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STATE OF ALASKA

NWA-81-123
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DEPARTMENT OF NATURAL RESOURCES

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DIVISION OF PIPELINE SURVEILLANCE

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| _____ | Geologist | | 1040.2 |
| _____ | Realty Spec | | 207.1 |
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May 28, 1981

Edwin A. Kuhn, Director
Government & Environmental Affairs
Northwest Alaskan Pipeline Company
One Lafayette Centre
1120 20th Street, N.W., Suite S-700
Washington, D. C. 20036

24538 "Construction Design"
ANCHORAGE, AK.
JUN 1 11 58 AM '81

Re: Final Draft of Fish Protection Strategies for the Design and Construction of the Alaska Segment of ANGTS

Dear Mr. Kuhn:

The Office of the Pipeline Coordinator (SPCO) has, with the assistance of the Alaska Department of Fish and Game (ADF&G), conducted a review of the report entitled "Fish Protection Strategies for the Design and Construction of the Alaska Segment of the Alaska Natural Gas Transportation System." We also solicited and received input from the North Slope Borough (NSB) on the draft report. As you are undoubtedly aware, the NSB has considerable concern with respect to the protection of fisheries resources.

In general, we feel that the protection criteria and procedures presented are an important step toward definition of environmental criteria for the project. The development of adequate design criteria, incorporation of these criteria into the actual design, and utilization of scheduling and construction procedures consistent with the criteria are the next steps which must be taken. As stated in prior meetings and in written communications with Northwest Alaskan Pipeline Company (NWA) it is also necessary to incorporate site-specific data. Data specific to a given stream system (for example, aufeis, debris, bed load, etc.) are often the most critical factors in final design decisions. Equally important is the establishment of a monitoring program (construction and operation phases) to ensure compliance with the design standards.

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The concept of "occupied area" velocity has not been accepted by SPCO. We have requested from NWA documentation supporting this concept but have never received any information. In the absence of data to substantiate the concept of occupied area velocity, the SPCO will continue to evaluate fish passage based on average velocity through the structure (for example, culverts).

Our specific comments are presented below:

Section 2.0(F) - Level 1 of the Environmental Master Guide does not depict all changes made to the list of "Fish Resource Areas of the Northwest Alaska Gas Pipeline Corridor" since early 1980.

Section 4.1(D) - The question of appropriate slope of culverts must be resolved. This issue should be addressed by the technical representatives (hydrologists) of both NWA and the government.

Section 4.1(E) - It is our understanding that where adequate flow data is not available, extrapolation of Q 2.33 floods to longer frequency flood events is not dependable. We request that NWA provide these "standard equations" for review by government hydrologists.

Section 4.1(I) - The SPCO technical staff hydrologist has questioned the NWA assumption that gravels deposited in a culvert set below thalweg will be flushed during Q 2.33 floods. If this does not occur, then the "lost" conveyance capability of the culvert must be considered in the design for accommodating fish passage. The concern for increased velocity at the culvert inlet due to erosion during flood events must also be resolved. The NWA consultant has acknowledged that oversized culverts will likely have lower velocities which allow deposition and produce hydraulic characteristics similar to a bottomless arch culvert. It was also recognized that this simulation of a "natural" streambed is generally beneficial to fish.

Section 4.3(E) - Bypass pump intakes should be adequately screened according to the provisions of Section 9.0(C).

Section 4.3(J) - The importance of surveying and marking channel alignment, thalweg slope, and thalweg elevation prior to freezeup cannot be over-emphasized. NWA's winter installation of the Union Creek culvert is a prime example of the difficulties that will be encountered without adequate survey and marking during the ice-free season.

Section 5.1(C) - We would recommend an increase in the minimum water depth of V-bottom LWC's from four to six inches.

Section 5.1(D) - The velocity criteria for LWC's referenced in Table 2 is presented as V-occupied. Again, V-occupied is not acceptable to SPCO.

Section 5.2 - An additional mitigation measure is to restrict the width of the LWC travel lane to single lane traffic, thereby reducing the extent of stream and bank disturbance.

Section 6.2.1(G) - NWA's selection of ditch backfill materials should take into consideration re-establishment of the streambed armor coat to avoid dewatering channels during low flows. This potential for dewatering is more likely where the pipe ditch traverses a floodplain longitudinally. The armor coat protection criteria should be developed by experienced hydrologists.

Section 6.2.3 - Where major river crossings are conducted during periods of low flow, fluming should also be considered as another viable option to minimize instream disturbance.

Section 6.2.2(B)(3) - The soft plug may be comprised of pipe padding materials which could be spread along the ditch bottom at the time of plug removal rather than removed entirely from the site.

