TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

PM&S Code: I.301

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.301, by DOI, Office of the Secretary):

"Pages E-3-544 through E-3-545: Cost Analysis and Scheduling: To provide for unforeseen contingencies, we recommend that a trust fund be established at the start of license construction. Unspent monies would revert to the project sponsor at the end of the license period.

"It should not be assumed that appropriate habitat management lands will be available through the State or Federal government. The applicant should initiate discussions with resource and land management agencies as soon as possible to identify potential management lands."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

PM&S Code: I.302

2. Comment:
"Page E-3-548: While we support monitoring, as well as plans to consult with the resource agencies, we believe that an interagency team should be established to oversee monitoring with some follow-up through project operation and maintenance."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:

"Pages E-3-549 through E-3-550: Transmission Corridor Recommendations: Access could be better controlled by signs, zoning (to prohibit off-road vehicle use), monitoring, and enforcing of fines."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

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RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
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FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.304

2. Comment:

"Table E.3.87: Problems with the comparison of aerial habitat with Viereck and Dyrness vegetation classifications should be noted here as discussed in Section 4.2.1(a)(ii), page E-3-304, paragraphs 3 and 4.

"Table E.3.92: The very preliminary nature of this data should be indicated in the table title."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

PM&S Code: I.305

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.305, by DOI, Office of the Secretary):

"Table E.3.144: This table is a useful, preliminary assessment of overall project impacts. However, we have identified the following errors:

"1. Permanent Habitat Loss:

"According to Table E.3.83, the Watana impoundment area is 14,736 ha. There is some confusion with the area calculated for the access corridors. The applicant should clarify how borrow sites included here correlate with figures given in Table E.3.85 and the discussion in the text which states that use of borrow areas for access road construction will be minimal (Section 3.4.1(a)[i]). Figures for a permanent village of 27 ha and temporary village of 49 ha are inconsistent with the 70 ha village (8 ha of which is a lake) listed in Table E.3.83. We find no description in the text or drawing in Plates F70 or F71 of a 9 ha airstrip for the Devil Canyon development.

"2. Habitat Alteration and Temporary Habitat Loss:

"As above, the figures given here for impoundment clearing, temporary village and temporary camp do not agree with figures in Table E.3.83. Figures for the Devil Canyon temporary village and temporary camp given here do not agree with figures given in Table E.3.84. The figures given for the transmission corridor are not consistent with Table E.3.80. According to Table E.3.80, the Devil Canyon to Gold Creek segment will alter 131.7 ha; no information or additional clearing for the Intertie is given here; and the source for the 209 ha of additional transmission corridor with Devil Canyon is unclear from Table E.3.80.

"Potential alterations in ice staging, scouring, etc. are further impact mechanisms which will result from hydrologic alterations.

"3. Barriers, Impediments, or Hazards to Movement:

"The permanency of these features should be mentioned.

"4. Disturbance Associated with Construction Activities and 5. Increased Human Access:

"While we agree that project studies resulted in initiation of these impacts in 1982, increases in impacts that will result from the onset of project construction should also be noted."

2. Comment:

"Table E.3.146: The comparison presented here is of little value until vegetation is retyped to reflect understory values and geographic units corresponding to moose movements and habitat requirements. The larger the study area boundary, the smaller the proportionate loss will be, irrespective of what seasonal ranges are limited in a particular area."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:** United States Department of the Interior Office of the Secretary Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**

"Table E.3.148: Anticipated and Hypothesized Impacts to Dall Sheep: (2) and (3): Borrow areas and roads in the vicinity of Tsusena Creek are an additional potential impact.

"(5): Floatplane landings and on-ground disturbance from recreational hikers and campers are an additional recreational disturbance to be considered."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**

Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.308, by DOI, Office of the Secretary):

"Table E.3.149: Anticipated and Hypothesized Impacts to Brown Bear: (3): Roads have been found to affect movement of bears and could inhibit crossings. 3W-9/

"(4): Because of altered movements due to roads and construction activity, young bears may not learn about available food resources in certain areas. Thus, the project could influence the way future bear generations utilize the area."


TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.309
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.309. by DOI, Office of the Secretary):**

"Table E.3.150: Anticipated and Hypothesized Impacts to Black Bear: Please refer to our comments under Table E.3.146 about misleading comparisons of the proportion of conifer forest to be lost because of the project. The proportion of conifer forest to be lost in the Watana dam area, as compared to the entire basin, is much higher. Moreover, the even more limited areas of deciduous forest may be the sites most preferred by black bears. 3W-10/"

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TECHNICAL QUESTIONNAIRE
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FERC Application

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<td>United States Department of the Interior Office of the Secretary Letter from Bruce Blanchard dated December 2, 1983</td>
<td>I.310</td>
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2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.310, by DOI, Office of the Secretary):

"Table E.3.153: Anticipated and Hypothesized Impacts to Aquatic Furbearers (beaver and muskrat): (1): The text should indicate the source for numbers of muskrats estimated in the impoundment area.

"(2): Confirmation of those lakes supporting overwintering muskrats could be obtained by measuring water depths. Lakes of greater than 2 meters would likely be suitable for either overwintering muskrats or beaver (Phil Gipson, personal communication). Potential downstream improvements have not been quantified nor spatially identified in coordination with fish mitigation plans."
1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Table E.3.157: Anticipated and Hypothesized Impacts to Marten, Weasel, and Lynx: (1) and (2): Please refer to our previous comments on problems in quantifying marten losses (Section 4.3.1[m]). Figures for areas of spruce forest to be impacted by the project do not agree with information in Tables E.3.83 and E.3.84. As we commented on Table E.3.150, figures for proportions of conifer forest to be lost are misleading."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

**RETURN TO PM&S/BHB BY DECEMBER 20, 1983**
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: 
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

PM&S Code: I.312

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.312, by DOI, Office of the Secretary):**

"Table E.3.159: Anticipated and Hypothesized Impacts to Raptors and Ravens: (1): The text should indicate whether destruction of the bald eagle nest in Deadman Creek will be avoided by access road rerouting shown in Figure E.3.812. According to the text, an additional golden eagle nest may be lost at borrow site E (Section 4.3.1(n)[1], page E-3-445, paragraph 4).

"(2): Claimed benefits of increased availability of small mammal prey appear doubtful when considering the length of time those areas would have been out of production during construction."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983
   PM&S Code: I.313

2. Comment:
   "Tables E.3.171 through E.3.175: Estimated Mitigation Costs. Costs for follow-up monitoring to evaluate the effectiveness of the recommended programs should be included. Provisions for funding additional measures, should initial mitigation prove ineffective, should also be included."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Table E.3.178: Wildlife Mitigation Summary: Estimated costs for Monitoring Study 2 and Mitigation Plans 6 and 21 should be included in project capital costs, as should costs of any other mitigation necessary because of the project."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.315, by DOI, Office of the Secretary):

"Page E-3-191: 3.1 - Introduction: Paragraph 1: It is our understanding the downstream study area extended only to the Deshka River, not all the way to Cook Inlet. 3B-1/"

TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.316

2. Comment:
"Page E-3-193: (a) General: Last Paragraph: Floristic surveys were not completed in 1983 as described here and under (c) Summary, page E-3-198. A current schedule of when the surveys will be conducted, and when the information will be distributed, should be provided by the applicant."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   "Page E-3-195: 3.1.3 - Contribution to Wildlife, Recreation, Subsistence, and Commerce: More specific information on different wildlife species' uses of various vegetation communities throughout the project area should be included in this section."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
**TECHNICAL QUESTIONNAIRE**
for
SHP Response to Agency Comments regarding FERC Application

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<td>United States Department of the Interior</td>
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<td>Letter from Bruce Blanchard dated December 2, 1983</td>
<td></td>
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</table>

2. **Comment:**

"Page E-3-196: 3.2.1 - Threatened or Endangered Plants: Thirty-three, not 37, plant taxa are currently under review as candidate threatened or endangered species. Although the proposed surveys for candidate endangered plants were not done in 1983, it is felt that the likelihood of finding these species in those areas is very low."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**

Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

PM&S Code: I.319

2. Comment:
"Page E-3-196: (a) Watana and Gold Creek Watersheds:
The word "candidate" should be added before "endangered
plant taxa" in the last sentence on the page."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983

