ALASKA POWER AUTHORITY

SUSITNA HYDROELECTRIC PROJECT

PROGRESS REPORT

FOR

FEBRUARY AND MARCH, 1981

ACRES AMERICAN INCORPORATED 1000 Liberty Bank Building Main at Court Buffalo, New York 14202 Telephone (716) 853-7525 ALASKA POWER AUTHORITY SUSITNA HYDROELECTRIC PROJECT MONTHLY PROGRESS REPORT

Report No. 14

Period: February and March, 1981

Progress Report No. 14 covers the activities on the Susitna Hydroelectric Project for the months of February and March, 1981.

Task 1, Power Studies, is complete.

Task 2, Surveys and Site Facilities, are proceeding as scheduled. Bids were received for helicopter support for 1981. A land status map for the project area was prepared for use in APA's report to the legislature. Work continued on the access roads with R&M during the period. CIRI/H&N reached agreement with KNIK/ADC for O/M services at the Watana Camp through June 30, 1982. R&M surveyed a potential airstrip near the Watana Camp. Survey work, both in the field and aerial photography, is basically complete as scheduled.

Task 3, Hydrology, continued with a quarterly progress and planning meeting held between R&M and Acres in mid-March. A user manual for the software program was prepared. The SSARR model runs were completed and a report is in the internal review phase.

R&M completed the updating of the Field Data Index for retrieval of historical data. R&M field data collection is continuing as scheduled with the collected data being reduced and the applicable report being prepared. The Ice Cover Process Model is being set up with a calibration run scheduled for April.

Task 4, Seismic Studies, proceeded with the 1980 report being reviewed by Acres. Final definition of the 1981 WCC program will be transmitted in March. Development of the 1981 work plan for earthquake engineering, geology, and seismology continued. Seismic Geology field studies work plan was finialized and the aerial photography has been ordered. Work is to begin in May. WCC 1980 Interim Report on Seismic Studies was finalized and is now being printed. WCC completed Subtasks 4.01, 4.02, 4.03, 4.05 and 4.07. WCC submitted a detailed scope for the transmission line rights of-way ground motion evaluation. Interpretation of the aerial photography of the 1981 field work was started.

Task 5, Geotechnical Exploration, continued by Acres recommending a 1981 program for APA's consideration. This recommendation took into account the comments of the review panels held in January. This program will be presented in mid-May to appropriate boards and panels. Acres, internally, reviewed the results of the 1980 investigations and their impact on Task 6. The Geotechnical Exploration Report on 1980 studies continued with the incorporation of final comments for publication in early May. R&M resumed work on photo interpretaion Subtask 5.02 by completing maps and their exploratory report. R&M continued planning for the 1981 field program. R&M completed installing borehole instrumentation and permeability testing equipment was tested in preparation of summer work. Warm weather in March prevented drilling of the ice in the river channel.

Task 6, Design Development, proceeded with refinement of the Development Selection process. The Development Selection Report continued with a revised table of contents and a design transmittal outlining the results of Subtask 6.03 being issued for comment. Conceptual layouts for the alternatives of the Watana and Devil Canyon dams were developed and estimated. Design criteria for Watana and Devil Canyon commenced by compiling preliminary data for use in comparing site layouts. Preliminary design of Watana and Devil Canyon commenced by selecting certain alternative designs for further study. Subtask 6.32, 6.33 and 6.35 were completed.

Task 7. Environmental Studies, continued with Acres forwarding to APA the TES procedure manuals. The Instream Flow report was reviewed and comments were forwarded to Woody Trihey and Linda Dwight. Program modifications were reviewed in light of comments made by the Steering Committee, public and agency concerns. Acres and TES provided input to the D.S.R. Acres and TES formulated environmental imput to the transmission line corridor assessment. TES's work continued with the development of an agency contact/coordination plan. A review of the environmental program effects due to the new FERC regulations was commenced. Working drafts of two Annual Reports and three vegetation maps were forwarded to Acres for review. TES prepared and submitted a packet of Potential Program Modifications which address agency concerns raised to date. The Socioeconomic Analysis Report was reviewed by TES. TES provided information as to the location of cultural resources near the access road alternative corridors. TES is reviewing the Cultural Resources 1980 report. The U of A submitted the first draft of the Land Use Analysis 1980 report to TES for review. Work continued on analysis of recreation survey results. A report on the environmental aspects of the transmission line corridors was submitted to Acres. The fish ecology work continued with field work progressing as scheduled. The ADF&G Procedures Manual and study plan is being finalized. Investigators continued to field verify the birdlife and small mammal varieties and quantities in the project area. Work continued on the wildlife mitigation policy statement. Review and refinement of the 1980 Plant Ecology Annual Report continued during the period. Access Road Environmental Analysis continued by highlighting potential biological implications along the corridor route. ADF&G continued their Hydro Aquatic Studies and Big Game Activities as scheduled. Their work included preparation of their respective annual reports.

Task 8, Transmission, continued the analysis of contingency events for the alternative transmission schemes. Transient stabilty studies were started for various transmittal alternatives. Acres and R. Mohn discussed the intertie alignment routing but resolution will be delayed until APA and CAI meet with other state agencies. Preliminary conductor sizes for the 345 KV line were chosen. Capital cost estimates for Susitna Basin development and thermal plant development at Beluga were developed.

Task 10, Licensing, continued with the new FERC licensing requirements and their impact on Susitna's license application being studied.

Task 11, Marketing and Finance, focused upon final preparation and publication of the Project Overview Report. A final draft of the summary POR was circulated for review by the APA and internal review. Financial alternatives were finalized for a meeting with the managing underwriters group to discuss the various pricing scenarios applicable when Susitna would be operational.

Task 12, Public Participation, continued with preparation for and attendance at public meetings regarding the access roads held in mid-March.

Task 13, Project Administration, continued with updating of the project schedule during the reporting period. The combined January/February cost report was issued.

Task 14, ADF&G Support, focused on establishing procedures for purchasing equipment and Acres role in the purchasing program.

TASK 1 - POWER STUDIES

Task Complete.

TASK 2 - SURVEY AND SITE FACILITIES

ACRES ACTIVITIES

Bids were received for helicopter support for 1981. The bids were analyzed and two firms were selected to provide services. These firms were Air Logistics of Alaska for Bell 206B helicopters and Kenai Helicopters of Kenai, Alaska for the Bell 205.

Preparation of a land status map for the project area was completed for APA to include in their report to the legislature.

Coordination work with R&M Consultants on access roads continued throughout the reporting period.

CIRI/H&N ACTIVITIES

CIRI/H&N continued its regular operation, maintenance, and related inspection of camp facilities. Approximately 9,200 gallons of diesel fuel were mobilized to Watana Camp on an interim bisis until additional project funding is obtained from Alaska Power Authority by Acres American, Inc. A decision by the State legislature and the governor to authorize additional monies for the Susitna project is expected by early April, 1981.

On February 11, an agreement was reached with KNIK/ADC for the continuation of its existing O/M services at Watana Camp from April 1, 1981 through June 30, 1982.

Efforts were also directed at the preparation of an updated project forecast through June 30, 1982. These projects and other related financial considerations were reviewed with Acres American during March, 1981.

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 6000' 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.

This subtask is temporarily suspended as per Acres directive.

Subtask 2.07 - Site Specific Surveys

Office Planning of River Cross Sections is being performed.

No field activity commenced on this subtask to date. However, Field Surveying of River Cross Sections to begin in March.

Approximately 20 river cross-sections between Devil Canyon and Watana Dam sites have been field surveyed. Office processing of field data is well underway with completion anticipated in early April.

Subtask 2.08 - Aerial Photography and Photogrammetric Mapping

Photography has been obtained on the following:

- Controlled reservoir photography, color, scale: 1" = 2000'.
- "Block" photography, color, scale: 1" = 2000'.
- Lower River photography, black & white, scale: 1" = 4000'.
- Two small spurs of alternative access corridors, color, scale: 1" = 2000'.
- Four flight lines of transmission corridor photography, Palmer area, color, scale: 1" = 3000'.

Photography planned for 1980 that is not yet obtained has been suspended by Acres.

- Transmission corridor photography not included in above; color, scale: 1" = 3000' (suspended).

All photography obtained has been forwarded to Acres American, Anchorage.

Analytical Bridging has been accomplished on reservoir photography and contour mapping of Watana Reservoir is currently being performed. Damsite contour mapping of the Devil Canyon site and contour mapping of Devil Canyon Reservoir is currently underway as is volume computation of Devil Canyon and Watana Reservoirs. Estimated completion date for all Reservoir contour mapping is Mid-April.

Subtask 2.09 - Control Network Surveys

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

Subtask 2.10 - Access Corridors

Aerial photographs were received and reviewed. Corridor alignments were placed on a 1" = 2000' map and adjusted to satisfy design criteria. Preliminary environmental Macro Scale Data was received for corridor comparison. Access corridors prelimed by construction cost, logistics cost, access maintenance cost estimates were eproad during the period. The preliminary Access Plan Report was completed and distributed to review agencies and the Project Steering Committee. The public workshop on access roads was held on March 16, 17 and 19. R&M has recommended that the access p^1 in approved by APA be made by May 1, 1981 to allow the necessary field activities to be undertaken during the 1981 season.

Subtask 2.16 - Hydrographic Surveys

Aerial photographs received, field activity 100% complete, including downriver flood plain cross-section near Willow Creek. Office reduction of field notes currently being completed. Draft close-out report is currently being prepared.

TASK 3 - HYDROLOGY

ACRES ACTIVITIES

Quarterly progress meeting was held with the R&M Consultants in Acres' office in Buffalo on March 11, 12 and 13 to discuss 1980 work, planning for 1981-82 field data collection and further hydraulic analyses to be undertaken under Task 03.

Subtask 3.03 - Field Data Collection and Processing

Routine monitoring of R&M field work continued. Development of computer software for data processing is nearly complete. A user manual for the software program has been prepared and reviewed internally. Processing of all data cassettes should commence shortly. Preliminary review of data collected was carried out with a view to planning 1981 instrument installation.

Subtask 3.05 - Flood Studies

Detailed supervision and coordination was provided for the flood peak and volume frequency analyses being conducted by R&M. The study is nearly complete and Acres has requested Professor R. Carlson of the University of Alaska to act as consultant in reviewing the flood studies conducted by R&M.

The SSARR model runs were completed as part of review of the COE estimates for the spring and summer PMF. Draft report on the study has been prepared and is being reviewed internally. APA has been informed of necessity to reevaluate the PMF estimates for feasibility design.

Subtask 3.06 - Hydraulic and Ice Studies

Preliminary analysis of freeze-up and river cross-section data continued. Preliminary planning of HEC-2 and ice model set up were finalized.

Subtask 3.07 - Sediment Yield and River Morphology

Preliminary planning of the hydraulic analyses has commenced.

