

ALASKA POWER AUTHORITY

SUSITNA HYDROELECTRIC PROJECT

PROGRESS REPORT

FOR

APRIL, 1981

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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT
MONTHLY PROGRESS REPORT

Report No. 15

Period: April, 1981

Progress Report No. 15 covers the activities on the Susitna Hydroelectric Project for the month of April, 1981.

Task 1, Power Studies, is complete.

Task 2, Surveys and Site Facilities, continued with a resupply of 150,000 gallons of fuel. Work continued on the access road route selection. R&M's and TES's preliminary reports on the access roads were reviewed. Air photos will be obtained of the three alternatives to aid in the selection.

Task 3, Hydrology, continued with completion of the development of computer software. The user manual was issued for internal review. Preliminary analysis of freezeup and river cross-section data continued during April. A Lower Susitna pre and post project flood stage report was given to APA and other review members for comment.

R&M Associates continued operation and monitoring of the field data collection system. The Annual Report on water quality was distributed. Software for data reduction is complete in draft form. Data has been entered on the computer for the HEC-2 Water Surface Profile Model calibration. The data can be assessed from either Anchorage or Buffalo for use in model calibration and operation.

Task 4, Seismic Studies, continued with Acres discussing with WCC their 1981 program and budget schedule. Also discussed were WCC's trenching requirements and tentative schedule. The long-term seismologic program has been deleted from the 1981 tasks. A Seismologic Network Operating Manual is to be prepared by WCC by December 1981 which will be used as a guideline for Phase II work. The final version of the Task 4 interim report was issued.

Task 5, Geotechnical Exploration, continued with the setting of priorities and the scheduling of field activities being completed. Test pitting operation in Borrow Area E was commenced April 14 and is running well ahead of schedule. Geologic mapping was carried out at both the Devil Canyon and Watana damsites. An operation plan for field activities from May 1 to October 31 was filed with BLM.

Task 6, Design Development, continued with the expanding and formalization of the Development Selection Report methodology.

It has been determined that a rock-fill dam with impervious fill core is best suited to the Watana site. A thin arch dam has been established as best suited to the Devil Canyon site. Work is continuing on finalization of these schemes.

Task 7, Environmental Studies, continued with a meeting of the Susitna Hydro Steering Committee to discuss their comments on the TES procedure manuals. A meeting was held with FERC to discuss the status of existing studies. A discussion with APA was held regarding potential changes to the environmental program over issues raised to date. Acres continued coordination of environmental input into the access road and transmission studies. Sociocultural program bids were solicited in April with bids due on May 11, 1981. Efforts continued on the finalization of the 10 annual reports by TES and their subcontractors.

TES continued work by holding meetings with agencies/departments to obtain comments on the progress of the environmental studies. A meeting was held with the University of Alaska to discuss the 1981 field season activities. The University of Alaska is revising the Land Use Annual Report. The Fish Ecology Study Team continued their work in developing a mitigation policy statement which was sent to APA for review.

Task 8, Transmission, continued with meetings with five Alaska utilities to explain the main aspects of the 345 KV system. Computer analysis of the 345 KV electrical system continued. The center line of the transmission corridor was plotted on USGS maps. A meeting was held with ITT Meyers regarding the tower, hardware, and conductor problems present in Alaska's environment. A dispatch center located in Willow was acceptable to most utilities.

Task 10, Licensing, continued by updating the licensing design transmittal. A meeting with FERC was held April 21 to brief them on the project status and answer any questions they might put forth. A memorandum of the meeting documented FERC's comments.

Task 11, Marketing and Finance, continued by requesting POR authors to update their portions of the Unabridged Version of the Project Overview Report to the present status of the project. A final version of the unabridged POR will be published at a later project milestone date.

Task 12, Public Participation, continued by submitting the 1981/1982 Public Participation Work Program to APA for review. The Action List Program response to APA is scheduled to be submitted in the near future.

Task 13, Administration, continued with the project schedule being updated to current project status. Also, the Task 6 and 7 relationships are being expressed in greater detail on the schedule. The cost control program continues with subcontractor insurance policies being submitted to APA for review.

Task 14, ADF&G Support, continued with the registering of six vehicles to ADF&G. Also, the purchasing of ADF&G equipment continued during the month.

TASK 1 - POWER STUDIES

Task Complete.

TASK 2 - SURVEY AND SITE FACILITIES

ACRES ACTIVITIES

Subtask 2.02

The resupply of fuel to the camp was initiated. A purchase order for 150,000 gallons of fuel was issued to Interior Energy by CIRI/H&N and a Boeing Vertol 107 Helicopter from Alaska Helicopters was mobilized to handle the fuel haul.

Subtask 2.10 - Access Roads

Acres continued working on the Access Road route selection. A detailed review of R&M's preliminary report was carried out and numerous comments were forwarded to R&M. TES's report on the preliminary environmental aspects of the alternate corridors was reviewed. A generic methodology for a decision making process was developed in conjunction with Task 6, Design Development and Task 8, Transmission. This methodology will be applied to the Access Road route selection to determine the optimum route. A decision was made to obtain air photos only, of all three corridors, which enabled the decision of a recommended route to be scheduled for the fall of 1981. The detailed topography for the recommended route can be obtained from the air photos when the route is selected.

CIRI/H&N ACTIVITIES

CIRI/H&N continued its regular operation, maintenance, and related inspection of camp facilities. During this period, Acres American, Incorporated authorized CIRI/H&N to procure 150,000 gallons of fuel necessary to replenish the diesel and jet fuel supply available at Watana Camp. In order that CIRI/H&N could implement this action, Acres American increased CIRI/H&N's budget allocation from \$4.0 to \$4.36 million.

R&M ACTIVITIES

Subtask 2.03 - Resupply and Emergency Service

Selection of a potential airstrip near the Watana Camp has been made allowing for Twin Otter performance with expandability to a 6,000 foot strip.

Survey of the proposed strip has been accomplished as has an access road between the strip and camp storage building. No computations or mapping has commenced to date.

Subtask 2.07 - Site Specific Surveys

Approximately 20 river cross-sections between Devil Canyon and Watana damsites have been field surveyed. Office processing of field data has been completed and entered on the computer in HEC-2 format.

Channel geometry surveys, water surface profiles, velocity measurements, and descriptions of the river in Devil Canyon have been completed, and preliminary copy of work accomplished has been forwarded to Acres.

Subtask 2.08 - Aerial Photography and Photogrammetric Mapping

Photography has been obtained on the controlled reservoir, lower river, alternative access corridors, and the four flight lines of the transmission corridors.

Photography was obtained of the transmission corridor from Point MacKenzie to Willow, taking advantage of leaf free ground cover.

Flight lines and panel locations have been planned and copies forwarded to Acres for permit processing for the transmission corridor, Point MacKenzie to Willow, Healy to Fairbanks and Gold Creek to Watana, as well as, all alternative access corridors.

All photography obtained has been forwarded to Acres, Anchorage, except the Point MacKenzie to Willow transmission line.

Subtask 2.09 - Central Network Surveys

All primary and secondary horizontal control has been completed, as has all vertical control. This subtask is essentially complete, and a draft close-out report has been forwarded to Acres.

Subtask 2.10 - Access Corridors

Preliminary environmental data was requested and received from TES for corridor comparison. Preliminary construction and logistics cost estimates, access maintenance costs, and the Access Plan Report were completed.

Preliminary Access Plans were presented to review agencies, and steering committee comments were received.

An alternate alignment to the Denali Highway was defined, and a cost estimate is underway.

Subtask 2.16 - Hydrographic Surveys

Aerial photographs and field activity is complete. Office reduction of field notes is underway. A draft close-out report is being prepared.

TASK 3 - HYDROLOGY

ACRES ACTIVITIES

Subtask 3.03 - Field Data Collection and Processing

Routine monitoring of R&M fieldwork continued. Development of computer software for climatological data processing is complete. A user manual for the software

program has been prepared and reviewed internally. Processing of all data cassettes has commenced. Tom Lavender, of Acres, visited the site to initiate river ice breakup observations. Evaporation plan for installation near Watana Camp has been ordered. Recording of evaporation data will commence in May.

Subtask 3.05 - Flood Studies

Data collection for reevaluation of PMF has been initiated.

Subtask 3.06 - Hydraulic and Ice Studies

Preliminary analysis of freezeup and river cross-section data continued during the month. Preliminary planning of HEC-2 and ice model setup were finalized and data is being prepared for the computer runs. Reservoir temperature modeling was started, and preliminary computer runs are complete.

Subtask 3.07 - Sediment Yield and River Morphology

Preliminary planning of the hydraulic analyses has continued. Preliminary discussions have been held with Mr. Emwitt of the USGS to plan a bed load sampling program.

Subtask 3.08 - Climatic Studies for Transmission Line

Design transmittal on preliminary climatic studies for transmission lines has been internally reviewed and will be issued shortly. Detailed studies are being started using data collected during 1980 season.

Subtask 3.10 - Lower Susitna Studies

A preliminary report has been prepared jointly by R&M and Acres on pre- and post-project flood stages in the lower Susitna and circulated to APA and other study team members including TES and ADF&G. A meeting is scheduled for May 7 among all the study teams involved in the downstream river reaches to review progress and planning and coordinating 1982 work.

R&M ACTIVITIES

Subtask 3.02 - Field Data Index and Distribution System

A program has been scoped out to retrieve historical data for PMF studies and submitted to Acres.

Subtask 3.03 - Field Data Collection and Processing

All USGS stream gages are operating. The gage at Sunshine will be activated by mid-May. Winter measurements were made at all USGS stations. The Watana stream gage was activated late April, in preparation for breakup.

A staff gage was located at the head of Devil Canyon and another one near the proposed tailrace. These will be routinely monitored during 1981. Crest stage data was retrieved during the breakup process.

Snow courses were surveyed in early April. This work is being carried out cooperatively with SCS and the data is reported in the SCS monthly bulletin.

George Clagget (SCS) accompanied the high elevation snow course survey and reviewed the adequacy of our courses. Relocation of three sites was recommended.

Annual report on water quality data was distributed. It summarized the first year's data and made recommendations for year two.

Suspended sediment collected by R&M and USGS has been reduced and compiled in tabular form.

Climatological data currently is being processed on the computer. All stations are operating reasonably well.

A glacial plan of study has been finalized which Will Harrison and Acres has approved. A reconnaissance of the Susitna Basin glaciers will be made during May by the University of Alaska Geophysical Institute and R&M.

Breakup in the Susitna began in late April and extended through early May. This year's breakup was relatively mild due to the below normal snowpack in lower elevations and lack of precipitation. However, the process was documented and field data retrieved on several moderate ice jams.

Subtask 3.05 - Flood Studies

Flood frequency and flood volume studies have been sent to Dr. Robert Carlson (University of Alaska) for final review. Preparation of the draft close-out report is underway.

Subtask 3.06 - Hydraulic and Ice Studies

Hydrographic surveys from Subtask 2.16 and stage and flow measurements from Subtask 3.03 have generated sufficient field data for setting up the HEC-2 and Ice Cover Process Model. Data has been entered on the computer for the HEC-2 Water Surface Profile Model and will be calibrated in Buffalo during June. Draft tailwater rating curves have been generated and sent to Acres. Arrangements have been made for Acres, Buffalo, and R&M, Anchorage, to assess data files through the BCS computer system.

Subtask 3.07 - Sediment Yield & River Morphology Studies

A first step procedure has been formulated for determining reservoir sedimentation. R&M Consultants is providing basic data, and Acres will operate the model. At completion of this problem identification task, the detailed scope will be formulated.

