Director

January 12, 1976

Secretary  
Federal Power Commission  
Washington D.C. 20426

Attn: BNG-SOD-ALASKA

Federal Power Commission  
Alaska Natural Gas Transportation  
Systems  
Draft Environmental Impact Statement

Gentlemen:

Reference is made to your letter of November 28, 1975, requesting our review of the draft environmental statement for the above project.

We have completed our review and find no conflicts with existing or proposed highways in the area.

Thank you for the opportunity to review this information.

Sincerely,

H. R. GOFF  
Assistant Director for  
Planning, Research and State Aid

*Russell Albert*  
By: RUSSELL ALBERT  
Planning Engineer

HRG:eh  
RA/RBD

Baker Ferguson, Chairman  
Walla Walla

A. H. Parker  
Bremerton

Howard Sorensen  
Ellensburg

Virginia K. Gunby  
Seattle

Julia Butler Hansen  
Cathlamet

Harold L. Boulac  
Secretary

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FEB 9 9 47 AM '76  
FEDERAL POWER COMMISSION  
NO ACHIEVEMENT  
WITHOUT EFFORT

## ASSOCIATION OF INTERIOR ESKIMOS

A non-profit organization established for Cultural Preservation

P.O. BOX 9971 COLLEGE, ALASKA 99701

INCORPORATED  
JULY 1972

P.O. Drawer 109

Fairbanks, Alaska 99707

Secretary Federal Power Commission  
Washington, D.C. 20426

January 29, 1976

Attn: BNG-SOD-ALASKA

Dear Sirs:

This letter is in regard to the recent recommendation made by the F.P.C. staff on routing of a Natural Gas Line through Alaska.

It would seem that we are once again faced with massive government intervention in the lives of Native Alaskans. A federal agency whom has little idea of our ways and our culture and makes decisions not based on the welfare of the people most directly affected by their decision, but based on their desire to regulate for the sake of regulation.

Our people have existed on this land for centuries before Europeans even knew of its existence; and during these many centuries, the land sustained our civilization which predates American and European governments by hundred of years. We exist today because we learned a lesson which is only beginning to be realized by many so-called advanced civilizations, and, that is, if you disturb nature too much, and take too much from the land, it will cease to support the people.

It is time for the government of this country to assess the amount of damage that will be done to the land, and consequently to the people by a careless disregard of natural consequences by regulatory bodies who arbitrarily decide what is good for the people.

A prime example of this is the change in the routing of the Natural Gas Line from Livengood to Nikishi. When there is already in existence a corridor which is supposed to be environmentally safe to begin with. Why must the routine be changed? The building of a new corridor throughout Alaska only succeeds in disruption of nature and the disruption of the Native way of life. As a representative of the Native peoples within the Interior of Alaska, I cannot, nor will not, endorse a concept which totally disregards my peoples culture and welfare, as this proposal has done.

Secretary Federal Power Commission  
Attn: BNG-SOD-ALASKA  
January 29, 1976  
Page -2-

The question in our minds is if the route proposed is used with its 400 miles of new corridors established in an Alaskan wilderness area, who benefits?

Is the real purpose of this proposal to discourage the use of a trans-Alaskan route in favor of a trans-Canadian route? Or is it a lack of knowledge on the part of the F.P.C. staff in what effects this would have on the Alaska wilderness and its people. Perhaps some of the ignorance of its impact could have been avoided if the F.P.C. would have held public hearings on the route proposals in Alaska, and received the comments of the people who will be directly affected by the gas line routing.

Of course, there is no doubt in our minds that we are still considered a "foreign country" by some Washington bureaucrats who only seek to exploit the land, and have little or no regard for the consequences which must be borne by the peoples who live here.

In this the 200th Birthday of our country, I am reminded of an earlier time in history when the colonies in American were being exploited by the English government who had only resources of the colonies in mind, and no thought of the people well being; and the rallying cry of our forefathers of "no taxation without representation". 200 years later, we are again being exploited by a government thousands of miles away who exploits our resources, and do not seek representation from the people to determine if its decisions reflect the best interests of the people. Could it be that history is indeed repeating itself.

Perhaps it is time to remind the commission that the first consideration on all proposals for routing of the gas line from Prudhoe Bay belongs to Alaskans - not special interest groups - not foreign countries - not companies - and not self-serving politicians.

Furthermore, as this is a private construction project and not a government funded project, it would seem to indicate to me that the commission should only address itself to the question of the lines routing feasibility as proposed, and not try to dictate their own opinions on the companies involved.

I cannot understand why the size of the pipe itself would even enter into the commissions recommendations. I should think that the question of 'pipe size' lays with the Board of Directors for that company.

Secretary Federal Power Commission  
Attn: BNG-SOD-ALASKA  
January 29, 1976  
Page -3-

The second consideration that the commission should address itself to is to what extent the American peoples interests are being served by this project.

1. Routing through Canada does not serve our country's interest at all. To give control of a valuable natural resource to a foreign country is a reversal of our countries 200 years of Foreign Policy, and a serious hazard to our independence from foreign control.
2. Use of materials from anyother country for construction of the line ought to be banned from consideration.

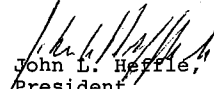
Americans have for the last 10 years been continually told that the importation of foreign products only cripple our national economy and place us at the mercy of foreign manipulation. Now we have a small but powerful government agency who wants to change the size of the pipe itself so that foreign pipe has to be used. Who's interests are served by such a move?

The third consideration should be environmental impact on Alaska by the proposed route and the impact on its people. I cannot understand how 400 miles of new corridor through unspoiled Alaskan wilderness can have less environmental impact on Alaska than to use the existing pad, equipment, and facilities used by Alyeska Pipeline Service Co. in the construction of the trans-Alaskan oil pipeline.

Perhaps, if you were really concerned in Alaska's interests, and the impact of your proposal on its people, you would have held public hearings in Alaska on your proposals, however, in the absence of these hearings, it would seem to indicate that the F.P.C. serves interests other than the people of the Alaska in its decisions.

And, in the interest of all Alaska citizens, native and non-native alike, I am asking the Federal Power Commission to reconsider its recommendations, and to endorse the routing of the natural gas pipeline through the existing corridors, and use American made pipe for its construction.

Respectfully yours,

  
John L. Heffle, Sr.  
President

Association of Interior Eskimos

JLH/bw



## THE CITY AND BOROUGH OF JUNEAU

CAPITAL OF ALASKA  
155 SOUTH SEWARD ST. JUNEAU, ALASKA 99801

DATE: January 30, 1976

FILE NO.

SUBJECT: Trans-Alaska Natural Gas  
Pipeline

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attention: BNG-SOD-Alaska

Dear Mr. Secretary:

Enclosed is a copy of a recent wire sent to you from the Mayor of the City and Borough of Juneau on January 30, 1975. Referred to in the wire was Resolution No. 343, adopted by the Assembly on November 13, 1975, a copy of which is enclosed. This Resolution expresses the position of the City and Borough of Juneau that "a trans-Alaska pipeline appears to be the best method of delivery of Alaska's natural gas to the Nation's markets as opposed to a route that lies primarily in Canada. . ."

As requested in the wire, please include this submission under public comments of the DEIS on the trans-Alaska pipeline.

Sincerely,

*for M. B. Winegar*  
M. B. Winegar  
City-Borough Manager

MBW/kh  
Enclosures

Presented by: Assemblyman Aase  
Introduced: 11-13-75 (Recessed  
Meeting of 11-06-75)

RESOLUTION OF THE CITY AND BOROUGH OF JUNEAU, ALASKA

Serial No. 343

A RESOLUTION ENDORSING A  
TRANS-ALASKA NATURAL GAS PIPELINE.

WHEREAS, there are known reserves of natural gas located in the Prudhoe Bay field estimated at 26 trillion cubic feet plus additional speculative reserves in other areas of the North Slope of Alaska, and

WHEREAS, the United States will experience serious shortages of natural gas which will affect household consumers and their quality of life as well as industrial users and the state of the economy, and

WHEREAS, two alternate routes are proposed for transmission of Alaska's natural gas to national markets one of which is the Alaska Arctic Gas Company pipeline across part of Alaska and through Canada with the other being the El Paso Alaska Company proposal to build a trans-Alaska pipeline from the North Slope to a point on the Alaska south coast where gas would be liquified and placed aboard tankers for shipment to markets, and

WHEREAS, a trans-Alaska pipeline appears to be the best method of delivery of Alaska's natural gas to the nation's markets as opposed to a route that lies primarily in Canada for the following reasons:

1. It would provide a reliable source of energy through a transmission system not subject to foreign regulation, restriction, taxation and other control or influence.
2. Because the trans-Alaska pipeline is shorter and will utilize the existing crude oil trans-Alaska pipeline corridor to the maximum extent possible, it should require a shorter planning, design and construction period, have less adverse environmental impact, and be less costly.
3. It would provide substantial employment for United States residents during construction and after construction for operation and maintenance of the pipeline and related facilities.
4. It would stimulate the United States ship-building industry to meet the demand of transportation of liquified gas by tankers.

Resolution 343

5. It would create additional employment within Alaska to furnish project support services.

6. It would provide a clean source of energy to residents and industries within the State of Alaska not available if a Canadian routing were adopted.

7. It could provide the State of Alaska control of its royalty natural gas for sales, exchanges or other disposition in ways calculated to promote private economic growth and a permanent tax base such as development of a petrochemical facility.

NOW, THEREFORE, BE IT RESOLVED BY THE ASSEMBLY OF THE CITY AND BOROUGH OF JUNEAU, ALASKA:

That it endorses a trans-Alaska natural gas pipeline as the best routing for proper management of this vital energy source.

Adopted this 13th day of November, 1975.

Virginia E. Kline  
Mayor

Attest:

Edna J. Conroy  
Clerk

The following straight wire sent January 30, 1976 at 9 a.m.:

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attention: BNG-SOD-ALASKA

THE CITY AND BOROUGH OF JUNEAU'S STRONG ENDORSEMENT OF A TRANS-ALASKA NATURAL GAS PIPELINE AS THE BEST ROUTING OF THE NATURAL GAS FROM THE PRUDHOE BAY FIELD IS CONTAINED IN RESOLUTION NO. 343, ADOPTED NOVEMBER 13, 1975. WE REQUEST THAT RESOLUTION NO. 343 BE INCLUDED IN THE PUBLIC COMMENTS OF THE DEIS ON THE TRANS-ALASKA PIPELINE. COPY FOLLOWS VIA MAIL.

WE JOIN WHAT WE BELIEVE TO BE A GREAT MAJORITY OF ALASKANS IN URGING THAT THE PFC ALLOW CONSTRUCTION BY THE MOST ECONOMIC PRACTICABLE MEANS CONSISTENT WITH SOUND ECOLOGY. TO THIS END, WE STRONGLY URGE PUBLIC HEARINGS BE HELD IN ALASKA TO INSURE ADEQUATE INPUT CONCERNING THE IMPORTANCE OF ROUTING AND CONSTRUCTION AND WHAT IT MEANS TO THE PEOPLE OF THIS STATE.

Mayor Ginny Kline  
City and Borough of Juneau, Alaska

Phone: (907) 424-3237  
or 424-3238

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## CITY OF CORDOVA

Box 938

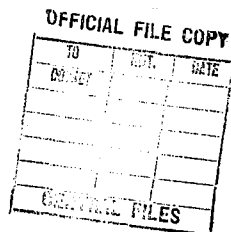
Reply to:

FEB 2 11 41 AM '76 CORDOVA, ALASKA 99574

FEDERAL POWER COMMISSION

"The Friendly City"

January 27, 1976



Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Sir:

The City of Cordova has passed a resolution supporting construction of a trans-Alaska natural gas pipeline as well as petitioning and receiving the Order Granting Intervention in the El Paso Alaska Docket Nos. CP 75-96 et al. Copies of the Resolution, Petition and Order Granting Intervention are enclosed.

We have reviewed the Draft Environmental Impact Statement published by the Federal Power Commission staff and have the following comments to make.

The City of Cordova supports the El Paso Alaska pipeline proposal with the terminus and LNG plant at Gravina Point. We understand that this site is part of the native land claims but we have a copy of a letter from the Eyak Corporation to the Council on Environmental Quality which states they have no objection to the LNG plant at Gravina Point and will negotiate a lease agreement with El Paso if the Gravina site is selected.

The DEIS states there is no interest existing in Alaska for use of the State's 12½% royalty share of Prudhoe Bay Natural gas and does not mention the almost total support which the trans-Alaska routing has among Alaskans. It leaves the implication that Alaskan interests are not a factor deserving consideration. This is not true - there is a great deal of interest and support for the El Paso route and Alaskan interest most certainly deserves consideration.

The recommendations made by the FPC staff for the proposed pipeline to take the route to Nikisi is questioned because Cook Inlet is not ice free and it would expose the tankers to ice conditions which the Coast Guard considers dangerous. Additionally the terrain for this route is more rugged than the route to Gravina and the pipeline would be forced to cross bodies of water which would incur more cost to El Paso and delay the completion of the project and availability of a much needed resource.

The routing to the Gravina site would be less costly and time consuming and would create the least amount of environmental disturbance. The DEIS commented on icebergs in the Prince William Sound from the Columbia Glacier. It is very rare to see a large iceberg in the shipping lanes except in the Valdez Arm and the LNG fleet would not be going through the Valdez Arm.

The City of Cordova understands the potential effects and impact on the community from the El Paso project, but we are convinced that through local

See new section entitled "Supplemental Analysis" in Volume I, Appendix, for an expanded discussion of the use of Prudhoe Bay gas in Alaska. Inasmuch as the purpose of this EIS is to discuss impacts, no attempt has been made to report on the opinions of various populations being impacted.

Comment reflected in Section H-2 of Volume II of the FEIS.

The environmental staff does not disagree that icebergs presently occur on the route to Gravina; however, the Columbia Glacier's anticipated retreat could result in an increased hazard to all of Prince William Sound.

Secretary, Federal Power Commission

1/27/76

Page 2 -----

efforts as well as the continued cooperation of El Paso, the undesirable aspects will be limited.

The City feels that El Paso's proposed pipeline routing, paralleling the utility corridor of the Alyeska Oil Pipeline would be the least costly, could be completed in less time, would have the least environmental disturbance and would be beneficial to the entire State besides providing a resource much needed by the nation.

The City of Cordova strongly supports the El Paso routing and urges your favorable consideration of the Gravina Point terminus.

Sincerely,

Mark E. Kazazeen  
City Manager

CITY OF CORDOVA, ALASKA  
RESOLUTION NO. 74-3

A RESOLUTION OF THE CITY OF CORDOVA, ALASKA, URGING SUPPORT AND  
CONSTRUCTION OF A TRANS-ALASKA NATURAL GAS PIPELINE.

WHEREAS, there are tremendous reserves of natural gas located  
on the North Slope of Alaska; and

WHEREAS, there are numerous unexplored areas in Alaska with  
natural gas potential; and

WHEREAS, a proposal has been made to build a natural gas  
pipeline from the North Slope of Alaska, with such line to be  
located entirely within the State of Alaska; and

WHEREAS, a Trans-Alaska natural gas pipeline would provide  
numerous benefits over that of a line constructed outside of Alaska;  
to wit:


1. The gas source, transportation and consumption would  
be entirely under control of the United States.
2. The delivery of a clean energy source to the people of  
the United States would be much earlier than if an alternate  
route was used.
3. It would provide a reliable source of such energy not  
subject to foreign control.
4. It would provide substantial employment during the  
construction period and continuing employment for the  
labor in the construction industry after the completion of  
the Trans-Alaska oil pipeline.
5. It would provide continued employment to Alaskans in the  
operation and maintenance of gas line and related facilities  
after the construction phase has ended.
6. It would create additional supporting industry and  
services within Alaska to furnish project support.
7. It would create a large and important permanent tax  
base for the State of Alaska, and its communities.
8. It would provide a clean source of energy to the residents  
of and industries within the State of Alaska that would not  
otherwise be available if a Canadian pipeline were constructed.
9. It would substantially benefit the entire United States  
through delivery to the West Coast allowing diversion of  
existing gas supplies to the Mid-West and Eastern United States.

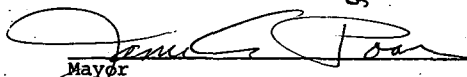
NOW, THEREFORE, BE IT RESOLVED:

1. That the City of Cordova supports the construction of a  
Trans-Alaska natural gas pipeline.
2. That the City of Cordova urges the Legislature of the  
State of Alaska, the Governor of Alaska and the Administration of the  
State of Alaska to support the concept of a Trans-Alaska natural gas  
pipeline.
3. That the City of Cordova urges that application be  
promptly made for all necessary permits for construction of  
Trans-Alaska natural gas pipeline.

Passed and approved by the City Council of the City  
Cordova, Alaska, this 4 day of February, 1974.

ATTEST:

  
City Clerk

  
Mayor

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FEDERAL POWER COMMISSION

227

RESOLUTION AUTHORIZING THE CITY OF CORDOVA TO FILE A PETITION  
FOR INTERVENTION WITH FEDERAL POWER COMMISSION.

WHEREAS the City of Cordova is located on the shores of Prince  
of Wales Sound, and

WHEREAS the City of Cordova looks to encourage industrial growth  
in the Cordova area, and

WHEREAS the City of Cordova has previously supported a transit line  
connecting Cordova to a Prince William Sound terminus in the form of  
Resolution 875-18

THE CHIEF OF ENGINEERS OF THE City Council of Cordova,  
Alaska, finds the facts in the attached petition to be true,  
and hereby directs the City Engineer to file the petition with the  
Federal Power Commission.

ADOPTED AND APPROVED BY THE CITY COUNCIL OF CORDOVA, ALASKA  
ON 16 June 1975.

*Jan A. Poon*

*Donna M. Shultz*

UNITED STATES OF AMERICA

Before the

FEDERAL POWER COMMISSION

El Paso Alaska Company, et al. ) Docket Nos. CP75-96, et al.

Petition of the City of Cordova, Alaska,  
for late Leave to Intervene

THE CITY OF CORDOVA, ALASKA, ("Petitioner"), pursuant to Section 15(a) of the Natural Gas Act and Section 1.8(b) of the Commission's Rules of Practice and Procedure, petitions the Commission for leave to intervene in the above docketed proceedings.

In support hereof, Petitioner respectfully shows:

I.

The names and mailing addresses of those persons to whom communications in regard to this petition should be sent are:

Mark E. Kazazeau  
City Manager  
City of Cordova  
P. O. Box 1210  
Cordova, Alaska 99574

R. Everett Harris, Esq.  
1029 West Third Avenue  
Anchorage, Alaska 99501

II.

Petitioner is an incorporated community of the State of Alaska; it is a Home Rule city with a manager-council form of government. It is located in Southcentral Alaska at the entrance to the Copper River Valley on the southeastern shore of Prince William Sound.

Petitioner's current population is approximately 2500 in the City proper, and approximately 500 in the Greater Cordova Area. The local economy is supported mainly by fishing and fish processing plants, with an additional significant contribution by government-related services. Because of the seasonality of the fishing industry, unemployment is high (in the range of 20%) in the winter months, but falls to around 4% in the summer. The economy experiences severe fluctuations between the summer and winter. Transportation, medical, educational, recreation and communication services and facilities are more than adequate for a community the size of Cordova.

The assessable valuation for the City of Cordova during 1974 was \$13,274,335. Total property, school and sales taxes accruing to the City's treasury for the 1974 fiscal year was \$542,412.00.

III.

Petitioner is vitally interested in the outcome of the hearings now in session in the Federal Power Commission on the issue of the routing of the natural gas transportation system from Prudhoe Bay, Alaska. The City of Cordova is located only 13 miles southeast of the LNG plant proposed to be constructed by El Paso Alaska Company as part of its Trans-Alaska Gas project. Because of the nearness of such facility, Petitioner expects that its construction and operation will have significant and far-reaching effects on the economic, social and environmental well-being of the Cordova community. Furthermore, Petitioner perceives the great majority of these effects to be beneficial in nature, and for that reason, herewith urges the Federal Power Commission to grant an early and favorable opinion for the implementation of El Paso Alaska Company's Trans-Alaska Gas Project.

Petitioner wishes to impress upon the Federal Power Commission that the endorsement expressed herein is not the opinion of a small body of local governmental representatives taken without due consideration of the facts. Rather, such opinion represents the studied determination of a large number of members of virtually every facet of the community.

We have met on numerous occasions with representatives of El Paso during the past two years and with increasing frequency during 1975; we are satisfied that we have identified and understand the potential effects of El Paso's project on our community; we are confident that with the continued cooperation of El Paso, the undesirable aspects of these effects can either be tempered to within acceptable limits or totally eliminated; we are convinced that El Paso's proposed pipeline routing in the utility corridor parallel to the Alyeska oil pipeline and terminating on Gravina Peninsula is both economically and environmentally sound; we are content that safety considerations in El Paso's plans for the design, construction and operation of the LNG plant and terminal on Gravina Peninsula provides more than adequate assurance that our citizens are not threatened by the processors of manufacturing, storing and shipping LNG; we believe that the fishermen of our community will be provided every opportunity to participate in the development of a traffic system for the LNG carriers which will not unduly disrupt the conduct of fishing operations in Prince William Sound; we look forward to the contributions which the construction labor force will make to our community by way of payroll expenditures and use of local services; and we welcome the stabilizing influence on the Cordova economy which the 300 permanent highly-skilled jobs at the LNG plant will provide, as well as the potential tax base which the siting on Gravina Peninsula will afford.

Petitioner understands that El Paso is faced with formidable opposition from Arctic Gas in the instant proceeding. However, it is Petitioner's fervent belief that the Arctic Gas proposal offers nothing in the way of advantages over the El Paso Project to either the Cordova community or the State of Alaska as a whole, and it is Petitioner's conviction that it has the obligation to communicate this fact to the Federal Power Commission by means of its active support for the El Paso plan. The City of Cordova will receive the greatest relative impact of all Alaskan communities from the El Paso plan. We therefore believe that when the discussion in the hearings in Washington turns to the subject of impact, our voice must be heard. El Paso's Trans-Alaska Gas Project is precisely the type of controlled development needed by the Cordova community, the State of Alaska and the entire United States.

#### IV.

Therefore, the City of Cordova represents that it has direct and substantial interests which could be adversely affected by the action of the Commission in these proceedings. The City of Cordova further represents that its interests are not being, nor can they be, adequately represented by any other party to these proceedings.

WHEREFORE, it is respectfully requested that the Commission grant the City of Cordova, Alaska, permission to intervene as a full party in the above referenced proceedings.

Respectfully submitted,  
THE CITY OF CORDOVA, ALASKA

By \_\_\_\_\_

R. Everett Harris, Es.  
1029 W. 3rd Avenue  
Anchorage, Alaska 99501

Counsel for The City of Cordova, Alaska

Dated:

UNITED STATES OF AMERICA  
FEDERAL POWER COMMISSION

Before Commissioners: Richard L. Dunham, Chairman;  
William L. Springer, Don S. Smith,  
and John H. Holloman III.

El Paso Alaska Company,                     )     Docket Nos. CP75-96,  
et al.   )     et al.

ORDER GRANTING  
LATE INTERVENTIONS

(Issued November 19, 1975)

On January 23, 1975, the Commission set for formal hearing in Docket Nos. CP75-96, et al., various proposals related to shipment of Alaskan and Canadian natural gas into the lower 48 states for ultimate public consumption. In said order the Commission directed a prehearing conference to convene on April 7, 1975, to discuss various procedural matters to facilitate the smooth and orderly course of the case and directed a formal public hearing to commence on the subject applications beginning May 5, 1975, in two phases.

Since the issuance of that order, the Commission has received various petitions to intervene in the various dockets consolidated in this proceeding. Having reviewed the late petitions the Commission believes that an adequate interest has been shown by each party listed below to warrant intervention and that their participation will not delay the instant proceeding.

Organization for Management of Alaska's  
Resources, Inc.

City of Cordova, Alaska

Congressman Robert Michel of Illinois

Public Service Commission of the  
State of New Mexico

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United Association of Journeymen and  
Apprentices of the Plumbing and Pipe-  
fitting Industry of the United States  
And Canada, AFL-CIO

Wisconsin Michigan Power Company and  
Wisconsin Natural Gas Company

Great Plains Natural Gas Company

The Commission finds:

(1) Since participation by the aforesaid parties will not delay the instant proceeding upon the conditions attached herein, good cause exists for accepting their late petitions to intervene.

(2) Participation by the aforesaid parties may be in the public interest.

The Commission orders:

(A) The aforesaid petitioners are permitted to intervene in this proceeding subject to the rules and regulations of the Commission, Provided, however, that the participation of such interveners shall be limited to matters affecting asserted rights and interests as specifically set forth in the petitions to intervene, and Provided, further, that the admission of such interveners, shall not be construed as recognition by the Commission that they might be aggrieved because of any order of the Commission entered in this proceeding; Provided, further, that said participation by such interveners shall be conditioned upon acceptance of the record in this proceeding as it now stands.

(B) The participation of Congressman Michel is additionally conditioned on his status as a member of the Congress of the United States from the state indicated in his petition.

By the Commission.

( S E A L )

Kenneth F. Plumb,  
Secretary.

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PMS SECRETARY , FEDERAL POWER COMMISSION ATTN BNG-SOD ALASKA

WASHDC

MAYOR AND MEMBERS OF THE SEWARD CITY COUNCIL SUPPORT

TRANS-ALASKA GAS PIPELINE ROUTE.

CITY MANAGER, CITY OF SEWARD

1611 EST

FEDPWRCOMM WSH

# CITY OF SKAGWAY

GATEWAY TO THE GOLD RUSH OF '98"  
P. O. BOX 415 SKAGWAY, ALASKA 99840

RECEIVED

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FEDERAL POWER COMMISSION

January 28, 1976

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Sirs:

It has been brought to the attention of the Common Council of the City of Skagway that the FPC does not intend to hold public hearings on its Draft Environmental Impact Statements on the Trans-Alaska routing for the natural gas pipeline. The City Council considers that the DEIS contains certain statements, suggestions, opinions or inferences which are inadequately supported by documentation or are of questionable validity.

The purpose of this letter is to make known the views of the City Council on these matters.

- a) The rationale for suggesting that the gas pipeline be diverted from the old pipeline route - from Iivengoed to Nikiski - is not understood.
- b) The statement that there is no interest in the use of the state's royalty gas within the state is in error.
- c) The fact that the DEIS fails to note the strong support of the citizens of Alaska for a Trans-Alaska gasline route is a serious omission.

It is respectfully requested that these views be considered by the Federal Power Commission.

Sincerely,

*John R. Edwards*

John R. Edwards  
Mayor

cc: Senator Stevens, Senator Gravel, Rep. Young

GDAcp

CITY OF SPOKANE, WASHINGTON



RECEIVED  
JAN 23 10 34 AM '76  
FEDERAL POWER COMMISSION

CITY PLAN COMMISSION  
Room 309 - City Hall  
Donald M. Olsson, Pres.  
SPOKANE CITY ZONING BOARD  
A.S. Brown, Chairman

JAN 22 2 58 PM '76  
FEDERAL POWER COMMISSION

January 20, 1976

Mr. Jose Urcia, Director  
Spokane Regional Planning Conference  
City Hall - Room 353  
Spokane, Washington 99201

Dear Mr. Urcia:

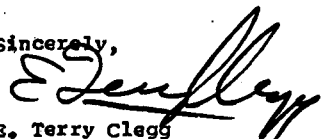
RE: Federal Power Commission Staff Evaluation  
of Alaska Natural Gas Transportation Systems

We have examined the above report and have the following comments:

1. The Federal Power Commission Staff believes that the West Coast projects of the Arctic Gas Systems should not be concentrated since the volume of Alaskan natural gas which would be committed to those companies could be handled by means of exchange of gas agreements. This could have an effect on the natural gas supply for the Pacific Northwest and Spokane in particular. Perhaps local authorities, familiar with future demands and supplies of natural gas, should be contacted for their views on whether the West Coast leg is needed.
2. The FPC Staff did not make a decision on which of the two proposals were the most environmentally acceptable. From our quick review of both proposals, the tanker route seems preferable to the 5,000 mile pipeline route across Canada from an environmental standpoint.
3. The Arctic Gas System pipeline, did not consider the aquifer underlying the Spokane valley in their proposal.

Thank you for allowing us the opportunity to review these proposals.

Sincerely,

  
E. Terry Clegg  
Planning Director

ETC:GOZ:gam

# Cordova Chamber of Commerce

BOX 99

"The Friendly City"

CORDOVA, ALASKA 99574



MT. ECCLES

January 30, 1976

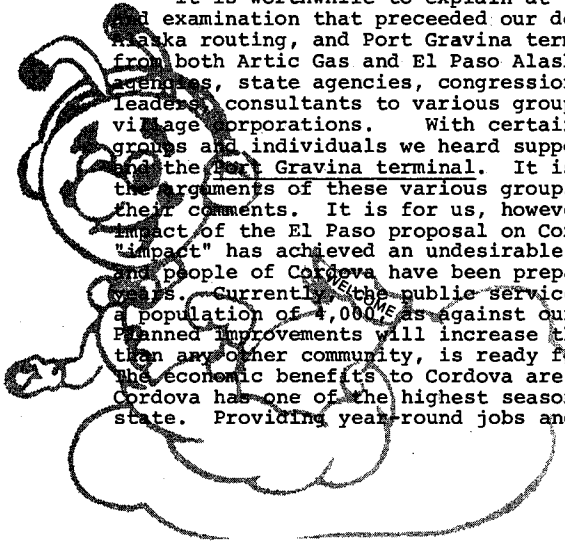
Secretary  
Federal Power Commission  
Washington, D.C., 20426

Attention: BNG-SOD-ALASKA

Gentlemen:

The Cordova Chamber of Commerce desires to make the following comments on the draft EIS on the routing of the natural gas pipeline from Alaska's North Slope.

The Cordova Chamber of Commerce has long supported the trans-Alaskan route of the natural gas pipeline, with the southern terminus at Port Gravina in Prince William Sound. (See enclosure I)



It is worthwhile to explain at this point the amount of study and examination that preceeded our decision to support the trans-Alaska routing, and Port Gravina terminus. The Chamber heard from both Artic Gas and El Paso Alaska, representatives of federal agencies, state agencies, congressional and state legislative leaders, consultants to various groups and native regional and village corporations. With certain obvious exceptions, all the groups and individuals we heard supported the trans-Alaskan route, and the Port Gravina terminal. It is not for us to reiterate the arguments of these various groups - they have already submitted their comments. It is for us, however, to point out that the impact of the El Paso proposal on Cordova is beneficial. The word "impact" has achieved an undesirable or bad connotation. The city and people of Cordova have been preparing for growth for several years. Currently the public services in this city are geared for a population of 4,000 as against our current population of 2,500. Planned improvements will increase this even more. Cordova, more than any other community, is ready for a rapid population growth. The economic benefits to Cordova are also great. Currently, Cordova has one of the highest seasonal unemployment rates in the state. Providing year-round jobs and winter employment for our

Federal Power Commission  
January 30, 1976  
Page 2

city is one of the prime concerns of the Chamber of Commerce. The trans-Alaska route and Port Gravina terminal will provide this. The City of Cordova and our fishermen and seafood processors have invested hundreds of thousands of dollars in improving our sagging salmon runs. The heat from the Liquefaction plant could be a tremendous asset to our aquaculture efforts.

Finally, our examination of your DEIS raises serious questions on the propriety of the Cook Inlet terminus. Many of the negative comments on the Port Gravina terminus also apply to the Cook Inlet terminus, but were not mentioned.

We urge prompt Federal Power Commission approval of the Trans-Alaskan route, and the Port Gravina terminus in Prince William Sound.

Sincerely,



W. D. Bechtel  
President

WDB/mb

RESOLUTION OF THE CORDOVA CHAMBER OF COMMERCE, CORDOVA, ALASKA  
URGING SUPPORT AND CONSTRUCTION OF A TRANS-ALASKA NATURAL GAS PIPELINE

WHEREAS, there are tremendous reserves of natural gas located on the North Slope of Alaska; and

WHEREAS, there are numerous unexplored areas in Alaska with natural gas potential, and

WHEREAS, a proposal has been made to build a natural gas pipeline from the North Slope of Alaska to a liquefaction plant on Prince William Sound with such line to be located entirely within the State of Alaska, and

WHEREAS, a trans-Alaska natural gas pipeline would provide numerous benefits over that of a line constructed outside of Alaska; to wit:

1. The gas source, transportation and consumption would be entirely under control of the United States.
2. The delivery of a clean energy source to the people of the United States would be much earlier than if an alternate route was used.
3. It would provide substantial employment during the construction period and continuing employment for the labor in the construction industry after the completion of the trans-Alaska oil pipeline.
4. It would provide continued employment to Alaskans in the operation and maintenance of gas line and related facilities after the construction phase has ended.
5. It would create additional supporting industry and services within Alaska to furnish supply project support.
6. It would create a large and important permanent tax base for the State of Alaska and its communities.
7. It would provide a clean source of energy to the residents of and industries within the State of Alaska that would not otherwise be available if a Canadian pipeline were constructed.
8. It would substantially benefit the entire United States through delivery to the West Coast allowing diversion of existing gas supplies to the Mid-West and Eastern United States.

Now, therefore be it resolved:

1. That the Cordova Chamber of Commerce supports the construction of a trans-Alaska natural gas pipeline.
2. That the Cordova Chamber of Commerce supports the construction of an environmentally compatible liquefaction plant in Prince William Sound.
3. That the Cordova Chamber of Commerce urges prompt and favorable Federal Power Commission approval of the proposed trans-Alaska pipeline.

Passed and approved by the Cordova Chamber of Commerce of the city of Cordova, Alaska this sixteenth day of July, 1974.

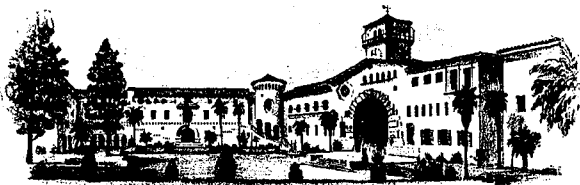
Attest:

  
Barbara Tilgner, President

July 16, 1974

**ALBERT F. REYNOLDS**  
Environmental Quality Coordinator

**105 E. Anapamu St.  
Santa Barbara, Calif. 93101  
Telephone 966-1611**



January 14, 1976

Attn: BNG-SOD-ALASKA

Dear Mr. Secretary:

By direction of the Santa Barbara County Board of Supervisors, I have coordinated this County's review of the Draft Environmental Impact Statement (DEIS) on the western LNG Terminal Company Application, Point Conception, California (Docket Nos. CP 75-96, et al) and am forwarding our comments herewith. There are three supporting documents attached to this summary letter of transmittal.

Also attached is a copy of the Petition to Intervene and Motion for Local Hearing filed by the Chairman of the Santa Barbara County Board of Supervisors on January 2, 1976. Let me re-state this County's deep concern that no final decision be made regarding this application without a public hearing in or about Santa Barbara.

It is our finding that the DEIS is deficient in not providing adequate information and analysis in several areas. These include: risk analysis methodology including tanker traffic safety; plume dispersion analysis; air quality impact analysis; tax revenues to be generated by the project; other industrial applications including de-salinization as a mitigating measure; marine biological impacts from cold water discharge and from the trestle and breakwater construction. These inadequacies should be corrected by FPC in the Final EIS.

We would agree with the analysis in the DEIS as to the significant levels of impact associated with a land use

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that must cost the B.N.I.

mm

decision to construct an LNG de-gasification facility at Point Conception (incompatibility with present usage, growth and industrialization inducement, displacement and access problems). It is imperative that this County and potentially affected residents have an opportunity to comment on this aspect of the proposal through a local hearing. The views of the California Coastal Zone Conservation Commission should also be given serious consideration. We are also concerned with the new pipeline route impacts which are described as extensive. We would, however, suggest the addition of one element of information regarding pipeline routes: the costs of archaeology salvage of sites along the right-of-way.

The costs of such salvage are not available at this time.

In addition to our demand that this County and its citizens should have the opportunity to be heard regarding the construction of an LNG de-gasification facility at Point Conception or at the proposed alternative sites, we are frankly concerned that the site decision may already have been reached. Western LNG Terminal Company has applied to the City of Oxnard for a Conditional Use Permit to construct the facility at Oxnard, and has entered into a consultant contract on the order of \$400,000 for the preparation of an EIR under the California Environmental Quality Act for the Oxnard facility. This would be a new and completely separate document from the FPC's DEIS now before us. We are informed by City of Oxnard staff that the Draft EIR should be ready in February. The fact that the EIR has been prepared for the City of Oxnard at great expense and over a period of several months suggests to us that someone knows something that we don't know as to FPC's plans for siting an LNG plant. What relevance is our review of the FPC's DEIS if the site decision has already been made?

There follows a brief summary of the areas of inadequacy in the DEIS:

1 - Oxnard Site Selection

FPC staff has recommended that not more than one LNG terminal should be constructed in California at the present time and that the one terminal should be located at Oxnard. In the DEIS Conclusions section (III-354) staff has indicated that Oxnard is environmentally preferable, 95% of the pipeline easements are existing, and "the risks inherent with an LNG operation at Oxnard are concluded to be of an acceptable nature to the public." We take issue with this latter assessment of risk, and agree with the California Coastal Zone Conservation Commission that the risks inherent in LNG terminal operations should be identified, and that "At such time as LNG marine terminal operations are found consistent with public safety, sites in developed or industrialized port areas may be considered." (III-355).

The DEIS is critically deficient because the risk to the nearby Oxnard population has been grossly underestimated. We are not satisfied as to the accuracy of the plume dispersion analysis nor the risks analysis methodology (including tanker traffic safety). Further, what are the risks to the City of Santa Barbara or to Carpinteria if a tanker enroute to an Oxnard facility collides a few miles offshore? Nearly all of the assumptions, the assessment of casualties onshore, and the prediction model itself can be challenged. See the criticism of the Human Safety Estimate (attached) by OEQ Specialist Albert McCurdy.

Since risk analysis is one of the major bases for the choice of the Oxnard site, we strongly urge that the analysis be of the highest available state of the art, and that its application to Oxnard, Point Conception, and coastal communities along the tanker route be thoroughly re-checked.

## 2. Air Quality Impact Analysis

The Ventura County Air Pollution District (APCD) evaluation of the air quality aspects of the LNG facility have been forwarded separately to FPC by that jurisdiction. This evaluation would apply to the Point Conception area with some changes due to the site specifics and existing background concentrations found at the Santa Barbara location. The APCD critique requests a more detailed air quality primary emission and secondary pollutant evaluation which is an absolute necessity given the scale of potential air quality impacts expected to occur from this project.

## 3. Marine Biological Impacts

While the DEIS contains some superficial generalizations, documentation is lacking as to the marine biological impacts of cold water discharge and of the construction of the 4,600 trestle and breakwater.

## 4. De-salinization Plant as Mitigating Measure

The attached memorandum by Charles H. Lawrance, Engineer-Manager, Santa Barbara County Water Agency, outlines the proposal for a Seawater Desalting

No calculations or references are provided to back this preconceived conclusion.

From the risk model presented in the FEIS the direct risk from LNG spills a few miles offshore should be negligible. However, if an LNG tanker collides with an oil tanker or an oil platform there could be an oil fire that might bring black smoke over the city. Also an unignited oil spill may wash ashore.

Staff is not that confident that risk analysis of LNG plumes is a major basis for site selection. The latest plume dispersion work by Science Applications, Inc. indicates flammable plumes of 1-2 km in extent for spills of the order of 25,000-35,000 m<sup>3</sup> in size. The staff plume travel model gives comparable results, and the analysis in the FEIS indicates negligible risk to the city from LNG spills at sea or at the dock. Thus the choice of Oxnard will be based on many other factors. Also staff is not aware that risk analysis played a major role in location of oil tanks throughout southern California, oil platforms near Santa Barbara, the Ormond Beach generating station, or the BART system in San Francisco, for example.

Emissions from the LNG plant have been modeled using EPA's Air Quality Display Model and the Point Max program. The highest 1-hour NO<sub>2</sub> concentrations were calculated by utilizing meteorological conditions previously described in addressing a comment to the Environmental Protection Agency.

The discussion of the "Coldwater Discharge" in the FEIS has been expanded.

The desalinization unit has been eliminated from the applicant's proposal.

project in tandem with the Point Conception LNG vaporization plant developed by Flour Engineers and Constructors for the Department of the Interior. This County is in no position to endorse such a proposal, but it is our view that such industrial applications should be taken into account in the DEIS but have not been.

5. Tax Revenues

The Assessor of the County of Santa Barbara, Mr. William H. Cook, has analyzed the real and ad valorem tax revenue estimates in the DEIS. His report is attached. His calculations are based on the latest data available and differ substantially from the estimates in the DEIS. For example, his total potential ad valorem tax revenues are estimated at \$12,318,250. The DEIS should be revised to reflect the Assessor's updated estimates.

For response see the following attachment which was submitted by the Santa Barbara County Tax Assessor's Office and which provides revised tax rates for the information supplied in the DEIS.

We respectfully request that the DEIS be revised by FPC to correct the inadequacies detailed in this letter and attachments.

Sincerely,



Albert F. Reynolds  
Environmental Quality Coordinator

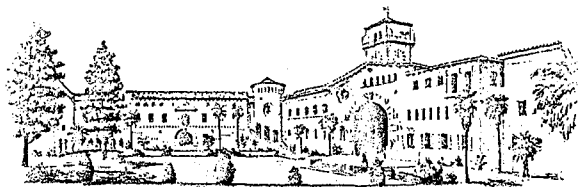
Attachments

AFR:jkm

# COUNTY OF SANTA BARBARA

ALBERT F. REYNOLDS  
Environmental Quality Coordinator

105 E. Anapamu St.  
Santa Barbara, Calif. 93101  
Telephone 966-1611



## OFFICE OF ENVIRONMENTAL QUALITY

January 14, 1976

### Human Safety Estimate: Criticism

Albert J. McCurdy, Environmental Specialist II  
Office of Environmental Quality

There are several serious points which need clarification and further work in the Draft Environmental Impact Statement (DEIS) concerning the risks to human safety from a potential LNG fire.

The first is the use of the single atmospheric stability category D and the exclusion of the more stable E and F conditions which according to the DEIS "...have little wind associated with them, and less stable air provides no opportunity for a plume to drift horizontally for great distances." (III-410). Using the D stability class as "...the worst condition for LNG plume transport", (III-411) for a spill of the magnitude of 165,000 to 175,000 M<sup>3</sup> the DEIS shows that the downwind extent of the fire hazard extends about 6960 feet (1.32 miles) and 7100 feet (1.34 miles) respectively for the two spill sizes chosen. Noting that the ship berths are to be located approximately 6,000 feet from the shore (III-405) and that it is calculated that the largest spill produces a hazardous plume, using the 5 mph wind speed at water level, no further than 7,000 feet from the spill site, the probability model yields a number of factors of frequency of catastrophe from fire. Many of these factors can be challenged by using several references including the information developed by the First Coast Guard District and shown in the Boston, Massachusetts LNG/LPG Contingency Plan, dated 15 June 1974. Figure 1 of Appendix VII of the latter has a chart which displays the Maximum extent of LNG Flammable Vapor Cloud vs. Spill Amount for Stability Classes C, D, E, and F by tons of LNG spilled. For a spill of 10,000 tons, or one-sixth the magnitude of the lesser of the spill sizes analyzed in the DEIS, the D stability yields a flammable vapor cloud of 3.45 miles (18,228 feet); the E class spreads the cloud 6.33 miles (33,418) and the F wind condition disseminates the vapor 11.5 miles (60,761 feet).

Given the possibility that meteorological conditions can move an LNG cloud up to 11.5 miles, the DEIS should show the hazard potential to urban areas along the tanker's delivery route. For instance the City of Santa Barbara is within this distance. And if the Oxnard siting is approved the tankers will be using the Santa Barbara Channel and expose the inhabitants to an increased risk. It is realized that a vehicle traffic system would make the channel area safer, but since the implementation of such a system in the area is unknown, the accident figures should be displayed with and without such a safety system.

In a paper by D. L. Jaquette entitled, Possibilities and Probabilities in Assessment of the Hazards of the Importation of Liquefied Natural Gas, 1975, the Rand Corporation, the author cites the wide disagreement over estimations of the hazard zone from LNG spills and attempts to show where the data and assumptions used in risk models are insufficient or unsubstantiated. Among the concluding statements in the paper is the following: "It is clear that the systems safety research necessary before LNG terminals proliferate is just beginning." and "While catastrophic accidents can occur, they seem only to require remote siting virtually to eliminate any hazard to innocent property and people." (p.17).

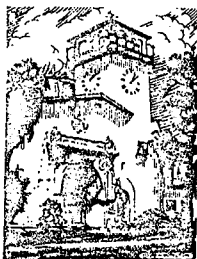
Another limitation of the probability model used for risk assessment in the DEIS is the uncertainty that the LNG tankers will have double hulls for collision and grounding protection. This unknown may be, at least in part, the reason why the probability model considered the entire LNG cargo as the spill size in the case of a collision and did not limit the potential spill to the release from a single LNG container which would be approximately 27,000 M<sup>3</sup> to 33,000 M<sup>3</sup>. The paper entitled "Risks Associated with an LNG Shipping Operation" by D. S. Allan et al, 1973, took the risk analysis approach that a single LNG container (in this case, 25,000 M<sup>3</sup> or 10,000 tons) might be ruptured upon collision with another ship. They calculated that the resulting pool fire sizes of 3,500 feet might be fatal to those exposed within this area. A similar type of accident risk assumption, for one-fifth or one-sixth of the proposed LNG cargo, would seem to be justified for use in the DEIS were it not for the characterization of the variable of double hull design as an "unknown." However, the DEIS may be correct in postulating a total cargo release and not limit the analysis to the results of a collision, which would open only a single LNG vessel, because given an accident, the LNG vented from one tank could cause additional structural failures in the tanker which might result in the voiding of an entire cargo. In any case the DEIS does not discuss the reasoning used to justify the entire cargo spill assumption.

The DEIS (II-355) states that the tankers would have a double hull 10 feet above the outer hull bottom and 10 feet unload of the ship's sides. This is apparently inconsistent with the designation of the hull safety design as "unknown" unless, for instance, the probability analysis is also applicable to projects known as Pacific Indonesia LNG Company (Docket No. CP74-160) and Pacific Alaska LNG Company (Docket No. CP75-140) which may involve tankers with no double-hull design. If the public safety analysis in Section C of the DEIS is applicable to the consideration of these two additional projects for the Oxnard site as is stated in the DEIS on page III-356, it is not shown in the factor analysis of the number of LNG deliveries per year (427) which was used in the risk assessment section. Therefore the risk to the public from the combination of the three projects is not fully analyzed in the "conclusions" section (III-354-356).

Based upon the insufficiency of the risk assessment for the single project, which underestimates the potential LNG plume travel, size, and burning characteristics and population exposure; and has severe limitations on the single-sample premise of the probability of fatality per person exposed, the risk assessment falls short of even being an initial test hypothesis, let alone a basis for a LNG site selection. The entire approach to risk assessment used in the DEIS should be state-of-the-art or better because even the best LNG models are new and therefore highly limited in predictability and primarily because the degree of potential danger from

an LNG fire is probably the largest ever presented to modern society, especially in the case of the three combined facilities.

For a consideration of an adequate risk assessment program see "Technology and Current Practices for processing, Transferring and Storing Liquified Natural Gas" by D. Allan et al, December 1974, distributed by National Technical Information Service, U.S. Department of Commerce, PB 241 048.



COURT HOUSE

# Santa Barbara County Water Agency

## BOARD OF DIRECTORS

HARRELL FLETCHER, Chairman  
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FRANK J. FROST  
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ROBERT E. KALLMAN  
Santa Barbara  
JAMES M. SLATER  
Santa Barbara  
FRANCIS H. BEATTIE  
Lompoc

HOWARD C. MENZEL  
County Clerk - Recorder  
and Ex-Officio Clerk  
Santa Barbara County Water Agency  
Rm. 407 Administration Bldg.  
105 East Anapamu Street  
Santa Barbara, Calif. 93101

December 24, 1975

Dec 30 4 14 PM '75

CHARLES H. LAWRENCE  
Engineer-Manager

OFFICE OF ENVIRONMENTAL  
COUNTY ENGINEERING BUILDING  
123 E. Anapamu Street  
Santa Barbara, Calif. 93101  
Tel. (805) 966-1611

TO: Distribution

FROM: Charles H. Lawrence, Engineer-Manager

RE: Memorandum on Potential LNG Vaporization and Seawater Desalting Project

Gentlemen:

Enclosed for your information is a copy of a memorandum of Santa Barbara County Water Agency outlining some of the water resources development aspects and environmental considerations of a proposed installation for vaporization of imported liquefied natural gas (LNG) coupled with a freeze-desalting installation for production of fresh water from the sea. An LNG vaporization installation is being contemplated by Pacific Lighting Corporation for Southern California and site consideration includes the Santa Barbara County coastline, among other potential locations, notably Point Conception.

The freeze-desalting process adaptation is currently being explored by Fluor Engineers and Constructors, Inc. Los Angeles Division, in a feasibility study being conducted by Fluor for the U. S. Department of Interior's Office of Water Research and Technology (OWRT, successor to Office of Saline Research). The enclosed memorandum elaborates on this aspect to some extent.

In addition to the enclosed memorandum, we enclose a copy of the minutes of a Fluor-sponsored meeting in Anaheim, California on September 22, 1975, and the original January 30, 1975 proposal of Fluor to OWRT. These have been provided through the courtesy of Fluor.

Very truly yours,

SANTA BARBARA COUNTY WATER AGENCY

*Charles H. Lawrence*  
Charles H. Lawrence, Engineer-Manager

CHL:lh  
Enclosures  
cc: See attached List

Distribution

-2-

December 24, 1975

cc: All Five Supervisors  
All Member Units of Cachuma Project  
State Department of Water Resources, Attention: Mr. Jack J. Coe  
U. S. Bureau of Reclamation, Attention: Mr. Neil Schild  
Mr. Norman H. Caldwell, Public Works Director  
Fluor Engineers and Constructors, Inc. Attention:  
Mr. Paul J. Schroeder, Project Manager  
Mr. William Bollay, Chairman, SBCWA Advisory Committee  
Mr. Curtis Tunnell, Vice Chairman, SBCWA Advisory Committee  
Office of Water Research and Technology (OWRT), U. S. Dept. of  
Interior, Attention: Mr. Jack C. Jorgensen, Ass't Director  
Vandenberg Air Force Base, Attention: Col. S. F. Martino,  
Base Civil Engineer  
City of Lompoc, Attention: Mr. Gene Wahlers, Administrative  
Officer  
Cities of Santa Maria and Guadalupe  
Central Regional Water Conservation Board, Attention:  
Mr. Ken Jones  
Mr. Robert Curiel, Chief Assistant County Counsel  
Office of Environmental Quality, Attention: Mr. Al Reynolds ✓  
Cuyama Resource Conservation District



COURT HOUSE

## Santa Barbara County Water Agency

### BOARD OF DIRECTORS

HARRELL FLETCHER, Chairman

Santa Maria

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Santa Barbara

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Santa Barbara

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HOWARD C. MENZEL

County Clerk - Recorder  
and Ex-Officio Clerk

Santa Barbara County Water Agency

Rm. 407 Administration Bldg.

105 East Anapamu Street

Santa Barbara, Calif. 93101

CHARLES H. LAWRENCE

Engineer-Manager

### COUNTY ENGINEERING BUILDING

123 E. Anapamu Street

Santa Barbara, Calif. 93101

Tel. (805) 966-1611

December 24, 1975

To: Files

From: Charles H. Lawrence, Engineer-Manager

Re: Potential LNG Vaporization and Seawater Desalting Project

### 1.0 INFORMATION ITEMS

1.1 On September 11, 1975, a telephone call was received by Mr. Norman H. Caldwell, Santa Barbara County Director of Public Works, from Mr. Jack C. Jorgensen, Assistant Director, Technology Transfer, Office of Water Research and Technology (OWRT) U. S. Department of Interior, Washington, D. C. notifying him of an impending meeting on September 22, 1975 at the Anaheim, California offices of Fluor Corporation to discuss a potential seawater desalting project proposed to be operated in conjunction with a future LNG (liquefied natural gas) vaporization project at Point Conception, California. Mr. Caldwell or other appropriate representative of Santa Barbara County was invited to attend the meeting, as it would be of considerable interest from the standpoint of water resources planning.

1.2 Inasmuch as the proposed meeting date fell upon the meeting date of both the Santa Barbara County Board of Supervisors and the Water Agency Board of Directors, (at which meetings several urgent matters were scheduled for consideration) neither Mr. Caldwell nor Mr. Lawrence was able to attend the Anaheim meeting on LNG vaporization-seawater desalting.