2. Comment:

"Page E-3-198: (a) Methods: Paragraph 1: The comparative widths of the different access and transmission corridor segments which were mapped and used for calculations in Tables E.3.77 and 78 should be stated. Also, see our comments on all of Section 3.2.2 (e) and Tables E.3.79 and E.3.86. Please see our more detailed comments under Wetlands, Section 3.2.3, regarding the inaccuracies of typing wetlands solely from a vegetation-type map."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:**

United States Department of the Interior  
Office of the Secretary  
Letter from Bruce Blanchard dated  
December 2, 1983

2. **Comment:**

"Page E-3-199: (a) Methods: Paragraph 3: The 1982 browse inventory, plant phenology, and Alphabet Hills pre-burn inventory and assessment studies should be briefly described."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**

Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

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RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
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FERC Application

1. Agency/Comment Source:
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.322, by DOI, Office of the Secretary):

"Page E-3-201: (a) Methods: Paragraphs 2, 3, and 4: We support the proposed vegetation and wetlands mapping programs. An additional objective is to produce more realistic impact assessments by better integrating wildlife and botanical studies. For the vegetation maps, the necessary detail should be to Level V of Viereck, et al. for forests and Level IV for other types. 3B-2/ Wetlands should be mapped directly from aerial photographs, and incorporate soils and drainage characteristics, according to Cowardin et al. (please also see our Comments on Section 3.2.3). 3B-3/ The application should be updated to include current mapping plans and information on how delays may affect the proposed permitting schedule. Continued mapping delays could lead to difficulty in re-siting facilities for environmental considerations. The preliminary mapping scheduled for completion by June 30, 1983 was not accomplished."


TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:  PM&S Code:
United States Department of the Interior  I.323
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
"Page E-3-204: (b) Watana and Gold Creek Watersheds: Information on the seasonal values of vegetation types for food, cover, etc., should be related to specific wildlife species to document the importance of vegetation in wildlife habitat. This would allow better integration of vegetation as wildlife baseline data for impact assessment and clarify mitigation planning efforts."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-211: (v) Aquatic Vegetation: The relationship of the aquatic vegetation surveys to wetland types, and values of these areas to specific wildlife species, should be described."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:     PM&S Code:

United States Department of the Interior I.325
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:

"Page E-3-214: (c) Devil Canyon to Talkeetna: A
comparison should be made of: (1) characteristics of
the Viereck et al. vegetation types as classified in
the upper and middle Susitna River Basins; and (2) the
successional stages into which vegetation along
downstream portions of the Susitna River were
classified. Prevalence and association of wetlands
types to downstream successional types should also be
covered here."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
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SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:  
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.326, by DOI, Office of the Secretary):

"Page E-3-217: (d) Talkeetna to Cook Inlet: An analysis of early, middle, and late successional stages above Talkeetna compared to the area below Talkeetna should be provided. We suggest that the unvegetated islands and braided channels of this section of the Susitna River indicate a more dynamic, rather than stable, character as compared to the river upstream of Talkeetna. Because of significant flow changes which can be expected with project construction, separate vegetation mapping should be undertaken of the 10-year floodplain downstream from Talkeetna (e.g. Table E.2.49 in Chapter 2 documents an expected doubling of mean flows at the Susitna Station (RM 26.0) from December through March with project operation)."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding FERC Application

1. **Agency/Comment Source:**
   - United States Department of the Interior
   - Office of the Secretary
   - Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   - See attached comment.

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   - Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.327, by DOI, Office of the Secretary):

"Page E-3-2.7: (e) Transmission Corridors: The applicant's response to our comments on the draft license application indicates that, because of different mapping resolutions, vegetation types quantified in Table E. 3.79 cannot be correlated with other segments of the transmission corridor beyond Level 1 of Verreck et al. (Chapter 11, W-3-112). Different map scales and corridor widths prevent a comparison or cumulative assessment of vegetation types to be impacted by the four transmission corridor segments.

"(We have previously commented on the interdependence of the Anchorage-Fairbanks Intertie and Susitna hydroelectric project, recommending these projects be analyzed as one (January 5, 1982 and January 14, 1983 letters to Eric P. Yould, APA)."
1. **Agency/Comment Source:**
   
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   
   "Page E-3-219: (iii) Willow to Healy: We recommend remapping so that this corridor can be compared to other sections mapped in greater detail by McKendrick et al. This would allow an assessment of cumulative transmission line impacts and mitigation needs."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: Federal Power and 
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:

   "Page E-3-220: (iv) Dams to Intertie: Figures E.3.39 
   and E.3.40, showing vegetation types crossed by this 
   transmission corridor segment and other project 
   facilities, are unreadable due to reduction for 
   publication."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

   Please attach response to comment; include supplemental 
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of 
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:**  
   United States Department of the Interior  
   Office of the Secretary  
   Letter from Bruce Blanchard dated  
   December 2, 1983

2. **Comment:**  
   See attached comment.

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**  
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.330, by DOI, Office of the Secretary):**

"Page E-3-220 and 221: 3.2.3 - Wetlands: Color infrared aerial photograph portions of the maps identified as Figures E.3.46, E.3.47, E.3.69 and E.3.70 were stereoscopically examined. The FWS found wetland and non-wetland areas were inaccurately distinguished. Large areas of upland are included in the map units classified as wetland. Many of these areas are greater than 100 acres in size. In addition, areas that have been designated as upland include many wetlands, some of which are larger than 50 acres. A reasonably accurate assessment of the amount of wetland to be impacted by the project cannot be made with the information provided in the license application. Another problem involves the use of only five broad wetland categories. The many wetland types that are known to occur in the area have been lumped into these categories. Wetland types vary considerably in their value as fish and wildlife habitat. The impacts of the project on wetland types that have high values are difficult to determine with the present wetland inventory information. A more detailed classification using lower levels of the Cowardin et al. (1979) system 3B-4/ would provide much of the needed data. The existing wetland maps break down wetlands to the class level (e.g. forested, scrub-shrub, and emergent wetlands). We recommend that wetlands be classified to the subclass and water regime level. We should be contacted for assistance prior to additional wetland mapping efforts in the project area."


TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.331, by DOI, Office of the Secretary):**

"Page E-3-221: 3.2.3 - Wetlands: Paragraph 4: The application defines wetlands as 'areas at least partly characterized by hydrophytic vegetation and the presence of standing water or sheet flows.' This definition needs clarification. It implies that wetland types that do not have standing water, but nevertheless exhibit saturated soil conditions throughout the growing season, are not addressed in the discussions. These saturated wetlands include many of the bog, floating-mat, and muskeg type wetlands in the project area. Since some of these types are of concern to the FWS, and since the U.S. Army Corps of Engineers (CE) extends permit authority to many of these wetlands, they should be included in mitigation and impact discussions."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.332
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.332, by DOI, Office of the Secretary):

"Pages E-3-221 and 222: 3.2.3: (a) Methods: Table E.3.81 attempts to display Viereck and Dyrness (1980) types which are interchangeable with Cowardin et al. (1979) system wetland types. The table points out several major problems. Enough information is presented in most of the Viereck and Dyrness (1980) vegetation types to allow for more detailed classification in the Cowardin et al. (1979) wetland categories. For example, open black spruce can be correlated to Palustrine, needle-leaved forests instead of Palustrine forests. Willow shrub can be correlated to Palustrine, broad-leaved deciduous scrub-shrub, not just Palustrine scrub-shrub. In addition, field data gathered during the initial vegetation mapping phase probably could provide enough information to add water regime modifiers to some of the Cowardin et al. (1979) wetland types. Open black spruce in wetland situations in the project area is nearly always characterized by a saturated water regime. The open black spruce vegetation type could be correlated with Palustrine needle-leaved evergreen, saturated. The wetland classes used in the license application are too broad. Assessments of project impacts on wetland types of concern cannot be made with these lumped wetland categories. Some of the Viereck and Dyrness (1980) vegetation types that appear in Table E.3.81 would seldom occur in a wetland situation. This is especially true of the closed white spruce category. That category should have been classified as non-wetland (upland). With the mapping procedures described in the application, closed white spruce areas would be classified as wetland unless the mapping personnel excluded them due to the 'presence of steep slope and likely good drainage.'

"The process of classifying the vegetation types into wetland categories, and then excluding those areas that meet the ambiguous criteria of having 'steep slope and likely good drainage,' results in an inaccurate depiction of the wetlands in the project area.