Subtask 3.10 - Lower Susitna

An interim report describing pre and post project open-water flood flows has been prepared jointly by R&M and Acres. The report was distributed to interested team members to assist in defining 1981 field activities and Lower Susitna studies.

TASK 4 - SEISMIC STUDIES

ACRES ACTIVITIES

The final scope of work, budget and schedule for Woodward-Glyde's 1981 program is being discussed with WCC. Acres' activities on this task are limited to finalization of the program schedule and detailed specification of the end products to be produced by WCC.

Discussions were held with WCC to review their trenching requirements and tentative schedule. Acres will provide a backhoe for excavating and shoring to keep the trenches open. Plans are to use a JD350 for excavating and a Bobcat for backfilling. Acres is presently arranging for shoring and trench jacks.

WCC ACTIVITIES

Subtask 4.06 - Evaluation and Reporting

WCC has reported shipment of the Interim Task 4 Report, which functionally completes this subtask. Subtask will be complete upon closeout of administration and service charges.

Subtask 4.09 - Long-Term Seismologic Monitoring Program

The long-term program has been deleted from the 1981 tasks, and Acres' effort under Subtask 4.09 will be limited to review and assessment of the long-term Seismologic Network Operating Manual which will be written by WCC. The purpose of preparing the manual is to have a guideline completed by December 1981 which can be readily utilized in successive Phase II work, and incorporate the experience of WCC in conducting the 1980 monitoring program.

Subtask 4.11 - Seismic Geology Field Studies

WCC has commenced interpretation of available imagery, and new photos have been ordered. Within the next month, field investigation will begin to evaluate the Quaternary geologic history of the region, followed by lineament and fault mapping and detailed investigation.

Acres' participation in the conduct of WCC field studies will be limited to interaction of Acres' field mapping personnel in comparing notes on areas mapped near the damsites and Acres' support and equipment provided by Task 5 to accomplish test trenching of suspected faults.

TASK 5 - GEOTECHNICAL INVESTIGATIONS

ACRES ACTIVITIES

Subtask 5.05 - Exploratory Program Design (1981)

Scheduling and prioritizing of field activities is being conducted, and a recommended program will be discussed with Acres Internal Review Board. A technical memorandum will be prepared and submitted to APA by June 1981.

Subtask 5.06 - Exploratory Program (1981)

Completion of logging and relogging of Acres and COE cores is expected by mid-May, when field geology will recommence.

Geologic mapping was carried out at both the Devil Canyon and Watana damsites from the river ice. Approximately two weeks were spent in the field. Ken White and Mike Bruen of Acres and Jim Heinzen of R&M performed the work. The data from the three weeks of winter mapping is being reduced and will be plotted by mid-May.

A "plan of operation" for the geotechnical investigations during the period of May 1 through October 31, 1981, has been submitted to the BLM in compliance with their temporary use permit. An amendment to ADF&G's permit was obtained to allow crossing of Tsusena Creek and Bear Creek with the dozer during test pitting operations in Area E.

Subtask 5.08 - Data Reduction

Review comments are being incorporated in the Task 5 - Geotechnical Exploration Report on 1980 studies. Reduction and plotting of the COE field data at Watana has commenced.

R&M ACTIVITIES

Subtask 5.02 - Photo Interpretation

The finished product has been provided to Acres so R&M work on the subtask will be complete following review. The report is being reviewed by L. A. Rivard, as well as, internally by Acres.

Subtask 5.05 - Exploratory Program Design (1981)

Planning activities are predominantly complete, but the subtask will be ongoing as requirements and field constraints develop during the summer. The plan would be treated as a moving target for technical requirement considerations, with updates and modification as necessary to meet dynamic data requirements.

Subtask 5.06 - Exploratory Program (1981)

All 1980 boreholes have completed instrumentation installed. Readings have been resumed and will be continued throughout the year.

Test pitting operations in Borrow Area E at Watana (mouth of Tsusena Creek) proceeded ahead of estimated production rates, enabling the crew to extend test pitting in the area. Test pits are being dug at the locations of the 1980 auger holes, which will enable better correlation of auger samples with in-place conditions. This will clarify the level of confidence to assign to the 1981 auger drilling program samples. The use of the larger Vertol helicopter for backhoe transport should enable completion of the test pits on schedule.

The seismic refraction lines to investigate potential river gravel borrow were completed on schedule and interpretation has commenced. Preliminary interpretation indicates that good quality results were obtained and that the lines will provide valuable data on potential borrow quantities and bedrock conditions.

Geologic mapping support to assist Acres' geologists will continue as required, and in June a team of technical climbing qualified geologists will work on abutment mapping at Devil Canyon. Survey support for the river seismic line work is wrapping up with computations of coordinates and evaluations. A limited number of survey ties are being established to improve the survey locations on several COE drill holes.

TASK 6 - DESIGN DEVELOPMENT

ACRES ACTIVITIES

Subtask 6.05 - Development Selection Report

Work continued on the final draft report. More effort was devoted to expanding and formalizing the development selection methodology.

Subtask 6.07 - Preliminary Watana Dam Alternatives

From the study of alternative dam types, it has been determined that a rock-fill dam with impervious fill core is the most appropriate type of dam for the Watana site.

Conceptual project layouts had already been determined under this subtask which is now complete apart from the close-out report. Preparation of this report is commencing.

Subtask 6.08 - Preliminary Devil Canyon Alternatives

A thin arch dam has been established as the most appropriate type of dam for Devil Canyon. Preliminary conceptual layouts have been completed and preparation of the close-out report is commencing.

Subtask 6.09 - Design Criteria for the Watana Development

Subtask 6.10 - Design Criteria for the Devil Canyon Development

The design criteria is presently undergoing review and expansion based on incoming data and commensurate with the more detailed work which will gradually evolve under Task 6.

Subtask 6.11 - Preliminary Design of Watana Dam

More detailed layouts for three additional Watana arrangements are nearing completion. Much of the work that has been done under this subtask relates to other subtasks for the spillways, power facilities, etc. Quantities and costing of these layouts will be done under these subtasks.

Subtask 6.12 - Preliminary Design of Devil Canyon Dam

A dynamic analysis on the arch dam has been carried out based on the preliminary acceleration response spectra provided under Task 4. This work was carried out partly under Subtask 5.08 to confirm technical feasibility but predominantly under Task 6.12 as the necessarily detailed approach dictated.

Development of three alternative layouts for Devil Canyon is nearing completion, and these will be costed under upcoming subtasks.

Subtask 6.14 - Spillway Design Criteria

An abbreviated criteria has been incorporated under the general criteria established in Subtasks 6.09 and 6.10. This is presently being expanded and incorporated into a more detailed criteria under this subtask. Studies on scour below spillway chutes is well underway and is scheduled for completion by mid-May.

Subtask 6.15 - Watana Spillway Alternatives

Alternative spillway arrangements are presently being examined under Subtask 6.11. Future work will be done under Subtask 6.15 and upcoming subtasks.

Subtask 6.16 - Devil Canyon Spillway Alternatives

Alternative spillway arrangements are presently being examined under Subtask 6.12. Future work will be done under Subtask 6.16 and upcoming subtasks.

Subtask 6.23 - Optimize Watana Power Development

Subtask 6.24 - Optimize Devil Canyon Power Development

Methodology and computer modelling for optimization of the dam heights, installed capacities, and operating rules are being finalized. Detailed studies will commence shortly.

TASK 7 - ENVIRONMENTAL STUDIES

ACRES ACTIVITIES

Acres continued review and coordination of the work being performed by TES under Task 7. A meeting was held with the Susitna Hydro Steering Committee to discuss our response to their comments on the TES procedure manuals. Prior to this meeting, representatives from Acres and TES met with numerous state and federal agencies to discuss the environmental studies to date and any concerns these agencies had regarding our present studies. A meeting was held with FERC to discuss the status of existing studies.

Potential modifications to the existing environmental program, in response to concerns raised to date, were discussed with APA. Acres is presently in the process of further documenting these proposed changes to be forwarded to APA for recommended inclusion in the Phase I studies.

To ensure that major Susitna recommendations receive an adequate integration of economic, technical, and environmental input, considerable effort was spent on developing the basis of a decision making process that would be applied to development selection, design optimization, corridor selection, and construction camp facilities. It was agreed with APA that this process will be presented to the Steering Committee using development selection as an example.

Acres continued coordination of environmental input into the access road and transmission line studies. Alternatives are presently being assessed to determine what corridors should be studied in more detail during the 1981 field season.

Through the services of Woody Trihey, Acres continued to coordinate the development of an instream flow work plan. The initial task of identifying existing instream flow concerns has been completed by Linda Dwight. Assistance and coordination is being provided to ADF&G, TES, and R&M through Woody Trihey.

Request for proposals to conduct the sociocultural program were sent to four potential consultants. A bidders meeting was held in April with proposals requested by May 11, 1981.

Efforts continue on the finalization of the 1980 annual reports, updating of procedure manuals, modifications to existing Phase I scope of work, and implementation of the 1981 field program. The ramifications of retaining more than one access road corridor for the 1981 field study and of preparing the feasibility report in draft form by March 15, 1982, are presently being assessed.

TES ACTIVITIES

Subtask 7.01 - Administration

TES reviewed the environmental chapter of the APA report submitted to the legislature in March. TES submitted general comments to Acres in a letter dated May 1, 1981. TES's comments on the report by L. Dwight and W. Trihey regarding agency concerns related to instream flow were submitted to Acres on April 2. In response to a request made by John Hayden on April 9, TES prepared a special report on the status of the environmental program and submitted it on April 16. This status report was prepared for Acres' use at a meeting with FERC.

Revisions to 1980 Annual Reports from TES subcontractors continued. One of these reports (Birds and Non-game Mammals) was completed and submitted to Acres, and TES initiated compilation of a Summary Annual Report for 1980. TES subcontractors were requested to prepare amendments to Subtask Procedures Manuals, and were provided with format guidelines.

As the result of a coordination meeting between Acres and TES, TES's Alaska Resident Manager set up a series of agency contact meetings for the week of April 6. A total of 16 agencies/departments were contacted and a total of 33 individuals listened to the TES Susitna Project environmental status presentation and were given a chance to express their concerns or identify potential problem areas.

TES attended the Steering Committee Meeting on April 13, 1981.

Subtask 7.02 - Monitoring of Field Activities

On April 10, the TES Field Representative traveled to the Watana Base Camp area to observe the procedure followed to shoot seismic lines, as well as, to observe the extent of any resulting ground disturbance.

Subtask 7.05 - Socioeconomic Analysis

Frank Orth & Associates continued work on Work Package 4, Forecast of Socioeconomic Conditions without Susitna, development of forecasting model. TES completed an extensive review of the Socioeconomic Annual Report and transmitted comments to FO&A. Additions and revisions were initiated in April.

Subtask 7.06 - Cultural Resource Investigation

On April 3, 1981, a meeting was held at the University of Alaska Museum, Fairbanks to discuss technical aspects of the 1981 field season, production of the 1981 Semi-annual Report, and the final report on cultural resources were discussed.

Subtask 7.07 - Land Use Analysis

The University of Alaska commenced revision of the Land Use Annual Report. Several major additions to the report are planned.

Subtask 7.08 - Recreation Planning

TES held discussions relative to the schedule for Recreation Planning in response to the dynamic nature of Acres' schedule for selection of an access plan. A revised, tentative schedule has been established.

Subtask 7.10 - Fish Ecology Studies

Activities of the Fish Ecology Study Team during the month of April 1981 were similar to those of the previous month. Editorial changes were made in the Fish Ecology Annual Report and only final preparation remains. Literature searches on impact and mitigation material continued with several references on Canadian hydroelectric facilities being procured. References have also been obtained for the Cook Inlet estuary and the life history ecology of several resident fish species of the Susitna River.

