

71 FERC ¶ 61,197

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Elizabeth Anne Moler, Chair;
Vicky A. Bailey, James J. Hoecker,
William L. Massey, and Donald F. Santa, Jr.

Yukon Pacific Company L.P.) Docket No. CP88-105-000

ORDER GRANTING NGA SECTION 3 AUTHORIZATION
FOR THE SITING, CONSTRUCTION,
AND OPERATION OF LNG FACILITY

(Issued May 22, 1995)

On December 8, 1987, Yukon Pacific Company L.P. (Yukon Pacific) filed an application seeking Commission authorization pursuant to section 3 of the Natural Gas Act (NGA) for the siting, construction, and operation of a liquefied natural gas (LNG) plant and related facilities at Anderson Bay, Port Valdez, Alaska to export LNG to Japan, the Republic of Korea, and Taiwan. The proposed LNG plant would receive natural gas for liquefaction from the Trans-Alaska Gas System (TAGS), a proposed 796.5-mile nonjurisdictional intrastate pipeline extending from the North Slope of Alaska at Prudhoe Bay to the proposed LNG plant.

In 1989 and 1990, the U.S. Department of Energy (DOE) issued its Order Nos. 350 and 350-A, respectively, which granted final approval for the export of Alaskan natural gas via the TAGS project. 1/ DOE's Order No. 350 provided that the Commission would conduct the environmental review for the LNG plant and related facilities. The Commission has completed its environmental review and is granting the requested section 3 authorization, subject to the safety and environmental mitigation measures specified herein.

1/ See Yukon Pacific Corporation, DOE Opinion and Order No. 350, Order Granting Authorization to Export Liquefied Natural Gas From Alaska, ERA Docket No. 87-68-LNG (1989); Yukon Pacific Corporation, DOE Opinion and Order No. 350-A, Order Denying Requests for Rehearing and Modifying Prior Order for Purpose of Clarification, ERA Docket No. 87-68-LNG (1990).

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I. Background

On May 27, 1987, the Commission issued a declaratory order 2/ which, among other things, determined that: (1) the Commission would not have jurisdiction over the TAGS project under NGA section 7 given the facts and circumstances presented by Yukon Pacific at the time; and (2) the Commission would have authority under NGA section 3 to approve or disapprove the place of export.

By orders issued in 1977 and 1978, the Commission granted the Alaskan Northwest Natural Gas Transportation Company (Alaskan NW) conditional certificate authority to construct the Alaskan segment of the Alaska Natural Gas Transportation System (ANGTS). 3/ This certificate authorization reflected the ANGTS' status as the "chosen" project under the Alaskan Natural Gas Transportation Act of 1976 (ANGTA), 4/ the special regulatory and procedural statute governing the ANGTS. Alaskan NW's application for a final certificate for the Alaskan segment of the ANGTS is currently pending in Docket No. CP80-435-000. The project, which would compete with TAGS, has been held in abeyance for various reasons, primarily involving project financing. Therefore, the Alaskan segment of the ANGTS has not yet been built.

On January 12, 1988, the President of the United States made a Presidential Finding Concerning Alaska Natural Gas (Presidential Finding) which allows the export of natural gas from the Alaskan North Slope. 5/ Absent such a finding, section 12 of ANGTA prohibits the export of Alaskan North Slope gas to countries other than Canada and Mexico.

In June 1988, the U.S. Department of Interior, Bureau of Land Management (BLM), and the U.S. Army Corps of Engineers (COE) issued a Final Environmental Impact Statement (TAGS EIS) for the 796.5-mile TAGS natural gas pipeline. 6/ Among other things,

2/ Yukon Pacific Corporation, 39 FERC ¶ 61,216 (1987).

3/ See Alcan Pipeline Company, 1 FERC ¶ 61,248 (1977); Alaskan Northwest Natural Gas Transportation Company, 3 FERC ¶ 61,290 (1978).

4/ 15 U.S.C. § 719, et seq.

5/ Presidential Finding Concerning Alaska Natural Gas, 53 Fed. Reg. 999 (Jan. 15, 1988).

6/ See Trans-Alaska Gas System Final Environmental Impact Statement, prepared by BLM and COE, Alaska District, dated (continued...)

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the TAGS EIS considered alternative sites for the location of the LNG plant and related facilities, and determined that the Anderson Bay, Port Valdez, Alaska site was the preferred site.

As stated, in 1989 and 1990 DOE issued its Order Nos. 350 and 350-A which gave final approval to the export of Alaskan natural gas via the TAGS project. Among other things, Order No. 350 adopted the findings of the TAGS EIS and stated that, with respect to the place of exportation for the LNG, all locations other than Port Valdez, Alaska, were rejected. DOE Order No. 350 directed the Commission to look at the construction, operation, safety, and environmental impact of the LNG plant and the marine LNG operations for the Port Valdez site. The ANGTS' sponsors appealed these orders. The court has held their appeal in abeyance pending the outcome of this proceeding.

II. Proposal

Yukon Pacific requests authorization for a place of export pursuant to NGA section 3. Yukon Pacific proposes to construct an LNG facility at the Anderson Bay site in Port Valdez, Alaska. The facility would include: (1) a 2.1 billion cubic feet per day LNG liquefaction plant; (2) four aboveground 800,000-barrel LNG storage tanks; (3) a marine facility to load two tankers within a 12-hour period; and (4) a cargo/personnel ferry docking facility. In addition, Yukon Pacific proposes to operate a fleet of 15 LNG tankers, each having 125,000 cubic meters of cargo capacity. The fleet would make 275 trips per year. Yukon Pacific states that the proposed LNG facility would take approximately 8 years to construct. However, Yukon Pacific states that deliveries could begin in approximately 5 years, i.e., prior to completion of the entire facility.

The proposed LNG facility would interconnect with the 796.5-mile nonjurisdictional TAGS pipeline, which would transport gas from Prudhoe Bay Alaska to the LNG facility for export to Japan, Taiwan, and the Republic of Korea. Approximately 14 million metric tons of LNG would be exported annually for a period of 25 years. The nonjurisdictional TAGS pipeline would transport up to 2.3 Bcf/d of gas to the LNG facility. Currently no facilities exist in Alaska to transport Alaskan North Slope natural gas to any market, domestic or foreign. However, the gathering systems necessary to gather gas from the North Slope reservoirs are in place.

6/ (...continued)

June 1988. The Commission's environmental staff participated in the preparation of this document.

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III. Interventions, Protests, and Procedural Motions

Notice of Yukon Pacific's application was published in the Federal Register on January 7, 1988 (53 Fed. Reg. 440). Timely motions to intervene or notices of intervention ^{7/} were filed by the State of Alaska; Alaskan NW; Foothills Pipe Lines (Yukon) Ltd. (Foothills); Pacific Gas and Electric Company (PG&E); Pacific Interstate Transmission Company (PIT); Northwest Pipeline Corporation; and Alyeska Pipeline Service Company and the Trans-Alaska Pipeline System (TAPS) Carriers, jointly. Late motions to intervene were filed by the Public Utilities Commission of the State of California (CPUC), Tennessee Gas Pipeline Company (Tennessee), and Exxon Corporation.

Yukon Pacific opposes the interventions filed by Foothills, Alaskan NW, Northwest Pipeline Corporation, Tennessee, PG&E, PIT, and the CPUC. Yukon Pacific contends that these parties should not be allowed to intervene in the proceeding because they do not have an interest that would be affected by the proceeding's outcome. In its May 27, 1987 order, the Commission determined that these parties had an interest in the TAGS proceeding. ^{8/} We find no reason to alter this conclusion here. Accordingly, the contested motions to intervene will be granted. Also, we conclude that granting the late motions to intervene will not delay or disrupt the proceeding or prejudice any party to it. Accordingly, for good cause shown, the late motions to intervene will be granted.

Alaskan NW and Foothills protest Yukon Pacific's application. Alaskan NW holds the conditional NGA section 7(c) certificates for the Alaskan Segment of the ANGTS and the Alaska Gas Conditioning Facility at Prudhoe Bay, Alaska. Foothills, a Canadian company, is the sponsor of the Canadian segments of the ANGTS. Alaskan NW and Foothills argue that Yukon Pacific's application should be rejected because it does not comply with the export application requirements contained in Part 153 of the Commission's regulations. Specifically, Alaskan NW contends that, among other things, Yukon Pacific's application does not provide information with respect to the rates to be charged for export, the names of the purchasers, and estimates of the natural gas reserves. Alaskan NW also argues that certain jurisdictional and other issues addressed in the Commission's May 27, 1987 order must be revisited.

^{7/} Timely, unopposed motions to intervene and notices of intervention are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.214).

^{8/} Yukon Pacific Corporation, 39 FERC ¶ 61,216 (1987).

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Alaskan NW and Foothills contend that the TAGS proposal should be rejected because it is fundamentally inconsistent with the spirit and letter of ANGTA, the ANGTS, and the U.S. international commitments related to the ANGTS. They contend that the TAGS project will jeopardize the completion of the ANGTS project because the proven natural gas reserves are insufficient to support both projects. Foothills argues that under ANGTA and the ANGTS certificates all of the North Slope gas supplies must be transported to U.S. domestic markets through the ANGTS system.