"Separation of wetland and non-wetland portions of each of the Viereck and Dyrness (1980) vegetation types has to be done on the original aerial photography that was used to map the vegetation. Preferably this should be done during the initial photo interpretation. If a Viereck and Dyrness (1980) vegetation type appearing on the photo is only partially wetland, the wetland area should be made a separate polygon and given a modifying code that designates it as a wetland. To derive the wetland map, only those polygons containing the modifying code would be transferred. The Viereck and Dyrness (1980) classification would then be converted to the appropriate wetland classification."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
   United States Department of the Interior I.333
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See comment attached.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.333, by DOI, Office of the Secretary):

"Page E-3-222: (a) Methods: Paragraph 3: The application states that 'Because the system of Cowardin et al. (1979) requires additional data on hydric soils and periodic ambient water conditions to characterize wetlands completely, the mapping is liberal and indicates areas which potentially qualify as wetlands under than system.' This implies that detailed soil and water permanancy data need to be available if wetlands are to be mapped accurately using the Cowardin et al. (1979).

"In most areas, however, such data are not necessary if the wetland types are interpreted directly from aerial photography. The hydric soil and hydrologic conditions that are an important component of the Cowardin et al. (1979) system can be inferred from the information present on an aerial photograph. The experienced photointerpreter who is mapping wetlands synthesizes information on vegetation, slope, landform, drainage, etc. that is present on the imagery to derive a line that represents the boundary of a wetland. Soil and water permanancy data are only collected at sample field sites where the photointerpreter is determining the boundaries of representative wetland types on the ground, and comparing these boundaries to the tones and textures that appear on the aerial photography.

"The wetland mapping methodology described in the application does not involve direct interpretation of wetland types on aerial photography. An attempt was made to derive wetland maps from the existing vegetation maps. If efforts to refine the wetland maps does not involve additional photointerpretation, then collection of extensive soil and water data would be necessary. The FWS recommends that any wetlands map refinement involve direct interpretation of aerial photos. The Viereck and Dyrness (1980) vegetation units on the original aerial photography could be analyzed so that wetland portions are differentiated or entirely new wetland mapping could be done with delineation and classification of the wetland types on the aerial photos being done in accordance with the Cowardin et al. (1979) system. Costs and time involved to perform either method would be approximately the same.

"The FWS does not agree with the baseline report conclusion that detailed wetland maps in the project area would be extremely difficult to produce using standard photointerpretation techniques. The primary
reason for this difficulty, according to the report, is the conclusion that 'wetlands are highly integrated with non-wetlands,' and plant species composition in wet and non-wetland is similar, differing only in the quantities of individuals. Analysis of the high altitude aerial photography covering the project area by FWS personnel indicates that detailed wetland maps can be produced, and the wetlands can be accurately classified to the subclass and water regime levels of the Cowardin et al. (1979) classification system. Although there are some wetland types that will initially be difficult to distinguish from adjacent upland areas, a moderate amount of ground truthing can provide the photointerpreters with enough information to draw the wetland boundaries with reasonable accuracy. The intricate pattern of mixing between wetland and non-wetland areas that occurs in portions of the project area would result in some generalizing, but the generalizing would be far less than that in the existing wetlands mapping. A minimum mapping size of approximately four acres could be displayed if the wetland maps were produced at a scale of 1:63,360.

"We suggest that site-specific field confirmation of wetlands be undertaken in coordination with concerned agencies (e.g. CE, FWS, EPA, and Alaska Department of Environmental Conservation). Particular concern would be where preliminary design shows potential conflict between project facilities and wetlands. Support and preliminary plans for such agency coordination were established at the December 2, 1982 wetlands meeting (please refer to notes from APA's license application workshop included as Appendix E11.H to Chapter 11)."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. **Agency/Comment Source:**
   - United States Department of the Interior
   - Office of the Secretary
   - Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Page E-3-223: (b) General Description: Discussion should be provided on successional patterns and fire predominance in wetland types.

   "We question the wetlands classification of mapped vegetation types without use of other factors or field verification. Please refer to our two previous comments."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:**

United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**

"Page E-3-223: (b) General Description: Paragraph 2: It should be indicated on wetland maps (Figures E.3.45 through E.3.47, and E.3.66 through E.3.73) that the areas depicted are potential wetlands."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**

Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
### 1. Agency/Comment Source: 
United States Department of the Interior  
Office of the Secretary  
Letter from Bruce Blanchard dated  
December 2, 1983  

### 2. Comment:
"Page E-3-225: (a) Construction: Other than the direct vegetation losses due to inundation, and construction of camp, village, and borrow areas described here and in Tables E.80, E.82, E.83, and E.85, there is no quantification of types and areas to be potentially impacted by erosion, permafrost, melting, etc. Several of those impacts can and should be analyzed based on information in Chapter 6, Geological and Soils Resources, and Figures E.6.30 through E.6.45."  

### 3. PM&S/BHB Suggestions for Technical Response: 

### 4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.  

### 5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

### 6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   "Page E-3-225: (i) Vegetation removal: Paragraph 1: We concur with intentions to confine spoil deposition to areas within the impoundment or areas already disturbed. We suggest that the potential size and locations of spoil areas be mapped and quantified in the discussion and accompanying tables."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

Comment:

"Page E-3-226(ii) Vegetation Loss by Erosion: We recommend quantifying the permafrost and unstable slope areas mapped in Chapter 6, Figures E.6.30 through E.6.45, by vegetation type. Overlay maps of a readable size are necessary to fully assess botanical impacts and resultant implications to food, cover, movements, and other habitat needs of key wildlife species. An explanation should be given as to how the cited 1379 acres of unstable slopes were derived."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
   United States Department of the Interior I.339
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   "Page E-3-226: (iii) Vegetation Damage by Wind and
   Dust: Paragraph 1: We find it difficult to quantify
   the miles of shoreline and the anearby area where
   blowdown of trees may occur. Tree blowdown could be
   critical with regard to loss of nest trees and wildlife
   cover adjacent to the reservoir. Please also refer to
   our comments on Wildlife Sections X and Y."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Page E-3-226: (iii) Vegetation Damage by Wind and Dust: Paragraph 2: As above, we suggest that: (1) quantification be made of the areas likely to be affected by dust accumulations, (2) time frames be outlined within which such areas are likely to be affected, and (3) correlation be made with wildlife uses in those areas."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.341

2. Comment:
"Page E-3-227: (vii) Effects of Increased Fires: We concur with this description and note that fires occurring near populated areas will likely be repressed. Thus, the potential for using prescribed burns to stimulate natural successional patterns may be reduced."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment: See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.342, by DOI, Office of the Secretary):

"Page E-3-228(b): Filling and Operation: Another impact which should be fully assessed is the potential for increases in fish mercury levels. Canadian studies have found reservoir impoundment to cause mobilization of natural soil mercury to occur, even where natural mercury levels in soil and vegetation are not high

3B-4/ We recommend that baseline mercury levels be measured in soils and vegetation. Such measurements should be made in similar areas which will and will not be inundated. Mercury levels should be monitored during and following project construction. Please also refer to our more detailed comments and references cited on Chapter 2, Section 4.1.1(e)(vii), Page E-2-96."


TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.343

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:
RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.343, by DOI, Office of the Secretary):

"Page E-3-228: (i) Vegetation Succession Following Removal: Natural plant succession may also be inhibited or precluded following disturbance unless topsoil is restored and steps taken to minimize erosion, changes in area drainage, etc.

"Please refer to our comments on the Mitigation Plan, Section 3.4 Attachment A, Biological Stipulations, XI and to the restoration plans and analyses prepared for the Alaska Natural Gas Transportation System.