Assistance was again rendered by D. Schmidt to ADF&G in the final preparation of the ADF&G Procedures Manual. TES received a draft copy of the Anadromous Adult (AA) section of the manual from ADF&G, reviewed the material, and have returned their comments and suggestions to Acres and to Tom Trent, as requested.

Subtask 7.11 - Wildlife Ecology Studies

During April, effort was expended finalizing the 1980 Annual Reports. Discussions and correspondence took place to prepare for the upcoming field season and, where deemed necessary, minor improvements were made to the field sampling program. During the early part of April a preliminary outline of the wildlife mitigation policy statement was sent to the APA for review and comment.

Field studies were also conducted during April. Furbearer studies included the continued monitoring of radio-collared marten and foxes as well as the collection of other types of furbearer data. By mid-April the extensive avian survey was initiated for 1981 in order to document the extent and timing of spring migration.

Subtask 7.12 - Plant Ecology Studies

TES met with AES personnel to discuss finalization of 1980 Annual Report, downstream study methods, and the upcoming field season schedule. The AES submitted the 1" = 1 mile vegetation/habitat cover maps. These maps were distributed to all environmental study participants. Downstream methods planned by ADF&G were also discussed with Karl Schneider (Anchorage) and Ron Modafferri (Fairbanks). A Steering Committee meeting was attended in Anchorage and a summary of downstream efforts planned for 1981 was presented. Finally, TES requested information from Acres on the pre and post-project ice conditions below Devil Canyon.

Subtask 7.14 - Access Road Environmental Analysis

Little progress was made in April concerning access routes, pending the decision to either select a route for further study or carry through several alternatives for further study this summer.

TASK 8 - TRANSMISSION

General

During this month, Acres contacted the following utilities and arranged meetings with each utility as follows:

<u>Utility</u>	<u>Date of Meeting</u>
Golden Valley Electric Association, Inc.	April 28
Fairbanks Municipal Utilities System	April 28
Matanuska Electric Association, Inc.	April 29
Anchorage Municipal Light & Power	April 30
Chugach Electric Association, Inc.	May 1

E. N. Shadeed met with each utility and described the main aspects of the electrical system studies and the preliminary single line diagram of the proposed 345 KV transmission system. Discussions also took place with regard to the utility's interconnecting with the 345 KV system and location of the dispatch center.

Subtask 8.01 - Transmission Line Corridor Screening

The close-out report was completed in draft form and is presently being circulated internally for comments.

Subtask 8.02 - Electric System Studies

Computer analysis of the 345 KV electrical system performance was continued. Additional load flow analyses were carried out to simulate the effect of transmission outages. Stability analyses were performed to check the system's behavior with various disturbances for the alternative transmission schemes (for example, two and three circuits from Devil Canyon to Anchorage).

Subtask 8.03 - Route Selection

The preliminary center line of the route has been plotted on USGS maps. As input from other tasks is received, they are used to modify the transmission line route where necessary.

Subtask 8.04 - Tower, Hardware and Conductor Studies

Work continued on this subtask to establish the most feasible tower configuration. A meeting was held in AAI Buffalo offices with ITT Meyers to discuss tower types and hardware use in Alaska. Problems encountered in construction of transmission lines in Alaska were also discussed.

Subtask 8.05 - Substations

Meetings were held with each of the Railbelt utilities, as listed above, to discuss the location of the substations that will interconnect with their systems.

Subtask 8.06 - Dispatch Center and Communications

Location of the dispatch center for the 345 KV system was also discussed with the above mentioned utilities. Most agreed that Willow would be acceptable.

TASK 10 - LICENSING

ACRES ACTIVITIES

Efforts continued on updating the licensing design transmittal, focusing on the areas of new and revised state regulations, the new FERC filing regulations and information gathered over the first fifteen months of study.

A meeting was held April 21 with the FERC staff. The purpose of the meeting was to brief the staff on study progress and to get staff input on several key issues including coordination, transmission lines and project licensing format. The FERC representatives also asked several questions about electrical load growth projections, fishery programs and alternatives to the project. A memorandum of the meeting documented this activity.

TASK 11 - MARKETING AND FINANCE

Subtask 11.01 - Project Overview Preparation and Update

Draft chapters from the Unabridged Version of the Project Overview Report (POR) were distributed to the original authors with a request for review and update to conform to project changes which had occurred since original versions were written. A decision was made by the Project Manager on April 28, 1981, to hold up further work on the unabridged POR (planned for publication as an appendix to the earlier issued summary version). The draft of the POR which has been furnished to the power authority in February served its purpose in providing information supporting the power authority's report to the governor. Funds can be saved if a final version of the unabridged POR is not published until a later milestone.

TASK 12 - PUBLIC PARTICIPATION

The proposed 1981/1982 workshop and public participation program were discussed with APA. Comments are presently being formulated.

Due to Task 7 commitments the Action List program under Task 12 has not received the attention it deserves. As a means to rectify this situation, an additional staff member has been assigned to coordinate the effort. Outstanding Action List responses will be forwarded to APA in the near future.

TASK 13 - ADMINISTRATION

Subtask 13.04 - Scheduling

Work began in April to update the project master schedule to work completed as of May 4, 1981, with appropriate changes in logic and duration. Modification of network logic was also initiated to reflect in greater detail the relationships of Task 6 and Task 7 with the project master schedule. Preliminary discussions were also initiated to incorporate the revised FERC exhibits requirements into the overall schedule.

Subtask 13.05 - Cost Control

During the month the insurance policies were obtained from all subcontractors, except for Retherford's, and sent to APA for review. Based on the lack of response from our subcontractors regarding estimating the effects of escalation, we had to issue additional instructions and a form to assist in this calculation. Also, we estimated the total cost for the project including overruns, scope changes and escalation. The basic program was estimated at \$26,799M, cost overruns at \$1,947M and scope changes at \$1,278M. Other administrative function continues as usual.

Cost control activities in Anchorage continued throughout the month, coding and tracking ADF&G purchases. In addition, a detailed inventory control was initiated comparing the inventory list against the invoice cost and date of purchase of all project equipment in Alaska.

TASK 14 - ADF&G SUPPORT

In addition to routine office activities, purchasing of equipment for ADF&G fisheries studies continued throughout the month. A total of approximately 600,000 dollars has been expended to date. A total of six vehicles were received and registered to ADF&G.

The Assistant Coordinator also spent considerable time reviewing and working with the project leaders on their respective portions of the Procedures Manual.

The Maintenance Worker has been steadily involved with preparing equipment for this coming summer field season.

Other administrative duties were completed as assigned.

FIELD STUDIES

Adult Anadromous

No field work was conducted this month. The fishwheel construction is on schedule with almost all the individual components complete. Fourteen riverboats have been stored at Elmendorf Fish Hatchery in preparation for use this summer.

Aquatic Habitat

One AH crew person spent 10 days in the Gold Creek area where late winter sampling, equipment and logistics problems were identified. Another AH crew person was scheduled to travel to the Gold Creek area to place posts for staff gages but had to cancel the trip because of unsafe river conditions.

Resident and Juvenile Anadromous

The RJ crews were in the field according to the following schedule:

Field Crew Activities

<u>Dates</u>	<u>Areas Sampled</u>	<u>Personnel</u>
4/4-4/13	Gold Creek Area (Curry to Slough 21)	Crawford, Dugan, Mauney, Sautner, Stratton
4/9-4/11	Portage Creek	Delaney, Sundet
4/15-4/22	Indian River	Quinn, Roth, Sundet
4/25-4/29	Gold Creek Area (Slough 9A to Indian River)	Crawford, Kuntz
4/28-4/31	Montana Creek Area (Rustic Wilderness to Cache Creek)	Dugan, Quinn, Roth, Suchanek, Sundet

Field work has been restricted this month due to melting snow and ice on access trails and dangerous ice conditions on the river as break up approaches.

Data Summary

Early this month age 0+ emergent salmon fry made their appearance for the first time. Chinook coho, chum, and pink fry in the 20-30 mm length category were (1) dug out of the gravel, (2) dip netted in minnow seines, and (3) visual counts were recorded for free swimming individuals and

Dr. John Hayden

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May 7, 1981

schools.

During the last week of April, Resident populations of grayling have begun to move from the mainstem Susitna back into the tributary streams in the lower Susitna River. Crews began gillnetting and tagging grayling between Rustic Wilderness and Cache Creek on April 28th. To date approximately 110 adult grayling have been tagged with Floy Tags and released.

Boats and Rafts

Two 22 foot Wooldridge jet boats arrived from Seattle this month. Both have been tested on Finger Lake. After Bob Dieryck makes a few minor adjustments to the jet engines, they will be ready to go as soon as the ice is out on the Susitna River.

The Devil Canyon to Tyone crew also received their inflatable rafts. They have been outfitted and test run on the Kenai River.

Sincerely,

Christopher Estes

For Thomas W. Trent
Aquatic Studies Coordinator
Su Hydro Aquatic Studies
Telephone: (907) 274-7583

cc: V. Lucid
J. Gill
D. Schmidt
D. Wozniak
M. Warner

Table 1. Catch breakdown by sampling area for the Susitna River Resident and Juvenile Anadromous Study, April 1981.

SAMPLING AREAS	CATCHES ^{1/}							
	CHINOOK FRY	COHO FRY	SOCKEYE FRY	PINK FRY	BURBOT	RAINBOW TROUT	SLIMY SCULPIN	GRAYLING
1) Gold Creek Area (Curry-Slough 21) 4/4-4/15	58(1+)	9(1+)	∅	∅	∅	1	7	∅
2) Portage Creek ^{2/} 4/9-4/11	-	-	-	-	-	-	-	-
3) Indian River 4/15-4/17	2(0+)	∅	∅	1	∅	∅	2	∅
4) Montana Creek Area (Grays Creek to Rabideux Creek) 4/17-4/22	∅	1(1+) 1(2+)	∅	∅	∅	∅	1	2
5) Gold Creek Area (Slough 9A to Indian River) 4/25-4/29	68+(0+)	∅	^{3/} 60-80	16	∅	∅	∅	∅
TOTALS	70(0+) 59(1+)	10(1+) 1(2+)	60-80	17	∅	1	10	2

^{1/} The following sampling techniques were employed: minnow traps, trot lines, burbot sets, gillnets, rod and reel, and dip netting.

^{2/} Data currently not available. Catches believed to consist of 1 chinook fry (age 1+) and possibly a few slimy sculpins.

^{3/} Positive species identification of these fry will be determined following further lab work.