Yukon Pacific replies that its filing was not made pursuant to Part 153 of the Commission's regulations, but rather, in response to the Commission's May 27, 1987 order. Yukon Pacific argues that, in view of the May 27, 1987 order, the filing requirements of Part 153 do not apply to its narrowly constructed filing for approval of a place of export. Yukon Pacific states that the protestors' arguments regarding North Slope gas reserves are at odds with DOE Order Nos. 350 and 350-A and the Presidential Finding, which determined that there were sufficient reserves for both projects. Alternatively, Yukon Pacific contends that even if the gas supplies were insufficient to support both projects, that issue should be resolved by DOE rather than the Commission.

Alaskan NW and Foothills also filed a joint motion to reopen the May 27, 1987 declaratory order proceeding in Docket No. GP87-16, and to consolidate it with this proceeding. They contend that the rulings in the May 27, 1987 order must now be revisited in light of DOE Order Nos. 350 and 350-A. They argue that DOE's orders and BLM's 1988 right-of-way grant to TAGS constitute changed circumstances and facts that require the Commission to revisit its rulings in the May 27, 1987 order. Specifically, they claim that the changed circumstances are that: (1) TAGS might require use of the ANGTS's North Slope gas conditioning plant; 2/ (2) construction of TAGS might jeopardize the viability of the ANGTS; (3) there may be insufficient proven reserves to support both projects; and (4) the TAGS export project could eventually be used to deliver gas to U.S. consumers in the lower 48 states. Alaskan NW and Foothills argue that the proceeding in Docket No. GP87-16 must be reopened so that the Commission can examine and resolve issues relating to these changed circumstances.

Yukon Pacific opposes the motion to reopen and consolidate. It argues that DOE's orders do not involve changed facts and

2/ The ANGTS' sponsors have received Commission authorization to construct this facility, but the facility has not been built. See Alcan Pipeline Company, 1 FERC ¶ 61,248 (1977); Alaskan Northwest Natural Gas Transportation Company, 3 FERC ¶ 61,290 (1978).

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circumstances which would require a reopening of the Commission's Docket No. GP87-16 proceeding. Yukon Pacific states that the issues raised in the motion to reopen were resolved in DOE Order Nos. 350 and 350-A and the Presidential Finding.

Further, Yukon Pacific argues that since North Slope reserves were not dedicated to ANGTS, DOE's approval of the TAGS export does not constitute a changed circumstance that would affect the Commission's ruling in its May 27, 1987 order. Yukon Pacific also notes that DOE Order No. 350 prohibited Yukon Pacific from taking any action that would compel a change in the basic nature and general route of the ANGTS or otherwise prevent or impair in any significant respect the expeditious construction and initial operation of the ANGTS. ^{10/} Yukon Pacific argues that this condition resolves any potential problems in the event TAGS and ANGTS were to share facilities or rights-of-way, including the gas conditioning plant. Further, DOE provided that the Office of the Federal Inspector (OFI), and not the Commission, would be responsible for the review and enforcement of this condition. ^{11/}

Also, Yukon Pacific states that the U.S. Department of the Interior (DOI) required numerous conditions on BLM's right-of-way grant to TAGS to protect the integrity of the ANGTS right-of-way grant by BLM. Thus, Yukon Pacific contends that these DOE and DOI provisions cover all potential conflicts between TAGS and the ANGTS, and therefore, that the Commission should not address these topics.

Finally, Yukon Pacific states that the only limited regulatory/jurisdictional role the Commission would have over any potential joint use of the gas conditioning plant would be to rule on cost allocation matters. Yukon Pacific states that DOE Order Nos. 350 and 350-A indicate that the proper forum for resolution of such cost allocations would be a future ANGTS proceeding. In any event, this matter is not an issue in the instant proceeding.

The motion to reopen the record in Docket No. GP87-16 is denied. Among other things, the Commission's May 27, 1987 order was predicated on a description of the TAGS proposal at that time. ^{12/} The proposal has not fundamentally changed. With

^{10/} See DOE Order No. 350, at 44. This condition is referred to as the ANGTS Condition.

^{11/} The OFI was disbanded by Congress in the Energy Policy Act of 1992. The residual authority of the OFI was transferred to the Secretary of Energy.

^{12/} Yukon Pacific Corporation, 39 FERC at 61,752-53.

respect to the ANGTS's North Slope gas conditioning plant, the record does not support Alaskan NW and Foothills' assertion that TAGS might require use of this ANGTS facility. Rather, DOE Order No. 350 notes Yukon Pacific's statement that "the gas conditioning facility is not part of the export project because [Yukon Pacific] expects to purchase the gas from the North Slope producers after the gas is conditioned." 13/

Alaskan NW and Foothills' other arguments regarding changed circumstances also are at odds with DOE Order No. 350 and the Presidential Finding. Specifically, in DOE Order No. 350, DOE concluded that the domestic need for natural gas during the term of Yukon Pacific's export proposal could be met by production from reservoirs in the lower-48 states without North Slope natural gas. 14/ The Presidential Finding made a similar finding, and also allowed "any private party to develop [North Slope natural gas] and [set] up competition for this purpose." 15/

DOE Order No. 350 also considered and rejected the remaining arguments, stated above, raised by Alaskan NW and Foothills. In rejecting these arguments, DOE Order No. 350 stated the following:

The DOE does not think that ANGTA mandates the rejection of a proposed export because there may be insufficient proven reserves for both the proposed export and ANGTS. Neither does it require the imposition of a condition to set aside certain reserves for ANGTS. Such actions would be inconsistent with the framework of ANGTA. ANGTA neither grants ANGTS an exclusive license to North Slope gas nor dedicates any particular reserves to ANGTS. 16/

The Commission is not persuaded that the facts and circumstances underlying the May 27, 1987 order have changed in any manner that would necessitate a reopening of that proceeding. Rather, the arguments put forth by Alaskan NW and Foothills amount to a collateral attack on DOE Order Nos. 350 and 350-A and the Presidential Finding. The instant proceeding is not the proper forum, and the Commission is not the proper agency, for reconsideration of these orders and the Presidential Finding. The Commission reaffirms its May 27, 1987 order.

13/ See DOE Order No. 350, at 16.

14/ See id., at 24.

15/ Presidential Finding, 53 Fed. Reg. 999 (Jan. 15, 1988).

16/ DOE Order No. 350, at 38-39 (cites omitted).

Nor is the Commission persuaded to reject or dismiss Yukon Pacific's application because it does not provide all of the information required by Part 153 of the regulations. Part 153, entitled "Application for Authorization to Export or Import Natural Gas," sets forth regulations promulgated under the Commission's authority under sections 3, 16, and 52 of the NGA. In the May 27, 1987 order, the Commission declined to exercise any discretionary authority it may have under section 3 of the NGA to regulate the siting, construction, and operation of the TAGS pipeline. In so doing, the Commission explained that "in the instance of an export of gas, unlike an import, there are no economic consequences to U.S. ratepayers. The cost of the project, and the risks inherent in it, will be borne (in whatever fashion) by the project sponsors, its lenders and investors, and its foreign purchasers of the gas. Thus, with respect to economic issues, there is no regulatory gap." ^{17/}

The information required by Part 153 which Yukon Pacific did not provide pertains to economic matters, such as the filing of contracts and rate schedules, and not environmental matters. The May 27, 1987 order found that the Commission has jurisdiction under NGA section 3 to approve the place of export of the gas to be exported. ^{18/} Economic matters relating to the export were addressed by DOE in its Order Nos. 350 and 350-A. Accordingly, many of the requirements set forth in Part 153 are not applicable to Yukon Pacific's application. In any event, the Commission agrees with Yukon Pacific that, in view of the Commission's narrow jurisdictional finding in the May 27, 1987 order, Yukon Pacific was not required to file its application under Part 153. Rather, it was reasonable for Yukon Pacific to file its application in response to the May 27, 1987 order. Accordingly, under the circumstances presented here, the Commission will accept Yukon Pacific's application as being filed in response to the May 27, 1987 order, and not under Part 153. Therefore, Alaskan NW's and Foothills' requests that Yukon Pacific's application be dismissed as incomplete under Part 153 are denied.

IV. Discussion

The May 27, 1987 order, which we are reaffirming here, determined that the Commission has jurisdiction over the place of export of the gas to be exported. ^{19/} That order also stated that under the National Environmental Policy Act of 1969 (NEPA), an environmental impact statement (EIS) for the project would be required as a prerequisite to the Commission's approval of a

^{17/} Yukon Pacific Corporation, 39 FERC at 61,759.

^{18/} Id. at 61,760.

^{19/} Id.

place of export. A final EIS (FEIS) for the pipeline portion of the TAGS project was prepared by BLM and the COE, as stated above. The Commission has prepared a FEIS for the facilities associated with the place of export, as discussed below. Accordingly, the Commission finds that granting the requested section 3 authorization is not inconsistent with the public interest, subject to the safety and environmental mitigation measures specified below.

In DOE Order No. 350, DOE directed the Commission "to consider the safety and environmental aspects of the export site and facilities, including the liquefaction plant, the marine terminal, the LNG tankers and their routes in Prince William Sound and U.S. territorial waters, prior to approving any export site or facilities." 20/ DOE also emphasized the "need for the FERC to exercise the full extent of its Section 3 authority to regulate the marine transportation of LNG. Any FERC approval should include all appropriate preventive and mitigation measures to protect the public health, safety, and environment." 21/

The May 27, 1987 order stated that the Commission "has jurisdiction under section 3 of the NGA to approve or disapprove (to the extent not previously disapproved by [DOE]) the place of export of the natural gas transported by TAGS." 22/ DOE Order No. 350 states that "with respect to the place of exportation for the LNG ... all locations other than Port Valdez, Alaska, are rejected." 23/ The TAGS EIS considered alternative locations for the place of export, and concluded that Anderson Bay, Port Valdez, Alaska was the preferred site. Accordingly, the Commission's FEIS limits its consideration to the Anderson Bay site. 24/

In March 1995, the Commission's Office of Pipeline Regulation issued a FEIS which evaluates the environmental impact associated with the construction and operation of the facilities that would be required to liquefy pipeline natural gas, store the LNG, and export it via LNG tankers to various Asian Pacific Rim

20/ DOE Order No. 350, at 37.

