

FERC -

Comments of  
AK. of Response  
to DRAFT Sys.  
design inquiry

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November 17, 1978

John B. Adger, Jr.  
Director  
Alaska Gas Project Office  
Federal Energy Regulatory Commission  
Room 3004  
941 North Capitol Street, N.E.  
Washington, D.C. 20426

Dear John:

Enclosed are the State of Alaska's comments on the draft report in the system design inquiry. I enclose five copies, but should you need more, please let me know.

Sincerely yours,

  
Robert H. Loeffler

RHL/kc  
Enclosures

cc: All Parties Receiving  
Draft "System Design Inquiry" Report

FERC

COMMENTS  
OF THE STATE OF ALASKA  
IN RESPONSE TO  
DRAFT SYSTEM DESIGN INQUIRY

The State of Alaska offers the following comments in response to the September 27, 1978 draft report of the Commission's Alaska Gas Project Office in its system design inquiry ("Draft Report"). The work of the Gas Pipeline Office displayed in the draft report is exceedingly useful but further inquiry is necessary. Alaska believes the further inquiry should occur in a hearing context and in the near future. Conversely, Alaska does not believe that the Commission now has the legal or factual foundation to issue an order establishing the system pressure. Alaska's comments will concentrate on the points that call for additional exploration or revised analysis in the near future.

1) One overall assumption, Alaska believes, colors the analysis. The report seems to assume a netback theory, i.e., that the price of the gas is free to rise to "absorb" any operating cost savings a higher pressure line would engender. The Gas Pipeline Office apparently believes that any decrease in transportation costs would automatically accrue to the benefit of producers, not consumers. (See, e.g., Draft Report, p. 58).

Whatever the state of affairs previously, the case after passage of the Natural Gas Policy Act of 1978 is different. Section 109 of the Act establishes a ceiling

price for Prudhoe Bay unit gas. No one knows now whether that will be the ceiling price in fact or if a lower price will be all that purchasers of the gas are willing to pay. In either case, a contractual price will be established and that price will be what the producers receive for Prudhoe unit gas. Since the contracts are likely to be completed well before system design is settled, any reduction of operating costs due to higher pressure will not result in higher prices to producers.

For reserves beyond the control 2.0 bcfd, it is not clear what the pricing constraints will be. No one with sound mental health will predict what the ultimate effect of the "incremental pricing" rules mandated by NGPA will be. Even if a netback analysis is correct, producers would receive no more than the legislatively determined ceiling prices even if the cost of competing fuels were higher. Consumers would receive the benefit of greater gas supplies, both directly and indirectly (via industry). Thus, to the extent a netback theory means that higher prices to producers -- limited always by the ceiling prices of the NGPA -- might stimulate the development of new Alaska supplies and encourage conservation, those consequences should be perceived as benefits, not as detriments.

2) The Report also does not perceive any benefits to gas consumers from the added NGL's carrying capacity of higher (than 1200 psig) pressure lines. (Draft Report, p. 59). The Report reveals that the clear difference among

the various pressure systems in terms of the NGL carrying capacity is that a 1440 or 1680 psig line can carry a higher percentage (i.e. greater amounts) of butane. If the butane is left in the gas stream, its presence will raise the BTU value of the gas. Higher pressure operation would result then in the delivery of higher heating value gas. Gas consumers would receive a direct, valuable benefit: higher heating value than they would otherwise receive because of the presence of natural gas liquids not used for petrochemicals. In a sense, the overall quantity of gas delivered, measured in caloric terms, could be increased with higher pressure operation. So, while higher pressure operation offers the promise of lower transportation costs and greater efficiency with higher throughputs, it also may deliver to gas consumers the immediate benefit of higher gas supplies measured in terms of the heating value of the delivered gas. The gas contracts will shed light on this question but there is no present basis for assuming that butane will be stripped and separately sold.

3) One further aspect of the butane question deserves further thought. The Draft Report indicates that those quantities of butane not injected into the gas stream could be transported in the oil line. But the limiting factor is vapor pressure requirements in California. (Draft Report, pp. 15-16, 17). While existing vapor pressure requirements may not be insurmountable, tighter vapor restrictions by California to protect or improve the troublesome air quality of Southern California would prevent an economic

disposition of the butane that could not be transported in the gas line. A higher pressure line reduces or avoids tying disposition of these hydrocarbons to Southern California air quality.

4) The draft report notes that the removal of very high quantities of CO<sub>2</sub>, as required by a one percent CO<sub>2</sub> standard, has the effect of reducing the NGL carrying capability of the gas stream and states that the savings on gas conditioning costs from leaving the CO<sub>2</sub> in the gas is more than offset by reduced transportation efficiency (Draft Report, p. 11). Alaska does not believe the latter conclusion is justified. The question of the appropriate CO<sub>2</sub> standard has never been addressed and examined adequately. The recent Parson's study of the conditioning plant suggests that it is cost effective to go to a less restrictive CO<sub>2</sub> standard. A three percent standard would save ten percent of the capital cost of the conditioning plant and could result in a reduction of the cost of service to the consumer by noticeable amounts. At the presentation of the conditioning study to FERC, representatives of ARCO have also suggested that the whole question of CO<sub>2</sub> removal should be re-examined. The State of Alaska believes that at least a three percent CO<sub>2</sub> standard is indicated. Whether this issue is properly explored as part of the system size inquiry, or during the hearings on system facilities applications is not clear, but at least the issue deserves greater investigation because of the possible consequences on reducing the overall cost of this system.