CPM ANALYSIS LISTING

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL	
20400	20000	59	R	OFA C2	2022	FIELD CAMP OPERATIONS	4MAY81	18JUN82	11MAY81	25JUN82	1	1	
20400	20600	59	R	OFA C2	203	RESUPPLY & EMERGENCY SERVICE	4MAY81	18JUN82	11MAY81	25JUN82	1	1	
215A0	215B0	0		OFA 1 C3	204XX	EXHIBIT F MATERIAL COMPLETE	4MAY81	1MAY81	30NOV81	27NOV81	30	29	
21700	220A0	3		OFA C2	205	LAND ACQUISITION ANALYSIS	CT-1 4MAY81	22MAY81	20JUL81	7AUG81	11	0	
220A0	22000	2		OFA C2	205	LAND ACQUISITION ANALYSIS	FIN 25MAY81	5JUN81	10AUG81	21AUG81	11	11	
21000	21100	21	R	OFA C2	206	RIGHT OF ENTRY	FIN 4MAY81	25SEP81	1FEB82	25JUN82	39	39	
25200	25400	2	R	OFA C3	207	SITE SPECIFIC SURVEYS	CT-1 4MAY81	15MAY81	1JUN81	12JUN81	4	0	
25400	25500	7		OFA C3	207	SITE SPECIFIC SURVEY	FIN 18MAY81	3JUL81	15JUN81	31JUL81	4	0	
23200	23400	3	R	OFA C3	2081	AIR PHOTOS & MAPPING-1980	FIN 4MAY81	22MAY81	4MAY81	22MAY81	0	0	
24100	241A0	3		OFA C3	2082	AIR PHOTOS & MAPPING-1981	CT-1 4MAY81	22MAY81	8JUN81	26JUN81	5	0	CRITICAL
241A0	24200	7		OFA C3	2082	AIR PHOTOS & MAPPING-1981	FIN 25MAY81	10JUL81	29JUN81	14AUG81	5	0	
22300	22400	1	R	OFA C3	210	ACCESS ROAD	CT-1 4MAY81	8MAY81	25MAY81	29MAY81	3	0	
22400	22600	2		OFA C3	210	ACCESS ROAD	CT-2 25MAY81	5JUN81	1JUN81	12JUN81	1	0	
22600	22800	10		OFA C3	210	ACCESS ROAD	FIN 8JUN81	14AUG81	15JUN81	21AUG81	1	0	
26600	26800	4	R	OFA C4	212	FIELD RECON FOR RSRVR CLEAR	FIN 4MAY81	29MAY81	18MAY81	12JUN81	2	0	
27600	27700	2		OFA C3	213	MARKETABLY & DISPOSAL STDY	ST 4MAY81	15MAY81	22JUN81	3JUL81	7	0	
27700	27200	3		OFA C3	213	MARKETABLY & DISPOSAL STDY	FIN 18MAY81	5JUN81	6JUL81	24JUL81	7	0	
27000	27200	2		OFA C3	214	CST ESTMTS RSVR CLEARING	ST 4MAY81	15MAY81	13JUL81	24JUL81	10	0	
27200	27400	3		OFA C3	214	CST ESTMTS RSVR CLEARING	FIN 9JUN81	26JUN81	7SEP81	25SEP81	13	0	
25800	26000	4		OFA C4	215	SLOPE EROSION & STBLTY STUDY	ST 4MAY81	29MAY81	18MAY81	12JUN81	2	0	
26000	26200	4		OFA C4	215	SLOPE EROSION & STBLTY STUDY	FIN 1JUN81	26JUN81	6JUL81	31JUL81	5	0	
24600	24800	4	R	OFA C3	216	HYDROGRAPHIC SURVEYS	FIN 4MAY81	29MAY81	3AUG81	28AUG81	13	11	
36600	36800	45	R	DPB 1 C4	3022	FIELD DATA INDEX OPERATION	4MAY81	12MAR82	25MAY81	2APR82	3	0	
37600	37700	22	R	DPB 1 C4	3033	FIELD DATA COLLECTION 81-82	ST 4MAY81	20OCT81	1JUN81	30OCT81	4	0	
37700	37800	22		DPB 1 C4	3033	FIELD DATA COLLECTION 81-82	FIN 5OCT81	5MAR82	2NOV81	2APR82	4	4	
33500	34600	2		DPB 1 C4	3041	WATER RSRCS-FLOW EXTENSION	FIN 4MAY81	15MAY81	30NOV81	11DEC81	30	30	
33300	34600	4		DPB 1 C4	3042	WATER RSRCS-FREQ ANALYSIS	4MAY81	29MAY81	16NOV81	11DEC81	28	28	
34400	344A0	6	R	DPB 1 C4	3043	WATER RSRCS-RESERVOIR STUDY	CT-1 4MAY81	12JUN81	4MAY81	12JUN81	0	0	CRITICAL
344A0	34500	6		DPB 1 C4	3043	WATER RSRCS-RESERVOIR STUDY	CT-2 15JUN81	24JUL81	15JUN81	24JUL81	0	0	CRITICAL
34500	34600	20		DPB 1 C4	3043	WATER RSRCS-RESERVOIR STUDY	CT-3 27JUL81	11DEC81	27JUL81	11DEC81	0	0	CRITICAL
34600	34800	6		DPB 1 C4	3043	WATER RSRCS-RESERVOIR STUDY	FIN 14DEC81	22JAN82	21DEC81	29JAN82	1	0	
35000	35200	4		DPB 1 C4	3044	WATER RSRCS-PRE&POST PROJECT	ST 14DEC81	8JAN82	14DEC81	8JAN82	0	0	CRITICAL
35200	35400	4		DPB 1 C4	3044	WATER RSRCS-PRE&POST PROJECT	FIN 11JAN82	5FEB82	11JAN82	5FEB82	0	0	CRITICAL
33700	33900	8		DPB 1 C4	3045	EVAPORATION STUDIES	4MAY81	26JUN81	8JUN81	31JUL81	5	0	
39600	39800	46	R	DPB 1 C4	3046	WATER RSRCS-GLACIAL STUDIES	4MAY81	19MAR82	18MAY81	2APR82	2	0	
35400	354A0	0		DPB 1 C4	304XX	EXHIBIT H MATERIAL COMPLETE	8FEB82	5FEB82	19APR82	16APR82	10	10	
35400	354B0	0		DPB 1 C4	304XX	EXHIBIT I MATERIAL COMPLETE	8FEB82	5FEB82	19APR82	16APR82	10	10	
32700	32900	1	R	DPB 1 C4	3051	FLOODS-FREQUENCY ANALYSIS	4MAY81	8MAY81	11MAY81	15MAY81	1	0	
32800	32400	1	R	DPB 1 C4	3052	FLOODS PMF REVIEW	4MAY81	8MAY81	11MAY81	15MAY81	1	0	
31800	32000	10	R	DPB 1 C4	3053	FLOODS-RESERVOIR ROUTING	CT-1 4MAY81	10JUL81	19OCT81	25DEC81	24	18	
32000	32200	5		DPB 1 C4	3053	FLOODS-RESERVOIR ROUTING	FIN 16NOV81	18DEC81	28DEC81	29JAN82	6	0	
30200	30400	15	R	DPB 1 C4	3061	HYDR LICS & ICE WTR LVLS	CT-1 4MAY81	14AUG81	18MAY81	28AUG81	2	0	
30400	30600	17		DPB 1 C4	3061	HYDR LICS & ICE WTR LVLS	FIN 17AUG81	11DEC81	5OCT81	29JAN82	7	0	
39000	39100	8		DPB 1 C4	3063	HYDR&ICE-RESER SLIDE SURGE	FIN 4MAY81	26JUN81	22JUN81	14AUG81	7	0	
39200	39300	8		DPB 1 C4	3064	HYDR&ICE-RSVR TEMP REGIME	4MAY81	26JUN81	22JUN81	14AUG81	7	0	
35600	35800	3	R	DPB 1 C4	3071	SEDIMENT YIELD & DEPOSITION	ST 4MAY81	22MAY81	27JUL81	14AUG81	12	0	
35800	36000	6		DPB 1 C4	3071	SEDIMENT YIELD & DEPOSITION	FIN 13JUL81	21AUG81	21SEP81	30OCT81	10	0	