21/ Id., at 37-38.

22/ Yukon Pacific Corporation, 39 FERC at 61,758.

23/ DOE Order No. 350, at 44.

24/ See Final EIS at pp. 2-42 - 2-46.

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countries, as described above. ^{25/} Consistent with DOE Order No. 350, the FEIS evaluates only those facilities that are associated with the site of export, and not the nonjurisdictional TAGS pipeline, which was the subject of the TAGS EIS, discussed above.

The FEIS concludes that construction of the proposed Yukon Pacific LNG Project would result in a limited adverse environmental impact during construction and operation. This conclusion is based on information provided by Yukon Pacific and further developed from data requests, field investigations, literature research, alternatives analyses, and contacts with Federal, state, and local agencies and individual members of the public.

As part of its analysis, the Commission's staff developed specific mitigation measures, including additional studies and field investigations, that the Commission believes are appropriate and reasonable for the construction and operation of the LNG production and shipping facilities to proceed. The Commission believes that these measures will substantially reduce the environmental impact that could result from construction and operation of the project and ensure the safety of the facility as proposed. Where additional studies or field investigations are required, significant impacts that are identified would either be avoided or mitigated to non-significant levels.

The FEIS concludes that if this project is constructed and operated in accordance with the required mitigation measures, construction and operation of the project would be an environmentally acceptable action. The Commission concurs with this conclusion. Therefore, the Commission is conditioning the authorization granted herein upon the requirement that Yukon Pacific comply with the mitigation measures and environmental conditions attached to this order in the Appendix. Significant topics addressed in the FEIS are summarized and discussed below.

1. Earth Movement, Erosion Control, and Seismicity

The FEIS addresses the environmental impacts associated with earth movement and seismicity, and discusses methods to control erosion during construction. Approximately 392 acres of the site would be exposed; hence, the potential for soil erosion during construction is high. Yukon Pacific filed an Erosion Control Best Management Practices Manual (BMPM) and states that a detailed site-specific erosion and sediment control plan that conforms to the BMPM will be submitted to the Commission prior to

^{25/} See Yukon Pacific LNG Project, Final Environmental Impact Statement, issued by the Federal Energy Regulatory Commission, Office of Pipeline Regulation, March 1995.

construction. That plan would detail site preparation, slope stabilization, channel control, sediment retention, and revegetation. To ensure preparation of an adequate plan, the Commission is requiring that site-specific drawings and procedures be included in the plan specifying the number, size, and placement of erosion control structures, areas that would be revegetated, seedmixes, and mulching methods. The Commission is also requiring that a full time environmental inspector be onsite during construction to ensure compliance with the erosion control plan and all other required mitigation measures. Impacts on soil and those caused by erosion will be minimized by implementing the measures in the BMPM and the mitigation measures required here.

With implementation of the required mitigation measures, the stability and erosion of soils and overburden materials should not significantly affect construction or operation. The extensive excavation proposed for the site will remove and relocate approximately 3,018,000 cubic yards of overburden and 6,655,000 cubic yards of rock. During construction, these materials could be susceptible to slumping and erosion. Slumping can be controlled and should not pose serious adverse effects. Excavation of the benches could affect bedrock stability of the cutslope at the back of the site. Yukon Pacific proposes to install rock bolts in these walls. It also plans to dewater the bedrock using weepholes. These actions will minimize the potential for bedrock instability.

The steep slope behind the facility may direct snow avalanches into the rear of the site. Only facilities on the southern edge of the cargo dock may be in the path of one identified snow avalanche path (path No. 3). The mitigation measures contained in the Appendix require further evaluation of this path prior to completion of final design. Final design for structures in this path's vicinity must incorporate the required mitigation for the potential effects of this avalanche path.

Although there are no active faults on the site, there are faults related to ancient ruptures in the area. Therefore, there is a probability that the project will experience severe earthquakes during its lifetime. The project area has the potential for being affected by some of the largest earthquakes recorded in North America. The primary areas of concern are surface faulting, shaking of structures, soil liquefaction, and seismically induced waves. The major seismic concerns are shaking of structures, liquefaction, and seismically induced waves.

Once the appropriate design level earthquakes are chosen, the design to protect facilities against earthquake shaking is relatively straightforward. The Commission is requiring a few modifications to the design parameters proposed by Yukon Pacific, so as to afford the facility an adequate level of protection.

For those facilities that are placed on natural soil there are significant hazards from soil failure by liquefaction. Therefore, the Commission is requiring that critical facilities not be placed on natural soils.

Seismically induced waves are a major concern for the marine terminal portion of the facilities. The Commission is requiring certain mitigation in the final design and operation plans so as to reduce the effects of seismically induced waves. The rest of the plant site is at a high enough elevation that there should be little potential for damage with proper mitigation, which the Commission is requiring herein.

The Commission concludes that the Anderson Bay site satisfies the seismicity-related siting criteria in the U.S. Department of Transportation's (DOT) LNG regulations. However, there are a number of details of design that have not been fully addressed or finalized by Yukon Pacific, and which the Commission believes must be reviewed before finalization. A number of these details relate to the type of storage tank that ultimately is chosen. Therefore, the Commission is requiring that it be provided the opportunity to review and approve design details and the basis for them prior to construction.

2. Impacts on Freshwaters, Marine Waters, Wetlands, Vegetation, and Wildlife

The FEIS addresses the environmental impacts on freshwaters, marine waters, wetlands, vegetation, and wildlife. Key impacts on freshwater and marine water quality include the potential for increased nearshore turbidity from construction and fill activities, localized temperature effects within mixing zones of the desalination and Heat Recovery Steam Generator (HRSG)/Blowdown discharges, and water supply concerns.

The FEIS states that grading activities can be expected to cause a significant short-term impact on Nancy, Terminal, Strike, and Short Creeks due to turbidity increases and rechanneling. As a result of the project, Terminal Creek and the associated pond will be permanently lost as natural waterbodies. The FEIS recommends, and the Commission is requiring, a detailed water balance and design supply analysis of streamflow requirements in connection with the proposed dam as a water supply on Seven Mile Creek. The Commission is also requiring a Spill Prevention, Containment, and Countermeasure Plan, as well as a site-specific Erosion and Sediment Control Plan, to ensure that best management practices are followed to minimize impact on water quality.

The FEIS determined that there will be minor impacts, overall, on resident fish resources because of their limited distribution at the site. Anadromous fish resources spawning in Nancy Creek will not be significantly affected if disturbance to

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the streambed is avoided or minimized and the runoff of fine sediments is controlled and appropriate construction time windows are observed. The impacts on anadromous fish spawning in Seven Mile Creek are less clear because the flow patterns are not well understood. To identify these flow patterns and how they might be affected by water releases and the damming of Seven Mile Creek, the Commission is requiring that Yukon Pacific, in conjunction with the Alaska Department of Fish and Game (ADFG), conduct an in-stream flow study. The Commission is requiring Yukon Pacific to coordinate with the ADFG, once the in-stream flow study has been completed, to determine a flow regime to minimize impacts on spawning fish.

The FEIS also determined that grading and clearing the banks will cause some disturbance of the streambed and increased runoff of fine sediments. However, if the disturbance and runoff are minimized by careful construction and adequate sediment and erosion control, as required by the mitigation measures in the Appendix, the impacts will not be significant.

Construction and operation of the proposed LNG facility is not expected to have any significant impact on local wildlife. In the case of waterfowl, there is a general lack of suitable nesting habitat at the Anderson Bay site, so the birds are not present to be affected. Similarly, the intertidal zones of Anderson Bay provide only limited foraging habitat for shorebirds compared to elsewhere in the Port Valdez region due to the lack of mudflats and other shallow water areas. Although the project will reduce the intertidal habitat of Anderson Bay, the Commission concludes that the impact on shorebirds will be minimal.

The greatest concern for raptors relates to the potential disturbance of bald eagle nest sites. To minimize these impacts, the Commission is requiring that Yukon Pacific conduct surveys for bald eagle nest sites in the year before the commencement of site activities and in each subsequent year. If birds move into the site, Yukon Pacific is instructed to consult with the Fish and Wildlife Service (FWS) and ADFG to determine appropriate action.

A variety of large ungulates and large predatory mammals occur within the Port Valdez area, but most in such low numbers in the vicinity of the project that adverse impacts are not expected. Indirect impacts could occur on mountain goats at Abercrombie and Sulphide gulches, 10 to 14 miles east of Anderson Bay, with the influx of the large construction workforce, but are not expected to be significant, given existing regulatory systems. Since both black and brown bears are known to inhabit the site, there is a potential for interaction between bears and people onsite. To reduce the potential conflict with bears at the site, the Commission is requiring, at the request of the

State Pipeline Coordinator (SPCO) and U.S. Department of the Interior, Office of Environmental Affairs (DOI/EA), that Yukon Pacific develop a mitigation plan stressing worker education programs and bear-proofing waste disposal areas. Impacts on small mammals and furbearers will be minor, arising from the loss of forest habitat through site clearing and preparation.