1.3 Mr. Lawrence telephoned Mr. Jorgensen (AC 202, Tel. 343-8445) on September 16, 1975, thanking him for the invitation to attend the meeting and expressing regret at the inability of either himself or Mr. Caldwell to attend the conference but assuring Mr. Jorgensen of the keen interest of Santa Barbara County in the proceedings and prospects for development of potential additional water supply from this project or equivalent ones.

1.4 At Mr. Jorgensen's suggestion, Mr. Lawrence also telephoned Mr. Paul J. Schroeder, Supervising Water Engineer, Fluor Engineers and Constructors, Inc., Los Angeles Division prior to the meeting

December 24, 1975

of September 22, 1975, expressing the regrets of Santa Barbara County representatives at the inability to attend the conference and stressing the County's interest in any feasible supplemental water supply source. Mr. Schroeder offered to send SBCWA minutes of the conference and suggested the possibility of personally visiting SBCWA in about a month to discuss the matter in greater detail.

1.5 The minutes of the 9/22/75 meeting were subsequently transmitted to Mr. Lawrance by Mr. Schroeder under cover letter of October 10, 1975. A copy of the minutes and of the January 30, 1975 Fluor proposal letter to the U. S. Department of the Interior on the Freeze Desalting Process are attached to this memorandum.

1.6 No additional communications have been received from OWRT or Fluor since receipt of the foregoing.

1.7 The attached minutes and proposal letter by Fluor outline the nature of the LNG vaporization concept as well as the nature of the seawater freezing process for the production of fresh water therefrom.

1.8 Operation of an LNG vaporization plant offers the potential for recovery, for beneficial uses, of some of the thermal energy that was expended at the LNG liquefaction plant initially. For example, the Kenai Liquefaction plant on the east coast of Cook Inlet, Alaska, is believed to require roughly 25 BTU/SCF (standard cubic foot) of natural gas converted to LNG (at minus 260° F. and atmospheric temperature). After the LNG has been delivered by special ships to distant coastal terminals, it must be vaporized, and this requires heat, which is taken from seawater at the coastal vaporization plant. The heat application rate is believed to be in the order of 16 or 17 BTU/SCF of natural gas vaporized from LNG. The seawater now has been imparted "cold" or "negative heat" which it did not have before.

1.9 One of the beneficial uses of "negative heat" in seawater might be in thermal electric power plant operation, because the unusually low temperature of the cooling medium would greatly improve thermal efficiency.

1.10 An unusual potential beneficial use proposed by the City of Los Angeles' Bureau of Sanitation, in connection with a potential LNG vaporization plant in Los Angeles Harbor, would be for blending of the cold seawater stream from the plant with wastewater effluent from the Terminal Island Treatment Plant, with the result that the mix would stay submerged, maintain considerable dissolved oxygen levels, and tend to move out of San Pedro Bay, all in an environmentally acceptable manner.

1.11 Perhaps the most logical beneficial use that might be made of the seawater's "negative heat" would be for freeze desalting, inasmuch

as the seawater would already be greatly precooled. This is the proposal as advanced by Fluor and elaborated upon in the attached meeting minutes and proposal to OWST by Fluor.

1.12 Coupling of an LNG vaporization plant and the Avco Crystalex Freeze Process Plant (Fluor Proposal p.1) would save both energy and operation and maintenance costs over separate operation of LNG vaporization and freeze desalting. The joint processes would reduce the amount of seawater having to be circulated, and in areas having no substantial demand for the seawater's "negative heat", this could be advantageous.

1.13 The State Water Resources Control Board (SWRCB) promulgates various policies from time to time for the protection of the quality of the waters of the State. One such policy is the so-called "Thermal Plan" (Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries in California). Under this plan, no new discharge of thermal waste shall exceed the natural temperature of the receiving waters by more than 20° F. nor shall it result in increasing the natural water temperature of the receiving waters by more than 4° F.

1.14 The Thermal Plan does not contain provisions for "negative heat", but SWRCB is considering such possibilities.

1.15 If SWRCB were to determine that it would not be environmentally acceptable to permit the temperature of the waters receiving a "negative heat" thermal discharge to drop more than, say, 4° F. below natural condition this could influence the nature of the required chilled seawater disposal facilities at a coastal LNG vaporization plant. Theoretically, a large capacity plant might require very extensive outfall and dispersion facilities.

1.16 As far as ocean receiving waters are concerned, it should be evident from examination of certain of the attached Figures that there would be significantly less thermal impact from a coupled LNG vaporization-freeze desalting plant than from an LNG vaporization plant alone. For the former, the "negative heat" dissipated to the ocean would be roughly 0.9 BTU/SCF NG vaporized; for the latter the value is nearly 20 times as much.

1.17 Figure 3 of the attached minutes indicates a product water potential (fresh water) of 2.5 mgd for vaporization of 100 million SCF/day from LNG. This would apparently be the capability of a single "train" or module of the process, as indicated in the Fluor proposal to OWRT, and each LNG vaporization site would presumably contain from 2 to 40 such trains. Accordingly, there would be a substantial freshwater production capability. Fluor's proposal was to determine feasibility of the process, in confirmation of preliminary calculations.

1.18 There would undoubtedly be environmental impacts both of an LNG vaporization plant alone and of a coupled LNG vaporization-freeze

desalting plant. Although there are certainly various tradeoffs to be considered, a superficial consideration of the overall concept would appear to favor the joint process type of plant.

1.19 An LNG vaporization plant by itself would involve a significant installation of mechanical and other process equipment and facilities. There would, of course, be one or more pipelines leaving the site conveying the natural gas (under pressure) to its various destinations. There would be a salt water circulation system. Depending upon the size of the plant, this system might be moderate to substantial. Depending upon the "negative heat" disposal requirements of SWRCB or the Regional Water Quality Control Board, the thermal dissipation facilities into the coastal waters might be moderate to substantial; the larger the plant the greater the prospects for a substantial disposal installation. Although it is not clear whether a "negative heat" disposal installation with circulating seawater is as vulnerable to conduit fouling by marine organisms as is a typical thermal heat disposal installation at a conventional thermal electric plant, the "negative heat" disposal installation should be no more troublesome than the conventional and might be even less so. The return waters would be of normal ocean salinity, as they would not have been concentrated by the process of desalting.

1.20 A coupled LNG vaporization-freeze desalting plant would be more conservative of total system energy than the LNG vaporization plant by itself, as previously noted, but it would also contain more process facilities than the former and more plant space. However, it would also have more useful output in that a stream of fresh water would be produced. The disposal requirements of the brine blowdown from the process should be somewhat simpler and potentially less significant from the environmental standpoint than those of the LNG vaporization plant by itself. However, the brine would be roughly double the normal salinity of seawater, and this factor might possibly require certain dispersion features.

1.21 There are numerous environmental factors to be explored and subsequently assessed in either case, LNG vaporization by itself or LNG-vaporization-freeze desalting.

1.22 There are numerous economic and physical factors yet to be resolved also. For example, the current energy requirements for freeze-desalting are nearly 28,000 kwh/acre-foot of product water, but it is hoped to be able to cut this in half by proper optimization.

## 2.0 RESOLVED ITEMS

2.1 The Fluor proposal and meeting minutes show that the LNG vaporization-freeze desalting concept is of considerable potential interest to Santa Barbara County.

2.2 If the Fluor feasibility study shows positive results, Santa Barbara County should encourage consideration of a demonstration

December 24, 1975

plant at Point Conception, provided the various environmental assessments and impact statements and reports are favorable. Superficially, these latter aspects would appear promising.

### 3.0 ACTION ITEMS

3.1 Santa Barbara County Water Agency (SBCWA) should carefully follow the developments of and stemming from the Fluor feasibility study.

3.2 SBCWA should be prepared to encourage suitable water resources developments connected with any LNG vaporization facility within Santa Barbara County, such as at the proposed Point Conception location, which is determined to be environmentally-acceptable.

1h

Attachments (2)

SANTA BARBARA COUNTY  
CALIFORNIA

FLUOR ENGINEERS AND CONSTRUCTORS, INC.

LOS ANGELES DIVISION  
2500 SOUTH ATLANTIC BOULEVARD  
LOS ANGELES, CALIFORNIA 90040  
TELEPHONE: (213) 862-6111  
HONOLULU

BY *[Signature]* DEPUTY  
OCTOBER 10, 1975

Reference: OWRT Contract 14-30-3313  
Fluor Contract 456704

Santa Barbara County Water Agency  
Room 407 Administration Bldg.  
105 East Anapamer St.  
Santa Barbara, California 93104

Attention: Mr. Charles Lawrence

Dear Sir:

DESALTING AND LNG DISCUSSION

In response to our recent telephone conversation, attached is first draft of the desalting and LNG discussion minutes, which was held on September 22, 1975.

I will send you a copy of the corrected minutes after all participants have reviewed them for corrections.

Very truly yours,

*Paul J. Schroeder*

Paul J. Schroeder  
Project Manager

PJS:MG:ka  
Attachments

cc: Mr. Norman H. Caldwell  
Santa Barbara County Water Agency

MINUTES OF MEETING

Subject: Desalting and LNG Discussion  
Date: September 22, 1975  
Location: Fluor E & C Inc., Anaheim, California  
Attendees:

<u>Name</u>	<u>Representing</u>	<u>Title</u>
Andy Chan	Fluor	Water Eng.
Stewart Mulford	Fluor	Water Eng.
Gene Pollan	Bureau of Reclamation	Civil Eng.
Jack C. Jorgensen	OWRT	Asst/Director Tech. Transfer
M. C. Mahorney	OWRT	Res. Engr. Fountain Valley
Will Hahn	OWRT	Chief, Thermo. Processes
A. R. Khan	Fluor	Water Eng.
Jim Koyasako	Dept. Water Resources	Sr. Water Quality Eng.
Sid Johnson	OWRT	Research
Ernest Freireich	Fluor	Proc. Eng.
John Olsen	Fluor	Project
Lee Bell	Pacific Lighting	Mgr. of Cryogenics
Paul J. Schroeder	Fluor	Supervising Water Eng.
Matt Gorry	Fluor	Water Eng.

Mr. Paul J. Schroeder chaired the meeting and made the opening remarks. Mr. Schroeder welcomed the visitors to Fluor and introduced the Fluor personnel in attendance. The visitors to Fluor then introduced themselves.

Mr. Schroeder said that about a year ago Fluor began to discuss with the Bureau of Reclamation, and the Office of Saline Water (later Office of Water Research and Technology) the potential of utilizing the available cold water from vaporizing LNG as a source of producing desalted water. In the spring of 1975, Fluor made a proposal to the U. S. Department of the Interior for a study to determine the feasibility and estimated cost of producing desalted water in conjunction with LNG vaporizing plants. (Reference attachment #1, Fluor Proposal #GA-5041, which was handed out.) Subsequently Fluor was awarded a contract and the study is currently scheduled to be completed in January 1976.

Mr. Khan then reviewed the process under study. Attachment #2 is a set of 7 slides presented.

#### FIGURE #1

##### Title: LNG Heat Input

The slide shows that it takes  $70 \times 10^6$  BTU/Hr. of heat to vaporize LNG into 100 million standard cubic feet per day (MSCFD) of natural gas.

#### FIGURE #2

##### Title: LNG Plant Seawater Requirements

This slide shows that 50 million gallon per day (MGD) of seawater at 70°F is required to vaporize the 100 MSCFD of natural gas from LNG when the seawater discharge temperature is limited to a 4°F decrease (66°F). Only 5 MGD of seawater is required, when utilizing a seawater discharge temperature of 33°F is possible.

#### FIGURE #3

##### Title: Freeze Desalting Plant Using Seawater Effluent From LNG Plant

This slide shows the coupling of a LNG vaporizing plant with a seawater desalting plant. The slide indicates the advantages gained by the coupling of the two processes.

#### FIGURE #4

##### Title: AVCO Crystalex Freeze Process

This slide shows the AVCO crystalex freeze process the same schematic that is referred to as Figure 1 in proposal GA-5041. This is the base case for comparison of 5 MGD plants.

#### FIGURE #5

##### Title: LNG Plant Seawater Effluent and Freeze Process, Case A

This slide depicts the process schematic for a desalting freezing plant utilizing cold feed seawater from a LNG vaporizing plant. This is the same figure which is referred to in Proposal GA-5041 as Figure 2; Case A, elimination of heat removal compressor #2, and reduction of the primary compressor.

#### FIGURE #6

##### Title: LNG Plant Seawater Effluent and Freeze Process Case B

This slide depicts the process schematic for a desalting process similar to Figure 5. This is Case B referred to in Proposal GA-5041, which eliminates the heat removal compressor #1, the heat removal condenser and further reduction of the primary compressor.

FIGURE #7

Title: LNG Vaporizer Freeze Desalting Process - Direct Combination

This slide depicts the process schematic if combining in one process the vaporizing of LNG and desalting by freezing. Namely a split stream of LNG is utilized in the melter/condenser to condense all of the refrigerant.

Mr. Khan pointed out that by coupling a freezing process to a LNG vaporizing plant the water requirements for the vaporizing plant could be reduced by approximately 90%. But the LNG facilities will still have to be designed for 100% capacity water system just in case the desalting system is off stream. Therefore, there is only a operating cost saving to the LNG operations, no capital cost savings.

Mr. Schroeder pointed out that facts that to justify desalting with LNG vaporization the following conditions must be present:

- A. The need for desalted water must exist.
- B. LNG vaporization plant must be present.
- C. Other potential users of the "cold" must be satisfied first, if they are considered more important.

Mr. Jorgensen emphasized the need to summarize the environmental benefits of coupling desalination with LNG vaporization in the final report.

Mr. Schroeder answered a question posed by Mr. Bell that the project which Fluor is presently conducting will not be completed until January 1976, and that the purpose of this meeting was to provide a forum for parties interested in desalting by freezing to provide feedback as to their concerns and interest.

Mr. Bell then stated that the potential sites for LNG vaporizing plants are L.A. Harbor, Oxnard, and Point Conception, but that none of these sites has been approved yet. The L.A. Harbor plant would be a 200 MSCFM/day LNG vaporizing facility. The Oxnard facility is being designed to handle from 50 to 400 MSCFM/day.

In response to Mr. Koyasako's question as to how the cost savings would be split between LNG vaporization and desalting, Mr. Schroeder answered that the study which Fluor is presently conducting will report cost to produce product water in ¢/1000 gallons as well as the capital cost savings for the desalting equipment. It is not within the scope of the study to estimate the savings in the cost of the LNG vaporization process.

Mr. Mahn gave a short recap of the history of desalting by freezing. He stated that Colt Industries and AVCO at one time offered commercial desalting equipment utilizing freezing processes. Presently Colt has withdrawn from the market leaving only AVCO. OWRT has purchased from AVCO, and are presently testing at Wrightsville Beach, North Carolina, an AVCO crystalex plant. The current objective is to gain operating experience with the system as well as to determine energy requirements for the process. The goal is to produce desalinated water for about 40 KWH/1000 gallons of product water. Currently, the energy requirements are approximately 80 KWH/1000 gallons. This figure is high since the current equipment is not optimized.

Mr. Hahn stated that there should not be any problems with patents for the AVCO process since much of the development of the freezing work was performed under government-funded programs.

Mr. Schroeder stated that, from a "process requirement", desalting by freezing does not require any pretreatment processes, whereas Reverse Osmosis and distillation processes require considerable pretreatment.

Mr. Bell stated that the only significant competition for the cold which is available from vaporizing LNG is utility power generation systems. The stack of potential projects he has accumulated to utilize the available cold, such as cold storage plants etc., can utilize only a very small fraction of the available cold. He encouraged Fluor to develop uses for the potential cold sources.

Mr. Olson asked Mr. Jorgensen whether the results of the presently funded work Fluor is conducting will be available to the public. Mr. Jorgensen answered very definitely, Yes. The Department of the Interior would like to see increased interest in the development of desalting by the freeze process and welcomes the development of future "workshops" and discussions.

Mr. Jorgensen suggested that Fluor keep all interested parties (state, county, and other agencies) appraised of their efforts in desalting.

Mr. Hahn stated that he was interested in any feedback Fluor receives from agencies in California such as Santa Barbara County and the California Department of Water Resources.

Mr. Jorgensen stated that it is a critical year for desalting that there is an urgent need to gain maximum operating experience from the unit under testing at Wrightsville Beach, and to gain as much confidence as possible in the advantages of desalting by the freezing process, to help form the decision to continue the efforts already stated.

Mr. Hahn stated the pushing of waste water applications now could be the basis of future applications of the process.

Mr. Johnson stated that the freezing process offers some very definite advantages; e.g., there is no heat transfer through metal or transfer through membranes, and therefore no scale or corrosion problems exist. Also, the freeze process is a low energy process.

Attachment "1"

Ψ FLUOR ENGINEERS AND CONSTRUCTORS, INC.

LOS ANGELES DIVISION

2500 SOUTH ATLANTIC BOULEVARD  
LOS ANGELES, CALIFORNIA 90040  
TELEPHONE: (213) 262-6111

January 30, 1975

U. S. Department of Interior  
Office of Water Research and Technology  
Washington, D. C. 20240

Attention: Mr. J. J. Strobel

Gentlemen:

FREEZE DESALTING PROCESS USING COLD SEAWATER  
EFFLUENT OF A LIQUID NATURAL GAS (LNG) PLANT  
FLUOR PROPOSAL GA-5041

In accordance with the discussion with Fluor representatives in your office on December 13, 1974, we are pleased to submit this proposal for your approval and acceptance. We define herein the nature of the problem and proposed solution, the development goals, program plan, the extent of Fluor's work, and other terms and conditions.

INTRODUCTION

Plans are currently being implemented to bring huge quantities of liquefied natural gas (LNG) to this country in order to help relieve energy shortages. When this LNG arrives at the shore it must be vaporized and heated from about -260°F to ambient temperature. The capacity of the vaporizer trains under consideration is 100 million standard cubic feet of gas per day (about enough energy to keep 5 million 100 watt bulbs burning continuously). The ordinary method of vaporizing and heating this gas is to utilize a heat exchanger with seawater on the other side. Since it is planned to have from 2 to 40 of these trains at each site, very large quantities of cold seawater will be produced, particularly if the amount of temperature change in the return seawater is severely limited. A single train would require about 50 million gallons per day (MGD) if a maximum seawater temperature decrease of four degrees were permitted. This could be reduced to about 5 MGD if the seawater could be cooled to near its freezing point, based on 70° seawater. This cold seawater could then be used to effect energy and equipment savings in a freeze desalting process.

PROCESS CONCEPT

One such process is the Avco Crystalex Freeze Process (Figure 1). In such a process, the refrigerant that is vaporized in order to freeze the ice is subsequently condensed by melting the ice. Because of heat leaks and various

process inefficiencies, insufficient ice is formed to condense all of the refrigerant. The remaining refrigerant is compressed (in two stages) to raise the temperature sufficiently to allow it to be condensed with seawater. Some or all of the equipment used to accomplish this heat rejection and the energy to drive it (about 40 to 50% of the energy required by the process) can be eliminated by proper utilization of cold feed. If the cold stream from the LNG vaporizer is fed directly to the freezer (Figure 2) additional cooling can be supplied to the melter/condenser, and the heat removal condenser. This permits the elimination of heat removal compressor #2, and reduction of the primary compressor, thereby reducing capital and energy charges. It also produces cold product water and brine which must be reheated (although cold product water might be acceptable in some locations). The cost of this reheating will partially offset the compressor savings.

#### DEVELOPMENT GOALS

Preliminary calculations by Fluor have indicated that the proposed concept is technically feasible and economically attractive. These calculations involved assumptions that need to be confirmed. And, with the exception of energy cost, which was updated, these preliminary comparisons were based on costs that were estimated in 1972. These costs need to be updated in order to increase the credibility and usefulness of the conclusions. Also more than one version of the concept should be evaluated, in order to have a start on optimization. The principal development goals of this proposed study are as follows:

1. The preliminary calculations assumed that the product water and brine could be reheated in an atmospheric tower, for a total operating cost (including depreciation) of \$0.03/1000 gallons of water heated. Equipment has not been developed for this specific purpose; however, its apparent similarity to cooling towers should permit its design. This equipment should be designed in sufficient detail to make a reasonably accurate estimate of its capital and water costs.
- 2.a. Further utilization of this cold feed could effect the complete elimination of the heat removal system, and further reduction of the primary compressor. This would increase the amount of water to be reheated. The net capital and water cost effects of this case should be determined.
- b. Still further utilization of this cold feed could effect further reduction in the primary compressor and further increase in the amount water to be reheated. The net capital and water cost effects of this case should be determined.
3. The period since 1972 has been one of unusually rapid escalation of costs. A new estimate of the capital and

water costs of the selected process should be made. This would not only have the advantage of updating, but would provide an independent estimate of the process economics.

#### PROGRAM PLAN

The proposed basis for comparison in this study is a previously studied freezing process. Any previously studied process could be used, but we believe that the Avco Crystalex Process can be used the most effectively for the following reasons:

1. The process documentation is better, particularly in the area of process economics. Fluor has already developed computer capability to calculate key process variables and economics.
2. The Avco process is currently being piloted which will provide confirmation of the design data.

As a first step, estimates of the capital and water costs of a 5 MGD plant should be updated. These costs will then be used for comparison at three different levels of cold feed utilization - the flow scheme of Figure 2, and the two schemes outlined under "Development Goals" Item 2, both with and without product water heating - a total of 6 cases. The detailed procedure is presented under "Scope of Work" below.

#### FLUOR'S UNIQUE BACKGROUND

Fluor's specific related experience in both LNG plants (especially LNG vaporizing plants) and freeze desalting technology makes us singularly well qualified to perform this study. Some of Fluor's current and recent activity in LNG can be seen in the enclosed brochure (P. 15) and the excerpts from a recent LNG qualifications brochure. The final report on this project would summarize significant new developments in this area.

Fluor has extensive experience in performing similar work for the Office of Water Research and Technology and one of its predecessor organizations, the Office of Saline Water. We would like to take this opportunity to emphasize our very current directly related experience.

1. Fluor has expended considerable effort at their own expense in the development of this concept by means of preliminary process and economic calculations to determine if the idea had potential. We have also developed computer capability in this area. These same steps would have to be retraced by anyone else as a pre-requisite to initiating the study.
2. Fluor is currently completing the conceptual Design and Preparation of Bid Package for Construction of a "Eutectic Freezing Pilot Plant" for OWRT (Contract 14-30-3277). At the conclusion

of this work we will have expended about 2000 manhours in the design, specification and estimate of installed cost of very similar equipment. Much of this knowledge will be directly transferable to this new effort.

#### SCOPE OF WORK

Fluor will provide the personnel, facilities, and materials necessary to perform the tasks outlined below:

1. Budgetary estimates shall be made for the capital and water cost of the following (based on a 5 MGD plant):
  - A. A previously studied freezing process
  - B. Reheating brine from 50 to 70°F
  - C. Reheating product from 32 to 70°F
2. Budgetary estimates shall be made for the capital and water cost savings of the following (based on 5 MGD plant):
  - A. Elimination of heat removal compressor #2, and reduction of the primary compressor.
  - B. Elimination of heat removal compressor #1, the heat removal condenser and further reduction of the primary compressor.
  - C. Still further reduction of the primary compressor.

The above 3 steps are sequential in the sense that B includes A, and C includes A and B.

3. Cost effectiveness of the above processes shall be compared, both with and without the cost of heating the product water.
4. A report shall be issued in 25 copies which shall contain all flowsheets, layouts, specifications or descriptive material that was used as the basis for the preparation of the various cost estimates. A brief process description of the two cost effective processes selected in Item 3 shall be included. Cost details of these two cases and a summary of the capital and water costs of all cases shall also be presented.

#### PERIOD OF PERFORMANCE

All work required under this contract shall be completed within 9 (nine) months after the date of contract.

#### CONSIDERATION AND PAYMENT

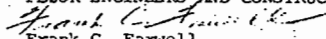
Fluor will perform the work as described under "Scope of Work" for the Lump Sum Price of \$70,000. Billing will be made for the total price upon completion of the work.

We are ready to begin this work immediately upon your acceptance of this proposal.

Thank you for this opportunity to be of further service to the Office of Water Research and Technology.

Yours very truly,

FLUOR ENGINEERS AND CONSTRUCTORS, INC.



Frank C. Farwell

Director, Government & Nuclear Sales

FCF:PJS:ka

FIGURE 1  
LNG PLANT HEAT INPUT

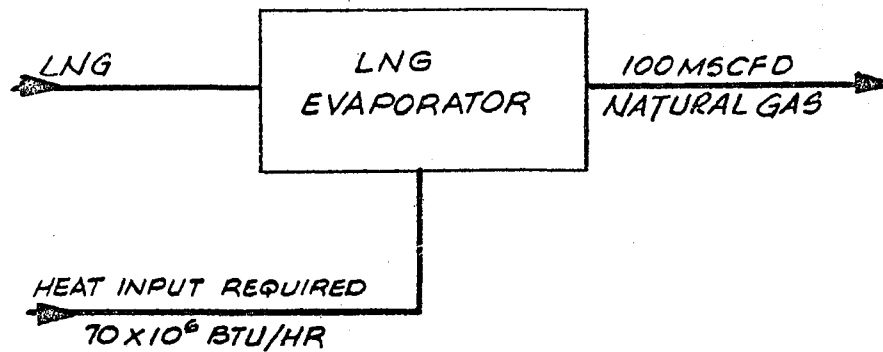


FIGURE 2  
LNG PLANT SEAWATER REQUIREMENTS

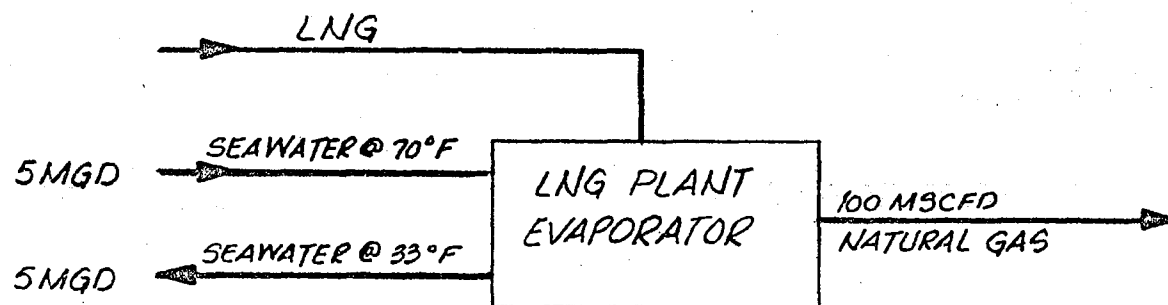
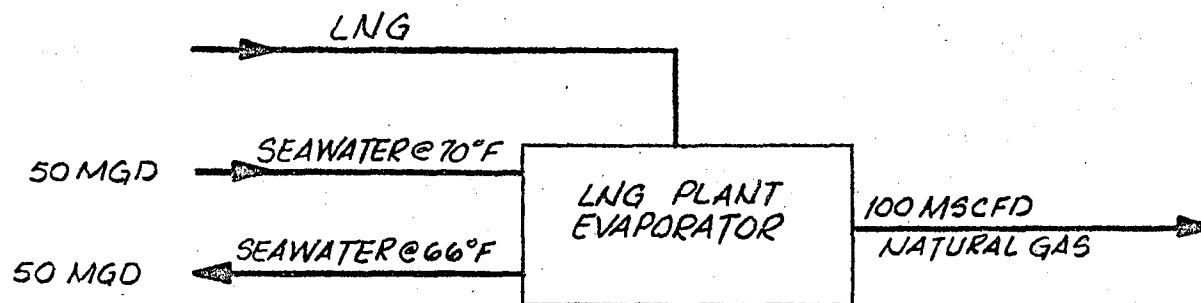
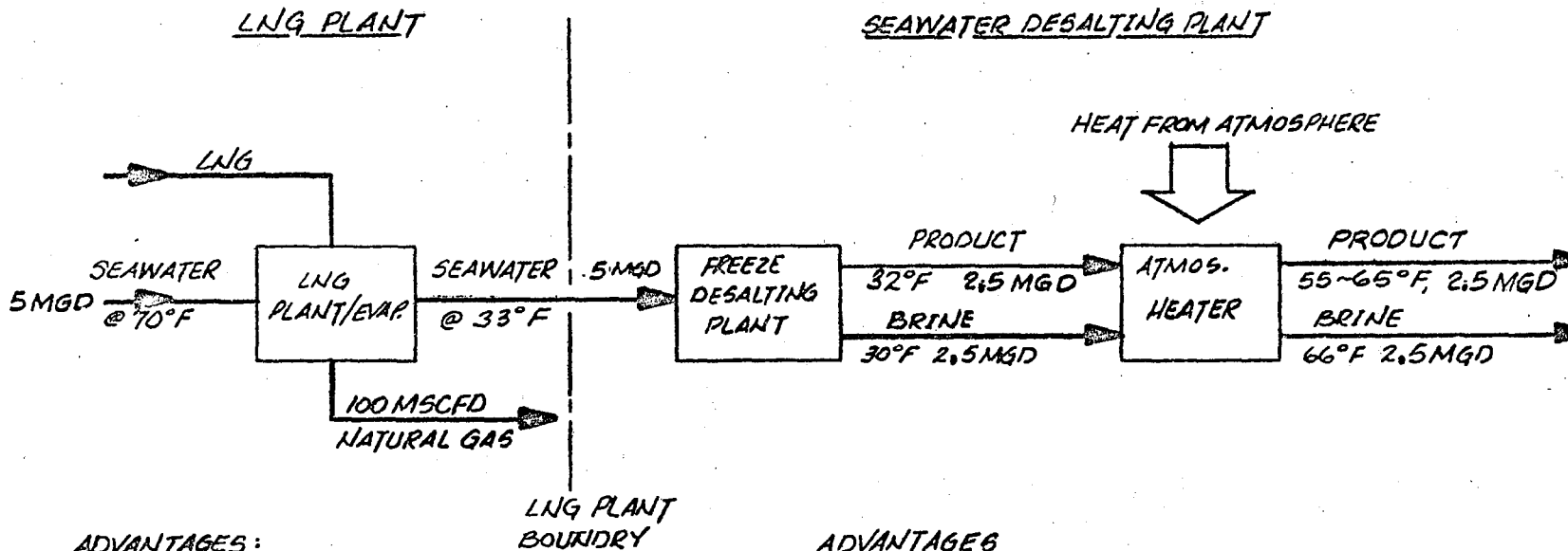


FIGURE 3

FREEZE DESALTING PLANT USING SEAWATER  
EFFLUENT FROM LNG PLANT.



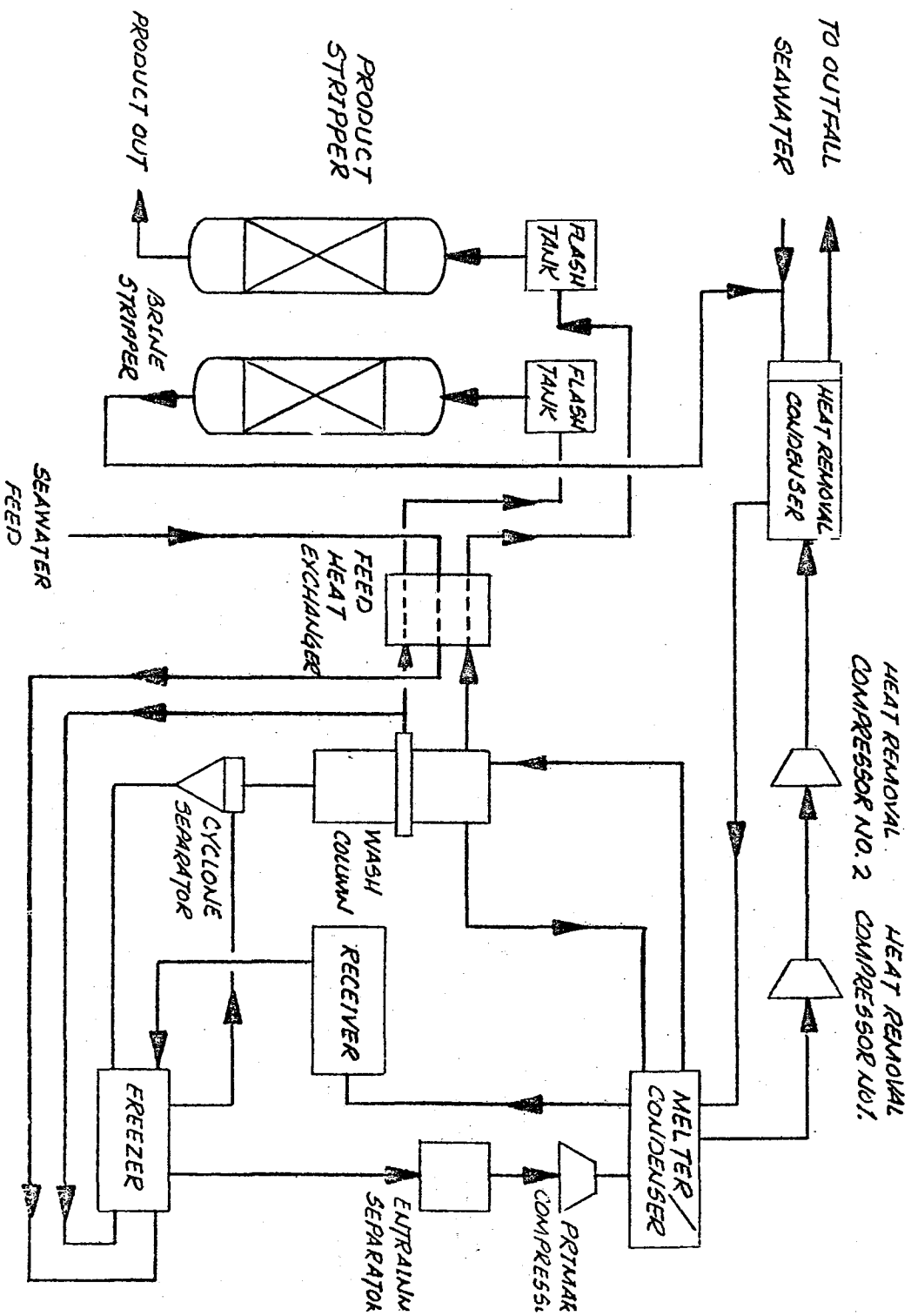
ADVANTAGES:

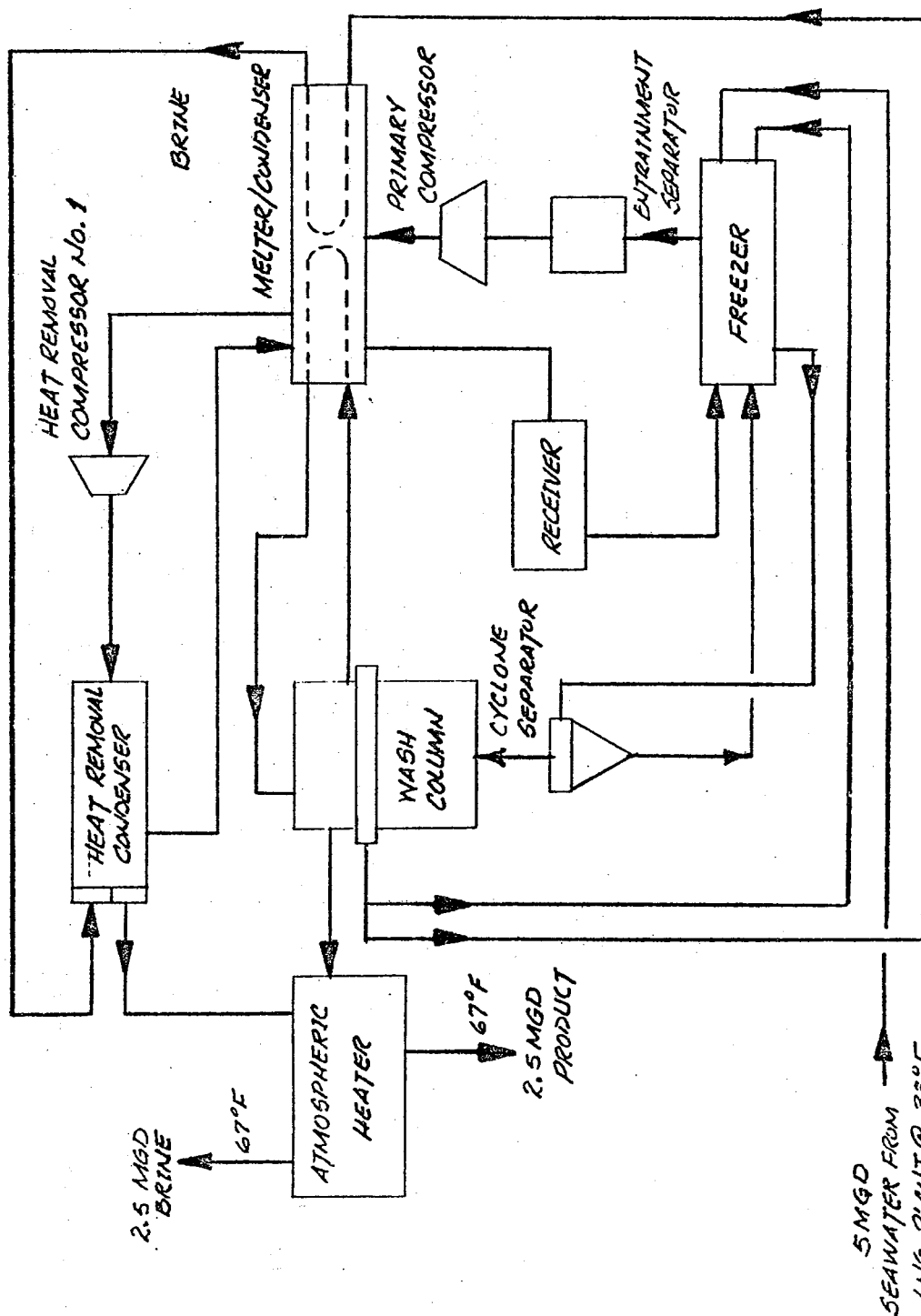
1. SMALLER INTAKE AND PUMPING COSTS.
2. ENERGY SAVING
3. SOCIETAL BENEFITS

ADVANTAGES

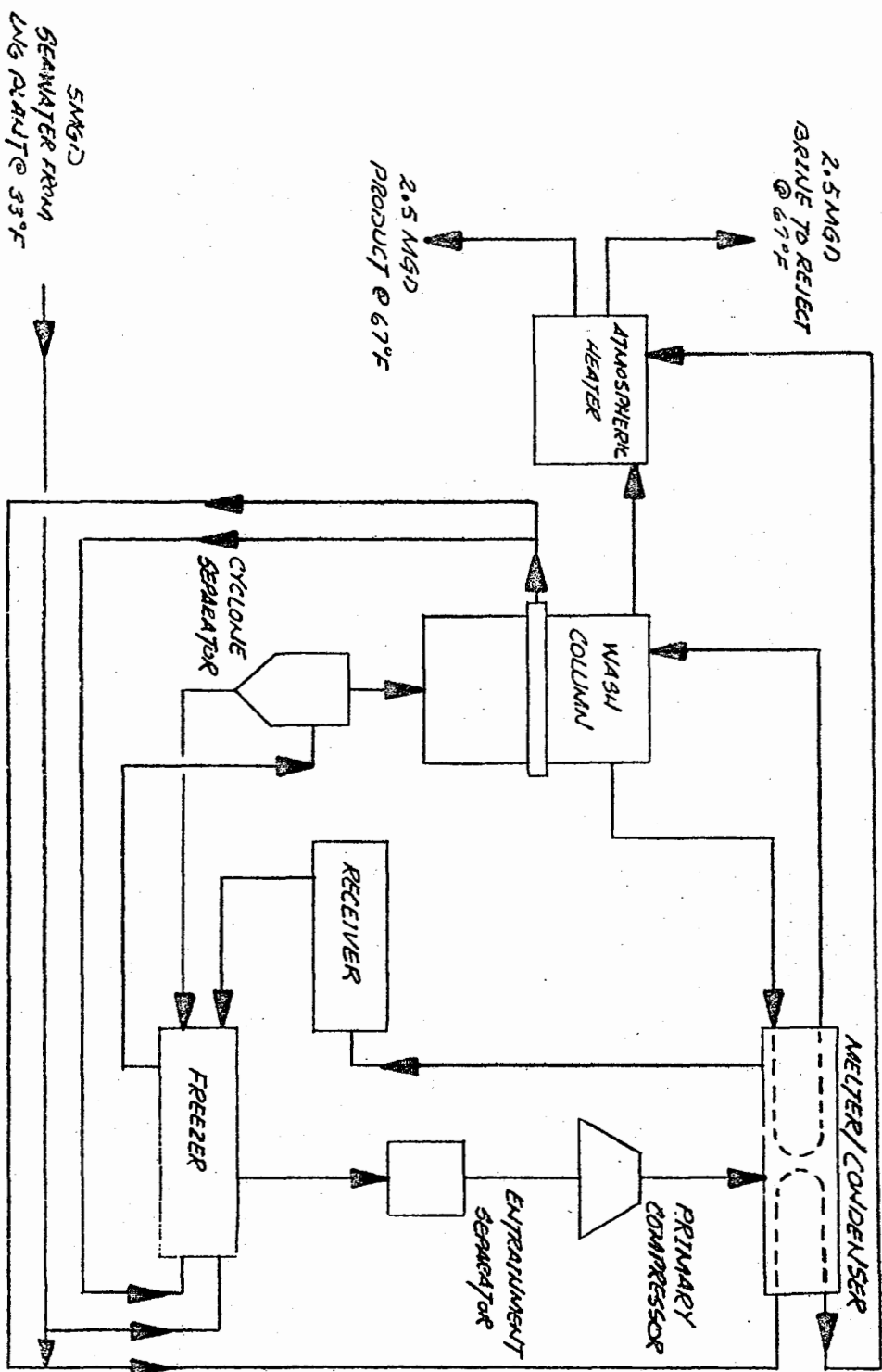
1. LOWER WATER COSTS DUE TO SAVINGS IN CAPITAL & OPERATING COSTS
2. LOWER ENERGY CONSUMPTION

AVCO CRYSTALEX FREEZE PROCESS





**FIGURE 6**  
**LNG PLANT SEAWATER EFFLUENT FREEZE PROCESS**  
**CASE B**



**FIGURE 7**



COURT HOUSE

OFFICE OF  
WILLIAM H. COOK  
COUNTY ASSESSOR

K.L. MARVIN  
ASSISTANT ASSESSOR



County Administration  
Building - Room 204  
105 E. Anapamu St.  
Santa Barbara, Calif.  
93101  
Telephone (805)  
966-1611 Ext. 284

SANTA BARBARA COUNTY

January 5, 1976

MEMORANDUM

TO: A. F. Reynolds, Environmental Quality Coordinator

FROM: William H. Cook, Assessor

SUBJECT: Draft Environmental Impact Statement from the Federal Power  
Commission on the proposed Point Conception LNG Terminal

As you requested, I have reviewed the subject EIS. In your memo you requested:

1. Is there adequate information and analysis of real and ad valorem tax revenues? of construction and operating payrolls?
2. Is their analysis accurate, as far as it goes?
3. If not, what are the inadequacies, errors, or gaps which need to be remedied by FPC in the final EIS?

In answer to question #1, there are numerous references to potential taxable facilities. The terminal and offshore pier construction costs and projected ad valorem taxes are discussed in Volume III, pages 214 to 230. Table 27 on page 221 details the projected revenue from the facility. As you will see from attachment #1, this office has made numerous changes to the table. First of all, interest during construction is a legitimate expense and has been added to the plant investment. It is also noted that this calculation was based on 1973/74 property tax rates. We have updated the chart to allow 1975/76 rates as now stand. As you can see, these two changes make a considerable difference in the total revenues to be generated.

The next item to be considered is the pipeline from Point Conception to Arvin. Table 31 on page 229 uses the average County tax rate which is noted on page 135. This is in error as the average rate takes into consideration numerous high rate areas (urban) as well as lower (rural) areas to form a composite. What this office did was to follow the approximate route of the pipeline as shown on figure 26, page 38, selecting random parcels in the path of the pipeline. As this route is almost wholly through rural areas and the tax rates are much lower, the average rate was determined to be

Table 27 and other references to these tax rates in the FEIS have been revised to reflect the updating of tax rates as suggested.

Table 31 and other references to these tax rates in the FEIS have been revised to reflect the updating of tax rates as suggested.

A. F. Reynolds  
January 5, 1975  
Page 2

approximately \$10.00 for \$100 of assessed valuation. (see attachment #2)

The third item for consideration is the marine terminal which is discussed in Volume III, page 2. This terminal would occupy 31 acres of leased land. Since this would be considered a possessory interest lease and would be subject to appraisal by the State Board of Equalization (as would the whole project) the value of the possessory interest in land is speculative on our part but an assumption is shown on attachment #3.

The last item involving property tax revenues is the land under which the facility would be situated. In Volume III, page 135 an evaluation of property tax revenue for the existing 1000 acre undeveloped site is shown. Again by using the 1975/76 tax rates the present yield is approximately \$54,000. Attachment #4 shows the net increase in land tax revenues using the same assumption as outlined in attachment #3. In this case the speculation that the improved land value would rise to \$15,000 per acre is based on other large industrial acreage parcels in this County.

To recap the potential ad valorem tax revenues as shown on attachments #1 through #4 we have:

#1 Completed terminal and pier improvements	\$10,145,000
#2 Completed pipeline (Santa Barbara County only)	2,030,000
#3 Possessory interest in leased subtidal land	9,520
#4 Land - improved and unimproved	<u>133,730</u>
Total tax revenue	\$12,318,250

In answer to your additional questions, I have limited my remarks to the amount of tax revenue generated since that is the only area of responsibility in which I have expertise. The analysis of construction and operating payrolls is a subject in which this office has no specific knowledge and therefore should not comment upon. Also in commenting on question #2, we must assume that the data supplied is accurate as only the applicant would have specific knowledge as to the cost of this project. Finally in question #3, an analysis of services to be provided to the facility is detailed in Volume III, pages 214 to 230. According to this information, water and sewage are to be provided from within and electrical power is to be supplied by Southern California Edison at the expense of the applicant. It appears that the economic impact from this project would more than offset any expenditure for County services.

Mention of additional \$9,520 in taxes from the lease has been incorporated into the FEIS.

Comment accepted. The following paragraph should replace Paragraph 2 on Page 135 of Volume III.  
"The largest local source of revenue for Santa Barbara County is property tax. In 1971, the net taxable assessed valuation for land in the county amounted to \$690.4 million. The average tax rate per \$100 of assessed valuation in the county was \$11.79 (California State Board of Equalization). The current applicable rate in the specific area of the proposed LNG site is \$10.8041 per \$100 of assessed valuation. The assessed value of the 1,000 acres owned by SCE is \$500 per acre, as determined by the California State Board of Equalization. Thus, the 1,000 acre unimproved site at present yields approximately \$54,000 annually in property tax revenue."

TABLE 27

PROJECTED ANNUAL AD VALOREM (PROPERTY) TAXES  
ON COMPLETED TERMINAL AND PIER

(in millions of dollars; excludes land)

Estimated Plant	\$301.4 <sup>1</sup>	
Investment	<u>74.1</u>	
Upon Completion	375.5	
Assessed	\$ 93.9	
Valuation (25%)		
Property Tax Rate: <sup>2</sup>		1975/76 <sup>3</sup>
General County of Santa Barbara	\$ 2.6404	3.3102
County Fire Protection District	0.4674	.6147
Schools	5.3455	6.3895
Other	<u>0.4770</u>	<u>.4897</u>
Total	\$ 8.9303	10.8041
Annual Property Tax Revenue to:		
General County of Santa Barbara	\$ 1.991	3.108
County Fire Protection District	.352	.577
Schools	4.030	6.000
Other	<u>.360</u>	<u>.460</u>
Total	\$ 6.733	10.145

Changes noted in FEIS.

<sup>1</sup>Excludes interest during construction, estimated at \$74.1 million.

<sup>2</sup>Calculations based on FY 1973-74 property tax rates; rate per \$100 of assessed valuation

<sup>3</sup>Calculation based on 1975-76 property tax rates; rate per \$100 of A.V. Tax Rate Area 94-009 \$10.8041.

TABLE 31

POINT CONCEPTION TO ARVIN PIPELINE  
PROJECTED ANNUAL AD VALOREM (PROPERTY)  
TAXES ON COMPLETED FACILITY  
(Excludes Land and Interest During Construction)

	<u>Santa Barbara</u>	<u>San Luis Obispo</u>	<u>Kern</u>	<u>Combined 3-County Impact</u>
Estimated value upon completion of project facilities within county (dollars in millions)	\$ 81	\$ 56.7	\$ 71.3	\$ 209
Assessed valuation at 25% of the above item (dollars in millions)	\$ 20.3	\$ 14.2	\$ 17.8	\$ 52.3
Average county tax rate per \$100 of assessed valuation	\$ 10.00 <sup>†</sup>	\$ 10.05	\$ 10.48	\$ ---
Ad valorem (property) tax revenue to counties, agencies, and districts (dollars in thousands)	\$2,030	\$1,427	\$1,865	\$5,685

Changes noted in FEIS.

### POSSESSORY INTEREST IN LAND-INDIRECT APPROACH

[illegible]

### POSSESSORY INTEREST IN IMPROVEMENTS - INDIRECT APPROACH

[illegible]

## APPRAISAL

Possessory Interest Value in Land							
Possessory Interest Value in Improvements							

### ASSESSED VALUES

[illegible]

1. Uninsured/underinsured motorist coverage is required for all vehicles registered in the state.

# AN ANALYSIS OF TAX REVENUE FROM LAND

Presently there are 1,000 acres of land owned by Southern California Edison Company of which 227 acres at the western end would be occupied by the proposed facility.

1975/76 tax rate \$10.8041

1,000 acres - 227 acres developed = 773 acres undeveloped

773 x \$2,000/acre = \$1,546,000 @ 25% = 386,500 A.V.

\$386,500 x \$10.8041 = \$41,760 tax dollars

227 acres developed @ \$15,000/acre = \$3,405,000

\$3,405,000 @ 25% = 851,250 A.V.

\$851,250 x \$10.8041 = \$91,970 tax dollars

\$91,970 + \$41,760 = \$133,730 total tax dollars

1975/76 assessed value of entire 1,000 acre site \$500,000

\$500,000 x \$10.8041 = \$54,000 tax dollars

\$133,730 - \$54,000 = \$79,730 net increase

The figure of \$15,000/acre for developed land is speculative at this point but for purposes of illustration it is used to arrive at the net tax increase.

This information has been noted in the FEIS.

SANTA BARBARA COUNTY  
CALIFORNIA

COUNTY OF SANTA BARBARA

CALIFORNIA JAN 5 2 43 PM '76

RECEIVED  
BOARD OF SUPERVISORS HOWARD C. MENZEL  
CLERK

FRANCIS H. BEATTIE, Chairman  
Fourth District

FRANK J. FROST, Vice-Chairman  
First District

ROBERT E. KALLMAN  
Second District

JAMES M. SLATER  
Third District

HARRELL FLETCHER  
Fifth District

BOARD OF SUPERVISORS  
HOWARD C. MENZEL, DEPUTY  
County Clerk-Recorder  
and Ex-Officio  
Clerk of the  
Board of Supervisors

ADMINISTRATION BUILDING  
105 EAST ANAPAMU STREET  
SANTA BARBARA, CALIFORNIA 93101  
(805) 966-1611

TO: FEDERAL POWER COMMISSION

FROM: COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA,  
FRANCIS H. BEATTIE, CHAIRMAN, BOARD OF SUPERVISORS

RE: Western LNG Terminal Company Application, Point Conception,  
California; Draft EIS, Docket Nos. CP 75-96, et al.

PETITION TO INTERVENE  
AND  
MOTION FOR LOCAL HEARING

Petitioner, County of Santa Barbara of the State of California, pursuant to 18 CFR 1.8 and 2.81 moves to intervene as a party to these proceedings on the basis of the draft environmental impact statement on the grounds that the County of Santa Barbara has an interest, as hereinafter more fully described, which may be directly affected by any actions which may be taken, which interest is not adequately represented by existing parties. In addition to the reasons hereinafter stated, describing the County of Santa Barbara's interest in the proceedings, the County shall prepare and submit comments on the draft environmental impact statement within the time designated by the FPC.

The County's reasons for seeking to intervene in these proceedings is for the primary purpose of being able to move the Commission

Federal Power Commission

to provide for public hearings in or near Santa Barbara County concerning the proceedings pending before the FPC including hearing procedures under NEPA in connection with the draft EIS.

The nature of the County's interest, the grounds of the proposed intervention and the position of the County in these proceedings are as follows:

Western LNG Terminal Company's application to the FPC for a certificate of public convenience and safety proposes the establishment of a receiving terminal and regasification plant located at Point Conception, California, and the installation of a high pressure gas transmission line from Point Conception to Arvin, California. Point Conception and a major section of the proposed transmission line lie within the territory and therefore within the legal jurisdiction of the County of Santa Barbara. This County is the local permitting authority for the construction and operation of such a facility and must consider the land use and zoning issues as well as the public safety and health aspects of such a proposal as it would affect Santa Barbara County residents, together with the environmental and socio-economic impacts under the California Environmental Quality Act and other pertinent codes.