Section 6.2.3(B) - Although the necessity to adequately screen pump intakes for water withdrawal is recognized in Section 9.0(C), it would be appropriate to indicate that bypass pumping in fish streams should also utilize the same screening criteria.

Section 6.4(A) - Although "significant" decreases in water temperature will require site-specific evaluation, one necessary criterion should be the prohibition of a water phase change, i.e. aufeis should not be created by the operations of a chilled pipeline. A decrease or elimination of surface or groundwater flow by aufeis development could have a disastrous effect on fish resources dependent on that water flow.

Section 6.4(B) - The ongoing NWA studies of cold pipe effects are primarily concerned with frost heave and potential mitigative measures. Any conclusions related to cold pipe effects on streams will be extrapolations from static groundwater situations and computer models, not instream tests of surface and subsurface flows across the chilled pipe.

Table 6, Desirable Biological Features (E) - The statement that "riffle type aquatic habitat is preferred at crossing..." is not consistent with the statement under Undesirable Physical Features that "high current velocity" should be avoided. How will the preferred pipeline stream crossing location (riffles) be coordinated with the preferred culvert location (pools as stated in Section 4.1(J))?

Section 7.0(G) - Same concerns as comments on Section 5.1(D).

Section 8.0(B) - We are unaware of any criteria or studies concerning

blasting that have been proposed or completed by NWA. At the present time, ADF&G Habitat Division is developing draft regulations under AS 16.05.870 that will address specific distance restrictions between streams and blasting activities based on the charge size, charge delay, and soil type.

Section 9.1 - The Habitat Division is currently operating under a verbal policy to endorse the Alaska Department of Natural Resources (ADNR) water withdrawal position prohibiting water removal from river systems on the North Slope from November 1 to spring break-up. This policy will be reflected in applicable AS 16.05.870 permits processed by the ADF&G Pipeline Surveillance Team.

Section 9.2(B) - References to Section 8.2(C) and 8.1(A) appear to be in error.

Section 9.2(E) - It would be appropriate to indicate a minimum separation distance between water pumps (stationary or portable) and stream banks to minimize the potential for pollution of the water course by equipment (fuel tanks, oil spills) or activities (tank truck overflows, siltation).

Section 10.0 - The discharge of water from a gravel washing operation should be identified as a point source discharge applicable to the protection criteria in this section.

Section 10.1 - The design standards should prohibit the discharge of water from one watershed to another (as in hydrotest activities) due to the possibility of introducing disease into the receiving waters.

Section 10.2(A) - The reference to "polluted" water discharge should be clarified to specifically exclude discharge of any "pollution" that includes oil or hazardous/toxic substances.

Section 11.1(A) - We question the advisability and necessity of locating spoil disposal sites within any floodplain areas.

Section 11.2(B) - For floodplain material sites, NWA should adopt the stream protection criteria of the USF&WS "Gravel Removal Guidelines Manual," or the pertinent criteria and mitigative measures should be extracted and presented in this document.

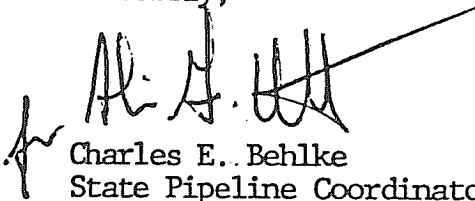
Section 14.0 - We concur with the proposal to develop a stream sensitivity classification system, and we have previously advocated through the Interagency Fish and Wildlife Task Force that NWA expand upon this concept as an aquatic habitat evaluation procedure. However, we are still concerned over the inordinate weight given to the presence of salmon as opposed to other resident fishes. It is our suggestion that the Biological Value parameters and rating categories be

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developed jointly by NWA and government. Once the Stream Sensitivity Rating and Classification Work Sheet is modified, changes may be necessary in the Stream Class groupings and required mitigation measures.

Should there be any questions concerning this transmittal, please contact either myself or Al Ott at 907-456-4835.

Sincerely,



Charles E. Behlke
State Pipeline Coordinator
Office of the Pipeline Coordinator

CEB/AGO/daf

cc: Luke Legg, Vice President, Operations, Northwest Alaskan Pipeline Company, Irvine
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Jim Glaspell, Acting Supervisor, Pipeline Surveillance Team, Alaska Department of Fish and Game, Fairbanks

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cc's continued...

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Department of Environmental Conservation, Fairbanks
- Lynn Harnisch, Civil Engineer, Division of Planning and Programming,
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- Al George, Land Management Officer, Office of the Pipeline Coordin-
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- Pat Hugo, North Slope Borough, Fairbanks