Construction of the LNG site will require clearing of approximately 392 acres of vegetation, primarily consisting of mature coastal spruce and hemlock forest. This represents a relatively minor impact since this vegetation covertype is well represented in the areas surrounding Anderson Bay and Port Valdez. Secondary impacts related to clearcutting large tracts may occur. These include increased soil erosion, loss of wildlife habitat, and secondary loss of trees along the edge of the cleared area. Other impacts associated with clearing include potential sedimentation of surface waters due to loss of vegetation. To reduce this impact, the Commission is requiring that a minimum 50-foot-wide natural vegetative buffer strip be maintained between all waterbodies, including marine waters, and construction areas.

3. Impact on Wetlands

The FEIS addresses the environmental impacts on wetlands. Development of the site will result in the direct loss of approximately 35.7 acres of estuarine and palustrine wetlands and 13.1 acres of non-wetland, subtidal marine habitat. Yukon Pacific has developed a mitigation plan, based on replacement or offset of the loss of wetland functional values. This mitigation includes rectification through repair or restoration, reduction or elimination of impacts through recovery and maintenance, and compensation for impacts through onsite and offsite replacement or substitution.

In general, the COE, National Marine Fisheries Service (NMFS), and Environmental Protection Agency (EPA) comment on the need for a thorough analysis of alternatives that would avoid the destruction of shallow intertidal areas, and the lack of information regarding successes and failures of other mitigation efforts that have been done in similar areas. Following publication of the Draft EIS, Yukon Pacific submitted to the Commission a Mitigation Policy Statement for the proposed project. This policy statement outlines Yukon Pacific's mitigation priorities and reasserts the company's commitment to environmental protection. However, it provides only general, broad statements and contains no new site-specific mitigation information regarding wetlands on the proposed LNG facility site.

In comments on the Draft EIS, the COE and NMFS also express concerns about the proposed mitigation plan. The COE comments that additional information is necessary regarding the proposed

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onsite mitigation at the Site B' disposal area, and the NMFS expresses concern that the proposed mitigation at Site B' might be unsuccessful. The COE also indicates that the proposed onsite freshwater mitigation plan should be refined after the in-stream flow study at Seven Mile Creek and the salmon fry utilization study, both of which are required herein, are completed.

The EPA expresses concerns about the wetland evaluation technique that was used to evaluate wetlands and Yukon Pacific's Mitigation Policy Statement. The EPA contends that the Statement is vague and the technique flawed.

The DOI/EA indicates that a wetland complex that Yukon Pacific has identified for offsite mitigation supports spawning salmon and waterfowl. The wetland area, located at the Old Valdez townsite, will require a detailed investigation, which the Commission is requiring, prior to development of wetland mitigation to avoid disrupting spawning salmon and waterfowl using the existing ecosystem.

Other parties whose comments are summarized in a letter from the state of Alaska's Joint Pipeline Office (JPO) are also critical of the Mitigation Policy Statement. Some of these parties are concerned about the delayed timing for the development of a detailed mitigation plan and some feel that the Mitigation Policy Statement fails to adequately address marine impact mitigation, the issues of indirect and cumulative impacts, and mitigation monitoring.

The FWS indicates that there are several potential mitigation measures that Yukon Pacific should evaluate and incorporate into the detailed mitigation plan. These include habitat alteration measures that would result in increased tidal and subtidal productivity in areas where existing habitats will be affected.

In view of this information, the Commission concludes that additional information concerning Yukon Pacific's wetland mitigation plan is necessary. However, the Commission does not believe the detailed elements of the mitigation plan need to be addressed now. ^{26/} Therefore, the Commission is requiring Yukon Pacific to revise its wetland mitigation plan based on the final site grading, excavation, and soil disposal plans, and to submit the revised plan to the BLM/JPO and to the Commission's Office of Pipeline Regulation (OPR) for review and approval by the Commission's Director of OPR prior to construction.

^{26/} The EPA shared this view in its July 29, 1994 letter to the Commission, filed in this proceeding.

4. Impact on Marine Environment

As the FEIS discusses, construction of the Anderson Bay facility will impact the marine environment in several ways. Since estuarine spawning areas at the mouths of Seven Mile and Nancy Creeks are used by pink and chum salmon, these areas are highly sensitive to changes in the flow regime. Salmon fry use protected, shallow intertidal areas in Anderson Bay. The project will fill approximately 35 acres of this habitat and create changes in the rocky intertidal and subtidal areas in the tanker berthing location and along the face of the cargo dock. Although salmon fry have been observed in this area, the importance of this area relative to other parts of Port Valdez and other habitat types has not been documented. Therefore, it is difficult to determine the degree of impact on these habitat types. As a result, the Commission is requiring Yukon Pacific to conduct a study to determine the importance of this habitat and to develop mitigation to minimize impacts on salmon rearing habitat.

The release of heated water from the desalinization plant and HRSG/Boiler blowdown may impact the marine environment. To reduce this impact, the Commission is requiring Yukon Pacific to utilize a dilution model to determine the final design of the diffusers. The Commission is also requiring that, with respect to the mixing zone allowance, strict limits be set on the vertical extent of the mixing zone in Port Valdez. The FEIS also determined that shock waves from underwater blasting may injure or kill fish present in the area. The Commission is requiring blasting mitigation procedures to minimize these impacts.

The FEIS states that intertidal and subtidal construction, and blasting in the tanker docking area, will cause long-term physical changes in bathymetry and benthic substrate. In the short term, it is likely that intertidal and subtidal organisms and algae will be damaged, covered, or killed. Disruption of the rocky intertidal zone due to ice scour and extreme weather is common in Port Valdez. The intertidal marine community has adapted to this and tends to recover quickly. The subtidal community is subject to high rates of fine sediment deposition from glacial runoff. The benthos has adapted to this and areas covered by fill are unlikely to cause long-term impacts. The changes in substrate profiles and substrate types may cause changes in the benthic community, but since there is a low species diversity in Port Valdez, it is unlikely these changes will be significant. The Commission is requiring additional restrictions to the proposed ballast water exchange procedures to further minimize the potential to introduce exotic species or organisms from other geographic areas into Prince William Sound and Port Valdez.

While several species of marine mammals have been recorded in Valdez Arm, only sea otters and harbor seals occur more than occasionally. The greatest potential source of impact to them during the construction and operation of the project is blasting. Consequently, the Commission is requiring mitigation measures to ensure that marine mammals are not present at the time of underwater blasting.

5. Endangered Species

No federally listed or proposed endangered or threatened plant or wildlife species have been reported in the vicinity of the Anderson Bay site. Although occasional transients of listed falcon species may occur in the area, the Commission concludes that they would not be affected by the project. The Commission also concludes, with concurrence of the NMFS, ^{27/} that no federally listed or proposed endangered or threatened marine mammals would be adversely affected. A Biological Assessment was prepared and submitted to the NMFS as required under section 7 of the Endangered Species Act.

6. Impacts on Air Quality and Noise

The FEIS discusses the environmental impacts on air quality and the impacts associated with noise. The Anderson Bay LNG facility will have an impact on air quality in the project area during the 8-year construction period and a long-term impact from operation of the facility. At full capacity, the facility will emit approximately 2,528 tons per year (tpy) of nitrogen oxides (NO_x), 780 tpy of carbon monoxide (CO), 374 tpy of volatile organic compounds (VOC), 256 tpy of particulate matter (PM₁₀), and 89 tpy of sulfur dioxide (SO₂).

Primary sources of operational emissions are gas turbine-driven compressors used in the liquefaction process, gas turbines used to generate steam and electricity, and the tankers docked at the facility. The conservative screening model analysis predicted compliance for all pollutants with the National Ambient Air Quality Standards (NAAQS), and compliance for all pollutants with Prevention of Significant Deterioration (PSD) increments, except for nitrogen dioxide (NO₂).

Supplemental modeling for NO₂ using two sets of meteorological data collected near the proposed Anderson Bay facility depicts a range of potential impacts relative to the screening assessment. While these results cannot be relied upon to make conclusive determinations on the ability of the project to comply with applicable NAAQS and PSD increments, the

^{27/} See NMFS's letter filed on March 17, 1993 in this proceeding.

supplemental modeling shows levels below the respective NAAQS and PSD increments. When final equipment selections have been made, Yukon Pacific states that it will perform refined dispersion modeling, using meteorological data from a 40-meter tower, other nearby sources, and background ambient concentrations measured at the Alyeska Marine Terminal, to ensure that the facility will not cause violations of PSD increments, NAAQS, and Alaska standards. This modeling must be done for the facility to obtain any air emission permits from the Alaska Department of Environmental Conservation (ADEC). Consequently, this modeling and permitting must be done before construction of the facilities.

The FEIS determined that the Anderson Bay LNG facility will increase noise levels in the vicinity of the site during both construction and operation. Anderson Bay is a remote area with the closest permanent buildings being part of the Alyeska Marine Terminal. The nearest noise-sensitive areas (NSAs) are Shoup Bay State Marine Park, approximately 3.7 miles northwest of the proposed LNG main utility building; a camping area north of Dayville Road and east of the Alyeska Marine Terminal's eastern gate, approximately 5.9 miles east; and three residences at the mouth of Mineral Creek in Valdez, approximately 5.0 miles northeast.