The County of Santa Barbara contends that its interests as a responsible agency cannot be adequately represented at a hearing in Washington, D.C. Because of the substantial questions of fact existing as to the public safety aspects of such a facility and attendant LNG

Federal Power Commission

tanker traffic, the environmental and land use planning impacts anticipated, plus the sizeable scope of tax revenues and necessary County services, this County holds that a public hearing in or about Santa Barbara is necessary to disclose such facts pursuant to NEPA and CEQA. Many factual matters can only be established on the basis of local expertise, public testimony and input from the County of Santa Barbara Board of Supervisors and departments.

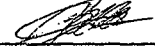
The County of Santa Barbara is a responsible agency, a permitting jurisdiction, and an entity directly affected by the proposed facility, servicing tankers, and connecting pipelines.

The County further moves the Commission to conduct public hearings with respect to all matters now pending before the Commission and especially with respect to the draft environmental impact statement as required by NEPA, and all of the regulations promulgated thereunder by the Council on Environmental Quality and the FPC as well as pursuant to Presidential Executive Order No. 11514. Furthermore, such public hearings should be held in the County of Santa Barbara since it is the area primarily affected by the proposed project and both local government and the public at large should have ready access to the Commission to present their views and to hear the views of others.

WHEREFORE, the County of Santa Barbara requests that the Commission grant this Petition of Intervention and further grant the request to conduct the public hearings in Santa Barbara County.

Respectfully submitted,

COUNTY OF SANTA BARBARA OF  
THE STATE OF CALIFORNIA

By   
Chairman, Board of Supervisors

DATED: January 2, 1976

VERIFICATION BY PARTY (446, 2015.5 C. C. P.)

STATE OF CALIFORNIA, COUNTY OF

I am the \_\_\_\_\_

in the above entitled action; I have read the foregoing \_\_\_\_\_

and know the contents thereof; and I certify that the same is true of my own knowledge, except as to those matters which are therein stated upon my information or belief, and as to those matters I believe it to be true.

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on \_\_\_\_\_ at \_\_\_\_\_, California  
(date) (place)

Signature

PROOF OF SERVICE BY MAIL (1013a, 2015.5 C. C. P.)

STATE OF CALIFORNIA, COUNTY OF

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years and not a party to the within entitled action; my business address is:

County Counsel  
105 E. Anapamu Street, Santa Barbara, CA 93101

On January 2, 1976, I served the within PETITION TO INTERVENE

AND MOTION FOR LOCAL HEARING

on the parties

in said action, by placing a true copy thereof enclosed in a sealed envelope with postage thereon fully prepaid, in the Santa Barbara, California

United States mail at  
addressed as follows:

FEDERAL POWER COMMISSION - Washington, D.C. 20426 (3 copies)  
WESTERN LNG TERMINAL CO. Attn: K.C. McKinney, VP & Gen. Mgr.  
P.O. Box 3249 - Terminal Annex, Los Angeles, CA 90051  
SOUTHERN CAL. GAS CO. Attn: H. Letton, Jr., Pres. & Chief Exec. Offic.  
P.O. Box 3249 - Terminal Annex - Los Angeles, CA 90051  
SOUTHERN CAL. GAS CO. Attn: S. Lassere, County District Mgr.  
124 E. Carrillo St., Santa Barbara, CA 93101  
EL PASO ALASKA CO. Attn: G. Cumming, V.P., Box 2185, Houston, Tex. 77001  
P.G. & E. - Attn: Malcolm Furbush, Atty.  
77 Beale St., Rm. 3120, San Francisco, CA 94106

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on January 2, 1976 at Santa Barbara, California  
(date) (place)

Signature

Florence J. Eckert

CC-9

RECEIVED  
JAN 30 8 12 AM '76  
P.O. Box 340 • COVADONA, ALASKA 99574 • 424-7192 OR 424-7492  
FEDERAL POWER COMMISSION  
*The Eyak Corporation*

January 26, 1976

The Council on Environmental Quality  
Executive Office of the President  
722 Jackson Place N.W.  
Washington, D. C. 20006

To The Party Addressed:

The Eyak Corporation formed pursuant to the Alaska Native Claims Settlement Act of December 17, 1971 (85 Stat. 688-716), was certified under Section 2651.2 (a) (8) of Title 43 of the Code of Federal Regulations and determined eligible under Section 11(b)3 of said act. The corporation has before the Bureau of Land Management a claim of approximately 117,000 acres of land under 12(a) applications which includes Gravina Point. According to the BLM task force these lands will be conveyed to the Eyak Corporation within three to six months. Therefore the Eyak Corporation wishes these comments to be placed on record.

1). The Eyak Corporation has no objection to an LNG plant at Gravina Point and will negotiate a lease agreement with El Paso Alaska if the Gravina site is selected.

2). The recommendations made by the FPC staff for the proposed pipeline to take route to Nikiski as described in Section H.1 of the Draft Environmental Impact Statement is questioned because of the following reasons:

- a). Cook Inlet is not an ice free port and therefore is hazardous to the shipping lands.
- b). The terrain along the rail belt is much more rugged than that of the route to Gravina.
- c). The pipeline will be forced to cross bodies of water and will incur more cost to El Paso and delay completion of the project.
- d). With the size of Alaska, proliferation of industrial sites will not affect the vast Alaskan lands.

3). Some of the reasons given unfavorably to the Gravina site are also questionable. Such as Iceberg conditions resulting from the Columbia Glacier. It is a very rare occasion to see a large iceberg in the shipping lanes of the Prince William Sound except in the Valdez Arm area. Also the effect of mammals in the Gravina Point will not be affected as stated in the DEIS.

The Eyak Corporation understands the potential effects of the El Paso project and are confident with continued cooperation of El Paso that the undesirable aspects of these effects will be limited.

Therefore, the Eyak Corporation is convinced that the El Paso's proposed pipeline routing should parallel the utility corridor of the Alyeska Oil Pipeline and terminate at Gravina Point.

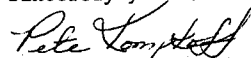
The environmental staff disagrees with items (b) and (d). Items (a) and (c) were fully discussed in Volume II of the DEIS.

See response to comment number 5 of Prince William Sound Aquaculture Corporation.

Page Two  
The Council of Environmental Quality  
January 26, 1976

We respectfully request that the Commission carefully considers all factors of the terminal site of the LNG plant and vote favorably for GravinaiPoint

Sincerely yours,



Pete Kompkoff  
President

PK:pjs

FEDPWRCOMM WSH  
CFEDPWRCOMM WSH

FEDPWRCOMM WSH

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TWX 7103220156 FEDPWRCOMM WSH

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FEDERAL POWER COMMISSION

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ICS IPMAFUA AHG  
01064 A NL ANCHORAGE ALASKA 146 01-30 0805P AST  
FMS SECRETARY FEDERAL POWER COMMISSION  
WASHDC 20426

RE DOCKET NUMBERS CP75-96 ET AL  
MY CLIENT, EYAK CORPORATION HAS ASKED ME TO SUPPLEMENT  
ITS ADVICE CONCERNING DRAFT ENVIRONMENTAL IMPACT  
STATEMENT. I HAVE HAD SIMILAR REQUESTS FROM MY CLIENT,  
CHUGACH NATIVES INC. BOTH NATIVE CORPORATIONS SUPPORT  
GRAVINA POINT TERMINUS INCLUDED IN EL PASO PROPOSAL.  
WHILE DRAFT ENVIRONMENT IMPACT STATEMENT PURPORTS TO  
ADDRESS CULTURAL ISSUES IT IS NOTEWORTHY THAT NATIVE  
CORPORATIONS SUPPORT GRAVINA POINT SITE. REGARDLESS OF  
SOCIO-ECONOMIC THEORIES OF OTHERS CONGRESS EXPRESSED  
RESPECT FOR NOTION OF NATIVE SELF DETERMINATION

EXPRESSLY IN THE ALASKA NATIVE CLAIMS SETTLEMENT ACT OF  
1971 AND CONGRESS SOUGHT TO UTILIZE A REGIONAL AND NATIVE  
CORPORATIONS AS VEHICLES FOR THIS SELF DETERMINATION.  
SOCIOLOGICAL CONCLUSIONS WHICH ARE DIRECTLY OPPOSITE  
TO THE EXPRESSED WISHES OF ALASKA NATIVES VIOLATE SPIRIT  
AND INTENT OF CONGRESS. I REQUEST OPPORTUNITY WITHIN NEXT  
72 HOURS TO SUPPLEMENT THESE COMMENTS ON BEHALF OF  
THE EYAK CORPORATION AND CHUGACH NATIVES, INC.

JOE P JOSEPHSON ATTORNEY AT LAW

0517 EST

FEDPWRCOMM WSH

JOE P. JOSEPHSON  
Attorney at Law  
1526 F Street  
Anchorage, Alaska 99501

Robert Goldberg, of counsel  
George Kaufmann, of counsel  
(D.C. bar only)

February 4, 1976

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Re: Docket Nos. CP75-96 et al

Dear Sir:

Please refer to my telegram of January 30 expressing support of my clients, Chugach Natives, Inc. and the Eyak Corporation, for the gas pipeline proposal terminating at Gravina Point, Alaska. This is the terminus advocated by El Paso Alaska Company.

Although some Alaska Natives remain heavily dependent upon a non-cost, subsistence economy, the shareholders of the Native corporations I represent have long involvement in the larger economy.

Their work has tended to concentrate in resource-related activities, with particular orientation to the fishery resources of Prince William Sound.

Unfortunately, reliance on commercial fisheries in Prince William Sound has become more difficult, and new State gear limitations have ousted from the fishery some Native, as well as non-Native, commercial fishermen traditionally dependent upon the living resources of the sea.

Fundamentally, the draft environmental impact statement errs in its apparent failure to differentiate among Native communities in the statement's socioeconomic analysis. To my knowledge, the writers of the statement:

- a. made no study of lifestyle and income sources of Natives residing in or near Cordova;
- b. conducted no interviews with officers or leaders of either the regional or the village corporation;

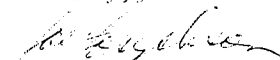
While Cordova fishermen generally opposed the concept of oil tanker traffic in the Sound, no opposition has developed to the El Paso Alaska proposal for the transportation by vessel of liquified gas. It is urgent that the Cordova economy be diversified. When socioeconomic conclusions are reached which are opposite to those reached by the people affected directly, readers must

conclude that unwelcome paternalism has influenced the research. The draft report should be revised to reflect support in Cordova for the El Paso Alaska route, including support from local business, fishing, and Native organizations. Probably nobody has a better understanding of the desires of the people than the City of Cordova government, State Senator Kerttula, and the Native corporations. Their unanimous view supports the Gravina Point terminus.

El Paso Alaska has already approached my clients, which will have real property selections at Gravina Point, to arrive at mutually satisfactory arrangements for land use and environmental planning, employment, and other questions. My clients have the most intimate familiarity with the area from their historic use. Obviously Native shareholders' feelings for environmental values at and near Gravina Point are profound, and many of these shareholders have a very specialized expertise in their understanding of the area. Yet, again, to my knowledge, the writers of the impact statement did not seek to avail themselves of this knowledge. I am informed, as a matter of fact, that Gravina Point itself was only viewed from the air, during a "fly-over", while the study was in progress.

Acceptance of the staff's recommendations will result in denial to the Native peoples of the Cordova area, as well as to individual non-Natives there, of permanent employment opportunities in a presently depressed economic area, and will be detrimental to the long-run earning potential of the regional and village corporations I have the privilege to represent.

Sincerely,

  
Joe P. Josephson

1970 JUN 30 PM 8 59

CONFIDENTIAL

IPMAFUA AHG  
FEDERAL POWER COMMISSION

000692A031 0202EST

01064 A NL ANCHORAGE ALASKA 146 01-30 0805P AST  
PMS SECRETARY FEDERAL POWER COMMISSION  
WASHDC 20426

RE DOCKET NUMBERS CP75-96 ET AL  
MY CLIENT, EYAK CORPORATION HAS ASKED ME TO SUPPLEMENT  
ITS ADVICE CONCERNING DRAFT ENVIRONMENTAL IMPACT  
STATEMENT. I HAVE HAD SIMILAR REQUESTS FROM MY CLIENT,  
CHUGACH NATIVES INC. BOTH NATIVE CORPORATIONS SUPPORT  
GRAVINA POINT TERMINUS INCLUDED IN EL PASO PROPOSAL.  
WHILE DRAFT ENVIRONMENT IMPACT STATEMENT PURPORTS TO  
ADDRESS CULTURAL ISSUES IT IS NOTEWORTHY THAT NATIVE  
CORPORATIONS SUPPORT GRAVINA POINT SITE. REGARDLESS OF  
SOCIO-ECONOMIC THEORIES OF OTHERS CONGRESS EXPRESSED  
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EXPRESSLY IN THE ALASKA NATIVE CLAIMS SETTLEMENT ACT OF  
1971 AND CONGRESS SOUGHT TO UTILIZE A REGIONAL AND NATIVE  
CORPORATIONS AS VEHICLES FOR THIS SELF DETERMINATION.  
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AND INTENT OF CONGRESS. I REQUEST OPPORTUNITY WITHIN NEXT  
72 HOURS TO SUPPLEMENT THESE COMMENTS ON BEHALF OF  
THE EYAK CORPORATION AND CHUGACH NATIVES, INC.  
JOE P JOSEPHSON ATTORNEY AT LAW  
(EX).

ACCEPTED  
01064

FAIRBANKS TOWN AND VILLAGE ASSOCIATION FOR DEVELOPMENT, INC.

510 Second Avenue - P. O. Box 1267

Fairbanks, Alaska 99707

907/452-4761, Ext. 47, or 456-4285

January 15, 1976

Kenneth F. Plumb, Secretary  
Federal Power Commission  
Washington, D.C. 20426

Dear Mr. Plumb:

The Fairbanks Town and Village Association for Development, Incorporated, appreciates the Secretary's invitation to comment formally on the three volume Draft Environmental Impact Statement prepared by the staff of the Federal Power Commission on the El Paso Alaska Company application (Docket No. CP 75-96 et. al.) We ask that the comments presented here be specifically answered in the appropriate section of the Final Environmental Impact Statement.

INTRODUCTION

Because of the abbreviated review period, our comments at this time are strictly limited to two issues which, in our view, describe deficiencies in the subject DEIS which must be remedied prior to the publication of the Final Environmental Impact Statement.

As an aid in developing this remedy, we will conclude our comments with the presentation of three recommendations for consideration by the Federal Power Commission at an appropriate time during the remainder of these proceedings.

FTVAD is preparing more extensive comments, but they are not sufficiently developed for presentation at this time. We will only note for the record that we reject the staff's assumption on page 143 of Volume I that the construction impact of either of the gas pipelines would "... merely echo..." those presently being experienced during construction of the crude oil pipeline.

Issue #1

FTVAD appreciates the relatively concise format of the subject DEIS, but regret that no effort was made to briefly describe in laymen's terms the larger national and international context within which the Federal Power Commission must make its decision in this matter.

FTVAD believes that such a description is necessary in order to establish at the state, regional, and local level a public policy framework for the analysis of complicated cost/benefit issues. Such a framework is preliminary, furthermore, to the development of an effective local decision-making apparatus capable of response to the short and long term community effects of pipeline construction and operation.

See the revised section on the social impacts of the gas pipelines.

Kenneth Plumb  
January 15, 1976  
Page Two

FTVAD believes that the FPC has a duty under Section 102, NEPA and under established C.E.Q. Guidelines, to explore these questions in the DEIS, and we have made reference to that duty in all our correspondence with the Federal Power Commission.

#### Issue #2

We find the failure of the staff in this area particularly surprising in view of the staff's extensive references in the DEIS to published reports of the Impact Information Center, and FTVAD's related Rural Impact Information Program. (See bibliography cited on page I-194, and I-195). Both programs have the function of regularly monitoring and publicly reporting the effects of trans-Alaska pipeline construction on the people and communities of Interior Alaska.

As such the published work of these programs provides a rich and unique source of both empirical and analytical data relevant to public policy questions at the state, regional, and local level which must eventually be answered by the Federal Power Commission in this proceeding.

The fact that they have not, so far, been formally presented for discussion, is a critical deficiency in the E.I.S. process.

#### RECOMMENDATION

The Fairbanks Town and Village Association for Development, Incorporated, reiterates its position that the Federal Power Commission has a responsibility and a duty under NEPA to explore, in the language of established NEPA procedure:

1. Methods of "... enhancing the environment. . .," and "... mitigating adverse environmental effects. . ." in the social, economic, and political environment with care equal to that displayed for the physical environment; and
2. Must, in a related way, develop alternatives and discuss the exercise of its responsibility to protect the public interest in municipalities and communities which will be subjected to significant short and long term effects as a result of construction and operation of an interstate natural gas pipeline.

Mitigating measures could be taken by local communities which in turn could be assisted, as they have been, by the State of Alaska. See the comment on the next page.

FTVAD has reviewed the FPC staff DEIS and finds only one direct reference to socio-economic measures to "enhance" or "mitigate" at the local level. That is a single paragraph on page 334, volume II.

In the referenced paragraph, the FPC staff apparently proposes that the FPC take no responsibility for "adverse environmental effects" in the social, political, and economic environment at the local level.

Kenneth Plumb  
January 15, 1976  
Page Three

Furthermore, they propose, by implication, that the FPC impose no obligations or restrictions on the successful applicant requiring them to establish local operating policies designed to enhance potential local benefits, or, conversely, to avoid adverse effects, or correct those that occur, or, in other ways, enhance the human environment at the local level.

FTVAD believes that there are several methods which should have been explored in the subject DEIS, and we are requesting that three such methods be investigated prior to publication of the Final EIS:

1. That the FPC require that the successful applicant, by means of a stipulation in the order granting the certificate, immediately establish a grant and loan fund, sufficiently large to provide immediate financing to state, regional, and local entities with responsibilities for protection of the public interest at the local level, and for planning and construction of related public facilities, and other facilities necessary to support pipeline construction and operation. Questions concerning amounts and the authority and mechanisms for disbursement and loan repayment should be resolved by the FPC after extensive consultations with state and local representatives, and those applicants who, if successful, will conduct operations within the jurisdictions of state, regional, and local governing entities.
2. That the FPC explore with each agency of the federal government having operations in affected geographic areas the extent of their authority and the extent of their capability and willingness to provide assistance and/or to perform specialized services at the request of public and quasipublic entities for the protection of public interest and support of pipeline construction at the local level.
3. That the FPC require, where sufficient authority exists, the performance of certain essential federal services such as, for example, census counts, and costs of living analyses by the Department of Commerce, labor force training, housing financing, etc., and pay for such services out of the fund proposed in #1 above; and to require, where sufficient authority exists, the coordination of federal program activity and policy making in order to provide financial, technical, and administrative support to state, regional, and local decision making entities.

#### CONCLUSION

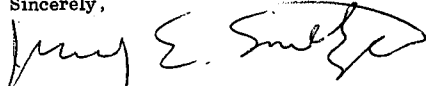
It should be well understood that, for the purposes of these comments only, the position of the Fairbanks Town and Village Association has nothing to do with route selection. FTVAD is on record in favor of a trans Alaska route, but it should not be assumed that we favor or disfavor any of the several such routes now under discussion, or that we favor or disfavor either of the two pending applications, or that we have taken a position adverse to, or in support of any of the other meritorious issues raised in the DEIS.

The environmental staff projects that relatively minor impacts will occur in Fairbanks as a result of construction and operation of either gas pipeline proposed. It appears that local entities could deal with the impacts that do occur, perhaps with the assistance of the state.

Kenneth Plumb  
January 15, 1976  
Page Four

Thank you again for your invitation to comment. We believe the Federal Power Commission is making a sincere effort to encourage the presentation of all relevant issues, and we urge you to continue this policy throughout these proceedings.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jerry E. Smetzer". The signature is fluid and cursive, with a large, sweeping "S" at the end.

Jerry E. Smetzer  
Executive Director

JES/kbp

MATANUSKA-SUSITNA BOROUGH  
RESOLUTION SERIAL NO. 75-120

A RESOLUTION OF THE ASSEMBLY OF THE MATANUSKA-SUSITNA BOROUGH FAVORING THE TRANS-ALASKA NATURAL GAS PIPELINE ROUTE AND URGING ALL PUBLIC AGENCIES TO TAKE ALL NECESSARY STEPS TO EXPEDITE APPROVAL OF THE TRANS-ALASKA ROUTE.


WHEREAS, an Alaska natural gas pipeline route and a Canadian pipeline route have been advocated as a means of transporting north slope gas to the "Lower 48" and Canadian markets; and

WHEREAS, the trans-Alaska route would:

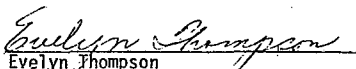
1. Provide an estimated 7,000 jobs during construction and 700 jobs during its 50 to 75 year life;
2. Help eliminate a United States balance of payments deficit caused by the demand of imported gas;
3. Provide natural gas service to the state's major population centers and provide gas for mining and other developments now impossible for lack of power;
4. Create a tax base that would contribute to Alaska's economy and make more State money available for assistance to municipalities;

NOW THEREFORE, BE IT RESOLVED by the Assembly of the Matanuska-Susitna Borough that it favor the trans-Alaska natural gas pipeline route and urge all public agencies to take all necessary steps to expedite approval of the trans-Alaska route.

PASSED AND APPROVED by the Borough Assembly of the Matanuska-Susitna Borough this 6th day of January, 1976.

  
Ronald L. Larson  
Borough Mayor

ATTEST:

  
Evelyn Thompson  
Borough Clerk

(SEAL)

CFEDPWRCOMM WSH

FEDPWRCOMM WSH

WU INFOMASTER 1-000572C029 01/29/76

TLX WU TFC WSH

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TWX 7103220156 FEDPWRCOMM WSH

SPL012 VAC005(0111)(1-000277A029)PD 01/29/76 0106

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01056 A NL TDA FAIRBANKS ALASKA 370 01-23 615P AST

FMS SECRETARY FEDERAL POWER COMMISSION ATTN ENG-SDD-ALASKA  
WASHDC 20426

THE MAYOR AND CITY COUNCIL OF THE CITY OF FAIRBANKS ALASKA,  
ON BEHALF OF THEMSELVES AND RESIDENTS OF THE FAIRBANKS AREA,  
SUBMIT THE FOLLOWING COMMENT ON THE FPC STAFF AND DRAFT  
ENVIRONMENTAL IMPACT STATEMENT. WE REAFFIRM OUR SUPPORT IN  
PRINCIPAL OF THE ORIGINAL TRANS-ALASKA GAS PIPELINE PROPOSAL OF  
EL PASO GAS COMPANY. WE OPPOSE ANY GAS PIPELINE ROUTE WHICH  
WOULD NOT UTILIZE THE TRANS-ALASKA OIL PIPELINE CORRIDOR FROM  
PRUDHOE BAY TO AN ICE FREE PORT. WE PARTICULARLY OPPOSE THE  
SUGGESTION IN THE FPC STAFF DEIS THAT THE EL PASO PROPOSAL BE  
MODIFIED BY DIVERTING THE GAS PIPELINE FROM THE PRESENT OIL  
PIPELINE CORRIDOR TO A ROUTE RUNNING GENERALLY FROM LIVENGOOD

TO NIKISKI ON THE COOK INLET NEAR ANCHORAGE. WE OPPOSE THE  
SUGGESTED REROUTING BECAUSE IT WOULD:

- (1) BRING ADDITIONAL GAS TO THE ANCHORAGE AREA WHICH ALREADY  
HAS ADEQUATE SUPPLIES OF NATURAL GAS FOR HOME HEATING AND  
ELECTRIC POWER GENERATION;
- (2) BYPASS THE FAIRBANKS AREA WHICH HAS A PRESENT NEED FOR A  
LOW COST NON-POLLUTING SOURCE OF ENERGY FOR HOME HEATING AND  
ELECTRIC POWER GENERATION;
- (3) RESULT IN GREATER ENVIRONMENTAL DAMAGE;
- (4) EXPOSE THE LNG FLEET TO THE HAZARDOUS ICE CONDITIONS OF  
COOK INLET RATHER THAN ENABLE THE UTILIZATION OF AN ICE FREE  
PORT;
- (5) COST MORE TO CONSTRUCT BECAUSE PRESENT ALYESKA  
FACILITIES COULD NOT BE UTILIZED;

1. The environmental staff realizes that the Anchorage area presently has adequate supplies of gas and that North Slope gas could not economically compete with Cook Inlet gas in Cook Inlet area markets. The primary purpose of the route to Cook Inlet was to supply markets in the lower U.S. without imposing the impacts of an LNG plant and terminal upon the environment of Prince William Sound.
2. The proposed Livengood-Nikiski route does not "bypass" the Fairbanks area in the sense that no gas will be available to that city. A smaller diameter pipeline spur could be used to transport gas to Fairbanks from this route.
3. The environmental staff disagrees. Both the El Paso and alternative route to Nikiski would be within the limits of technical feasibility and have been discussed in detail in the DEIS. Both routes generally follow existing rights-of-way, but both deviate significantly from those rights-of-way in places. The Nikiski route would allow El Paso to combine its facilities with another proposed LNG project (Pacific Alaska LNG Company, Docket No. CP75-140), negating the need for separate LNG plants and terminals and reducing the total length of pipeline necessary for separate pipelines.
4. The environmental staff is considering the use of a site at Cape Starichkof, which is outside the zone of hazardous ice conditions in Cook Inlet.

(6) COST MORE TO INSPECT AND MAINTAIN BECAUSE THE SAME INSPECTORS COULD NOT SIMULTANEOUSLY INSPECT THE OIL AND GAS PIPELINES;

(7) DELAY CONSTRUCTION OF THE TRANS-ALASKA GAS PIPELINE BECAUSE NO COMPANY HAS PROPOSED TO CONSTRUCT A PIPELINE ALONG THAT ROUTE AND;

(8) FURTHER DELAY THE EVENTUAL CONSTRUCTION OF A TRANS-ALASKA GAS PIPELINE BECAUSE OF THE NEED FOR ADDITIONAL ENVIRONMENTAL IMPACT STATEMENTS AND BECAUSE OF THE OPPOSITION OF ENVIRONMENTAL CONSERVATION GROUPS TO UNNECESSARY DISRUPTION OF THE ENVIRONMENT. WE FURTHER OPPOSE THE SUGGESTION BY THE FPC STAFF THAT THE GAS PIPELINE USE 48 INCH PIPE WHICH IS NOT MANUFACTURED IN THE U.S. RATHER THAN 42 INCH PIPE WHICH IS MANUFACTURED IN THE U.S.

RESPECTFULLY SUBMITTED THIS 28TH DAY OF JANUARY, 1976.  
COPIES OF THIS TELEGRAM SENT TO:  
SECRETARY, FEDERAL POWER COMMISSION WASHDC,  
SENATOR TED STEVENS, SENATOR MIKE GRAVEL, AND REPRESENTATIVE DON YOUNG.

HAROLD GILLAM MAYOR CITY OF FAIRBANKS

0142 EST

FEDPWRCOMM WSH

7 and 8. The environmental staff agrees that additional environmental information would be required to insure the minimization of impacts along the Nikiski route and that additional time should be spent to conduct the appropriate studies. However, El Paso also does not yet possess the necessary environmental information for its pipeline, having relied upon Alyeska's data to provide only a preliminary background, and it proposes to conduct an in-depth study of its route before it begins construction. While the environmental staff is aware that time is of the essence in providing gas for the consumers, it believes that the environment should not be unnecessarily jeopardized for the sake of expediency.

RECEIVED

Greater Anchorage

CHAMBER of COMMERCE

FEB 3 3 18 PM '76  
FEDERAL POWER COMMISSION

January 29, 1976

Crossroads of the Air World

Secretary  
Federal Power Commission  
Washington, D.C. 20426

ATTN: BNG-SOD-ALASKA

Dear Sir:

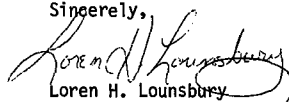
The following is an official position of the Anchorage Chamber of Commerce, the largest business organization of its kind within the State of Alaska.

This recommendation and endorsement by the Anchorage Chamber of Commerce is in response and pertains to the Federal Power Commission's Draft Environmental Impact Statement published on November 28, 1975, regarding the transportation (via pipeline) of Alaskan gas to markets within the "South 48".

Owing to the vast reaches of wilderness and the highly difficult terrain to be crossed with the advent of transporting Alaskan natural gas for marketing, the Anchorage Chamber of Commerce maintains a position of minimizing costs and minimizing duplication of effort, as well as alleviating further effect and concerns upon the environment in Alaska. The Anchorage Chamber of Commerce maintains that the maintenance, surveying and control, and all aspects having to do with governing a pipeline can best be facilitated through one geographic alignment through Alaska, rather than two separate corridors - one to accommodate gas, and a second to accommodate oil.

Thus, this body, in official Executive session on the 28th day of January, 1976, unanimously recommended that the trans-Alaska natural gas pipeline routing be identical and a part of the same corridor utilized by the trans-Alaska oil pipeline through Alaska.

Sincerely,

  
Loren H. Lounsbury  
President

tlh



# Greater Fairbanks CHAMBER OF COMMERCE

550 First Avenue

FAIRBANKS  
ALASKA 99701

January 28, 1976

Member:  
U. S. Chamber of Commerce  
Alaska State Chamber of Commerce  
Pacific Northwest Trade Ass'n.  
National Better Business Bureau

RECEIVED  
FEB 1 1976

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Secretary:

For your information and as a matter of record in your proceedings with regard to the Draft Environmental Impact Statement covering the trans-Alaska routing of a gas pipeline from Prudhoe Bay to tidewater in Alaska, please be advised that the Greater Fairbanks Chamber of Commerce is duly on record in support of a trans-Alaska route such as outlined in the El Paso proposal.

RECEIVED BY  
FEB 1 1976  
CHIEF ENGR.

It is our further feeling that it is imperative to the future development of Alaska that the state's 12 1/2% royalty share of Prudhoe Bay natural gas be available for use in Alaska. A trans-Alaska routing for the gas line would make this possible and should be given consideration.

Alaska is a vast storehouse of energy resources. As these reserves are developed for the benefit of all America we do not feel that it is too much to ask that some consideration be given to making possible the utilization of a part of these resources for the benefit of Alaskans. A trans-Alaska routing for a gas pipeline would be a step in this direction.

Building for Fairbanks' future,

*C. W. Baer*  
C. W. Baer  
General Manager

CWB:ljh

1976

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PMS SECRETARY FEDERAL POWER COMMISSION ATTN BNG-SOD-ALASKA

WASHDC

THE CITY AND BOROUGH OF JUNEAU, S STRONG ENDORSEMENT  
OF A TRANS-ALASKA NATURAL GAS PIPELINE AS THE BEST  
ROUTING OF THE NATURAL GAS FROM THE PRUDHOE BAY FIELD  
IS CONTAINED IN RESOLUTION NUMBER 343 ADOPTED NOVEMBER  
13, 1975. WE REQUEST THAT RESOLUTION NUMBER 343 BE  
INCLUDED IN THE PUBLIC COMMENTS OF THE DEIS ON THE  
TRANS-ALASKA PIPELINE. COPY FOLLOWS BY MAIL. WE JOIN  
WHAT WE BELIEVE TO BE A GREAT MAJORITY OF ALASKANS  
IN URGING THE PFC ALLOW CONSTRUCTION BY THE MOST  
ECONOMIC PRACTICAL MEANS CONSISTENT WITH SOUND ECOLOGY.  
TO THIS END WE STRONGLY URGE PUBLIC HEARINGS BE HELD  
IN ALASKA TO ENSURE ADEQUATE INPUT CONCERNING THE  
IMPORTANCE OF ROUTING AND CONSTRUCTION AND WHAT IT  
MEANS TO THE PEOPLE OF THIS STATE.

MAYOR GINNY KLINE

1505 EST

FEDPWRCOMM WSH

FEDERAL POWER COMMISSION

JAN 30 3 08 PM '76

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RECEIVED  
OFFICE OF THE  
**Matanuska-Susitna Borough, Inc.**

BOX 8, PALMER, ALASKA 99645 • PHONE 745-3246

BOROUGH ASSEMBLY

January 26, 1976  
POWER PLANT SESSION

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Attention: BNG-SOD-ALASKA

Gentlemen:

As a local governing agency constituting 23,000 square miles of area and having a population of approximately 12,000, the Matanuska-Susitna Borough is vitally concerned with employment of its residents, and the future economic growth of our State. The Borough Assembly, therefore, has adopted a resolution favoring the trans-Alaska gas pipeline route and urging that all public agencies take the steps necessary to expedite approval of the trans-Alaska route. A copy of this resolution is enclosed.

Copies of the resolution have been forwarded to The Organization for Management of Alaska's Resources and to our representatives in Washington.

Yours truly,

*Carolyn Thompson*

Borough Clerk

Enc.

CC: Mike Gravel  
Don Young  
Ted Stevens

907/452-4761, Ext. 47, or 456-4285

298

# PORT OF LOS ANGELES

FRED B. CRAWFORD  
GENERAL MANAGER  
MAIL ADDRESS:  
P. O. Box 151  
SAN PEDRO, CALIFORNIA 90733  
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(213) 775-3231



CITY OF LOS ANGELES  
TOM BRADLEY  
MAYOR  
POWER COMMISSION

BOARD OF HARBOR COMMISSIONERS  
FREDERIC A. HEIM  
PRESIDENT  
ROY S. FERKICH  
VICE PRESIDENT  
NATE DIBIABI  
COMMISSIONER  
GEORGE IZUMI  
COMMISSIONER  
MRS. GENE KAPLAN  
COMMISSIONER  
TSUYOKO OTA  
SECRETARY

February 18, 1976

Mr. Kenneth Plumb, Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attention Mr. Robert Arvedlund

Dear Sir:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)  
OCG, El Paso Alaska Company, et al., Docket  
Nos. CP75-96, et al

The following comments have been prepared relative to the subject DEIS in response to your forwarding letter of November 28, 1975.

## COMMENTS:

### 1. REGARDING SEISMIC CRITERIA, LOS ANGELES HARBOR:

The FPC staff has rejected a potential LNG plant site in Los Angeles Harbor based solely on seismic considerations (pages III-321, 323) due to the proximity of the Palos Verdes fault. The Port of Los Angeles does not agree with this conclusion.

We have been working closely with the Western LNG Terminal Company and its consultant, Dames & Moore, on a proposed LNG facility being considered for Los Angeles Harbor (FPC Docket No. CP-75-83-2). Dames & Moore has prepared a report entitled: "Offshore Soils Investigation, Los Angeles Harbor LNG Ship Terminal" for the proposed Los Angeles Harbor project. In this report, the location of the Palos Verdes fault with respect to the site is discussed as follows:

"While the primary fault appears to pass to the west of the site, secondary dislocations occur within a 1-mile wide zone which includes part of the site. As a result, the possibility of surface rupture due to fault movement has been raised, in addition to the question of ground shaking. This has prompted detailed studies of the activity of the fault. (Dames & Moore, 1975a, Surface displacement evaluation, Palos Verdes Hills fault; Dames & Moore, 1975b, Surface disruption analyses, Palos Verdes Hills fault). It may be noted that the last movement of the fault in the vicinity of the site is estimated to have occurred between 11,000 and 500,000 years ago. (Ziony, et al, 1974, Preliminary map showing recency of faulting in coastal Southern

See the environmental staff's response to these issues Western LNG Terminal Company's comments.

February 18, 1976

California, Map MF-585, U.S. Geological Survey). Recent studies have indicated some small magnitude earthquakes in the area (Teng, T.L., 1975, Personal Communication, Department of Geology, University of Southern California), but these do not appear to fall on the downward projection of the fault."

In its letter of January 29, 1976, to the Federal Power Commission relative to the subject DEIS, Western LNG Terminal Company included the following results of a recent Dames & Moore mathematical and statistical study of the potential surface disruption for the Palos Verdes Hill fault.

"The FPC draft EIS omits any discussion of the date of the most recent surface displacement near the site. USGS investigations have estimated this last displacement based on onshore observations where good exposures exist at 11,000 to 300,000 years before present; i.e., Pleistocene, although Holocene movement has been proposed on a short fault segment south of the site (Ziony, et al., 1974). The geophysical studies conducted by Dames & Moore do not allow a precise determination of age, but subsurface dislocations in the vicinity of the site do not commence until about 200 to 300 feet below the surface which indicates a significant passage of time.

See the environmental staff's response to these issues in Western LNG Terminal Company's comments.

Notwithstanding the above, and because some uncertainty regarding the activity of the fault remains and indeed might well remain even after more exhaustive studies critical facilities at the site will be designed assuming that the Palos Verdes Hills fault may be active (Dames & Moore, 1973). Further, the recommended design parameters are based on studies indicating a "maximum credible earthquake" of Magnitude 6.5 occurring adjacent to the site. In addition, the vertical component of fault rupture is not expected to exceed 4.0 feet in a horizontal distance (across the zone of fault rupture) on the order of 1,000 feet. The 4.0 feet of displacement approximates the upper bound of vertical movement proposed by Yerkes, et al., (1974) for a Magnitude 6.5 event. The larger displacement numbers of 6.5 feet of vertical and over 10 feet of total movement, stated by the FPC, are related to peak upper bound displacement measurements for a Magnitude 7.0 earthquake (Yerkes, et al., 1974).

As stated above, Dames & Moore studies indicate that a Magnitude 6.5 event is the maximum credible earthquake for the fault. Therefore, 6.5 feet and 10 feet of displacement represent unreasonable values for the Palos Verdes Hills fault.

In general, seismic design parameters are based on statistical analysis of extreme events (i.e., peak acceleration, or maximum fault displacement). This reliance on extreme events adds conservatism to the design. However, the

February 18, 1976

implications of this extreme conservatism on design are not always adequately understood. For example, the fault rupture versus magnitude estimates of Yerkes, et al. (1974) are based on the upper bound of extreme measurements. The measured displacements occurred at only one point on a rupture that may have extended for tens to hundreds of miles.

The above information strongly indicates that the possibility of an event occurring that exceeds LNG tank seismic design criteria for tilting or strong ground motion due to movement along the Palos Verdes Hills fault is negligible."

From the above information, it appears that there is no threat to the structural integrity of an LNG facility at the Los Angeles Harbor site. As such, we believe that the Los Angeles site should be given a complete site assessment in the DEIS as was given to the FPC's five "potential sites" commencing on page III-325.

2. REGARDING CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION (CCZCC) STATEMENT:

On Page III-355, the FPC Staff concurs with a CCZCC statement from the proposed "Final Coastal Plan" which states: "Only one LNG marine terminal shall be permitted in the California Coastal Zone until (1) engineering and operational practices can eliminate any undue risk, or (2) guaranteed supplies of LNG are substantial enough that an interruption of service from a single LNG facility would cause substantial public harm." Please note that the CCZCC plan requires adoption and implementation by the California Legislature in 1976.

As to item (1) in the Plan statement, the Science Applications, Inc. (SAI) risk analysis of the Los Angeles Harbor LNG facility has been made available to the FPC Staff and is being included in the Harbor Department's final EIR on the South Alaska project. In our view, this study provides conclusive evidence that the planned engineering and operational practices will eliminate "any undue risk." As indicated by the study, even within 5/8 mile of the site at a 4 billion cubic feet per day delivery rate, with repeated assumptions designed to avoid possible understatement, the fatality probability per person is only one-half that for the population in the same area from airplane crashes striking them on the ground and only one-half that for residential electric customers throughout the country from electric shock.

As to item (2), a secure supply of gas is vital to the human comfort and sound economic functioning of the area served by the Los Angeles Harbor Department. It is our understanding that if all the pending gas supply projects, both LNG and non-LNG, for Southern California Gas Co. are approved by the FPC, 1/3 of that company's total supply in the year 1981 will be from LNG from South Alaska and Indonesia. If so, these would clearly seem to qualify as "substantial enough" "guaranteed supplies" so that two LNG sites rather than one combined site would indeed be required to avoid "substantial public harm" through otherwise avoidable potential gas outages.

The environmental staff rejected the Los Angeles site as part of a basic criteria not to build LNG sites on a fault with known activity. To do so would, in our opinion, not be in the public interest and certainly not in the interest of public safety, particularly when viable alternatives exist which do not have this inherent seismic problem.

The environmental staff disagrees. The environmental staff is proposing a joint terminal with less than a 4 billion cubic feet (Bcf) per day output, the ultimate amount of gas proposed for a single base-load plant with additional peak gas capabilities available for a 5Bcf per day terminal. If the 4Bcf per day quantity was exceeded, or special conditions warranted a lesser output, then the environmental staff would consider a second plant and/or expansion of the first plant.

Mr. Kenneth Plumb

- 4 -

February 18, 1976

3. REGARDING COOLED SEAWATER DISCHARGES:

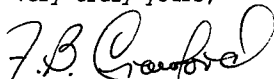
Referring to p. III-183.

"No studies on the biological effects of cooled seawater discharges are available for comparison with the proposed system."

Comment. A detailed discussion of the effects of cool seawater discharges on Southern California Marine biota is presented in the draft environmental impact report for the Western LNG Terminal Company, proposed for Los Angeles Harbor.

Ten copies of the above comments are also transmitted to the Council on Environmental Quality as requested.

Very truly yours,



F. B. CRAWFORD  
General Manager

LLW:jp

RECEIVED  
**PORT OF SEATTLE**

P. O. BOX 1209 / SEATTLE, WASHINGTON 98111

JAN 29 8 51 AM '76

FEDERAL POWER COMMISSION

January 27, 1976

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Attention: BNG-SOD-ALASKA

Dear Sir:

Please find enclosed herewith Resolution 2598 of the Port Commission of the Port of Seattle endorsing an all-Alaska gas pipeline route. Also attached is a PLANNING RESEARCH REPORT which Resolution 2598 incorporates on the rationale behind support of the All-Alaska Gas Pipeline.

Although the Port of Seattle Commission unanimously adopted this resolution on September 16, 1975, in light of the present activity by the Federal Power Commission in this area, the Commission once again renewed its support for an all-Alaska pipeline route.

We hope sincerely that you will take into account the attached resolution and the report accompanying it in your decision-making process.

Sincerely,



Henry T. Simonson  
President  
Port of Seattle Commission

cc: Port of Seattle Commissioners

# PORT OF SEATTLE

PLANNING AND RESEARCH DEPARTMENT  
A. H. Yoshioka, Director

DATE: August, 1975

RECEIVED

## PLANNING RESEARCH REPORT

TITLE: WHY WE SHOULD SUPPORT THE ALL ALASKA  
(EL PASO) GAS PIPELINE

Every U.S. citizen has a large stake in the final routing choice of Alaska's North Slope natural gas pipeline--either through Alaska or through Canada. However, now that we have hindsight from the Alyeska Oil Pipeline experience we recognize that the benefits, for the entire nation, are enormous. While we will not experience oil or gas shipments through the Seattle harbor, nearly all Port operations are directly affected by Alaska's economic growth. The gas pipeline, furthermore, is not as susceptible to the violent environmental reactions that the Alyeska Pipeline experienced, thus we have much less to lose by taking a stand on the issue. Final approval for the Alyeska Oil Pipeline decision was decided in Congress. The same will most likely be true for the gas pipeline. However, the Alyeska Oil Pipeline was one proposal in which an alternate Canadian route was raised but the choice was to either approve the Alyeska Pipeline proposal, or not. Routing of the gas pipeline has two different proposals, and approval is sought for either one or the other. Thus the Canadian Alternative, unlike the situation of the oil pipeline, is a clear and viable choice. Logic and economics clearly favor the all-Alaska, El Paso proposal. National politics, however, may presently favor Arctic's proposal - the Canadian route.

The Port of Seattle can contribute some help in the decision-making process in Congress. We cannot change the facts, but we can express our point of view. Route choice, for us, will make a big difference. The following is an outline of the essential elements of the two routing proposals. These we cannot change. Our point of view, however, is important to the decision the U. S. Congress must make to the natural gas consumers of Washington state, and to our largest trading partner--Alaska.

### A. The Routing Comparison.

The Alaska Arctic Gas Pipeline is the "Midwest" or "Canadian" proposal consisting of two separate sections. The division of the two sections is based upon criteria of international politics, with the first section originating at Alaskan North Slope and Canadian gas fields and terminating at the U.S./Canadian Border, and the second section being the distribution system within the "lower 48" states. The first section is technically known as the Arctic Gas Pipeline, though both sections are needed to complete the Arctic proposal. The Arctic pipeline is a 2,600 mile pipeline system which originates at Prudhoe Bay, Alaska, and travels easterly into Canada where it is joined by another pipeline from the MacKenzie Delta gas field for a 48 inch, common pipeline to the south. North of Calgary, Alberta, the Arctic pipeline splits into two with a western branch entering Idaho, and an Eastern branch entering Montana. The Western Branch, near the international

border also splits into two sections, with one section serving Northern California, and the other serving Southern California. (The first one of these is an existing pipeline which will be expanded and the second is an entirely new route to Southern California.) The Eastern branch near the U. S./Canadian border, connects with the existing trans-Canada gas pipeline to serve eastern Canadian provinces, then traverses south and east from the International Border toward distribution systems in Illinois and the eastern seaboard destinations. The entire system proposed by the Arctic gas proposal (including the U. S. distribution system) totals 6,300 miles of new pipeline. As proposed, the Pacific Northwest would tap off of the new pipeline destined for Southern California, feeding into Washington State's existing system.

The Trans-Alaska Gas Project is sponsored by the El Paso Alaska Company as an All-Alaska/LNG tanker route. It will utilize the transportation corridor set aside for the Alyeska Pipeline from Prudhoe Bay to an all-weather port between Valdez and Cordova (Gravina Point), Alaska, where the natural gas would then be liquefied for LNG ocean shipping. The primary destination of the LNG would be a port terminal located in Southern California, though Puget Sound and San Francisco facilities may also be served. Eleven LNG tankers would be needed for ocean transportation. In Southern California the LNG would be de-liquefied (regasified) back to natural gas and placed into a new pipeline between the port terminal and existing, underutilized gas pipelines in California. Alaskan gas would then enter existing gas pipeline systems (also underutilized as West Texas gas supplies dwindle) serving Pacific Northwest, Southwest, Midwest and Eastern Seaboard customers. However, through "displacement" (which is explained later), not all regasified LNG from Alaska would be physically transported to Texas, but "traded" in California markets for Texan supplies.

B. Comparative Capital Costs for the Proposed Two Pipeline Systems.

The total cost for the Arctic pipeline has been estimated at an excess of \$10 billion. However, there is an "apples and oranges" consideration when comparing El Paso and Arctic pipeline costs. The Arctic system is currently designed to deliver 4.5 billion cubic feet/day (BCF/day) of gas to both U. S. and Canadian customers, with 1/2 going to each side of the border (i.e., 2.25 billion cubic feet to each). This is a major issue of the two pipeline proposals--the Arctic proposal will get 28% more natural gas to North American (Canadian and U. S.) customers. However, the El Paso proposal will (undoubtedly) deliver more gas to U. S. American customers, by as much as 55% more, since the Canadians have stated many times that they do not intend to "supply the U. S. with excess MacKenzie Delta gas beyond their own needs." The Canadians will not because they will need all the natural gas for their own use and, therefore, there will not be an excess of Canadian gas available to the U. S. market from the Canadian share of the Arctic Pipeline.

The capital cost for the entire El Paso proposal (which includes the Alaska gas pipeline, liquefaction/regasification terminal facilities, LNG tankers and "lower 48" pipeline connections), is estimated at \$6.7 billion. This figure would include a daily delivery of 3.5 billion cubic feet to U. S. customers (vs. 2.25 billion cubic feet for the Arctic proposal). The cost figure should be "clear cut" for comparing

the two Pipeline Alternatives, but it is made complex because of their potentially different delivery amounts. The El Paso proposal delivers 3.5 billion cubic feet/day to the "lower 48" U. S. market at a cost of \$6+ billion. The Arctic proposal, for \$10+ billion, is a guaranteed 2.25 billion cubic feet to the same market, plus 2.25 billion cubic feet to Canadian markets (and the potential of a portion of the Canadian share - as excess to Canadian needs - to the U. S. market). One should keep in mind, however, that an excess of Canadian gas for a U. S. market is highly unlikely. (As an aside, the Canadians have their own plan to serve Canada's markets with Canada's own North Slope, MacKenzie Delta gas. This plan--known as the Maple-Leaf Project--would deliver 2.4 BCF/day at an estimated capital cost of \$2.3 billion (for the main trunk line) to \$4 billion (depending upon the final distribution network selected). Thus, for a true comparison, the Arctic proposal would deliver 4.5 BCF/day to North American customers at a cost of \$10+ billion, while the El Paso and Maple-Leaf project proposals (assuming there is enough gas available) would deliver 5.9 BCF/day to North American customers at an approximate cost of \$9+ billion.)

Nonetheless, the gas sharing aspect of the Arctic proposal raises an interesting cost issue. Consider, for example, that the "net" additional pipeline needed for moving Canadian gas from their MacKenzie Delta gas field to the main Arctic gas pipeline trunk from Prudhoe is only a distance of some 200 miles. Apparently, little or no "net" pipeline is needed at the southern end of the Arctic pipeline trunk for connecting to the existing trans-Canada pipeline for service to eastern Canadian provinces. Thus, 200 miles of new pipeline and an enlarged diameter pipe on most of the route through Canada is, by far, the greatest proportion of the overall cost of the Arctic proposal as it relates to gas for the Canadians. Proponents of the Arctic gas proposal are arguing that for a somewhat greater capital cost (\$10+ billion vs. El Paso's \$6+ billion), a greater economy of scale will lower per unit costs for both U. S. and Canadian customers because of the joint sharing of a higher delivery amount (4.5 billion cubic feet vs. El Paso's 3.5 billion cubic feet). The question that is raised in one's mind, however, is: when viewing the Arctic proposal from a Canadian point of view, why should they (the Canadians), because of the limited "net" pipeline and "piggyback" status, share equally in the overall cost of \$10+ billion (or even their portion from the MacKenzie/Trans-Canada connection) when the net cost of the Canadian portion is much less (perhaps 10%). One can only conclude that in the Arctic proposal the ultimate delivery cost, in terms of U. S. customers, will be based upon 2.25 billion cubic feet being delivered at a capital cost of something approximating an overall cost of \$9 billion; while the Canadians costs will eventually be based upon their "fair" share, or 2.25 billion cubic feet for something around 10% of the \$10 billion or \$1 billion. For the El Paso proposal, 3.5 billion cubic feet will be delivered to U. S. customers at a capital cost approximating \$6+ billion. The Canadians will receive no gas from the El Paso proposal, thus necessitating the expenditure of well over one billion dollars to obtain MacKenzie Delta gas. (In fact, the Maple-Leaf project would cost something over \$2.3 billion for a comparative system.) Thus one can understand why, before either pipeline routing is approved, the Canadians might be encouraging the Arctic proposal, and with "equally shared" costs.

C. Comparative Operating Costs for the Proposed Two Pipeline Systems.

Natural gas customers pay three costs: (1) wellhead price at the gas field, (2) transportation costs from the gas field to market, and, (3) local distribution costs. Since Local Distribution Costs and the gas wellhead price is presumably the same for either pipeline proposal, the gas field to market transportation operating cost (along with amortization of respective capital costs), will determine the actual cost difference for North Slope natural gas to the ultimate consumer.

The primary operating cost for either pipeline proposal is the amount of energy used (and therefore the cost) in gas transportation (primarily for compressors) between the gas field and the customers. The amount of energy consumed in transporting gas in the Arctic gas proposal is 9.6% of the system's 4.5 billion cubic feet per day delivery. Again, the assumption that operating costs would be equally shared by the Canadians and the Americans is naive since the length of the Canadian delivery is much less. Using the same logic as with the capital cost of the system, the gas loss may equal 9.6% of the total 4.5 billion cubic feet per day by the entire system, but the costs for the pipelines' operation will probably be paid for primarily out of the 2.25 billion cubic feet U. S. share. Thus the gas consumption equivalent could be closer to double - say 15% - for the U. S. share of 2.25 billion cubic feet, after an adjustment is made for proportioning Canada's pipeline length to the U. S. pipeline length.