"The discussion has not been expanded to include wetland types as the applicant had indicated it would be in response to our comment on the draft application (Chapter 11, W-3-122). We are concerned that the browse nutritional study referred to in that response has been reduced in scope, some aspects have been delayed, and others, such as the vegetation remapping, will probably be completed too late to optimize sampling."
1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. **Comment:**
   "Page E-3-229: Tundra: The areal extent of permafrost
   relative to vegetation cover types and project features
   should be quantified and figuratively represented here
   for the dam, impoundment, and associated construction
   facilities, and in the following sections for access
   and transmission corridors. Please also refer to our
   previous comment on Section 3.3.1 (a)(iii), Vegetation
   Loss by Erosion (page E-3-226)."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.345
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-230: (ii) Effects of Erosion and Deposition: Paragraph 2: Unstable slopes and permafrost areas are mapped in Chapter 6. However, because there is no interpretive description correlating those areas to vegetation cover types, it is difficult to analyze potential wildlife impacts. We recommend such an analysis."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
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SHP Response to Agency Comments regarding
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1. Agency/Comment Source:  
   United States Department of the Interior  
   Office of the Secretary  
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.346, by DOI, Office of the Secretary):

"Page E-3-231 through E-3-235: (iii) Effects of Regulated Flows: This discussion generally neglects consideration of the potential range and frequency of daily flow fluctuations in response to peak power needs.

"Several other potential project impacts relative to altered downstream flows have not yet been clarified, particularly with regard to wetlands and floodplains. These include impacts to floodplian areas which: (1) are now subject to annual, 5-year, 10-year, etc. flooding, and (2) will become exempt from flooding with project construction. Given the successional information depicted in Figure E. 3.78 and revised vegetation maps, it should be possible to quantify expected changes in vegetation, over time, for a variety of flow regimes. Such information is necessary to fully determine project impacts to wildlife and to make mitigation recommendations.

"We appreciate the thorough qualitative discussion of project impacts throughout this section. Once the recommended vegetation remapping is undertaken and analyzed in conjunction with hydrologic information, the information included here should be the basis for examining positive and/or negative impacts to wildlife of potential vegetation changes, over the life of the project. We recommend quantifying the maximum and minimum areas which may become available for the establishment of vegetation under alternative icing scenarios."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:

   "Page E-3-232: Watana to Devil Canyon: Paragraph 4: We appreciate the discussion of rime ice formation in response to our previous comments (Chapter 11, W-3-125), but note omission of Wood, et al. (1975) from the document's reference list. An important concern with rime ice formation would be potential impacts to birch adjacent to the impoundment and winter use of those areas by moose."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

PM&S Code: I.348

2. Comment:
"Page E-2-234: Talkeetna to Yentna River: The project is expected to alter flows to the extent that mean winter flows at the Sunshine Station (RM 84) will be three times pre-project flows (Chapter 2, Table E.2.47). Scouring of vegetated banks resulting from river staging due to ice formation could be extensive and should be discussed."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:  PM&S Code:
United States Department of the Interior  I.349
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
"Page E-3-235: Yentna River to Cook Inlet: We are
cconcerned that minimal downstream impacts have been
assumed even though a doubling in mean winter flows has
been predicted at Susitna Station (RM 26) (Chapter 2,
Figure E.2.49); and ice staging and break-up impacts
are unknown."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-236: (iv) Climatic Changes and Effects on
Vegetation: The areas in which vegetation changes will
occur must be known to fully assess implications to
wildlife habitats."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application


2. Comment:

"Page E-3-236: (iv) Climatic Changes and Effects on Vegetation; Paragraph 2: Although phenology studies were undertaken in spring, 1983 to obtain data for better assessing project-induced temperature/vegetation/wildlife impacts, funding for analysis of that data cannot be assumed before State fiscal year 1985. We recommend that a list of available botanical data compiled by the University of Alaska be included as Attachment B to our comments, be critically scrutinized with regard to further study needs. Funding should be provided to complete analyses of critical information."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
January 24, 1983

Dr. Robin G. B. Sener
Susitna Program Manager
Wildlife & Botanical Resources
LGL Alaska Research Associates, Inc.
1577 C Street
Anchorage, Alaska 99501

Dear Robin:

Attached are two lists of data, with brief descriptions, available on the Susitna drainage. This was prepared in response to our telephone conversation of December 16, 1982, when we were concerned about data being forgotten. The first list summarizes data that the Alaska Power Authority has funded to at least some degree. The second list summarizes Susitna drainage data collected by other projects and incomplete data where the field sampling was funded by the Power Authority. In some cases, samples need to be ground or have laboratory analysis performed but in other cases the data only need to be analyzed statistically. The descriptions of old studies were not meant to be detailed, but rather to make people aware of the depth of data collected in the past.

One thing becomes apparent from these lists: There is an enormous amount of vegetation data and smaller amounts of soils data and soils-vegetation data that could be available if we had funds and time to analyze and integrate the data. Even though some of the data may not be exactly what is needed now, the data could certainly be used as a foundation for future experimental design, assessing impacts, and making revegetation recommendations. The wheel's already been invented a couple times; maybe these lists will help produce a better wheel in the future.

Sincerely,

Dot Helm

Dot Helm
Plant Synecologist

c: Richard Fleming, Alaska Power Authority
<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Year</th>
<th>Who</th>
<th>Field Funding</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetation mapping</td>
<td>Middle, upper basin</td>
<td>1980</td>
<td>Plant Ecology</td>
<td>Susitna</td>
<td>Vegetation means in annual req (variances calculated, not reported)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maps of vegetation, potential lands produced</td>
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<tr>
<td>Vegetation inventory</td>
<td>Middle, upper basin</td>
<td>1980</td>
<td>USFS SCS Plant Ecology</td>
<td>Cooperative River Basin Study</td>
<td>Some vegetation (timber) analysis, other (understory) being processed; not sure about soils</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Some soil &amp; vegetation sample collected</td>
</tr>
<tr>
<td>Downstream succession</td>
<td>Delta Is.-Chase</td>
<td>1981</td>
<td>Plant Ecology</td>
<td>Susitna</td>
<td>Vegetation means in annual req (variances calculated, not reported)</td>
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<tr>
<td></td>
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<td></td>
<td>Soils collected</td>
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<tr>
<td>Fertilizer trials</td>
<td>Watana Base Camp</td>
<td>1980</td>
<td>Plant Ecology</td>
<td>Partly Susitna</td>
<td>Data need to be summarized.</td>
</tr>
<tr>
<td>Helicopter transects</td>
<td>Delta Is.-Gold Cr.</td>
<td>1981</td>
<td>Plant Ecology</td>
<td>Susitna</td>
<td>Crude vegetation analysis - % of vegetation types on floor</td>
</tr>
<tr>
<td>Transmission corridor mapping</td>
<td>N, S transmission corridors</td>
<td>1981</td>
<td>Plant Ecology</td>
<td>Susitna</td>
<td>Referenced in Final Report; Maps produced; no ground-truth</td>
</tr>
<tr>
<td>Browse</td>
<td>Middle basin</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Vegetation means, variances from level V given to LGL</td>
</tr>
<tr>
<td>Phenology</td>
<td>Middle basin</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Vegetation samples, some litter samples collected</td>
</tr>
<tr>
<td>Burn</td>
<td>Alphabet Hills</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Vegetation, tree cores, temperatures taken; being analyzed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>USFS BLM</td>
<td>USFS BLM</td>
<td>Photos taken each week.</td>
</tr>
<tr>
<td>Downstream succession</td>
<td>Curry-Devil Canyon</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Crude vegetation statistical analysis performed by USFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Litter samples collected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Permanent photo plots</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shrub cores collected; no rings counted</td>
</tr>
<tr>
<td>Study</td>
<td>Location</td>
<td>Year</td>
<td>Who</td>
<td>Field Funding</td>
<td>Notes</td>
</tr>
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<td>--------------------</td>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Vegetation mapping</td>
<td>Upper basin</td>
<td>pre 1980</td>
<td>BLM</td>
<td>Map produced. Cover, frequency and</td>
<td>Not sure</td>
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<td></td>
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<td></td>
<td>vegetation data.</td>
<td>Some vegetation samples collected</td>
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<tr>
<td>Vegetation inventory</td>
<td>Lower basin</td>
<td>pre 1980</td>
<td>USFS SCS</td>
<td>Cooperative River Basin Study</td>
<td>Soil chemical analysis performed at AAES expense</td>
</tr>
<tr>
<td>Vegetation mapping</td>
<td>Middle, upper basin</td>
<td>1980</td>
<td>Plant Ecology</td>
<td>Susitna</td>
<td>Some plant species ground &amp; analyzed at AAES expense</td>
</tr>
<tr>
<td>Vegetation inventory</td>
<td>Middle, upper basin</td>
<td>1980</td>
<td>USFS SCS Plant Ecology</td>
<td>Cooperative River Basin Study</td>
<td>Other plant species collections available, but not ground</td>
</tr>
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<td></td>
<td>Data partly analyzed by USFS</td>
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<tr>
<td>Fertilizer trials</td>
<td>Watana Base Camp</td>
<td>1980</td>
<td>Plant Ecology</td>
<td>Logistics-Susitna</td>
<td>Materials provided at AAES expense</td>
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<td></td>
<td>Data collected, chemical analysis at AAES expense</td>
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<td>Data unanalyzed</td>
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<td>Downstream succession</td>
<td>Delta Is.-Chase</td>
<td>1981</td>
<td>Plant Ecology</td>
<td>Susitna</td>
<td>Vegetation height class information available, not reported</td>
</tr>
<tr>
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<td></td>
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<td></td>
<td>Soil chemical analysis performed at AAES expense</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Soil texture need to be obtained</td>
</tr>
<tr>
<td>Browse</td>
<td>Middle basin</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Soil, litter samples laboratory at AAES expense</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Data are unanalyzed</td>
</tr>
<tr>
<td>Phenology</td>
<td>Middle basin</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Vegetation samples collected, but ground or analyzed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tree rings need to be counted. Analysis nutrition data need to be analyzed</td>
</tr>
<tr>
<td>Burn</td>
<td>Alphabet Hills</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td>Soil, litter samples laboratory at AAES expense</td>
</tr>
<tr>
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<td></td>
<td>USFS BLM</td>
<td></td>
<td>Vegetation samples collected, but ground or analyzed</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Vegetation field data summarized in AAES report</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rings need to be counted. Need to combine this information with hydro</td>
</tr>
<tr>
<td>Downstream succession</td>
<td>Curry-Devil Canyon</td>
<td>1982</td>
<td>Range Ecology</td>
<td>Susitna</td>
<td></td>
</tr>
</tbody>
</table>
Description of Susitna Vegetation Data Sets