Yukon Pacific's analysis of operational noise predicts a 24-hour equivalent sound level ($Leq(24)$) of 46 decibels of the A-weighted scale (dBA) at the site's eastern property line. The resulting impact on all NSAs will be well below a day-night sound level (Ldn) of 55 dBA. This noise analysis is based on the assumption that exhaust stack noise levels will not exceed 85 dBA at 10 feet and no other plant equipment will exceed a noise level of 85 dBA at 3 feet -- which is inconsistent with design Noise Control Specification A-09. Therefore, the Commission is requiring Yukon Pacific to file a revised noise analysis once the actual equipment is selected and manufacturer's noise data are available. The Commission is also requiring Yukon Pacific to conduct a noise survey once the terminal is in service, to ensure that noise impacts are below the 55-dBA Ldn limit at the NSAs.

7. Land Use, Recreation, Visual, Socio-Economic, and Cultural Impacts

The FEIS discusses land use, recreation, visual, socio-economic, and cultural impacts. The FEIS states that the primary land use impact will be the conversion of 377 acres of spruce and hemlock forest and shrub, and 49 acres of palustrine and estuarine wetland and non-wetland, subtidal marine habitat to an industrial use. In addition, public access will be restricted to the 2,630 acres of land which will constitute the site and buffer zone. Restricting access to the upland areas adjacent to the plant site will have little impact, due to the remoteness of the area. For safety reasons, there will be a large dispersion

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exclusion zone in which normal usage of land-based outdoor areas will be limited to less than 20 people. This will not affect water-based recreation or transient travel, including travel offshore. The 200-yard safety exclusion zone imposed by the Coast Guard will, however, render most of Anderson Bay off-limits to small craft, except in emergencies.

The proposed project will not have significant short- or long-term negative effects on recreation in the Port Valdez area, although during the construction period, the noise, dust, and activity could impact recreation in and near Anderson Bay and the popular Seven Mile Creek area. During operation, recreation will be limited in the upland areas adjacent to the plant site because of the buffer zone. The dispersion exclusion zone will restrict outdoor activities within an approximately 2.5-mile radius of the site. Temporary increased demand on recreational facilities in the City of Valdez from construction personnel may occur, but will probably not be great, with the greatest potential impact being on indoor facilities. This probably will be limited, because the number of workers will be reduced dramatically during the winter, when indoor recreational activity is the greatest.

The proposed project will permanently change the visual characteristics of a 2-mile stretch of the south shore of Port Valdez, by regrading the current rocky forested shoreline and forested backshore and constructing large industrial structures, which will contrast sharply with the environment. The overall impact is not considered to be significant, however, because of the low number of possible viewing points and their distance from the site. In addition, the vertical profile of the proposed LNG facility is low when compared with the Alyeska site, which will remain the more dominant visual presence. The Commission is requiring Yukon Pacific to prepare a visual mitigation plan which preserves the current shoreline and to develop appropriate landscape and architectural treatments to improve the aesthetic quality of the facility.

The Yukon Pacific LNG Project will significantly increase total employment and population in the City of Valdez during construction and operation of the plant. Temporary impacts associated with construction will be more significant than permanent impacts associated with operation of the project because employment levels will be higher during construction. The increase in population associated with construction and operation of the project will lead to greater demands on public services, creating a need for additional teachers, doctors, police officers, and fire fighters. Housing demand will increase as workers and their families relocate to Valdez.

The project will stimulate economic activity in Valdez. Local businesses will experience an increase in demand for goods and services from Yukon Pacific's workforce and their families.

Workers and their families will frequent local grocery stores, restaurants, and other establishments. Property tax payments by those associated with Yukon Pacific should offset increased costs associated with additional public service needs and could finance further growth and development within the city.

The movement of goods, supplies, and people in and out of Valdez will increase because of the project. The port and boat harbor will be significantly affected because access to the project site will only be possible by water. The waterways, in and around Port Valdez, will experience an increase in barge, tanker, and large boat traffic. Road, highway, and airport traffic will increase, especially during summer months when construction activity will escalate and tourists visit the city. Port and airport revenues could rise with greater activity.

Impacts on subsistence use of area resources are anticipated to be minor. Project construction will have minor impacts on subsistence use on Port Valdez, Anderson Bay, and the surrounding land area. These areas receive minor subsistence use and Valdez residents, the greatest users of the area, are in a designated non-rural area (thereby qualifying as recreational rather than subsistence users). Populations of land mammals and fish will be minimally affected by increased competition from the addition of the direct and indirect construction workforce to the area population. Tatitlek residences will also experience minor impacts on fishery resources from increased competition with non-rural (Valdez) users during construction and operation. Increased competition with construction and operational workforces might require restrictions on non-rural residents' harvesting of subsistence resources. Fishery and marine mammal resources and related subsistence uses could be minimally affected from increased shipping in Prince William Sound and the increased potential for accidents.

No previously recorded or newly identified cultural resource sites were identified during background literature research or field studies, respectively. The Alaska State Historic Preservation Officer has reviewed the results of a 1990 cultural resource survey and concluded, and the Commission concurs, that the project will have no effect on properties on or eligible for the National Register of Historic Places.

8. Cryogenic Design and Safety Review

Absent strict design and operational measures to control potential accidents, the operation of the proposed LNG facility poses a unique hazard that could affect the public safety. The primary concerns are those events which could lead to an LNG spill of sufficient magnitude to create an offsite hazard.

The Commission's staff and its cryogenic consultants conducted a cryogenic design and technical review emphasizing the engineering design and safety concepts, and the projected operational reliability of the proposed LNG facility and marine terminal. The review included a technical conference in Valdez on May 26, 1992, followed by a site inspection. Much of the technical data filed by Yukon Pacific reflects the initial conceptual design phase of the project. Yukon Pacific states that, in a later phase, it will develop the detailed design information necessary to assess the facility's adherence to the applicable standards, codes, and engineering practices. Since the material submitted by Yukon Pacific to the Commission is in the initial phase of design, supplemental information is required before a more definitive assessment can be made on the adequacy of design and on the adherence of the design to various applicable standards, codes, and engineering practices.

DOT's regulations governing the siting of an LNG facility require the establishment of both thermal and flammable vapor exclusion zones to protect offsite land uses. While the thermal exclusion zone is either confined to the plant property or the immediate vicinity of the waters at the two LNG tanker docks, the dispersion exclusion zone extends northward more than 13,000 feet offshore into Port Valdez. Although Yukon Pacific must ensure that normal land usage within the dispersion exclusion zone is below 20 people when the terminal becomes operational, transient travel through the zone, such as fishing boats or cruise ships, would be permitted. Although a finding of compliance with Part 193 of DOT's regulations will await DOT's evaluation of Yukon Pacific's responses, the remote location of the site and lack of population in the plant vicinity should ultimately permit compliance with the siting requirements. 28/

While LNG tankers have experienced safe operation without cargo tank spillage for more than 30 years, the possibility of a major LNG spill over the duration of the project cannot be discounted. The events most likely to cause a significant release of LNG cargo would be a grounding severe enough to penetrate the tanker's double bottom or collision with another vessel sufficiently large and with sufficient momentum to penetrate the double sides. The Commission's analysis concludes that:

- (1) given the present and planned Coast Guard controls in the Prince William Sound Vessel Traffic Service (VTS) Area, LNG tankers can safely operate in these waters;

28/ See 49 C.F.R. Part 193, Liquefied Natural Gas Facilities: Federal Safety Standard.

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- (2) the thermal radiation and flammable vapor cloud hazards from the maximum credible LNG tanker spill would not affect the general public;
- (3) although it is possible for an LNG tanker to spill cargo in a grounding type incident, the liquid would rapidly vaporize and would not have the long-term environmental consequences associated with a major oil spill; and
- (4) the addition of LNG tankers within the VTS Area would not significantly increase the percent potential of a collision with an outbound crude oil tanker.

9. Summary of Alternatives Considered.

i. No Action and Alternative Sites

Alternatives considered that would avoid constructing the project at Anderson Bay include locating the project at another site and no action. As discussed above, the TAGS EIS considered alternative sites for the LNG facility. DOE Order No. 350 determined that the Anderson Bay, Port Valdez export site is preferable to all other export sites that were considered in the TAGS EIS and disapproved all sites other than the Anderson Bay site. Accordingly, further consideration of alternative sites is outside the scope of this FEIS. However, the FEIS does include and incorporates by reference the relevant sections of the TAGS EIS on this issue. The no action alternative would avoid all of the environmental effects of the project, but would result in the entire TAGS Project, including the pipeline, not being built.

ii. Alternative Construction Camp Sites

Yukon Pacific proposes to locate the construction camp onsite, along the banks of Seven Mile Creek. Several alternatives to the proposed construction camp at Seven Mile Creek were examined and are discussed in the FEIS. After a preliminary screening, three onsite alternatives were eliminated from further consideration because they offered no environmental advantages over the proposed onsite location. The offsite alternative at Valdez was considered in combination with three different access options. Two alternatives (ferry transport and road transport around the Alyeska Marine Terminal) were determined to be impractical but the third alternative, (road transport through the Alyeska property) was kept for further consideration.

The analysis in Section 4.16 of the FEIS compared the proposed camp site with an alternative camp site with access through Alyeska. The principal negative features associated with the proposed Seven Mile Creek camp site are: (1) the clearing of

47 acres of coastal spruce/hemlock forest compared to only 9 acres to link the access road for the Valdez camp site; 29/ (2) the construction of a 3.5-acre dam on Seven Mile Creek; 30/ and (3) the clearing and grading of the gorge at the outfall of Seven Mile Creek. 31/

The principal negative features associated with the Valdez camp site are related to the access road required to transport workers to the site. Specifically, the principal negative features are: (1) construction of a new 3-mile commuter access road partially through Alyeska and the TAGS right-of-way; 32/ (2) the disruption of six daily convoys of up to 40 buses on Alyeska security and plant operations, and on local and tourist traffic on the Richardson Highway and Dayville Road; and (3) social disturbance to the City of Valdez with a doubling of its population through the influx of up to 4,000 workers.