Subtask 3.10 - Lower Susitna Studies

R&M calculations on mean monthly river stages and changes under pre and postproject conditions were reviewed. A preliminary draft report has been prepared jointly by R&M and Acres on pre and post-project flood stages in the lower Susitna and is being reviewed internally.

R&M ACTIVITIES

Subtask 3.02 - Field Data Index and Distribution System

An update of the Field Data Index was completed and mailed to team members and government agencies during mid-January. The bulletin was revised considerably to aid storage and retrieval of data in an effective and timely manner.

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

Subtask 3.03 - Field Data Collection and Processing

Stream Gaging by USGS

All USGS stream gages are operating. The gage at Sunshine will be activated by mid-May. Winter measurements were made at all USGS stations.

Stream Gaging by R&M

The 1980 stage record has been reduced to gage heights and preliminary rating curve is developed. Discharge under ice was measured.

Crest Stage Recorders

Data has been reduced and tabulated. Ice thickness measurements and water elevations were made at each station.

Snow Course

Snow courses were surveyed in early January, February and March. This work is being carried out cooperatively with SCS and the Data is reported in the SCS monthly bulletin.

Water Quality

Water Quality measurements under ice were made in mid-January. Continuous water quality monitor operating. Historical USGS data has been tabulated according to site, parameters, and season of year.

Annual report on water quality data is being prepared. It will summarize the first years data and make recommendations for year two.

Sediment

Suspended sediment was sampled at Gold Creek and Vee Canyon in mid-January, under ice. This has been reduced and compiled in tabular form.

Climatic Stations

Software for data reduction is complete in draft form. Data currently is being processed on the computer.

All stations are operating reasonably well with the exception of one month data loss at the Tyone station due to Cold weather and miscellaneous data loss due to faulty sensors. Heated precipitation bucket installed at Watana is operating.

Glacial Studies

A glacial plan of study has been finalized with Will Harrison of the Geophysical Institute and sent to Acres for scope and budget revisions.

This plan was approved by Acres in March.

Ice Studies

An ice cover did form on the Susitna River during December and freeze-up data is being reduced.

River ice thicknesses at Vee Canyon and Gold Creek were measured in mid-January. During late February and early March, ice thicknesses were measured at the Crest Stage recorders along with ice and water elevations.

Historical records on Susitna River break-up have been researched and a scope of work for break-up observations has been developed in draft form. Personnel from Acres, R&M and TES will be participating.

Snow Creep

Snow creep stations were installed, in late February, near Devils Canyon on a slope with a north aspect and near Tsusena Butte with a south aspect. Due to low snowpack this year, no snow forces have been recorded.

Icing Studies

In-cloud icing detector was installed at Watana in early December and is operating reasonably well. Frequent loss of camp power is causing some data interpretation problems.

Conductor cables and steel plates that were installed at Watana and Denali have been monitored during routine maintenance trips and no accumulation of freezing rain or in-cloud icing have been observed.

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. Presently, computer cards for the HEC-2 are being prepared and a calibration run is expected by late April. Tailwater rating curves are being generated for proposed sites.

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

Historical airphotos taken in 1951 have been received. Mean monthly flows and stages were computed and plotted for the Susitna River at Gold Creek, Sunshine and Susitna station for pre and post-project conditions. This information was presented in a multidiscipline meeting during late January. Environmental team members requested more detailed information on post project changes and will document their desires in letter form. Upon receipt of the letter, Lower River hydrological studies will proceed at satisfying their desires as best as is practical.

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

TASK 4 - SEISMIC STUDIES

ACRES ACTIVITIES

Results of Task 4 studies for the year 1980 were presented to the Acres Specialist Panel and to the Acres Internal Review Board. The need and scope of the 1981 activities, proposed by WCC, was reviewed.

Acres has presented its responses to Woodward-Clyde's proposed 1981 program. The final program is being developed by WCC in conformity with the specified budg tary and scope-of-work requirements.

Subtask 4.06 - Evaluation and Reporting

Review comments were incorporated into the Interim Task 4 Report and the report has been sent to the printer. We expect the report to be ready for general distribution on 15 April 1981. Four copies of the report will be distributed to Acres and Drs. Merritt, Seed, and Sykes at the request of Acres.

Subtask 4.09 - Long-Term Seismologic Monitoring Program

Development of the 1981 work plan for earthquake engineering, geology, and seismology continued under this subtask. Preliminary plans for earthquake engineering and geology have been completed which include objectives, scope, schedule, personnel, time, and budgets. These plans cover Subtasks 4.08 through 4.15.

A summary of the key objectives and preliminary budgets for 1981 were provided to Virendra Singh of Acres on 12 and 16 February 1981. Recommendations by Dr. Lynn Sykes of Acres External Review Panel were received on 12 February 1981. A response to the recommendations is being prepared as requested by Acres.

Subtask 4.11 - Seismic Geology Field Studies

The preliminary work plan was completed as part of the planning subtask described above in Subtask 4.09. Aerial photography for the 1981 field season has been ordered from North Pacific Aerial Surveys and the EROS Data Center. Literature review pertaining to Quaternary geology was initiated during this month and is expected to be completed by early March 1981.

The prescribed work plan is being finalized. Aerial photography has been ordered, and field activities will begin in late May. The office studies and Quaternary geology search is underway.

WCC ACTIVITIES

General

The 1980 Interim Report on Seismic Studies has been finalized during February and March and is now in printing and will be delivered to Acres in mid-April. Publication was delayed by difficulties in printing.

Based on a telex received from Acres on 6 March 1981, work on Task 4 has been curtailed except for essential services.

Subtask 4.01 - Review Available Data

Subtask 4.02 - Short Term Monitoring Program

Subtask 4.03 - Preliminary Reservoir Induced Seismically

Subtask 4.05 - Seismic Geologic Reconnaissance

Subtask 4.07 - Preliminary Ground Motion Studies

Work on these subtasks is complete.

Subtask 4.06 - Evaluation and Reporting

Four copies of the Interim Task 4 Report were distributed to Drs. Copen, Merritt, Seed, and Sykes at the request of Acres. Additional copies of the report were scheduled for distribution on 11 March 1981. However, initial printing quality was not acceptable and the reports were rejected. The printer is reprinting the report for distribution by mid-April, 1981.

Subtask 4.09 - Long-Term Seismologic Monitoring Program

Limited work on the 1981 work plan continued under this subtask. Comments by Acres, Acres' Specialist Consultants Panel, and APA's External Review Board have been received and discussed with Acres. A response to the recommendations will be completed by 10 April 1981 and sent to Acres for evaluation.

At the request of Acres, a detailed scope of work was submitted for the transmission line rights-of-way ground-motion evaluation. In addition, a revised cash flow projection for 1981 was sent to Acres on 25 March 1981.

Subtask 4.11 - Seismic Geology Field Studies

Aerial photography ordered for the 1981 field season has been received from North Pacific Aerial Surveys and the EROS Data Center. Intrepretation of these photographs is scheduled to commence in April 1981. Review of literature pertinent to Quaternary geology is underway.

TASK 5 - GEOTECHNICAL EXPLORATION

ACRES ACTIVITIES

Subtask 5.05 - Exploratory Program Design, 1981

The recommendations by APA's External Review Board, as a result of the Board meeting during January 1981, were reviewed with the Acres Internal Review Board and with the Acres Specialist Consultants Panel on February 17 and 18. A recommendation was prepared and forwarded for APA's considerations on February 23, 1981. The program, as outlined in the POS, was conceptually finalized after the reviews and final detailed planning, scheduling and coordination of geologic and survey requirements is being performed. The final locations are being determined from survey coordinate data. The proposed program will be presented in mid-May to appropriate boards and panels.

Subtask 5.06 - Exploratory Program (1981)

Logging of drill cores was continued and geological mapping began in the field using two geologists from Acres.

Planning of 1981 activities continued, including the development of a plan for test pitting and trenching involving the use of a JD 350 wide-track backhoe, which is helicopter transportable by a Boeing 107 Vertol.

Subtask 5.08 - Data Reduction

The results of 1980 activities were presented to the Acres Internal Review Board and to Acres Specialist Consultants Panel. The impact and value of these findings on Task 6 activities was reviewed and areas of concern requiring further investigation were discussed.

The results of 1980 investigations are being finalized in the final 1980 Interim Report. (Task 5 - Geotechnical Exploration Report on 1980 Studies.) The comments on the final draft are being incorporated, and final publication is scheduled for the early part of May.

R&M ACTIVITIES

Subtask 5.02 - Photo Interpretation

Work resumed on this subtask in the last week of February. The scope was changed to incorporate the use of airphoto mosaics for base maps. These photo mosaic base maps, which will be available mid to late March, can also be utilized for other project activities.

Completed maps and explanatory report, in draft form, are expected to be ready for submittal to Acres and L.A. Rivard for review during the first week of April.

All photo interpretation is complete and the final drafting of terrain unit maps and report preparation is underway. Scheduled completion is April 10, 1981.

Subtask 5.03 - Exploratory Program Design, 1980

Subtask complete and closed out.

Subtask 5.04 - Exploratory Program, 1980

Subtask complete and closed out.

Subtask 5.05 - Exploratory Program Design, 1981

Planning activities for the upcoming field programs were begun late in February and are ongoing.

Subtask 5.06 - Exploratory Program, 1981

Field activities consisted of the completion of installation of down hole instrumentation and monitoring of all instruments installed in boreholes. Permeability testing equipment was tested and new parts were ordered in preparation for the summer program.

Drilling off the ice in the river channel, scheduled for March, was not undertaken because of unseasonably warm weather. Geologic mapping support was provided for a limited mapping effort to check specific locations not easily accesible during the summer program.

TASK 6 - DESIGN DEVELOPMENT

ACRES ACTIVITIES

Subtask 6.02 - Investigate Tunnel Alternatives

Work continued on the closeout report for this subtask.

Subtask 6.03 - Evaluate Susitna Alternatives

Work continued on the refinement of the Development Selection process. Four basic aspects, i.e. economics, environmental impact and social and energy contribution, are being studied to evaluate the various Susitna Basin development alternatives. The monthly energy simulation runs for the various development alternatives were finalized.

Subtask 6.05 - Development Selection Report

Work continued on the Development Selection Report. Following additional sensitivity studies requested by APA and, further refinement of the selection methodology, a revised table of contents was developed and issued for comment. A design transmittal outlining the preliminary tabulated results of the Development Selection process, summary tables of the OGP5 output, the Watana dam construction schedule, and the results of the economic analyses of the 1981 "upper limit" cost estimate was issued during March.

Subtask 6.06 - Watana/Devil Canyon Staged Development Alternatives

Work undertaken under Subtask 6.06 is reported under Subtask 6.03.

Subtask 6.07 - Preliminary Watana Dam Alternatives

Conceptual layouts delineating all practical alternatives arrangements for the dam, spillway, diversion and power facilities were continued. A more detailed layout with an underground powerhouse and a single spillway with an intermediate and a low level stilling basin was developed and estimated. This was a conservative layout which served for development of more accurate unit rates and as a basis against which alternative layouts could be compared.