CPM ANALYSIS LISTING

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL	
33600	33800	14	OPB	1 C4	3072 RIVER MORPHOLOGY	CT-1	24AUG81	27NOV81	2NOV81	5FEB82	10	10	
33800	34000	4	OPB	1 C4	3072 RIVER MORPHOLOGY	FIN	8FEB82	5MAR82	9FEB82	5MAR82	0	0	
38200	38400	4 R	OPB	1 C4	3082 TRANSMN LINE-DET PARAMTR	ST	4MAY81	29MAY81	11MAY81	5JUN81	1	0	CRITICAL
38400	38600	4	OPB	1 C4	3082 TRANSMN LINE-DET PARAMTR	FIN	1JUN81	26JUN81	8JUN81	3JUL81	1	0	
31100	31300	10 R	OPB	1 C4	309 ACCESS ROADS HYDROLOGY	ST	25MAY81	31JUL81	7DEC81	12FEB82	28	28	
31200	31500	17	OPB	C4	3102 LWR SUSITNA STUDIES-FOLLOWUP	ST	4MAY81	28AUG81	4MAY81	28AUG81	0	0	CRITICAL
31500	31400	22	OPB	C4	3102 LWR SUSITNA STUDIES-FOLLOWUP	FIN	31AUG81	29JAN82	31AUG81	29JAN82	0	0	CRITICAL
45800	46000	9 R	OPB	1 C1	408 DAM STABILITY	CT-1	4MAY81	3JUL81	1JUN81	31JUL81	4	0	
46000	46200	6	OPB	1 C1	408 DAM STABILITY	FIN	6JUL81	14AUG81	17MAY82	25JUN82	45	45	
42800	43000	27 R	OPA	C4	409 LONG TERM MONITORING PROGRAM	ST	4MAY81	6NOV81	21DEC81	25JUN82	33	33	
40200	41800	5 R	OPB	1 C1	410 RESERVOIR INDUCED SEISMICITY	ST	4MAY81	5JUN81	5OCT81	6NOV81	22	22	
42400	42600	16 R	OPA	C4	411 SEISMIC GEOLOGY-FIELD STUDY	ST	4MAY81	21AUG81	8MAR82	25JUN82	44	44	
41400	41600	25 R	OPB	1 C1	412 EVALUATION & REPORT DRAFT	ST	4MAY81	23OCT81	4MAY81	23OCT81	0	0	CRITICAL
41600	41800	2	OPB	1 C1	412 EVALUATION & REPORT DRAFT	CT-1	26OCT81	6NOV81	26OCT81	6NOV81	0	0	CRITICAL
41800	42000	4	OPB	1 C1	412 EVALUATION & REPORT DRAFT	FIN	9NOV81	4DEC81	9NOV81	4DEC81	0	0	CRITICAL
44400	44600	11 R	OPB	1 C1	413 GROUND MOTION STUDIES	ST	4MAY81	17JUL81	11MAY81	24JUL81	1	0	CRITICAL
44600	41800	15 R	OPB	1 C1	413 GROUND MOTION STUDIES	FIN	20JUL81	30OCT81	27JUL81	6NOV81	1	0	
45600	41800	26 R	OPB	1 C1	414 DAM STABILITY CONSULTING	ST	4MAY81	30OCT81	11MAY81	6NOV81	1	0	
45200	45300	2 R	OPB	1 C1	415 SOIL SUSCEPTBTY-SEISMIC FAIL	ST	4MAY81	15MAY81	4MAY81	15MAY81	0	0	CRITICAL
45300	45400	14	OPB	1 C1	415 SOIL SUSCEPTBTY-SEISMIC FAIL	CT-1	18MAY81	21AUG81	18MAY81	21AUG81	0	0	CRITICAL
45400	45700	6	OPB	1 C1	415 SOIL SUSCEPTBTY-SEISMIC FAIL	FIN	24AUG81	2OCT81	14DEC81	22JAN82	16	16	
52200	52600	2 R	OPB	1 C1	505 1981 PROGRAM DESIGN	FIN	4MAY81	15MAY81	4MAY81	15MAY81	0	0	CRITICAL
52400	52600	2 R	OPA	C4	506 1981 EXPLORATION PROGRAM	ST	4MAY81	15MAY81	4MAY81	15MAY81	0	0	CRITICAL
52600	526A0	15	OPA	C4	506 1981 EXPLORATION PROGRAM	CT-1	18MAY81	28AUG81	18MAY81	28AUG81	0	0	CRITICAL
526A0	52700	5	OPA	C4	506 1981 EXPLORATION PROGRAM	FIN	31AUG81	2OCT81	31AUG81	2OCT81	0	0	CRITICAL
53800	54000	9	OPB	1 C1	507 1982-4 PROGRAM DESIGN	ST	6JUL81	4SEP81	1FEB82	2APR82	30	30	
51600	51800	6 R	OPB	1 C1	5081 DATA ASSEMBLY-1980	FIN	4MAY81	12JUN81	22JUN81	31JUL81	7	7	
53000	53200	19	OPB	1 C1	5082 DATA ASSEMBLY-181 DRAFT	CT-1	4MAY81	11SEP81	25MAY81	2OCT81	3	3	
53200	53300	3	OPB	1 C1	5082 DATA ASSEMBLY-1981 DRAFT	FIN	5OCT81	23OCT81	1MAR82	19MAR82	21	21	
53400	53500	3	OPB	1 C1	5083 DATA ASSEMBLY FINAL-DRAFT	ST	5OCT81	23OCT81	1MAR82	19MAR82	21	21	
53500	53600	4	OPB	1 C1	5083 DATA ASSEMBLY FINAL-DRAFT	FIN	26OCT81	20NOV81	22MAR82	16APR82	21	21	
67100	67200	2	OPB	1 C4	6052 SELECT REPORT FINAL DRAFT	FIN	4MAY81	15MAY81	11MAY81	22MAY81	1	1	
67200	672A0	3	OPB	1 C4	6053 SELECT REPORT FINAL EDITION	FIN	25MAY81	12JUN81	25MAY81	12JUN81	0	0	CRITICAL
631A0	63200	4 R	OPB	1 C5	607 PRELIM WATANA DAM ALTERNATES	CT-2	4MAY81	29MAY81	20JUL81	14AUG81	11	11	
63200	63300	1	OPB	1 C5	607 PRELIM WATANA DAM ALTERNATES	CT-3	6JUL81	10JUL81	17AUG81	21AUG81	6	6	
63300	633A0	0	OPB	1 C5	607 PRELIM WATANA DAM ALTERNATES	FIN	3AUG81	31JUL81	24AUG81	21AUG81	3	3	
64600	64700	2 R	OPB	1 C6	608 PRELIM DEVIL CANYON DAM ALT	CT-2	4MAY81	15MAY81	20JUL81	31JUL81	11	11	
64700	64800	0	OPB	1 C6	608 PRELIM DEVIL CANYON DAM ALT	FIN	3AUG81	31JUL81	3AUG81	31JUL81	0	0	CRITICAL
69300	69400	5 R	OPB	1 C4	609 ESTAB WATANA DESIGN CRITERIA	CT-2	13JUL81	14AUG81	31AUG81	2OCT81	7	7	
69400	69500	1	OPB	1 C4	609 ESTAB WATANA DESIGN CRITERIA	FIN	5OCT81	9OCT81	5OCT81	9OCT81	0	0	CRITICAL
63500	63600	2 R	OPB	1 C4	610 ESTAB DEVIL CANYN DESGN CRIT	CT-1	15JUN81	26JUN81	3AUG81	14AUG81	7	7	
63600	63700	7	OPB	1 C4	610 ESTAB DEVIL CANYN DESGN CRIT	CT-2	13JUL81	28AUG81	17AUG81	2OCT81	5	5	
63700	63800	1	OPB	1 C4	610 ESTAB DEVIL CANYN DESGN CRIT	FIN	5OCT81	9OCT81	5OCT81	9OCT81	0	0	CRITICAL
66200	66300	5 R	OPB	1 C5	611 PRELIM DESIGN WATANA DAM	ST	4MAY81	5JUN81	31AUG81	2OCT81	17	17	
66300	66400	9	OPB	1 C5	611 PRELIM DESIGN WATANA DAM	CT-1	5OCT81	4DEC81	5OCT81	4DEC81	0	0	CRITICAL
66400	66500	4	OPB	1 C5	611 PRELIM DESIGN WATANA DAM	FIN	7DEC81	1JAN82	7DEC81	1JAN82	0	0	CRITICAL
65200	65300	10	OPB	1 C6	612 PREL DESIGN DEVIL CANYON DAM	ST	3AUG81	9OCT81	3AUG81	9OCT81	0	0	CRITICAL
65300	65400	8	OPB	1 C6	612 PREL DESIGN DEVIL CANYON DAM	CT-1	12OCT81	4DEC81	12OCT81	4DEC81	0	0	CRITICAL
65400	65500	4	OPB	1 C6	612 PREL DESIGN DEVIL CANYON DAM	FIN	7DEC81	1JAN82	7DEC81	1JAN82	0	0	CRITICAL
69800	69900	11	OPB	1 C4	613 DAM SELECTION REPORT-DRAFT	ST	3AUG81	13OCT81	19OCT81	1JAN82	11	11	
69900	68500	5	OPB	1 C4	613 DAM SELECTION REPORT-DRAFT	FIN	4JAN82	5FEB82	4JAN82	5FEB82	0	0	CRITICAL

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CPM ANALYSIS LISTING

REP01

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL	
61100	61200	1	R	OPB 1 C4	614 SPILLWAY DESIGN CRITERIA	ST	4MAY81	8MAY81	11MAY81	15MAY81	1	0	1
61200	61300	8		OPB 1 C4	614 SPILLWAY DESIGN CRITERIA	FIN	11MAY81	3JUL81	18MAY81	10JUL81	1	0	1
60300	60700	10		OPB 1 C5	615 WATANA SPILLWAY ALTERNATIVES	FIN	17AUG81	23OCT81	24AUG81	30OCT81	1	0	1
61300	60600	6		OPB 1 C5	615 WATANA SPILLWAY ALTERNATIVES	ST	6JUL81	14AUG81	13JUL81	21AUG81	1	0	1
61300	61400	3		OPB 1 C6	616 DEVL CAN SPILLWAY ALTERNATIVE	ST	6JUL81	24JUL81	20JUL81	7AUG81	2	0	1
61400	61500	8		OPB 1 C6	616 DEVL CAN SPILLWAY ALTERNATIVE	FIN	3AUG81	25SEP81	10AUG81	20OCT81	1	0	1
621A0	62200	4		OPB 1 C5	617 PRELIM DESGN WATANA SPILLWAY	ST	4MAY81	29MAY81	5OCT81	30OCT81	22	21	1
62200	62300	4		OPB 1 C5	617 PRELIM DESGN WATANA SPILLWAY	CT-1	26OCT81	20NOV81	2NOV81	27NOV81	1	0	1
62300	62400	10		OPB 1 C5	617 PRELIM DESGN WATANA SPILLWAY	FIN	23NOV81	29JAN82	30NOV81	5FEB82	1	0	1
61500	61600	6		OPB 1 C6	618 PRELIM DES DEVIL CAN SPILWAY	ST	28SEP81	6NOV81	5OCT81	13NOV81	1	0	1
61600	61700	12		OPB 1 C6	618 PRELIM DES DEVIL CAN SPILWAY	FIN	9NOV81	29JAN82	16NOV81	5FEB82	1	0	1
64900	65000	6		OPB 1 C4	619 SPILLWAY SELECTN REPT-DRAFT	ST	26OCT81	4DEC81	28DEC81	5FEB82	9	8	1
65000	65100	5		OPB 1 C4	619 SPILLWAY SELECTN REPT-DRAFT	FIN	1FEB82	5MAR82	8FEB82	12MAR82	1	1	1
6A000	6A100	3		OPB 1 C5	620 ACCESS & CAMP FACILITIES	ST	4MAY81	22MAY81	3AUG81	21AUG81	13	13	1
6A100	6A200	8		OPB 1 C5	620 ACCESS & CAMP FACILITIES	FIN	24AUG81	16OCT81	24AUG81	16OCT81	0	0	1
60000	60100	6		OPB 1 C5	621 WATANA DIVERSION SCHEMES	ST	4MAY81	12JUN81	21SEP81	30OCT81	20	19	1
60100	60200	8		OPB 1 C5	621 WATANA DIVERSION SCHEMES	FIN	26OCT81	12DEC81	2NOV81	25DEC81	1	0	1
67300	67400	11		OPB 1 C6	622 DEVIL CANYON DIVERSN SCHEMES	ST	4MAY81	30JUL81	12OCT81	25DEC81	23	10	1
67400	67500	0		OPB 1 C6	622 DEVIL CANYON DIVERSN SCHEMES	FIN	28SEP81	25SEP81	28DEC81	25DEC81	13	0	1
61800	61900	6		OPB 1 C4	623 OPT WATANA POWER DEVELOPMENT	ST	3AUG81	11SEP81	24AUG81	20OCT81	3	3	1
61900	62000	8		OPB 1 C4	623 OPT WATANA POWER DEVELOPMENT	CT-1	5OCT81	27NOV81	5OCT81	27NOV81	0	0	1
62000	62100	5		OPB 1 C4	623 OPT WATANA POWER DEVELOPMENT	FIN	30NOV81	1JAN82	30NOV81	1JAN82	0	0	1
65600	65700	6		OPB 1 C4	624 OPT DEVL CANYN POWER DEVELOP	ST	5OCT81	13NOV81	19OCT81	27NOV81	2	2	1
65700	65800	5		OPB 1 C4	624 OPT DEVL CANYN POWER DEVELOP	FIN	16NOV81	18DEC81	30NOV81	1JAN82	2	2	1
63900	64000	6		OPB 1 C4	625 OPTIMIZE DAM HEIGHTS	ST	4MAY81	12JUN81	23NOV81	1JAN82	29	29	1
64000	64100	5		OPB 1 C4	625 OPTIMIZE DAM HEIGHTS	CT-1	4JAN82	5FEB82	4JAN82	5FEB82	0	0	1
64100	64200	0		OPB 1 C4	625 OPTIMIZE DAM HEIGHTS	FIN	8FEB82	5FEB82	8FEB82	5FEB82	0	0	1
69500	69600	12		OPB 1 C5	626 PREL DESGN WATAN POWER DEVEL	ST	12OCT81	1JAN82	12OCT81	1JAN82	0	0	1
69600	69700	5		OPB 1 C5	626 PREL DESGN WATAN POWER DEVEL	FIN	4JAN82	5FEB82	4JAN82	5FEB82	0	0	1
66600	66700	12		OPB 1 C6	627 PREL DES DEVL CAN POWR DEVEL	ST	12OCT81	1JAN82	12OCT81	1JAN82	0	0	1
66700	66800	5		OPB 1 C6	627 PREL DES DEVL CAN POWR DEVEL	FIN	4JAN82	5FEB82	4JAN82	5FEB82	0	0	1
67600	67700	5		OPB 1 C4	628 POWER DEVELOPMNT REPT-DRAFT	ST	12OCT81	13NOV81	28DEC81	29JAN82	11	11	1
67700	67800	1		OPB 1 C4	628 POWER DEVELOPMNT REPT-DRAFT	CT-1	1FEB82	5FEB82	1FEB82	5FEB82	0	0	1
67800	67900	1		OPB 1 C4	628 POWER DEVELOPMNT REPT-DRAFT	CT-2	8FEB82	12FEB82	8FEB82	12FEB82	0	0	1
67900	68000	4		OPB 1 C4	628 POWER DEVELOPMNT REPT-DRAFT	FIN	15FEB82	12MAR82	15FEB82	12MAR82	0	0	1
60300	60400	6		OPB 1 C5	629 WATANA GENERAL ARRANGEMENT	ST	21DEC81	29JAN82	28DEC81	5FEB82	1	1	1
60400	60500	5		OPB 1 C5	629 WATANA GENERAL ARRANGEMENT	FIN	8FEB82	12MAR82	8FEB82	12MAR82	0	0	1
60500	605A0	0		OPB 1 C5	629XX EXHIBIT J MATERIAL COMPLETE		15MAR82	12MAR82	19APR82	16APR82	5	5	1
60800	60900	8		OPB 1 C6	630 DEVL CAN GENERAL ARRANGEMENT	ST	28SEP81	20NOV81	28DEC81	19FEB82	13	11	1
60900	61000	3		OPB 1 C6	630 DEVL CAN GENERAL ARRANGEMENT	FIN	8FEB82	26FEB82	22FEB82	12MAR82	2	0	1
61000	610A0	0		OPB 1 C5	630XX EXHIBIT K MATERIAL COMPLETE		1MAR82	26FEB82	15MAR82	12MAR82	2	2	1
68000	680A0	0		OPB 1 C4	630XX EXHIBIT M MATERIAL COMPLETE		15MAR82	12MAR82	19APR82	16APR82	5	5	1
68400	68500	1		OPB 1 C4	631 PROJECT FEASIBL REPORT-DRAFT	ST	19OCT81	23OCT81	1FEB82	5FEB82	15	15	1
68500	68600	4		OPB 1 C4	631 PROJECT FEASIBL REPORT-DRAFT	CT-1	8FEB82	5MAR82	8FEB82	5MAR82	0	0	1
68600	68700	1		OPB 1 C4	631 PROJECT FEASIBL REPORT-DRAFT	CT-2	8MAR82	12MAR82	8MAR82	12MAR82	0	0	1
68700	68800	3		OPB 1 C4	631 PROJECT FEASIBL REPORT-DRAFT	CT-3	15MAR82	2APR82	15MAR82	2APR82	0	0	1
68800	68900	2		OPB 1 C4	631 PROJECT FEASIBL REPORT-DRAFT	CT-4	5APR82	16APR82	5APR82	16APR82	0	0	1
68900	69000	0		OPB 1 C4	631 PROJECT FEASIBL REPORT-DRAFT	FIN	19APR82	16APR82	19APR82	16APR82	0	0	1
69000	69CA0	0		OPB 1 C4	631XX EXHIBIT L MATERIAL COMPLETE		19APR82	16APR82	19APR82	16APR82	0	0	1
6C100	6C200	5	R	OPB 1 C2	637 UPDATE GENERATION PLAN		4MAY81	5JUN81	29MAR82	30APR82	47	55	1
6B800	6B900	59	R	OPB 1 C2	638 LIAISON POWER ALTS CONSULTANT		4MAY81	18JUN82	11MAY81	25JUN82	1	1	1