The El Paso proposal, like the Arctic proposal, uses energy for pipeline transportation. However, they also use gas energy for the liquefaction process at the port terminal and for LNG tanker's fuel. The estimated energy used by the El Paso system totals some 12.1% of the system's 3.5 billion cubic feet per day. However, of the 12.1% used in transportation by El Paso, 8%, or two-thirds, is used in the process of liquefying the natural gas. The liquefaction process "concentrates" natural gas to a more economically concentrated form of energy for ocean transportation in LNG tankers. In actuality, however, LNG is merely natural gas energy in a supercold form and, theoretically, is not lost energy since there is a corresponding release of energy when the liquefied gas is regasified at the receiving Port terminal (minus some losses due to friction). Regasified energy is now being used in France and Japan for functions such as food processing and freezing. Theoretically, this energy could even be used to generate electrical power or reduce thermal pollution from electrical generating facilities. Nonetheless, because of potential energy from regasification, there exists a realistic probability for a lower than 8% consumption in the liquefaction stage. Because of this potential energy recovery, as well as LNG tanker efficiency and lower pipeline length, the percentage of energy consumed by the El Paso proposal could be somewhat less than that of the Arctic proposal. This is especially so if one assumes that the Canadians will only pay for their "fair" share, and not an "equal" share. A lower expenditure of energy in the transportation process equates to a lower operating cost.

There is an additional essential factor on the subject of system costs (including capital costs) to consider when comparing the two pipeline proposals. This is the subject of "displacement." Displacement is a term which refers to the "paper" trading by two (or more) gas suppliers for one source of gas supply that is closer to the other's market (and vice versa) with mutual transportation cost savings by both suppliers because less gas is lost from the "physical" movement of their respective gas. For example, because of "displacement," not all of the 3.5 billion cubic feet per day would physically be transported from Southern California to the Midwest in the El Paso proposal. This is because at the present time there is a large volume of gas (and an even larger pipeline capacity) moving from West Texas gas fields to the California market. Also, there is a large volume of gas moving from the West Texas gas fields to the upper Midwest and Eastern Seaboard markets (which also has a large unused pipeline capacity). As natural gas supplies continue to dwindle in West Texas fields, existing gas pipelines increasingly become underutilized. Using "displacement," two things can occur. One, Alaskan gas can be used in the California market so the West Texas gas assigned for the California market can then be "traded" to the Midwest/Northeast. Two, the Texas/California pipeline can then be reversed to physically transport a portion of the Alaskan gas to West Texas where it can supplement the dwindling supply of the West Texas field. Because of displacement, therefore, additional savings accrue to the U. S. consumer because:

- 1) Some of the "traded" gas to the U. S. Midwest/Northeast does not physically move from California, and therefore saves in the transportation fuel cost of moving gas from California to West Texas (to say nothing of the costs saved by not moving gas from West Texas to California), and
- 2) Existing pipelines, both between California and Texas and between Texas and the Midwest/Northeast, are better utilized for their existing capacity, thus lowering their unit costs to additional gas customers.

#### D. Environmental Impact Comparison.

The Arctic proposal will require 6,000+ miles of new pipeline approximately 1/6 of which would be through the environmentally sensitive tundra of Alaska and Canada (including the Alaska's Arctic National Wildlife Refuge).

In the El Paso proposal almost all new pipeline construction would be in the existing Alyeska Pipeline corridor, utilizing already existing roads, work camps, etc. (There is, however, some 200+ miles anticipated in Southern California.) Instead of the 1,000+ miles of permafrost crossing in the Arctic proposal, El Paso crosses some 200+ miles. Many are already arguing that the real environmental impact from the Alyeska Oil Pipeline will be from the opening of the Alaska tundra to hunters, tourists, etc., once the pipeline access road becomes a public highway. The Arctic proposal would not only open more Alaskan tundra, but the Arctic National Wildlife Refuge and the entire MacKenzie Valley. The environmental disruption from opening the MacKenzie Valley to public

access has to be a strong environmental argument against the Arctic proposal (and the Canadian's Maple-Leaf project as well). The environmental disruption of the El Paso and Arctic Gas proposals, by almost any measure, is comparative with the length of new construction --six to one.

Other than construction, the disruptive environmental effects of the two proposals are less comparable and more subtle. For example, the El Paso proposal utilizes thousands of miles of pipeline within the continental U. S. which are increasingly becoming less utilized because of the dwindling West Texas gas supply. Since LNG tankers and liquefaction/gasification terminal facilities are relatively clean, they are not a major environmental issue (as oil tankers were with the Alyeska Oil Pipeline issue). Other environmental factors might include the respective use of natural resources by each proposal--the amount of steel used is three times greater for the Arctic Proposal vs. El Paso's. This is an important factor not to be taken lightly since the amount of rolled steel tubing used in the Arctic proposal is equal to the entire U. S. rolled steel tubing capacity for a minimum of three years. Several environmental groups are already supporting the El Paso proposal because of its more favorable environmental impact.

E. Employment Comparison.

Employment should somewhat reflect a relationship to capital expenditures: Arctic \$10+ billion, El Paso \$6+ billion. However, shipbuilding would make up a significant portion of the El Paso expenditure, which (because of the Jones Act) would be entirely in the U. S. Though both proposals would undoubtedly turn to the lowest cost pipeline--which usually means foreign steel--El Paso has publically stated that it intends to purchase from U. S. suppliers. El Paso, because of tanker construction, one-sixth less pipeline, LNG terminals and no Canadian participation, will have a greater overall U. S. employment impact during construction, in spite of their lower capital expenditure, by approximately 24,000 for El Paso to approximately 12,000 for Arctic Gas.

F. Balance of Payment Comparison.

Both the operation and construction of the El Paso proposal is entirely within the U. S., which suggests there will be little or no net loss to the U. S. balance of payments. The Arctic proposal has had an estimated \$6.3 billion loss to the American economy over the 25-year life of the project. Whatever the actual price, it only follows that if a substantial portion of the pipeline is in Canada, a substantial proportion of operational and construction costs will also be in Canada. It has been estimated that for each dollar paid by the American consumer in the Arctic Gas project, \$.67 will go to Canada.

G. Control Aspects.

Before the Arab oil crisis of September, 1973, foreign political control of U. S. oil and gas supplies (and their transportation) was a topic for discussion, but seldom used as serious argument. Energy is

now recognized as a relatively "scarce" resource and in a seller's market. The Canadians cannot be expected to act any differently than they have in the past. In the state of Washington, where our price for Canadian gas has gone from \$0.32 per cubic foot to an announced \$1.60 per cubic foot in a two-year period, the message is clear: once the pipeline is in effect there can be no assurance that the provinces of Canada will not tax to "whatever the market will bear."

The provinces of Canada, unlike the states of the U. S., are not bound by national treaties for taxing purposes. The Canadians are developing their own strategies for energy independence, and it is becoming increasingly clear that they will have no excess gas to sell to U. S. consumers. Furthermore, in "times of scarcity" either their national government, or any province, could appropriate the entire Arctic gas supply, Canadian and Alaskan, for Canadian use.

The Canadians have been good neighbors, especially from a military security standpoint. However, they may be less dependable from an economic security standpoint. Total U. S. control of Alaskan resources is becoming one of the most important (albeit unrecognized publicly) arguments in favor of the El Paso proposal over the Arctic. (Furthermore, from a North American national security standpoint, it would appear to be more desirable to have two pipelines, i.e., El Paso and Maple-Leaf, than one, i.e., Arctic.)

## II. Timing Considerations.

Timing is an important factor because only so much gas (economically) can be reinjected into the North Slope fields once oil production starts. Time estimates vary, but the early 1980's is probably the latest before either North Slope oil production must be curtailed or the gas flared, and thus wasted entirely. Timing is also important from a balance of payments standpoint, because of the growing demand in the U. S. for imported natural gas, and the rapid increase in the cost of foreign natural gas. As with the environmental argument, the El Paso proposal has a timing advantage because of the Alyeska Oil Pipeline. From a timing standpoint, the Alyeska Pipeline gives the El Paso proposal an overwhelming favorable argument by two to three years because roads, construction camps and support facilities are already in place. The total number of permits needed would be much fewer with the El Paso proposal. The Native Land Claim question in Canada is not resolved and could take years--as did the Alaska Native Land Claims. The competing Maple-Leaf all Canadian project will add time to approval process in Canada (in fact, the Maple-Leaf project could use the extra time to augment their proven reserves). Treaty negotiations between the U. S. and Canada could also add delays. Environmental groups have already stated opposition to the Arctic Gas proposal and approval of the El Paso as the better, less damaging alternative. The sheer distance in pipelaying, 6,000 miles vs. 1,000 miles, suggests a major time difference (shipbuilding is not a time factor since they can be built concurrently with the pipeline - and, at the present time, there is an excess of shipbuilding capacity in U. S. shipyards). Timing, as with the political control argument, is clearly in the favor of El Paso and is becoming more so as time (and inflation) continues to pass.

# I. Technological and Safety Aspects.

Both proposals have technological and safety considerations. Technological aspects primarily concern the LNG terminal in Alaska--can it be done? El Paso intends to use a process perfected over a decade ago in Alaska's Kenai peninsula. Even Arctic is not raising the technological aspects of the terminal as an issue. Obviously many technological considerations must be taken into account before a full utilization can be assumed for the "recapturing" of energy released in the regasification process at the receiving terminal in southern California. Safety considerations also concern the LNG portion of gas transport, though there is some concern raised on the safety of the 48-inch diameter pipeline that Arctic intends to use vs. the commonly used 42-inch pipeline that El Paso (and the Maple-Leaf project) intends to use. LNG tanker safety is receiving attention by Maritime experts throughout the world. The physics of LNG make explosions impossible. Natural gas, however, must be handled with a great deal of care, and tanker transfer operations, obviously, must receive the safety precautions necessary to keep safety risks to a minimum. Neither proposal challenges the safety risk aspects of the other.

# J. State of Alaska Benefits.

The tax revenue estimated to accrue to all of the U. S. from the Arctic proposal is \$5 billion over the twenty-five year life of the project. The El Paso proposal is twice that, or \$10.7 billion. However, for the state of Alaska, the differences in tax revenues are even more striking with \$2.2 billion accruing from the El Paso proposal and \$311 million from the Arctic proposal, or one-seventh of the El Paso proposal. For jobs in Alaska, El Paso anticipates over 600 permanent employees, Arctic 39. Jobs, goods and services within Alaska during the construction phase would total \$4 billion from the El Paso proposal as compared to \$500 million from the Arctic proposal. Lastly, the El Paso proposal will provide inexpensive access to royalty gas for the State of Alaska, the Arctic proposal will not.

Royalty gas alone is of major importance to the state of Alaska--much of their future hope for industrialization rests on the availability of low cost energy. Oil, because of refining, is not low cost for Alaska. Gas, however, offers Alaska not only a low cost fuel, but a valuable raw material source as well. The royalty gas, therefore, has a two-pronged effect: a more stable economic base within the state and a lower cost fuel for home uses.

The benefits accruing to the state of Alaska from the El Paso proposal, more than any other point, is important to the Port of Seattle. The same "lower 48" natural gas customers will get equal access to Alaskan North Slope gas supplies from either pipeline proposal, since both pipeline proposals are "contract carriers." However, the differences in impact upon Alaska are substantial between the two proposals. The El Paso gas pipeline could be another Alyeska pipeline in terms of economic development. With the Arctic proposal, very little impact will be felt in Alaska, or in Puget Sound. Thus, the Port of Seattle has a great deal to gain from the All Alaska/El Paso proposal, since Alaska is still our most important trading partner.

Logic favors the El Paso proposal over the Arctic gas Arctic proposal from the argument of capital cost, operating cost, less environmental impact, more favorable balance of payments, more desirable political control, more favorable timing and a more favorable economic impact upon Alaska. The gas pipeline, however, may not be decided upon entirely by logic, but politically in the halls of Congress. The El Paso proposal needs all the support possible and the Port of Seattle, like the State of Alaska, has a great deal to win or lose, depending upon which pipeline proposal is eventually accepted.

Source: Conference proceedings, Western Resources Congress, April 2, 3, 4, 1975,

"Arctic Gas - The Most efficient System for Moving Arctic Natural Gas to Consumers Coast to Coast" by Dave Harbour, Director of Public Affairs, Alaskan Arctic Gas Pipeline Company, Anchorage, Alaska, and

"The Trans-Alaskan Gas Project" by Michael C. Holland, Assistant to the Vice President, El Paso Alaska Company, Anchorage, Alaska.

Numerous interviews

Paul Chilcote, Senior Long Range Analyst

RESOLUTION NO. 2598

RECEIVED  
A RESOLUTION of the Port Commission of the Port of Seattle  
in support of an ALL ALASKA GAS PIPELINE Route

JAN 29 8 52 AM '76

WHEREAS, the Port Commission of the Port of Seattle has reviewed and studied "Planning Research Report" dated August, 1975 pertaining to the route choice of Alaska's North Slope natural gas pipeline (which report is attached hereto as Exhibit "A" and by this reference incorporated herein), and

WHEREAS, the Port Commission of the Port of Seattle recognizes that the final outcome of a route choice for the natural gas pipeline is of paramount importance not only to the State of Alaska and the Pacific Northwest, but the nation as well, and

WHEREAS, the Alaska Arctic Gas Pipeline or "Canadian" proposal, for a total estimated cost in excess of \$10 billion, will deliver 2.25 billion cubic feet per day of gas to United States customers as opposed to an all Alaska pipeline proposal which, for an estimated cost in excess of \$6 billion, will have a daily delivery of 3.5 billion cubic feet to United States customers, and

WHEREAS, the operating costs for transporting North Slope Alaskan natural gas by the all Alaska proposal versus the Arctic proposal from the gas field to market may be equal or less, and

WHEREAS, the Arctic proposal will require over 6,000 miles of new pipeline approximately 1/6 of which would be through the environmentally sensitive tundra of Alaska and Canada (including Alaska's Arctic National Wildlife Refuge), and

WHEREAS, the all Alaska proposal will involve new pipeline construction primarily along the existing Alyeska Pipeline corridor, making use of existing roads, camps and other support facilities, and

WHEREAS, the all Alaska proposal would utilize thousands of miles of pipeline within the continental United States which are partially idle because of the dwindling West Texas gas supply, and

WHEREAS, the all Alaska proposal will stimulate the United States shipbuilding industry to meet the demand of transportation and will be in compliance with the requirements of the Jones Act, and

WHEREAS, the operation and construction of the all Alaska proposal is entirely within the United States versus the Arctic proposal which would result in an estimated \$6.3 billion net loss to the American economy over the 25 year life of the project, and

WHEREAS, energy is now recognized as a "scarce" resource in a seller's market and foreign political control of United States oil and gas supplies has proved to be not in the best interests of this nation, and

WHEREAS, an all Alaska proposal would assure economic benefits for the State of Alaska, including but without limitation, enhancement of jobs, goods and services within that state, and

WHEREAS, the State of Alaska has officially adopted the position to support the all Alaska gas pipeline route,

NOW, THEREFORE, BE IT RESOLVED by the Port Commission of the Port of Seattle, in support of the position of the State of Alaska endorsing the pipeline route from Prudhoe Bay to Gravina Point near Valdez, as follows:

1. That an all Alaska Gas Pipeline is fully endorsed and supported as being in the national interest and essential to meet current energy requirements; and
2. That the Arctic proposal is opposed as being contrary to the national interest; and
3. That this Resolution be immediately transmitted to the following:
  - a. The Governor and other officials of the State of Alaska
  - b. Members of the State of Alaska Congressional Delegation
  - c. Members of Alaska State Legislature
  - d. Members of the State of Washington Congressional Delegation
  - e. The Governor of the State of Washington
  - f. Washington Utilities and Transportation Commission
  - g. Alaska State Chamber of Commerce
  - h. Seattle Chamber of Commerce
  - i. United States Chamber of Commerce
  - j. Washington Public Ports Association

ADOPTED BY THE PORT COMMISSION of the Port of Seattle this 16th day of September, 1975 and duly authenticated in open session by the signatures of the Commissioners voting in favor thereof and the Seal of the Commission duly affixed.

(SEAL)

*Myron J. Adkins*  
*Paul S. Barb*  
*Henry T. Simonson*  
*Paul S. Fiedler*  
*Henry J. Adkins*  
Port Commissioners

RECEIVED

FEB 2 11 09 AM '76

FEDERAL POWER COMMISSION  
January 29, 1976

# PORT OF SEATTLE

P. O. BOX 1209 / SEATTLE, WASHINGTON 98111

Secretary  
Federal Power Commission  
Washington, D. C. 20426

Attention: BNC-SOD-ALASKA

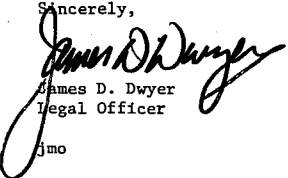
Dear Sir:

By letter dated January 27, 1976, Henry T. Simonson, President, Port of Seattle Commission forwarded to you Resolution No. 2598 endorsing an all-Alaska route for the gas pipeline.

Enclosed herewith is an analysis of the impact of the all-Alaska pipeline on the eastern and central Washington economy. It is requested that this analysis be added as a supplement to Commissioner Simonson's material in further support for an all-Alaska route.

Again, we sincerely hope this supportive information will be considered in your decision making process.

Sincerely,

  
James D. Dwyer  
Legal Officer

jmo

cc: Port of Seattle Commissioners

Enclosure

## MEMORANDUM

January 13, 1976

RECEIVED

TO Vac Breindl, Assistant Director - Research

FROM Paul Chilcote, Senior Long Range Analyst FEB 2 11 09 AM '76

SUBJECT THE IMPACT OF THE ALL-ALASKA PIPELINE ON THE EASTERN AND CENTRAL WASHINGTON ECONOMY

Reportedly, the State of Washington's Department of Commerce and Economic Development has estimated \$78 million as an economic impact within the state of Washington (assuming this portion of the pipeline will be built), if the Canadian route is chosen for bringing natural gas from Prudhoe Bay to U. S. markets. This dollar figure is based essentially on products and services required by pipeline workers during the six-month construction period of that portion of the pipeline transiting through southeastern Washington State. The Transportation Institute (one of the primary Seattle parties interested in the Alaskan natural gas pipeline issue) requested an equivalent dollar impact which would be felt upon the central and eastern Washington economy, in regards to the alternative route: the all-Alaska pipeline. The following addresses that request:

A value of \$2 billion is anticipated for the total trade between Seattle and the State of Alaska for 1975. This is based upon the actual value of trade in 1974 and the estimated tonnage increase for 1975. With eastern Washington historically contributing approximately 9% of the inland portion of exports by the Seattle harbor, a figure of at least \$180 million could be assumed as an estimate of the total trade value between eastern/central Washington and the State of Alaska for 1975.


For calculating of the economic impact estimate of the all-Alaska pipeline upon the eastern/central Washington economy, the following analysis was prepared as a more detailed check on the above 9% "share" estimate. This analysis is based upon two assumptions. One, that a large percentage of Alaska's food originates within Washington State (as does Seattle's) and, two, that agricultural products are the primary trade commodity between Alaska and eastern/central Washington. In 1974, the total value of all food products, not including alcoholic beverages, transiting through the Seattle harbor to Alaska was \$150 million (see appendix for further breakdown). On a commodity breakdown, an estimate approximating 75% of all non-alcoholic food products could be used as that portion of Alaska-bound food products originating from eastern/central Washington. Since Alaska's food retail business is essentially an extension of the Seattle metropolitan area's wholesaling, then Alaska's food source should follow the same pattern to that of Seattle's. This suggests that the value of Alaska's food transported through the Seattle harbor, originating in eastern/central Washington, amounted to \$112 million in 1974. If the same inflation and trade tonnage increase estimate used above is used for this trade movement (i.e., 28% increase), another \$31 million could be added for a 1975 estimate, or \$143 million. A rounded-off figure of \$140 million could therefore be used as the estimate of eastern/central Washington agricultural trade with Alaska in 1975. This compares favorably with the above estimate of \$180-million dollars as the total trade and the assumption that a large portion (three-fourths) of eastern/central Washington's trade with the State of Alaska is agricultural commodities.

Vac Breindl, Assistant Director.- Research  
January 13, 1976  
-2-

If the overall increase in economic activity in Alaska in 1978 is up 20% "net" by building the all-Alaska natural gas pipeline, versus the Canadian alternative, then the total "net" trade difference with the Seattle harbor and the State of Alaska would amount to some \$600 million (an estimated \$3 billion in 1978). Again, if eastern/central Washington contributes 9% of this trade, this equates to some \$54 million per year impact on their local economy. Thus, if the all-Alaskan project difference is (a rounded) \$50 million per year, then \$150 million may be a reasonable estimate of the total economic impact of the three year project on the eastern/central Washington economy. As noted above, this would be almost twice the \$78 million impact suggested by the Department of Commerce and Economic Development for the Canadian route alternative. It also should be noted that the \$150 million impact would be felt over the entire agricultural and industrial sector of eastern/central Washington. Thus, not only would the all-Alaska pipeline alternative be felt over a much wider geographic area, it would be for a much longer period of time (three years vrs. six months on the Canadian alternative). Furthermore, a great deal of money earned on pipeline construction in Washington State on the Canadian alternative would be sent out-of-state, since many workers would be from out-of-state.

Finally it should be noted that while the entire state's agricultural production is valued at \$2.4 billion for 1975 and food processing an additional \$8 billion, a major portion of Washington state's agricultural production is for in-state consumption. Thus, while data is collected for foreign agricultural exports, little is collected for domestic, or interstate, exports. This tends to de-emphasize Alaska's role as a market for eastern/central Washington production since there is little data to support it. Alaska, however, because of the close relationship with Puget Sound, has the characteristic of an additional Washington State community (actually approximately the size of Pierce County). In that light, Alaska's economy should appear to eastern/central Washington as an extension of western Washington's economy. Western Washington is eastern/central Washington's primary market.

PC/29/08 - 09  
Attch.



# APPENDIX

## Alaskan Outbound Food-Related Products from the Seattle Harbor, 1974, in Short Tons

### Commodity

(an estimate of 90% originating  
from Eastern/Central Washington)

	<u>Tonnage</u>	x	<u>Value/Ton</u>	=	<u>Value</u>
Fresh & Frozen Vegetables	3,526		\$ 945		\$ 3,332,070
Animals & Animal Products	1,028		900		925,200
Fresh Fruits and Tree Nuts	8,414		306		2,574,684
Meat, Fresh, Chilled, Frozen	9,186		1,600		14,697,600
Meat & Meat Products	644		300		143,200
Animal By-products	71		* 50		3,550
Sub-total	22,869				\$21,676,304

(an estimate of 80% originating  
from Eastern/Central Washington)

Dairy Products	4,709		1,440		659,600
Dried Milk	241		* 200		48,200
Vegetables	1,755		475		833,625
Prepared Fruit & Vegetable Juice	4,829		564		2,723,556
Wheat Flour	822		103		84,666
Prepared Animal Foods	5,822		* 100		582,200
Sugar	485		138		66,930
Molasses	572		* 100		57,200
Vegetable Oils	442		* 100		44,200
Animal Oils	138		539		74,382
Sub-total	19,815				\$ 5,174,559

(an estimate of 75% originating  
from Eastern/Central Washington)

Groceries	31,156		1,500		46,734,000
Misc. Food Products	149,001		510		75,990,510
Sub-total	180,157				\$122,724,510
TOTAL	222,841		** 671		\$149,575,373

If 75% originated from Eastern/Central Washington, then approximately \$112,000,000 (\$149,575,373 x 75% = \$112,131,530) is the approximate trade of agricultural products from Eastern/Central Washington to Alaska via Seattle.

\*Estimated

\*\*\$671 is the overall average of this group of commodities  
(\$149,575,373/222,841 tons)

Note: Though not included, alcoholic beverages was 58,654 tons valued at \$1,414/ton or \$82,950,896 in 1974. Much of the value of this product originated in Eastern/Central Washington.



**SEATTLE CHAMBER OF COMMERCE**  
215 Columbia Street • Seattle, Washington 98104 • 206-822-5080

Executive Office

January 16, 1976

OFFICE OF  
SECRETARY  
JAN 21 1976  
FEDERAL POWER COMMISSION

The Honorable John Nassikas, Chairman  
Federal Power Commission  
825 North Capitol Street  
Washington, DC 20426

Ref: El Paso Alaska Company - Docket No. CP 75-96

Dear Mr. Nassikas:

Enclosed is a resolution adopted by the Board of Trustees of the Seattle Chamber of Commerce in regard to the two competing proposals before the Commission for transporting the natural gas reserves of Prudhoe Bay, Alaska to U.S. markets.

We understand that a Draft Environmental Impact Statement (DEIS) is currently being circulated on the El Paso Alaska Company proposal (Ref. above Docket No.).

By this letter, the Seattle Chamber is formally requesting that our resolution supporting the El Paso proposal be made part of the official record of the final EIS and any other appropriate proceedings on this very important matter.

Your cooperation with this request will be much appreciated by the business community of Seattle and the surrounding Puget Sound region.

Respectfully,

*George Duff*

George Duff,  
Executive Vice President

DS/ja

cc: El Paso Alaska Co., Anchorage  
c/o John Bennett, Vice President



**SEATTLE CHAMBER OF COMMERCE**  
215 Columbia Street • Seattle, Washington 98104 • 206-447-7200

RESOLUTION ADOPTED  
by the  
Board of Trustees  
of the  
Seattle Chamber of Commerce

October 7, 1975

The Board of Trustees of the Seattle Chamber of Commerce strongly endorses and encourages construction of a Trans-Alaska pipeline to transport the natural gas resources of Prudhoe Bay to the many areas of the U.S. marketplace which are critically short of this energy resource.

The Board believes that, on balance, a Trans-Alaska route offers this nation greater economic benefits and more environmental protection than an alternate proposal to transport the Prudhoe gas via a Trans-Canada route.

Equally important, it appears that the Trans-Alaska route will be able to deliver this natural gas to the marketplace years ahead of the Trans-Canada proposal in view of potential environmental constraints and opposition, potential litigation with Canadian natives, and the construction time required for a route more than 3 times longer than the Trans-Alaska proposal.

Further, there can be no possible interference of this resource, in terms of price or supply, by a foreign state if a Trans-Alaska corridor is utilized and the U.S. retains complete control of the resource and its transportation to U.S. consumers.

#### BACKGROUND:

Two competing proposals are currently under consideration by the Federal Power Commission (FPC) which would transport the natural gas reserves of Prudhoe Bay in Alaska to energy-short markets in our "Lower 48 States". These gas reserves, estimated at nearly 26 trillion cubic feet, will become available shortly after the crude oil of Prudhoe Bay begins flowing in 1977.

One proposal would construct a pipeline 809 miles directly south through Alaska from Prudhoe Bay fields to tidewater at Pt. Gravina on the south coast of Alaska, and for the most part, would utilize the existing oil pipeline transportation corridor. The gas would be liquefied, loaded aboard LNG ships, transported to Pt. Conception near Los Angeles, regasified there and enter existing pipelines to serve many U.S. markets via a displacement system from current distribution patterns.

The competing proposal has been submitted by the Arctic Natural Gas Pipeline Company, commonly referred to as the Arctic Gas consortium, a group of 27 American and Canadian companies. This proposed routing would move the gas from Prudhoe Bay 400 miles eastward across Alaska and link with a pipeline to

proven Mackenzie Valley reserves in Canada of approximately 3 trillion cubic feet, and then extend through western Canada to a point near Calgary, where it would split into several lines to serve various Canadian and U.S. markets. The total route would require 2600 miles of pipeline.

The Alaska Committee of the Chamber has analyzed both proposals in an effort to determine which one would provide the Puget Sound region, and the Pacific Northwest in general, with a more assured supply of natural gas in the future at reasonable prices, and would provide the greatest net economic benefits to the State of Alaska and this region, while simultaneously providing the greatest environmental protection possible to the two areas.

Spokesmen for the competing proposals have appeared before the committee and outlined the arguments in favor of their own routing. The comments and arguments of these parties on the key issues of interest to this region and Alaska are summarized below:

(NOTE: EPCO = El Paso Company)  
( AGCO = Arctic Gas consortium)

I. Delivery Timing:

- a. EPCO - Delivery can be accomplished between 2-3 years sooner under their proposal by using the existing oil pipeline corridor and because their line is less than one-third as long. The Trans-Canada proposal will run into opposition from many environmental groups and native land claims, and a competing Canadian proposal, the Maple Leaf Project, will require further hearings in that country in adversary proceedings.
- b. AGCO - A target date of 1980 can be met for delivery of the natural gas to the market place, which would be competitive with the Trans-Alaska proposal. If necessary, AGCO could reinject natural gas produced by oil field operations back into the North Slope for up to 8 years.

II. Comparative Costs:

- a. EPCO - Estimated at \$6.7 billion, the capital cost for entire proposal including pipeline construction, liquefaction/regasification terminal facilities, LNG tankers, and "Lower 48" pipeline construction. This figure would include a daily delivery of 3.5 billion cubic feet of gas to U.S. customers.
- b. AGCO - Estimated to be in excess of \$10 billion, with a pipeline system capacity currently designed to deliver 4.5 billion cubic feet of gas to both U.S. and Canadian customers, half going to each side of the border (i.e., 2.25 billion cubic feet to each).

III. Economic Impact on the Puget Sound/Pacific Northwest Area:

- a. EPCO - The Trans-Alaska proposal means that all labor, capital, and materials required for the pipeline will be supplied by the U.S. The Trans-Canada proposal means that the greatest proportion of these factors would be diverted to Canadians. The Puget Sound Region would be a primary benefactor, as it has from the oil pipeline, in terms of supplying goods and services for this pipeline. EPCO estimates that approximately 1.5 million tons of goods would be

shipped through the Port of Seattle alone to support construction of their line. Total U.S. tax revenues to federal, state, and local governments are estimated at \$10.7 billion over the 25 year life of the project.

- b. AGCO - The Puget Sound Region would get substantial business from supplying the goods and services for the 400 miles of their line which lies within Alaska. Some of these goods would be shipped to southern Alaska and then transported to the North Slope while others would be delivered via barge around to the North Slope. Total tax revenues to all levels of government in the U.S. are estimated at \$5 billion during the 25 year life of the project.

IV. Future Energy Supplies for Alaska:

- a. EPCO - Construction of their proposed pipeline will mean the introduction of badly needed natural gas to areas of Alaska not currently having access to it. Fairbanks and other outlying areas of the state which are now suffering under high fuel costs would have available state-owned royalty gas via a Trans-Alaska line which would not be available to them under the other proposal.
- b. AGCO - A Trans-Canada routing would still allow coverage to other Alaskan areas currently without natural gas via a "looping" of the line, if additional proven reserves sufficient to justify the "looping" are discovered in these areas.

V. Future Energy for the Pacific Northwest:

EPCO and AGCO - Both parties agree--the key to who receives gas supplies from either pipeline proposal depends on who obtains contracts for the gas in the ground. Most of it is already contracted for by companies represented in the Arctic Gas consortium, but these firms can and would switch to a Trans-Alaska line for delivery if that line becomes the final choice. At this time, no contracts exist which would guarantee natural gas delivery to the Pacific Northwest, but serious negotiations are apparently under way.

VI. Foreign Control and the National Interests:

- a. EPCO - The El Paso Trans-Alaska line will mean that the price and supply of the gas is totally under the control of the Federal Power Commission of the U.S., and cannot be interfered with by the Canadian National or Provincial Governments.
- b. AGCO - The question of security of the pipeline in terms of it being under foreign control is overplayed. Currently, a portion of Seattle-Alaska trade is now transported through Canada via the trucking of goods up the Alcan Highway. In addition, Canada supplies its eastern markets with both crude oil and natural gas in U.S. pipelines which travel through U.S. territory, and there are, therefore, treaty obligations going both ways on this question.

VII. Environmental Impact Comparisons:

- a. EPCO - Almost the entire length of the proposed pipeline would be constructed in the existing transportation corridor where the Alyeska Pipeline Service Company is currently constructing the oil pipeline to tidewater. The system also will require some 200 miles of new pipe in southern California. It is reported that most environmental organizations in Alaska would not oppose the Trans-Alaska concept within the existing corridor.
- b. AGCO - Six thousand miles of new pipeline is required with approximately one-sixth through environmentally-sensitive Alaska and Canadian tundra, including the Arctic Natural Wildlife Refuge of Alaska. It can be anticipated that there will be severe opposition to any penetration of the wildlife refuge, in addition to reported resistance to the negative environmental impact to the Mackenzie Valley in Canada.

VIII. Employment Comparisons:

- a. EPCO - This \$6 billion plus proposal reflects an overall U.S. employment impact during construction, including the pipeline, terminals, and shipbuilding, of approximately 24,000.
- b. AGCO - This \$10 billion proposal, while substantially more than the Trans-Alaska Pipeline capital expenditures, indicates an approximate overall U.S. employment impact during construction of 12,000.

IX. Benefits to the State of Alaska:

- a. EPCO - The state of Alaska will receive an estimated \$2.2 billion in tax revenues over a 25 year period. The construction period will provide an estimated \$4 billion worth of jobs, goods, and services to the state, and over 600 permanent jobs will be created in Alaska when the pipeline is operational.
- b. AGCO - Tax revenues to Alaska over 25 years are estimated at \$311 million. \$500 million worth of jobs, goods, and services will be expended in Alaska during the construction phase, and 39 permanent operating jobs will be created within the state.

The Alaska Committee believes that a review of the above key factors fully justifies the supporting of a Trans-Alaska route by the Seattle Chamber of Commerce and the Puget Sound business community, in order to relieve current natural gas shortages more expeditiously, to maximize economic and environmental benefits to Alaska and Puget Sound, to more fully utilize U.S. labor, capital, and materials, and to prevent any possibility that this valuable national resource could be controlled or disrupted by a foreign state.



SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

REGIONAL COOPERATION FOR REGIONAL PROBLEMS

600 SO. COMMONWEALTH AVE. • SUITE 1000 • LOS ANGELES, CA • 90005 • 213/385-1000

January 16, 1976

Secretary  
Federal Power Commission  
Washington, D. C. 20426

RE: Alaskan Natural Gas Transportation System  
SCAG File Number: ED-254

Attn: BNG-SOD-ALASKA

In accordance with procedures developed to comply with the guidelines established for the California Environmental Quality Act, the National Environmental Protection Act and various programs requiring environmental assessments, information regarding your environmental document is being disseminated to cities, counties and some special agencies which may be affected by, or interested in, the project or the results of the environmental assessment. Additionally the environmental document has been reviewed by the SCAG staff to determine the relationship of your project (and possible environmental impacts resulting from it) to adopted regional policies, plans or programs. Staff comments generated through this environmental review process are listed below. Because of the limited time available for review, local agencies have not had the opportunity to fully comment on the EIS. Should any additional comments be made by the SCAG Executive Committee or other local agencies, they will be transmitted to your office and to the funding agency.

It is an adopted policy of the SCAG Executive Committee to review those projects that are either physically in the region or which will provide a direct service to the region. Since the Trans-Canada pipeline and its branches will not cross into the SCAG region, and since the gas proposed to be transmitted by that system is not intended to serve the region, this proposal has not been reviewed in depth by staff. However, the Western LNG Terminal Company proposal has been reviewed by staff because of the prospect of a receiving terminal and plant being constructed at one of several alternate sites in Southern California. Therefore, the following staff comments reflect only those concerns related to the Western LNG proposal and do not represent an evaluation of the relative merits of the other various proposals. The staff review found that:

1. Consistent with the Federal Power Commission staff recommendation, strong consideration should be given to selecting the site in Oxnard rather than the site of Point Conception, because of the greater environmental suitability at the Oxnard site. As stated in the Draft EIS, the liquid natural gas could be regasified by the steam generated at the existing Oxnard power plant. Additional comments concerning the merits of the Oxnard site may be made pending review of appropriate documents by City of Oxnard officials and their decision to support the facility.

RECEIVED  
FEDERAL POWER COMMISSION  
JAN 21 1976  
SECRETARY

Secretary of the Federal Power Commission  
January 9, 1976  
Page Two

2. Where possible it is recommended that the gas transmission line follow the existing transmission line along the Santa Clara River in the Santa Clarita Valley in order to minimize the disruption of this rural area during the construction of the line.
3. The 29 proposed conditions for the granting of the permit seem to be sufficient to insure a minimum of environmental degradation. If there are modifications of these conditions, we would appreciate being kept informed of such changes.
4. Staff would like the opportunity to review the final Environmental Impact statement when it becomes available.

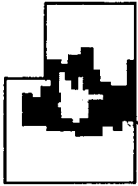
Sincerely,



Ray Remy  
Executive Director

RR:FBW:fw

A Draft Environmental Impact Statement is currently being prepared by the FPC environmental staff on the proposed Oxnard LNG terminal site and the associated pipeline routes. A pipeline route through the Santa Clarita Valley will be discussed in the "Alternatives" section of that DEIS.



## Spokane Regional Planning Conference

December 31, 1975

Mr. Kenneth F. Plumb, Secretary  
Federal Power Commission  
Washington, D. C. 20426

Dear Mr. Plumb:

Please find attached comments received by the Spokane County Planning Commission regarding the review of the Alaska Natural Gas Transportation Systems Draft Environmental Impact Statement.

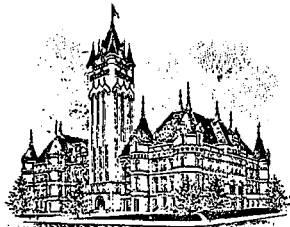
We will forward any additional comments that we may receive. Thank you for the opportunity to review this Statement.

Sincerely yours,

SPOKANE REGIONAL PLANNING CONFERENCE

*Jose M. Urcia*  
Jose M. Urcia, Director  
JMU:ls

Attachments (1)



SPOKANE COUNTY COURT HOUSE

# SPOKANE COUNTY

## SPOKANE COUNTY PLANNING COMMISSION

PUBLIC WORKS BUILDING N. 811 JEFFERSON STREET

PHONE 458-2274

SPOKANE, WASHINGTON 99201

December 30, 1975

Secretary  
Federal Power Commission Staff  
Washington, D.C. 20426

Gentlemen:

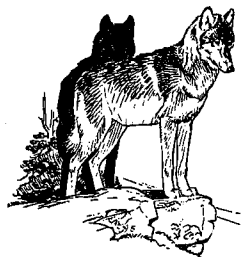
In review of the Alaska Natural Gas Transportation Systems Draft Environmental Impact Statement, we find no specific facility or right-of-way proposals described for Spokane County.

We, thus, have no comments to make at this time but would appreciate the opportunity to review environmental drafts of facility proposals and/or right-of-way acquisitions in Spokane County.

Sincerely,

Douglas S. Adams  
Associate Planner

DSA:ms



## *Alaska Conservation Society*

*Incorporated in 1960*

Box 80192 College, Alaska 99701

January 27, 1976

Federal Power Commission  
825 N. Capitol St.  
Washington, D.C. 20426

Dear Sirs:

The Alaska Conservation Society has reviewed Volumes I and II of the three volume DEIS on the Alaska Natural Gas Transportation Systems prepared by the staff of the Federal Power Commission.

Our comments are presented in two sections: General comments and specific comments. The latter section addresses errors in fact, raises questions where the DEIS is either unclear of incomplete and inadequate, and points out specific important omissions.

Yours sincerely,

A handwritten signature in cursive script that reads "Peter C. Lent".

Peter C. Lent  
Vice President

## GENERAL COMMENTS

## ALASKA NATURAL GAS TRANSPORTATION SYSTEMS, DRAFT ENVIRONMENTAL

## IMPACT STATEMENT

I . In view of our national policy to seek ways of conserving energy, the most logical and meaningful approach to assessing environmental impacts and analyzing alternatives would be to carry out a net energy analysis. Instead, the FPC Staff limited itself to an economic analysis which depends upon being able to assign dollar values on many ( but not all) aspects of the project in order to arrive at the net economic benefits. The problem with this approach is that many elements of the system being analyzed can not be assigned dollar values. An example is the destruction of vegetation along the terrestrial portion of the pipeline. Unless there is commercial quality forest along the route, there is no way to assign dollar values as a cost in an economic analysis but in a net energy analysis it is possible to (1) estimate the immediate loss of energy ( net primary productivity) due to removal of the vegetation, (2) estimate the loss of energy over the life span of the project and (3) even estimate the effects of the removal of the vegetation on the radiation balance of the terrain traversed by the pipeline and, where these effects place unusual constraints on the design of the pipeline, estimate the energy cost of these design requirements. Additional advantages exist for using a net energy analysis over a net economic benefit approach but the example above serves to illustrate the point. [ For additional information on this approach see Gilliland, M. W. 1975. Energy Analysis and Public Policy: The energy unit measures environmental consequences, economic costs, material needs, and resource availability. Science 189(4208):1051-1056.]

The question that should have been addressed, and was not, is whether or not the prime route ( or the suggested alternative route) will actually provide the nation with a net energy gain. If it does not, no permit should be issued for the proposed plan. If there is a net gain, one still needs to ask whether or not this proposal yields the maximum net gain when compared with all other reasonable alternatives as required under NEPA.

II . The coverage of material in this DEIS is very uneven. Some portions are quite detailed ( for example, Vol. 1 , sections on socioeconomic impact) while other portions are very thin and out of date. Because of this unevenness, much additional effort should be put into an analysis of the impacts of the proposed project to correct errors and deficiencies in the preparation of the Final EIS.

III . This statement does not consider the consequences of the gas line project as it will interact with the trans-Alaska oil pipeline in anything approaching adequacy.

IV . Section II-B, Description of Existing Environment generally lacks references to sources of data.

V . As presented, the total ecological consequences of this project appear relatively minor when in fact they are enormous. Coverage given to the ecological considerations is woefully inadequate.

# ALASKA CONSERVATION SOCIETY

## SPECIFIC COMMENTS

Vol. II:

- P.11-2 Footnote 1. Doesn't make sense. Recoverable reserves est. at 22.5 trillion cf in vol I but here stated that 30.4 billion cf available over 28 year period. Dividing 30.4 billion cf by 28 year yields 1.0857 billion cf/year which is much less than the 3.189 ave. annual deliverable rate stated on pg. 11-1.
- 11-4 P3 valves must be designed to operate at colder temp. than -50°F exposed to -10°F buried.
- 11-13 Where will snow be drawn from to construct approx 2' thick compacted work pad?
- 11-15 Table. 77% value at bottom of last col. is a) incorrect (should be 76%); b) not a total but a mean.
- 11-16 P 2 States that following construction, areas would be revegetated with native grasses. Where will El Paso get seed stock to do this?
- 11-19 P 1. Doubtful that local surface water sources can be withdrawn and "returned in a manner which would not adversely affect the ecology of the water body." Is El Paso going to pay for thorough baseline ecological studies of all water bodies they expect to draw from so that they know in advance that they can withdraw water and return it without disturbing the "ecology of the waterbody"?
- 11-19 P 6. What will cause drop in temp of gas from 30°F to 0°F between compressor stations?
- 11-24 P 4. Where is water for camps coming from?
- 11-28 Blowers for recovery of vapors?
- 11-38 What happens to the CO<sub>2</sub> removed from the pipeline gas and the water vapor being removed to the atmosphere as indicated by Fig 17? If so, it appears that the DGA gas treating plant will put into the atmosphere 2,193.52 ton/day of CO<sub>2</sub>, H<sub>2</sub>O, etc. Is this correct?
- 11-54 P 2, How often can one expect emergency venting to the atmosphere? (see Fig 29).
- 11-69 Last P. Winds light in southern section of route even in mountains? Unbelievable!!!!
- 11-70 P 1. What are criteria for a destructive storm? In the generally quiet air of Fairbanks in August 1975 there were at least two periods when gusting winds were strong enough to blow over or snap off white spruce and paper birch trees. Would this be a destructive storm?

-1-

- 1 Design specifications of this nature are beyond the capabilities of the environmental staff.
- 2 The environmental staff plans to recommend the use of snow fences to accumulate the necessary snow.
- 3 Comment accepted.
- 4 The statement on Page II-16 is incorrect. The applicant has stated that the type of seed has not been finally selected. It would probably be a combination of exotic grasses with native grasses added if available in sufficient quantities. The final selection would be made after considering results from current research and from the Alyeska experience.
- 5 The applicant indicates that water proposed to be used during hydrostatic testing of water crossings would be drawn from streams, provided that any such stream is not frozen and is approved by the Department of Interior and the State of Alaska. Upon completion of testing, the water would be drained into holding ponds until its temperature and quality was at a level deemed safe to return it to the stream.
- 6 The gas would cool as a result of the surrounding ambient temperature.
- 7 Because the applicant has not selected the specific location of the proposed construction camp sites, specific information regarding the water supply source for the camps was not indicated. However, the applicant implied that water for the camps would be withdrawn from local sources (streams or ground-water)
- 8 The wording is accurate.
- 9 The discharges to the atmosphere from the DGA gas-treating unit for each train are shown on Figure 17 of the DEIS, of which CO<sub>2</sub> and H<sub>2</sub>O are the primary effluents making up approximately 99 percent of the discharge. CO<sub>2</sub> and H<sub>2</sub>O are not considered atmospheric pollutants.
- 10 As shown on Figure 29, normally no flow goes to the emergency vent stack. The question is unanswerable; if no emergencies (overpressuring) occur, the vent stack would never be used.
- 11 Wind speeds are measured at ground level in the southern section of the route and are generally light, averaging 6.6 mph at Anchorage International Airport. No wind speed data are available for the mountainous regions of southern Alaska.
- 12 Tornadoes and severe thunderstorms which cause extensive damage to homes and/or property are considered by the environmental staff to be destructive storms. High winds in the Fairbanks area are rare, as shown in the U.S. Department of Commerce publication "Local Climatological Data for Fairbanks, Alaska, 1975"

- 11-72 No mention of the icebergs which enter Prince William Sound from the terminus of Glaciers especially the Columbia Glacier.
- 11-75 PP 3. (line 19-20) "active layer of the permafrost" is a misnomer. The active layer lies above the permafrost. See def. on pg. 11-95. Also, what study revealed that the active layer "has been found to freeze and thaw 15 times a year at Barrow...". Is it always 15 times? No more, no less?
- 11-76 PP 2 As with previous comment, who says ground surface can be expected to freeze and thaw "over 15 times in one year".
- 11-76 last PP. Other rivers "flow south to the Yukon, Koyukuk and Kobuk Rivers." is in error. The Kobuk flows west and there are no streams or rivers in the pipeline corridor that flow into the Kobuk River.
- 11-77 PP 3. last sent. ... "decrease the resistance to downslope movement..." would be clearer by saying enhances downslope movement.
- 11-80 1st PP. Mt. McKinley is 20,320 feet high, not 20,269 as stated.
- 11-80 last PP. last sentence seems unfinished.
- 11-85 Last PP, last line. Shouldn't it read "took place 225-1,860 (+250) radiocarbon years B.P."
- 11-92 Fig. 37. Not referenced to source of data. Legend inadequate.
- 11-96,97 Several redundant statements on page
- 11-101 Last PP, Last line, What does "this alternative route" refer to?
- 11-116 In the next to last paragraph, it is stated that the proposed pipeline will cross parts of these drainages, Putaligayuk River, Kuparuk River, Colville River and the Sagvanirktok River. In examining the map, it is clear that the line follows the Sag River drainage. To fall within the drainages of the other three rivers, the line would have to be located somewhat to the West.
- 11-120 In the first paragraph, the statement is made that flows decline, and in most streams cease, by late November and December. At first appearance it would appear this way but unless the statement is made about the actual surface discharge ceasing and then in the smaller streams, this is not true. Flows can continue throughout the year; in some places it may be found only in the subsurface zone and then only at a slow rate through the interstices.
- 11-121 The top half of the page discusses the significance of ice, spring break-up, and summer floods on surface discharge and scour. The specific conditions at a site vary. However, it can not be said that bottom-fast ice protects the river channel from scour because there may be areas in which it intensifies the rate of scour. Also ice jamming and resultant changes in stream channels can be related to bottom-fast ice. The statement is made that the summer storms may be more destructive when river banks and bed are partially thawed. This again depends upon the situation. Statement assumes that the river

- 1 See response to Federal Energy Administration's comment on the Columbia Glacier.
- 2 Page 11-75, paragraph 3, lines 19-20 should read as follows: "The active layer above the permafrost has been found to freeze and thaw about 15 times per year at Barrow on the coast (Conover, 1960)."
- 3 Walker, 1973, p. 54 (The process of freezing and thawing) occurs . . . up to 30 times in the Brooks Range (Brown, 1966, and McNamara, 1964).
- 4 Text does not say which way the Kobuk flows, merely that some rivers of the central Brooks Range flow south into it. The province descriptions are general and not limited to the specific area within the pipeline corridor.
- 5 Comment accepted. (Change last sentence as follows beginning at "Cycles a year enhances downslope movement.")
- 6 Comment accepted.
- 7 Comment accepted. Change "volcano" to "volcanoes."
- 8 Sentence should read: "However, in the Susitna lowland, movement took place no later than 225 years ago, but more recently than 1,860 (+250) radiocarbon years, B.P."
- 9 Figure 37 is taken from the DOI's DEIS on the Alaska Natural Gas Transportation System (Figure 8.2.1B(6)).
- 10 Legend should read: Potential Petroleum Reserves (Based on a potential of one barrel of oil per cubic mile of sediment)  
Rank I - 75,000 Billion Barrels of oil  
Rank II - 50,000 Billion Barrels of oil  
Rank III - 30,000 Billion Barrels of oil  
(Barrel equal 42 U.S. gallons)
- 10 Last sentence should read "...feet, except beneath the major rivers where it is deeper. The thickness of the active layer can change dramatically when the ground surface is disturbed." Delete sentence, "The permafrost table ... deeper." Delete entire paragraph (Page 97, third paragraph).
- 11 Delete word "alternative" from last line.
- 12 The drainage information was provided by the applicant. Although the environmental staff agrees that the proposed pipeline route would lie predominantly within the Sagavanirktok River drainage, it does cross or closely border the Putaligayuk, Kuparuk, and Colville River drainages as well.
- 13 As this paragraph appears under the heading of "Surface Water Hydrology," it should be assumed that the paragraph is not concerned with subsurface flow. Winter surface waterflow in larger streams is discussed in the same paragraph.
- 14 The staff acknowledges that local variations of the generalized situation could occur.

# ALASKA CONSERVATION SOCIETY

banks and bed are frozen. Certainly freezing does occur in the river banks from the ground surface downward and also from the actual cut surface of the river bank away from the river. Some freezing of the river bed also may be found but this may be only in the flood plain area. The amount of freezing depends upon the amount of subsurface flow, the amount of ice and snow insulation in the area, and the temperature regime for that region and that year.

11-121 It is stated that approximately 50% of the total annual precipitation ends up as runoff... More recent information indicates that approximately 75% of the annual precip. may be discharged in a 3 week period.

11-124 What is source of data for table 10? It is basically a listing of summer parameters, the exception being the water temperature. These parameters then are for the shortest time of the year and are not necessarily representative of values that would be received during the dominant winter period. For example, conductivity (umhos/cm) has been recorded as high as 1700 units. Similar high values might be expected for Ca and other dissolved constituents.

11-128 Last TP, thickness of permafrost as stated here inconsistent with previous statements. e.g. pg. 11-95.

11-130 Statement is made that the quality of groundwater in the Arctic Slope Drainage is probalby best in alluvium beneath rivers. This does not agree with data based on the winter water quality work that has been done on the Sag River. Also this statement seems to be contradictory to paragraph on the top of page 121.

11-131 TP 1, "aufeis deposits are 2000 or more feet thick" is unbelievable!!!

11-137 In the paragraph in rivers and streams: Somehow they use streams and rivers exchangably. I don't know where a stream begins and a river ends, or visa versa either. Statement: flow is diminished to practically nothing by April. This is not true in many streams and rivers. Again surface discharge should be distinguished from subsurface flow. Although surface discharge may not be apparent, subsurface flow may still be occurring. Also, peak flow for the year usually occurs with 1 or 2 weeks of the breakup, this in larger streams. If the Tanana is a larger stream and thereby fits the description, those of us that were here in August of 1967 remember a peak flow that did not occur during breakup. It might also be recorded that in some years, the highest annual water stage for the Tanana may be recorded during the warmest days of the summer because of the volume of water that is melting off the glaciers.

11-143 TP 3 and last TP. Kobuk River is NOT part of the Yukon River drainage

11-171 Sheet ice does occur at heads of Sheep, Simpson, Fidalgo & Gravina Bays.

1 The 50 percent valve was obtained from J. Brown, et al., 1968, Hydrology of a Drainage Basin on the Alaskan Coastal Plain, U.S. Army Cold Regions Research and Engineering Lab, Research Report 240. As no source is provided for the 75 percent valve, it is necessary to continue to use the 50 percent valve.

2 The source is P.C. Craig and P. McCart, (1974) Classification of stream types in Beaufort Sea drainages between Prudhoe Bay, Alaska, and the Mackenzie Delta, Arctic Gas Biological Report Series, Vol. 17, Chap. 1. With the exception of summer-designated values, there is nothing in Table 10 to suggest that the remaining values apply only to summer conditions. Additionally a discussion of winter total dissolved increases is already in the text.

3 Both statements are referenced. The environmental staff does not feel qualified to resolve this seeming inconsistency and, additionally, does not believe this issue to be of significant relative to the proposed project.

4 No source for the indicated data has been provided. Also, the statement on Page II-121 discusses surface water.

5 Comment accepted. The statement should read "...20 or more...."

6 The word stream (defined) is a more general term than river and is used to describe any body of running water other than those which are specifically designated. Subsurface flow is discussed under the heading of "Groundwater." Concerning peak flow, notice the use of the word usually.