Subtask 6.08 - Preliminary Devil Canyon Alternatives

Conceptual layouts for the Devil Canyon Site were continued.

Stress analyses were completed on the modified arch dam configuration for gravity, hydrostatic and temperature loadings. Tension stresses were substantially reduced or eliminated to the extent that the feasibility of a thin arch dam under these loadings could be confirmed.

Quantity take-offs and development of more accurate unit rates for a basic conservative Devil Canyon layout were completed.

Subtask 6.09 - Design Criteria for the Watana Development

Work on this subtask commenced with compilation of preliminary overall design criteria as a basis for comparing site layouts. Development of the Watana design criteria was continued.

Subtask 6.10 - Design Criteria for the Devil Canyon Development

Work on this subtask commenced with compilation of preliminary overall design criteria as a basis for comparing site layouts. Development of the Devil Canyon design criteria was continued.

Subtask 6.11 - Preliminary Design of Watana Dam

This subtask was initiated by selection of certain of the conceptual layouts mentioned under Subtask 6.07 for further study. These are presently being developed in detail prior to estimating.

Subtask 6.12 - Preliminary Design of Devil Canyon Dam

Work on this subtask commenced with selection of certain of the conceptual layouts mentioned under Subtask 6.08 for further study. These are presently being developed in more detail for estimating purposes.

Subtask 6.32 - Thermal Generating Sources

Subtask complete.

Subtask 6.33 - Hydro Generating Resources

Subtask complete.

Subtask 6.35 - Load Mannagement and Conservation

Subtask complete.

Subtask 6.36 - Generation Planning

Final sensitivity analyses were performed on the system model comparing alternative Susitna basin developments and non-Susitna plans. The Development Selection Report draft was revised to include all results of the generation planning studies. All calculation materials and computer printouts were organized for inclusion in the project file. Work under this subtask was essentially completed.

Subtask 6.34 - Environmental

A Status report was prepared for inclusion in the Development Selection Report.

TASK 7 - ENVIRONMENTAL STUDIES

ACRES ACTIVITIES

Subtask 7.01 - Coordination of Environmental Studies

Work continued during the reporting period in coordinating Acres, TES and ADF&G's efforts in this task.

Acres received responses to the Susitna Steering Committee comments on the TES procedure manuals were finalized and forwarded to APA.

A program was initiated with TES to improve agency contact and coordination. This program shall ensure that concerns are identified, reviewed and dealt with in an efficient manner.

The Instream Flow report prepared by Woody Trihey and Linda Dwight was reviewed and comments were made. This report is expected to be finalized by mid-March for submission to the agencies and concerned groups that were interviewed.

Drafts of the 1980 annual environmental reports for submission to Dr. S. Leopold and APA were received and reviewed.

Potential program modifications were reviewed in view of the Steering Committee, general public and agency concerns.

Acres and TES provided environmental input into the Development Selection Report.

Acres met with TES to discuss environmental input with the transmission line corridor assessment.

Acres attended a meeting on February 4 to discuss the ADF&G fisheries program.

The wildlife mitigation policy statement outline as prepared by TES was reviewed by Acres. Upon finalization, the policy statement will be forwarded to APA for review and comment.

TES ACTIVITIES

Subtask 7.01 - Administration

In response to an Acres request, TES initiated work on the development of a TES agency contact/coordination plan. This plan will be initiated by TES following review and acceptance by Acres and the APA. It will address contacts to be made by TES to identify the concerns of agencies that have responsibility to review the environmental program.

TES conducted a preliminary review of the draft report (dated January 31, 1981) prepared by Linda Dwight and Woody Trihey on the results of their agency interviews concerning instream flow issues.

A preliminary review of the potential impact of the proposed revision to FERC regulations and their likely effect on the Susitna Environmental Program was conducted and discussions initiated with Acres.

Working drafts of two Annual Reports and three vegetation maps were forwarded to Acres for transmittal to Dr. Leopold of the External Review Board. In addition, TES reviewed and commented on the draft environmental chapter of the Project Overview Report prepared by Acres.

TES completed a preliminary review of 1980 Subtask Annual Reports; further detailed and technical review of these reports continued throughout March.

TES commented on Acres' response to Steering Committee comments on Task 7 Procedures Manuals, and conducted further review of the draft Dwight/Trihey report on agency concerns regarding instream flow. TES comments on the Dwight/Trihey report will be forwarded to Acres in early April.

At Acres request, TES prepared and submitted (March 19, 1981) a packet of 14 Notices of Potential Program Modifications to address the major agency concerns raised to date.

March was a rather active month with numerous cost and invoicing activities occurring. TES sent a revised request for change in fringe rate to Acres. TES personnel attended a meeting in Buffalo to discuss various invoicing and cost problems, and to discuss the requested invoice format change with Acres. In addition, quarterly cost projections for the duration of the contract were provided to Acres by TES.

Subtask 7.05 - Socioeconomic Analysis

FO&A completed Work Items e and f of Work Package 2 (Profile Development). FO&A and the Group Leader provided additional refinement of the analysis of access corridor scheme alternatives (Work Package 3); these results permit more discrete descriptions, by geographic area and socioeconomic variables, of potential impacts associated with each scheme.

The Group Leader provided additional clarification to Acres concerning products associated with Work Packages 3 and 4 and the proposal for Work Packages 5 - 9. TES is still pressing for an accelerated work effort for 1981; program acceleration is seen to be especially important in light of the newly issued proposed FERC-Exhibit E regulations.

TES assisted in finalizing arrangements for the forthcoming workshops and public meetings on access schemes. As a part of this Subtask, TES has suggested that the originally scheduled meeting (dropped by APA) for Glennallen be held.

The Socioeconomic consultant, Frank Orth & Associates, concentrated its efforts on refinement of forecasting methodology associated with Work Package #4, Forecast of Socioeconomic Conditions in the Absence of Susitna. A member of FO&A participated in the series of three workshops held in Alaska in mid-March concerning the access route for the project. It was necessary to expend additional effort on analysis of access in response to last-minute changes in access schemes under consideration.

The TES Group Leader for Socioeconomic Analysis met and conferred with staff of APA regarding socioeconomic and community impacts associated with access. While in Anchorage, he spent considerable time on revisions to analysis of access as a result of changes and additions to access schemes. In addition, during March the Group Leader reviewed the 1980 Annual Report on Socioeconomic Analysis.

Subtask 7.06 - Cultural Resources

The first Annual Report was not received by TES by the contractual deadline of March 1, 1981. However, TES has been assured by Dr. E. James Dixon, University of Alaska Principal Investigator, that a draft copy of the Cultural Resources Annual Report will be express shipped to TES as soon as possible.

TES provided information as to the location of cultural resources near the access road alternative corridors. In addition, similar information was provided for the transmission line routing subtask.

Field logistics for the upcoming field season were being finalized. A temporary delay has been encountered in obtaining a BLM permit through CIRI/H&N for the Cultural Resource tent camp.

The Principal Investigator submitted the 1980 Annual Report for TES review. It was reviewed by TES for technical content and editorial format. Chapter 3 (Results and Discussion) of this working draft was sent to Dr. Sterling Miller of ADF&G for his use in studying the shifts through time of large mammal populations in the Upper Susitna River basin.

The selection by the Principal Investigator of additional survey locales for 1981 is underway, and the selection of sites for intensive testing to determine significance under National Register criteria is underway, with emphasis on the impoundment area.

The Alaska Heritage Resources Site Survey forms have been completed by the Subcontractor for all the sites found in 1980. These will be submitted to the State Archeologist as required by their state permit.

The TES Group Leader for Cultural Resources evaluated the proposed transmission line corridors with respect to their impacts upon known and potential cultural resources sites. Areas where more information is needed to further evaluate the corridors were also identified.

Subtask 7.07 - Land Use Analysis

The TES Group Leader completed an extensive analysis of potential land use impacts associated with alternative access schemes. It was also incorporated in the TES report on access.

The University of Alaska submitted to TES the first draft of the Land Use Annual Report. The Quality Assurance Coordinator and Group Leader completed extensive reviews; comments and revisions will be incorporated in the final draft.

TES initiated a follow-up effort to concerns raised by Alaska DNR and others relative to project impacts on navigational use of the Susitna River. The situation was documented and a letter sent to Acres concerning additional reconnaissance to be performed.

During the month, the Group Leader traveled to Alaska and met with the Principal Investigator to go over the TES review of the Land Use Annual Report. Agreement was reached concerning supplemental material and revisions to be incorporated in the next draft report.

While in Alaska, the Group Leader and TES Alaska Resident Manager initiated a follow-up to concerns raised by various state agencies relative to navigation and other instream uses of the Susitna. Various agency personnel were contacted by phone; in addition, DNR and BLM were visited. Due to the amount of effort expended on access routes during this trip, a complete follow-up to agency concerns was not possible.

Subtask 7.08 - Recreation Planning

Work continued on analysis of recreation survey results. The Principal Investigator and TES Alaska Resident Manager met with APA and R&M concerning the Recreation Planning process; in particular as it relates to access.

While in Alaska, the Group Leader conferred with the Principal Investigator concerning status and scheduling of the Recreation Planning effort. Due to external factors (i.e. changes in APA's workshop schedule and changes in access plans) revisions in the schedule for recreation planning are mandated in an effort to ensure continuity and timely completion of the recreation plan.

The Principal Investigator attended the public meetings conducted by APA and made presentations concerning the status of the recreation planning effort.

Subtask 7.09 - Transmission Line Corridor Assessment

The primary TES activity for February centered around the preparation of a critique of the Corps of Engineers' (COE) transmission line feasibility report and a transmission line report prepared by International Engineering Company. The critique was completed and mailed to Acres for inclusion in an Acres subtask close-out report.

Subsequent to this effort, TES initiated a review and comparison of proposed alternative corridors. This review and the critique of the Corps report were requested by Acres during a meeting held in Buffalo on February 13 for the purposes of coordinating the transmission engineering and environmental efforts.

TES organized and preliminarily reviewed information accumulated for transmission studies during the January field trip. Materials obtained included aerial photography and ADF&G-supplied habitat maps. New materials (maps) received from Acres were also reviewed.

TES prepared and submitted to Acres a report entitled "Preliminary Environmental Screening of Alternative Transmission Line Corridors". This report included graphics of the transmission corridors on topographic maps, an inventory of environmental parameters and constraints compiled from numerous sources including TES Group Leaders.

Subtask 7.10 - Fish Ecology

A draft of the Fish Ecology Annual Report has been prepared. Due to the absence of data from the ADF&G program, the report basically discusses potential impacts of the Susitna Project, possible mitigation procedures, agency contacts and a literature search on the fish species of the region.

On February 4, 1981, a meeting was held in Anchorage with representatives of APA, Acres, ADF&G and TES present for the purpose of developing ADF&G's field study program for 1981. Progress was made in the development of ADF&G's field program with several program revisions being agreed upon. Deadlines for the completion of program and budget revisions were set for the middle of February.