Vegetation inventory - Cooperative River Basin Study - USFS, SCS

Fairly intensive permanently located vegetation plots

Measurements include:
- timber inventory
- ground cover % - below & above 4 1/2 ft. basal, moss, lichens, residue, bare ground, rock, water, total
- wildlife signs-hedging, browsing, number and type of trails, nesting trees
- wildlife habitat data - slope, aspect, vegetation structure
- tall shrub - productivity, available browse by species
- habitat - height, canopy, density by plant species
- range production - weights by plant species
- soils - SCS descriptions

Vegetation Mapping - Susitna 1980

- Qualitative vegetation cover estimates
- Some soils data

Fertilizer trials 1980

- Annual ryegrass was planted in factorial design using NPK treatments with 3 levels of each
- Responses measured included height, production, nutrient analysis and photos of individual plots. Baseline soil laboratory analyses were determined.

Downstream succession 1981

- Vegetation cover by height class; density by size class; ages, heights, dbh's of shrubs, trees. Belt transects were used.
- Soil pits sampled by horizons or fluvial layers

Helicopter transects 1981

- Vegetation types at systematic points along transects

Downstream succession 1982

- Shrub cores collected in early-middle successional types along hydrology transects.

Range ecology studies 1982

- Detailed description and data formats have been provided previously (December 14, 1982, to Steve Fancy, LGL)
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-236: (iv) Climatic Changes and Effects on Vegetation: Paragraph 5: As with the discussion on temperature changes adjacent to the reservoir, the importance of fog banks and resultant ice formation relates to plant species, time of year, and wildlife uses which will be affected. In addition to providing such information, we recommend describing the period when area temperatures may be below -9.4°F and steam fog creation is likely."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
   United States Department of the Interior I.353
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983.

2. Comment:
   "Page E-3-237: (v) Effects of Increased Human Use: We
   concur with this assessment and again cite the
   opportunity for minimizing project impacts on fish and
   wildlife by carefully siting and regulating access.
   Please refer to our comments on Sections 3.3.3 and
   3.4.2(a)(i) and previous letters to the APA on the
   issue of access dated August 17, 1982 and January 14,
   1983 (the latter letter is included in Chapter 11)."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
### TECHNICAL QUESTIONNAIRE

for

SHP Response to Agency Comments regarding FERC Application

1. **Agency/Comment Source:**
   - United States Department of the Interior
   - Office of the Secretary
   - Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Page E-3-238: - Fires: Paragraph 2: An additional point which should be considered in assessing the values to wildlife of post-fire regrowth is whether productivity, as well as density, of berry producing plants increase."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. Agency/Comment Source: 
United States Department of the Interior 
Office of the Secretary 
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-240: (a) Construction: There is no quantification of vegetation types and geographic areas to be potentially impacted by erosion, permafrost, melting, etc. other than for direct vegetation losses due to inundation and construction of camp, village, and borrow areas described here and in Tables E.3.80, E.3.82, E.3.84, and E.85. Several of those impacts can and should be analyzed in conjunction with information in Chapter 6, Geologic and Soils Resources, and Figures E.6.21 through E.6.29."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   "Page E-3-240: (i) Vegetation Removal: Natural vegetation of disturbed sites will occur only with proper site preparation, including storage of topsoil. Analysis of the figures given shows that, at most, no more than 10 percent of the vegetation to be lost from the Devil Canyon development will be replaced by reclamation. We again recommend prompt mapping of wetlands, reinterpretation of vegetation in a manner that is meaningful to wildlife, and consultation with resource agencies such as the FWS to confirm optimum siting of camp, village, and borrow areas."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   "Page E-3-240: (ii) Vegetation Loss by Erosion:
   Please refer to our previous comments on the need to quantify permafrost and unstable slope areas mapped in
   Chapter 6, Figures E.6.21 through E.6.29, by vegetation type (Section 3.3.1(a)[ii])."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   "Page E-3-240: (ii) Vegetation Loss by Erosion:
   Please refer to our previous comments on the need to
   quantify permafrost and unstable slope areas mapped in
   Chapter 6, Figures E.6.21 through E.6.29, by vegetation
   type (Section 3.3.1(a)[ii])."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
   United States Department of the Interior I.358
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   "Page E-3-241: (iv) Effects of Altered Drainage:
   Please see our comments on Table E.3.82 regarding the likely overestimation of wetlands as described here."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.359

2. Comment:
"Page E-3-241: (b) Filling and Operation: Please refer to our previous comments and study recommendations on the potential for soil/vegetation/reservoir interactions which result in increased mercury levels in fish (Section 3.3.1(b) and in Chapter 2, Section 4.1.1(e)[vii]." 

3. PM&S/BHB Suggestions for Technical Response:


4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:


6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application


2. Comment:
"Page E-3-242: Filling and Operation: Paragraph 3: We find no delineation of the large landslide at RM 175 on Figure E.3.3. as referenced here."

3. PM&$/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&$/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.361
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
"Page E-3-242: (ii) Erosion and Deposition: This statement is inconsistent with the previous discussion of erosion, Section 3.3.2(a)(ii), the proceeding paragraph which assumes some soil losses following clearing [Section 3.3.2(b)(i)], the description of the large landslide at RM 175, and the steep area topography."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
United States Department of the Interior 1.362
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
"Page E-3-242: (iii) Effects of Regulated Flows: Frost
build-up on vegetation adjacent to the reservoir could
result in a significant changes in vegetation. Wild-
life would subsequently be affected, as we commented
under Section 3.3.1(b)(iii). Please also see comments
there regarding the need to quantify the range of areas
which may become available for successional vegetation
development."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.363

2. Comment:

"Page E-3-243: (a) Construction: Additional impacts from access road construction and use include thawing of adjacent permafrost and associated drainage and vegetation changes."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983
   PM&S Code: I.364

2. Comment:
   "Page E-3-244: (b) Operation: Use and management of access routes in addition to those required for project construction will determine the magnitude of impacts to area fish, wildlife, and socioeconomics."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE for
SHP Response to Agency Comments regarding FERC Application

1. Agency/Comment Source:  
United States Department of the Interior  
Office of the Secretary  
Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.365

2. Comment:  
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:  
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.365, by DOI, Office of the Secretary):**

"Page E-3-244: (a) Construction: Paragraph 1: In addition to the botanical impact analysis of individual transmission line segments described here and in Tables E.3.79, E.3.80 and E.3.86, we recommend a cumulative assessment of these impacts utilizing the same vegetation and wetlands classification systems for each segment. Please refer to our previous comments that existing analyses cannot be compared (Section 3.2.2[e]).