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CPM ANALYSIS LISTING

REP01

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL			
71400	71500	0	OPB	1 CB	7011	STUDY COORD-ALTERNATIVE SITE	FIN	4MAY81	1MAY81	4MAY81	1MAY81	0	0	1	CRITICAL
71600	71800	13 R	OPB	1 CB	7012	STUDY COORD-PRELIM ALTERNATV	ST	4MAY81	31JUL81	4MAY81	31JUL81	0	0	1	CRITICAL
71800	72000	0	OPB	1 CB	7012	STUDY COORD-PRELIM ALTERNATV	FIN	3AUG81	31JUL81	24AUG81	21AUG81	3	3	1	CRITICAL
72000	72200	24 R	OPB	1 CB	7013	STUDY COORD-OPTIMIZED DESIGN		3AUG81	15JAN82	24AUG81	5FEB82	3	3	1	CRITICAL
79300	79400	55 R	OPB	1 CB	702	MONITOR FIELD ACTIVITIES	CT-1	4MAY81	21MAY82	8JUN81	25JUN82	5	5	1	CRITICAL
79400	79500	0	OPB	1 CB	702	MONITOR FIELD ACTIVITIES	FIN	24MAY82	21MAY82	28JUN82	25JUN82	5	5	1	CRITICAL
71600	70000	11 R	OPB	1 CB	7042	WTR RES-PRE WAT&DEVL CAN ALT		4MAY81	17JUL81	8JUN81	21AUG81	5	5	1	CRITICAL
72000	70600	24 R	OPB	1 CB	7043	WTR RES-OPT WAT&DEVL CAN DES		3AUG81	15JAN82	24AUG81	5FEB82	3	3	1	CRITICAL
73100	73300	19 R	OPB	1 CB	705	SOCIOECONOMIC ANALYSIS	CT-1	4MAY81	11SEP81	18MAY81	25SEP81	2	2	1	CRITICAL
73200	73400	9	OPB	1 CB	705	SOCIOECONOMIC ANALYSIS	FIN	8FEB82	9APR82	15FEB82	14APR82	1	1	1	CRITICAL
73300	73200	20	OPB	1 CB	705	SOCIOECONOMIC ANALYSIS	CT-2	14SEP81	29JAN82	29SEP81	12FEB82	2	2	1	CRITICAL
78600	78800	1 R	OPB	1 CB	7061	CULTURAL ALTERNATIVE SITES	ST	4MAY81	8MAY81	18MAY81	22MAY81	2	2	1	CRITICAL
78700	79000	16	OPB	1 CB	7061	CULTURAL ALTERNATIVE SITES	FIN	15JUN81	20CT81	15JUN81	20CT81	0	0	1	CRITICAL
78800	78700	3	OPB	1 CB	7061	CULTURAL ALTERNATIVE SITES	CT-1	11MAY81	29MAY81	25MAY81	12JUN81	2	2	1	CRITICAL
78900	79000	8	OPB	1 CB	7062	CULTURAL PRELIM ALTERNATIVES	ST	4MAY81	26JUN81	10AUG81	20CT81	14	14	1	CRITICAL
79000	79100	10	OPB	1 CB	7062	CULTURAL PRELIM ALTERNATIVES	CT-1	5OCT81	11DEC81	5OCT81	11DEC81	0	0	1	CRITICAL
79100	79700	0	OPB	1 CB	7062	CULTURAL PRELIM ALTERNATIVES	FIN	14DEC81	11DEC81	14DEC81	11DEC81	0	0	1	CRITICAL
79600	79700	15	OPB	1 CB	7063	CULTURAL-OPTIMIZED DESIGN	ST	4MAY81	14AUG81	31AUG81	11DEC81	17	17	1	CRITICAL
79700	79800	18	OPB	1 CB	7063	CULTURAL-OPTIMIZED DESIGN	CT-1	14DEC81	16APR82	14DEC81	16APR82	0	0	1	CRITICAL
79800	79900	0	OPB	1 CB	7063	CULTURAL-OPTIMIZED DESIGN	FIN	19APR82	16APR82	19APR82	16APR82	0	0	1	CRITICAL
79900	799A0	0	OPB	1 CB	706XX	EXHIBIT V MATERIAL COMPLETE		19APR82	16APR82	19APR82	16APR82	0	0	1	CRITICAL
75300	76000	6	OPB	1 CB	7071	LAND USE ALTERNATIVE SITES	FIN	19OCT81	27NOV81	19OCT81	27NOV81	0	0	1	CRITICAL
75400	75300	22 R	OPB	1 CB	7071	LAND USE ALTERNATIVE SITES	CT-1	4MAY81	20CT81	18MAY81	16OCT81	2	2	1	CRITICAL
75900	76000	8	OPB	1 CB	7072	LAND USE PRELIM ALTERNATIVES	ST	4MAY81	26JUN81	5OCT81	27NOV81	22	22	1	CRITICAL
76000	76100	10	OPB	1 CB	7072	LAND USE PRELIM ALTERNATIVES	CT-1	30NOV81	5FEB82	30NOV81	5FEB82	0	0	1	CRITICAL
76100	76800	0	OPB	1 CB	7072	LAND USE PRELIM ALTERNATIVES	FIN	8FEB82	5FEB82	8FEB82	5FEB82	0	0	1	CRITICAL
76700	76800	15	OPB	1 CB	7073	LAND USE OPTIMIZED DESIGN	ST	4MAY81	14AUG81	26OCT81	5FEB82	25	25	1	CRITICAL
76800	76900	20	OPB	1 CB	7073	LAND USE OPTIMIZED DESIGN	CT-1	8FEB82	25JUN82	8FEB82	25JUN82	0	0	1	CRITICAL
76900	77000	0	OPB	1 CB	7073	LAND USE OPTIMIZED DESIGN	FIN	28JUN82	25JUN82	28JUN82	25JUN82	0	0	1	CRITICAL
72500	72700	2 R	OPB	1 CB	708	RECREATION PLANNING	CT-1	17AUG81	28AUG81	14SEP81	25SEP81	4	4	1	CRITICAL
72600	72800	5	OPB	1 CB	708	RECREATION PLANNING	FIN	8FEB82	12MAR82	15MAR82	16APR82	5	5	1	CRITICAL
72700	72600	20	OPB	1 CB	708	RECREATION PLANNING	CT-2	31AUG81	15JAN82	29SEP81	12FEB82	4	4	1	CRITICAL
73500	73600	12	OPB	1 CB	7092	TRANS LINE ASSESS RTE SELCTN	CT-1	15JUN81	4SEP81	10AUG81	30OCT81	8	8	1	CRITICAL
735A0	73500	6 R	OPB	1 CB	7092	TRANS LINE ASSESS RTE SELCTN	ST	4MAY81	12JUN81	29JUN81	7AUG81	8	8	1	CRITICAL
73600	736B0	24	OPB	1 CB	7092	TRANS LINE ASSESS RTE SELCTN	FIN	7SEP81	19FEB82	2NOV81	16APR82	8	8	1	CRITICAL
73700	73800	11 R	OPB	1 CB	7101	FISH ECOLOGY ALTERNATV SITES	CT-2	7SEP81	20NOV81	5OCT81	18DEC81	4	4	1	CRITICAL
73800	74200	0	OPB	1 CB	7101	FISH ECOLOGY ALTERNATV SITES	FIN	14DEC81	11DEC81	21DEC81	18DEC81	1	1	1	CRITICAL
73900	73700	12	OPB	1 CB	7101	FISH ECOLOGY ALTERNATV SITES	CT-1	15JUN81	4SEP81	13JUL81	20CT81	4	4	1	CRITICAL
74100	74200	8	OPB	1 CB	7102	FISH ECOLOGY PRELIM ALTERNAT	ST	4MAY81	26JUN81	26OCT81	18DEC81	25	25	1	CRITICAL
74200	74300	10	OPB	1 CB	7102	FISH ECOLOGY PRELIM ALTS	CT-1	14DEC81	19FEB82	21DEC81	26FEB82	1	1	1	CRITICAL
74300	74600	0	OPB	1 CB	7102	FISH ECOLOGY PRELIM ALTERNAT	FIN	22FEB82	19FEB82	1MAR82	26FEB82	1	1	1	CRITICAL
74500	74600	15	OPB	1 CB	7103	FISH ECOLOGY OPTIMIZED DESGN	ST	4MAY81	14AUG81	16NOV81	26FEB82	28	28	1	CRITICAL
74600	74700	17	OPB	1 CB	7103	FISH ECOLOGY OPTIMIZED DESGN	CT-1	22FEB82	18JUN82	1MAR82	25JUN82	1	1	1	CRITICAL
74700	74800	0	OPB	1 CB	7103	FISH ECOLOGY OPTIMIZED DESGN	FIN	21JUN82	18JUN82	28JUN82	25JUN82	1	1	1	CRITICAL
749A0	750A0	3 R	OPB	1 CB	7111	WILDLIFE ECOLOGY ALTER SITES	CT-1	15JUN81	3JUL81	27JUL81	14AUG81	6	6	1	CRITICAL
75000	75100	10	OPB	1 CB	7111	WILDLIFE ECOLOGY ALTER SITES	FIN	19OCT81	25DEC81	30NOV81	5FEB82	6	6	1	CRITICAL
750A0	75000	15	OPB	1 CB	7111	WILDLIFE ECOLOGY ALTER SITES	CT-2	6JUL81	16OCT81	17AUG81	27NOV81	6	6	1	CRITICAL
75500	75600	8	OPB	1 CB	7112	WILDLIFE ECOLOGY PRELM ALTER	ST	4MAY81	26JUN81	5OCT81	27NOV81	22	22	1	CRITICAL
75600	75700	10	OPB	1 CB	7112	WILDLIFE ECOLOGY PRELM ALTER	CT-1	5OCT81	11DEC81	30NOV81	5FEB82	3	3	1	CRITICAL
75700	76400	0	OPB	1 CB	7112	WILDLIFE ECOLOGY PRELM ALTER	FIN	28DEC81	25DEC81	8FEB82	5FEB82	6	6	1	CRITICAL
76300	76400	15	OPB	1 CB	7113	WILDLIFE ECOLOGY OPTIM DESGN	ST	4MAY81	14AUG81	26OCT81	5FEB82	25	25	1	CRITICAL