The problem of nitrogen gas supersaturation was discussed during the month and it has been decided that a minor sampling effort for existing levels of dissolved nitrogen gas immediately below Devil Canyon will be conducted by TES with transportation support from other team members. Although such a sampling program is not included in the Scope of Work, a limited sampling effort will be performed later this year.

M. Bell is supplying materia? on supersaturation in river water to ADF&G. This material had been previously supplied to Acres. M. Bell is also in the process of documenting any studies in Washington State where regulation does not apply equally to major production areas owing to the different levels of fisheries production in the systems or in parts of a river system.

Work was initiated on obtaining Oceanographic data on the Upper Cook Inlet estuary in order to be prepared to address several concerns pertaining to the estuary that were mentioned in the Dwight-Trihey survey. This survey has been reviewed for any comments or questions that can be answered at present. To complete this review, further information on hydrology (flow, stage) and the fish of the area will be required from Acres, R&M, and ADF&G.

The proposed new FERC regulations and their effect upon the existing study plans for fish ecology and water quality were discussed. Under the revised regulations, there appear to be no new problems with the fish ecology study plan, but changes in the water quality program requiring the addition of several water quality tests may be necessary.

During the month of March, the major effort for the TES fish ecology team dealt with the completion of the Fish Ecology Annual Report. Some revisions and editorial work remain to be done.

A review of the adequacy of the ADF&G study plan for meeting data requirements for the preparation of the impact assessment and mitigation report, has been delayed due to late submission of the ADF&G Procedures Manual.

To augment ADF&G efforts and to insure that vital baseline information on the life history and ecology of important fish species of the Susitna River region be gathered and made readily available, TES has increased its literature review effort in this facet of the fisheries program. The emphasis is being placed on compiling information on resident species to complement C. Atkinson's literature review on the various salmon species of the area. Impact assessment and mitigation literature is also being obtained at present, as an originally planned component of the TES program.

As discussed under Subtask 7.01, Notices of Potential Program Modification were prepared to address the major agency concerns identified to date. Five issues and concerns related to Subtask 7.10 were included: water quality parameters, estuary impact analysis, dissolved gas supersaturation, resident fish studies and access road impact upon fishes.

Subtask 7.11 - Wildlife Ecology Studies

During the month of February, the major activity concerning Subtask 7.11 dealt with the completion of the first Annual Reports. The report concerning birds and non-game mammals was received during the latter part of the month. Furbearers and big game impact reports are scheduled for receipt during the first week in March.

A considerable amount of effort was devoted to the wildlife mitigation effort during the first half of February. The notes of the mitigation meeting held in January were prepared and submitted to Ac. as for review. A preliminary outline of a mitigation policy statement was also prepared and submitted for review.

Both the furbearer and bird investigators visited the study area during the month. Furbearer study efforts included continued survey of the study area to document seasonal shifts in habitat utilization by key furbearer species and also to trap and attach radio transmitters to both fox and marten.

Surveys of birds and non-game mammals were conducted during early February. Observations of both birds and small mammals in the study area were few. Thirteen bird species were recorded. The white spruce forest at Kosina Creek was unexpectedly barren. There was some snowshoe hare signs and eight or nine localities showed signs of red squirrels and porcupine.

The majority of effort by TES and its subcontractors during the month of March concerned the review and revision of the 1980 Annual Reports. Reports were received from all Principal Investigators and the Group Leader spent a considerable amount of time reviewing the reports and preparing comments for revisions as needed.

March activities involving birds and non-game mammals centered around preparing revisions to the Annual Report and discussion of modifications to the upcoming field program. No field work was conducted during March.

As in the case of other disciplines the furbearer investigators were occupied with responding to comments on the 1980 Annual Report. In addition, this group collected a considerable amount of field data during March.

TES work with regard to big game studies concerned the ongoing review and evaluation of ADF&G's Annual Report. Dr. Taber submitted to TES a condensed version of the ADF&G report that included a summary impact analysis.

Progress was made concerning the development of the wildlife mitigation policy statement. During early March the wildlife Group Leader traveled to Anchorage and visited with the members of the review group and discussed their concerns, attitudes, and the positions of their respective agencies. Following discussions with Acres, a copy of the preliminary outline for the mitigation policy statement was forwarded to the APA for their review and comment.

Subtask 7.12 - Plant Ecology Studies

Considerable effort was expended in the review of the draft first Annual Report submitted to TES by the AES on January 30. The draft was returned to the AES for revisions. Cover maps of the study area were finalized by the AES.

TES resolved, through discussion with Acres, the need for a boat for use by the AES in their 1981 investigations of downstream areas. Permission to purchase a boat, motor and trailer was received from Acres.

Other activities during the month included: the review of a list of contacts with agencies; review with suggested revisions of the Project Overview Report prepared by Acres; and, review of and input into various alternative transmission line routes.

Much of the effort during March revolved around review and revisions to the draft 1980 Plant Ecology Annual Report. A revised draft was submitted to TES by the Agricultural Experiment Station. TES and AES sent copies of the preliminary vegetation cover maps to the environmental study participants.

Discussions were held between TES, AES, R&M, and Acres regarding downstream hydrological needs. TES sent a request to Acres detailing the need for specified hydrological information. AES continued efforts toward development of methods for the downstream studies to be performed in 1981.

<u>Subtask 7.14 - Access Road Environmental Analysis</u>

During February, TES prepared a report summarizing potential environmental effects associated with access plans then under consideration by Acres and R&M Consultants. The report identified "red flags" concerning biological implications along each corridor and potential cultural significance. Land use and socioeconomic concerns were also assessed in terms of impacts on communities, social and economic variables, and uses of the resource base. TES also participated in the planning of and preparation for the access road public meetings to be held in March.

During March, C. Baumgartner participated in three workshops in Alaska sponsored by APA and concerning access corridor alternatives, and alternative recreation concept plans. Preparation for and attendance at these workshops required considerable interaction and coordination with Acres, R&M, TES subcontractors, and the Public Participation Program staff at APA.

At the request of Acres and APA, TES wrote and produced a report entitled "Environmental Analysis of Access Road Alternatives" for distribution at a meeting held in Anchorage for representatives of various agencies. This meeting was attended by C. Baumgartner and other TES staff. Ms. Baumgartner presented an overview of environmental concerns pertinent to the access corridor issue and fielded questions from various people in attendance.

Ms. Baumgartner also attended a meeting of the Susitna Hydroelectric Steering Committee in late March and again presented an overview of environmental concerns and answered questions regarding access.

ADF&G - HYDRO AQUATIC STUDIES

Administration & Support

A meeting was held with the Alaska Power Authority (APA), Acres American and Terrestrial Environmental Specialists representatives on February 4 to discuss the ADF&G aquatic studies program and possible study re-emphasis and area reprioritization. As a result of this meeting, ADF&G has conducted, through the remainder of the month, a budget, personnel and program redirection review. Primary program changes or redirection were in the Anadromous Adult Project and the revised program involves a rescoping of the stock separation work, a shift in the areas where sonars and fishwheels will be installed, implementation of a mainstem ground survey program, implementation of a radio-telemetry program and augmentation of lower basin chinook salmon aerial escapement counts.

The program and budget revisons will be submitted to APA so amendment of the FY 81 RSA can be made and the FY 82 RSA finalized.

March's activities of the Administrative Support personnel were for the most part, conducted in double-time. The project coordinator, Thomas Trent, was primarily involved with development and review of a proposed revised program and budget document for submission to the Alaska Power Authority. Subsequent to submission of the document to APA, Trent met several times with APA staff to discuss the content and make revisions into Phase I and II breakdowns.

The Su Hydro Steering Committee held a meeting at the University of Alaska, on March 20. Topics of discussion revolved around alternative road access plans developed by APA and Acres American, and the status of APA's response to the steering committee's recommendations of last November.

Several meetings between Bartlett, Acres American and the owner of the shop/ warehouse facility were held to discuss completion of the facility before advent of the summer field season. Topics were primarily centered on attention to detail necessary to put the facility into operational status.

Much effort was put into purchasing supplies and equipment to initiate the coming field season. Concern was expressed by Acres American regarding "sole source" purchasing procedures of used motor vehicles and some discussion resulted before acceptable procedures were drafted.

Equipment on hand was inventoried by the office manager. Each equipment item was assigned a number and the list submitted to Acres American.

Considerable time was spent editing draft sections of the project Procedures Manual. The manual is now in review status.

Discussion of the data processing program was held with Mike Mills, Sport Fish Divison Biometrician. Mike will review the Procedures Manual to determine data processing program requirements, start recruitment for the Su Hydro biometrician vacancy, do preliminary work on ordering of a micro-computer and lay the ground work for contracting with Boeing Computer Systems or other groups to support the data processing program.

FIELD STUDIES

Resident and Juvenile Anadromous Project

Field activities in the Susitna River study area were continued during the month of February, 1981. The study area was divided into two reaches with Talkeetna as a balance point to facilitate the sampling scheme.

Aerial survey revealed hazardous ice conditions downstream of Willow Creek on the lower reach so field activities were shifted closer to the Talkeetna area where numerous mainstream sites as well as sites at the mouths of creeks, sloughs and rivers were sampled.

Utilization of sloughs immediately adjacent to the mainstream by juvenile anadromous salmon was observed to be more common place than in the mainstem current.

Personnel from the Aquatic Habitat Project gave occasional assistance to the Resident and Juvenile Anadromous Project personnel (during this period of field activity).

Aquatic Habitat and Instream Flow Project

Field activities of Aquatic Habitat and Instream Flow Project personnel during February was primarily that assistance given the Resident and Juvenile Anadromous Project personnel in collection of their field data. In addition to that assistance given Resident and Juvenile project personnel, temperature, depth, velocity and conductivity data were recorded at those sites where it was feasible. Additional data will be collected when new equipment orders are processed and additional equipment is procured.

Three surveys were fielded by AH personnel in March. Areas inaccessible by snow machine or fixed-wing aircraft were accessed via helicopter. AH personnel also assisted RJ data collection where practicable.

ADF&G - BIG GAME ACTIVITIES

The main activity during February was editing and rewriting of annual reports. All parts of the reports were completed by the end of the month and the report was due to be distributed during the first week of March. Drafts of approximately half the sections of the report had been sent to TES and Dr. Taber earlier to facilitate preparation of the big game impact assessment report.

Field work continued to be hampered by weather and snow conditions. However, a slight increase in snow depths and cooler temperatures late in the month seems to have caused more moose in the downstream area to move near the Susitna River. Anticipating an improvement in tracking conditions, we geared up for a wolf, wolverine, moose, and caribou tagging operation to begin in early March. We will follow this with moose census and distribution surveys in both the upstream and downstream study area.

An attempt at ground tagging of wolverine was not successful.