"Please also note apparent calculation errors in Table E.3.86 which double the estimate of total areas to be impacted by the Healy-to-Fairbanks and Willow-to-Cook Inlet transmission corridors. Subtotaled areas of forest, tundra, shrubland, and unvegetated cover types crossed appear to have been added to the individual sixteen forest, three tundra, four shrubland, and two unvegetated types in arriving at an overall total.

"Reference should be made to our comments on Table E.3.86 regarding potential inaccuracies in recalculation of transmission line right-of-way widths from 400 to 300 feet."

2. Comment:

"Page E-3-244: (a) Construction: Paragraph 2: Please explain whether vegetation impacts were recalculated where the currently proposed route extends outside the corridor in which vegetation was originally mapped (e.g., see Figure E.3.52). Quantification of potential increases, in browse should be based on eventual remapping of vegetation, succession models, and proposed vegetation studies. Such quantification is needed to compare overall losses and thus mitigation requirements for the project."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

   PM&S Code: I.367

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 26, 1983
2. Comment (I.367, by DOI, Office of the Secretary):

"Page E-3-245: (b) Operation: According to the project description in Exhibit A, Section 4.2(d), page A-4-6, a 25-foot wide access strip is to run along the entire length of the corridor, except at areas such as major river crossings and deep ravines where an access strip would not be utilized for the movement of equipment and materials. Please clarify whether low shrub and tundra types will be cleared within the access strip and the anticipated schedule for maintaining that access.

"We recommend that the applicant consult with the CE, FWS and ADF&G in siting of the proposed access strip to ensure that potential adverse impacts to wetlands and fish streams are avoided.

"During planning for the Intertie, the applicant assured the resource agencies that all access for construction and maintenance would be by helicopter to minimize the size of the area disturbed, length of time of disturbances, and potential off-road vehicle (ORV) use. However, pressure from the public utilities, who will eventually take over operation of the Intertie, resulted in design changes allowing on-ground access. Thus we are concerned that access plans for other segments of the transmission line not be similarly changed to the detriment of aquatic and terrestrial resources."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.368, by DOI, Office of the Secretary):

"Page E-3-245: 3.3.5 - Impacts to Wetlands: The application states that the estimates of wetland acreage to be impacted by the proposed project are extremely liberal and all values should be considered preliminary.' Acreage data for more specific wetland types are needed. Evaluation of the project's impact on those specific wetland types of special interest to the FWS cannot be made with the generalized information that is now available (see comments on Section 3.2.3 - Wetlands). Thus, we recommend that impacts from access and transmission corridors not be assessed by applying the applicant's current wetlands classification by vegetation type system."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   "Page E-3-246: 3.3.6 - Prioritization of Impact Issues:
   In order to quantify project impacts over the life of the project, further details are needed on the anticipated length of time for each impact discussed here."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983
   PM&S Code: I.370

2. Comment:
   "Page E-3-246: (a) Direct Loss of Vegetation: This section
   is repeated verbatim from the November 15, 1982 draft
   license application, thus, figures given here do not reflect
   the latest routing or project design as reflected in the
   accompanying tables. For example, Table E.3.83, shows
   direct vegetation losses from the dam, impoundment,
   and spillway as 14,829 ha; Section 3.3.1(a)(i), page E-3-225
   lists those losses as 14,329 ha; yet this section cites a 12,667 ha
   loss. Similar inconsistencies are found in the Devil Canyon,
   Access Roads, and Transmission Corridors summaries."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer
   of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
**TECHNICAL QUESTIONNAIRE**
for
SHP Response to Agency Comments regarding
FERC Application

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<th>1. Agency/Comment Source:</th>
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<tr>
<td>United States Department of the Interior</td>
<td>I.371</td>
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<td>Letter from Bruce Blanchard dated December 2, 1983</td>
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<th>2. Comment:</th>
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<td>&quot;Page E-3-247: (iv) Transmission Corridors: Please refer to our previous comments under Section 3.3.4(a) and Table E.3.86 on apparent errors in the calculation of transmission line impacts. Inconsistencies between the description of access trails in Exhibit A, Sections 4.2(d), Section 3.3.4(b), and the applicant's response to our question on the draft license application that, 'Transmission corridor design has been revised and no longer incorporates longitudinal access strip' (Chapter 11, W-3-152), should be removed.&quot;</td>
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TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:                                  PM&S Code:
United States Department of the Interior I.372
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
"Page E-3-248: (b) Indirect Loss of Vegetation: The
cumulative impacts of project features described under
the previous section and here should be considered.
Many identified losses will be in riparian habitat
important to wildlife species."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

PM&S Code: I.373

2. Comment:
"Page E-3-249: (c)(i) Downstream Floodplain: Please refer to our previous comments (Section 3.3.1(b)(iii) on the uncertainties underlying current downstream analyses, particularly downstream of Talkeetna. We again recommend quantification of potential vegetation changes over the life of the project for a variety of possible flow and ice scouring scenarios."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

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TECHNICAL QUESTIONNAIRE
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SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:  
   PM&S Code:  
   United States Department of the Interior  
   Office of the Secretary  
   Letter from Bruce Blanchard dated  
   December 2, 1983  
   I.374

2. Comment:
   "Page E-3-251: (a) Item 3: Where information for  
   determining the extent to which mitigation will be  
   achieved is unavailable, requisite studies, including  
   monitoring, should be outlined and their implementation  
   assured."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental  
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of  
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.375
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
"Page E-3-251: Item 8: We are concerned that illustrations of mitigative design features are minimal and generally limited to road construction without specific data on the extent to which area materials will allow implementation of the side-borrow or balanced cut-and-fill techniques. Location maps should also be included for all mitigative design features."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-251: (b): The FWS supports funding and implementation of mitigation concurrently with project planning and construction. We are concerned that outlined mitigation studies are generally limited to planning studies with some follow-up monitoring (Table E-3-177). Provisions are lacking for implementing measures that will be recommended through these study efforts. Please also see our comments on Table E.3.177."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

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TECHNICAL QUESTIONNAIRE
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FERC Application

1. Agency/Comment Source:  PM&S Code:
   United States Department of the Interior  I.377
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
Comment (I.377, by DOI, Office of the Secretary):

"Page E-3-252: Paragraph 1 to 4: We recommend that the Biological Stipulations included with our comments as Attachment A be made conditions of the FERC license and incorporated in any project contracts and bid specifications.

"With the exception of wetlands mitigation planning, we concur with the mitigation objectives and framework outlined here. As stated previously in Sections 3.2.3 and 3.3.5, inadequate identification of wetlands means that higher priority mitigation options to avoid and minimize impacts may now be more difficult to incorporate in project planning.

"We believe that a mechanism and responsible parties should be identified for ensuring that, 'features of this mitigation plan will be correspondingly refined with respect to specific locations, procedures, and costs' as project design and planning proceeds."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.378, by DOI, Office of the Secretary):

"Page E-3-252: (a) Direct Loss of Vegetation: We question the estimated area for access borrow areas. According to the following Section, (i), (page E-3-265, paragraphs 2 and 4) borrow needs could run from 90 to 180 acres the Denali Highway-to-Watana road segment and from 50 to 100 acres for the road between the Watana and Devil Canyon Dams. Potential borrow needs for the railroad link, work pads, airstrips, and camps/villages are not clearly identified, and the size of potential spoil disposal areas are not quantified. Our specific comments on the five mitigation options follow under Sections (i) through (v)."

2. Comment:

"Pages E-3-254 through E-3-275: (i) Minimization: The discussion is limited by the: (1) inadequacy of wetlands mapping (see our comments on Sections 3.2.3 and 3.3.5), and (2) vegetation classification which cannot be usefully integrated with the wildlife impact analyses and mitigation determinations. Without these items, it is impossible to assess the adequacy of minimizing impacts through siting."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE

for

SHP Response to Agency Comments regarding FERC Application


PM&S Code: I.380

2. Comment:

See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:

Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.380, by DOI, Office of the Secretary):

"Page E-3-254 Last Paragraph through Page E-3-256:
Paragraph 2: We recommend that the proposed temporary airstrip be sited so that it can later be expanded to become the permanent airstrip. This suggestion is compatible with the applicant's recent request to fund a 2500-foot temporary airfield at the Watana base camp which would subsequently be expanded to the 6000-foot airfield necessary during project construction 3B-5/.