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CFM ANALYSIS LISTING

REP01

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL
A3800	A4000	0	FLC	C110	1003XX EXHIBIT A B & C MATERIAL COMPLETE	8JUN81	5JUN81	17MAY82	14MAY82	49	49	1
A1400	A1600	9	R FLC	C110	1004 COORD EXHIBIT PREPARATION	ST 23NOV81	22JAN82	30NOV81	29JAN82	1	1	1
A1600	A16A0	1	FLC	C110	1004 COORD EXHIBIT PREPARATION	CT-1 25JAN82	29JAN82	1FEB82	5FEB82	1	1	1
A16A0	A1700	2	FLC	C110	1004 COORD EXHIBIT PREPARATION	CT-2 1FEB82	12FEB82	8FEB82	19FEB82	1	1	1
A1700	A17A0	3	FLC	C110	1004 COORD EXHIBIT PREPARATION	CT-3 15FEB82	5MAR82	22FEB82	12MAR82	1	1	1
A17A0	A17B0	2	FLC	C110	1004 COORD EXHIBIT PREPARATION	CT-4 15MAR82	26MAR82	15MAR82	26MAR82	0	0	1
A17B0	A1800	3	FLC	C110	1004 COORD EXHIBIT PREPARATION	CT-5 29MAR82	16APR82	29MAR82	16APR82	0	0	1
A1800	A2400	0	FLC	C110	1004 COORD EXHIBIT PREPARATION	FIN 19APR82	16APR82	19APR82	16APR82	0	0	1
A0400	A0600	10	FLC	C110	10051 PREPARE EXHIBIT E	30NOV81	5FEB82	4JAN82	12MAR82	5	5	1
A0700	A0900	10	FLC	C110	10052 PREPARE EXHIBIT D	30NOV81	5FEB82	8MAR82	14MAY82	14	14	1
A0800	A1000	10	FLC	C110	1006 PREPARE EXHIBIT R	ST 30NOV81	5FEB82	8FEB82	16APR82	10	10	1
A0000	A0200	6	FLC	C110	1007 PREPARE EXHIBIT T	ST 14SEP81	23OCT81	21SEP81	30OCT81	1	1	1
A0200	A1100	4	FLC	C110	1007 PREPARE EXHIBIT T	FIN 26OCT81	20NOV81	2NOV81	27NOV81	1	1	1
A2200	A2400	6	FLC	C110	1008 PREP APPLICATN FORM-DRAFT	ST 30NOV81	8JAN82	8MAR82	16APR82	14	14	1
A2400	A2600	0	FLC	C110	1008 PREP APPLICATN FORM-DRAFT	FIN 19APR82	16APR82	19APR82	16APR82	0	0	1
A2600	A2800	2	FLC	C110	1009 REVIEW AND CORRECT	19APR82	30APR82	19APR82	30APR82	0	0	1
A2800	A3000	2	FLC	C110	1010 EXTERNAL REVIEW	3MAY82	14MAY82	3MAY82	14MAY82	0	0	1
A3000	A3400	6	FLC	C110	10XXX PRINT LICENSE APPLICATION	17MAY82	25JUN82	17MAY82	25JUN82	0	0	1
B0000	B0200	59	R FLC	C210	1101 PROJECT OVERVIEW	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
B0400	B0600	49	R FLC	C210	1102 INTERNAL REPORTS	4MAY81	9APR82	11MAY81	16APR82	1	1	1
B0600	B06A0	0	FLC	C210	1102XX EXHIBIT U MATERIAL COMPLETE	12APR82	9APR82	19APR82	16APR82	1	1	1
B1200	B1400	38	R FLC	C210	1103 SUSITNA BASE PLAN RISK ANALY	ST 4MAY81	22JAN82	11MAY81	29JAN82	1	1	1
B1400	B1600	0	FLC	C210	1103 SUSITNA BASE PLAN RISK ANALY	FIN 25JAN82	22JAN82	1FEB82	29JAN82	1	1	1
B1600	B1800	21	FLC	C210	1104 SUSITNA BASE PLAN EXTEN/REVIS	25JAN82	18JUN82	1FEB82	25JUN82	1	1	1
B2000	B2200	30	FLC	C210	1105 SUSITNA FINANCE RISK ANALYSIS	6JUL81	29JAN82	30NOV81	25JUN82	21	21	1
B2400	B2600	24	FLC	C210	1106 RESOLUTION TAX ISSUE	4MAY81	16OCT81	11JAN82	25JUN82	36	36	1
B2800	B3000	30	FLC	C210	1107 IDENTIFY PARTIES INTEREST	6JUL81	29JAN82	30NOV81	25JUN82	21	21	1
B3200	B3400	30	FLC	C210	1108 REVENUE ASSURANCE	6JUL81	29JAN82	21SEP81	16APR82	11	11	1
B3600	B3800	48	R FLC	C210	1109 LIAISON APA BOND UNDERWRITER	4MAY81	2APR82	18MAY81	16APR82	2	2	1
B3400	B34A0	0	FLC	C210	1109XX EXHIBIT G MATERIAL COMPLETE	1FEB82	29JAN82	19APR82	16APR82	11	11	1
C0600	C0800	4	OPB	1 C810	12022 CONDUCT PUBLIC MEETING #2	25MAY81	19JUN81	30NOV81	25DEC81	27	27	1
C1200	C1400	4	OPB	1 C810	12023 CONDUCT PUBLIC MEETING #3	14SEP81	9OCT81	22MAR82	16APR82	27	27	1
C0200	C0400	3	R OPB	1 C810	12031 CONDUCT WORKSHOPS 1,2,3	4MAY81	22MAY81	9NOV81	27NOV81	27	27	1
C0800	C1000	12	OPB	1 C810	12032 CONDUCT WORKSHOPS 4,5,6	22JUN81	11SEP81	28DEC81	19MAR82	27	27	1
C1600	D1200	59	R OPB	1 C810	1204 PREP PUBLISH DISTRIB MATERIAL	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
C1800	D1200	59	R OPB	1 C810	1205 PREP MAINTAIN ACTION LIST	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
D1000	D1200	27	R PSB	2 C310	13013 PROJECT PROCED MANUAL-UPDATE	4MAY81	6NOV81	21DEC81	25JUN82	33	33	1
D2200	D2400	59	R PSB	2 C310	13042 SCHEDULE CONTROL SYS UPDATE	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
D2800	D3000	59	R PSB	2 C310	13052 COST CONTROL SYSTEM-OP	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
D3400	D3600	59	R PSB	2 C310	13062 MANPOWER LOADNG SCHED-UPDATE	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
D3800	D4000	59	R PSB	2 C310	1310 SUB CONTRACT ADMINISTRATION	4MAY81	18JUN82	11MAY81	25JUN82	1	1	1
D1200	D1300	0		10 XXX	PROJECT COMPLETE XXX	28JUN82	25JUN82	28JUN82	25JUN82	0	183	1

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CRITICAL

WORK COMPLETED: TO MAY 4, 1981

TIME NOW: 4MAY81

CPM ANALYSIS LISTING

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	STATUS	COMPLETION
10000	10600	0	C	OPB 1 C2	101	REVIEW OF METHODOLOGIES	
10400	10500	0	C	OPB 1 C2	102	FCST PEAK LOAD DEMAND TRANS	COMPLETE
12100	11800	0	C	OPB 1 C2	103	IDENT OF POWER ALTERNAT	COMPLETE
11800	11900	0	C	OPB 1 C2	108	TERMINATION REPORT	COMPLETE
20200	20300	0	C	DPA C2	2021	FIELD CAMP SET-UP	COMPLETE
20300	20400	0	C	DPA C2	2021	FIELD CAMP SET-UP	COMPLETE
21200	21500	0	C	DPA C2	204	LAND STATUS RESEARCH	COMPLETE
21600	21700	0	C	DPA C2	205	LAND AQUISITION ANALYSIS	COMPLETE
20800	21000	0	C	DPA C2	206	RIGHT OF ENTRY	COMPLETE
25000	25200	0	C	DPA C3	207	SITE SPECIFIC SURVEYS	COMPLETE
23000	23200	0	C	DPA C3	2081	AIR PHOTOS & MAPPING-1980	COMPLETE
24000	24100	0	C	DPA C3	2082	AIR PHOTOS & MAPPING-1981	COMPLETE
23600	23800	0	C	DPA C3	209	CONTROL NETWORK SURVEYS	COMPLETE
22200	22300	0	C	DPA C3	210	ACCESS ROAD	COMPLETE
25600	26600	0	C	DPA C3	211	MAP & PHOTO SEARCH	COMPLETE
26400	26600	0	C	DPA C4	212	FIELD RECON FOR RSRVR CLEAR	COMPLETE
24400	24600	0	C	DPA C3	216	HYDROGRAPHIC SURVEYS	COMPLETE
32600	32800	0	C	OPB 1 C4	301	REVIEW AVAILABLE MATERIAL	COMPLETE
32800	33000	0	C	OPB 1 C4	301	REVIEW AVAILABLE MATERIAL	COMPLETE
36200	36400	0	C	OPB 1 C4	3021	FIELD DATA INDEX-SETUP	COMPLETE
36400	36600	0	C	OPB 1 C4	3021	FIELD DATA INDEX-SETUP	COMPLETE
37000	37200	0	C	OPB 1 C4	3031	FIELD DATA COLLECTION-SPECS	COMPLETE
37400	37500	0	C	OPB 1 C4	3032	FIELD DATA COLLECTION 80-81	COMPLETE
37500	37600	0	C	OPB 1 C4	3032	FIELD DATA COLLECTION 80-81	COMPLETE
32800	33200	0	C	OPB 1 C4	3041	WATER RSRCS-FLOW EXTENSION	COMPLETE
33200	33300	0	C	OPB 1 C4	3041	WATER RSRCS-FLOW EXTENSION	COMPLETE
34200	34400	0	C	OPB 1 C4	3043	WATER RSRCS-RESERVOIR STUDY	COMPLETE
31600	31800	0	C	OPB 1 C4	3053	FLOODS-RESERVOIR ROUTING	COMPLETE
30000	30200	0	C	OPB 1 C4	3061	HYDRLS&ICE-CHANNEL WTR LVLS	COMPLETE
38800	39000	0	C	OPB 1 C4	3063	HYDR&ICE-RESER SLIDE SURGE	COMPLETE
33400	33600	0	C	OPB 1 C4	3072	RIVER MORPHOLOGY	COMPLETE
38000	38200	0	C	OPB 1 C4	3081	TRANSMN LINE-PRLM PARAMTR	COMPLETE
30800	31000	0	C	OPB 1 C4	3101	LWR SUSITNA STUDIES-PRELIM	COMPLETE
31000	31200	0	C	OPB 1 C4	3101	LWR SUSITNA STUDIES-PRELIM	COMPLETE
43100	43200	0	C	OPB 1 C1	401	REVIEW AVAILABLE DATA	COMPLETE
43200	43400	0	C	OPB 1 C1	401	REVIEW AVAILABLE DATA	COMPLETE
43400	41200	0	C	OPB 1 C1	401	REVIEW AVAILABLE DATA	COMPLETE
44000	44200	0	C	DPA C4	402	SHORT TERM MONITORNG PROGRAM	COMPLETE
44200	41200	0	C	DPA C4	402	SHORT TERM MONITORNG PROGRAM	COMPLETE
40000	40200	0	C	OPB 1 C1	403	PRELIM RESERVR INDUCD SEISM	COMPLETE
40300	40600	0	C	OPB 1 C1	404	REMOTE SENSING IMAG ANALYSIS	COMPLETE
40600	40800	0	C	OPB 1 C1	404	REMOTE SENSING IMAG ANALYSIS	COMPLETE
40800	42000	0	C	OPB 1 C1	404	REMOTE SENSING IMAG ANALYSIS	COMPLETE
42200	42400	0	C	DPA C4	405	SEISMIC GEOLOGIC RECONASANCE	COMPLETE
41000	41200	0	C	OPB 1 C1	406	PRELIM EVALUATN&REPORT-DRAFT	COMPLETE
41200	41400	0	C	OPB 1 C1	406	PRELIM EVALUATION & REPORT	COMPLETE
41300	41600	0	C	OPB 1 C1	406	PRELIM EVAL & REPORT DRAFT	COMPLETE
44200	45000	0	C	OPB 1 C1	407	PRELIM GROUND MOTION STUDIES	COMPLETE
45600	45800	0	C	OPB 1 C1	408	DAM STABILITY	COMPLETE
50000	50200	0	C	OPB 1 C1	501	DATA COLLECTION	COMPLETE
50200	50400	0	C	OPB 1 C1	501	DATA COLLECTION	COMPLETE