Dr. Ronald Modafferi was selected to replace Paul Arneson as principal investigator of the downstream moose study.

The big game investigators held another coordination meeting to review the available vegetation maps and our aerial habitat classification criteria. We concluded that a substantial re-design of studies for Phase II will be necessary to conduct a meaningful analysis of habitat selectivity of big game animals.

Anadromous Adult Project

No field activities were planned or accomplished during the February period. Planning and budget considerations were of primary concern. Project projections call for the employ of 29 seasonal employees to staff three sonar sites, three fishwheel sites, adult survey crews and a radio tagging crew.

No field work was done by AA personnel this month. AA personnel were primarily involved with fishwheel construction. All necessary materials have been purchased and approximately one-half of the required number of floats have been constructed.

TASK 8 - TRANSMISSION

General

Acres kept abreast of developments on the intertie by communicating with Common-wealth Associates on a periodic basis. CAI was informed that the transmission line voltage would be 345 KV with two separate conductor sizes for each of the line sections north and south of Gold Creek.

Subtask 8.01 - Transmission Line Corridor Screening

Work continued on the closeout report for this subtask.

Subtask 8.02 - Electric System Studies

Analyses of contingency events for the alternative transmission schemes continued. Cost estimates for various transmission alternatives were updated. A meeting was held with General Electric representatives to discuss the latest developments in transmission line series compensation equipment.

The following report as received and reviewed:

- Anchorage - Fairbanks Interconnection Feasibility Studies, Commonwealth Associates, Inc., January 1981.

Transient stability studies were started for various transmission alternatives. This included several computer runs.

A comprehensive progress report on Subtask 8.02 was completed and forwarded to APA.

Subtask 8.03 - Route Selection

Work continued on this subtask. Preliminary center lines for alternative routes were defined and marked on USGS maps.

Consideration of 345 KV termination points in the Anchorage area at Point Mackenzie and Palmer was initiated with a view towards seeking input from local utility planners.

Subtask 8.04 - Tower, Hardware and Conductor Studies

Work continued on this subtask. Preliminary conductor sizes were chosen for the 345 KV line, based on analyses of economic and electrical requirements.

Subtask 8.07 - Transmission Line Cost Estimate

Two capital cost estimates were developed to accommodate the following scenarios:

- Susitna Basin development.
- Thermal plant development at Beluga.

The transmission system diagrams were produced and cost estimates prepared according to the switchyards and transmission line lengths.

Documentation of the results of the two conceptual transmission systems and cost estimates was initiated.

TASK 10 - LÍCENSING

ACRES ACTIVITIES

Internal review of responsibilities for Exhibit V was made with a resultant suggested table of contents and specifically assigned areas.

On January 23, the FERC approved proposed regulations which would supersede the existing rules for license application for major, unconstructed projects were reviewed. The comment period for the proposal closes on March 27, and the final rules may follow from two to six months later, depending on the nature of comments. These rules will be obtained and reviewed over ensuing weeks to consider impacts on the project study.

Work continued on updating of the Subtask 6.02 Design Transmittal which will be completed in May. A meeting was scheduled for April 21 at the FERC office to brief staff on study progress and discuss several licensing issues.

TASK 11 - MARKETING AND FINANCE

General

Primary attention in March was focused upon final preparation and publication of the Project Overview Report (POR) in summary form. Other Task 11 activities were held to a minimum since legislation, now under consideration in Alaska is expected to have significant impact on future finance and marketing studies.

Subtask 11.01 - Project Overview Preparation and Update

An assembly of the first draft chapters of the Project Overview Report were prepared and distributed within the project team for review. The volume of copy presented by individual chapter authors now requires substantial editing down to any appropriately concise and pertinent level. The advanced drafts of Chapter 13 - Power and Energy Marketing, Chapter 16 - Financial Analysis, and Chapter 17 - Security of The Project Capital Costs and Revenue Structure were explained to the managing underwriters and financial advisors against the general background of the plan of study, during Washington, D.C. meetings on February 5th.

A final draft of the summary POR was circulated for review by the Power Authority and for final in-house review. This document was published and transmitted to the Power Authority on March 26, in accordance with the schedule which had been approved earlier by the Power Athority. Work continued on the review and update of the comprehensive chapters which will support each of the summary sections in the POR. This latter volume will be published as an appendix to the POR shortly after final publication of the Development Selection Report. Draft copies of this appendix were furnished to the Power Authority during the reporting period.

Subtask 11.02 - Internal Reports

Financial analysis of various alternatives proceeded in preparation for meeting with the managing underwriters group and later in the month to test the sensitivity of the project to various energy pricing scenarios at the time the Susitna project would come into operation. This involved also economic analysis runs using the Fezbl model as back up to the OGP-5 system planning runs. Attention was concentrated on the significance of energy/power pricing in the early years of operation to obtain reliable data for formulating financing options.

Analysis of the railbelt utility market prospects proceeded through review of fillings with Apuc and other data with a view of assessing the significance of purchasers/consumers in financing arrangements. Typical financing/marketing scenarios offered by other utility systems were reviewed in a study of precedent situations.

Financial runs were made on the OGP-5 program using most recently estimated "not-to-exceed" project costs. Inflation and interest rates were run at 7% and produced by the Fezbl financial modelling efforts.

Subtask 11.06 - Financing Risk Analysis

Financing risks were further reviewed and progress made to a comprehensive treatment of overall risk.

Subtask 11.07 - Resolution of Tax Exempt Board Issue

Attendance was provided at a Washington conference arranged by First Boston Corporation to review the current position on efforts to secure necessary relaxation of IRS Section 103 rulings to permit tax exempt bond issue for Susitna and other hydroelectric power projects.

TASK 12 - PUBLIC PARTICIPATION

ACRES ACTIVITIES

Acres coordinated with N. Blunk of APA and TES in the preparation of materials and designation of personnel for the March access road agency meeting and public workshops.

These meetings on the access roads and recreation were held in Fairbanks, Talkeetna, and Anchorage on March 16, 17 and 19 respectively.

TASK 13 - PROJECT ADMINISTRATION

Subtask 13.04 - Schedule Monitoring

The project schedule was updated to March 2, 1981 and again to April 6, 1981 with appropriate changes being made in logic and durations. Copies of the April 6, 1981 version of the Master Schedule, computer generated bar chart and revised schedule are appended to this report. Schedule monitoring is continuing.

Subtask 13.05 - Cost Control

The January report indicated that the publishing dates of the cost report were change to bimonthly. The combined January/February report was published in March.

A Frank Moolin Associates representative continued to work in the Acres Anchorage office on cost control throughout the reporting period.

TASK 14 - ADF&G SUPPORT

Routine office administration continued in addition to a significant build-up of activities related to ADF&G support needs.

Procedures were established for purchasing of ADF&G equipment. Acres acts as purchasing agent, processing all purchase orders, expediting and making payment on items purchased. To date, approximately \$327,000 has been expended for 22 purchase orders.

The warehouse and maintenance building to be utilized by ADF&G, and for the storage of the drill cores, was completed and occupied.

The annual inventory of all project equipment was initiated.

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EXHIBIT W MATERIAL COMPLETE EXHIBIT S MATERIAL COMPLETE SELECT INITIAL CORRIDORS FIN X LOAD FLOW ANALYSIS FIN .

PRELIMINARY ELEC SYSTEM ST CC FRELIMINARY ELEC SYSTEM FIN .

RECOMMEND ELEC SYSTEM FIN .

RECOMMEND ELEC SYSTEM FIN .

RECOMMEND ELEC SYSTEM FIN .

FINAL ROUTE SELECTION 1981 CT-1.

FINAL ROUTE SELECTION 1981 CT-1.

FINAL ROUTE SELECTION 1981 CT-2.

FINAL ROUTE SELECTION 1981 FIN .

TOWER HARDWRE&CONDUCTR STUDY ST .

TOWER HARDWRE&CONDUCTR STUDY FIN .

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                TOWER HARDWRE&CONDUCTR STUDY FIN .

SUBSTATIONS ST XXXXXXXX

SUBSTATIONS FIN .

DISPATCH CTR & COMMUNICATNS ST XXXXXXXX

DISPATCH CTR & COMMUNICATNS FIN .

TRANS LINE COST ESTIMATES ST X

TRANS LINE COST ESTIMATES FIN .

ASSEMBLE COST-SCHEDULE DATA ST . XX

ASSEMBLE COST-SCHEDULE DATA FIN . XXXX

PREF PRELIM CST ESTIMATES . XXXX

COST ESTIMATE UPDATES

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                  EXHIBIT O MATERIAL COMPLETE
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1001
       IMPACT OF NEW FERC REGULATIONS
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      1ST UPDATE-REGULATORY REQ
2ND UPDATE-REGULATORY REQ
DATA FROM OTHERS
10022
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10023
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1003
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1003XX EXHIBIT A B & C MATERIAL COMPLETE.
      COORD EXHIBIT PREPARATION
1004
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       PREP APPLICATN FORM-DRAFT
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1008
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       EXTERNAL REVIEW
10XXX
       PRINT LICENSE APPLICATION
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       PROJECT OVERVIEW
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12022 CONDUCT PUBLIC MEETING #2
12023 CONDUCT PUBLIC MEETING #3
12031 CONDUCT WORKSHOPS 1,2,3
12032 CONDUCT WORKSHOPS 4,5,6
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1204
       PREP PUBLISH DISTRIB MATERIAL
                                       1205
       PREF MAINTAIN ACTION LIST
13013
       PROJECT PROCED MANUAL-UPDATE
                                       13042
       SCHEDULE CONTROL SYS UPDATE
       COST CONTROL SYSTEM-OF MANFOWER LOADING SCHED-UPDATE
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13062
1310
       SUB CONTRACT ADMINISTRATION
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       PROJECT COMPLETE XXX
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PAGE
TIME NEW: 6APR81