7 Comment accepted. In paragraph two under "Groundwater" on Page II-143, Kobuk River should be eliminated.

8 No source for the statement has been provided.

II-173 This section is entitled description of the Aquatic Biota. With respect to the fresh water section, this is at best a misnomer. No mention is made of any of the biota (other than fish) that are found at several different trophic levels. It is<sup>as</sup> though they don't even exist. Even the fisheries section presented by separate drainage is woefully inadequate. It seems as though mention is made only of those features of natural history that may be useful in some future litigation.

II-189 Extremely weak and inadequate presentation replete with inaccuracies and misleading statements. For example: 11 2, 4<sup>th</sup> sentence is incorrect. to  
II-194 The birch and willow species in the tundra are shrubs, not trees. The only tree species found north of the range is Populus balsamifera and it occurs in isolated groves. 11 2, 7<sup>th</sup> sentence. Not true that tundra is subjected to "constant disturbance".

II-195 Wildlife Section: This section is weak and poorly referenced. Mammals are not discussed in relation to the pipeline route. The Yukon Drainage section is especially weak and utilizes out-of-date references. The section contains much irrelevant material. e.g. II -219 the discussion of sea otters in the Aleutian Islands and elsewhere.

II-227 Ecological Considerations: An arbitrary and thin discussion that is not to  
II-229 keyed to the pipeline.

II-230 ~~1~~ 1. Ridiculous characterization of Alaska.  
~~3~~ 3. Matanuska Valley is not in or related to the Interior. The Fairbanks population is here stated as 14,771 but on page II -277 is given as 45,000 (which is more nearly correct if the area around the city itself is included). harbor  
~~4~~ 4 Populations are incorrect. Valdez/is free of sea ice but not ice bergs!

II-253 ~~2~~ 2: Where will 7,200 gal of 600°F water vapor/ hr come from? From the gas fuel? (That = 172,800 gal/day which is a tremendous amount of energy to waste into the atmosphere each day at each compressor station.

II-266 Glacial impacts crossing the Chugach Mts. to Point Gravina should be covered here especially since the pipeline will pass between to glaciers that flow toward it.

II-271 ~~2~~ 2, suggests a low level of human use. This is clearly not the case when referring to the Sag River. Evidence already in print describes dewatering of local areas in the Sag River. Also, transporting water as much as 50 miles to where it is being used by industry.

The applicant estimates that approximately 6.7 million cubic yards of gravel and fill material would be used. Curiously enough this is almost the exact amount of material that Alyeska estimated that it would be using. Unfortunately, at last count sometime in LAST JULY, the amount that had already been used was about 200 MILLION CUBIC YARDS with some 18 months of construction remaining.

~~4~~ 4. Compacted snow/ice roads made dirty by activities may melt MORE rapidly than clean snow.

According to Viereck and Little (1972), balsam poplar, white spruce, and feltleaf willow are three tree species that are found north of the treeline. Feltleaf willow, for example, is found either as a shrub or a tree depending on the growing conditions found at each site. The "constant disturbance" referred to is the result of such physical processes as differential heaving, cryostatic and hydrostatic pressure, solifluction, contraction due to low temperatures on drying, and differential thaw and eluviation which churn the soil to produce a ground feature known as "patterned ground." This soil disturbance has a major impact on vegetation.

We agree that the Matanuska Valley is not in the interior and the 1970 U.S. Bureau of the Census population figure for Fairbanks is 14,771; similarly, the population figures for the other cities are correctly stated.

Water vapor is a byproduct of the combustion of natural gas in gas turbines located along the pipeline.

Additions to Volume II, Section C.3.g have been made concerning this comment.

The comment's reference to sand and gravel quantities estimated and used by Alyeska appear to be in error.

ALASKA CONSERVATION SOCIETY

- II-272 Indication is made in the first paragraph under groundwater that when enough snow is not available pad construction will be made with water. Where is this water coming from? Additionally, the water will be used during the winter period when the discharge is at the seasonal low.
- Also, there is no discussion of impact resulting from water use by camps etc. (e.g. p II-24).
- II-277 IF 1: Not even Alyeska admits to taking gravel from stream beds although they apparently do so on a reasonably routine basis.  
 IF 3: What are microinvertebrates in this instance? Based on the discussion of the section, we assume that they are meant to be macroinvertebrates. The point should be made that these populations have the ability to repopulate to some level from "natural" stream scour. Thus, the timing and nature of the event becomes important.
- II-286 IF 1: On page II-16, IF 2 it is stated that revegetation will be done using native grasses. Where will the seed stock come from?
- II-292 IF 2, Sentence 1. Incorrect. Moose are abundant north of the Brooks Range in certain river drainages.
- II-293 IF 3. Totally misleading statement. The proposed pipeline route through the Chugach Mts. between Lowe River and Port Fidalgo passes through some of the best mountain goat habitat in Alaska.
- II-294 IF 1, line 4: "musk ox plants". shouldn't this be transplants?
- II-300 This entire section on Wildlife, as well as the section on Aquatic Biota, lacks any discussion of whether or not the construction of this pipeline can be done in a manner that will comply with state requirements regarding fish and game (Alaska Statutes, Title 16, Fish and Game).
- II-295 IF 5. Inaccurate statement: grizzly do not "inhabit entire area of proposed line". Also, this is an inadequate discussion of the bears, humans and the consequences of their interactions.
- II-301 "9. Ecological Considerations": First, "impacts upon ... ecosystems ... expected to be ... temporary and minor" is a ridiculous statement to make in view of the impacts projected in this DEIS and the design of the transportation system. For example, doesn't the "alteration of surface drainage patterns" of the creation of "new areas of wet and dry conditions" (II-271, IF 3) represent PERMANENT and MAJOR impact upon an ecosystem? Doesn't the development of a frostbulb around the pipeline as it passes through hundreds of miles of permafrost-free terrain represent major impact? Second, this exceptionally brief statement missed the whole point of ecosystem analysis, namely, the interrelationships between components of an environmental system. What should be addressed here is what are the consequences of combining the impacts on individual components of an ecosystem?

- 1 The applicant indicates that water would be hauled from the nearest lake or stream that is not frozen to the bottom and for which such use had been approved by the Department of the Interior or the State of Alaska.
- 2 El Paso Alaska has stated in Vol. 5, Page 3A.2-24, "Excavation, fill, borrow operations and channel modification in streams will cause considerable siltation to occur."
- On page II-277, paragraph 3, the word "macroinvertebrates" should be substituted for "microinvertebrates."
- Data available to the environmental staff indicates that the difference between "natural" and "unnatural" stream scour might be of little magnitude. One study (Rees, W. 1959. "Effects of Stream Dredging On Young Silver Salmon, Oncorhynchus kisutch, and Bottom Fauna." Wash. Dept. Fish., Fish. Res. Pap. 2(2).) found that production of bottom invertebrates dropped sharply after a September dredging but had increased to a greater level the following July.
- 3 See previous comment concerning revegetation with native grasses.
- 4 Comment reflected in the FEIS.
- 5 Comment reflected in the FEIS.
- 6 "Transplants" is correct.
- 7 The environmental staff concurs that the applicant must comply with the pertinent state requirements.
- 8 See changes and additions to this portion of the FEIS.
- 9 The staff agrees that when all the individual local impacts caused during the life of the proposed project are added together, the sum appears to be a major impact. However, since the impacts are not actually concentrated in one area, and since the project has a finite lifespan, actual impacts must be considered minor and temporary when compared to the total areal and temporal extent of the Alaskan environments. Where it appears likely that the proposed project would destroy a unique habitat or significantly reduce the numbers of a particular species, then the project can be said to have major and permanent impacts to the ecology. Such unique circumstances have been addressed on a species by species basis in Volume II, Section C, "Vegetation" and "Impacts on Wildlife" sections, since interspecific or ecological impacts are largely unknown.

- II-302 "10. Impacts on Land Use." This section should include a discussion of the project in relation to state lands and state regulations on land use ( e.g. Title 11, Alaska Administrative Code, Chapter 96).
- II-303 ~~IF~~ 6, line 5: Since much of the right of way land used in construction will be permanently altered, it is unreasonable to suggest that this land "could be returned to present uses after construction."
- II-314 ~~IF~~ a. and Table 30. What is MMBTU ? This section should discuss the project in relation to State ambient air quality regulations and permissible levels. ( Title 18 Alaska Administrative Code, Chapter 50).
- II-320 ~~IF~~ 2: Mitigation of erosion by surface restoration and revegetation is not adequately discussed in this document. No specific plan has been presented.
- II-322 ~~IF~~ 3, line 5: "frost resistant sand and gravel" who makes this type ? where does one find it ?
- II-324 ~~IF~~ 4, line 2. Oil spraying requires a permit and can be done only under certain conditions ( Title 18, Alaska Administrative Code, Chapter 75).
- II-325 Item 4). Vegetation will not be "preserved" by use of snow pads. Compacted snow affects ( through a change in microclimate) the plant cover in various ways depending upon the composition of the plant community and the site characteristics.
- II-329 ~~IF~~ 1 Tazlina is misspelled.
- ~~IF~~-2 Second sentence doesn't make sense.
- II-332 ~~IF~~ 2 Where will El Paso get fish for restocking ? Hatcheries for all types of fish that might be impacted by the pipeline do not exist within the state. Also, what will the right of way be reseeded with?
- II-333 ~~IF~~ 4. Here you state that damage resulting from pipeline rupture and ignition of gas " would be mitigated by the 150 - foot cleared area along the pipeline ..." yet on page II-303, ~~IF~~ 6 you state that 96.5 feet of the 150-foot right of way "could be returned to present uses after construction." This is double talk. Return to present use would include return to shrub and forest habitat in places and this would not serve to mitigate fire hazards from a rupture of the pipeline.
- II-346 ~~IF~~ 2: How does El Paso propose to avoid sucking into their water intake, free-floating marine invertebrates, larval forms of vertebrates and fish fry ?
- ~~IF~~ 3. What will be the temperature of the seawater discharge ?  
1 ppm chlorine exceeds EPA standards.

1 See revised Section C.10 Volume II.

2 To walk on the land or place equipment on it in a fleeting moment of time, or to acquire it temporarily and not use it, does not permanently alter the land. Basically, after implantment of the pipeline the 96.5 feet of addition right-of-way would be returned to present uses.

3 MMBTU represents the quantity, "millions of BTU's" which is a quantity of energy. These emissions are below the standards set for the listed pollutants by the Alaska Environmental Protection Agency.

4 The applicant has not provided a definite plan for revegetation of the pipeline right-of-way. See Page II-286 of the DEIS.

5 This statement refers to the fact that sand and gravel are relatively frost-resistant due to their free-draining nature.

6 Comment accepted.

7 "Anyon" should be "canyon."

8 See previous comment concerning revegetation with native grasses.

9 Change Page II-333, paragraph 3, to read "In the event of a pipeline rupture and ignition of the gas, the resulting damage would be mitigated by the subsequent removal of tall shrubs and brush adjacent to the pipeline and the buffer zone around each compressor station." (Drop "...150-foot cleared area along the....")

10 This subject is discussed in Volume II in the section on "Impacts to Aquatic Biota."

11 This was discussed on Page II-297; however, the actual temperature of the discharge would depend on the ambient seawater temperature at the intake.

12 A discussion of chlorine standards has been added to the section on "Impacts to Aquatic Biota" in the Alaska portion of the FEIS. In addition, the staff has made a recommendation concerning this discharge.

# ALASKA CONSERVATION SOCIETY

- II-366 IP 2 Mountain goats should be added to the list of animals that will be affected by human activities, especially in the Chugach Mts. segment of the pipeline.
- II-371 IP 6: See note for page II-271 pertaining to estimates of gravel requirements.
- II-371 to II-375 3. Summary ....: This section totally ignores many irreversible commitments of natural and socioeconomic resources. To name a few significant ones:
- 1) Natural gas is a non-renewable resource, thus its transportation to market and consumption is an irreversible commitment to use up this energy. This irreversible commitment can be broken down into several components:
    - a) Natural gas consumed by the transportation system itself. Is the proposed system the most efficient method of transporting the gas ?
    - b) Natural gas consumed by various users. Will these uses be the best use of this energy ?
  - 2) Non- natural gas fuels used in the fabrication of materials for the system and used in construction and maintenance of the system. For example, several hundred thousand gallons of REFINED PETROLEUM PRODUCTS have been shipped TO THE TRANS- ALASKA PIPELINE every month to fuel the construction equipment, heat camp buildings etc.
  - 3) Additional socioeconomic costs include
    - a) death and injury to persons working on the pipeline. How many accidents, especially fatal ones or those causing permanent disability, are attributable to the Trans- Alaska pipeline and its supporting facilities. Based upon this record, what would be projected for the installation of the Trans- Alaska Gas line?
    - b) Breakup of family units for various periods of time and the consequences of this social disruption .

## ALTERNATIVES TO THE PROPOSED ACTION

- II-388 to II-392 See comments written directly on the route maps, xerox copies of which are attached. Also, see notes given below.
- II-388& 389: Many of the streams that are crossed in this area contain populations of grayling. In some instances, such as the Chatanika and Washington Creek, these populations are heavily utilized by sportsmen. Also runs of king and chum salmon utilize the Chatanika River. Sheefish and two species of whitefish are also harvested in the Chatanika.
- II-390: It appears that in this instance, the pipeline hardly takes the path with the least difficulties. The mountain range through which the line is proposed is rugged in this area and as we understand the route, it does not appear to be utilizing the natural drainage patterns or mountain passes. In addition, some of the area through which it passes is utilized heavily by sheep, especially the Moody Creek drainage and Mount Fellows Areas.

The environmental staff agrees that the mountain goat should be added to the listing of noise-sensitive species on Page II-366.

Page II-271 was the source of information.

This section was intended to summarize significant impacts, as identified and discussed elsewhere in this statement, in a matrix format. Consumption of natural gas by the transportation system, in comparison with the volumes transported, was not considered significant.

ALASKA CONSERVATION SOCIETY

II-391: In this area, the proposed line also passes through and adjacent to some prime sheep habitat. In terms of utilizing existing disturbed areas and reducing the amount of new area that is affected by pipeline activities, it would seem to be more reasonable that the line would follow the road and or the railroad.

How would this proposed route interact with the proposed Devil's Canyon dam site on the Susitna River ?

The environmental staff is unable to determine that there would be any interaction. However, any pipeline routing reservoir areas would require detailed geographical and geological studies of the possible impacts of the reservoir on the pipeline.

STATE VICE CHAIRMAN: DR. ALAN HOWAY, ANDY HOPE, DON PERKINS AND DAVE GRAY  
THOMAS OSTROFSKY, STATE FINANCE CH. BRENDA ITTA, SECY. NATIONAL COMMITTEE: BETTYE FAHRENKAMP AND CLIFF WARREN

## ALASKA DEMOCRATIC STATE CENTRAL COMMITTEE

MS. MELLIE TERWILLIGER, CHAIRMAN

BOX 206

TOK, ALASKA 99780

Preferred address for Alaskan correspondents: Mile 1318 Alcan, Delta Junction, Alaska 99737  
(comes to the door two hours earlier)

907-883-2241

January 26, 1976

RECEIVED

FEB 2 10 03 AM '76

FEDERAL POWER COMMISSION

Secretary  
Federal Power Commission  
Washington, D.C., 20426

ATTN: BNG-SOD-ALASKA

Dear Sirs:

The Alaska Democratic Party has passed resolutions supporting the Trans-Alaska Pipeline route, without one objector, and at every level--precinct--district and state committees..

This is an important matter to us and will affect our economy for years to come.

We feel this is our state and our needs should be considered. The Trans-Alaska route is in no way preventing other Americans from receiving its output.

We are an arctic and sub arctic state. We have heating and fuel needs, and a very short work season.

The proposed route goes thro our populated areas and will bring economic benefit to all. Why should a foreign country reap the economic benefits, especially when we have so much unemployment?

The cost of living in Fairbanks Alaska is 68% higher than that of Houston, Texas. We need help.

yours, *Mellie Terwilliger*

Mellie Terwilliger, Chairman,  
Alaska Demo. State Central Committee.

December 11, 1975

0-69

Secretary  
Federal Power Commission  
Washington, D.C. 20426  
ATTN: BNG-SOD-ALASKA

Mr. Plumb:

This being the third and last opportunity for comment on the proposed natural gas pipeline through North Dakota, I will not try to keep this commentary short and to the point as I did in former commentary.

First, contrary to what Senator Young, Congressman Andrews, and other political figures have indicated, most of the people in North Dakota, especially farmers, ranchers, outdoorsmen, and small town officials do not want the so-called "progress" associated with massive coal development. We have only to look at Langdon, North Dakota to see what will happen to many rural communities if massive coal gasification, with its resulting influx of population, occurs. First, the public works and housing mess; then the reduction in local wildlife, since hunting is a major sport of construction folks. Then, just when it seems the important problems have been licked, the closing down of the operation and accompanying exodus of a large portion of the local tax-paying inhabitants. Left behind are the original inhabitants who have been trying to keep up with the huge rise in living costs due to high construction wages. They are left with taxes out of this world and the messes left behind by nomadic construction workers. If you think this all has nothing to do with the gas transmission lines, guess again! Do you not notice the line, as proposed by the consortium, passes directly through the coal fields of southwestern North Dakota!

The Badlands and National Grasslands and the way of life of many North Dakotans will not be sacrificed so the "city dudes" can drive their gas-hogs around.

No, we in North Dakota are not the fools many people think we are! We know the only reason for gasoline price relief and extension of the depletion allowance is the re-election of the current administration. We know we'll probably pay more in taxes because of the privileges of the military-industrial establishment. Some day we'll run out of gas again, not because of industrial incapability but because we weren't prepared to pay a dollar for a gallon of gas and conserve gasoline as would occur if the federal politicians would allow a supply-demand economy a chance to function.

We don't even want to tap a huge natural gas pipeline (as our leaders are concerned with); we're waiting for leaders to implement alternative energy resources, such as solar and wind power. And, if the pipeline would take any route other than that proposed in paragraph three, page 1-225 of the EIS, we are not prepared to see our landscape destroyed. Crossing the Missouri River twice with this line is absurd. It also has to be an economical nightmare and we're appalled that the companies are unaware of the costs of such undertakings as opposed to the Wolf Point, Mont. to Cathay, North Dakota route.

From Cathay, North Dakota to Charles City, Iowa, this route would follow another proposed pipeline of the Dome Pipeline Corporation. Makes sense and also it's a shorter route.

You have a copy of my response to the task force dated September 20, 1975. It contains commentary I wish to be supplementary to this letter.

After reading the Federal Power Commission's EIS, I was surprised at the findings on page 1-5.

While reading paragraph "a" on that page, it seems to me that while reading the longer previous EIS by the task force, I recall the company estimated that either 26 or 27 trillion cubic feet of gas would be used during construction. Either I am remembering "trillion" in place of "million", or this whole pipeline is in question.

As for the results of the Power Commission's study, I found them very interesting and again, as with the task force's study, well worth the effort. Following this project from start to finish has been and will be very gratifying, but only if the earnestly thought out commentary by all concerned is used ultimately by the decision-makers. I sincerely pray that the National Environmental Policy Act of 1969 will result in better and more environmentally sound answers to our energy problems. If all that has been achieved to date, in the area of information and enlightenment, on this project, is used to make meaningful changes in the original plans of the El Paso Alaska Company, then it will have been a very successful implementation of the law aforementioned.

Hopefully, in the future, more concerned citizens will add light to environmental problems. This apathetic society will react, I'm sure, if given the knowledge concerning when and how to participate.

It is with reluctance that I have even accepted this pipeline. Should it be constructed, it better be in the interest of ALL the people of this nation. If not, we shall overcome, to use a well-worn slogan!

If North Dakotans get the shaft and see the Badlands, Killdeer Mountains, National Grasslands, or any other of our treasured ecosystems in danger; watch out! We get mad and react! No federal bureaucracy will push around the ranchers and pioneer stock in Western North Dakota.

With personal wishes for a very  
nice Christmas,

*Lynn A. Bergman*

Mr. Lynn A. Bergman  
Engineering Department  
705 So. 9th  
City of Bismarck  
Bismarck, North Dakota 58501

P.S. I am giving the Impact Statement to the Veteran's Memorial Library for public use. It is very difficult for the general public to react without the necessary information. Also, all of the reading and research concerning this pipeline has been done on my own time and even though some people I work with agree with my basic views, this should in no way be considered to represent the city of Bismarck. The Chamber of Commerce would kill me if this commentary were thought to be from the city. They love and worship money, you know!

September 20, 1975

Environmental Impact Statement Response

RE: Alaska Natural Gas Transportation System

Draft Environmental Impact Statement by the EIS Task Force, Alaska Natural Gas Transportation System, Room 530, 1522 K Street, Washington, D.C., 20006, Telephone 202-254-3220, of July 28, 1975.

Task Force Members:

My generation will be, hopefully the first to really question the priorities, the morality and many other parameters which, at present, are not being scrutinized by any sizeable majority of the general populace. For, you see, we must think of what this earth will be for future generations. This potentially great country, if we try, can lead the world in answering the problems of overpopulation of the planet and its resulting damage to the ecosystems we seldom notice and more often take for granted. This is why I will address this issue as candidly as I know how and hope others will respond as frankly.

In addition to my general feelings of shame and distrust concerning our recent period of pseudo-dictatorship under the well-meaning but twisted hand of Mr. Nixon, I have developed, over the last 10 or so years, a working knowledge of the ways in which the Corps of Engineers and Bureau of Reclamation have given good Engineers and their associates a bad reputation because of some of the most preposterous proposals in recent times. A canal from Jamestown, N. Dak. to Aberdeen, S. Dak. !! Dams on two of the most scenic rivers in North Dakota, the Cheyenne and Pembina Rivers!! Cost-benefit ratios as ridiculous as the projects they purport to support.

Yet our senators and congressmen all over this nation have either too large a work load or too little ability to come to grips with an old ally of North Dakotans, what most of us call "Common Sense"; In simpler terms, a "feeling" for what will work and what won't.

What my generation wants, in specific, is Guarantees. Guarantees that after all of the gas is used, that some adequate portion of the profits derived be used to totally remove the buildings, air fields, equipment and litter left on the pipeline route 50 years or so from now when I'll be an old man. Guarantees that the pipeline be constructed to remain able to function under pressure without significant leakage and subsequent danger to the environment for a period up to and possibly exceeding 50 years! Guarantees that access roads will not be used by the general public under any circumstances, especially in fragile ecosystems such as found in Alaska and North Dakota. Guarantees that the Little Missouri River and Badlands remain scenic as proclaimed on March 18, 1975 when Governor Link signed into law the Little Missouri State Scenic River Act (H.B. 1172), thus creating North Dakota's first state scenic river. In short, I do not want a paved road through every ecosystem so I can drive my Lincoln right up to an endangered species; I want future generations to feel an exhilaration I feel when out walking in the Badlands and flushing a rabbit or muley or perhaps a golden eagle!

As I scanned through the Impact Statement, several things troubled me. The route crosses about 120 miles of the Little Missouri Badlands and the Missouri River Escarpment. Soils through these areas are extremely thin over shales and sandstone. Slopes range up to 60 per cent with elevation differences of 400 ft. Erosion hazards are high. (Ref. 1-173). Because existing roads cross the proposed route so infrequently in the less populated areas of Montana and North Dakota, more than 50% of the applicant's temporary roads would be built in these states. (Ref. 1-288). The proposed line crosses the Killdeer Mountain Game Management Area

in Dunn County, at 6,571 acres the largest state-owned management area. The Killdeer Mountains contain populations of white-tailed and mule deer, wild turkey, pheasant, sharptailed grouse, beaver, coyote, fox, squirrel, jackrabbit and cottontail rabbit. In years to come, the Badlands and Game Management Areas in North Dakota will be the only retreat from farming mono-cultures and the stress of city life. Another alarming fact is the crossing of Indian Reservations. When will we ever stop stealing from our countries most proud people, the Indian?

Concerning the alternate routes; line one(1) proposes one additional major river crossing, is the same length as the proposed route, and crosses near Teddy Roosevelt's Elkhorn Ranch between the North and South units of the park, through the heart of the Badlands. Line two(2) proposes two additional river crossings, is 37 miles longer, crosses the Cheyenne River Indian Reservation, crosses the Badlands of South Dakota and more areas of steep slope and unstable soils, and crosses critical sage grouse habitat. Line three(3) crosses the Missouri five (5) miles south of Bismarck (Would you believe dangerous?), crosses the Fort Peck Indian Reservation and Fort Berthold, and is 20 miles shorter. Also line three is obviously the shortest distance between two points, a straight line! Imagine how much engineering training is required to come to this amazing alternative. Could these companies possibly be directed by people with the audacity to promote a straight line as an environmental alternative? At this point a person of limited knowledge such as myself might even have figured out all alone that the first three lines are company alternatives! But just in case, the EIS does state so! Lines 4,5 and the portion of line 6 that heads east at about Max, North Dakota; these alternatives only give beautiful Minnesota problems that would be environmentally disastrous!

I have found an alternative that would not be significantly longer, would not cross the Badlands, the Killdeer Mountains, any Indian Reservations, or cross within 50 miles of any major urban center. This route would not pass through the major coal mining operations and this fact may be the best reason for choosing my route. Obviously, with an overburden of up to 15 to 20 feet, the pipeline itself would be a major obstacle to coal stripping and the chance of accidental damage to the pipe by machines digging coal would be greater. The physiographic diagram of North Dakota (V-244) will amplify the rationale of my alternative. It shows the coteau which I feel is the most acceptable route of any.

So, here is my most judiciously thought out alternative: At a point on the proposed route about 10 miles Northwest of the Northwest corner of Fort Peck Indian Reservation the line goes approximately due east to a point just south of Coteau, North Dakota. Thence southeasterly to about 10 miles south of Deslacs, North Dakota. Thence southeasterly until the line crosses Highway 200 just west of Goodrich, North Dakota. Thence southeasterly to a point halfway between Woodworth, North Dakota and Buchanan, North Dakota, thence due south to a point of intersection with the proposed pipeline.

My alternative, in addition to missing our most treasured ecosystems in western North Dakota, does not cross a major stream or river in North Dakota.

The reason it will most probably be rebuked is because it does not cross through the future gasification plants and coal mining areas in the west of North Dakota! But with all this Arctic gas available to the eastern states, is it not logical to assume that the gasification plants will be economically restricted to serving areas to the south and west of the coal fields?

My alternative passes through much more accessible areas, making winter inspections, repairs, etc. much more economical.

Although our congressmen and senators have expressed concern that we get a "chunk" of this gas, most of the people of this state, I feel, will be served very adequately by coal plants in the west of North Dakota.

Concerning Alternative Energy Sources: Oil shale is the most ridiculously damaging environmental disaster that could befall the beautiful Rockies. It would take 8 nuclear power plants with three 1000 MW units to a plant to produce the 123,000 MW that could be transported by this pipeline system. (I-549)

It is the recommendation of the environmental staff to reroute the Northern Border pipeline along an alternate route through Minnesota. This route would largely follow existing right-of-way, thus minimizing environmental impact, and at the same time would avoid the Badlands, Killdeer Mountains, and Indian reservations of North Dakota.

Dramatic breakthroughs in the development of the fusion process which leaves no radioactive waste is, I feel, being ignored by our leaders because of the losses to the oil companies and large corporations that have bought and paid for many of our men in Washington. That Thomas Kleppe is even being considered for the Dept. of Interior cabinet post is proof of either the total ignorance of the administration on environmental matters or proof of their slavery to the oil people. The man may be a good administrator, but what are his qualifications for Secretary of the Interior??

The people of Alaska are being environmentally "ripped off" and are propagandized to believe it's the only way to keep Alaska's economy stable and help the rest of the nation.

When in (expletive deleted) are bureaucrats and politicians going to realize that less babies, much more conservation, some sacrifice, and no subsidies is the only way to straighten out this nation? I believe most of the people in this land are groping for some positive direction from leaders and if our leaders do not respond by telling it like it is, this nation will be a trash can in ten years. No Brag, Just Fact! Doomsday Philosopher, me? You Bet! We've got to see the enemy called apathy and become involved in CONSERVATION, not DEGRADATION!

I sincerely thank the Task Force for writing a very complete and informative EIS. An individual such as myself could not begin to assault such a project without the raw data provided in the EIS.

A news release by Russell Train, Administrator of the Environmental Protection Agency is interesting and enlightening. The release treats with a public opinion survey and the results indicate that the recent fuel shortage has not diminished the American People's desire to eliminate pollution.

The Environmental Protection Agency contracted for the survey with a private firm. It was done by telephone interviews during May, 1974. In spite of the inconveniences and discomfort that may have been experienced by fuel shortage, the overwhelming majority of people interviewed indicated that they were not in favor of lowering the air and water pollution standards. Rather, they favored seven steps in easing the fuel shortage. These seven steps were: improving public transportation (84%), lowering the speed limits on highways (78%), driving smaller cars (71%), building the Alaskan pipeline (68%), keeping the temperatures at home less comfortable (66%), cutting down airplane flights (56%), and building more atomic energy plants (54%). One may not agree with the suggested seven steps but the encouraging fact is that most people are now as much or more in favor of fighting pollution regardless of how they were affected by the fuel shortage.

*Lynn A. Bergman*

Mr. Lynn A. Bergman  
1429 No. 21st Street #2  
Bismarck, North Dakota

Enclosed in the original draft of this response is a map of North Dakota showing my alternate route.

FILED  
OFFICE OF THE SECRETARY  
3 48 PM '76  
UNITED STATES OF AMERICA  
FEDERAL POWER COMMISSION

El Paso Alaska Company, et al. ) Docket Nos. CP75-96, et al.

COMMENTS BY CONSERVATION INTERVENORS  
ON THE STAFF DRAFT ENVIRONMENTAL IMPACT STATEMENT  
ON ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

The following comments are submitted on behalf of the Sierra Club, the National Audubon Society, The Wilderness Society and the Alaska Conservation Society, collectively designated the Conservation Intervenor in the proceedings in Docket Nos. CP 75-96 et.al. Several of these organizations will also be submitting separate comments from various regions of the country. 1/

Preliminary Statement

By "accepting" huge chunks of the Department of Interior Draft Environmental Statement (FPC/DEIS, p. I-3), 2/ the FPC Staff makes the comment process somewhat difficult since matters of significance are covered in the DOI/DEIS rather than in the volumes here being commented on. The Conservation Intervenor not only incorporate their attached comments on the DOI/DEIS herein, but emphasize several problems arising from this schizoid approach to impact statement preparation. These must be satisfactorily resolved to ensure that a full evidentiary record be developed at the Federal Power Commission and that the pertinent decisionmakers are provided all pertinent information in a useful and usable form.

1. The two DEIS's must be integrated in some useful way. The National Environmental Policy Act mandates a finely tuned balancing process before final decision, and partly due to the use of two separate impact statements, the information is not presented in a way to facilitate this. The so-called Comparative Volume (FPC/DEIS, pp. I-197 to 257) is not sufficient in its present form, as we set forth in more detail below.

1/ Rule §2.82(c) requires intervenors to specify "any differences with staff's position upon which intervenor wishes to be heard." Since the bulk of our comments on the FPC/DEIS as well as on the DOI/DEIS constructively criticize the documents, Conservation Intervenor wish to be heard on the substance of our criticisms.

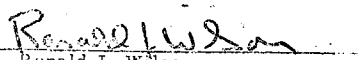
2/ Alaska Natural Gas Transportation Systems, Draft Environmental Impact Statement, Federal Power Commission Staff (November 1975), hereinafter "FPC/DEIS."

We have long advocated that serious consideration be given to the Fairbanks Corridor route since the existing Alyeska pipeline and Al-Can highway would increase access and decrease environmental degradation of undisturbed areas. We are pleased that the Staff has given this route serious consideration and recommended it over the prime route. While we have not yet completed our study of the exact path of this alternative, we endorse the concept of common utility and transportation corridors, when the corridors are narrowly drawn. Therefore, barring specific objections to route sections which deviate from the Alyeska pipeline or Al-Can highway or cause cumulative damage to a sensitive area, the Conservation Intervenor support Staff's recommendation that the Fairbanks route be followed if the Arctic Gas proposal is selected.

While the El Paso proposal would not endanger the Arctic National Wildlife Range, it would increase shipping traffic in either Prince William Sound or Cook Inlet, thus increasing the likelihood of a collision involving an oil tanker. The valuable fishing and shell fishing grounds in these waters will be jeopardized. Neither Cook Inlet nor Prince William Sound has ideal shipping conditions. The winds, waves, and troublesome ice conditions of Cook Inlet may be more dangerous than the narrow Hinchinbrook Entrance of Prince William Sound. The Nikiski site is clearly superior to Gravina because of existing industrial development of the area, but the pipeline route to Nikiski is unacceptable. Unless the Nikiski route is substantially improved, the Conservation Intervenor cannot support Staff's recommendation of Nikiski over Point Gravina as El Paso's LNG terminal site. We also have serious reservations about the whole process of LNG transportation. The risk analysis contained in Attachment I does little to alleviate this, since it deals only with spills from storage tanks in a sparsely populated area, completely ignoring shipping accidents. We would urge that Staff further investigate the risks to human safety inherent in LNG transportation.

But a choice between El Paso and Arctic Gas via the Fairbanks corridor must await a more detailed energy use and economic study of the two alternatives. In particular, an economic study of the Fairbanks route without a spur to Mackenzie is needed, and as noted above, an energy use analysis has not been done.

Respectfully submitted,

  
Ronald J. Wilson  
Barbara B. Graham

January 30, 1976

Of Counsel:

John D. Hoffman  
Sierra Club Legal Defense Fund  
311 California Street  
San Francisco, California 94104

810 18th Street, N.W.  
Washington, D.C. 20006

See responses to comments on Page 7.

A very expanded safety analysis has been incorporated into the FEIS.

DENALI CITIZENS COUNCIL  
Box 39  
McKinley Park, Alaska 99755

January 31, 1976

Mr. Mike Sotak  
c/o Environmental Staff  
Federal Power Commission  
825 North Capitol Street  
Washington, D. C. 20426

Dear Mr. Sotak:

The Denali Citizens Council is a public service citizens organization which was started three years ago to protect Mt. McKinley National Park and the unique region around it. Its more than 100 members reside in the area around the park, in Fairbanks, Anchorage, and the lower 48 states.

At the last monthly meeting of the Board of Directors in Cantwell, it was decided that a resolution pertaining to the proposed routings as written up in the DEIS Alaska Natural Gas Transportation Systems (FPC Nov., 1975) was in order. Study of the DEIS and subsequent discussions prompted the following resolution:

The Denali Citizens Council does not favor a pipeline routing east of McKinley Park and along the Susitna River Valley to Point Niskiski because of adverse impacts which would result in greatly increased use of the park during and after pipeline construction. This location would also impact unique potential parklands such as the Yanert Valley which it is proposed would be added to the park system in the upcoming Congressional D-2 land actions. Other reasons for not favoring this routing are as follows:

- (1) The pipeline would cross more major fault zones than the Alaska highway routing. Richter ratings up to 8.5 can be expected on the Susitna route versus 5.5 on the Alaska highway - Canadian route.
- (2) The frostbulb around the pipe could adversely effect the wildlife and temperature - flow regimen of the Nenana and Yanert Rivers.
- (3) All recreational facilities, including the park, would be heavily overloaded.
- (4) A crunch in trying to provide basic services would result in higher prices and overloaded facilities of all types for residents anywhere near the pipeline.

Letter to Mr. Sotak

January 31, 1976

Page 2

(5) Land speculation in the McKinley Park area would result from greatly increased demands for housing, land, and services. This price spiral for land could severely upset the delicate balance of uses around and in the park which would make it more difficult to add needed areas to the park.

The Denali Citizens Council further opposes the pipeline routing to Gravina Point near Cordova because it would also pass through severe fault zones (up to 8.5 Richter), and because it would place LNG tanker traffic dangerously close to oil tanker traffic from the trans-Alaska pipeline at Valdez. It would also disrupt a virgin area in which no major developments have taken place.

The Denali Citizens Council would support using the gas to re-pressure the fields from which it came or the routing which parallels the Alaska highway from Fairbanks to Canada, and thence southeast to Edmonton. An all-land route here has these advantages:

- (1) Earthquake potential of only 5.5 Richter and few major faults.
- (2) An excellent gravel pad from which to work along the highway.
- (3) Upgrading of the highway during the construction process.
- (4) Easy access for maintenance and inspection.
- (5) Delivery of the gas ultimately where it is needed most -- the Midwest.
- (6) Less duplication of effort by tying into the Canadian transport system.
- (7) Perhaps the most important aspect is that this route avoids having to liquify the gas which consumes a great deal of energy and results in a considerable risk when it is hauled on the high seas.

Basically, the Denali Citizens Council opposes any LNG process in preference to an all-land routing through Canada, but especially the

Letter to Mr. Sotak  
January 31, 1976  
Page 3

McKinley Park - Susitna - Nikiski routing because of the reasons already mentioned.

Thank you for this opportunity to comment on the DEIS.

Sincerely,

A handwritten signature in cursive script that reads "Pete Martin". The signature is written in dark ink and is positioned above the printed name and title.

Pete Martin  
Acting Chairman  
Denali Citizens Council



ESP: ENDANGERED SPECIES PRODUCTIONS, INC.  
175 WILLARD STREET, SUITE 104  
LEOMINSTER, MA 01453 USA  
(617) 534-5395

PHOEBE WRAY  
*Executive Director*

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*Cetacean Coordinator*  
73 Myrtle Street  
Boston, MA 02114

ROSEMARY ELKINS  
*Southwest Coordinator*  
P. O. Box 2749  
Tucson, AZ 85702

12 January 1976

To: Secretary  
Federal Power Commission  
Washington, DC 20426  
Attn: BNG-SOD-ALASKA

Copies to: Council on Environmental Quality  
Executive Office of the President  
722 Jackson Place, NW  
Washington, DC 20006

From: Phoebe Wray, Executive Director  
ESP: Endangered Species Productions, Inc.  
175 Willard Street, Suite 104  
Leominster, MA 01453

Re: Draft Environmental Impact Statement  
ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
CCG, El Paso Alaska Company et al  
Dockets Nos. CP75-96 et al

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 20 1976  
POWER COMMISSION

We take this opportunity to comment on the Draft Statement for the Alaska Natural Gas Transportation System.

Our concern is the preservation and enhancement of the environment, especially wildlife and with particular emphasis on endangered and threatened species.

We find the draft statement prepared by the Federal Power Commission (FPC) and that prepared by the Department of the Interior (DOI) present unacceptable proposals. Both read like obituaries for the Alaskan wilderness, for several unique and specialized areas, and many imperiled species.

If someone presented a plan to me -- a costly, difficult plan -- which would involve technologies still in development stages, gaps in environmental information and safeguards, and then added that somewhere in the vicinity of 25 endangered species would probably adversely affected, and this someone asked me, as a concerned citizen, to approve the plan, I would say they were crazy. Yet this is precisely what has been presented to the American people in the guise of the Alaska Natural Gas Transportation System.

Our specific comments follow.

*What does it avail to save the tiger if we lose the jungle?*

Alaska

Disturbance of wildlife and people will range from slight to extremely serious if the pipeline is constructed through the remote, quiet and fragile tundra. We point out only one of the many disturbances: noise.

The FPC states that blowdowns will occur twice a year. It estimates the noise level at 140dB(a) [p. II-314]. A study by Memphis State University [1971. Effects of noise on wildlife and other animals. NTID300.5, US Environmental Protection Agency, Washington, DC] states that wild rats and mice subjected to sounds of varying frequencies, between 60-140 dB(a)s produced decreased nesting near the sound source, and death at very high intensities. Noise in the heretofore undisturbed tundra and wilderness areas will be very noticeable and doubtless detrimental to wildlife. The Memphis study concludes (pp. 45-46):

Clearly, the animals that will be directly affected by noise are those that are capable of responding to sound energy, and especially the animals that rely on auditory signals to find mates, stake out territories, recognize young, detect and locate prey, and evade predators. These functions could be critically affected even if the animals appear to be completely adapted to the noise (i.e., they show no behavioral response such as startle or avoidance). Ultimately it does not matter to the animal whether these vital processes are affected through signal-masking, hearing loss, or effects on the neuro-endocrine system. Even though only those animals capable of responding to sound could be directly affected by noise, competition for food and space in an ecological niche appropriate to an animal's needs, results in complex interrelationships among all the animals in an ecosystem. Consequently, even animals that are not responsive to or do not rely upon sound signals for important functions could be indirectly affected when noise affects animals at some other point in the ecosystem. The "balance of nature" can be disrupted by disturbing this balance at even one point. We would do well to have some knowledge of what to expect from noise pollution in wildlife habitats before it produces its effects.

(Emphasis added.)

The DEIS prepared by the DOI notes [Alaska, Part II, Vol. 1, p II-964] that the noise from compressor stations will be stationary, and "it is possible that wildlife species will be more likely to adapt to its presence." We know of no basis for this assumption. The Interior DEIS also notes [Alaska, Part II, Vol. 1, p. II-813]:

Although thresholds are generally unknown, the capability of many wildlife species to absorb and adjust to increased disturbance becomes diminished with each additional disturbance, and a general reduction in wildlife numbers and diversity can be expected as a result of increased development and disturbance. The eventual disappearance of wilderness-dependent and rare species will follow "mechanical habitation" of the Arctic Coastal Plain.

El Paso states that there will be no annual maintenance checks requiring the blowdown of the pipeline and that checks of compressor station emergency shutdown systems would require blowdown times of 2 to 3 minutes twice annually for each station. The staff will recommend the installation of blowdown silencers in wildlife concentration areas and the scheduling of all blowdowns to avoid critical times of the year, such as during periods of waterfowl nesting and caribou calving. The reference to the Memphis study is misleading since the decreased nesting occurred when the rodents were exposed to continuous sound levels for many days, and deaths occurred, with but one exception, only after repeated exposures of captive rodents to sound intensities of 110-140 dB(A) (Sprock, et al., "Sound as a Deterrent to Rats and Mice," Journal of Wildlife Management, Vol. 31, No. 4, October 1967).

One basis for this assumption may be found in the Memphis study referred to above (pp.27-28): "Bond (1956) also reported that observers found a mild reaction in dairy and beef cattle to only 19 out of 104 sonic booms of 2.6 - 0.75 lb. per sq. ft. Milk production was unaffected during the test period. In fact, Bond noted that reactions to low subsonic aircraft noise were more pronounced than were reactions to sonic booms. Further, the same reactions were observed in response to flying paper, strange persons, or other moving objects. (Emphasis added) This observation may indicate that "fright" reactions occur more strongly when the animal sees rather than hears the object."

Noise will possibly (probably) chase out some or many wildlife species and individuals or herds, used to wilderness quiet. There is no place for these animals to go.

We are absolutely opposed to the pipeline going through the Arctic National Wildlife Refuge. The price of disturbing this unique and beautiful area is simply too high. Wilderness is not wilderness with background noises of compressor stations, cleared rights of way. It would cease to be wilderness forever. Establishment of the pipeline through this area would mean its extinction.

Disturbance caused by the noise of construction, maintenance and the increased access provided by the pipeline is unacceptable in a wilderness setting. Throughout both the FPC and DOI statements, effects of disturbance on wildlife and the fragile Alaskan environment are acknowledged to be severe.

Pipeline construction does not constitute proper land-use for protected and wilderness areas. Aldo Leopold [1947. The ecological Conscience. Wisc. Cons. Bull. 12(12):4-7] puts it this way:

I have no illusions about the speed or accuracy with which an ecological conscience can become functional. It has required 19 centuries to define decent man-to-man conduct and the process is only half-done; it may take as long to evolve a code of decency for man-to-land conduct. In such matters, we should not worry too much about anything except the direction in which we travel. The direction is clear, and the first step is to throw your weight around on matters of right and wrong in land-use. Cease being intimidated by the argument that a right action is impossible because it does not yield maximum profits, or that a wrong action is to be condoned because it pays. That philosophy is dead in human relations, and its funeral in land-relations is overdue.

#### California

The proposed pipeline leading from Arvin to Point Conception is unacceptable. It will infringe on endangered wildlife species and natural areas. Our comments on specific species follow.

California condor (*Gymnogyps californianus*). Construction through part of the range of the imperiled condor should not be allowed. Indeed, it would be a violation of 16 U.S.C. 1536, Sec. 7. The DOI established "critical habitat" areas for the California condor [Fed. Reg. 40(242): 58311, 12/16/75], which critical habitat includes the Los Padres National Forest, the Matilija condor area and adjacent habitat. Under the proposed rules published by the Department, Sec. 17.81(b) states specifically:

(b) Pursuant to section 7 of the [Endangered Species] act [of 1973], all Federal agencies must take such action as is necessary to insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of these critical habitat areas.

Additional discussion of the California condor is provided in the sections of "Impacts to Wildlife," "Alternate Pipeline Routes," and "Recommendations" in the FEIS.

The FPC DEIS notes [p. III-126] that an important feeding area is 7 miles SE of milepost 57. It also notes, "Human activities within one-half mile of nesting birds may be sufficient to cause nest failures," and concludes (apparently) that the pipeline does not come that close and is thereby justified. However, a study done by the National Audubon Society [1964. The status of the California condor. Research Reports, National Geographic Society, Washington, DC] states:

Condors are noted for their seeming indifference to intrusion into their immediate environment by man, but both [Dr. Carl B.] Koford and the McMillans [Eben and Ian T.], as a result of their extended and thoughtful experience, concluded that the birds are actually extremely sensitive. Thus, disturbance may be of a delayed sort very difficult to appraise except by extended scientific analysis of the behavior of individual birds and nesting birds, and of the nesting success, or lack thereof, of disturbed birds. There is a growing documentation from the study of other species that disturbance of nesting birds may cause losses in subsequent seasons, in part owing to the fact that such birds will not return to a vulnerable nest site another year.

This study also cites the extreme pressure exerted by wanton shooting of the condor:

The evidence gathered by the McMillans suggests that we may have lost a few birds to the gun in each of the past several years and that the population has actually declined as a result.

There is no practical way to regulate gun use by construction personnel. The pipeline right of way will allow access to areas not formerly easily approached. This could be fatal for the shy condor.

Brown pelican (*Pelicanus occidentalis californicus*). The FPC DEIS states (p. III-125-126) that the California brown pelican is endangered and is a frequent visitor to the LNG site at Point Conception. It further notes that the Anacapa Island nesting colony "is incapable of maintaining itself." Nesting failure of the brown pelican is thoroughly documented [e.g., Risebrough, R. W. et al. 1971. Reproduction failure of the brown pelican on Anacapa Island in 1969. *American Birds*. 1:8; Peakall, D. B. 1970. Pesticides and reproduction of birds. *Sci. Am.* 222:72-83]. This is, however, no reason to dismiss or justify any other environmental factors which might affect this struggling and endangered bird. Some birds, particularly warblers, are showing a definite recovery from the eggshell-thinning effects of pesticides [Johnston, D. W. 1974. Decline of DDT residues in migratory songbirds. *Science*. 186(4166):841-842]. It may be hoped that the brown pelican, over a length of time, will recover. Decline of DDT residues in some birds is in fact a strong reason to try to lessen all other pressures on a species clearly in need of every chance.

Blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*). Considerable destruction of the already limited range of the blunt-nosed leopard lizard would result from the Arvin-Point Conception route. The FPC DEIS seems to regard the virtual extinction of this lizard casually, dismissing it with "Its habitat will continue to decrease as more water is imported." The State of California is engaged in a study of this reptile [1974. At The Crossroads. California Fish & Game, Sacramento, CA]. The Bureau of

The bottom paragraph on Page III-125 and the top paragraph on Page III-126 in the "Existing Environment" section of the DEIS should be deleted and changed to read as follows:

The California brown pelican is classified as endangered. It nests on the Channel Islands, on coastal islands off lower California, and in the Gulf of California. Decline of the brown pelican in recent years is due to collapse of thin-shelled eggs during incubation as a result of pesticides and other pollutants. Although numbers remain low, from 1971 to 1974 brown pelican hatching success had increased significantly, and it appears the brown pelican has a chance to recover. This pelican is commonly seen along the coast and nearby offshore, resting and feeding; it has been frequently observed on the coastal strand and ocean at the proposed LNG site. It is also a rare visitor to the San Joaquin Valley wetlands.

The environmental staff's statement concerning decrease in blunt-nosed leopard lizard habitat represents the judgment of knowledgeable wildlife experts. The environmental staff's preferred Alternative Route B would avoid the prime habitat areas which would be crossed by the applicant's proposed route. (See Section H-1 of the FEIS.)

Land Management recommends protection of the remnant habitat of this species [Snow, Carol. 1972. Blunt-nosed leopard lizard (*Crotaphytus silus*). Habitat Management Series for Endangered Species, Report #3. Denver Service Center, Colorado]. Construction of the Arvin-Point Conception segment would probably destroy all chances to study and protect this small creature.

Tehachapi slender salamander (*Batrachoseps stebbinsi*). The Tehachapi slender salamander apparently has restricted habitat requirements. The pipeline would distress or destroy known areas of its very limited range. This is a species very little studied, and information is not available about its needs. Every caution should be taken to protect known habitat and possible habitat before the animal is reduced to extinction.

We feel these species, and the San Joaquin kit fox, the red-legged frog, Sandhill crane and the Southwestern toad should be protected. They represent the essential ingredient of a healthy environment -- variety. As Aldo Leopold wrote [1949. The land ethic. In A Sand Country Almanac and Sketches Here and There. NY: Oxford University Press]:

Science has given us many doubts, but it has given us at least one certainty: the trend of evolution is to elaborate and diversify the biota.

#### Northern Border

The Northern border pipeline as described in the DOI DEIS (Part V, Vol. 2, p. V-686) would come within 1000 feet of a mine in Illinois considered critical habitat for the endangered Indiana bat (*Myotis sodalis*), and disturbance would constitute a violation of Sec. 17.85(b) of the Endangered Species Act of 1973 [Fed. Reg. 40(242):58311, 12/16/75].

The pipeline is also proposed to traverse the "pothole" region in the Dakotas. This area is THE primary waterfowl production area for the lower 48 states, and is given top priority (#1) for purchase by the DOI for protection [1975. Draft Environmental Statement: Operation of the National Wildlife Refuge System. US Fish & Wildlife Service, DOI, Washington, DC, 11/18/75, Appendix X, p. 1]. Drainage and alteration has already occurred in this important area; more disturbance could have a devastating effect on waterfowl populations of the entire United States.

Microwave towers proposed to be constructed in Montana could interfere with the flyway of the imperiled Whooping crane (*Grus americana*). Construction specifications have not been included, and must be considered before towers are erected in the path of an endangered species, particularly one whose numbers are so limited and whose routes are well known.

The proposed pipeline route also crosses the range of the shy, endangered black-footed ferret (*Mustela nigripes*). The numbers of this species are not known, and much has yet to be learned about its habits; but clearly, it is a mammal that does not tolerate human disturbance and needs all the opportunities possible to live unmolested.

The environmental staff has recommended that avoidance of critical habitat areas of rare and endangered species be used as one of the criteria for the final route selection.

The environmental staff's preferred Alternative Route B would avoid areas of San Joaquin kit fox habitat. (See Section H-1 of the FEIS.)

Comment accepted in the "Comparative Analysis"; see alternatives and recommendations on the Northern Border project.

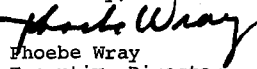
This impact is discussed in the DOI DEIS (Part V, Vol. 3, Section 3.1.3.7, "Wildlife").

We recognize the need to develop natural gas at Prudhoe Bay. However, neither the Federal Power Commission nor the Department of the Interior proposals present programs acceptable to maintain the quality of the environments through which the pipelines would pass, nor the character and integrity of the Alaskan wilderness.

We favor a No Action policy, and a focus on alternative energy sources, which must be tapped in the long run. We do not believe it prudent to destroy the wilderness, further endanger fragile ecosystems, flora and fauna, and disrupt the environment. Fossil fuels will eventually run out, and other energy sources be required. If at that future time, our haste, insensitivity and bad husbandry will find us living in a country without wilderness, with reduced variety and the great curse of same-ness from Nome to Miami, the cost will have been too great.

We urge you to take a No Action stand and commit the country to the adventure of alternative energy.

Sincerely,

  
Phoebe Wray  
Executive Director

The practice of conservation must spring from a conviction of what is ethically and esthetically right, as well as what is economically expedient. A thing is right only when it tends to preserve the integrity, stability, and beauty of the community, and the community includes the soil, waters, fauna and flora, as well as people.

- Aldo Leopold, The Land Ethic.

STATEMENT ON THE ARCTIC NATURAL GAS  
TRANSPORTATION SYSTEM DRAFT ENVIRONMENTAL  
IMPACT STATEMENT, FEDERAL POWER COMMISSION

My name is James C. Everett, 5080 McKean Avenue,  
Philadelphia, Pennsylvania 19144. The following comments on this  
Draft Environmental Impact Statement were prepared by myself as  
an environmentalist and a member of the Sierra Club.