The Commission's staff solicited public comments on these alternatives. The public comments, including comments from the City of Valdez, the State of Alaska, and the two affected corporations all favored the onsite alternative at Seven Mile Creek. There was no local support for the Valdez Camp/Alyeska road option. Therefore, the Commission agrees with the finding in the FEIS that the preferred location for the camp is the site at Seven Mile Creek, as proposed by Yukon Pacific.

iii. Alternative Disposal Sites

Construction of the proposed LNG facilities will require substantial excavation and benching of the bedrock. Although most of the rock and overburden materials produced during excavation could be used as structural fill on the site, the remaining surplus material will require disposal. Yukon Pacific

29/ However, 47 acres represents only 13 percent of the total spruce/hemlock forest to be cleared within the construction limits of the site and is even less significant when compared with the Port Valdez forest area.

30/ However, this may be partially offset by the potential for the dam to maintain minimum stream flow rates to support salmon spawning.

31/ However, the Commission staff determined that clearing should be minimized within 100 feet of the streambanks and that the camp site should be limited to the west bank only.

32/ This road could be used during operations for all-weather emergency access.

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identified and evaluated six potential disposal sites -- four entirely on land, one partially on land and in Anderson Bay, and one entirely in the deep water of Port Valdez. Three of the onshore sites were entirely within the boundaries of the proposed construction area. In addition to these alternative sites, the Commission's staff identified and evaluated two other disposal options. These options would involve the use of multiple onshore and offshore sites and the utilization of Yukon Pacific's proposed disposal Site B' for the construction of the proposed cargo dock facilities to reduce the overall impact on the shoreline and intertidal area of Anderson Bay.

The FEIS concludes that none of the sites located entirely on land would have enough storage capacity to store the excess volumes of waste material. Other factors, such as the potential to impact surface waters and the construction of new, offsite access roads further precluded these sites from being acceptable.

The Commission's staff evaluated open-water disposal opportunities, but found them to be inadequate for the following reasons: (1) the dumping of organic materials was unacceptable to the agencies and the public; (2) the amount of rock material suitable for disposal in this manner is small, relative to the total; and (3) the additional storage and handling facilities required to accommodate barging would partially offset the savings at Site B' and greatly increase disposal costs.

During the Commission's staff's evaluation of the use of the proposed disposal Site B' for the construction of the cargo dock, the staff identified several potential problems. These include: (1) size and area constraints; (2) the need for additional grading and filling of the Anderson Bay intertidal and shoreline areas; and (3) the orientation of the proposed cargo dock at Site B'. The staff determined that the proposed orientation of the cargo dock would result in a more difficult, time consuming, and possibly less safe approach and departure for barges and cargo ships. Additionally, Site B' would be used during the last 5 years of construction as a storage and laydown area. However, more importantly in terms of scheduling, Site B' would not be graded for use even until the end of the third construction year. Whereas, the construction of the proposed cargo dock would be a priority that could not be deferred for 3 years. No temporary solutions have been identified.

In pursuit of a solution to this disposal problem, the Commission's staff examined ways to increase the holding volume of the upland sites through the placement of retaining structures. However, the topographic limitations of the site overall lead to the conclusion that the cargo dock at Nancy Creek and disposal of excess excavated material at Site B', although impacting inter- and subtidal wetlands, are the most practical approaches, and are the environmentally preferred alternative.

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The Commission is requiring certain environmental conditions to mitigate the impacts from the disposal on the inter- and subtidal wetlands.

10. Environmental Conditions and Mitigation Measures

To mitigate the environmental impact associated with the construction and operation of the proposed Yukon Pacific LNG Project, the Commission is requiring Yukon Pacific to comply with the environmental conditions and mitigation measures recommended in the FEIS. These environmental conditions and mitigation measures are set forth in the Appendix.

V. Conclusion

The Commission has completed its environmental review of Yukon Pacific's proposed LNG Project, and concludes that the proposal would result in a limited adverse environmental impact during construction and operation. However, the Commission concludes that if the project is constructed and operated in accordance with the required environmental conditions and mitigation measures, construction and operation of the project would be an environmentally acceptable action. Upon review of the record, the Commission concludes that Yukon Pacific's requested NGA section 3 authorization should be granted, subject to the safety and environmental mitigation measures specified in the Appendix. The Commission concludes that Alaskan NW's and Foothills' motions to reopen the record in Docket No. GP87-16 should be denied, as should the protests in this proceeding.

At a hearing held on May 16, 1995, the Commission on its own motion received and made a part of the record in this proceeding all evidence, including the application and exhibits thereto, submitted in support of the authorization sought herein, and upon consideration of the record,

The Commission orders:

(A) Yukon Pacific's application, under NGA section 3, for approval of a place of export at Anderson Bay, Port Valdez, Alaska, for its LNG Project is granted. Yukon Pacific is authorized to construct and operate the proposed Anderson Bay facilities, as described herein, and subject to the conditions contained in this order. Construction of the Anderson Bay facilities must commence within three years of the date of this order.

(B) The authorization granted in Ordering Paragraph (A) is subject to Yukon Pacific's compliance with the safety and environmental conditions and mitigation measures specified in the Appendix to this order.

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(C) Alaskan NW's and Foothills' motions to reopen the record in Docket No. GP87-16 are denied.

(D) Alaskan NW's and Foothills' protests are denied.

(E) The contested timely motions to intervene filed by Foothills, Alaskan NW, Northwest Pipeline Corporation, PG&E, and PIT are granted.


(F) The contested late motions to intervene filed by the CPUC and Tennessee are granted.

(G) The late motion to intervene filed by Exxon Corporation is granted.

(H) All motions not specifically granted are denied.

By the Commission.

(S E A L)


Linwood A. Watson, Jr.,
Acting Secretary.

Environmental Conditions
and Mitigation Measures

1. Yukon Pacific shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the Final Environmental Impact Statement (FEIS), unless modified by these conditions. Yukon Pacific must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Pipeline Regulation (OPR) before using that modification.
2. The Director of OPR has delegation authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of this Order; and
 - b. the design and implementation of any additional measures deemed necessary (including stop work authority) to ensure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.
3. Yukon Pacific shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. This includes any alteration to facility locations previously filed with the Commission. Approval for all areas must be explicitly requested in writing. All areas must be approved in writing by the Director of OPR before construction in or near that area.

4. Within 60 days of the acceptance of this authorization and before construction begins, Yukon Pacific shall file an initial implementation plan with the Secretary for review and written approval by the Director of OPR describing how Yukon Pacific will implement the mitigation measures required by this Order. Yukon Pacific must file revisions to the plan as schedules change. The plan shall identify:
 - a. how Yukon Pacific will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - b. the number of environmental inspectors and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - c. company personnel, including environmental inspectors and contractors, who will receive copies of the appropriate material;
 - d. what training and instructions Yukon Pacific will give to these personnel (initial and refresher training as the project progresses and personnel change), with the opportunity for OPR staff to participate in the training session(s);
 - e. the company personnel (if known) and specific portion of Yukon Pacific's organization having responsibility for compliance;
 - f. the procedures (especially contract penalties) Yukon Pacific will follow if noncompliance occurs; and
 - g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the mitigation training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
5. Prior to construction, Yukon Pacific shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors, and contractor personnel who will be involved with construction and restoration have been

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trained as specified in the Implementation Plan provided in response to condition 4d.

6. Yukon Pacific shall employ at least one independent environmental inspector. Such inspector shall be:
 - a. responsible for monitoring and ensuring compliance with all mitigative measures required by this Order and other grants, permits, certificates, or authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 4 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;
 - d. employed in a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other Federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
7. Yukon Pacific shall file updated status reports prepared by the environmental inspector with the Secretary on a biweekly basis until all construction-related activities, including restoration and initial permanent seeding, are complete. On request, status reports will also be provided to other Federal and state agencies with permitting responsibilities. At a minimum, status reports shall include:
 - a. the current construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - b. a listing of all problems encountered and each instance of noncompliance observed by the environmental inspector during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other Federal, state, or local agencies);

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- c. corrective actions implemented in response to all instances of noncompliance;
 - d. the effectiveness of all corrective actions implemented;
 - e. a description of any landowner/resident complaints which may relate to compliance with the requirements of this authorization, and the measures taken to satisfy their concerns; and
 - f. copies of any correspondence received by Yukon Pacific from other Federal, state, or local permitting agencies concerning instances of noncompliance, and Yukon Pacific's response.
8. Yukon Pacific must receive written authorization from the Director of OPR before commencing service from each phase of the project. Such authorization will only be granted following a determination that rehabilitation and restoration of the project site is proceeding satisfactorily.
9. Within 30 days of placing the facilities in service, Yukon Pacific shall file an affirmative statement with the Secretary, certified by a senior company official:
- a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions Yukon Pacific has complied with or will comply with. This statement shall also identify any areas where compliance measures were not properly implemented, and the reason for noncompliance.
10. Yukon Pacific shall provide the State Pipeline Coordinator and the U.S. Army Corps of Engineers with a copy of any submittal that is filed with the Secretary in response to conditions in this authorization.
11. Yukon Pacific shall notify the Commission's environmental staff by telephone or facsimile of any environmental problems identified by other Federal, state, or local agencies on the same day that such agency notifies Yukon Pacific.