CPM ANALYSIS LISTING

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CFM ANALYSIS LISTING

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	31200		OPB 1 C4	3101	LWR SUSITNA STUDIES-PRE	LIM FIN	6AFR81	17AFR81	20APR81	1MAY81	2	C	1
31200 31500	31500	17 22	OPB C4 OPB C4	3102 3102	LWR SUSITNA STUDIES-FOLL	LOWUE ST.	20AFR81	14AUG81	4MAY81	28AU681	2	()	1
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42800 40200	43000	2 <u>7</u> R	OPA C4 OPB 1 C1	409 410	LONG TERM MONITORING PRO	OGRAM	27JUL81	29JAN82	21DEC81	25JUN82	21	24	1
40200	41800	5 R	OPB 1 CI	410	LONG TERM MONITORING PRI RESERVOIR INDUCED SEISM SEISMIC GEOLOGY-FIELD ST	ICITY	6APR81	8MAY81	50CT81	TAVOVA	26	21 28 0	i
42400 41400	42600 41600	30 D	OPA C4 OPB 1 C1	411 412	5115M1C 0EUCUG1-F1ECU 5	IUDY FT CT	6AFR81	24JUL81	6APR81	24JUL81	21 26 0	0	1 CRITICAL
41600	41800	- 27 K	TOPR 1 C1	412	EVALUATION & REPORT DRAF	FT ST	OHEROI	230CT81		230CT81	0	Q)	1 CRITICAL
41800	42000	~	OPB 1 C1 OFB 1 C1	412	EVALUATION & REPORT DRAI EVALUATION & REPORT DRAI	FT FIN	9000101	4DEC81	260CT81 9NOV81	6NOVB1 4DEC81	V	00	1 CRITICAL
44400	44600	11 R	OFB 1 C1	413	GROUND MOTION STUDIES GROUND MOTION STUDIES DAM STABILITY CONSULTING SOIL SUSCEPTITY-SEISMIC	ST	6APRB1	19JUNB1	11MAYR1	24.111.81	5	5	1 CRITICAL
44600	41800	15	OPB 1 C1	413	GROUND MOTION STUDIES	FIN	27JUL81	6N0V81	27JUL81	6N0V81	ŏ	50	i CRITICAL
45600	41800	28 R	OFR 1 C1	414	DAM STABILITY CONSULTING	3	6APR81	160CT81	27AFR81	6N0V81	<u>ئ</u>	3	1
45200 51200	45400 51600	22	OPB 1 C1 OPB 1 C1	415	SUIL SUSCEPTITY-SETSMIC	FAIL	6AFR81	4SEF81	6JUL81	4DEC81	13	\mathbb{Z}^{n}	1
52200	52600		OPB 1 C1	502 505	AIR PHOTO INTERPRETATION	Y FIN	44PPO1	24APRB1	6AFK81	24AFRB1	0	Q	1 CRITICAL
52400	52600		OPA C4	506	AIR PHOTO INTERPRETATION 1981 PROGRAM DESIGN 1981 EXPLORATION PROGRAM 1981 EXPLORATION PROGRAM 1982-4 PROGRAM DESIGN DATA ASSEMBLY-1980	M EL Lin	TVDDD1	1745601	1241461	24HLK81	1		1
52600	52700	20	OFA C4	506	1981 EXPLORATION PROGRA	M FIN	20APR81	4SEP81	27AFR81	11SFPRI	1	ŏ	7
53800	54000	9	OPB 1 C1	507	1982-4 PROGRAM DESIGN		6JUL81	45EP81	18JAN82	19MAR82	28	28	1
51600	51800	7	OPB 1 C1	5081							0	- Q	1 CRITICAL
53000 53400	53200 53600	2 <u>2</u> 7	OPB 1 C1 OPB 1 C1	5082	DATA ASSEMBLY-1981 DRAF DATA ASSEMBLY FINAL-DRAF	<u>I</u> FIN	6AFR81	48EF81	13AFR81	115EP81	2	_0	1
64300	67100	2 R	OPB 1 C1 OPB 1 C4	5083 602	INVESTIGATE TUNNEL ALTE	T I DNATTHER	/5EF81	17/00/01	1MAKB2	16AFK82	25 1	25	
67000	67100	1	OPB 1 C4	6052	SELECT REPORT FINAL DRAF	FT CT-1	AAPRR1	1000001	2000001	7440001	3		1
67100	67200	Ž	OPB 1 C4 OPB 1 C4	6052 6053	SELECT REPORT FINAL DRAI SELECT REPORT FINAL EDI	FIN FIN	20APR81	1HAY81	27AFR81	BMAYBI	1	0	1
67200	672A0	3	OPB 1 C4		SELECT REPORT FINAL EDI	TION	4MAY81	22MAY81	11MAY81	29HAY81	ī	72	i
631A0 63200	63200 63300	8 K 1	OPB 1 C5 OPB 1 C5	607	FRELIA WATERA DAN ALIEK	NAILS LI-2	2/AFK81	1470081	18WAY81	10.III.R1	3310044	Q	1
63300	633A0	Ô		607 607	PRELIM WATANA DAM ALTER PRELIM WATANA DAM ALTER	NAIES CI-S NATER EIN	22JUNB1	26JUN81	1370181	1/JUL81	ु उ	7	1
64600	64700		OPB 1 C6	809	PRELIM DEVIL CANYON DAM	THE CT-1	15,0061	10JUL81	20JUL 81	1/JUL81	· I	Ö	1 COTTECN
64700	64800	0	OPB 1 C6	608	PRELIM DEVIL CANYON DAM	ALT FIN	27.111.81	24.1111 81	27.111 81	24.III R1	ň	ă	1 CRITICAL 1 CRITICAL
69200	69300		OFB 1 C4	609	ESTAB WATANA DESTON CRI	IEKIA CI-1	15JUN81	26JUN81	13JUL81	24.1111.81	4	Õ	1 CHITTONE
69300	69400	7	OPB 1 C4	609	ESTAB WATANA DESIGN CRI	TERIA CT-2	29JUNB1	14AUG81	27JULB1	115EP81	4	ž	Ī
69400	69500	1 7 7	OPB 1 C4	609	ESTAB WATANA DESIGN CRI	TERIA FIN	75EF81	115EF81	145EF81	18SEF81	1	0	1
63500 63600	63600 63700	7	OPB 1 C4 OPB 1 C4	610 610	ESTAB DEVIL CANYN DESGN	CRIT CT-2	1970481	26JUN81	1370781	24JUL81	4	9	1
63700	63800	Ý	OPB 1 C4	610	ESTAB DEVIL CANYN DESGN ESTAB DEVIL CANYN DESGN	CRII CITZ	27JUN01	1460001	1/00001	1125581	4	3	1
66200	66300	9 R	ÖPÐ Í Č5	611	PRELIM DESIGN WATANA DAI	Y ST	13.111.81	11SEP81 11SEP81	20.1111 81	185FF81	†	0	1
66300	66400	11	OPB 1 C5	611	PRELIM DESIGN WATANA DA	M CT-1	14SEP81	27NOV81	215EP81	4DEC81	i	ĭ	1
66400	66500	4	OFB 1 C5	611	FRELIM DESIGN WATANA DAI	4 FIN	7NFCR1	1JAN82	7DEC81	1JAN82	0	ō	1 CRITICAL
65200 65300	65300 65400	10	OPB 1 C6	612	PREL DESIGN DEVIL CANYON PREL DESIGN DEVIL CANYON PREL DESIGN DEVIL CANYON	N DAM ST	27JUL81		27JUL81	20CT81	0	0	1 CRITICAL
65400	65500	4	OPB 1 C6 OPB 1 C6	612 612	LVET RESIGN BEATT CANADA	N DAM CI-1	50CTB1	4DECB1	50CT81	4DEC81	Ŏ	Ŏ	1 CRITICAL
69800	69900	11	OPB 1 C4	613	DAM SELECTION REPORT-DRI	AFT ST	7DEC81 27JUL81	1JAN82	7DEC81 190CT81	1JAN82 1JAN82	12	0 12	1 CRITICAL
69900	68500	5	OPB 1 C4	613	DAM SELECTION REPORT-DR	AFT FIN	4JAN82	5FEB82	4JAN82	5FEBB2	0	0	1 CRITICAL
61100	61200	į R		614	SPILLWAY DESIGN CRITERIA	a st	6APR81	10APR81	11MAY81	15MAY81	รั	ĭ	1 ONLINGT
61200	61300	8	OPB 1 C4	614	SPILLWAY DESIGN CRITERIA	A FIN	20APR81	12JUN81	18MAY81	10JUL81	4	Ō	1
60600 61300	60700 60600	10	OPB 1 C5 OPB 1 C5	615 615	WATANA SPILLWAY ALTERNA	IIVES FIN	27JUL81	20CT81	24AUG81	300CTB1	4	Q	1
61300	61400	3	OFB 1 C6	616	WATANA SPILLWAY ALTERNA DEVL CAN SPILLWAY ALTERI	NATUE CT	15JUN81	24JUL81	13JULU1	21 AUG81	4	0	1
			UU	440	TEAL DIE OF TELMEN METERS	miar of	エックのはひて	PUNCOT	13JUL81	STANFAT	4	3	