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 20 4 30 PM '76  
FEDERAL  
POWER COMMISSION

## INTRODUCTION

These comments are addressed to the Draft Environmental Impact Statement prepared by the Federal Power Commission on the subject of Arctic Natural Gas Transportation Systems. The Draft Statement was prepared in response to applications for Certificates of Public Convenience and Necessity now pending before the Commission. The applications propose two possible systems: A Trans-Alaska-LNG tanker system (El Paso-Alaska System) and an Alaska-Canada-Northern Border-West Coast system (Arctic Gas System). The FPC Certificates must be issued before construction can begin.

This statement will offer some general comments on the overall adequacy of the Draft Statement with some specific references to points in volumes I and II. This statement is not submitted as an exhaustive comment. Time limitations have dictated that the scope of review be limited. We may wish to submit additional comments should future opportunities arise.

THE DRAFT STATEMENT IS FRAGMENTED AND  
FAILS TO PRESENT A SYSTEMATIC, COMPARATIVE  
ANALYSIS OF THE ALTERNATIVES

The process of submitting applications and the subsequent preparation of Draft Environmental Impact Statements by the Federal Power Commission and the Department of the Interior has evolved into an unmanageable, unrelated, quagmire of facts and opinions that can only confuse and befuddle interested parties desiring to participate in the public aspects of this project. The two prime proposals have spawned a number of alternative routes for both the Alaska-Canada prime route and the trans Alaska-LNG prime proposal. In addition, the Federal Power Commission has proposed, in some detail, a Prudhoe Bay-Nikiski-LNG system alternative to El Paso-Alaska's application. The FPC also favors an alternative to the Arctic Gas proposal: The Fairbanks corridor alternative in conjunction with a Northern Border Red River alternative and deleting the West Coast proposals. FPC I-255.

The Department of the Interior, having only the Arctic Gas application on file, prepared a Draft Environmental Impact Statement directed almost wholly to the Arctic Gas System prime route. The Sierra Club, responding to the Interior statement, expressed a preference for the Fairbanks Corridor-Alaska Highway alternative

to the Arctic Gas proposal but was unable to commit itself to any route because an Alaska-LNG system had not been adequately reviewed. Sierra Club Alert, December 27, 1974.

The Federal Power Commission, having applications from both Arctic and El Paso, prepared a Draft Environmental Impact Statement on the El Paso-Alaska LNG System and adopted, by reference, the Interior statement on the Arctic Gas System. In addition to evaluating the prime route and acknowledging alternatives, the FPC developed a set of criteria for route selection and developed a proposal for a route from Prudhoe Bay to Nikiski on the Kenai Peninsula. FPC, II-383 et. seq. This route is substantially different from the El Paso proposal and varies at the Kenai Peninsula from a similar route considered by Interior. Each of these routes would result in shipment of the natural gas by LNG tanker to a terminal at various proposed sites in California.

Of the seventeen volumes of the Interior statement, only one volume considers a trans Alaska-LNG tanker system. Such a system is favored by the State of Alaska and the volume was prepared " ... in response to that state's concern." DOI, VI-436.

The confusion is further heightened by amendments to applications (FPC, I-18 et. seq.) and by various suggested alterations particularly

to the Northern Border and West Coast segments of the Arctic

Gas System.

Originally, these proposals were to have been considered in one impact statement prepared by an interagency staff, pursuant to a Memorandum of Understanding entered into by the Federal Power Commission and the Department of the Interior. However, El Paso-Alaska refused to submit its application to Interior. Consequently, the Memorandum was abrogated and each agency, in a manner, went its own way. The result is two Draft Environmental Impact Statements whose respective focuses are very different and in which various proposals and alternatives are given varying degrees of emphasis and, in some cases, are treated exclusively by one or the other.

The Sierra Club has previously submitted comments on the Interior statement. Because of the Commission adopting virtually the entire Interior impact statement, the objections previously announced remain applicable. Some of these objections are worth repeating as they have not received a response.

Specifically, the Sierra Club statement noted: "Another

basic deficiency of the Draft is the lack of a comparative analysis of the various routes." Statement of the Sierra Club, October 2, 1975. The above description of the process leading to the present impact statements demonstrates that the situation objected is worsened. Not only does a lack of comparison exist within the statements but such an approach is virtually non-existent between the routes emphasized in the Commission's Draft and those reviewed in Interior's Draft.

A meaningful comparison of the proposals and routes is essential. Only one pipeline will be built. Therefore, the two prime systems cannot be reviewed independently of each other on their own merits but are alternatives with one to be selected in lieu of all the others. The present form of the impact statement makes it virtually impossible for the interested citizen to come to any intelligent preferential conclusions.

The Federal Power Commission's Draft Environmental Impact Statement fails to relate the various routes to each other in a systematic manner, which is essential to intelligent selections. Furthermore, the degree of emphasis accorded the various possible routes varies in the extreme. Responsible decision-making is frustrated where the alternatives are treated in so varying an intensity. Approval of one of

The environmental staffs of the FPC and the Department of the Interior will attempt to circulate the Final Environmental Impact Statements simultaneously in order to minimize this problem.

the proposed systems should be given only after a systematic,  
comparative, point-by-point analysis of the alternatives has been  
completed and made available to the public in a manageably,  
organized form.

THE LNG TANKER SEGMENT OF THE  
EL PASO - ALASKA SYSTEM IS TREATED  
INADEQUATELY AND LEAVES  
IMPORTANT QUESTIONS UNANSWERED

Each of the alternative routes in the El Paso-Alaska proposal envisions shipment of the natural gas by liquefied natural gas (LNG) tanker from some point on the Alaskan Coast to a terminal on the California coast. This marine segment is a major part of the El Paso-Alaska System. It will require construction of gasification plants, transfer facilities, and docks at some point in Alaska and California as well as a completely new fleet of supersize LNG tankers. Yet, this portion of the trans-Alaska system has been largely ignored or, at best, treated superficially. While information is provided on the construction techniques expected to be employed, treatment of the impacts of the actual operation of the loading, transporting, and unloading of the tankers is superficial. Many of the questions and issues that are raised by this proposal particularly regarding the effects of LNG spills, are stated to be unanswered with present knowledge or are answered by concededly questionable hypotheticals. DOI, Part VI, vol. 2. However, there is literature that suggests the contrary: Information is available which would be most helpful in evaluating the desirability of constructing a natural gas transportation system that utilizes a LNG

Ship transportation of LNG in international waters is a nonjurisdictional issue and is beyond the scope of this EIS. The staff, however, has considered ship transportation of LNG in coastal waters, including the docking, loading and unloading of the vessels. It is expected that the impacts associated with LNG transport in international waters would be similar to those experienced in U.S. territorial waters.

tanker. (The Commission is referred to several articles on this subject attached to these comments as Appendix A). One report on the nature and effect of LNG spills emphatically states:

"Correlations show that the dispersion of LNG vapors can be predicted with reasonable accuracy from observed facts and controlled conditions. May, McQueen, and Whip, "Dispersion of LNG Spills," Hydrocarbon Processing, May, 1973, p. 105

Furthermore, "Marine transport of liquefied natural gas has been carried out safely since 1959," Otterman. "Analysis of Large LNG Spills on Water," Cryogenics, August, 1975. Sixteen years of this type of activity has produced some data such as the case history of Marathon Oil Company's operations reported by Johnson and Jamison, "Pipeline to Japan... Five years of LNG Shipping," Chemical Engineering Progress, July, 1975, p. 97. Such reports can provide clues and hints as to the problems that may be expected from operating the proposed El Paso-Alaska marine fleet and should be sought out and reviewed. Alternatively, it is in the public interest to invest time and resources in developing data from the past LNG tanker experience.

On the basis of the data available for review, the FPC's Prudhoe Bay-Nikiski route appears to be the best proposal

The referenced articles have been considered in the preparation of the staff's Public Safety analysis and/or safety studies attached to the FEIS.

environmentally. It utilizes an existing transportation corridor; is accessible by an existing road network; appears to avoid critical wildlife habitats; avoids such areas as the Arctic National Wildlife Range, the proposed Gates of the Arctic National Park area, Mt. McKinley National Park and Chugach National Park; and substantially avoids unimpacted areas.

However, given the superficial treatment accorded the marine segment of the proposal and the unanswered questions, a commitment cannot be made to this proposal. An intelligent consideration of this system should:

- A. comparatively consider the effects of land and marine natural gas leaks and spills on animal and marine life;
- B. consider the magnitude and probability of accidents and natural disasters on marine transportation and overland transportation;
- C. develop a method of comparison that would indicate whether it is in fact desirable to substitute a portion of overland pipeline route with a marine shipment system; and
- D. evaluate the risks of proceeding with a LNG tanker proposal of this scope if data on the above questions is not available and cannot be developed in a reasonable time.

Therefore, it is urged that steps be taken to correct the critical lack of data presented on the marine segment of a trans-Alaska pipeline system and, if that is not feasible, evaluate the risks of commencing such a project with present limited knowledge.

Ship transportation of LNG in international waters is a nonjurisdictional issue and is beyond the scope of this EIS. The environmental staff, however, has considered ship transportation of LNG in coastal waters, and it is expected that the impacts in international waters would be similar in nature. Impacts relative to natural gas leaks and spills have been expanded in the FEIS.

Because of the general objections just stated, the Draft Environmental Impact Statement in its present form is inadequate as a basis for selecting a preferred route. The Draft is disjointed, inconsistent in its treatment of the alternatives, and inadequate in its consideration of the important marine proposal submitted by El Paso-Alaska.

The additional comments below are addressed to specific inadequacies or questions which were noted in volumes I and II of the Federal Power Commission's Draft Environmental Impact Statement.

At FPC, I-27, three factors are suggested as relevant to an overall evaluation of the relative and absolute worth of the alternative supply systems. These considerations are:

1. An analysis of those benefits and costs that are expressible in dollar terms.
2. An analysis of the environmental damages and benefits.
3. A description of the differential allocation of the benefits of supplying and consuming the gas.

The second of the three factors set forth above is too general.

It should be restated to incorporate the following underlined materials.

2. An analysis of the environmental damages and benefits expressed in (a) irremediable damage terms, (b) dollar costs of repair and rehabilitation where feasible, and (c) descriptively where dollar valuation is not appropriate.

The environmental staff disagrees that the analysis on alternative pipeline and LNG site selection is inconsistent and inadequate.

We agree. However, it doesn't seem necessary to make the extended statement at each point where there is an allusion to NEPA's requirements.

It is suggested that this would be more in accordance with the spirit of the National Environmental Policy Act, particularly 42 U.S.C.A. 433 (c), which outlines the requirements for an environmental impact statement.

The effect of the aggregate United States economy that may be expected from this pipeline is dealt with at FPC, I-27 -- I-29, by reference to a Department of the Interior study of the question.

While it is concededly unnecessary to engage in a macroeconomic analysis of the U.S. economy, the treatment and summary given this subject by the Draft Statement is superficial in the extreme. The study referenced was not sent out with the Draft Environmental Impact Statement and, thus prevents citizens from challenging the conclusions drawn from the study.

In respect to the same section referred to immediately above, it is stated that regardless of the project's effect on the aggregate economy" ... mitigation through project selection is clearly less efficient than that available through fiscal and monetary policy." This statement is not developed any further. Such an all-encompassing observation should be justified in the context of the project in question and the economic conditions anticipated particularly since it is concerned with the largest privately financed construction effort in history.

The fact that the project is the "largest privately financed construction effort in history" is not particularly relevant. What is relevant is that the project's cost over its life span amounts to rather less than one trillionth of GNP over that period. On this basis alone it is not an appropriate vehicle for implementing aggregate economic policy.

INDEPENDENCE FROM IMPORTED OIL IS NOT A  
REALISTICALLY EXPECTABLE BENEFIT OF AN  
ALASKA NATURAL GAS TRANSPORTATION SYSTEM

Some observations are appropriate with respect to the benefits and the economic cases used in determining the comparative worth of the proposals in terms of Net Economic Benefit to the United States. One of two suggested benefits from the project used in the economic analysis is that the availability of Alaskan natural gas would reduce American reliance on imports. In the context of present American energy policy such an assumed benefit is extremely presumptuous.

The American consuming public has demonstrated a capacity to use whatever consumable goods become available. Notwithstanding the international importance of wise energy consumption and the benefits that would result from U. S. leadership in this area, it remains a fact that there is not an energy program that would even begin to assure realization of such a benefit as is suggested. The economic analysis completely fails to respond to the possibility that the American public will simply adjust its consumption upward to account for the additional gas. This pipeline should not be built on such an assumed benefit until there is a national energy policy

Because the FPC statutory concerns are limited we cannot assure that benefits from independence from imported oil would in fact be realized. That requires actions elsewhere in the Government and in the private sector. It would not be responsible, however, for the FPC staff to foreclose the benefit in its analysis because cases where it would not be realized can be imagined.

that would give some hope of realizing such a goal.

THE OPTIMISTIC CASE FOR ECONOMIC  
ANALYSIS IS BASED ON QUESTIONABLE  
ASSUMPTIONS AND SERIOUSLY OVERSTATES  
THE VALUE OF THE ARCTIC GAS SYSTEM

In developing conditions for a hypothetical optimistic case for determining economic benefits two questionable assumptions are used. The analysis assume first, that a 40% increase in available gas over that used in the base case will be available and second that taxes will not be assessed by the Canadian government on gas transported across Canada thus eliminating a cost present in the other models. Some basis for these expectations should be available and presented.

Furthermore, these assumptions inflate each other. As the quantity of gas shipped across Canada is increased(as would be expected from a 40% increase in available gas) the potential tax assesment also increases. Thus, the value of the assumption that there will be no tax cost increases. Assumptions not so directly interrlated and inter-dependent might be more realistic.

The Net Economic Benefit value of the Arctic Gas System is clearly greater under the optimistic case. However, if the assumptions

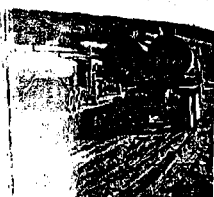
The point in presenting several cases is that it simply is not possible to ascertain what assumptions will be proven correct. The presentation of several cases provides the opportunity for exploring the consequences of varying assumptions, all of which are uncertain.

employed are indeed unrealistic then this advantage is only apparent and both segments are much nearer equal by the NEB measurement.

THE SOCIAL AND ENVIRONMENTAL  
BENEFITS OF AVOIDING UNIMPACTED  
AREAS IS INADEQUATELY STRESSED

The Federal Power Commission Statement consistently fails to consider the impacts of the El Paso proposal in the context of the Alyeska oil pipeline operation. For example, while the FPC statement does provide some data on social impacts such as percentage increases in several types of criminal activity, it is not clear to what extent the El Paso System would be a prolongation of these already existing conditions or would create new social problems.

This information is very important in determining the benefits that would derive from avoiding unimpacted areas. The impact state indicates that many Alyeska employees, facilities, and operations would be employed by El Paso. This suggests that many of the impacts expected from El Paso's construction would have already occurred during Alyeska operations. Thus, there would be aggravation of already existing impact rather than new impact. Under such conditions



0-ft joints on special  
cutters are loaded and  
hoisted from Fairbanks  
to the well.

Large steel pipe for vertical  
section revision task requiring  
special equipment.



For elevated section of  
by Standard Oil Co. (Ohio)



A Zig-zag right-of-way across the wilderness illustrates  
special design employed on elevated sections. In  
foreground, three different makes of drill rigs dig holes  
for the VSM's. — Courtesy Standard Oil Co. (Ohio)

*"Hale, Born. 'Some Wonder Oil Pipeline' March 1945 at Fairbanks,"*  
*Pipeline and the Northwest, Aug. 1945, p. 31*

constructing a pipeline through unimpacted territory, as would be the case with the Arctic Gas proposal, would be an unnecessary repetition of the scars and degradation usually demonstrated in the attached photograph. Such an action would be a blatant disregard of environmental considerations. For these reasons, the Arctic Gas System proposal is extremely objectionable.

THE OPERATION OF THE PIPELINE POSES  
A GREATER ENVIRONMENTAL HAZARD THAN  
CONSTRUCTION AND MUST BE MORE FULLY CONSIDERED

The subject of repair activities associated with operating the pipeline is insufficiently treated by the FPC environmental staff. The environmental impact of repair operations occurring year after year could conceivably approach disastrous levels. FPC, I-219. Therefore, any proposal which would traverse already impacted areas and which would be proximate to existing roadways is extremely advantageous. This has not been adequately emphasized. The FPC observation set out below emphasizes the importance of this aspect of the pipeline.

"Repair activities in some locations, and in some seasons, may cause damage to the

Note additions made in FEIS to statement concerning "Repairs" in Arctic Gas section of Comparative Assessment of Volume I.

environment, more severe than that resulting from the initial construction (Emphasis added) FPC, I-219.

The impact of repair activities will be determined by such factors as the extent of impact already suffered, the availability of existing road systems, the extent and effect of preventive maintenance programs, and the extent and emergency nature of the repairs required. These considerations must be more completely explored and their environmental importance adequately accounted for. It is folly to treat this project as though its environmental impact will cease with the completion of construction.

THE SELECTED ROUTE MUST AVOID CRITICAL WILDLIFE HABITATS AND NATIONAL FORESTS AND PARKS

Because the area around Point Gravina is a nesting ground for bald eagles the proposal that would place a LNG terminal at this location is unacceptable. As recognized in the FPC statement, operation of the terminal and the concentration of tanker activity in this area would almost certainly cause the eagles to avoid the area.

Furthermore, the Chugach National Forest is in this area. It is an understatement to say that installation of a pipeline and the

If the remainder of the quote was reproduced, there would be no need for the emphasis which was added to the statement. Only under unusual circumstances would repair activity, in areas other than the Arctic, result in more severe damage than that caused by the initial construction.

This comment was incorporated into the cited statement under conservation.

The environmental staff did not choose to ignore the environmental impacts which would result from operation and maintenance. A review of the DEIS will demonstrate our concern for these environmental impacts.

operation of a gasification facility and terminal are inconsistent with the purpose of a national forest. The relationship of the El Paso proposal to the Chugach National Forest has received very little attention.

Several of the other proposals would impact the Arctic National Wildlife Range and would disturb important caribou calving grounds with potentially serious repercussions both to their reproduction activity and to their winter food supplies, of lichens which are susceptible to certain compressor station emissions. These environmental degradations are totally unnecessary in view of the numerous alternative routes available. Consequently, the Arctic Gas System prime route must be objected to on these grounds as well as the El Paso prime proposal for its potential effects on the Chugach National Forest and the Point Gravina eagles.

A statement concerning the pipeline crossing of the Chugach Forest has been added to the "El Paso Project-Construction Schedule" section of the Comparative Assessment of Volume I in the FEIS. An additional statement concerning the affects of the presence of a pipeline project in the Chugach Forest appears in the "El Paso Project-Noise Impacts" section of the Comparative Assessment in Volume I of the FEIS.

#### LAND AND GRAVEL OPERATIONS

At FPC, II-95, it is noted that the effect of the Alyeska construction operations on sand and gravel reserves is unknown and consequently, the size of the reserves remaining is unknown.

Construction of the natural gas pipeline will consume considerable quantities of this reserve. Because recovery of sand and gravel can adversely affect numerous environmental characteristics such as water quality, wilderness aesthetics, erosion, etc., especially when it must be assembled on this subject with the view to imposing possible restrictions on the permit in this regard.

Control of sand and gravel resources by state and Federal agencies is considered to provide adequate safeguards against unwarranted environmental effects.

#### ENVIRONMENTAL PLANS AND GOALS FOR THE POST-CONSTRUCTION AND POST- TERMINATION PERIODS MUST BE DEVELOPED

Some of the environmental impact and damage caused by the project can be repaired or restored after construction such as with temporary work camps. All other areas could be rehabilitated at the termination of the project. There is a potential for salvaging a considerable amount of material after the project life. The extent to which the applicants have committed themselves to these aims

and the extent to which the Federal Power Commission will require these actions is not clear. It is in the public interest to anticipate the termination of construction and operation of the pipeline. Efforts to impose obligations at the end of all of this will be difficult or impossible. Definite plans for reclamation should be necessary prerequisite to the commencement of construction.

In view of the preceding observations, we object to the following statement at FPC, I-25, as vague, inadequate, and environmentally unsound.

The pipeline would probably be abandoned in place unless economics dictated otherwise. All surface facilities would be removed or put to an alternate use and the abandoned areas would be restored according to existing regulations.

The citation is incorrect. It should read FPC, II-23. Other than those general statements presented by El Paso Alaska in response to deficiency questions, the environmental staff cannot be more specific. However, the successful applicant will be required, upon abandonment of any or all facilities in the Arctic region or any other area, to file with the Commission for approval of such action.

THE TUNDRA IS A UNIQUE, SENSITIVE ECOSYSTEM  
LIMITED IN ITS RESILIENCY TO HUMAN IMPACT

At paragraph 5, FPC, II-227, it is stated:

The tundra has a reputation for being fragile and with respect to the change that can occur through upset of the thermal regime, this is probably true. It is also true that the tundra is a harsh land used to change caused by overgrazing lemmings, the passage of large caribou herds and even the dramatic seasonal changes associated with the climate. The system must have a degree of resilience or it could not survive these natural occurrences.

This statement is misleading and suggests a view of the tundra that is misleading and ecologically questionable. It could be construed as a tentative justification for possible future abuses of tundra areas.

The impact of the comment in question is that the tundra is hard and resilient because it survives repeated severe, natural occurrences such as overgrazing from lemmings. This may be correct but it is accurate only in a strict sense. The tundra is part of an ecosystem and the assaults described are natural rather than foreign intrusions such as with bulldozers. If the natural events named did not occur it would seem that the tundra might be something other than as it is now known.

Paragraph 5, FPC, II-227 should be changed to read as follows:

Organisms in the tundra must adapt to an environment that is highly variable. They must have wide tolerances to withstand the fluctuations that are normal in this area. This does not imply the tundra ecosystem is resilient to all perturbations. On the contrary, the tundra is an extremely fragile ecosystem. The time frame for revegetation after a disturbance is much longer than a similar disturbance in the temperate regions. This is due to the extremely low growth rates of tundra vegetation.

That there is a difference between natural and human impacts on the tundra is illustrated by the following from "Alaska's Pipeline Road: New Conflicts Loom," Science, July 4, 1975, pp. 30, 31.

Environmentalists ... point to tracks cut in the tundra by cat trains - cargo sleds pulled by caterpillar tractors - before the World War II. 'This land is so fragile, the climate is so harsh, and the growing season is so short that those tracks look fresh. They were cut 30 years ago or more.

.....  
A Smithsonian scientist says, 'If you walk across the tundra from Point A to Point B 15 times you've made a trail that will still be visible 25 years from now.

#### THE LESSONS OF ALYESKA

Alaska is currently in the midst of the feverish, frantic pace of constructing what, at its conception, was hailed as history's largest, private construction efforts: the trans-Alaska oil pipeline system. Many of the things that are now known about the impact of building something of this magnitude in one of the world's few remaining naturally intact but harsh places were unknown when the idea for Alyeska developed.

The Alyeska operation has had an impact on Alaska. It would be more correct to say that it has sent the State reeling and grasping for sane survival. Some of the impacts have been very humanly described in an article attached as Appendix B, consuming public demands of all the resources of the North Slope, not just the oil, and the ever ready entrepreneur stands ready with another of history's largest, privately financed project. There is every reason to believe that the gas pipeline holds the same problems and impacts.

The opportunity exists to do a better job through planning based on the known facts associated with Alyeska's construction project. The gas pipeline can be built where it will have minimum additional impact or maximum new impact. The problems of crime and social and cultural disruption can be ignored or anticipated and there is now a concrete basis for measuring the expectations. The Final Draft Impact Statement should consider these issues in the context of what can be learned from studying the Alyeska operation.

For example, questions as how the Alyeska road system will be used during the post-construction years have created a major land-use controversy that was apparently unanticipated. (See, Appendix C). Should a road network be required for the gas pipelines such

The problems associated with crime and social and cultural disruption are discussed in Section B.3a, "Economic Analysis," Volume I of the DEIS. This discussion includes what was learned from Alyeska and will be updated for the FEIS.

problems would again arise. But there can be no excuse for their not having been anticipated and solutions proposed. There is more to Alaska than her oil and gas and the people to today owe it to the people of tomorrow to recognize this and conduct their exploitation activities wisely and with restraint.

### CONCLUSION

The Final Draft Impact Statement must:

- A. be restructured to present a systematic, coordinated, and comparative account of the expected environmental impacts;
- B. present an in depth analysis of the environmental impact of the El Paso - Alaska System's marine segment;
- C. take complete and full account of the importance of avoiding unimpacted and largely intact natural areas;
- D. reconsider the value of the assumptions used in the optimistic case for economic analysis;
- E. develop additional data on the effects of extracting additional sand and gravel for use in constructing the gas pipeline; and
- F. fully respect the importance of routes that avoid wildlife habitats and national forest and park lands.

These conclusions have been reflected in the FEIS as appropriate to the environmental staff's responses to the specific comments that formed these conclusions.



## FAIRBANKS ENVIRONMENTAL CENTER

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Fairbanks, Alaska 99707  
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January 29, 1976

### COMMENTS OF THE FAIRBANKS ENVIRONMENTAL CENTER ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE ALASKA NATURAL GAS TRANSPORTATION SYSTEM

The Draft Environmental Impact Statement (DEIS) for the Alaska Natural Gas Transportation System is to the point and accurate. The authors of the DEIS should be commended for taking a close look at a wide variety of alternative routes, and recommending routes which are not the applicants prime proposals. All too often impact statements are little more than documents to sell the applicants proposal.

The Environmental Center's comments are divided into two sections. The first is an overview of our main criticisms of the shortcoming of the impact statement and our analysis of the various proposed routes. The second section contains more specific comments on statements made in the DEIS. We have spent most of our efforts analyzing the various proposed routes, and so have not had the time we would like to review the text of the DEIS for accuracy and completeness.

#### I.a. Comments on Routes

We were very glad to see the FPC's emphasis on building pipelines in existing corridors. Doing this not only minimizes the impacts to the environment, but also minimizes the socioeconomic impacts of the project. Probably the most painful impacts of the Trans-Alaska oil pipeline have been what construction activities have brought to the communities used as support bases.

The Environmental Center approves of the recommendation that the Arctic Gas pipeline go down the existing pipeline corridor to Fairbanks and then out the Alcan highway. Of all the alternate routes proposed for the Arctic Gas proposal the alternative going around the southern boarder of the Arctic Wildlife Range is the poorest. The route going offshore of the Wildlife Range would minimize impacts to the range, but it would impact lands of equal importance on the Canadian side of the boarder. We consider the Arctic Wildlife Range to be of tremendous importance and do not want to see the start of intrusions into the area.

It should be stated that though the Environmental Center does not want a pipeline to go through the Arctic Wildlife Range, the members are very concerned about the local impacts of running a pipeline through Fairbanks. The Center's members have been watching the continued deterioration of the quality of their community caused by oil pipeline impacts, and are very concerned about any similiar

*'Gateway to the Arctic'*

(100% Recycled Paper)

impacts a gas pipeline might bring. In addition to the socioeconomic impacts the Center's members are concerned about the possible environmental impacts which would accompany the development of a petro-chemical industry in the area. They are particularly concerned about further deterioration of the already poor air quality.

The Environmental Center agrees in principle with the idea of running the gas pipeline down the existing pipeline corridor to Fairbanks and then down the railbelt to Nikiski Point. There are several problems that we can see with this routing. The pipeline route south of Fairbanks would vary from the existing highway corridor by more than several miles in spots. The two variations we are most concerned about are in the vicinity of Mt. McKinley National Park and near the Minto Flats. We understand that the steepness and unstable conditions in the Nenana Canyon were the reasons for realigning the pipeline in this area, however we do not feel that a thorough enough job was done in analyzing the proposed alternative. In regards to the Minto Flats we are concerned that any access roads built into this area would have significant impacts on wildlife populations in the area.

The second problem with running the gas pipeline to Nikiski Point is that ice conditions in Cook Inlet cause safety problems to tankers. We would very much prefer having the LNG facilities located in Cook Inlet, but we understand that several near accidents have already occurred in the area because of the ice conditions. Once again a more careful look should be given to this alternative.

Running the El Paso line down the existing pipeline corridor is acceptable to us. We would hope that the gasline could use the existing workpad and haul road for construction. One of the biggest environmental impacts of the Trans-Alaska oil pipeline has come from gravel extraction. The haul road north of the Yukon has gravel extraction sites about every two miles and the corridor looks like it has been strip mined. We would hope that every effort is made to minimize gravel extraction.

If the El Paso line does go to Prince William's sound we would prefer the terminus be at Bidarka rather than Gravina Point. Though these areas are comparable in scenic and wildlife values, the Copper River Delta area is so critical to bird populations that we would prefer to minimize impacts to this general area. The greatest environmental impacts of the terminus will not be of the plant itself, but all the people brought to the area. Since the impact of the Bidarka terminus would probably be to Valdez than Cordova, we prefer this site.

The Hawkins Island site is the least desirable of the terminus sites because of its impacts to the Copper River Delta.

The alternative Livengood to Nikiski pipeline route proposal was presented to give the reader a clear idea of the proposal's more significant characteristics and feasibility. A more detailed account of the factors considered in this alternative route is available for public inspection in the Office of Public Information at the Federal Power Commission. It is entitled Alternative Sites for LNG Facilities in the Cook Inlet/Kenai Peninsula, Alaska Area, Contract No. FP-1773, and was performed by the Oceanographic Institute of Washington and the University of Washington.

Comment reflected in Section H-2 of Volume II of the FEIS.

See the environmental staff's response on this issue on Page 3 of the comment of the Friends of the Earth organization.

#### I b. General Shortcomings of the Impact Statement

The poorest sections of the impact statement are those which deal with air and water quality impacts. A good deal of information exists about impacts of the Trans-Alaska oil pipeline to water quality and impacts to air quality in regions used as bases for operations. In this regard we suggest that you contact the following people for more specific information.

Gilbert Zemansky  
Institute of Water Resources  
University of Alaska  
Fairbanks, Alaska 99701

Carl Benson  
Geophysical Institute  
University of Alaska  
Fairbanks, Alaska 99701

Ernst Meuller  
Commissioner  
Department of Environmental  
Conservation  
Pouch 0  
Juneau, Alaska 99801

Don Moore  
Environmental Services Dept.  
Fairbanks North Star Borough  
Box 1267  
Fairbanks, Alaska 99707

The discussion of wildlife impacts also does not reflect the most recent information on impacts of the current project. For more information contact:

Al Carson  
Joint State/Federal Fish and Wildlife Advisory Team  
628 "F" Street  
Anchorage, Alaska 99501

The discussion of the impacts of locating the terminus site in Cordova was very shallow. The section on impacts to wildlife in the Cordova area was poor as was the section on socioeconomic impacts.

We realize that it is hard to do an adequate job of discussing socioeconomic impacts, but the discussion in the DEIS is devoid of any human element. Pipeline impact effects people's lives and it is not just a collection of statistics. If the terminus of the gas pipeline is located in Cordova the total character of that beautiful community will be changed. The people who move into the community will have different cultural values and attitudes, and the rapid expansion will alter local residents' attitudes towards the land they live on and their neighbors.

It has been our observation that people's attitudes towards the land are closely related to their attitudes towards other people. In a small community like Cordova there exists a sense of concern for the wellbeing of others. People know many of the other residents in their community. In a boom town a sense of concern for individuals and the community as a whole is lacking. Because of the number of strangers and the transient nature of the populace, people become fearful and less willing to lend a helpful hand to others.

The environmental staff contacted Jim Hemming, Federal coordinator for this team.

A classic example of this lack of concern happened to one of the Center's Board members. The car of the Board member stopped at a busy intersection in -20F weather. Not a single person stopped to help. This quite surprised the Board member who had lived in Alaska for over twenty years. Nothing like this would have occurred in pre-pipeline days.

Living in a boom town is a painful experience. Cordova may need a more diversified economic base, but the town would be better off developing that diversification <sup>over</sup> a period of time rather than all at once.

## II. Specific Comments on the DEIS

I-86 Statement: " In July 1974, the Fairbanks Municipal Utility System and the Golden Valley Electric Association, both suppliers for the Fairbanks area, foresaw no problems in expanding services..."

Comment: MUS's and GVEA's inability to foresee problems in increasing hookups is the reason the Fairbanks area have been in a crisis situation during cold spells the past two winters. In the winter of 74-75 power to a rather large area was disrupted during a spell of -50F weather because the main line serving the area melted because it was overloaded. Homes went without power for up to twelve hours which resulted in frozen water pipes. During the winter of 75-76 the Borough was on alert for several days and residents were told to keep their use of electricity to a minimum. One day schools were closed down and television stations shut down because of a broken fan in the main MUS generator which jeopardized power to the whole Borough.

GVEA at one point this winter thought they would have to drastically cut back output because the company supplying them with oil for their gas turbines could not keep up with their increased demands.

I-88 Comment: Increased numbers of hunters in Alaska have led to serious declines in several big game populations, and has led to decreased hunter success. Recreation in the Fairbanks area has been effected by increased development. People are being forced to drive further out of town to meet their recreational needs.

I-135 Statement: " In the longer run a gas pipeline may result in lower prices in Alaska than would have occurred without the pipeline."

Comment: Though this may occur to a small extent, it is unlikely it will have a major effect of bringing down prices. The distance materials must travel to get to Alaska is the primary reason for increased costs. Since fuel costs are rising, it is unlikely to see any big declines. Also, since the unions involved in pipeline construction are also involved in the transportation industry, when pipeline workers receive higher wages, transportation workers do also. Rural areas in Alaska have felt significant impacts from pipeline construction because of this.

I-136 Comment: Native villages have experienced significant impacts due to the oil pipeline because many of the villagers have left to work on the pipeline. Many villagers have left their villages to come to Fairbanks and Anchorage to find work on the pipeline and have not been able to get the jobs promised them. The unions have not kept to their promises of local and minority hire and are quite open about their discrimination.

I-138 Comment: The discussion of impacts on specific localities should cover Cordova and Delta Junction more adequately. Why is Anaktuvuk Pass mentioned as being a community which will be impacted? Are there plans to run materials through there again?

I-217 Comment: The discussion of air quality impacts leaves out mention of decreased air quality in areas used as bases for operation, such as Fairbanks. Also no mention is given of ice fog.

I-218 Comment: In the Health and Safety section there is no mention of the deaths and injuries which have occurred on the Trans-Alaska oil pipeline because of the rush to complete the project.

I-232 Comment: Major impacts to water quality have occurred on the Alyeska project because of poor sewage treatment. Alyeska has had an extremely poor record for running their treatment plants properly with resultant poor treatment. This seems to have been a result of poor initial design, overloading of plants, and poor training of sewage treatment plant operators.

No mention is made of the impacts of the thermal discharge from the LNG plant.

I-237 Comment: One of the major wildlife impacts has come as a result of feeding wild animals. Animals were first attracted to construction camps because of poor garbage disposal. Later they were fed by construction workers who saw no harm in feeding wild animals. Several workers have been bit as a result, and in retaliation, bears and wolves have been shot in several camps.

I-238 Comment: There is no discussion of the impact due to possible industrial development as a result of the gas pipeline.

II-26 Comment: There has been considerable trouble with the practice of using lagoons to hold treated sewage. Because of permafrost and cold temperatures water has not percolated through the lagoons at a rate fast enough to keep up with input. This has led to several lagoons overflowing. This normally would not be too much of a concern except that the sewage is often not properly treated. Alyeska has taken to pumping water out of lagoons in preparation for winter.

II-40 Comment: A closer look should be given to El Paso's plans for water treatment at the LNG site. The Alaska Department of Environmental Conservation should be contacted for their reactions.

Impacts listed are for the prime project proposed by the applicant. As such, Fairbanks would not be affected. Ice fog was mentioned in the "Climate" section.

This was discussed in Section C. 6e., Volume II and Pages I-237 (#8) and I-238 (#3) of the DEIS.

See "Impacts to Wildlife," Vol. II, Section C.8 in FEIS.

The applicant has indicated that prior to discharge into lagoons, wastewater would have undergone secondary treatment in heated warehouse-type buildings. In areas here the ground conditions would be such that leaching does not occur from the lagoons, the wastewater leaving the lagoons would conform to the standard set by the Environmental Protection Agency.

Permits from the state of Alaska are required for all water and wastewater treatment systems.

II-70 Comment: Why aren't the micrometeorological conditions for Fairbanks given? Special weather conditions in Fairbanks are more likely to effect pipeline construction than in Anchorage.

II-200 A recent survey of the Arctic Caribou herd shows that it has drastically declined and the population is now estimated to be half of what is stated in the DEIS.

II-218 The discussion of the birds in the Copper River Delta is very poor. This area is far more likely to be impacted by construction than Valdez.

II-235 Comment: No mention is given of mining activities in the Brooks Range. The haul road is currently being used for access by miners doing exploratory work.

II- 247 BLM's plans for recreational facilities along the haul road are their own and have not been accepted as being what will occur. What happens along the haul road is dependent on what the state decides to with the road.

II-251 Comment: More recent data on pollutant levels in Fairbanks are available. Contact Carl Benson (address given earlier) for more recent data. This discussion is in general poor. Fairbanks air quality has deteriorated significantly as a result of construction of the Trans-Alaska pipeline. There is already discussion of whether pumping stations along the oil pipeline can meet significant deterioration standards being considered by congress.

II-253 Comment: Ice fog in Fairbanks occurs at temperatures well above -25 F. This is old data. The temperature at which ice fog will form is dependent in part on how saturated the air is with water vapor.

II-272 Comment: There is no discussion of water quality impacts from improper treatment of sewage, oil spills, and thermal discharges from the LNG facilities. Pipeline related activities have burdened existing municipal sewage treatment facilities which has led to poor treatment of wastes. Added discharge to rivers has opened up areas of water during the winter which previously were frozen over. This adds to the ice fog problem.

II- 278 Comment: Overwintering areas need not be low in dissolved oxygen. If there is a gap between the water surface and the ice cover, water can become quite saturated. The compacting of fish into small overwintering areas can lead to low dissolved oxygen.

II- 290 Comment: One of the biggest problems with wildlife and construction activities has come from workers feeding animals. (See earlier discussion.)

II-294 Comment: The major impact to wolves will come when the increased number of hunters kill off too many big game and to remedy the situation the Department of Fish and Game conducts an aerial wolf hunt.

Comment accepted. Stability class data for Fairbanks included in Final EIS.

See reply to comment by National Audubon Society on caribou populations.

The birds in the Copper River Delta, which is over 30 miles from Gravina, would not suffer direct impacts from the proposed construction.

The comment should read, "The Fairbanks Environmental Center reported mining activities in the Brooks Range and that the haul road is currently being used for access for miners doing exploratory work."

Contact has been made with Dan Moore of the Fairbanks Division of Air Pollution Control during which 1975 air quality data was requested. No material has been received yet. The information will be made available in the Federal Power Commission's Office of Public Information.

"Ice fog is rare at temperatures warmer than -20°F and increases in frequency with decreasing temperature until it is almost always present at air temperatures of -50°F in the vicinity of a source of water vapor. At temperatures warmer than -20°F, these sources of water vapor can cause steam fog of liquid water droplets, which may turn into ice fog when cooled." Source, Glossary of Meteorology.

This was discussed in the pages following Page 272 and in Section C.6.e., Vol. II of the DEIS.

See discussion on impacts to bears.

FEC Comments

Page 7

II-299 Comment: The Copper River Delta is probably one of the most important unique ecosystems affected by pipeline construction.

II- 317 Comment: If Alyeska is any indication, one should not trust the company in charge of construction to show much concern for the environment. Our feeling is that one should openly admit that people constructing the pipeline will show minimal concern for the environment. Training programs and baseline studies have done little to mitigate impacts on the current project.

Quality control people on the Trans-Alaska oil pipeline have been poor. In one section quality control people told workers to falsify weld x-rays. State and Federal monitors have had trouble getting quality control personnel to do what they feel is necessary. We see no reason for an improved situation on the gas pipeline.

II-324 Comment: Oil spraying of the pipeline haul road has caused water quality problems and safety hazards.

II- 328 The Keystone Canyon is the location of a proposed state park. All plans for construction through this area should be approved by the head of the Division of State Parks.

II-334 Comment: A much more complete discussion of ways of mitigating socioeconomic impacts is needed.

II-345 Comment: Why are there solids in the holding ponds? Is El Paso planning to use the holding pond for secondary treatment? This doesn't sound right.

The Fairbanks Environmental Center would like to thank the FPC for this opportunity to comment. We hope that our comments will be helpful to you in your decision making process.

The mitigation of socioeconomic impacts discussed in this section are related to the pipeline construction only. Other socioeconomic impacts are analyzed in the economic study.

As stated on Page II-345, numerous flows from the LNG plant would enter the holding pond. In addition, 100 percent efficiency in solids removal cannot be expected from the activated sludge treatment unit. There would certainly be some settling of solids in the holding pond.

# FEDERATION OF WESTERN OUTDOOR CLUBS

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28 January 1976

Environmental Staff  
Federal Power Commission  
825 N. Capitol St., NE  
Washington, D.C. 20426

RE: Gas Pipeline DEIS

Dear Staff:

I have reviewed the Staff's DEIS on the Alaska Natural Gas Transportation Systems and commend the Staff for demonstrating some very original thinking with respect to alternative transportation routes and systems. I truly appreciate your willingness to recommend alternatives other than those put forth by the industry, as happens so often in environmental impact statements.

Attached are several brief comments, mainly on the Staff recommendations. I am afraid that I do not have time to go into a detailed analysis of the adequacy of the statement as a whole.

The conclusions presented below are tentative and may change given more information about the alternatives. With respect to the Nikiski alternative I want to know more about the alignment of the pipeline south of Livengood with respect to the highway and railroad, and I want to know more about tanker safety and ice conditions in Cook Inlet. Finally, I have in other forums repeatedly called for at least a rudimentary net energy analysis among the major alternatives. This still seems to me to be critical in making a final determination about the best route, environmentally and economically.

Sincerely,

*Stan Senner*  
Stan Senner  
Vice President for AK  
Fed. of Western Outdoor  
Clubs  
P.O. Box 1796  
Fairbanks, AK 99707

Comment reflected in the Public Safety analysis and/or safety studies attached to the FEIS. Also, the environmental staff feels there is sufficient detail presented in the nine figures which depict the alternative route from Livengood to Nikiski. In Section H of Vol. II, a more detailed account of the factors considered in this alternative route is available for public inspection in the Office of Public Information at the Federal Power Commission. It is entitled: Alternative Sites for LNG Facilities in the Cook Inlet/Kenai Peninsula, Alaska Area, Contract No. FP-1773 and was performed by the Oceanographic Institute of Washington and the University of Washington.

COMMENTS ON THE FPC DEIS - ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

I-255:D:1:a

I strongly concur with the FPC Staff recommendation that if an Alaska-Canada system is constructed by the Arctic Gas Company that the Alaskan portion of the pipeline be constructed along the proposed Fairbanks Corridor alternative.

The prime reason for my position is that I believe it is unnecessary for a pipeline and potential related developments to threaten or destroy the unique wildlife/wilderness values of the existing Arctic National Wildlife Range, its proposed extensions to the west and south, or the Canadian Arctic Slope area which has been proposed for inclusion into an International Arctic Wildlife Range. The attached resolution passed by the Federation of Western Outdoor Clubs at their 1975 annual meeting makes our position clear.

A serious drawback associated with any Alaska-Canada system is the magnitude of the project and the impacts associated with it over the entire length of the system. Is there justification for building a pipeline system over 5,000 miles long which will impact areas from arctic wildlands to prairie potholes in North Dakota to agricultural lands and bat caves in Indiana? Is there justification for the massive resource expenditures required to build this system when a trans-Alaska pipeline would only be about 800 miles long and gas in the lower-48 states would be distributed via existing pipeline networks and displacement? These questions have not been fully resolved in my mind, though I tend to think there is not justification for any massive overland Alaska-Canada system.

II-521:I:1 & 2

My tentative conclusion is that if a trans-Alaska gas pipeline is constructed that the pipeline terminus and LNG facilities should be located in Prince William Sound at either Point Gravina or Bidarka.

One of the main benefits of the system proposed by El Paso is its maximal use of the oil pipeline corridor, haul road, work pad, and other facilities. The FPC Staff recognizes this benefit as evidenced by various statements in this DEIS. If the gas pipeline were to diverge from the oil pipeline corridor south of Livengood, much of this benefit would be lost.

The Minto Flats area, a prime waterfowl habitat heavily used for recreational and subsistence hunting, fishing, and trapping, would apparently be traversed or at least skirted. What would the impacts be?

Though the gas pipeline would parallel the Fairbanks-Anchorage Highway it would apparently run several miles to the east of the highway rather than immediately adjacent to the highway itself. Presumably a new work-pad would have to be constructed alongside the pipeline and access roads would have to be constructed from the highway to the work-pad. Is it

The route identified in the OIW study would traverse a moderately sloping benchland just east of the Minto Flats along the base of a line of mountains. This route would probably not affect waterfowl directly, provided that the pipeline is constructed during the winter, but secondary impacts resulting from construction, such as alteration of drainage patterns, could affect the waterfowl habitat to an unknown degree. Construction of the pipeline higher up the mountain slopes to the west in an effort to avoid the Minto Flats might have a serious impact on moose since they concentrate in the willow thickets of this area during the winter. Hunting and trapping would be adversely affected near the construction activities while the pipeline is installed, and direct damage to streambeds and drainage patterns could affect fishing, but these impacts

possible to align the pipeline immediately adjacent to the highway or the railroad? For how much of the distance from Livengood south is this not possible?

The zone along the highway from McKinley National Park south will become increasingly important for recreational purposes as both Anchorage and Fairbanks grow in population. The FPC Staff acknowledged this in its discussion of existing and proposed recreational facilities (II-409 - 411). Given the present and future importance of this scenic highway it seems unnecessary to alter land uses and complicate the land management situation by constructing a gas pipeline several miles away from the actual highway or railroad. Additionally, it is worth noting that this road is the main north-south surface artery in the state, and that if the pipeline is constructed the highway would be subjected to heavy traffic at great expense to the state and hazard to motorists.

There apparently is disagreement about the suitability of Upper Cook Inlet in terms of LNG tanker safety. Various individuals I have consulted are concerned about ice and the tankers and LNG facilities. The concept of locating the LNG facilities near existing facilities is good, but the safety aspect worries me. I suggest consulting the U.S. Coast Guard for their opinion if this as not already been done. I note also that just because tankers are presently using the Nikiski site does not necessarily mean it is safe. The safety record may be a function of a relatively low number of trips and vessels, etc.

Within Prince William Sound I strongly suggest further research of the Bidarka site. The FPC Staff indicated that locating the LNG facilities at Bidarka would likely shift some of the related activity and development from Cordova to Valdez. This shift would, in my view, be a significant "plus" for the Bidarka site. I would rather add an increment of activity and development to Valdez than have the presently unaffected Cordova subjected to "pipeline impact." This is consistent with the philosophy of utilizing existing structures where possible and confining impacts to places where they already exist.

One additional comment regarding alternative sites in the Prince William Sound. I oppose the Hawkins Island option because of impacts on the Orca Inlet area -- an area which I understand is presently under consideration for "critical habitat" designation by the Alaska State Legislature, and because the pipeline to the facility might potentially involve a route through the ecologically-sensitive Copper River delta.

I know little about the situation at Oxnard, California, but I appreciate the Staff recommendation that only one LNG terminal be constructed in California, rather than three as proposed by Western LNG.

Stan Senner  
Vice President for Alaska  
Federation of Western Outdoor Clubs  
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would generally be minor and temporary. The pipeline route might result in increased access for subsistence hunting, fishing, and trapping, but a winter trail and sled road already exists parallel to the route between the route and the Minto Flats.

The OIW study gave the following reasons for deviating from the highway and railroad rights-of-way in the area of the Nenana River Valley adjacent to McKinley National Park:

Elimination of Nenana River Valley

"Critical falling rock area was observed along the Nenana River Valley. Especially for five miles north of the intersection of Alaska Highway #3 and McKinley Park Road. Falling rocks from unstable structure due to Denali Fault are common in that area. There are extremely limited spaces between the Sugar Loaf Mountain, the highway, and the Nenana River bed. Technically, it is almost impossible to pass the gas pipeline along this valley. Therefore, the pipeline was proposed seven miles to the east of the valley."

Comment reflected in Section H-2 of Vol. II of the FEIS.

See the environmental staff response to this issue on Page 3 of the comment submitted by the Friends of the Earth organization.

## THE ARCTIC NATIONAL WILDLIFE RANGE, ALASKA

The Arctic National Wildlife Range is a nearly pristine arctic wilderness including a continuum of landforms and ecosystems from the arctic coastal plain to the spruce-poplar forests of the south slope of the Brooks Range. The Wildlife Range protects the calving grounds of the Porcupine caribou herd--the second largest herd remaining in the United States, and important habitat for polar and grizzly bears, wolves, musk oxen, and a host of water fowl, raptors, shorebirds, and songbirds.

The Wildlife Range is presently the only area in the Alaskan Arctic which has not been extensively disturbed by petroleum exploration and/or development.

Conservationists have proposed to enlarge the Wildlife Range by 5.6 million acres to the south and the west in order to fully protect its free-roaming animal populations.

THEREFORE, the Federation of Western Outdoor Clubs: opposes encroachment on the Arctic National Wildlife Range and its proposed extensions; urges Congress to act to extend the Arctic National Wildlife Range by at least 5.6 million acres as proposed; revoke the utility corridor withdrawn by the Department of the Interior; and urges action designating the total area as wilderness.

Stan Senner, Vice President for Alaska, F.W.O.C.

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# FRIENDS OF THE EARTH

DAVID BROWER, President  
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JIM KOWALSKY, Alaska Representative

## MEMORANDUM

TO: Federal Power Commission ✓

FROM: Friends of the Earth, Alaska Field Representative, Jim Kowalsky *Jim Kowalsky*

SUBJECT: Comments on "Alaska Natural Gas Transportation Systems,"  
Draft Environmental Impact Statement

DATE: January 25, 1976

Generally we find that this statement has been with care and with imagination, and without the stifling constraints or dictates of the industry and its choices for pipeline routes. This approach is welcomed, and is a long-needed departure from the narrower approach to the assessment of pipeline options in Alaska which has been used by the U.S. Department of the Interior.

We find that the FPC conclusion that the Arctic Gas pipeline should follow the oil pipeline corridor from Prudhoe Bay south to Fairbanks and thence down the Alcan Highway into and across Canada is entirely correct. Friends of the Earth very strongly opposes the crossing of the Arctic National Wildlife Range as proposed by the Arctic Gas Prime Route, and we also strongly oppose the Arctic Gas Interior Alternative which would follow portions of the existing boundary of the Arctic National Wildlife Range.

The Interior Alternative would have the effect of separating the existing refuge from extensions which have been proposed to it under Section 17 (d)(2) of the Alaska Native Claims Settlement Act.

The Offshore Alternative for Arctic Gas could be considered somewhat more favorable except that it does return to the shore line once it crosses the boundary into Canada and would create another new corridor and impact another vast area of new country in the process. Friends of the Earth is opposed to the utilization of new corridors which would tear up new country, and generally favors the use of existing corridors for pipelines. Essentially this means that we are opposed to all Arctic Gas pipeline corridors which cross, and open up, vast new stretches of country.

The combined oil pipeline corridor-Alcan Highway Alternative would be, on the other hand, quite preferable and acceptable,

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January 25, 1976

and we commend the staff for their recommendation for this alternative route.

Friends of the Earth believes that the Arctic Gas Prime and Interior Routes are totally unacceptable because the problems associated with these routes would have a long range, ongoing impact upon the Arctic National Wildlife Range which would have the effect of permanent damage and degradation to the wildlife resource base, as is pointed out in the Draft Environmental Impact Statement of the U.S. Department of Interior: "Alaska Natural Gas Transportation System," June 1975. In this sense, Friends of the Earth believes that the Arctic Gas Prime and Interior Routes pose problems which cannot be mitigated since they are problems of location, eg: these routes are not compatible with the purposes for which the Arctic National Wildlife Range has been established.

As regards the recommended routing and LNG plant siting for the El Paso proposal, Friends of the Earth again commends the FPC Staff for its imagination and willingness to explore new terrain and new solutions.

The rationale that Pt. Nikiski on the Kenai Peninsula and Cook Inlet already is a developed industrial site is sensible. However, we find that there are rather substantial problems with routing between Livengood and Anchorage, as recommended in the FPC statement, Volume II. Unfortunately, the departure to the east from the existing Fairbanks-Anchorage Highway would traverse new country because this route is rather far from the existing development along the highway. Some caribou wintering grounds would be traversed for example, and the route would pose other disturbance to sensitive areas from a wildlife standpoint as well as to scar several lovely valleys with access roads. Some of this scar would be visible from the highway. The route as it nears the area of Cantwell for example, would be up on a shelf. Here a brand new scar would be easily visible from highway viewers.