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12. Yukon Pacific shall commence construction of its Anderson Bay facilities within 3 years of the date of the Commission's Order, or shall file for a motion to extend this deadline.
13. Yukon Pacific shall prepare a site-specific erosion control and sedimentation plan that:
 - a. provides detailed procedures for controlling sediment from access road construction including the roadbed, cut and fill materials, culvert installation, and bridge installation;
 - b. provides detailed drawings that show the number, size, and placement of erosion and sediment control structures on the site;
 - c. provides detailed drawings which show the areas that would be revegetated and include a description of the seedmix, seeding methods, soil amendments, and mulching methods that would be used; and
 - d. shall be filed, together with comments of the Alaska Department of Natural Resources (ADNR), if any, with the Secretary for review and approval by the Director of OPR prior to initiation of construction.
14. To avoid the potential for avalanche damage to facilities and hazards to personnel at the construction dock area, further field evaluation of avalanches on path No. 3 shall be undertaken prior to the development of final design in order to determine the need for mitigation.
15. All final seismic design plans and specifications shall be filed with the Secretary for review and approval by the Director of OPR. The seismic design measures shall take into account the specific recommendations and results of studies specified below:
 - a. The intracycle earthquake specified for facility design purposes shall be set at moment magnitude (M_w) 8.2.
 - b. The Maximum Design Earthquake (MDE) value for the effective acceleration shall be at least 0.6 gravitational force (g).
 - c. Yukon Pacific shall evaluate the adequacy of the long period levels of the proposed design response spectra using seismological modelling analyses to estimate directly the long period ground motion from postulated

critical design earthquakes on the Aleutian megathrust and in the Yakataga Gap. A report on the methods, assumptions, and results shall be filed with the Secretary. The results of that analysis shall be incorporated into the seismic design, as appropriate.

- d. The vertical design accelerations shall be set as equal to the horizontal acceleration for design purposes.
- e. For all structures not directly supported by rock, design spectra for "competent soil conditions" as recommended by Newmark and Hall (1982) shall be used. Under no circumstances shall the agreed upon criteria be less than proposed in the application.
- f. Yukon Pacific shall conduct a specific analysis of the duration of strong ground shaking likely to be experienced at the site as a result of the design earthquake, and document that the structures are designed to accommodate the ductility demand associated with the duration of the shaking. A report on the methods, assumptions, and results shall be filed with the Secretary. The results of that analysis shall be incorporated into the seismic design, as appropriate.
- g. Yukon Pacific shall file with the Secretary a discussion of each of the following issues, as the design of the facility progresses:
 - (1) Unless there is clear and convincing justification for lesser values, the load combination factors specified in ASCE 7-88 (1990) shall be used.
 - (2) Use of the calculated flat-roof snow load of 169 pounds per square foot in conjunction with earthquake loads appears to be conservative. This snow load corresponds to a mean recurrence interval of approximately 100 years and does not account for any load reduction due to snow slide-off on the steeper roof slopes. If the ASCE 7-88 (1990) load combination factors are used, then the design snow load with a 50-year recurrence interval could be used in conjunction with earthquake loads.
 - (3) The design load criteria shall account for the possibility of combined seismic and impounded fluid loading for the outer tank. This load combination could be critical for the so-called "double integrity" tank designs.

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- (4) Since snow load is one of the controlling design factors, the design basis for snow load shall be consistent with that for earthquakes. Therefore, the design for maximum snow load shall use an annual failure probability of 10^{-4} .
- (5) For the double integrity tanks, the secondary containment is not isolated from the primary containment, thus creating the potential for collapse of the outer tank as the inner tank fails. There does not appear to be a structurally independent impounding system.
- (6) The detail for the joint between the floor of the double concrete wall tank needs additional development to assure proper function under strong ground shaking and possible differential movements and settlement of the tank footing.
- (7) The behavior of the circumferential prestressing for the double concrete wall tank is unclear in the event of a wire failure due to corrosion or wind borne missile impact.
- (8) Weathering effects on the bedrock formation could affect the rock anchors for the tank foundation and rock slopes in the project area.
- h. Yukon Pacific shall develop plans to mitigate the effects of damaging waves (especially those resulting from subsea landslides) on the marine terminal facilities and on tankers at berth.
- i. Yukon Pacific shall conduct an analysis of rock slope stability and potential effects of snow avalanches on the plant, especially under seismic conditions, and incorporate appropriate mitigative measures into the plant design and operation plans.
- 16. To clearly demonstrate water supply requirements for the proposed facilities, Yukon Pacific shall prepare, in consultation with the ADFG, and file with the Secretary, a detailed water balance and design supply analysis, prior to initiation of construction.
- 17. Yukon Pacific, in consultation with the Alaska Department of Fish and Game, Alaska Department of Natural Resources, and Alaska Department of Environmental Conservation and in conjunction with preparation of the detailed water balance and design supply analysis, shall conduct an in-stream flow

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study to determine the minimum flow requirements to minimize impact on spawning fish and maintain flow through Seven Mile Creek above the minimum levels. The results of this study, based on a minimum of 2 years flow monitoring, shall be reviewed with the ADFG, ADNR, and the ADEC for consideration of additional flow regulation mitigation. The results of the study incorporating comments of reviewing agencies, shall be filed with the Secretary for review and approval by the Director of OPR.

18. Yukon Pacific, prior to commencing construction, shall develop and file with the Secretary for review and approval by the Director of OPR, a Spill Prevention, Containment, and Countermeasure Plan (SPCC Plan) that would describe the preventive and mitigative measures it would employ to minimize the impact associated with accidental spills, both in freshwater streams as well as those that may occur in nearshore marine waters. These measures shall include but not be limited to: requiring all fueling and lubricating to be done in areas designated for such purposes, with such areas to be located at least 100 feet away from all waterbodies; specifying collection and disposal procedures for wastes generated during vehicle maintenance; requiring each construction crew to have on hand sufficient supplies of absorbent and barrier materials to allow the rapid recovery of any spills; and developing standing procedures regarding excavation and offsite disposal of any soil materials contaminated by spillage. In addition, Yukon Pacific shall ensure that construction contractors are able to demonstrate to environmental, local, or state inspectors their ability to implement the SPCC Plan. The SPCC Plan shall also identify the types and quantities of hazardous materials that would be stored or used on the construction site.
19. To document compliance with Federal and state stormwater discharge requirements, Yukon Pacific shall develop a stormwater monitoring plan. This plan shall be developed in conjunction with the new National Pollutant Discharge Elimination System (NPDES) stormwater permit requirements that will be imposed under Section 402 of the Clean Water Act (40 C.F.R. Part 122.26(c)(ii)). This plan shall be prepared in conjunction with the site-specific Erosion and Sediment Control Plan and shall provide a detailed description of the stormwater collection and treatment process, including best management practices to control pollutants in stormwater discharges during both construction and operation. These plans shall be filed with the Secretary, and provided to the U.S. Environmental Protection

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Agency as part of the documentation with the National Pollutant Discharge Elimination System permit application.

20. To prevent potential disturbance of the limited anadromous and resident fish habitat in Nancy Creek, the cargo dock access road crossing shall be made above a small falls which may currently be acting as a fish barrier.
21. To minimize impacts due to siltation on spawning gravels and incubating redds from construction and from road runoff:
(1) any in-stream construction shall be limited to the period between May 15 and July 15 when there are no spawning fish or incubating redds present; and (2) sediment traps shall be placed along the road to prevent fines from running off into the stream. To prevent loss or disruption of habitat, there shall be no other in-stream construction activity or in-stream equipment crossing or fording the streambed at any time. Any temporary crossing structures shall be limited to portable construction bridges or crushed, clean rock and culvert bridges.
22. No construction equipment or in-stream activity shall occur in Seven Mile Creek below the falls and any in-stream construction or activity which may cause siltation (above and below the falls) shall be scheduled between May 15 and July 15 when there are no salmon or incubating redds present in the stream.
23. Yukon Pacific shall prepare a revised site plan that avoids grading and clearing the riparian zones within 100 feet of the streambanks along Seven Mile Creek above the proposed dam. The revised plan shall also avoid grading and clearing to preserve the gorge area surrounding the water falls and the associated intertidal shoreline area located on either side of the confluence of Seven Mile Creek and Anderson Bay. The revised plan shall be filed with the Secretary for review and approval by the Director of OPR.
24. Yukon Pacific shall conduct surveys for bald eagle nest sites during the year prior to the commencement of site activities and each year subsequently, to determine nesting activity at the site. If active nests are found, Yukon Pacific must consult with the U.S. Fish and Wildlife Service to ensure the project does not violate the Bald and Golden Eagle Protection Act.
25. Yukon Pacific shall contact the FWS and ADFG regarding convening a panel of agency bear experts and develop, in consultation with the ADFG, the FWS, and the Valdez Chief of Police, a plan to mitigate impacts on bears arising from

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both habitat loss and from bear/human interaction. This plan shall detail procedures for avoiding human/animal conflicts and shall stress implementation of an education program for workers, in addition to methods of bear-proofing the site. This plan shall be filed with the Secretary for review and approval by the Director of OPR prior to initiation of construction.