"We also recommend consolidation of the Watana construction camp, village, and townsite. We note these facilities (Exhibit F, Plate F35) are spread out compared to the Devil Canyon camp and village (Exhibit F, Plate F70). We also note the Watana facilities are close to the environmentally sensitive Deadman Creek area. Following remapping of wetlands, the siting of Watana facilities should be reviewed.

"The purpose and scheduled use of the circular road system outlined in Exhibit F, Plate F35, between the emergency spillway, Susitna River, and Tsusena Creek should be explained. As we commented on the draft license application, we have not had input into the decisions regarding the type, administration or siting of the construction camp, village, and townsite (Chapter 11, W-3-046). We concur with the concept of common corridor routing for the Watana-to-Gold Greek access and transmission corridors although the map scale represented in Figures E.3.39 and E.3.40 makes it difficult to evaluate those project features. Consultation with resource agencies during the on-ground planning of detailed project design may indicate areas where winter movement of construction equipment and materials is preferable to prevent impacts in biologically sensitive areas. Please refer to our previous comments on access for line maintenance, Section 3.3.4(b)."

"3B-5/ Construction of Temporary Airfield at Watana. Appendix 4 to Agenda Item IV, Action Item No. 1, prepared for the APA Board of Directors."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983
   PM&S Code: I.381

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:
   Please address underlined portion of comment.

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.381, by DOI, Office of the Secretary):**

"Page E-3-254 Last Paragraph through Page E-3-256: Paragraph 2: We recommend that the proposed temporary airstrip be sited so that it can later be expanded to become the permanent airstrip. This suggestion is compatible with the applicant's recent request to fund a 2500-foot temporary airfield at the Watana base camp which would subsequently be expanded to the 6000-foot airfield necessary during project construction 3B-5/.

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"3B-5/ Construction of Temporary Airfield at Watana. Appendix 4 to Agenda Item IV, Action Item No. 1, prepared for the APA Board of Directors."
1. **Agency/Comment Source:**
   United States Department of the Interior  
   Office of the Secretary  
   Letter from Bruce Blanchard dated  
   December 2, 1983

2. **Comment:**
   See attached comments.

3. **PM&S/BHB Suggestions for Technical Response:**
   Please address underlined portion of comment.

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.382, by DOI, Office of the Secretary):**

"Page E-3-254 Last Paragraph through Page E-3-256:

Paragraph 2: We recommend that the proposed temporary airstrip be sited so that it can later be expanded to become the permanent airstrip. This suggestion is compatible with the applicant's recent request to fund a 2500-foot temporary airfield at the Watana base camp which would subsequently be expanded to the 6000-foot airfield necessary during project construction 3B-5/.

"We also recommend consolidation of the Watana construction camp, village, and townsite. We note these facilities (Exhibit F, Plate F35) are spread out compared to the Devil Canyon camp and village (Exhibit F, Plate F70). We also note the Watana facilities are close to the environmentally sensitive Deadman Creek area. Following remapping of wetlands, the siting of Watana facilities should be reviewed.

"The purpose and scheduled use of the circular road system outlined in Exhibit F, Plate F35, between the emergency spillway, Susitna River, and Tsusena Creek should be explained. As we commented on the draft license application, we have not had input into the decisions regarding the type, administration or siting of the construction camp, village, and townsite (Chapter II, W-3-046). We concur with the concept of common corridor routing for the Watana-to-Gold Greek access and transmission corridors although the map scale represented in Figures E.3.39 and E.3.40 makes it difficult to evaluate those project features. Consultation with resource agencies during the on-ground planning of detailed project design may indicate areas where winter movement of construction equipment and materials is preferable to prevent impacts in biologically sensitive areas. Please refer to our previous comments on access for line maintenance, Section 3.3.4(b)."

"3B-5/ Construction of Temporary Airfield at Watana. Appendix 4 to Agenda Item IV, Action Item No. 1, prepared for the APA Board of Directors."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

PM&S Code: I.383

2. Comment:
"Page E-3-256: Paragraph 3: and Page E-3-258: Paragraph 2: Facility sitings presently are located in low biomass areas. It is important that these areas be not only economically advantageous to clear, but that such areas be of low value to wildlife, as acknowledged on page E-3-260, paragraph 2. For example, a low birch/mixed shrub area may be more important in providing moose forage, particularly if cover is available nearby, than the higher biomass of a tall alder area which provides cover but no food."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.384
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.384, by DOI, Office of the Secretary):**

"Paragraph 3 through Page E-3-258, and Pages E-3-260:
Paragraph 4 through 262: We reiterate our recommendation to drop the Denali Highway-to-Watana access segment because of big game resource values described here, as well as area furbearer, raptor, and wetland values. Moreover, significant secondary impacts of increased disturbance will result from the increased access allowed by that route. Please refer to our letters dated August 17, 1982 and January 14, 1983 to Eric P. Yould, APA. Eliminating the Denali Highway-to-Watana access road is the design change with the greatest potential for mitigating access road impacts to wildlife."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
   "Page E-3-258: Paragraph 1: Although the Watana-to-Devil Canyon transmission and access routes share a common corridor, it does not appear that they have adjacent or combined rights-of-way. Higher resolution mapping and field verification should be used to evaluate the viability of combining rights-of-way to minimize adverse impacts."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

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for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:  
United States Department of the Interior  
Office of the Secretary  
Letter from Bruce Blanchard dated  
December 2, 1983

2. Comment:  
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:  
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.386, by DOI, Office of the Secretary):**

"Page E-3-256: Paragraphs 1 and 2 and Pages E-3-261 through 266: We concur with the objective of siting borrow areas adjacent to the access road and with the recommended side-borrow or balanced cut-and-fill techniques. These methods will work only where suitable materials exist within the proposed access corridor or when it is stipulated in project licensing requirements and contractor specifications and then monitored throughout project development.

"For side-borrow construction, we recommend that the project engineers work with interagency monitoring team in the selection of temporary overburden and topsoil stockpile locations. Schedules should be provided for use and reclamation of access borrow and spoil areas. Borrow areas which would remain open for maintenance of roads, workpads, or other facilities should also be indicated. Necessary reclamation, whether simply recontouring, scarification, and fertilization to promote reestablishment of native species, or seeding and possibly sprigging of willows in more erodable areas, should be detailed in project reclamation plans and receive concurrence of the monitoring team. Site preparation should be undertaken as soon as construction use of an area is completed; seeding should be done by the first growing season after site disturbance has been completed. Please refer to the Biological Stipulations we have included as Attachment A and our comments on Section 3.4.2(a)(ii) Rectification."
**TECHNICAL QUESTIONNAIRE**  
for  
SHP Response to Agency Comments regarding  
FERC Application

1. **Agency/Comment Source:** United States Department of the Interior  
Office of the Secretary  
Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**  
"Page E-3-263: Paragraph 4: This section should explain how the transmission corridor in the Jack Long Creek area will be maintained since 'temporary' bridging of the creek will be accomplished for construction. We recommend transportation of construction materials and equipment via helicopter in this area to minimize potential disturbance, erosion, and loss of fish and wildlife habitats.  

"Please refer to Attachment C, for additional recommendations."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**  
Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
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1. Agency/Comment Source: PM&S Code:
United States Department of the Interior I.388
Office of the Secretary
Letter from Bruce Blanchard dated
December 2, 1983

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental
pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
Comment (I.388, by DOI, Office of the Secretary):

"Page E-3-264: Paragraph 1: We concur with realignments and improved siting of the railhead facility to further minimize project impacts to furbearers, eagles, and wetlands. The discussion should include how such siting will minimize disturbances to big game. Until additional assessment data can be incorporated into moose, black bear, and brown bear models, it is not possible to compare habitat values of alternative locations.

"Paragraph 3: A road crown of 2 to 3 feet above original ground level may not provide an adequate thermal blanket in areas of permafrost."
1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   See attached comment.