Although we understand the reluctance of the staff to route closer to, or along side, the actual highway, we find that this routing would be preferable since it would follow, and be adjacent to, an area which already bears the scars of the disturbance caused by the cutting and filling necessary to construct the highway. If the steepness or unstable conditions of the Nenana Canyon through which the highway actually does traverse is a factor in placing the pipeline entirely to the east of the Canyon, then we feel that a more thorough assessment needs to be made of the engineering feasibility of also placing the pipeline in that Canyon rather than to the east through new country. If traversing of private lands such as those selected along the highway by the Cantwell Village Corporation is

considered by the Staff as a deterrent to the use of a highway alignment for the pipeline, we would be surprised and would like to have more details on this aspect of the Staff's analysis. It would seem that the crossing of private property will likely not be completely avoided in the construction of pipelines in Alaska, and we note that the oil pipeline alignment has already crossed private lands in the Fairbanks area.

The attempt to route around, or at the edge of, the Minto Flats in order to avoid the water oriented regions which would be susceptible to easy damage or disturbance from pipeline activities is commendable. However, it would appear to us that the Minto Flats remains a highly sensitive area which could be too easily damaged by this routing, especially if construction were scheduled for other than the winter season. More elaboration of the construction schedule which would be mandated would be needed with respect to the impact of this routing upon the Minto Flats with some recommended stipulations to mitigate potential damage. If this could not be done, or absolute mitigation could not be assured, it would seem to us that the route's proximity to the Flats would simply be unacceptable.

In this regard, we feel that some elaboration of the Staff's thinking as regards a possible closer proximity of the gas pipeline to the existing oil pipeline from Livengood south to Fairbanks, and thence southerly along the Fairbanks-Anchorage Highway would be in order. Would it be possible to cross around the south side of Fairbanks, for example, and over to the highway route to Anchorage? What also would be the feasibility of crossing over around the north side of Fairbanks?

At this time, Friends of the Earth feels that the El Paso route would likely best be left within the oil pipeline corridor to the Valdez area, with the LNG facility to be located closer to the Valdez area than is now the case with the Pt. Gravina LNG proposed site. The Bidarka site would appear to be acceptable and even preferable to Pt. Gravina since Bidarka is closer to Valdez, an area already heavily impacted by development of the oil pipeline terminus and storage and port facility. We would like to see a more thorough analysis of the Bidarka site as compared with the Pt. Gravina site as a choice for the LNG facility.

Reluctantly we suggest that the Nikiski Pt. site is probably not preferable, principally due to the difficulties of the proposed routing to get there. Although we are pleased to see the FPC Staff exercise imagination and logic in choosing this preferred site, we note that the routing to the east of the Fairbanks-Anchorage Highway, as noted earlier, would unnecessarily disturb both ecologically and aesthetically sensitive and wilderness country, and therefore, we view this routing as unjustified.

The route through Fairbanks would involve an additional distance of about 30 miles with an attendant increase in construction costs. The tradeoff between environmental impacts and construction costs may be possible when considering that natural gas would be available to the Fairbanks area.

As noted in the section on alternative sites, the use of the Bidarka site has a potential for biological impacts to the marine environment and socioeconomic impacts to the village of Tatitlek. This site's proximity to Valdez will probably result in the continuation of socioeconomic impacts of the kinds received from the construction and operation of the oil terminal. Bidarka is also closer to Columbia Glacier than Gravina, so the threat of icebergs along the sea route to Bidarka would be greater if the glacier should retreat in the near future.

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Friends of the Earth is also reluctant to see more development on Prince William Sound and is therefore deeply concerned with the nature and the location of any such development. However, it would appear that, since the Fairbanks - Valdez oil pipeline route is being developed with terminal facilities at Valdez, the El Paso proposal might best be routed to that area, staying as close to Valdez as it is possible to do.

#### Alternative Modes

The FPC Statement claims (II-498) that "the alternative transportation modes ... are fully described in USDI's Alaska Natural Gas Transportation System EIS."

Friends of the Earth wishes to strongly object to this statement as being untrue. With respect to LNG transportation by lighter-than-air technology, we wish to cite the USDI EIS, I-555, "LNG Dirigible":

Transportation of liquified natural gas by large dirigible airships would be a possible alternative (emphasis added) system. However, designs for this mode of transportation are not even on the drawing board as yet and are probably ten years away from a possible use date.

Friends of the Earth wishes to correct this misinformation by referring to the Shell Oil prototype program being designed in London to design and develop a sophisticated gas carrying airship by Aerospace Developments, 19 - 21, Newberry Street, London EC1 A7HU England Tel: 01-606 5981/2/3. Mr. R. Munk is Chief Designer, Director for the project. It is going forward according to a recent letter from Mr. Munk. Due to the nature of the project being funded by and developed for Shell, Mr. Munk has asked that the specific information about the gas airship prototype program be confidential, and that I not release same without written permission.

Although Boeing and various other organizations in this country have done some work on large rigid airships, these design studies are at a relatively undetailed stage.

However, Friends of the Earth believes that the record in this matter must be corrected, and we urge that the FPC contact Aerospace Developments to learn some of the details of this project, and that this information be included in the final environmental impact statement so that decision-makers have an opportunity to become familiar with an alternative mode of transportation for natural gas.

It should also be noted that Rep. George E. Brown, Jr. (D-Calif) has introduced House Concurrent Resolution 445 to increase federal efforts in the development of lighter-than-air technology. His remarks from the December 4, 1975 Congressional Record, and an article on the airship from the July/August 1975 Technology Review published by MIT, "Is There An Airship In Your Future?" is enclosed herewith. Also enclosed is a reprint from the

January 25, 1975

August 1972 Seatrade, "Airship Project For Natural Gas Shows Early Promise."

Although the latter is quite out of date, it should be emphasized that the Aerospace Developments Shell project has advanced considerably since that time, and the results to date are described as extremely promising. Mr. Munk notes that, although a gas carrying airship would pose a potential fire hazard, that a detailed analysis suggests such hazard may be no greater, and may in fact be substantially less, than those hazards encountered in moving LNG by tanker. Mr. Munk suggests fire was never the main hazard with airship technology, but rather it was one of the ships breaking up in mid air. He states in his letter that this is a matter of detailed design and the benefits of modern technology, which are the same aspects of technology which have been brought to bear upon the high degree of safety of the Boeing 747 aircraft whose passenger compartment is encircled by highly flammable fuel which is stored there, and which makes the 747 a "flying bomb" yet a successful and safe air carrier of heavy payloads. Mr. Munk stresses that the same strictures would apply to modern airship design and development.

We ask that the Staff include the two articles for the record of comments received on this EIS, and that the very incorrect statement contained within the USDI's EIS regarding design of airships for this purpose be corrected with some detailed analysis about the state of the art and the potential of the art for use in transportation of natural gas. Mr. Munk offers that he cannot detail the work done on the economics of such transportation, but that for the Shell project to continue in the next phase would require that it be competitive over distances of from 500 to 2500 miles. Friends of the Earth feels that it would be necessary and beneficial to the general purpose of the EIS process for the FPC Staff to ascertain the current status of the Aerospace Developments - Shell prototype airship project, and to comment upon it in the Final Environmental Impact Statement, both for the purposes of this specific project, and generally in a manner which would be useful to the reader who may later encounter new pipeline proposals.

Summary

Friends of the Earth believes this Draft EIS to be generally - and admirably-imaginatively done, well presented and easy to read. It generally contains good information and makes interesting recommendations.

We must admit to the considerable difficulty which we share with other organizations and interests in reaching a decision as to which route would be acceptable for a gas pipeline. There are many tradeoffs and many values and value judgements to be made. It also would be useful to have considerably more information about some of the alternative routes and alternative modes.

January 25, 1976

Generally we strongly reaffirm the need to stay within common and developed corridors in Alaska, and also that our opposition to any intrusion of a gas pipeline into the Arctic National Wildlife Range or its proposed extensions is firm.

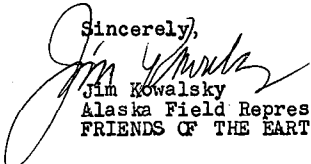
We have raised questions about the Staff's recommended El Paso route (and we add that the seismic instability of the lower Cook Inlet region is currently brought to mind as a result of the week-old eruption of Mt. St. Augustine within the same region as Nikiski Pt.). We hope that these will be answered.

Friends of the Earth prefers the Alcan Highway routing for the Arctic Gas proposal, and also makes a mild preference for a Prince William Sound LNG site facility for the El Paso proposal, with the hoped-for exploration of a site closer to Valdez than the present proposed site at Pt. Gravina.

We have not yet expressed a preference between the Alcan (Arctic Gas Alternative) Highway route and any El Paso proposed route. Hopefully we will be able to make an intelligent choice with receipt of more information about both recommended alternative routes.

We hope that these comments will be helpful to the Staff as they prepare the Final EIS for the Alaska Gas Transportation System, and we appreciate having this opportunity to make these comments.

Sincerely,

  
Jim Kowalsky  
Alaska Field Representative  
FRIENDS OF THE EARTH

Enc.: 2

# shows early promise

BY TREVOR LONES

SHELL INTERNATIONAL have instigated a project which may have a profound effect on the enormously high cost factor of transporting natural gas from source to consumer. For the past eight months Aerospace Developments at Thames Ditton in the U.K. have been carrying out, at Shell's instigation, an in-depth feasibility study into alternate methods of carrying natural gas at atmospheric pressure, namely by airships. So far, results have been encouraging and although no statement has yet been issued, it seems as though a positive green signal for a full-out 'go ahead' will be turned on reasonably soon.

Shell's decision to embark on a costly research and development programme to seek an alternative to LNG ships is based on sound economic reasons. The beginning of this decade has seen every major energy consuming nation facing the bleak prospect of a serious energy crisis by 1980, and of energy prices seriously curtailing economic expansion. With atomic energy still presenting so far insurmountable technical problems, the rapidly dwindling sources of oil and coal and the clamour for 'clean' energy, natural gas is playing an increasingly important role in filling the growing gap.

On the face of it, natural gas seems ideal. It is cheap, plentiful, relatively easy to get at and, important in today's outcry by outraged ecologists, it is pollution free. It has, however, one big disadvantage. Transportation from source to consumer is enormously expensive and presents considerable technical problems.

Conventional transport of gas by sea using LNG carriers is only part of a chain of complex facilities including gathering systems, field processing units, transmission pipelines, pretreatment and liquefaction facilities, terminal points and so on. The cost of investment in shoreside terminals exceeds the cost of the specialised ships, and even if world shipyards could produce the number of vessels in time to meet protracted world energy supplies, the cost of building LNG vessels is escalating at an incredible 25% per year. Storing liquefied natural gas at -259°F presents great problems, not the least being economic.

Airship transportation of natural gas at atmospheric pressure has several advantages. In simple terms the idea would be to fill the airship with natural gas at source and fly it back under power to its destination where it can be quickly discharged and the gas purified in a gaseous state. It could then return to the gas field carrying

some other lighter-than-air gas. Essentially, this would dispense with the need for liquefaction plants and pipelines at the start of the journey and the regasification plant at the end. Using airships in this way, the many smaller deposits of natural gas, which at present do not warrant the immense capital expenditure necessary to bring them into flow, could be made productive by the simple expedient of drilling and capping in much the same way as an oil well—a comparatively inexpensive procedure. The huge capital investment risk of developing production facilities in politically unstable areas, where the host nation may at any time decide to nationalise, can be minimised. Airships can just be flown away with little loss of capital.

The concept of transporting cargo by airship is not new, but trying to compare the gas filled, collapsible sausages of the thirties with the highly sophisticated, rigid, stainless-steel product of today's technology as envisaged by Aerospace Developments is rather like trying to compare the first 'chewing gum and string' multi-winged flying machine with a modern cargo-carrying Jumbo Jet. Although Shell and Aerospace would stress that the project is still very much in a development stage, nevertheless, an enormous amount of research has been carried out and so far all the answers seem to point to the airship having a definite place in the cargo carrying field of the future.

Designed along the lines of a modern aircraft, the Shell/Aerospace airship can best be described as being similar in shape to a VC10 without wings but with increased tailplane area to assist steering and stabilisation. The rigid, self-supporting structure would be filled with gas and ballasted until a state of almost equilibrium was reached. Power would be supplied using natural gas-fuelled turbo-prop engines podded to the underside of the tail fins. Turbo engines producing a total of 70 000hp would give the ship an estimated speed of around 110 knots.

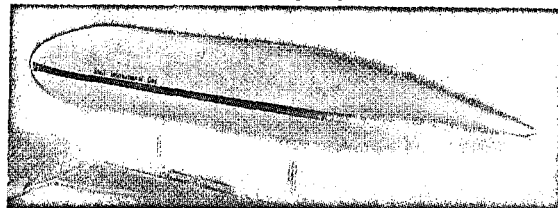
Suggested dimensions of 1 800ft

long capacity of some 100m ft<sup>3</sup> of gas by comparison the structure would be larger than a 500 000dwt supertanker. Cost is estimated at around £20m.

Safety seems to be inherent. In the unlikely event of the propulsion system failing, the airship, unlike a conventional aircraft, would not come crashing down to earth but would stay at the same height due to its balanced equilibrium. Movement would only be effected by winds or changes in atmospheric pressure. Punctures in the stainless-steel skin would seem to present no great problems. If the underside is punctured during take-off or landing, the leak would be minimal as any lighter-than-air gas tends to push upwards. A puncture topside would be more serious but gas loss would be confined to one of the 18 sealed bulkheads and ballast could be discharged by one of the crew (eight personnel envisaged) to restore equilibrium. As an added safety factor, the designers are toying with the idea of incorporating a permanent helium filled outer skin which would not only give additional buoyancy during flight—in the event of a sudden loss of gas—and when discharging, but would also provide an effective fire barrier. Discharge at the terminal end would be fast and probably effected by ground plant with a simultaneous exchange of a substitute gas to maintain buoyancy.

The interest of Shell International and other organisations, has prompted the recently formed Parliamentary Airship group in the U.K., headed by Mr Raymond Fletcher, MP, to officially broach the subject in the House with a request that government funds be made available for more research into airship projects. And also that the airships should be classified in the same way as marine ships so that existing shipbuilding facilities could be used, if and when, for production. This renewed interest in a subject which has previously provoked belly laughter in many areas has encouraged excited noises from a diversity of commercial interests in many parts of the world, and although it is early days yet, it looks as though the industry is a little closer to finding an alternative and more economical means of transporting at least certain essential commodities.

A far cry from the 'floating gas-bag image.' A model of the 1800ft long Shell/Aerospace airship designed to carry natural gas at atmospheric pressure



## EXTENSIONS OF REMARKS

## THERE CAN BE AN AIRSHIP IN YOUR FUTURE

HON. GEORGE E. BROWN, JR.

OF CALIFORNIA  
IN THE HOUSE OF REPRESENTATIVES  
Wednesday, December 3, 1975

Mr. BROWN of California. Mr. Speaker, a few weeks ago I introduced legislation that I hoped would re-focus attention upon a neglected area of transportation, the lighter than air aircraft. Since that time I have received a great deal of public support, as well as congressional support, for this proposal. For those who have not had an opportunity to consider House Concurrent Resolution 445, expressing the sense of Congress with respect to increased Federal efforts to prove the commercial viability of lighter than air aircraft, I would recommend that they review pages H10170 to H10172 in the October 21 CONGRESSIONAL RECORD. If after review, any Member wishes to be a cosponsor, I encourage them to contact my office.

At this time I wish to insert a fair, and somewhat hard look at this subject which was published in the July/August 1975 issue of Technology Review, which is published by MIT.

## The article follows:

## IS THERE AN AIRSHIP IN YOUR FUTURE?

(By Joseph F. Vittek, Jr.)

(Note.—Joseph F. Vittek, Jr., is Assistant Professor of Aeronautics and Astronautics and Associate Director of the Flight Transportation Laboratory, MIT. He received his U.S. degree from M.I.T., his Juris Doctor degree from Suffolk Law School, and his LL.M. degree from Harvard Law School. Professor Vittek is the Chairman of the American Institute of Aeronautics and Astronautics' Lighter-Than-Air Technical Subcommittee, and he directed the recent Interagency Workshop on Lighter-Than-Air Vehicles, sponsored by the National Aeronautics and Space Administration, the U.S. Navy, the Department of Transportation, and the Federal Aviation Administration. His other areas of research include public policy analysis and the interaction of law and technology.)

The only airship most of us have ever seen is a small advertising blimp. Few of us can remember the large airships of four decades ago. Airships with lounges, promenades, dining rooms and accommodations for 100 passengers, airships that launched and retrieved airplanes stored inside their cavernous hulls, airships over 800 feet long—these are things of the past. Yet there is talk about new airships that would dwarf the biggest giants of the past, fly several times faster, carry greater loads, and solve many of the world's current transportation problems. Whether such behemoths are actually possible or merely based in nostalgia and wishful thinking, remains to be seen.

## AIRSHIPS FROM ARCHIMEDES TO ZEPPELIN

Archimedes' Principle states that a body immersed in a fluid is buoyed up with a force equal to the weight of the displaced fluid. Therefore, an airship that displaces more air than its weight will rise in the fluid atmosphere. As early as 1250 A.D., Roger Bacon suggested that a hollow globe filled with "aetherial air" or "liquid fire" would float in the air like a boat on water. He neglected,

however, either to define these mystical substances or say how they might be obtained. It was not until the 1700s, when both hot air and hydrogen balloons were introduced, that buoyant flight became a reality.

But more than buoyancy was needed to make airships practical. They had to be steerable (the French adjective for steerable, "dirigible," has become synonymous with "airship"). And they had to have the ability to propel themselves against the wind.

The propulsion problem was the most difficult. Many schemes were tried—cars and hand cranked air screws, as well as more imaginative approaches that defy both description and reason. The difficulty lay in the low power-to-weight ratio of both men and early engines. Dirigibles powered by lightweight steam and electric engines met with limited success during the last half of the 19th century, but not until petroleum-fueled engines were used in the late 1890's did airships become practical.

The same reasoning and economies of scale that have produced today's huge supertankers can also apply to airships: buoyancy is proportional to displacement; displacement increases faster than structural weight as size increases; therefore larger vehicles carry larger cargoes, not only in absolute terms but also in terms of per cent available for payload. Also, payload increases faster than do crew and fuel requirements. Thus the tendency toward larger airships seems natural.

The first person to truly take advantage of size was Count (Graf) Ferdinand von Zeppelin. He realized that an airship had to be successful. And to be large, it had to have some rigid structure. Zeppelin's first airship, flown in 1900, was over 400 feet long and used circular frames connected by longitudinal girders that ran the length of the ship. The circular frames were cross-braced with steel wire, and gas bags were inserted in the bays between the cross-braced frames. The outside of the structure was covered with stretched fabric.

With few exceptions, all large airships ever built have followed the Count's basic design, and "Zeppelin" is often used to describe all large rigid airships, whether actually constructed in the Zeppelin Works or not.

## BUOYANCY IS UPLIFTING

Airships which use buoyancy aerostatic lift rather than powered aerodynamic lift are five to ten times more energy-efficient than airplanes because their energy is used only for motion, not for support. This is of course offset by the lower operating speed of the airship, whose most efficient cruise speed is between 50 and 150 miles per hour, depending on the design. It is possible to design airships for higher speeds, but energy consumption grows exponentially.

Lower energy consumption means less pollution and noise because smaller power plants are required. Also, the large lift capability of airships permits the use of pollution and noise abatement devices which would impose a severe weight penalty on an airplane.

Large lift means large loads in terms of both total weight and payload size. Airplanes are designed for optimal payloads with a density of approximately 10 pounds per cubic foot, but most payloads never reach this ratio because the density of most cargo is considerably less than this number. In contrast, the large cargo bays possible in airships could usually reach payload weight limits long before they fill up physically, and there would thus be no penalty for the transport of low-density, bulky products. Lower operating speeds would also allow external

carriage of outsized objects that could not fit inside conventional aircraft.

Finally, buoyant lift permits airships to hover. In this mode, payloads can be winched on and off, lessening the need for ground facilities, allowing operations at undeveloped sites.

## GREAT DANCE TO SANTA HAZE

The advantages of buoyant lift make airships uniquely suited for certain missions. Although low speeds limit their use for general passenger transportation, their spacious accommodations could offer a level of luxury unknown in present air travel and create a new market for air transportation similar to that of ocean liner cruises. Airships are faster than truck, rail or water transport. This could lead to diversion of certain types of general cargo from these modes, especially where the airship's ability to hover would allow direct origin to destination service. These same characteristics make airships attractive in developing nations; airships can provide transportation to isolated villages, particularly in terrain where airstrips would be too difficult or expensive to construct. Perhaps their most important use would be to open up remote mineral resources or agricultural areas for development. When the costs of building roads or railroads into such areas are considered, airships are estimated to be better investments until traffic levels exceed 100 million ton-miles per year, especially when costly port facilities are needed for overseas export.

Other suggested commercial uses include the creation of modular housing—mass-produced at the factory then transported to the building site and lowered into place by ship. Power plant components can also be handled this way. There are several proposals to transport natural gas and other volatile substances directly from the well-head without the need for expensive liquefaction facilities and cryogenic tankers.

Airships could provide needed public services as well. Hospital facilities could be transported to disaster areas when the conventional transportation system has been disrupted or is inadequate. Pollution control and environmental monitoring are other special missions where the airship's ability to fly to a site and then linger for long periods could be particularly useful.

Military uses are numerous. By taking advantage of the immense areas on the sides of the airship, phased array radars of unprecedented power and performance could be designed that would permit surface and air surveillance of extremely large areas, especially over the oceans. This would allow the early detection of low trajectory submarine-launched missiles. The airship could even launch intercepting missiles. Equipped with ship-to-air, air-to-air or air-to-surface missiles, the airship would become an effective offensive as well as defensive sea-control weapons system. If aircraft were carried, the airship could be an even more potent tool.

Perhaps the biggest role of the airship would be for submarine surveillance and anti-submarine warfare. Faster than surface ships, and able to use more powerful search devices than airplanes, airships can sweep larger ocean areas in a given time period. In one to two weeks, for example, a fleet of approximately 20 airships could search the entire North Atlantic for enemy submarines. A considerably longer time or larger number of vehicles would be needed to perform this task by ship or airplane. And the airship alone has the speed and endurance to track and trail the enemy once detected and to attack, if necessary.

Airships could also be used for troop and

cargo transport, for command and control missions, or as airborne platforms for the launch of strike aircraft or long-range ballistic missiles.

#### THE BIGGER THE BETTER?

The use of helium instead of hydrogen has eliminated the danger of catastrophic fire. But airships still have their own unique problems, many directly related to size. The Hindenburg and its sister ship, the Graf Zeppelin II, both over 800 feet long with a gas capacity of 7,000,000 cubic feet, were the largest airships ever built and flown. Yet many analysts feel that a 10,000,000 cubic foot airship is the smallest that would be commercially feasible today. Some even talk of 60 or 100 million cubic foot airships, 1,500 to 2,500 feet long.

The first decision in dealing with any airship even a fraction of the Hindenburg's size is where to build and launch it. Large hangars were used in the past, and there are still about a dozen of these buildings that could house airships of the ten million cubic foot class in the United States. To build airships any larger, however, new and expensive facilities would have to be developed.

These new facilities would also require large land areas. When an airship is moored outside the hangar, it must be free to swing in the wind. Although expensive paved runways and apron areas are not needed, the land area required to handle just a few airships simultaneously is approximately that of many big city airports. When remote operations with the U.S. Macon were considered, the site selection guidelines recommended a three-mile radius clear zone even though the airship itself was less than 800 feet long.

Ground handling of large airships presents problems, too. In the past, crews numbering in the hundreds could not always control airships on the ground, particularly in cross winds.

Several ideas have emerged to improve ground handling. The first is to use hangars that float or are mounted on turntables so they could always face into the wind, but the expense of building a turntable large enough to accommodate an airship would probably be prohibitive. A floating hangar was used by Zeppelin for his first airships, but abandoned as unsatisfactory. A second idea is to keep the airship continuously airborne once it is built. All supplies, cargo, crew, etc., would be winched up and down in modules while the airship hovered overhead. The third idea is an extension of the techniques developed for handling large rigid in the 1930s and for U.S. Navy blimp operations in the late 1960s and early 1960s. When the airship lands, it is tethered to mobile vehicles (railroad cars were used for the large rigid) and then towed into the hangar. The same equipment used for the Navy blimps could be adapted to rigid airships of up to 3 million cubic feet. Larger, heavier models of that equipment could handle an airship of up to 15 million cubic feet. Beyond that, the hover mode may be the only answer.

#### AIRSHIPS HAVE THEIR UPS AND DOWNS

Even though vectored (directional) thrust or aerodynamic lift may be used to offset variations in buoyancy, airships are still buoyant vehicles. If an airship is "heavy"—if it weighs more than the air it displaces—it will descend. If it is "light," it will ascend. As the density of air decreases with altitude, the higher the airship rises, the less the displaced air weighs. Eventually it will reach equilibrium—the airship's "static ceiling."

Atmospheric pressure also decreases with altitude, allowing the lifting gas to expand in the cells. At "pressure height," the cells are full. If the airship goes higher, gas must be vented or the cells will burst. But venting gas is expensive, particularly if helium is used, and the subsequent lessened lift during descent creates additional problems. There-

fore airships are never intentionally operated above pressure height.

For a given airship to operate at a higher static ceiling, its gross weight at takeoff must be decreased, increasing the buoyant lift. To operate at a higher pressure height, less gas is placed in the cells at the start of a flight. This decreases lift and again gross weight must be decreased to compensate. Because the structural weight is fixed, gross weight can be reduced only by carrying less payload (or less fuel, which means less range). Therefore, airships are intrinsically low-altitude vehicles, with limited carrying capacity over mountainous terrain and limited ability to climb above storms. Airships of the 1930s were typically operated at pressure height of 2,000 to 4,000 feet with a static ceiling of 5,000 to 6,000 feet. (The Germans did design "height climber" Zeppelins during World War I to operate above 20,000 feet, but this was done at the expense of payload and success due to the expense of payload and structural integrity.)

During flight the airship consumes fuel, lessening its weight and destroying equilibrium. To compensate, ballast recovery systems were designed to condense water out of engine exhausts. Another method was to scoop water from oceans or lakes with buoys on ropes. Exposed nuclear powered airships do not face this problem because fuel is not consumed but converted.

Reliance on buoyant flight creates other problems as well. Airships can land and unload while hovering, but to do this they must maintain neutral buoyancy (or use vectored thrust and great power to overcome buoyancy fluctuations). As goods are unloaded, ballast must be taken on board, and as goods are loaded, ballast must be released. Obviously, arrangements for ballast must be made in advance, lessening the airship's ability to serve undeveloped sites.

Thermal variations cause buoyancy variations. A Zeppelin ground crew often had a team whose sole responsibility was to climb out and on the suspended airship as alternating sun and clouds varied the heat, and therefore the lift, of the gas. In actual flight, thermal problems were caused by layers in the atmosphere. A warm airship descending into colder, denser air or a cool airship ascending into warmer, less dense air occasionally had to wait for the gas and air temperatures to equalize before it could penetrate the thermal barrier. (The use of swiveling propellers to vector thrust in the airships Akron and Macon greatly reduced this problem.)

In addition to vectored thrust, several other technological solutions to buoyancy control have been proposed. On-board compression or liquefaction of gas could be used to control gas volume, but the necessary equipment may be too heavy. The use of engine heat or the discharge of steam into the cells could control gas density thermally. Whether these methods require insulation of the gas cells and what the response time of the system is remains unknown. However, it is safe to say that ballast control and gas valving will always be required, at least for buoyancy control in emergencies.

#### A FINE WEATHER FRIEND

Out of the 162 rigid airships that have been built, 178 could fly in or out of vectored vehicles), 90 have not violent ends. But look below the surface: 92 were lost in enemy action or needless hydrogen fires; 10 were lost during landing or ground operations. These losses could have been avoided if modern techniques and equipment had been available.

In the 16 airships lost in flight, the major culprit was structural failure in violent weather. This does not mean that airships cannot survive bad weather, or that the structures or designs were defective. In almost every case, the design was more than able to survive anticipated weather—the

problem was that the weather encountered was much worse than anticipated.

With today's more precise knowledge of meteorological forces, modern computer-aided structural design and analysis techniques, and modern materials, there is no doubt that stronger, safer airships can be built. Until the 1930s, when commercial airship operations ceased, the fatality record of airships was comparable to that of airplanes. The German airship line founded by Zeppelin carried 40,000 passengers and flew almost 25,000 hours during 4,000 flights with the loss of only 13 passengers—all in the Hindenburg configuration.

#### DOLLARS AND DIGNITY

If any new method of transportation is to gain acceptance, it must offer an improvement over existing systems in terms of cost or performance or both. Therefore, the revival of airships will depend on their ability to capture traffic from an existing mode or generate new traffic by offering services in demand but currently unavailable. In a military context, airships must be able to perform missions better or more cheaply than present modes, or offer a capability desired but unavailable.

There is a clear performance gap in terms of speed between current surface transportation and jet aircraft that an airship might fill. The question is the cost of airship service.

Cost is dependent upon many variables: the cost of the vehicle, its service life, annual utilization, fuel and crew, etc. While these costs can be predicted for a new airplane well before its first flight, because of the vast amount of data available on past and present aircraft construction and operating costs, airships lack that advantage. The last valid data for large airships come from the 1930s when airship costs were competitive with airplanes. Few would attempt to extrapolate that trend to the present.

Preliminary analysis indicates that there is a market for airship transport of large indivisible loads. If the cost remains below ten cents per ton-mile. If the cost could be further lowered to four cents per ton-mile, airships could start diverting traffic from airplanes, truck and rail. Several cost estimates by potential manufacturers and others indicate that the higher figure is indeed possible but the lower is still in doubt. Similar analyses to estimate the airship cost effectiveness for military missions are possible, but few have been completed.

#### MORE THAN ONE WAY TO GET HIGH

Among the many proposals for airships, some are for different types of vehicles which are not totally buoyant. These suggested "hybrids," which combine aerostatic and aerodynamic features, are quite varied: some are classic airship designs pulled and pushed and sprouting wings; others are based on balloon-rotary wing combinations; others are forms of lifting bodies that look much like large space shuttles or re-entry vehicles.

The hybrid vehicle can offer faster speeds, better control and easier handling than conventional airships. In comparison with airplanes it offers higher payloads and better energy efficiency. Indeed, studies show hybrid designs technically possible and economically practical. A proof-of-concept lifting body design has been successfully flown.

But hybrid concepts remain unproved and their use is probably farther into the future than is a revival of classic airship designs. If, indeed, that is to take place. And hybrids, to be accepted, must meet the same economic and market tests as conventional airplanes.

Several unmanned buoyant systems, which might be useful for special applications, are also receiving attention: tethered balloon systems for logging, communication, and radar applications are currently operational and almost every case for their operation and manufacture; high altitude station-keep-

ing vehicles for surveillance and communication will be flown shortly.

The military is interested in some of these systems for offloading supplies onto undeveloped beachheads. The communication and surveillance applications also have clear military as well as commercial potential.

#### HELDE UP BY REDTAPES

The final barriers to airships are those imposed by government regulation, union contracts and the like.

How will airships be certified? The Federal Aviation Administration has been struggling for several years to develop standards for aircraft capable of using short runways, although the differences between these planes and conventional aircraft are not that dramatic. How long will it take to develop standards for commercial airships?

How will airships be handled by the air traffic control system? At the least, because of their relatively low speeds and altitude restrictions, special procedures of some type will be needed.

How will airships be tested? What safety standards will apply? Will airships be operated by airlines or by shipping companies? Will certificates of public convenience and necessity be required? Will the aviation or the maritime unions have jurisdiction? Will the Civil Aeronautics Board or the Federal Maritime Commission have regulatory control? What of our international bilateral agreements? Will they apply or will new negotiations be needed?

Although these issues are currently overshadowed by the technical and economic questions, they must at least be considered.

#### IS THERE AN AIRSHIP IN YOUR FUTURE?

Interest is strong in airships, and with some justification. They do offer the potential to solve some serious transportation problems and to improve service. Many of their previous drawbacks have been solved with new concepts and new technology. But do airships make sense economically?

Many advocates feel that further technical and economic studies are a waste of time. Because an airship must be built and flown to get data and end speculation, it may follow that once airships are flying and people can see what they can do, innumerable unsuspected uses will be found justifying the investment. This may be true, but who is going to pay for the construction and flight of that first airship?

Conservatives argue that, if airships are practical, the private sector will produce them. They also point to the development of the unmanned systems for logging and communications. But this argument ignores two factors. First, the logging and communications applications are not significant departures from the current state-of-the-art in sport and high altitude research ballooning. There is no state-of-the-art for large airships. Second, the magnitude of the investment and risk is much greater for large airships. Because of the large development costs of modern technology, it is claimed that American aircraft manufacturers no longer have the capital to undertake new large-scale airplane design programs. If this is true for airplanes, a field in which the United States leads the world, it is no wonder that manufacturers hesitate to begin private large-scale airship development programs. If a large-scale airship program is to start in the near future, it will have to be government supported.

But government support of commercial airship development is extremely unlikely.

The SST experience is still too vivid. And Congress is too busy with the present problems of bankrupt railroads, airlines and manufacturers to chase potential will-o'-the-wisps.

In the military there is much interest in airships and other buoyant systems, but this is balanced by strong antagonistic forces. Some development will probably occur, but not rapidly or on a large scale.

Even if neither the aviation industry nor the government is willing to support development of airships, the airship underground will continue to function. At this moment a father and son team are building a small rigid airship in the desert of Arizona, a young southern California entrepreneur is building a sport blimp in his backyard, and a sport balloon company is about to introduce a thermal blimp—small companies with a concept and a dream keep appearing. We may be seeing the rebirth of silk-scarf aviation. The same types of people who brought airplanes out of their infancy may bring airships out of oblivion in spite of established industry, the government—and the odds.

#### AIRSHIP TERMS

**Dirigible:** Any buoyant vehicle that can be steered in free flight with or against the wind.

**Non-rigid:** An airship without internal support or structure. The hull is the gas envelope and its shape is maintained by internal gas pressure. The actual car, crew quarters, payload, etc., are external to the gas envelope.

**Blimp:** A non-rigid airship. Several sources of the name are given. One well documented origin is that "blimp" resembles the sound made when a non-rigid airship is tapped with a finger.

**Semi-rigid:** An airship with a structural keel attached to the gas envelope, but without other support. The envelope still depends on gas pressure for support.

**Non-pressure rigid:** An airship with a rigid structural skeleton. The outer envelope is attached to the framework and does not depend on pressure for its shape. The gas is contained in cells inside the rigid structure.

**Zeppelin:** Strictly speaking, a non-pressure rigid airship produced by the Zeppelin Company. Often used synonymously for all airships of this type.

**Pressure rigid:** An airship with a rigid exterior shell partially supported by internal gas pressure. A blimp with a metal skin instead of fabric.

**Hybrid:** An aircraft that uses large amounts of both aerostatic and aerodynamic lift. A combination airship-airplane.

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## FRIENDS OF THE EARTH

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DAVID BROWER, *President*

Comments submitted by Pamela Rich, on behalf of the Washington, DC Office, Friends of the Earth, to the Federal Power Commission on the draft Environmental Impact Statement, "Alaska Natural Gas Transportation Alternatives." Janaury 26, 1976.

Friends of the Earth appreciates this opportunity to offer our comments on the Federal Power Commission draft environmental impact statement, "Alaska Natural Gas Transportation Systems." Friends of the Earth is an international organization concerned with the conservation and rational use of the earth's resources. Friends of the Earth has a standing interest in the North and the future of the North's peoples and natural environments. We see Alaska as a cutting edge - it represents a unique and perhaps the last opportunity for the United States to design a future in harmony with the character and wildness of the Alaska land and the lifestyles of its indigenous peoples.

The transportation of natural gas from Alaska's North Slope epitomizes the choices which challenge the nation and Alaska to develop the region slowly and wisely. The way the gas pipeline is routed and construction and operation procedures monitored will certainly be a precedent for any additional pipeline systems planned for delivery of North Slope resources.

Friends of the Earth strongly urges the Federal Power Commission to analyse the alternative gas transportation systems in the context of future development possibilities, recognizing that their decision on the gas transport system could set a much longer term pattern of development for Alaska.

Friends of the Earth believes that the following factors are central to this type of long term planning which we feel is so important to the future integrity of northern ecosystems. The North is a fragile land and many disturbances are known to be severe and irreversible. Other intrusions such as changes in wildlife habitat have impacts, the long-term effects of which cannot yet be calculated. Thus, Friends of the Earth urges the FPC to consider at the minimum an existing transportation corridor. This would establish a pattern of development which would minimize impacts and do more to protect some of the irreplaceable values of Alaska. We also believe that in a region where so many developmental factors have unknown impacts, a mechanism must be established to evaluate and incorporate data accumulated from preceding developments into the construction and monitoring phases of later projects. Much can be learned already from the "Alyeska experience." New designs must incorporate practical solutions to the problems encountered already, so that past mistakes are not senselessly repeated. Finally, the costs of development in the North are high - and by that

*Committed to the preservation, restoration, and rational use of the ecosphere*

FPC dEIS  
26 January 1976  
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we mean social and economic, as well as environmental costs. It also 'costs' a lot of energy to transport fossil fuel resources from the North Slope to lower 48 markets. Friends of the Earth stresses the importance of plugging net energy analyses into the decision-making process so that more energy is not put into a system than can eventually be derived, particularly at such high costs, relating to other factors.

Friends of the Earth commends the FPC staff for having begun a good analysis of alternative routes. We believe that the dEIS has come a long way towards looking at North Slope oil and gas development as one system - the range of possibilities for transport of both have finally been laid face up on the table.

Now, more information must be provided in the Final EIS to make a decision as to the best system. Net energy and LNG tanker risk analyses are particularly lacking in the dEIS as well as more environmental information relating to the "Fairbanks Corridor" route. Friends of the Earth also believes that the dEIS inadequately incorporates baseline data from Alyeska. Problem areas to date have been well documented by state pipeline officials, yet so little of that information is presented in this dEIS, that we have essentially no assurances that the same problems will not be encountered again. The reliance on verbal promises from industry, the proposed use of winter construction schedules, the cursory treatment of stream crossing problems, and other similar cases presented in the dEIS do not reveal any attempt to build on the experiences of Alyeska and the realities of building pipelines in northern environments.

Furthermore, many of the mitigating measures described in the dEIS (II:317-364) are too general to be meaningful. For example, design features have been described in only very general terms and are offered among a variety of alternatives. Such statements as, "The pipeline design would include unique design features..." and, "measures would be used to prevent possible problems...." (page II:319) are really very vague. Only one or two examples are listed as 'unique features' or 'measures' so it is not clear to us at all which system will ultimately be used or who will make that decision. And, in the absence of any type of quality control analysis on these systems, who can judge whether or not a proposed system would be practical or effective? In a sense, the reader is being asked to evaluate 'a pig in a poke.' Yet, one of the clearest lessons already learned from the oil pipeline is that on a high-speed, large scale project, design features and enforcement procedures must be made very explicit from the start if anything but a haphazard job is to result.

We also believe that verbal promises from industry are not enough to insure that adequate steps will be taken to protect the physical or human environments given the very rigorous demands of the physical environment and tight construction schedules. We are frankly surprised at the apparent willingness of the FPC to accept such statements as the following: "El Paso has stated they would cooperate fully...(II:318)". What if construction falls behind schedules or if 'cooperation' costs too much? Effective mechanisms need to be stipulated to force the applicant to take environmental

The environmental staff relied on the environmental information in the U.S. Department of the Interior's Environmental Impact Statement, plus the fact that an underground pipeline does exist along a portion of this route, from near Fairbanks to the Alaska-Canada border. When available, the environmental staff has utilized information gained through the experiences of Alyeska.

The environmental staff feels it has provided an adequate review of El Paso's proposed measures to mitigate adverse effects to the environment. A detailed presentation of every step-by-step procedure for every situation is beyond the scope of this environmental impact statement.

conditions seriously.

Likewise, the revegetation program appears to be based only on the good intentions of El Paso, for example: "All disturbed areas would be revegetated and restored as nearly as possible to pre-construction conditions (II:332)." While we do not necessarily want to question the good intentions of El Paso, it must be pointed out that there have been some very real problems with revegetation along the oil pipeline, such as seed sources and soil stabilization. There is nothing in this dEIS about how areas will be revegetated, how soon after disturbance, and who has the responsibility for maintenance after planting. If revegetation is to be successful, a long-term plan must be prescribed and implemented.

We are particularly dismayed that a winter construction schedule is being planned and relied on and that specific impacts which might be encountered during the summer have thus been disregarded. One has only to look at the bottleneck of critical supplies in the Prudhoe Bay ice this summer, or the reduced work schedules forced on Alyeska last winter during the very cold spells to recognize the severe impacts the northern environment can have on projects. The winter construction schedule proposed by El Paso is not as practical as the dEIS might lead the public to believe. This should be more realistically evaluated in the Final EIS and impact analyses revised as appropriate.

Stream crossing proposals reflect more good intentions than a real understanding of the problems which might arise and hence an ability to deal with those problems. Where have river control structures been necessary on the oil line and what types of problems have they caused? In designing culverts for road crossings, velocity barriers to fish migration is not the only problem although a major one. Joint Fish and Wildlife Advisory Team (JFWAT) monitoring programs have indicated that proper culvert installation, erosion protection devices, and stream channel restoration are also significant problems developing with oil pipeline construction. Some of these other problems should be recognized and evaluated the Final EIS if the problems are going to be dealt with effectively during gas line construction.

It is also unclear from the dEIS how much in fact El Paso's proposed route will share facilities with the existing Alyeska support facilities. Will new construction camps be built? If so, how many and where? From where will the gravel for the El Paso proposal be taken? Shortages of gravel have already been encountered along the Alyeska route. Without an adequate discussion of these factors, it is not possible to evaluate what the real advantages are of the proposed El Paso route over and above the other possibilities.

Another weak area in the dEIS is the whole operation and surveillance program which has been presented in only very general terms. The public has no idea how the program will be implemented or by whom and therefore has little assurance that an effective program will indeed take place. The public has learned several things from

The environmental staff agrees that successful revegetation in disturbed areas is of prime concern in mitigating environmental impacts and has proposed restoration and revegetation procedures.

The environmental staff has recommended that the successful applicant undertake an analysis of the Alyeska Pipeline System in order to accumulate more definitive information on the impacts of a chilled gas pipeline in arctic and subarctic environments. For more detail concerning this recommendation see the staff's response to Page 3 of the EPA's comments.

It has not yet been determined to what extent El Paso's proposed route would share facilities with the existing Alyeska support facilities. Additional construction camps will undoubtedly be required, but sites have not yet been selected. Tentative locations for El Paso's borrow sites are given in Figures 2 through 35, Section 2.1, Appendix to Description of Facilities, Volume IV of El Paso's application. Final borrow sites have not yet been selected.

the Alyeska experience. Without a carefully designed surveillance program, enforcement becomes a nightmare of confused communications and environmental damage. We have seen on the oil line how verbal promises or good intentions are not enough when played against a tight construction schedule and a tough environment. These facts must be recognized in the gas transport EIS and far more specific problem analysis needs therefore to be presented.

Another very significant aspect of the oil pipeline which should not be disregarded in gas transport is the closed information circuit surrounding the whole project. Yet the public has a very real stake in the ways in which these pipelines are constructed. We all are going to have to live with these systems and the lands surrounding them for many years to come. Our right to access to information concerning actual implementation procedures must be guaranteed. Nowhere in El Paso's proposal have provisions for public input been made. Friends of the Earth would encourage the FPC to consider a citizens' advisory board or some other mechanism which would guarantee public access to critical information. Future developments in this region cannot afford the alienation which results from keeping concerned individuals on the outside.

Finally, we find it very difficult, on the basis of the dEIS, to yet determine which would be the more practical and most environmentally benign route for gas transport. For example, how would combined oil and gas tanker traffic in Cook Inlet compare with traffic levels expected in Prince William Sound? How might this affect risk possibilities inherent in LNG transport? Tanker traffic levels should be a factor in site selection, yet no discussion was presented. The reader also has little idea from the dEIS as to comparative weather conditions such as winds and tidal effects and how those would affect alternative sites and traffic routes. Both weather and traffic considerations must be given more discussion in the Final EIS than an LNG site on Cook Inlet could be fully evaluated against the proposed Ft. Gravina site. Without risk analysis concerning LNG transport, on what basis will a discussion be made as to the relative merits or disadvantages of a route involving tanker transport vis-a-vis an all-land system? It is Friends of the Earth's opinion that prior to any decision on a particular route, more information regarding the many factors enumerated in these comments must be provided.

In conclusion, Friends of the Earth strongly recommends that such additional information be included in the Final EIS and in particular, that more discussion and evaluation be given to the Fairbanks Corridor route. It is an existing corridor and one which would not involve the inherent risks or increased tanker traffic of LNG liquefaction and transport. While there is not much time for such additional analysis under the tight schedule for the NEPA process as proposed by the FPC, we stress the importance of carefully considering all alternatives at this time. It is a critical opportunity which will set precedents for future pipeline developments. Thank you for this opportunity to offer our views.

It is our understanding that the U.S. Department of the Interior (DOI) will again recommend that Federal authorizing officers be assigned to work with and oversee all phases of the applicant's construction program to assure compliance with and enforcement of regulations. DOI is presently involved in the preparation of stipulations similar to those utilized by the Alyeska Pipeline Company which will cover specific actions and implementation procedures to be initiated against individuals found in violation of prescribed regulations.

Comment reflected in Public Safety analysis and/or safety studies attached to the FEIS.

The environmental staff has accepted the DOI's discussion of the Fairbanks Corridor route. Where possible, additional information would be included.

14000 Interurban Avenue So.  
Seattle, Washington 98168  
Phone: (206) 244-8800  
Telex 32-0127

**PAUL K  
HAGGARD CO.**

Since 1951

223 Illinois Street  
Fairbanks, Alaska 99701  
Phone: 907/452-7224

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5th Day of January  
Our 25th Year  
1976

CP75-96

Federal Power Commission  
825 North Capital Street  
Washington, D.C. 20426

Attention: Mr. John N. Nassikas, Chairman

Gentlemen:

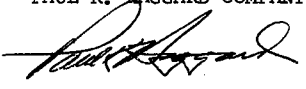
As a small businessman interested in our country's welfare first and my personal gain last I strongly urge that your decision will be to transport the Alaskan gas through Alaska and not through Canada.

The rip-off Canada has already forced our country to swallow with their cut-off on oil and gas should be ample evidence of what would happen if we transported Alaska gas through their country.

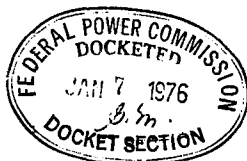
Americans as a whole have lost their faith in our government to the extent that they trust no one. Help gain back that trust by considering the whole country and not just a few politically strong and greedy groups.

Sincerely,

PAUL K. HAGGARD COMPANY

  
Paul K. Haggard  
President

PKH/gw



Specializing in Equipment and Service to the Utilities, Contractors and Municipalities

4/6/76

Dear Sirs,

would like to let you know that I  
am in favor of a Trans-Alaska pipeline.  
Canadians have been good friends of  
ours for years, however they have  
always been definitely for themselves.  
I want us to start being definitely  
for ourselves.

Please, No! trans-Canada Pipeline.

Sincerely,

Marlene Jones  
Box 729, Pauch T.C.  
Valdez, Alaska 99692

P.S. I am a registered voter, mother of 6  
children, divorced + work the Pipeline  
as a Steamster Partaman.

REC 12 11 05 AM '76  
FEDERAL BUREAU OF INVESTIGATION  
U.S. DEPARTMENT OF JUSTICE



Mt. Williamson

*From the Dwelling Place of the Great Spirit—Inyo*

174 FLOWER ALLEY  
BIG PINE, CALIF. 93513

Jan. 15 1976

Federal Power Commission  
Washington, D.C. 20426

Gentlemen:

Xin Re:

El Paso Alaska Company  
et al.  
Docket Nos. CP 75-96  
et al.

I have read the Draft Environmental booklet which you kindly furnished me. I urge strong support for this method of transporting the natural gas. Please o.k. the alternatives of 1. Building site of Oxnard, Calif. In preference to Point Conception; 2. site of liquifaction plant to be located at Nikiski on Cook Inlet rather than at Pt. Gravina. It is regrettable that so large a swath of land must be devoted to an energy resource of such limited supply, that is, for a limited time segment.

Sincerely,

Anacortes, Washington

January 26, 1976

Federal Power Commission

Washington D. C. 20426

Federal Power Commission:

Enclosed is a report I received from OMAR, on the Alaska Natural Gasline, of which I thought the Federal Power Commission would be interested in. Like I said the work is needed here and now, for the needy and the future generation, we have to think about them also. There is so much unemployment now, just think how it will be in the future with the ~~Foreign~~ Foreign Countries taking over. Do we really need them to do the work we should be doing here in the United States??? One of these days we are going to have to learn to stand alone...

Sincerely,

Ms. Clara Lindquist

*Ms. Clara Lindquist*

303 Q. Avenue

Anacortes, Washington 98221

Phone 206-293-6823

RECEIVED  
FEB 2 10 41 AM '76  
FEDERAL POWER COMMISSION

P.S. I would appreciate a prompt reply to this letter.

RECEIVED

SUMMARY OF REASONS FOR PACIFIC NORTHWEST  
FEB 2 10 40 AM '76  
SUPPORT OF THE TRANS-ALASKAN GAS PIPELINE  
FEDERAL POWER COMMISSION

*Original by El Paso*

I. Construction Impacts

- Shipment of over 1.4 million tons of project materials to Alaska.
- Creation of over 7 thousand direct jobs at the waterfront.
- Creation of thousands of induced jobs.
- Increased shipments and jobs at Sea-Tac airport.
- \$150 million worth of goods to Alaska from Eastern Washington.
- Direct involvement in supply of machinery, spare parts, timber, cement, fabricated steel products, reinforcing steel, etc., by numerous Washington-based firms.

II. Benefits relating to general Alaskan growth

- Alaskan population will increase by 41 thousand if Trans-Alaskan Gas Pipeline is built, requiring increased foodstuff, clothing, etc., from Washington State farmers, manufacturers, and suppliers.  
(This is a 10 percent increase in Alaskan population.)

III. Benefits related to Alaskan access to Prudhoe Bay natural gas

- Over 3 trillion cubic feet of state royalty gas will be available for residential, commercial and industrial uses in Alaska.
- Alaskan Royalty Board is required to use royalty gas to promote development of private enterprise.
- Fairbanks and other smaller communities along pipeline route will construct natural gas distribution systems.
- World-scale petrochemical plants will be constructed using royalty gas as feedstock and manufacturing primarily ethylene-based products.

*According to State Not St B.S.*

- World-scale fertilizer plants manufacturing urea and aqueous ammonia will be constructed.
- Mineral development will be encouraged.
- An LNG barge system serving Alaskan coastal communities is possible.

#### IV. Benefits relating to project operation

- LNG fleet requires 625 operating personnel. Most will likely come from the West Coast.
- Thousands of tons of chemicals, spare parts, etc., will require shipment to Alaska each year.

#### V. Significance of initial trans-Alaskan route selection

- All agree that pipeline which transports Prudhoe Bay gas will be the pipeline (expanded) which will also transport gas from NPR 4, Beaufort Sea, Kandik, and other producing areas. Thus, the route for movement of Alaskan gas will be set for at least a generation.

#### VI. Possible negative effects of Pacific Northwest support for Arctic Gas Project

- Present State of Washington natural gas supplies come primarily from Canada, i.e., Westcoast Transmission Company in British Columbia and Alberta Gas Trunk in Alberta. These same two companies sponsor the Foothills Project which is competing with Arctic Gas in Canada. Thus, support in the Pacific Northwest for Arctic Gas will be opposed to desires of Canadian suppliers.
- Albertan Energy Minister Gotty and Westcoast and Alberta Gas Trunk representatives have offered to remove the urgency of a

Canadian decision on frontier gas by loaning Alberta's substantial gas reserves to meet growing market demands in eastern Canada and to meet export contract requirements in the Pacific Northwest. Thus, it is possible that strong supportive measures for this concept (and the furtherance of Foothills policies) could bring gas imports from Canada back to pre-curtailement contract levels, and support for Arctic Gas could negate such possibility.

VII. The real story on transportation costs:

Presently, Arctic Gas claims a transportation cost advantage of 40 percent. El Paso's figures show the advantage to be smaller, but the differential in fact exists. Because natural gas from new projects is rolled in with existing gas supplies and is sold on a rolled-in basis the actual difference in across-the-board gas costs will be only two or three cents per million Btu. Also, it is commonly accepted that Arctic Gas' construction schedule is optimistic by two or three years, which fact will cause a substantial, if not total erosion of the apparent Arctic Gas transportation cost advantage. (Also, the fact that the U.S. must give up control over the entire Canadian portion of the Arctic Gas pipeline results in a good deal of uncertainty as to what actual transportation costs will be now and in future years. (The El Paso project is, of course, entirely under U.S. regulatory control.)