FAGE TIME NUM: 6APR81

	I-NODE	J-NODE	DUR	SELECT CODES		-DESC	RIPT	ION			E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL	* des
	61400 621A0 62200	61500 62200 62300	8	OFB 1 C6 OFB 1 C5 OFB 1 C5	616 617 617	DEVL CA PRELIM	N SPILLU DESGN W	WAY AL	TERNATVE SPILLWAY	FIN ST CT-1	27JUL81 6APR81 50CT81	18SEP81 1MAY81 300CT81	3AUG81 50CT81 2NOV81	25SEP81 300CT81 27NOV81	1 26	220	1	
	62300 61500	62400 61600	10	OPB 1 C5 OPB 1 C4	617 618	PRELIM	DESON WA	ALANA :	SPILLWAY	F IN	2NUV81	SUMPLE TAULT	SOMOART	71111111111111111111111111111111111111	4	3	1	
	61600 64900	61700 65000	13	OPB 1 C6 OPB 1 C4 OPB 1 C4	618 619	PRELIM SPILLWA	DES DEVI Y SELEC	IL CAN IN REP	SPILWAY RT-DRAFT	FIN ST	2NOV81 50CT81	29JAN82 13NOV81	9NOV81 28DEC81	5FEB82 5FEB82	1 <u>1</u>		ī 1	
	65000 6A000	65100 6A100	3	UPB 1 C5	619 620	50000	7	IN MERI	* I - II * O P I	P-1N	100000	30467	MPPHHY	I / MUNK/	32		1	
	6A100 60000	6A200 60100	6	OPB 1 C5 OPB 1 C5	620 621	ACCESS WATANA	& CAMP F DIVERSI	FACILI ON SCH	TIES EMES EMES	FIN	26UCT81 6APR81	180EC81 15MAY81	7UECB1 21SEP81	4DEC81 29JAN82 300CT81 25DEC81 25DEC81	24 4	20	1	
	60100 67300 67400	60200 67400 67500	11	OPB 1 C5 OPB 1 C6 OPB 1 C6	621 622 622	DEVIL C	ANYON DI ANYON DI ANYON TI	IVERSN IVERSN	SCHEMES SCHEMES	ST	6APR81	19JUN81	120CT81	25DEC81 25DEC81	27 14		1	
	61800 51900	61900	10	OFB 1 C4	623 623	OPT WAT	ANA POWI	ER DEVI ER DEV	SCHEMES ELOPMENT ELOPMENT	ST CT-1	27JUL81 75EP81	4SEP81 13NOV81	3AUG81 14SEF81	11SEP81 20NOV81	•	0	i	
	62000 65600	62100 65700	5	OPB 1 C4 OPB 1 C4 OPB 1 C4 OPB 1 C4 OPB 1 C4	623 624	OPT WAT	ANA FOW L CANYN	ER DEVI POWER	DEVELOP	FIN	16NOV81 7SEP81	18DEC81 160CT81	23NOV61 120CT81	25DEC81 20NOV81	1 1 5 5 5 7 7	0	1	
	65700 63900	65800 64000	5 6	OPB 1 C4 OPB 1 C4	624 625	OPTIMIZ	E DAM H	PUWER EIGHTS	DEVELUP	ST	6APR81	20NUV81 15MAY81	23NUV81 16NUV81	25DEC81 25DEC81	32 1	31	î	
ಸ	64000 64100 69500	64100 64200 69600	0 15	OFB 1 C4 OFB 1 C5	625 625 626	OPTIMIZ PRFL DE	E DAM H	EIGHTS AN FOW	FR NEVEL	FIN	1FER82 14SFP81	29JAN82 25DEC81	1FEB82 21SEP81	20NOV81 25DEC81 25DEC81 25DEC81 25DEC81 29JAN82 29JAN82 1JAN82	0	Ô	1 (CRITICAL
,	69600 66600	69700 66700	5	OPB 1 C5	626 627	PRFI NE	S DEUL	CAN PO	UR DEVEL	ST	14SEP81	250FC81	219FPR1	1.1482	. Î	Õ Q	1	
	66700 67600	11000	15 5 5	OPB 1 C6 OPB 1 C4	627 628	PREL DE POWER I	S DEVL (CAN PO NT REP	WR DEVEL RT-DRAFT	FIN	28DEC81 14SEP81	29JAN82 160CT81	4JAN82 28DEC81	5FEB82 29JAN82 5FEB82	15	14	1	
	67700 67800	67800 67900	1	OFB 1 C4 OFB 1 C4	628 628	POWER I	EVELOPM	NT REP	RI-DRAFT RT-DRAFT	CI-1 CT-2	1FEB82	5FEB82	1FEB82 8FEB82	12FEB82	1	0	1	
	67900 60300 60400	68000 60400 60500	4,55	OFB 1 C5 OFB 1 C5	629 629	WATANA WATANA	GENERAL GENERAL	ARRAN ARRAN	RI-URAFI GEHENT GEMENT	ST FIN	30NDV81 1FFR82	8JAN82 5MAR82	28DEC81 8FEB82	12FEB82 12MAR82 5FEB82 12MAR82 16APR82	4	0 3 0	1	
	60500 60800	605A0 60900	Ŏ 6	OFB 1 C4 OFB 1 C4 OFB 1 C4 OFB 1 C4 OFB 1 C5 OFB 1 C5 OFB 1 C5 OFB 1 C6 OFB 1 C6	629XX 630	EXHIBIT DEVL CA	J MATE	RIAL C AL ARR	OMPLETE ANGEMENT	ST	8MAR82 21SEP81	5MAR82 300CT81	19AFRB2 28DEC81	16APR82 5FEB82	6 14	13	i	
•	60900 61000	OTAMA	5	OLD I CO	630XX	EXHIBIT	K MATE	RIAL C	OMPLETE		8MAR82	5MAR82	15MAR82	12MAR82	1	0	1	
•	68000 68400 68500	680A0 68500 68600	Q 1 A	OPB 1 C4 OPB 1 C4 OPB 1 C4	630XX 631 631	PROJECT	M MAILI FEASIB	KIAL C L REPO	OMPLETE RT-DRAFT RT-DRAFT	ST-1	BMARB2 21DECB1	25DEC81	19AFK82 1FEB82 8FEB82		6	6 6 0	1	CRITICAL
	68600 68700	68700 68800	1	OFB 1 C4 OFB 1 C4	631 631	PROJECT	FEASIB	L REPO	RT-DRAFT RT-DRAFT	CT-2	8MAR82	12MAR82	8MAR82	12MAR82	Ŏ	Ŏ	1 (CRITICAL CRITICAL
	68800 68900	68700 67000	4	OPB 1 C4 OPB 1 C4	631 631	PROJECT PROJECT	FEASIB	L REPO L REPO	RT-DRAFT RT-DRAFT	CT-4	22MAR82 19AFR82	16APR82 16APR82	22MAR82 19APR82	16AFR82 16AFR82	0	0	1 (CRITICAL CRITICAL
	69000 6C100	690A0 6C200		OPB 1 C4 R OPB 1 C2	631XX 637	EXHIBIT UPDATE	L MATEI GENERAT	RIAL C ION PL	OMPLETE AN		19APRB2 6APRB1	16AFR82 BMAY81	19AFR82 29MAR82	16APR82 30APR82	0 5 <u>1</u>	0 59	1 (CRITICAL
	69800 71400 71600	6B900 71600 71800	0	R OPB 1 C2 OPB 1 CB R OPB 1 CB	638 7011 7012	STUDY (COORD-AL	.TERNAT	ONSULTAN IVE SITE LTERNATV	FIN	6APR81	3AFR81 10JUL81	6aprei	25JUN82 3AFR81 17.III.81	0	0	1 (CRITICAL
	71800 72000	72000 72200	0 28	OPB 1 CB OPB 1 CB	7012 7013	STUDY (COORD-PR COORD-OF	ELIM A	LTERNATV D DESIGN	FIN	13JUL81 20JUL81	10JUL81 29JAN82	20JUL81 20JUL81	17JUL81 29JAN82	1 0	1 0	i i (CRITICAL
	79300	79400	59	R OFB 1 CB	702	HONITO	R FIELD	ACTIVI	TIES	CT-1	6APR81	21MAY82	11MAY81	25JUN82	5	0	1	

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	I-NODE	J-NODE	DUR	SELECT	CODES		DESC	RIP	TION	to be to the six on an		E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL
	79400 71600 72000 73200	70600	15 R 28 0	OPB 1	C8 C8 C8	702 7042 7043 705	MONITOR WTR RES WTR RES SOCIOEC	FIELD -FRE W -OPT W ONOMIC	ACTIVI JAT&DEVL JAT&DEVL ANALYS	TIES CAN ALT CAN DES	FIN	24MAY82 6APR81 20JUL81 8MAR82	21MAY82 17JUL81 29JAN82 5MAR82	28JUN82 6APR81 20JUL81 8MAR82	25JUNB2 17JUL81 29JAN82 5MAR82	5 0 0	5000	i CRITICAL i CRITICAL i CRITICAL i CRITICAL i CRITICAL i I i i i i i i i i i i i i i i i i i i
	73300 78600 78700 78800	73200 78800 79000	48 2 R	OPB 1	C8 C8 C9	705 7061 7061 7061	SOCIOEC CULTURA CULTURA CULTURA	ONOMIC L ALTE L-ALTE L ALTE	ANALYS RNATIVE RNATIVE RNATIVE	IS SITES SITES SITES	CT-2 ST FIN FIN	6APR81 6APR81 14SEP81 20APR81	5MAR82 17APR81 11SEP81 11SEP81	6AFR81 13AFR81 21SEF81 27AFR81	5MAR82 24APR81 18SEP81 18SEP81	0 1 1	9000	1 CRITICAL
	78900 79000 79100 79400	/9/00	15	OFB 1 OFB 1 OFB 1 OFB 1 OFB 1	C8 C8 C8 C8	7062 7062 7062 7063	CULTURA CULTURA CULTURA CULTURA	L PREL L PREL L PREL L-OPTI	IM ALTE IM ALTE IM ALTE MIZED D	RNATIVES RNATIVES RNATIVES ESIGN	ST CT-1 FIN ST	6APR81 14SEP81 23NOV81 6APR81	29NAY81 20NOV81 20NOV81 17JUL81	27JUL81 21SEP81 30NOV81 17AUG81	185EP81 27NOV81 27NOV81 27NOV81	16 1 1 19	noon	4
	79700 79800 79900 75200	79900 799A0 75300	0 0 70 P	OFB 1 OFB 1 OFB 1	C8 C8 C8	7063 7063 706XX 7071	CULTURA CULTURA EXHIBIT LAND US	L-OFT] L-OFTI V MA] E ALTE	MIZED D MIZED D ERIAL C RNATIVE	ESIGN ESIGN OMPLETE SITES	CT-1 FIN ST	23NOV81 12APR82 12APR82 6APR81	9APR82 9APR82 9APR82 300CT81	30NOV81 19APR82 19APR82 4MAY81	16AFR82 16AFR82 16AFR82 27NDV81	1 1 1 4	OMO	
	75300 75900 76000 76100	76000 76000 76100 76800	0 8 10 0	OFB 1 OFB 1 OFB 1 OFB 1 OFB 1 OFB 1 OFB 1	C8 C8 C8	7071 7072 7072 7072	LAND US LAND US LAND US	E ALTE E PREL E PREL E PREL	RNATIVE IM ALTE IM ALTE	SITES RNATIVES RNATIVES RNATIVES	FIN ST CT-1 FIN	2NOV81 6APR81 2NOV81 11JAN82	300CT81 29MAY81 8JAN82 8JAN82	30NOV81 50CT81 30NOV81 8FEB82	27NOV81 27NOV81 5FEB82 5FEB82	26 4 4	2200	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	76700 76800 76900 72500	76800 76900 77000 72700	15 20 0 6	OFB 1 OFB 1 OFB 1	C8 C8 C8	7073 7073 7073 708	LAND US	E OPTI	MIZED D	ESIGN ESIGN	CT-1	11JANB2 31MAYB2	17JUL81 28MAY82 28MAY82 15MAY81 5MAR82	8FEB82 28.IUNR2	25JUNB2 25JUNB2	29 4 A	9	1
	72600 73500 73700 73800	73800	11 R	ก็หั้ง	řă	708 7092 7101 7101	RECREAT TRANS L FISH EC FISH EC	ION PL INE AS OLOGY OLOGY	ANNING SESS RT ALTERNA ALTERNA	E SELECT TV SITES TV SITES	FIN N CT-2 FIN	1FEB82 6APR81 3AUG81 190CT81	5MAR82 26JUN81 160CT81 160CT81	1FEB82 13JUL81 50CT81 21DEC81	5MAR82 20CT81 18DEC81 18DEC81	78 0 14 9	14 0 0	1 CRITICAL 1 1 1
	73900 74100 74200 74300 74500	73700 74200 74300 74600	10	OFB 1 OFB 1 OFB 1 OFB 1	C8 C8 C8	7101 7102 7102 7102	FISH EC FISH EC FISH EC	OLOGY OLOGY OLOGY	PRELIM PRELIM PRELIM	ALTERNAT ALTS ALTERNAT	CT-1 FIN	4MAY81 6AFR81 190CT81 28DEC81	24JUL81 29MAY81 25DEC81 25DEC81	13JUL81 260CT81 21DEC81 1MAR82	20CTB1 18DEC81 18DEC81 20CTB1 18DEC81 26FER82 26FER82	10 29 9	200	1 1 1 1
ŧ	74500 74600 74700 74900 75000	74600 74700 74800 75000 75100	17 0 30 R	OFB 1 OFB 1 OFB 1 OFB 1	CB	7103 7103 7111	FISH EC FISH EC WILDLIF	OLOGY OLOGY E ECOL	OPTIMIZ OPTIMIZ OGY ALT	ED DESGN ED DESGN ER SITES	CT-1 FIN ST	8FEB82 7JUN82 6APR81	4JUNB2 4JUNB2 4JUNB2 300CTB1	1MAR82 28 JUN82 4MAY81	25JUN82 25JUN82 25JUN82 27NOV81	29 9 32 33 4	20000	
*	75500 75400 75700 76300	75600 75700 76400 76400	8 10 0 15	OFB 1 OFB 1 OFB 1 OFB 1	C8	7111 7112 7112 7112 7113	WILDLIF WILDLIF WILDLIF	E ECOL E ECOL E ECOL	.OGY PRE .OGY PRE .OGY PRE	ER SITES LM ALTER LM ALTER LM ALTER	ST CT-1 FIN	6AFR81 2NOV81 11JAN82	BJAN82	50CT81 30NOV81 8FEB82	27NOV81 5FEB82 5FEB82	26 4 4	2200	
	76400 76500 77100 77200	76500 76600 77300 77500	20 0 10		C8 C8 C8	7113 7113	WILDLIF	E ECOL	OGY OPT	IM DESGN IM DESGN IM DESGN ATV SITE	CT-1	11JAN82 31MAY82	17JUL81 28MAY82 28MAY82 12JUN81	8FEB82 28JUNB2	5FER92 25JUN92 25JUN92 3JUL81	29 4 4 3 3	25 0 4 0	1
	77300 77400 77500 77600	77200 77500 77600 77900	21 8 10 0	OPB 1 OPB 1 OPB 1	C8	7121 7122 7122 7122 7122	PLANT E PLANT E PLANT E PLANT F	COLOGY COLOGY COLOGY	ALTERN PRELM PRELM PRELM	ATV SITE ALTERNAT ALTERNAT ALTERNAT	SCT-1 ST CT-1	15JUN81 6APRB1 9NOV81	6NOV81 6NOV81 29MAY81 15JAN82 15JAN82 17JUL81 4JUN82	6JUL81 50CT81 30NOV81	27NOV81 27NOV81 27NOV81 5FEB82 5FEB82	26 3 3 3	0 23 0 0	
	77800 77900	77900 78000	15 20		C8	7123 7123	PLANT E	COLOGY COLOGY	OPTINI OPTINI	ZD DESGN ZD DESGN	ST CT-1	6APR81 18JAN82	17JUL81 4JUN82	250CT81 8FEB82	5FER82 25JUN82	29 3	26 0	i