CPM ANALYSIS LISTING

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION	STATUS	COMPLETE
50400	50600	0	C	OPB 1 C1	501 DATA COLLECTION	FIN	COMPLETE
50200	51200	0	C	OPB 1 C1	502 AIR PHOTO INTERPRETATION	ST	COMPLETE
51200	51600	0	C	OPB 1 C1	502 AIR PHOTO INTERPRETATION	FIN	COMPLETE
50800	51600	0	C	OPB 1 C1	503 1980 PROGRAM DESIGN		COMPLETE
51000	51600	0	C	OFA C4	504 1980 EXPLORATION PROGRAM		COMPLETE
52000	52200	0	C	OPB 1 C1	505 1981 PROGRAM DESIGN	ST	COMPLETE
51400	51600	0	C	OPB 1 C1	5081 DATA ASSEMBLY-1980-DRAFT	ST	COMPLETE
52800	53000	0	C	OPB 1 C1	5082 DATA ASSEMBLY-1981-DRAFT	ST	COMPLETE
62500	625A0	0	C	OPB 1 C4	601 REVIEW PREVIOUS STUDIES	ST	COMPLETE
625A0	62600	0	C	OPB 1 C4	601 REVIEW PREVIOUS STUDIES	FIN	COMPLETE
64300	67100	0	C	OPB 1 C4	602 INVESTIGATE TUNNEL ALTERNATIVES		COMPLETE
62600	626A0	0	C	OPB 1 C4	603 EVAL ALT SUSITNA DEVELOPMENT	ST	COMPLETE
626A0	62700	0	C	OPB 1 C4	603 EVAL ALT SUSITNA DEVELOPMENT	CT-1	COMPLETE
62700	627A0	0	C	OPB 1 C4	603 EVAL ALT SUSITNA DEVELOPMENT	CT-2	COMPLETE
627A0	62800	0	C	OPB 1 C4	603 EVAL ALT SUSITNA DEVELOPMENT	CT-3	COMPLETE
62800	62900	0	C	OPB 1 C4	603 EVAL ALT SUSITNA DEVELOPMENT	FIN	COMPLETE
68100	68200	0	C	OPB 1 C6	604 DEVL CAN ARCH DAM EVALUATION	ST	COMPLETE
68200	68300	0	C	OPB 1 C6	604 DEVL CAN ARCH DAM EVALUATION	FIN	COMPLETE
66900	669A0	0	C	OPB 1 C4	6051 SELECT REPORT DRAFT		COMPLETE
669A0	67000	0	C	OPB 1 C4	6052 SELECT REPORT FINAL DRAFT	ST	COMPLETE
67000	67100	0	C	OPB 1 C4	6052 SELECT REPORT FINAL DRAFT	CT-1	COMPLETE
65900	659A0	0	C	OPB 1 C4	606 STAGED DEVELOPMENT ALTS	ST	COMPLETE
659A0	659B0	0	C	OPB 1 C4	606 STAGED DEVELOPMENT ALTS	CT-1	COMPLETE
659B0	66000	0	C	OPB 1 C4	606 STAGED DEVELOPMENT ALTS	FIN	COMPLETE
63000	63100	0	C	OPB 1 C5	607 PRELIM WATANA DAM ALTERNATES	ST	COMPLETE
63100	631A0	0	C	OPB 1 C5	607 PRELIM WATANA DAM ALTERNATES	CT-1	COMPLETE
64400	64500	0	C	OPB 1 C6	608 PRELIM DEVIL CANYON DAM ALT	ST	COMPLETE
64500	64600	0	C	OPB 1 C6	608 PRELIM DEVIL CANYON DAM ALT	CT-1	COMPLETE
69100	69200	0	C	OPB 1 C4	609 ESTAB WATANA DESIGN CRITERIA	ST	COMPLETE
69200	69300	0	C	OPB 1 C4	609 ESTAB WATANA DESIGN CRITERIA	CT-1	COMPLETE
63400	63500	0	C	OPB 1 C4	610 ESTAB DEVIL CANYN DESGN CRIT	ST	COMPLETE
6A500	6A600	0	C	OPB 1 C2	632 THERMAL GENERATION RESOURCE	ST	COMPLETE
6A600	6A700	0	C	OPB 1 C2	632 THERMAL GENERATION RESOURCE	CT1	COMPLETE
6A700	6A800	0	C	OPB 1 C2	632 THERMAL GENERATION RESOURCE	FIN	COMPLETE
6A900	6B100	0	C	OPB 1 C2	633 HYDRO GENERATION RESOURCES	ST	COMPLETE
6B100	6B200	0	C	OPB 1 C2	633 HYDRO GENERATION RESOURCES	CT-1	COMPLETE
6B200	6B300	0	C	OPB 1 C2	633 HYDRO GENERATION RESOURCES	FIN	COMPLETE
6B500	6B600	0	C	OPB 1 C8	6341 ENVIRONMENT ASSESSMENT	ST	COMPLETE
6B600	6B700	0	C	OPB 1 C8	6341 ENVIRONMENT ASSESSMENT	CT1	COMPLETE
6B700	6C300	0	C	OPB 1 C8	6341 ENVIRONMENT ASSESSMENT	FIN	COMPLETE
6C600	6C700	0	C	OPB 1 C8	6342 ENVIRONMENT ASSESSMENT-FINAL		COMPLETE
6C800	6C900	0	C	OPB 1 C2	635 LOAD MANAGE & CONSERVE		COMPLETE
6D100	6D200	0	C	OPB 1 C2	6361 GENERATION PLAN PARAMATERS		COMPLETE
6D300	6D3A0	0	C	OPB 1 C2	6362 GENERAT PLAN ANALY & REPORT	ST	COMPLETE
6D3A0	6D400	0	C	OPB 1 C2	6362 GENERAT PLAN ANALY & REPORT	CT-1	COMPLETE
6D400	6D500	0	C	OPB 1 C2	6362 GENERAT PLAN ANALY & REPORT	CT-2	COMPLETE
6D500	6D600	0	C	OPB 1 C2	6362 GENERAT PLAN ANALY & REPORT	FIN	COMPLETE
71200	71400	0	C	OPB 1 C8	701 STUDY COORD-ALTERNATIVE SITE	CT-2	COMPLETE
70800	71000	0	C	OPB 1 C8	7011 STUDY COORD-ALTERNATIVE SITE	ST	COMPLETE
71000	71200	0	C	OPB 1 C8	7011 STUDY COORD-ALTERNATIVE SITE	CT-1	COMPLETE
79200	79300	0	C	OPB 1 C8	702 MONITOR FIELD ACTIVITIES	ST	COMPLETE

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 K & H PROMINI SYSTEM
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ACRES AMERICAN SUSITNA HYDRO-ELECTRIC PROJECT

CPM ANALYSIS LISTING

I-NODE	J-NODE	DUR	SELECT	CODES	DESCRIPTION		
71000	71100	0	C	OPB 1 C8	7041	WATER RESOURCE-ALT SITES	COMPLETE
73000	73100	0	C	OPB 1 C8	705	SOCIOECONOMIC ANALYSIS	COMPLETE
75200	75400	0	C	OPB 1 C8	7071	LAND USE ALTERNATIVE SITES	COMPLETE
72400	72500	0	C	OPB 1 C8	708	RECREATION PLANNING	COMPLETE
71200	73500	0	C	OPB 1 C8	7091	TRANS LINE ASSESS SCREENING	COMPLETE
736A0	73900	0	C	OPB 1 C8	7101	FISH ECOLOGY ALTERNATV SITES	COMPLETE
74900	749A0	0	C	OPB 1 C8	7111	WILDLIFE ECOLOGY ALTER SITES	COMPLETE
71000	710A0	0	C	OPB 1 C8	714	ACCESS RD ENVIRONMENT ANALY	COMPLETE
80000	80200	0	C	OPB 1 C3	801	SELECT INITIAL CORRIDORS	COMPLETE
80200	80400	0	C	OPB 1 C3	801	SELECT INITIAL CORRIDORS	COMPLETE
A2000	A1600	0	C	FLC C110	10021	ESTABLISH REGULATORY REQUIRE	COMPLETE
C0000	C0200	0	C	OPB 1 C810	12021	CONDUCT PUBLIC MEETING #1	COMPLETE
D0200	D0400	0	C	PSB 2 C310	13011	PROJECT PROCED MANUAL-DRAFT	COMPLETE
D0400	D0600	0	C	PSB 2 C310	13011	PROJECT PROCED MANUAL-DRAFT	COMPLETE
D0600	D0800	0	C	PSB 2 C310	13011	PROJECT PROCED MANUAL-DRAFT	COMPLETE
D0800	D1000	0	C	PSB 2 C310	13012	PROJECT PROCED MANUAL-FINAL	COMPLETE
D0000	D0600	0	C	PSB 2 C310	1302	FINANCIAL CONTROL PROCEDURES	COMPLETE
D1400	D1500	0	C	PSB 2 C310	1303	PROJECT MASTER SCHEDULE	COMPLETE
D2000	D2200	0	C	PSB 2 C310	13041	SCHEDULE CONTROL SYSTEM-DEV	COMPLETE
D2600	D2800	0	C	PSB 2 C310	13051	COST CONTROL SYSTEM-DEV	COMPLETE
D3200	D3400	0	C	PSB 2 C310	13061	MANPOWER LOADING SCHEULE-DEV	COMPLETE
D1600	D0600	0	C	PSB 2 C410	1307	DEVELOP ACCOUNTING POLICIES	COMPLETE
D1800	D1900	0	C	PSB 2 C310	1308	DOCUMENTATION CONTROL	COMPLETE