Please Note

NATIONAL CAPITAL  
OFFICE



## NATIONAL AUDUBON SOCIETY

1511 K STREET N.W., WASHINGTON, D. C. 20005 (703) 522-0117

January 20, 1976

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 21 4 30 PM '76  
FEDERAL  
POWER COMMISSION

Secretary  
Federal Power Commission  
Washington, D.C. 20426

ATTENTION: ENG-SOD-ALASKA

Dear Sir:

Attached are our comments on the draft environmental impact statement on the proposals to transport natural gas from Alaska.

We appreciate the opportunity to express our views.

Sincerely,

Cynthia E. Wilson  
Washington Representative

CEW:tab

AMERICANS COMMITTED TO CONSERVATION

COMMENTS OF THE NATIONAL AUDUBON SOCIETY

Comments on Wildlife

The EIS says that the Arctic caribou herd consists of 243,000 animals. (II:290) However, a press/<sup>release</sup> from the Alaska Department of Fish and Game dated December 10, 1975, says of this herd, "We know that the herd has declined from an estimated 240,000 animals in 1970 to an estimated 100,000 in 1975." This enormous decline makes it all the more important to minimize impacts on this herd from the Aleyska oil pipeline and to protect the range of the Porcupine herd in the Arctic National Wildlife Range. The EIS should be revised to show the correct population of the Arctic herd. Also we suggest that you check with Alaska Fish and Game to see whether the estimated population figure given for the Porcupine herd (140,000) is up-to-date.

In the discussion on the effect on eagles nesting in the vicinity of the Point Gravina site, (II:298) it would be helpful if the EIS indicated whether there is suitable alternative nesting habitat in the area.

In the general discussion on impacts on birds (II-296) various conflicts are described. Volume I also discusses impacts on wildlife. The EIS says "Some of these impacts are unavoidable. Many can be avoided, depending on the location of various facilities, construction practices, and scheduling of activities. Among the potential impacts which could be avoided are those caused by aircraft and human presence at certain critical times." This statement is correct as far it goes, but we are troubled that at no other place in the EIS have we been able to find procedures spelled out to accomplish this. The section on Measures to Enhance the Environment or to Avoid or Mitigate...

The staff contacted the Alaska Department of Fish and Game and the Joint State/Federal Fish and Wildlife advisory team in Alaska concerning these herds. Because the survey of the Arctic herd in the summer and fall of 1975 could not be completed successfully, some doubt has been attached to the rough population estimate of 100,000 animals which resulted. Suggested causes for the apparent decline from the 1970 estimate of 242,000 animals, other than the possibility that the 1975 estimate was too conservative, are cyclic deterioration of the caribou habitat from overgrazing and overhunting by subsistence and sport hunters. Possible detrimental effects on the Arctic herd from the Alyeska oil pipeline have not yet been demonstrated, but research into this subject is still underway (Donald McKnight and Jim Hemming, personal communications). The most up-to-date figure for the population of the Porcupine herd is the 1972 population estimate of 110,000 animals (Robert Le Resche, personal communication). This information should replace the figures given on p.II-290 of the DEIS.

does not specifically address mitigation of adverse effects on wildlife, and the staff's recommendations for design and construction procedures (II:521-526) contain not one word about mitigating adverse effects on wildlife, although problems of archeological resources and vegetation are addressed. This is a major gap in the EIS.

We urge that procedures, similar in nature to the recommendations on archeological resources, be included in this section.

Although Section D says that the applicant intends to engage consultants to design and implement mitigation measures, we would like to know just what the measures will be. Although it would not be possible to predict in advance the measures to be used at a specific site, certainly some type of general guidelines should be spelled out. For example, construction activity should not be permitted during waterfowl nesting season in Key nesting areas, or in caribou calving grounds. Such areas should be avoided to the maximum extent possible.

The environmental training program which the applicant "intends" to implement sounds good on paper, but what are we really talking about -- a 10 minute lecture on the flora and fauna of the north slope or really substantive orientation of personnel? Will such training be mandatory? The same questions could be asked about each of the eight points in the proposed program.

Throughout the impact statement, there is heavy reliance on Alyeska's experience. For instance, "Experience gained through construction of the oil pipeline should aid in avoiding mistakes and misjudgments which could occur if construction took place in an unstudied area." (II:319) While we would hope that this would be the case, we cannot assume that it will.

A number of circumstances and measures (winter construction, identification of habitats along the pipeline route, sampling prior to and during construction, training of personnel, etc.) which would mitigate adverse effects on wildlife are discussed in Section D of the FEIS. A number of recommendations in Section I also deal with the mitigation of direct and indirect impacts to biota and habitats.

The environmental staff has made a recommendation in the FEIS concerning this issue.

In some places the statement recognizes that a number of species will already have been adversely affected by the oil pipeline, i.e., "Past pipeline activities associated with Alyeska construction would already have had an adverse effect on [Dall sheep]." (II:293) "Because of earlier development activities polar bears may no longer use the area associated with this gas transmission system on a regular basis." (II:295) Yet in the introductory paragraph on Impacts on Wildlife (II:289) the statement says, "However, the significance of impacts in general would be minor due to the limited area (in this case the right-of-way) involved and, with relation to the Alyeska pipeline, minor due largely to the relative non-existence of significant 'new' impacts."

We cannot agree with this statement, because we believe that it overlooks the cumulative impacts of two pipeline projects. For instance, the disturbance created by the Alyeska pipeline undoubtedly will have adverse effects on the caribou herd, but the herd may be able to withstand these effects. However, the additional impacts caused by a second pipeline could be enough to push the caribou beyond the tolerance level. In other words, the adverse impacts may be synergistic.

In addition, it is our understanding that while following the TAPS corridor, in some places the El Paso line would be a number of miles away from the oil line. If so, this could cause new impacts.

We certainly agree that to the degree El Paso can utilize existing TAPS roads and other facilities, this will prevent significant new impacts, but we want to emphasize that this will not entirely prevent all new impacts.

The introduction to "Impacts on Wildlife" in the FEIS has been changed to reflect this comment.

Although the DEIS does not refer to caribou specifically, the discussion on impacts to mammals in general (pp. II-290 and II-291) did include possible cumulative impacts and were also mentioned in the section on impacts to birds (p. II-297).

Comments on Revegetation

In the recommendations for Restoration and Revegetation (II-524), the EIS states, "The revegetation research that was performed at the Sans Sault test facility by Northern Engineering Services Company Limited for Arctic Gas has demonstrated that it is feasible to establish and maintain a plant cover over a buried pipeline in the northern boreal forest. The conclusions drawn from this research should, with discretionary changes for differences in climate, topography and vegetative type be applied to the entire proposed pipeline route." Specific revegetation measures are then listed.

We believe the above statement is misleading for several reasons.

First, the fact that some research has demonstrated it is feasible to maintain a plant cover in the boreal forest does not solve the problem of revegetating the segments of pipeline route which pass through tundra and other types of plant communities. In fact, even in the black spruce ecosystem, only one of the 18 trial grasses consistently produced greater than 50% cover in the second year after seeding, regardless of fertilizer amount or techniques. (Arctic Gas Biological Report, Vol. 2, pp. 25-26.) In the tundra region, success seems even more unlikely.

Seeds for native species are not available in commercial quantities, so exotic species would have to be used along with heavy treatments of fertilizer. (W.W. Mitchell, FPC hearings)

The Department of Interior's impact statement on the Arctic Gas pipeline summarizes the revegetation situation as follows:

"The seeding

and growing of grasses on disturbed sites in the arctic region of North America is now in an experimental stage with very little experience available to predict proper methods or their likelihood of success. The scanty

Restoration and revegetation procedures, discussed in Vol. I, "Recommendations," have been revised.

evidence to date indicates, however, that certain exotic varieties of agronomic grasses can be expected to germinate and grow more successfully than the native grasses tested, at least during the first 2 or 3 years. The native grasses will gradually dominate the site as the percent of plant cover increases, but plant succession proceeds very slowly in the Arctic and it may be 30 to 50 years before the vegetation on the pipeline mound resembles that in the adjacent undisturbed communities. Therefore, the pipeline will be a discordant element in the tundra vegetation for many years and will show up as a long, straight line with a color and texture different from the surrounding landscape." (II:740-741) (emphasis added)

This seems in direct conflict with the above mentioned statement in the FPC staff recommendations, although the Interior Department's statement is incorporated by reference.

We believe that the FPC EIS should recognize that the technology does not exist to assure the success of revegetation.

#### Comments on Noise

While recognizing that noise from compressors would annoy people if close to human habitation, the section on noise impact (II-314) is silent on the effect of noise on wildlife. Scattered throughout the EIS are references to noise impact on wildlife (i.e. the comparison in Vol. I), but certainly this should be mentioned in the section on Impacts as well.

As noted in the Interior Department's EIS, (Vol. II:953-965), noise impacts on wildlife may be severe, particularly in areas such as the Arctic National Wildlife Range which are now virtually noise-free. It is well known that in winter, when every ounce of energy is needed for

See Page II-291 of the DEIS, first paragraph. Compressor noise impacts are seldom discussed by themselves because it is difficult to separate specific noise impacts from other impacts (caused by visible structures, unusual smells, topographic disturbances, etc.) related to the compressors and the pipeline. Therefore, impacts upon each species are usually discussed as stemming from "the construction and operation of the pipeline" and not from a particular stimulus.

survival, noise can be the cause of exhaustion and ultimately death to animals such as deer. In addition to noise from compressors, noise from aircraft should also be mentioned.

It is our understanding that the compressors create a high level of continuous noise. Although we have not been able to locate any hard data comparing the noise level of the compressors with the noise emitted by the oil pumping stations, it is our belief from what we have been able to learn that the compressors are considerably noisier. If this is true, then they would add a significant additional amount of noise in the existing oil pipeline corridor.

In the recommended Procedures for Design and Construction, the staff suggests that no single piece of equipment should generate noise levels "in excess of 90 dB (A) when measured 10 feet away from the source." (II:521) By way of comparison, heavy city traffic is 90 decibels, a motorcycle is 95 decibels. Thus, the staff's recommendation is going to permit a high level of noise from construction equipment which will be audible for a considerable distance. This is a severe problem with Arctic Gas's prime route, but would be somewhat less a problem with the alternatives which follow the TAPS corridor or the Alcan highway. Again, the EIS should note that construction equipment will disturb and probably drive away wildlife, along with people.

This information was discussed in the DEIS. See pp. II-291, last two paragraphs, and II-293, fourth and fifth paragraphs.

This information was discussed in the DEIS. See pp. II-291, fourth paragraph; II-292, sixth paragraph; II-293, last paragraph; II-294, sixth paragraph; etc.

### Miscellaneous Comments

Page II:319

Although the chapter on impacts shows that potential problems from frost heave, erosion and permafrost degradation are quite serious, the statement "Some of the measures which El Paso is considering for problem areas are using selective backfill material, which is not readily susceptible to forming permafrost, anchoring the pipe and insulating the pipe" does not offer much assurance or information. Have such techniques been demonstrated to be feasible and successful?

Page II:320

What type of stream control structures may be necessary? Dams, weirs or what? Since these would be likely to have a permanent impact on fish and wildlife, more information would be helpful here.

Page II:321

Have tests on corrosion mitigation been carried out under arctic environmental conditions?

Does the monitoring equipment have the capability of detecting small leaks as well as ruptures? Would the gas simply dissipate in such leaks or would it gradually build up in volume?

Page II:324

The use of oil spraying to minimize fugitive dust could have adverse effects in itself on vegetation and wildlife, depending upon the location, amount etc.

### Comments on Procedures for Design and Construction

While undoubtedly the recommended Design and Construction procedures will indirectly help minimize adverse impacts on wildlife and other natural features, the recommendations should be much more specific as noted earlier

On a project of this magnitude and in arctic regions, techniques such as these have not yet been demonstrated. Selective backfill has been shown to significantly reduce frost heaving in tests by Northern Engineering Services Company Limited in Calgary, Alberta. Other erosion techniques planned for use include diversion dikes, riprap overlays, and gabions, all of which have long, successful histories.

The applicant has indicated that when detailed river regime analyses have been conducted, river control structures would be deployed where required. The normal structures anticipated are spurs, dikes, berms, jetties, and riprap.

Yes, tests on corrosion mitigation have been carried out at the Prudhoe Bay, Alaska, and the Sans Sault, N.W.T., Canada, test facilities for Alaska Arctic Gas Pipeline Company. Results indicated that cathodic protection can be provided successfully in permafrost areas. Small leaks, impossible to detect by monitoring or metering techniques, would be observed during periodic aerial surveillance as a result of vegetation discolorations which occur at points where gas escapes. Leaking gas, even in permafrost areas, would dissipate to the atmosphere through soil voids.

in our comments on wildlife.

Further, there remains the problem of enforcement of such procedures, which has been a problem on the Alyeska pipeline. Page II-318 indicates that periodic patrols would check to see that procedures were effective and were being followed, and that the applicant will obey all laws, regulations, codes and stipulations. The federal government does not have sufficient personnel to adequately monitor the pipeline, so the public is being asked to have faith that the applicant will do all he promises. It would be helpful to the reader if these promises were spelled out in more detail. For example, who will be on the periodic patrols -- engineers, biologists, archeologists? How often will they take place. Will any action be taken against personnel who violate the stipulations or violate laws relating to wildlife?

#### Comments on Alternatives

We wish to commend the FPC staff for making a genuine effort to consider alternative routes. This is rarely done adequately in environmental impact statements, and this is the only EIS we recall in which the staff made recommendations of its own, i.e. the Nikiski route. It has been our observation during the years that NEPA has been on the books that neither applicants nor federal agencies usually give serious consideration to alternatives, and so this came as a pleasant surprise to us.

In our view, the Arctic Gas prime route through the National Wildlife Range is totally unacceptable because of its impact on the wildlife range. Not only would the pipeline have serious direct effects on the refuge, particularly on the caribou, but it would also destroy the wilderness quality for which the refuge was established and would be the foot in the door for further development in the refuge.

The Department of the Interior (DOI) is presently involved in the preparation of stipulations similar to those utilized by the Alyeska Pipeline Company which will cover in detail specific actions to be implemented against personnel who violate prescribed regulations related to wildlife preservation, environmental conservation, etc. It is our understanding that DOI will again recommend that Federal authorizing officers be assigned to work with and oversee all phases of the applicant's construction program to insure compliance with such regulations.

We appreciate the staff's efforts in Volume I to draw a broad comparison between the effects of the Arctic Gas and El Paso proposals, and we were pleased that the staff recommended that of the various Arctic Gas alternatives, the Fairbanks Corridor was preferable. We strongly agree that this route is far better than Arctic Gas's prime route which we find intolerable.

A preliminary study of the material presented leads us to believe that the Nikiski route is preferable to El Paso's prime route, although we are seeking further information on some aspects of this route from our consultant in Alaska.

We have not yet reached a decision on which of the two staff-recommended routes (Fairbanks Corridor or Nikiski) we think is preferable, but the FPC staff's recommendations will help make that decision easier.

Thank you for your consideration of our views.

#

## North Dakota Wildlife Federation

200 West Main  
P. O. Box 1694  
Bismarck, North Dakota 58501

Publishers of FLICKERTALES  
North Dakota's Leading Environmental Publication

Phone 223-8741

January 23, 1976

Your File:  
OGC  
El Paso Alaska Company  
et al.  
Docket Nos. CP75-96,  
et al.

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attn: BNG-SOD-ALASKA

Dear Sir:

Enclosed are the comments of the North Dakota Wildlife Federation on the DRAFT EIS: Alaska Natural Gas Transportation Systems prepared by the staff of the Federal Power Commission.

We respectfully request that our comments be included in the record.

Sincerely,

NORTH DAKOTA WILDLIFE FEDERATION, INC.

*H. R. Morgan*  
H. R. Morgan, Chairman  
Energy and Environment Committee

HRM:b

encl.

RECEIVED  
OFFICE OF THE  
SECRETARY  
JAN 27 1976  
FEDERAL POWER COMMISSION

# *North Dakota Wildlife Federation*

Publishers of FLICKERTALES

North Dakota's Leading Environmental Publication

Phone 223-8741

200 West Main

P. O. Box 1694

Bismarck, North Dakota 58501

January 23, 1976

## REVIEW

Alaska Natural Gas Transportation Sys-  
tems Draft Environmental Impact Statement  
Prepared by Federal Power Commission

The North Dakota Wildlife Federation is a non-profit organization made up of some 6,500 citizens concerned with the utilization and management of the state's natural resources (including wildlife). We are the North Dakota affiliate of the National Wildlife Federation.

The Federation appreciates the opportunity to comment upon this draft statement.

Comments will be confined to the Alaskan Arctic Gas Pipeline system proposal as that is the one which effects North Dakota most directly, from a standpoint of both supply and land disturbance.

With this in mind, the NDWF has limited its comments to consideration of proposals included in Volume I--General Economic Analysis.

Of the two proposed systems being considered for transporting natural gas from Prudhoe Bay, the Federation agrees with the Staff of the Federal Power Commission's environmental conclusions favoring the Northern Border route along the Red River Corridor proposal of U.S.D.I.

An earlier review by the North Dakota Wildlife Federation, filed September 10, with reference to the DEIS, Northern Border proposal, indicated the Federation's opposition to routing through the state's unique Badlands and repeated river crossings. Routing the pipeline along the Red River Corridor to a point near St. Vincent, Minnesota, thence south, would eliminate such objections. Such routing would make gas available to North Dakota's high populated east, and in no way disturb highly productive agricultural lands or tourist attractions in the southwestern portion of the State.

If the Red River Corridor route is selected, there is no reason for the Federation to comment upon other environmental proposals of the DEIS. Please refer to the North Dakota Wildlife Federation Statement of September 10, 1975 on the DEIS, Alaska Natural Gas Transmission Statement, Part V, Northern Border, Volumes 1, 2 3 of three.



The ORGANIZATION for the MANAGEMENT of ALASKA'S RESOURCES, INC.

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Mayor John Carlson

January 29, 1976

The Honorable Kenneth F. Plumb  
Secretary  
Federal Power Commission  
Washington, D. C. 20426

Re: El Paso Alaska Company, et al.  
Docket Nos. CP75-96, et al.

Dear Mr. Plumb:

Enclosed are specific and general comments of  
The Organization for the Management of Alaska's  
Resources on the Federal Power Commission Staff  
Draft Environmental Impact Statement on Alaska  
Natural Gas Transportation Systems.

OMAR respectfully requests that the Commission  
staff review and consider these comments prior  
to preparation of the Commission's Final Environ-  
mental Impact Statement on Alaska Natural Gas  
Transportation Systems.

Sincerely,

THE ORGANIZATION FOR THE MANAGE-  
MENT OF ALASKA'S RESOURCES, INC.

*Robert L. Hartig, Esq.*  
Robert L. Hartig, Esq.  
Legal Counsel

Enclosure

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Phone (907) 452-8320



## SECTION B - ECONOMIC ANALYSIS

### (1) Analysis of Net National Economic Benefits

OMAR contends that the socio-economic impact of manufacture and supply of materials and facilities from the Continental United States should be better evaluated and reflected in the Net National Economic Benefits Section of the DEIS.

To reflect experience with the Alyeska oil project, for example, in Seattle alone container cargo ships bound for Alaska doubled since 1973 and outbound freight from Seattle-Tacoma International Airport to Alaska jumped from 27 tons per day in 1974 to 40 tons per day in 1975. Much of this increase was oil-line related.

Direct Alyeska pipeline-related jobs in the Pacific Northwest have been estimated to range between 5,000 and 7,500. "Alaska is the bright spot in a depressed economy," reported John Braden, Economist with the Central Puget Sound Economic Development District, in a Seattle newspaper.

Impact on the Pacific Northwest apparently was not considered in the EIS for the Alyeska oil project, yet it is significant and should be dealt with in considering net economic benefits to the United States of any large construction project.

Pipe mill and compressor plant employment is not included in either applicant's employment projections. If U.S. House Speaker Carl Albert is correct in his assumption that "jobs" are the major issue concerning Americans in 1976, OMAR strongly urges that the matter of employment opportunities for Americans be gravely considered with respect to a U.S. or Canadian line.

Movement of equipment and materials throughout the United States should be looked at from the standpoint of the economic value of that movement to U.S. citizens. For example, if total U.S. manufactured steel requirements for each project are:

2,262,200 tons for El Paso, and  
1,423,500 tons for Arctic Gas,

it stands clearly to reason that the El Paso project would provide more employment for U.S. citizens. Equipment and materials for the El Paso project would also be moved greater distances than would the same materials being transported to Canada for further movement by Canadian labor. Such movement would result in significant additional employment for Americans in the trucking, rail, barge and airline industry.

### (3) Projected Socio-Economic Impacts in State of Alaska

FPC staff evaluation of Alaska gross product, employment and income, cost of living, native economy, housing, health services,

The analysis, as is recognized in paragraph 4, concerns the net economic benefits to the United States. Its purpose is to ascertain how those benefits can be as large as possible whether they are in the Pacific Northwest, New England, or the Southeast, or elsewhere.

The last paragraph illustrates the dangers of a partial view of the economic value. For the use of steel, equipment, transportation and jobs would be much larger if the pipeline were built not from Prudhoe Bay but from the most northwestern point in Alaska to Maine via San Diego, New Orleans, and Miami.

etc., considers recent impact as well as projected impact. On an overall basis, the report shows a tendency to relate impact (both positive and negative) to pipeline-generated growth alone.

This is an incorrect assumption since it does not consider general growth of the total private sector or the major increases in employment at the state and local levels of government during recent years. Alaska has for the past decade dealt with population growth at a rate leading most other states.

OMAR therefore requests deletion of comments indicating socio-economic impacts are necessarily related primarily to pipeline-associated growth.

#### Employment

Considerably greater evaluation should be made of the adverse effects of sudden unemployment and emigration of thousands of (direct and indirect) oil pipeline workers at a time when overall services and facilities are finally becoming adequate in Alaska.

Little acknowledgment appears to have been given State of Alaska Department of Labor statistics which show that, if both the trans-Alaska oil and natural gas pipeline projects proceed on schedule, the El Paso project could pick up the slack by providing more than 7,500 additional jobs with an interim of unemployment of only several months. It is clear to the State of Alaska that employment in all sectors of the economy will be adversely affected should the El Paso project not proceed.

In the long-range view of development of Alaska's natural resources, it is critical that timing be a major consideration to prevent recurrence of Alaska's often-experienced "booms" and "busts." Alaskans must demand that they also be developed in an orderly fashion. The El Paso project qualifies as one which meets the criteria for orderly development.

#### Financial, Leisure and Rental Services

OMAR was unable to find in the Commission's DEIS any reference to existing or projected impacts to Alaska's cultural environment. Next to supporting oneself and one's family, the second-most important consideration to persons living in Alaska is, consistently, the availability of cultural and leisuretime recreational activities.

The purpose of this environmental impact statement is to discuss pipeline-generated impacts. As pointed out in the discussion of the MAP economic model, these impacts include secondary economic growth indirectly related to direct pipeline impacts. The general growth of the total private sector and the major increases in employment at the state and local levels of government during recent years have been considered in base case projections for the Alaskan economy against which pipeline impacts have been compared.

Impacts of the oil pipeline have been treated to the extent that they affect the existing situation in Alaska and base case against which gas pipeline impacts are measured. FPC staff feels the employment impacts of the oil pipeline have been treated sufficiently to meet this objective.

See revised employment impacts section for reference to those points.

This heading was incorrect in the DEIS; "Rental" should read "Retail."

For EIS purposes, cultural resources refers to historical and archaeological sites. The EIS did discuss leisure time and recreational activities.

Government at all levels has seldom realized the value of a superior cultural climate to the stability of a community, particularly when that community is in the process of change.

With the recent population increases in Alaska, the state has seen a remarkable increase in the number of requests for arts programs, both in the schools (at all levels) and for the general public. (The term "arts" is used here in its broadest sense to be all-inclusive.) Population increases have brought tremendous increases in the numbers of performances staged throughout the state, as well as workshops and other participatory activities. A shortage of adequately designed cultural facilities has spurred efforts of local groups throughout the state to find ways of meeting those needs through expansion or new construction.

Marked increases in audience participation and money spent for the arts have resulted. Much new talent and leadership has come to the state, bringing expertise and ideas which are enhancing Alaskans' lifestyles.

Cultural and recreational activities have mushroomed throughout the state. While studies support this contention, OMAR does not have the resources to pursue the matter at this time. It does recommend that the issue of Alaska's cultural environment be investigated prior to preparation of the final EIS.

Alaska's native culture has also been strengthened by the improved financial conditions of the natives themselves as well as by a growing market for native artifacts. Non-natives are exhibiting a growing appreciation for native culture in Alaska.

The statement "There has been little or no documentation of the effects of the Alyeska oil pipeline on the opportunities for leisure activities and recreation" is untrue. Alyeska Pipeline Service Company has in the past two years participated in cultural and leisuretime activities in numerous Alaskan communities. In addition to contributing more than \$190,000 to those activities, its employees have contributed thousands of hours leading local groups in activities otherwise not available. Documentation of Alyeska's participation is available upon request.

#### Housing

References are made to high occupancy rates of housing in several Alaskan communities. Mention was not made of the fact that, during the long oil pipeline startup delay, the vacancy

See the previous response.

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The environmental staff does not disagree that this may have occurred. Data thus far examined does not indicate this, however.

rate in many areas stood at all-time highs, bringing many Alaskans in construction and real estate to bankruptcy or near-bankruptcy.

It is OMAR's contention that housing made available for oil pipeline employees will subsequently be made available for employees constructing the gas pipeline, and the provision of housing for El Paso employees will have positive, rather than negative, effects on Alaska's economy.

#### Native Economy and Quality of Life

Reference is made to a decline in traditional subsistence activities (since Alyeska construction began) such as hunting and fishing and the fear that natives may find it difficult to readjust to subsistence living after having been introduced to white man's economy. Numerous comments infer that any adverse impact is pipeline generated; yet many native or rural communities were exposed to white man's economy long before the Alyeska project.

It is pointed out that in 1964, the average age of death among Eskimos in one census district was slightly under thirty-five. Contrary to FPC staff conclusions, there is overwhelming activity on the part of Alaska's natives to improve living, health and educational standards, to participate in industrial and government affairs and to utilize hunting and fishing resources for pleasure rather than for survival.

Native land claims settlements have enabled native corporations (from mid-1973 to mid-1975) to invest almost \$100 million in "white man's economy"; additional payments due the corporations (\$868.7 million) place them in the mainstream of Alaska's economic development where, apparently, most prefer to be.

The fact that the Alaska Federation of Natives, Association of Interior Eskimos, Chugach Natives, Inc., North American Indian Women's Association, Ahtna, Inc. and the National Congress of American Indians have endorsed the trans-Alaska route is indicative of native involvement and support of this resource development - in spite of obvious alterations to their traditional lifestyles.

#### Quality of Life - General

The City of Valdez, directly impacted by the Alyeska oil pipeline perhaps more than any community, endorsed the trans-Alaska route, as have numerous other communities in the state. In addition, Valdez donated \$5,000 to OMAR for its public relations effort on behalf of the line. The Valdez city manager reports consensus that "Valdez has never had it so good." Its municipal budget

The environmental staff has noted that some of the Alyeska inspired housing would probably be used by workers on the El Paso route.

The environmental staff agrees that many native and rural communities were exposed to the "white man's economy" long before the Alyeska project. Nevertheless, it is felt that some of the recent impacts can be attributed to Alyeska.

The increased participation of natives in the money economy of the state is recognized in the subsection entitled "Native Economy" in the socioeconomic section.

Comment - FPC DEIS - page 5

for 1975 has increased 3,300% from \$330,000 to \$11,000,000 including capital improvements.

It should be pointed out that while FPC staff predicts certain dire adverse effects upon the community of Cordova (if the El Paso prime route is certified), the majority of Cordova residents favor that route, as evidenced by the support of the project by elected officials and others.

OMAR wishes to stress, after reviewing conclusions of Section B(1) and B(3), that any adverse socio-economic impacts projected for the El Paso project are to a great degree offset by the fact that Americans choosing to live in the State of Alaska recognize that in order for them to do so, an economically viable climate must exist. Alaskans, by an overwhelming majority, are willing to take the steps necessary to assure that climate. Polls conducted by Rowan Group Inc. (summer 1975) and David Dittman & Associates (spring 1975) support these statements. Survey group responses of 82% (Rowan) and 87% (Dittman) were in favor of the trans-Alaska route proposed by El Paso Alaska.

The environmental staff is aware of this fact. See the Cordova Chambers of Commerce's comments included herein.

The environmental staff's discussions in the EIS have focused on the impacts of the pipeline proposals, not on the need for maintaining an "economically viable climate."

#### GENERAL COMMENT

##### (1) Mackenzie Delta Reserves

A statement is included on page 35, Volume I, that "Proven reserves in the Mackenzie Delta area of Canada are probably not large enough to justify the construction of a pipeline to deliver only Mackenzie Delta gas to Canadian markets."

A footnote on page 39, Volume I, admits "Although the study concluded that alone Mackenzie Delta gas probably would not justify the construction of a pipeline to deliver such gas to Canadian markets, such conclusion should not have been made without a consideration of the Foothills Pipe Lines Ltd. project currently before the National Energy Board of Canada."

OMAR agrees that the proposal of Foothills Pipe Lines Ltd. should be thoroughly evaluated prior to FPC staff's stating any conclusions.

##### (2) Timing of Arctic Gas Project

It is OMAR's opinion that neither the Department of Interior nor the Federal Power Commission has given adequate consideration to possible delays resulting from the issue of Canadian native land claims.

OMAR's research strongly supports the probability that settlement of native claims will delay Canadian approval of the Arctic Gas project by eighteen months to more than three years.

Comment - FPC DEIS - page 6

Alaska's recent experience with the claims issue can certainly be cited as an example of what most likely will occur in Canada. After a five-year delay, native claims were settled in Alaska; yet the Canadian government recognizes it does not have the financial resources to meet the demands of Canada's natives (as Alaska did from oil lease money).

Many native groups in northern Canada are demanding settlement of their claims before any pipeline is authorized; Frank P'Selei, leader of the Fort McPherson Indians, has threatened publicly to blow up the pipeline if the claims are ignored.

In Quebec, the James Bay Hydroelectric Project was effectively stopped until claims of the Cree and Inuit Indians (numbering more than 10,000 persons) were finally settled in November 1975 after four years.

Another matter of concern regarding the Canadian government's action on the Arctic Gas proposal is the strong possibility that the appeal filed by the Committee for Liberty and Justice against the chairman of the National Energy Board, Marshall Crowe, will be successful.

If the Supreme Court rules that bias of the chairman exists because of his former association (Crowe was chairman of Canada Development Corporation when CDC was a member of the Arctic Gas Consortium) with Arctic Gas, the NEB hearings will be halted. An unfavorable opinion may also carry the requirement that testimony to date be entirely thrown out and Phase I of the hearings begun again after appointment of a new chairman. The implications of this situation are that the NEB hearings will be delayed six months to one year.

OMAR requests that the FPC staff investigate these matters further with the U.S. State Department and weigh heavily the possible effect of delays to the gas pipeline project in Canada.

### (3) Natural Gas Reserves - Alaska

Alaska's estimated natural gas reserves of 74.7 tcf (in addition to Prudhoe Bay gas) along the proposed gas pipeline route should be considered from the standpoint of transmission of future supplies. It is the opinion of numerous petroleum industry representatives that, once a corridor is established across Alaska's North Slope through Canada, future transmission of Alaska's oil and gas resources will follow the Canadian corridor, much to the detriment of Alaska's economy and industrial development potential.

The FPC staff should, in its consideration of suitable routes for the two proposals, realistically approach the probability that additional natural gas estimated reserves in Alaska will ultimately be developed.

OMAR contends that initial development of those reserves adjacent to the pipeline corridor in Alaska would cause the least adverse economic and environmental impact if they were transported to market via that same corridor.

Natural gas reserves accessible to the Alaska pipeline corridor are, in addition to Prudhoe Bay:

North Slope(Pet. 4)	41.8 TCF
Yukon Kandik	9.2
Middle Tanana, Minchumina,	
Holitna & Copper River	1.8
Yukon Koyukuk	8.4
Beaufort Sea	13.5

Source: Alaska Geological & Geophysical Survey, OFR#50

#### (4) Royalty Gas Uses

The State of Alaska is studying possible uses for Alaska's 12½% royalty share of Prudhoe Bay and Cook Inlet natural gas. Probable areas of consumption are: heating, industry and electric power generation.

There is considerable speculation as to whether gas would be used for industrial purposes to the extent that it could be made available. According to FPC staff, "Industries are reluctant to consider petrochemical industry development in Alaska because of political and economic uncertainties." This conclusion, based on the report contracted to Resource Planning Associates, does not reflect recent confidential inquiries and visits by national firms anxious to participate in the petrochemical industry in Alaska. Two proposals which are not confidential are:

Dow Chemical Company - for production of ethylene for derivatives such as low-density polyethylene, crude ethylene glycol and by-products. Estimated employment of 500 in Kenai area with capital investment of \$600-700 million.

Northern Natural Gas of Omaha - for a major gas processing facility at Prudhoe Bay and small gas liquids pipeline paralleling TAPS. Liquids would be shipped south with larger gas stream and extracted at plant in Southern Alaska. Primary interests are in butanes, propane, natural gas and ethanes.

The location and potential future development of potential gas reserves were not a factor in the environmental staff's analysis of alternate routes.

See new section entitled "Supplemental Analysis" in Volume I, Appendix C, for discussion of potential industrial demand beyond that considered in the RPA study.

An independent study by a large fertilizer company has concluded there will be a shortage of nitrogen fertilizer in North America by 1984 of 217,000 tons. Alaska's Collier Carbon Company ammonia-urea plant in Kenai produces 1,500 tons of ammonia and 1,000 tons of urea (per day), consuming 60 MMCFD of natural gas. New supplies of nitrogen fertilizers will be needed in the 1980's, and Alaska, with available natural gas supplies, will be in a favorable position for producing those supplies.

"The rapid growth in the Alaska construction industry has brought a heavy demand for construction materials. Presently all cement is imported into the state. The magic market figure often quoted for a minimum feasible cement manufacturing operation is one million barrels per year. While statistics are lacking, there is little doubt that Alaska's demand is now approaching the annual million barrel consumption rate. New industrial installations would insure and stabilize that market.

"An important hydroelectric project will require tremendous cement supplies and a second industrial project requiring large amounts of cement materials is the Alaska OCS petroleum development. It is estimated that an offshore cement platform will require 25,000 tons of cement during construction.

"The point for consideration is the potential market use for Alaska natural gas in the year 1983 and beyond, not in the light of interest of today. Given the projected demand for natural gas feedstocks in the nation for the period 1985 to 2010, it is difficult to imagine that a supplier offering on the market an amount of feedstock in the amount of 436 MMCFD will have difficulty finding a buyer. Natural gas is a very scarce resource and one that will continue to remain in scarce supply for the long-term future. If the trans-Alaska gas pipeline is approved it can have a tremendous influence upon the type and direction of Alaska's future economy." (*The Alaskan Economy*, State of Alaska Department of Commerce and Economic Development, page 7.)

See previous comment.

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## Alaska's jobless rate sinks to 8.2

The percentage of Alaskans who belong to the ranks of the unemployed decreased to 8.2 in May, and appears to be heading toward the lowest mark since 1970, state labor experts report.

Average unemployment was 9 per cent in 1970, and it rose annually through 1973, when it hit 10.8 per cent. But the unemployed made up only 10 per cent of the work force in 1974, and this year the percentage of those unemployed has been lower each month than in the same months of 1974.

The low point of the year is generally October, when people have either gone to work or left the state, labor officials say. Last October, the unemployment rate hit 6.7 per cent.

The figures for June are likely to show an increase over May because the labor force traditionally expands in June faster than jobs open up, with students and migrants joining the job-seekers. But figures for July through October are expected to continue downward.

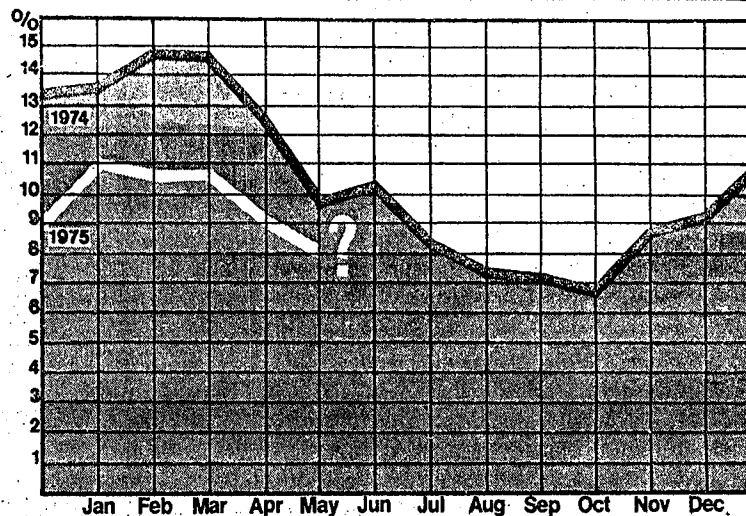
While the trans-Alaska oil pipeline is responsible for boom times this year, the coming years will bring unemployment rates fluctuating to

as high as 14.9 per cent in 1977, manpower experts believe.

A study released earlier this year by the U.S. Department of Labor and the Human Resources Planning Institute forecasts unemployment in Alaska between 1974 and 1980. The figures vary depending on whether the proposed natural gas pipeline is routed through Alaska or Canada, but the forecasters say peak unemployment will occur in 1977, and the percentage of those unemployed will level off to 11.8 by the end of the decade.

In Anchorage, more people are arriving this year than arrived last year, the state Department of Labor says in its latest report of Alaska Economic Trends. The most common estimate of population growth among city and borough officials is for an increase of from six to seven per cent in 1976.

Even though more people are coming, unemployment began declining in March, a month earlier than usual. There were still 5,600 people unemployed in Anchorage during March, for an unemployment rate of 8.3 per cent compared to the statewide rate of 10.8 per cent.



Unemployment in Alaska declined in 1974 to the lowest average rate since 1970 — 10 per cent. But this year, the picture looks even brighter, with unemployment percentages below each month for 1974. The top line on the graph shows 1974 unemployment month by month for 1974, beginning with 13.6 per cent in January, declining to a low of 6.7 per cent in October, and ending in December with 9.2 per cent. The bottom line shows unemployment percentages so far in 1975, beginning with 11 per cent in January and declining to 8.2 per cent in May.

Comments by Scenic Shoreline Preservation Conference, Inc. submitted January 14, 1976, on the Environmental Impact Survey for the Western LNG Point Conception Terminal and Pipeline and Alternative Sites (Alaska Natural Gas Transportation Systems Draft EIS).

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The following comments are submitted by Scenic Shoreline, Inc., a California coastal preservation group headquartered in Santa Barbara.

It is our conclusion that the EIS has been prematurely submitted for public review. The data in most of the sections is completely inadequate for the development of valid environmental judgments.

We request that the EIS process not advance until a document that fulfills the intent of Congress and the requirements of the law has been presented for public review. We further request a hearing at a central location in the area affected by the facility. Any decision favoring a Point Conception site would be the subject of a voter referendum, judging by the present climate of opinion in Santa Barbara County. For this reason in addition to the basic needs of public information, citizens locally are entitled to thorough understanding of the issues through public hearings where FPC staff members can be directly questioned on the validity of their analyses.

The impact from construction activities (III 201) needs considerably more attention. Meteorological and oceanographic studies have admittedly not been conducted as a basis for determining the design of the breakwater nor have necessary model and resource studies. The EIS further notes (III 203): "Western has not supplied the staff with sufficient information on the design, location, and construction procedures aspects of the seawater intake-outfall system and the screenwell to be able to accurately assess the impacts which would be associated with this aspect of the proposed construction."

The environmental staff feels that the Draft and Final Environmental Impact Statement fulfills the intent of Congress and the requirements of NEPA for public review. The Chairman of the Santa Barbara County Board of Supervisors has filed a Petition to Intervene and a Motion for Local Hearings on January 2, 1976. This request is under consideration by the Commission.

The DEIS does not favor a Point Conception site. The first recommendation on Page III-376 is that the LNG facilities be constructed at the Oxnard site.

Additional discussion of the impacts to marine biota from construction of the breakwater is provided in Section C.7 of the FEIS.

The environmental staff has made recommendations concerning the seawater vaporizer system.

The impact of the cold water discharge is admittedly inadequate (III 183): "Until the location and design is specified, impact assessment can only be general." The public is entitled to comment on specific data on this discharge impact. Plume studies should be submitted for review. The EIS notes that, "No studies on the biological effects of cooled seawater discharges are available for comparison with the proposed system. In addition the location and design of the outfall has not been specified. Its location relative to biotic distribution, current patterns, and natural temperature distributions would have a significant effect on the resulting impacts." The public cannot comment until this data is forthcoming.

Only the vaguest, most imprecise generalities are possible until the alignment of the pipeline has been chosen. "The exact ridges to be cut are unknown at this time," according to the EIS (III 190). "The precise alignment of the pipeline has yet to be determined" (III 242).

No information is presented on various intensities of hypothetical accidents, including a gas discharge at the plant, a pipeline break, and a tanker collision, or the loss of life and property damage that might be anticipated at the alternative sites. Availability of insurance in the event of catastrophe has not been documented. A tanker accident off the City of Santa Barbara, a crash, for example, on a foggy night with an oil platform, might well be evaluated in terms of damage to the city. What might be the impact at Point Conception of an accidental release on Vandenberg Air Force Base? The plant and pipeline safety exclusion areas and the economic costs of these areas should be defined. Conspicuously absent are fire prevention strategies and evacuation plans in the event of plant, pipeline, and tanker accidents. Specific evacuation routes and police

The environmental staff has made a recommendation for study of the potential impacts from the seawater system.

It would be impossible to depict the exact alignment of the pipeline prior to construction. For the purposes of an EIS, the general alignment shown is adequate.

Gas discharges of the plant represent hazards that are normally confined to the area of the plant, and do not involve the public. The plant design includes adequate space between it and the property boundary for normal LNG safety in accordance with NFPA-59A. Any vapor plume from a storage tank break and spill within the diked area would dissipate shortly and would have no virtually effect on Vandenberg AFB. It is the responsibility of the applicant to provide normal fire prevention measures and no FPC certificate is issued without them. Pipeline breaks do occur and cause fires at the break. These are stopped by shutoff valves that isolate the broken portion of the line. However, they can cause damage, and such statistics are maintained by the Department of Transportation, Office of Pipeline Safety Operations, who has jurisdiction over pipeline safety. These pipelines in Southern California will be constructed and operated in accordance with their regulations.

The hazards from LNG tanker collisions, which are thought to be the greatest hazard to the public, are investigated in Vol. III, Appendix C. Any tanker accident further at sea than the dock will not produce a plume that reaches shore before dissipating. Thus, an LNG ship collision with an oil platform would be expected to affect the safety of those on the ship and the platform, but not the public on shore. LNG tankers and plants carry the normal insurance coverage of other shipping and chemical industries, which is an indication of the risks involved.

and hospital procedures should be elaborated in such a plan.

Additional data and commentary are necessary with respect to air quality (III 168) (III 244); earthquake hazards and seismic design of the plant and pipeline; the proposed desalination facility; offsite disposal of graded material; health and safety standards for personnel (III 20); and energy conservation. A unit on the latter subject is required by law ( )

The general conclusion of the EIS that the construction of the LNG facility would have a severe impact on a relatively untouched pastoral coastline zoned agriculture and would tend to promote further industrial development in the Point Conception area where county general plans have envisioned agricultural pursuits seems valid enough. Our organization opposes construction at Point Conception or any other nearby site.

The EIS, however, is significantly more inadequate as a review of alternatives to a Point Conception facility. The conclusion that Oxnard or Los Angeles Harbor are preferable alternatives has not been adequately substantiated in spite of bland assurances in the EIS that an accident at these densely populated areas is "highly unlikely." No appraisal is offered of the horrendous damage that could result in the "unlikely" event such an accident did occur.

Our organization shall welcome the occasion to comment on a Draft EIS that offers sufficient information for wise decision-making.

Impacts on air quality, earthquake hazards and seismic design are discussed in the FEIS. The desalination facility has been eliminated from the proposal; health and safety standards are discussed in the section on "Mitigating Measures" in Vol. III of the DEIS; and energy conservation is discussed as part of Section H of the FEIS.

The environmental staff disagrees that the review of alternative LNG sites is inadequate. In addition, the site selection analysis never concluded that the Los Angeles site was more preferable; it in fact rejected the site as a viable alternative.

*Frederick E. Eissler*  
Frederick Eissler  
January 14, 1976



SIERRA CLUB

324 C Street, S.E.  
Washington, D.C. 20003  
(202) 547-1144

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FEDERAL  
POWER COMMISSION

February 2, 1976

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Attn: BNG-SOD-ALASKA

Dear Sirs:

I am forwarding the enclosed comments on the draft Environmental Impact Statement for Alaska Natural Gas Transportation Systems prepared by Jack Hession, Alaska Representative of the Sierra Club. As you will note, the telegram is dated January 28, 1976, and I request its inclusion in the record.

Respectfully,

*Wilma E. Frey*  
Wilma E. Frey

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BT

COMMENTS ON FPC DEIS: NEED EXISTS FOR COMPARATIVE ANALYSIS  
ENVIRONMENTAL IMPACTS OF ARCTIC GAS PREFERRED ROUTE, ALCAN HIGHWAY  
CORRIDOR FOR OVERLAND PIPELINE, GRAVINA, AND NIKISKI IN ONE VOLUME  
ITEM BY ITEM E.G. WILDLIFE: SPECIFIC CARIBOU HERDS. THIS COMPARA-  
TIVE ANALYSIS SHOULD BE IN FINAL EIS.  
FPC ENVIRONMENTAL ANALYSIS OF ITS PREFERRED NIKISKI ROUTE  
PRACTICALLY NONEXISTENT. INTERIOR'S (VI, 973 FF) OF SAME ASSUMES

The visual impact of the completed pipeline route in the  
Mount McKinley area would be less than the more obvious  
features of a highway, railroad, and dwellings which  
already exist there.

PIPE THROUGH NENANA RIVER CANYON ITSELF, FPC OVER RUGGED MOUNTAINS TO EAST. INTERIOR ASSUMES ROUTE AROUND KNIX ARM AND THROUGH KENAI MOOSE RANGE, FPC STRAIGHT SHOT TO NIKISKI VIA LOWER SUSITNA RIVER VALLEY AND AVOIDANCE OF MOOSE RANGE.

FPC ENVIRONMENTAL ANALYSIS OF NIKISKI ROUTE SHOULD FOCUS ON HEALY THROUGH BROAD PASS. WHAT IS VISUAL IMPACT ON MCKINLEY N.P. VISITORS OF PIPE ACROSS RUGGED MOUNTAINS AND SPLENDID WILDERNESS OF YANERT RIVER VALLEY? OF COMPRESSOR STATION ETC ON EXCEPTIONALLY SCENIC BROAD PASS?

IMPACT CANTWELL COMPRESSOR STATION AIR POLLUTION ON TUNDRA ADJACENT TO PARK USED POST-CALVING (SPRING) MCKINLEY CARIBOU HERD? ~~ASSOCIATED~~ ~~OPASSACRESSED~~ FACILITIES? CAN PIPE BE LAID HEALY-BROAD PASS ACROSS RUGGED MOUNTAINS IN SEVERE WINTER TEMPERATURE? IMPLICATIONS OF SUMMER HEAVY EQUIPMENT, ROADS ON MOUNTAIN TUNDRA? IMPLICATIONS OF GAS SUPPLY FOR HARDROCK MINING EXISTING VALID CLAIMS IN PARK, KANTISHNA MINING DISTRICT (D-2 NORTH

ADDITION TO PARK),

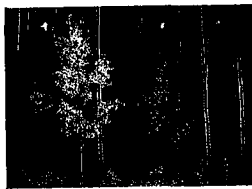
PETERS HILLS DISTRICT (SOUTH ADDITION); FOR COAL STRIPPING NENANA FIELD INCLUDING SOME D-2 NORTH ADDITION, SAME NEAR D-2 SOUTH ADDITION?

NEED DETAILED ENVIRONMENTAL ANALYSIS NIKISKI BEFORE CHOICE NIKISKI-GRAVINA RATIONALLY MADE.

JACK HESSION

NNNN

See reasons given for avoiding the Nenana River Canyon in the reply to comments by Federation of Western Outdoor Clubs. The route may be visible from McKinley National Park, but since the route would pass well to the east of the existing highway and railroad routes, its visual impacts would be attenuated by intervening mountains and distance. The compressor station near Cantwell in Broad Pass would be adjacent to existing disturbance (the Denali Highway) and would be screened from the McKinley National Park by the Reindeer Hills. Impact upon tundra vegetation from compressor station air pollution should be minimal due to the expected low concentrations of SO<sub>2</sub> at ground level. Aleyeska has shown winter construction in mountainous areas of Alaska to be feasible, if difficult.



by Ansel Adams in *This Is the American Earth*

## SIERRA CLUB

Mills Tower, San Francisco 94104

30 Sea View Terrace  
San Francisco 94121  
January 19, 1976

Secretary  
Federal Power Commission  
Washington, D.C. 20426

Dear Sir:

I was impressed by the concise and informative draft Environmental Impact Statement released by the Federal Power Commission in November on Alaska natural gas transportation systems. Official comments for the National Sierra Club are being submitted by attorney Ron Wilson, on behalf of the intervenors in the Federal Power Commission's natural gas transportation hearings, but as Chairman of the Sierra Club Alaska Task Force I would like to reiterate our special concerns about this project in Alaska. These, briefly stated, are as follows:

1) Under no circumstances should any pipeline cross the Arctic National Wildlife Range in northeastern Alaska.

2) OF THE ROUTES SUGGESTED BY ARCTIC GAS CO., the least environmentally destructive seems to be that passing through the existing Trans-Alaska Pipeline Corridor to Big Delta near Fairbanks, before curving south-eastward into the Yukon Territory along the Alaska Highway.

3) OF THE SITES PROPOSED BY EL PASO CO. for LNG facilities in southern California, the least objectionable appears to be Oxnard. Construction at Pt. Conception would have a heavy impact on this unspoiled part of the coast, and the proposed Los Angeles Harbor site has safety problems.

I was very pleased to note the FPC Staff's agreement with (2) and (3) above. It was also heartening to see the Staff's recommendation that Northern Border Pipeline Company use an existing pipeline system to carry the gas south of Chicago, and that the PGT-PG & E and ITAA pipelines not be built at this time, should the Arctic Gas Company proposal be adopted. The Sierra Club has traditionally opposed wasteful development such as proliferation of unnecessary pipelines.

Certain moves in Congress recently to speed up the process of evaluation of all aspects of this complex decision by the proper governmental agencies are alarming. The Federal Power Commission has been charged with the responsibility of choosing, on the basis of all available information, the best possible means of transporting natural gas from

the Arctic to markets in the lower 48 states. I hope the FPC will insist on its right to exercise this responsibility independent of outside pressures. Any steps taken to avoid the environmental and sociological impacts now occurring in Alaska as a result of the oil pipeline rush will more than compensate for any delay caused by meticulous review of the proposals now before the FPC.

Mindful of the present situation in Alaska, and cautious about any move which might exacerbate it, the Sierra Club Board of Directors passed the following resolution at the December 13-14, 1975 Board meeting:

Based on present information, the Sierra Club urges that natural gas transportation routes in Alaska be confined to presently designated and developed utility corridors and that no significant new utility corridors be developed for transportation of natural gas in Alaska.

An accompanying resolution was passed to illustrate further the extent of our concern about the quality of development in Alaska:

Whereas, major adverse social and economic impacts on the state of Alaska are being caused by the Alyeska Trans-Alaska Oil Pipeline project, and

Whereas, there are many reports that serious environmental damage is occurring in Alaska as a result of non-compliance with federal regulations and stipulations on construction of the Trans-Alaska Oil Pipeline, as well as by secondary activities,

Resolved that the Sierra Club urges Congressional review of the environmental, economic, and social problems caused by construction of the Trans-Alaska Oil Pipeline before federal approval of any future major construction project (i.e., a natural gas pipeline) which would further impact the state of Alaska.

The Federal Power Commission draft Environmental Impact Statement is a positive first step towards gathering the information we need in order to balance the pros and cons of proposals for development in Alaska. Thank you for including these comments in the record.

Sincerely,



Edgar Wayburn, M.D.  
Chairman, Alaska Task Force  
Sierra Club

**ARLIS**  
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Library & Information Services  
Anchorage Alaska