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.389, by DOI, Office of the Secretary):

"Page 266: Paragraph 3 through Page 268: We recommend that resource agency concurrence be obtained during detailed engineering design for final site selection and procedures for spoil disposal. Spoil should be armored with rock and/or gravel to stabilize the soils against wave action and prevent sedimentation during reservoir drawdown. Spoil which may be unsuitable for disposal because of cost, composition, or proposed construction schedules should be identified. Settling ponds may be necessary in conjunction with temporary construction berms or borrow pits. No spoil should be placed upon snow, even for temporary disposal, and overburden should not be pushed onto areas adjacent to roadways which cross tundra vegetation.

"Additional recommendations for settling ponds, should they be used in spoil disposal, follow:

1. Settling ponds should be sized for gravel processing quantities, and fines. 3B-6/.

2. Generally, when half the capacity of settling ponds are filled with silt, they should be cleaned out.

3. If the settleable fines are to be deposited between the flood pool's high and low water marks, they should be covered with a rock blanket for stabilization.

"The length of time and potential areas to be covered by any 'temporary' spoils disposals should be designated."

TECHNICAL QUESTIONNAIRE
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1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Page E-3-267 Last Paragraph through Page E-3-268:
   Paragraph 1: This section should explain the proposal to deposit spoil above the 50-year flood level for the Devil Canyon Reservoir. We recommend that all disposal be within the impoundment area and that vegetation slash be burned to preclude debris accumulations in water entrainment systems."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Page E-3-268: Paragraph 3: Accurate wetlands maps should be used in geotechnical alignment studies so that wetlands and ice-rich soils can be avoided. Involvement of the environmental monitors should help further minimize sitings or drainage crossings potentially detrimental to fish and wildlife."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

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TECHNICAL QUESTIONNAIRE
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FERC Application

1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
"Page E-3-269: Paragraph 3: It is unclear what portion of the Anchorage to Fairbanks transmission corridor to 'be widened to accommodate an additional single-tower right-of-way 190 feet (58 m) wide' has been included in the previous vegetation assessment (Section 3.3.4(a) and Tables E.3.79, E.3.80 and E.3.86). The statement that this alignment 'may depart from the previously established corridor' substantiates our previous concerns that by not evaluating the Intertie as an integral part of the Susitna project, further impacts could result from later needs to upgrade the line."

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:
RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
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FERC Application

1. Agency/Comment Source: United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983
   PM&S Code: I.393

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.393, by DOI, Office of the Secretary):**

"Page E-3-269: Paragraph 4: The referenced 69 kilovolt (kv) service transmission line has not been previously mentioned and appears inconsistent the statement that diesel generators will be used to maintain the camp and village and construction activities (Exhibit A, Section 1.13(d)(i), page A-1-27). Please clarify the purpose of this line, proposed right-of-way, height of utility poles, distance of the centerline from the access road, and connections at the Denali Highway end. According to the APA, three alternatives are under consideration for supplying power during project construction; (1) a 69kv service transmission line from Cantwell along the Denali Highway-to-Watana access route; (2) a transmission line from the Intertie near Gold Creek along the railroad and access road which follow the Susitna River; and (3) use of diesel generators (Thomas A. Arminski, APA Deputy Project Manager, personal communications of September 30, 1983). The existence of those three alternatives should be described in detail in the license application. We recommend that alternative (3), diesel generation, be used to avoid impacts of an additional transmission line."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application


2. Comment: See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental pages, reports, etc.

5. Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.394, by DOI, Office of the Secretary):

"Pages E-3-269 through E-3-274: The mitigative practices that are described here should be part of Biological Stipulations included in project licensing and contract bid specifications. Once the moose carrying capacity model and more detailed vegetation mapping is completed, an analysis should be undertaken of the potential to optimize browse production by additional transmission line clearing or varying vegetation heights by changing maintenance schedules within constraints of safe line operation. Follow-up studies should be initiated to confirm the value of expected browse enhancement and aid planning and implementation of such vegetation manipulations."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source:  PM&S Code:
   United States Department of the Interior     I.395
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment** (I.395, by DOI, Office of the Secretary):

"Page E-3-273: Paragraph 4: Potential policy conflicts should be identified in conjunction with access road and transmission line siting studies. Agreements with public and private landowners which provide for the mitigation determined necessary by the applicant should be confirmed prior to project licensing. Unless such agreements are incorporated into the license, there is no guarantee that mitigative management policies will be adopted. The record on negotiation settlement proceedings for the Terror Lake hydroelectric project now under construction by the applicant on Kodiak Island supports such careful planning."
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. **Agency/Comment Source:**
   United States Department of the Interior
   Office of the Secretary
   Letter from Bruce Blanchard dated December 2, 1983

2. **Comment:**
   "Page E-3-274: Paragraph 4 and Page E-3-275: Paragraph 1: The text should explain: (1) inconsistencies between these figures and those in Section 3.4.2(a); and (2) calculations of areas where vegetation removal will be minimized."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**
   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
TECHNICAL QUESTIONNAIRE
for
SHP Response to Agency Comments regarding
FERC Application

1. Agency/Comment Source: PM&S Code:
   United States Department of the Interior I.397
   Office of the Secretary
   Letter from Bruce Blanchard dated
   December 2, 1983

2. Comment:
   See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
   Please attach response to comment; include supplemental
   pages, reports, etc.

5. Name, Organization, Address and Telephone Number of
   Preparer of Attached Technical Response:

6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. **Comment (I.397, by DOI, Office of the Secretary):**

"Pages E-3-275 through E-3-281(ii) Rectification: A preliminary assessment should be made of vegetation cover type losses from the standpoint of how long each area will be disturbed. As reclamation and revegetation take effect and disturbance by construction activities decreases, some habitat values would be expected to slowly increase. We agree that predictions of how plant succession will proceed on these lands over time are difficult to justify. However, we suggest that the information presented here, coupled with the successional information presented earlier (Section 3.3.1(b)[i] and in Table E.3.144) will allow an assessment of the range of possible vegetation restoration over time. The typical 10-year time frames within which each area will be completely out of production must be coupled with the up to 150 year time spans necessary for revegetation in order to thoroughly assess project impacts. Although these losses may be 'temporary,' they are significant within the average life-spans of area wildlife."
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2. Comment:

"Page E-3-276: Construction Camp: The text should clarify the double listing for dismantling and redraining the 78 acres involved here."

3. **PM&S/BHB Suggestions for Technical Response:**

4. **Draft Technical Response:**

   Please attach response to comment; include supplemental pages, reports, etc.

5. **Name, Organization, Address and Telephone Number of Preparer of Attached Technical Response:**

6. **Date of Technical Response:**

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
## TECHNICAL QUESTIONNAIRE

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SHP Response to Agency Comments regarding

FERC Application

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<td>&quot;Page E-3-277: Borrow Area D: It appears that an additional 70 acres should be listed under the excavation and reclamation category for 1986.&quot;</td>
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TECHNICAL QUESTIONNAIRE
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1. Agency/Comment Source: United States Department of the Interior
Office of the Secretary
Letter from Bruce Blanchard dated December 2, 1983

2. Comment:
See attached comment.

3. PM&S/BHB Suggestions for Technical Response:

4. Draft Technical Response:
Please attach response to comment; include supplemental pages, reports, etc.

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6. Date of Technical Response:

RETURN TO PM&S/BHB BY DECEMBER 20, 1983
2. Comment (I.400, by DOI, Office of the Secretary):

"Pages E-3-279 to 280: (ii) Rectification: Refer to our Attachment A, Biological Stipulations, additional references, and ongoing revegetation of the Alaska Plant Material Center for further guidance on site restoration.

"Individual site restoration plans should be developed with the concurrence of the monitoring team. We recommend prompt site restoration (i.e., site preparation) upon concluding use of a construction site. This includes recontouring, replacement of the organic mat/topsoil, fertilization, and scarification and seeding and willow sprigging where necessary during the first growing season following conclusion of construction activities at a given site.

"We recommend that the resource agencies have the opportunity to review and comment on the reclamation plans at least one year prior to construction. The successful implementation of reclamation plans would be facilitated by limiting surface disturbances as the application has indicated.

"An essential step to achieving reclamation will be to develop a monitoring program which assigns monitoring responsibilities, and includes funding for yearly operation and maintenance. The plans must include criteria for measuring the relative successes of reclamation activities and a procedure for implementing additional measures if initial reclamation objectives are not achieved.

"The text should clarify the process by which 'slopes will be serrated.'"