26. Yukon Pacific shall, where feasible, maintain a natural, uncleared vegetative buffer strip at least 50 feet wide between construction areas and waterbodies. Yukon Pacific shall indicate the location and size of these buffer strips on its final site plans that would be filed with the Secretary prior to construction. Where Yukon Pacific believes maintenance of a 50-foot-wide buffer strip would be infeasible, Yukon Pacific shall file with the Secretary for review and approval by the Director of OPR prior to construction a detailed explanation of why the required buffer strips cannot be maintained. Yukon Pacific shall include with this explanation a description of alternative sediment control measures that would be employed on a site-specific basis instead of maintaining the vegetative buffer strip.
27. Yukon Pacific shall file with the Bureau of Land Management and Alaska's Joint Pipeline Office for review and with the Secretary for review and approval by the Director of OPR prior to construction a revised wetland mitigation plan based on the final site grading, excavation, and spoil disposal plans that contains the following:
 - a. field delineations and results from site investigations that verify the size, vegetation, and functional values (including salmon and waterfowl habitat) of the wetlands and subtidal marine habitats that would be affected or enhanced on and off the site;
 - b. identification of, and proposed mitigation for, all the subtidal marine habitats that would be affected by the site's development and a discussion of the proposed mitigation's probability of success;
 - c. identification of the locations and land ownership of the proposed mitigation and enhancement areas;
 - d. a detailed literature review of the other wetland and subtidal marine habitat mitigation projects that have been conducted in the Pacific Northwest, including a summary of the successes and failures of these projects;

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- e. site-specific construction plans that incorporate information learned from the literature review regarding how the proposed mitigation would be implemented including detailed information regarding the key factors that are known to influence the success of wetland construction (e.g., elevation, substrate, and hydrology);
 - f. details regarding how the proposed wetland mitigation would be monitored and evaluated following construction to ensure its success; and
 - g. written comments, if received, from Alaska's Joint Pipeline Office, the U.S. Army Corps of Engineers, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency on Yukon Pacific's revised wetland mitigation plan.
28. Yukon Pacific shall use a dilution model to design the diffusers for the high temperature of the desalination and HRSG/Blowdown discharges, and determine the vertical extent of the mixing zone so that the surface and bottom thermal layers of Port Valdez are not subject to periodic hot water surges.
 29. Yukon Pacific shall require ballast water discharge/exchange to occur at least 10 kilometers south of Hinchinbrook Entrance, in addition to its proposed 36-hour period, in order to protect against any waiting or slow travel scenarios.
 30. Yukon Pacific, in consultation with the ADFG, ADNR, and FERC, shall develop and conduct a salmon fry utilization study, designed to determine the importance of the nearshore areas affected by plant construction relative to other areas in Port Valdez. In particular, the proposed B' disposal area must be addressed in detail. This study along with proposed mitigation shall be submitted to the ADFG and ADNR and filed with the Secretary for review and approval by the Director of OPR.
 31. Yukon Pacific shall prepare a blasting plan that considers the following measures: (1) scare charges and/or bubble curtains to move resident fish away from the area prior to blasting; (2) coordination with the ADFG and the Solomon Gulch hatchery personnel to schedule blasting activities when adult or juvenile salmon are likely to be in the area; and (3) use of NMFS-approved spotters or lookouts, to ensure

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marine mammals are not present within the zone of influence prior to blasting.

32. Yukon Pacific shall consult with the EPA, ADFG, and NMFS to determine the allowable location, frequency, and duration of warm water discharges into Port Valdez.
33. Yukon Pacific shall file a copy of all air emission permit and open burning permit applications submitted to the Alaska Department of Environmental Conservation with the Secretary. Specifically, Yukon Pacific must file its Prevention of Significant Deterioration permit from the ADEC prior to receiving a written notice to proceed with any construction from the Director of OPR.
34. Yukon Pacific shall file with the Secretary a revised acoustical analysis of the Anderson Bay LNG site reflecting far-field sound data of equipment finally selected (from either the manufacturer or a similar unit in service elsewhere), manufacturer's specifications and attenuation data for the intake and exhaust silencers finally selected, and the actual noise control equipment, for review and written approval of the Director of OPR before commencing construction of the compressor facilities.
35. Yukon Pacific shall file with the Secretary a noise survey of the Anderson Bay LNG Terminal no later than 60 days after placing the terminal in service. If the noise attributable to the operation of the facility exceeds an Ldn of 55 dBA at nearby noise-sensitive areas, additional noise controls shall be added to meet that level within 1 year.
36. Yukon Pacific shall file with the Secretary for review and approval by the Director of OPR prior to construction a visual mitigation plan that includes:
 - a. shoreline protection measures that provide a more natural appearance by preserving existing landform and mature vegetation at prominent features along the shoreline, developed in conjunction with the recommended 50-foot-wide vegetation buffer strips; and
 - b. landscape and architectural treatments that reduce the contrast of the aboveground structures with the natural landscape.
37. Yukon Pacific shall not disturb the monument to Harry Alden Henderson at Anderson Bay.

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38. An additional technical conference (or conferences) shall be held as engineering design develops so that present areas of uncertainty may be more fully explored. These conferences shall be held prior to initiating construction at the site. At least one technical conference shall be held prior to initiation of construction after designs are finalized and major vendors (including LNG and other major storage tanks) have been selected and complete design details have been submitted to FERC staff. The applicant shall also provide design details to the Office of Pipeline Safety of the U.S. Department of Transportation (DOT) and the U.S. Coast Guard Captain of the Port of Valdez so that they may have the opportunity to participate in the technical conferences to assure compliance with their applicable regulations.
39. Yukon Pacific shall not commence construction without a written notice to proceed from the Director of OPR. Any major alterations to facility design shall be filed with the Secretary for review and written approval by the Director of OPR prior to initiation.
40. Onsite staff inspections shall be conducted with Yukon Pacific as significant milestones develop during the construction phase and prior to commencement of initial facility operation.
41. Following commencement of operation, the facility shall be subject to regular FERC staff technical reviews and site inspections on at least a biennial basis or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, the company shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations, provision of up-to-date detailed piping and instrumentation diagrams reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below.
42. Yukon Pacific shall submit quarterly reports to the FERC after initiating construction and semi-annually thereafter through the operational period. During the construction phase the quarterly reports shall provide construction status of major components including significant design and schedule modifications required (and/or anticipated). The reports also shall address changes in facility design including anticipated future plans. During the operational phase the semi-annual reports shall provide changes in facility design and operating conditions, abnormal operating experiences, activities (liquefaction and LNG shipping

schedules), and plant modifications including those proposed during the forthcoming 12-month period. Abnormalities shall include but not be limited to storage tank vibrations and/or vibrations in associated cryogenic plumbing, storage tank settlement, significant equipment and instrumentation malfunctions or failures, nonscheduled maintenance or repair (and reasons therefore), relative movement of the inner vessel, vapor or liquid releases, fires involving natural gas, refrigerants and/or from other sources, negative pressure (vacuum) within the LNG storage tanks and higher than predicted boiloff rates. The reports shall be submitted within 45 days after each period ending December 31 and June 30. Included shall be a section entitled "Significant plant modifications proposed for the next 12 months (dates)". The section shall be included in the semi-annual operational reports to provide the Commission's staff with early notice of anticipated future construction and maintenance projects at the LNG terminal.

43. A permanent all-weather access road shall be built and maintained year-round to allow emergency equipment and personnel access/egress between the plant and the City of Valdez.
44. If double- or increased-integrity LNG storage tanks are selected, Yukon Pacific shall submit to the DOT for approval, and to the FERC, the equivalent impact load analysis required by Section 193.2161(b) and 193.2155(c) of the DOT regulations. If written approval of the impact analysis cannot be obtained, Yukon Pacific shall construct separate and independent impounding systems for such storage tanks consistent with existing standards and codes.
45. Yukon Pacific shall establish direct telephonic linkage with the Alyeska Terminal and the Coast Guard Vessel Traffic Center in Valdez and ensure that procedures for notification and response to potential incidents are included in the emergency plans for each facility.
46. Yukon Pacific shall comply with the following Coast Guard recommendations prior to commencement of shipping activities:
 - a. an LNG tanker and any other tank vessel shall not be underway at the same time in Valdez Arm, Valdez Narrows, or Port Valdez;
 - b. LNG tankers shall enter the Traffic Separation Scheme (TSS) at Hinchinbrook Entrance;

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- c. LNG tankers shall be conned (i.e., the steering of the tanker shall be directed) by a pilot licensed for the portion of Prince William Sound being transited;
 - d. an LNG tanker and any other tank vessel shall maintain a separation of not less than 5 nautical miles, except when the LNG tanker or the other tank vessel is moored, at anchor, or in the opposing lane of the TSS;
 - e. unless moored at the terminal in Port Valdez, an LNG tanker shall be attended by an adequate number of ship assist tugs;
 - f. while in the Vessel Traffic Service Area, all LNG tankers shall have a towing bridle or wire rigged and ready for immediate use; and
 - g. all VTS regulations that apply to tank vessels greater than 20,000 deadweight tons shall also apply to LNG tankers regardless of size.
47. Yukon Pacific shall conduct a study by a creditable firm to review the operation of the VTS and provide suggestions for reducing the risks involved with the inclusion of LNG tankers in the system.
48. Yukon Pacific shall confine the camp site to the west bank of Seven Mile Creek and configure the layout so as to leave the shoreline of Port Valdez in a natural (ungraded and vegetated) condition. When the construction period is finished, the camp shall be dismantled and removed from the site and the area restored vegetatively in accordance with a plan to be developed in conjunction with the Trans-Alaska Gas System Mitigation Policy of April 25, 1994.