5) Alaska agrees with the comments herein of Atlantic Richfield. Alaska joins those comments in urging a 1440 psig system. As stated above, the additional NGL's carried by a 1440 system could result in immediate benefits to consumers. Moreover, a 1440 system has the promise of more efficient, lower cost operation as higher throughputs occur. Alaska believes the relatively small additional costs are a worthwhile premium for its future. Alaska does not perceive the necessary testing as favoring a 1260 psig over a 1440 psig design, especially given the absence of solid evidence about the testing that occurred and that must occur.

6) A historical reference will show how inverted the pressure question has become and why a 1440 line should not delay the project. During the FPC comparative hearing, Artic Gas and El Paso each proposed a 1680 psig line. Only Northwest, when it made its belated entry, proposed 1260 psig with a later increase to 1440. Everyone conceded that a line anywhere above approximately 1000 psig was a new undertaking, but the higher pressure of the El Paso and Arctic lines was not a significant issue although almost everything else was in that hotly contested hearing. A 1680 psig design was not regarded as calling for unusual testing delays or technological advances. Given the support of the Arctic Gas consortium and El Paso, a 1680 psig design represented the choice of a substantial part of the American natural gas pipelines.

The finding of Judge Litt confirms these facts:

"Arctic Gas, El Paso and Alcan all propose to operate their pipeline systems at maximum pressures substantially in excess of levels currently in use in the industry. Nothing in the record suggests that these higher operating pressures cannot be achieved with pipe adequately designed for the purpose. This is not to say, however, that Alcan can reliably and economically achieve its suggested performance at 1440 psig with pipe ostensibly selected to operate at a maximum pressure of 1250 psig. It is found that the operating design pressures are logical extensions of existing pipeline operations and can be achieved here by those applicants making proposals to operate at the higher pressure." Initial Decision, El Paso Alaska Company, Dockets CP75-96, et al. (February 1, 1977).

If the President's choice had been otherwise, we doubt that any time would now be spent on the appropriateness of a 1680 design. It is true Northwest was selected but that does not change the critical fact that any pressure substantially above 1000 psig is an advance in existing technology. There is no convincing evidence in the Draft Report of the differentials in technology, if any, required for a 1260, a 1440, or a 1680 psig design. Thus, testing a 1440 system may not be significantly different than testing a 1260 system. This is what Exxon's comments state based on their actual experience with the Arctic Gas tests. (Draft Report, p. 17). Alaska suspects that there may be no actual differentials, but, in fact, the degree of technological advance is relatively the same for each as is the testing required. Similarly, the report does not adequately investigate whether there are differences in risks of cost overrun and delay with a 1440 or 1680 line. A risk assessment

is called for rather than reliance on theory. Choice of a 1440 psig design thus may not be radical but nearly as conservative a choice as the novel choice of 1260 psig.

7) We have seen that the operating assumption of the comparative hearing was that a 1680 line was acceptable and could be proven within the necessary construction timetables. There is record material about the testing requirements for the 1680 line which may not have been adequately mined to date. Nonetheless, Alaska recognizes Northwests' historic reluctance to venture above 1260 psig. What Alaska suggests, therefore, is that the Commission carefully examine the 1440 line.\*/ The focus of the investigation revealed in the draft report has been on the comparative merits of the 1680 versus the 1260 lines. As indicated above, the 1440 line has considerable merit both in the early and later years of operation. Alaska believes this investigation could be conducted now on a hearing record in advance of the facilities' applications. Alaska does not believe, based on its

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\*/ It has recently come to Alaska's attention that it may be possible to achieve operating pressures approaching 1440 psig by relaxation of the "design factor" for the pipe Northwest proposes to use from .72 to .8. See 49 C.F.R. 192.111. This would not be a substantial change because the "relaxation" is only to the established Canadian standard. A waiver request would have to be presented to the Office of Pipeline Safety but a good case could be made that safety concerns would be satisfied by the relaxed design factor based on the record in Canada. This avenue is worthy of further investigation.

advisors, that the critical constraint or either the financing or planning of the pipeline is a question of system pressure. It is well known to all that gas contracts are a more critical element and that the apparently fragile nature of the gas pipeline financing is due at least as much to externalities to the project as to the project itself.\*\*/

#### CONCLUSION

Alaska believes very much in the wisdom of proper advance planning for the future. While the Northwest 1260 proposal may appear to be an adequate compromise, based on the lowered expectations of the present, it would very well be less than optimally designed given the potential of Alaskan reserves. The costs of later adding capacity to the gas line are substantial and suggest the advantages of building extra capacity now as an insurance policy.

This is the decision reached by the President:

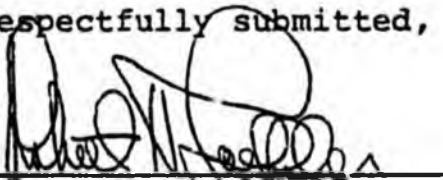
"overall, considering the art of construction, inflationary impacts, and environmental impacts, the ultimate cost to consumers of providing capacity for increased gas throughout would be much lower if the capacity is provided initially by increasing the diameter or working pressure of the pipe, than if it is provided later by adding compressor horsepower or looping the pipeline."  
(Decision and Report to the Congress on the Alaska Natural Gas Transportation System, p. 194.)

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\*\*/ Alaska believes that it is better to decide the pressure question at a hearing in the near future than to leave the question to be resolved when the applications for the final authorization for these facilities are submitted, perhaps a year or so from now. By then any realistic possibility of increasing system pressure will be foreclosed by the argument that it is too late then to undertake the necessary evaluation and analysis.

For these reasons, Alaska suggests an investigation on the record of what appears to be the obvious advantages of a 1440 psig pipeline and deferral of any order establishing the pipeline's pressure until the completion of such a hearing.

Respectfully submitted,



Robert H. Loeffler

Attorney  
for the  
State of Alaska

November 17, 1978