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I-NODE	J-NODE	DUR	SELECT	CODES		ESC	RIF	TIO	N		E.S.	E.F.	L.S.	L.F.	T.F.	F.F.	CL
	A0900	10	FLC	C110	10052	PREPAR	E EXHIB	II D		0 #	30NDV81	5FEB82	8MAR82	14MAY82	14	14	1 1 1 1 1 CRITICAL 1 CRITICAL 1 CRITICAL 1 CRITICAL 1 1 1
0080A 0000A		10 6	FLC FLC	C110 C110	1006 1007	PREPAR	E EXHIB F FXHIR	II K		ST	30NUV81 14SFPR1	230CT81	21SFP81	16AFN82 300CT81	10	10	1
A0200	A1100	Λ	EIC	C110	1007	PREPAR	E EXHIB	îi i		FIN	260CT81	20NOV81	2NDV81	27NOV81	i	Ŏ	i
A2200	A2400	6	FLC	C110	1008	PREP A	PPLICAT	N FORM	-DRAFT	ST	30NOV81	8JAN82	8MAR82	16APR82	14	14	1
A2400 A2600	A2600	g	FLC	C110 C110	1008	PREP A	FFLICAT	N FUKM DDERT	-DRAFT	FIN	19AFR82	16APR82	19AFR82	16APR82	Ŏ	Q.	1 CRITICAL
A2800	A3000	2	FLC	Ciio	1010	EXTERN	AL REVI	EN			3MAY82	14MAY82	3MAY82	14MAY82	Ô	(D)	1 CRITTCAL
A3000		6	FLC	C110	10XXX	FRINT	LICENSE	APPLI	CATION		17MAY82	25JUN82	17MAY82	25JUN82	Ŏ	Q	1 CRITICAL
B0000	B0200	63 R 53 R	FLC	C210 C210	1101	PROJEC	T OVERY	IEM			6APR81	18JUN82	13APR81	25JUN82	1	1	1
B0400 B0600	B0600 B0680	23 K	FLU	C210	1102 1102XX	THIFKH	AL KEPU	KIS Edtai	COMPLETE		6AFKB1	9APK82	1345881	16AFK82	1	Q.	1
B1200	B1400	0 42 R	FLC	C210	1103	SUSITN	A BASE	ERIAL R	ISK ANAL	YST	KAPR81	22.JAN82	13AFR81	29.JANR2	1	Ĝ	1
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	38800 33400	39000 33600	0 C OFB 1 C4 0 C OFB 1 C4	3063 3072	HYDRLS&ICE-CHANNEL WTR LVLS HYDR&ICE-RESER SLIDE SURGE RIVER MORPHOLOGY	ST ST	• v				COMPLETE COMPLETE COMPLETE
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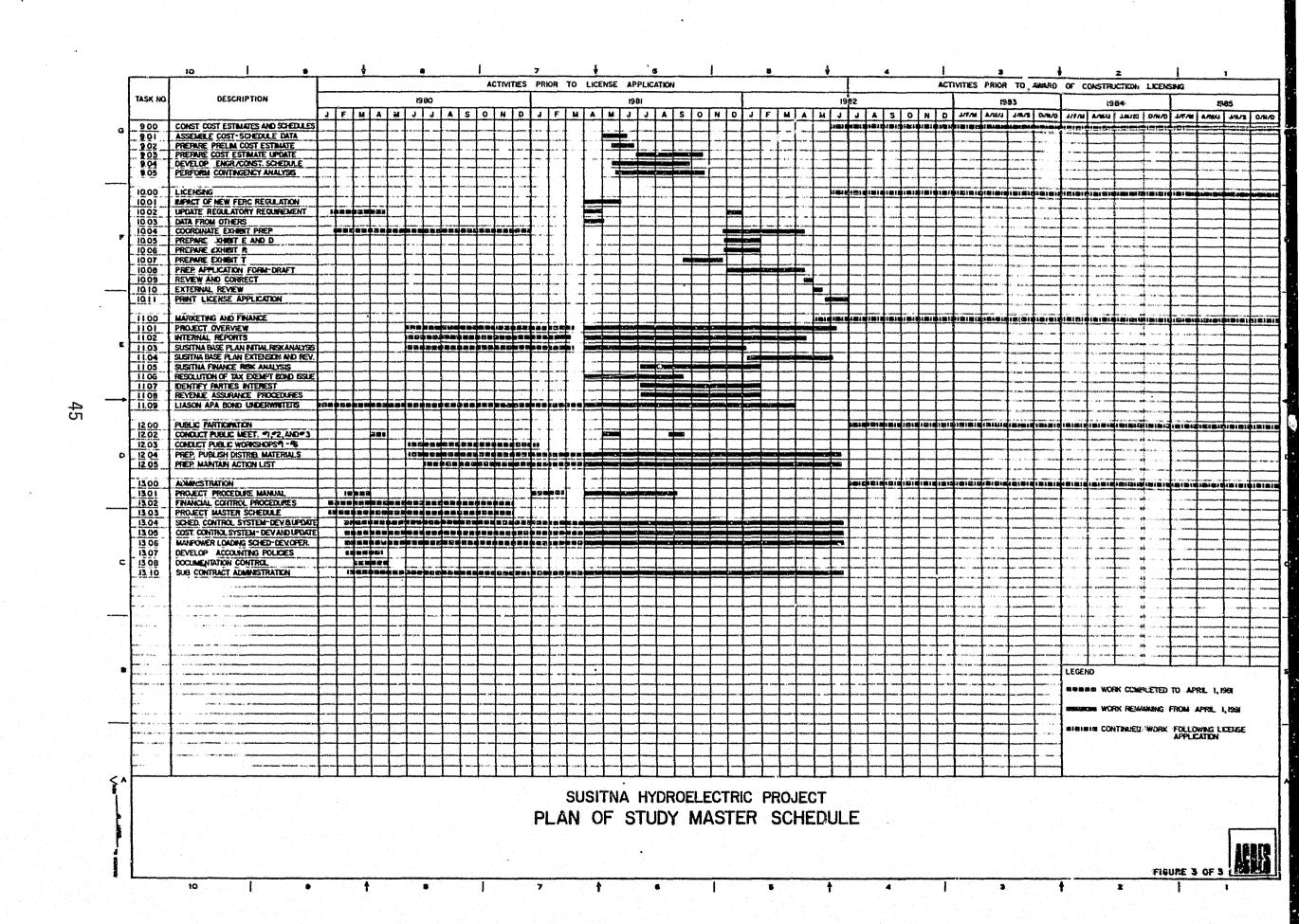
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	52800	53000	0 C OPB 1 C1	5082 I	TIATA ASSEMBLY-1981-TRAFT ST CO	OMPLETE
	62500 625A0	625A0 62600	0 C OPB 1 C4 0 C OPB 1 C4	601 F	REVIEW PREVIOUS STUDIES FIN CO	OMPLETE OMPLETE
	62600 626A0	626A0 62700	0 C OPB 1 C4 0 C OPB 1 C4	603 E		DMPLETE DMPLETE
•	62700 627A0	627A0 62800	0 C OPB 1 C4 0 C OPB 1 C4	603 E	EVAL ALT SUSITNA DEVELOPMENT CT-2 FUAL ALT SUSITNA DEVELOPMENT CT-3	OMPLETE OMPLETE
•	62800	62900	0 C OPB 1 C4	603	EVAL ALT SUSITNA DEVELOPMENT FIN	OMPLETE
•	68100 68200	68200 68300	O C OPB 1 C6	604 I	DEVL CAN ARCH DAM EVALUATION FIN	OMPLETE OMPLETE
	66900 669A0	669A0 67000	0 C OPB 1 C4 0 C OPB 1 C4	6052	SELECT REPORT FINAL UNAFT ST	OMPLETE OMPLETE
	65900 65940	659A0 659B0	0 C OPB 1 C4 0 C OPB 1 C4	606 S		OMPLETE OMPLETE
	459B0 43000	66000	0 C OPB 1 C4 0 C OPB 1 C5	606	STAGED DEVELOPMENT ALTS FIN CO	DMPLETE DMPLETE
4	63100	631A0	0 C OPB 1 C5	607 F	PRELIM WATANA DAM ALTERNATES CT-1 CO	OMPLETE
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	69100 63400	69200 63500	O C OPB 1 C4 O C OPB 1 C4	610 I	ESTAB DEVIL CANYN DESGN CRIT ST	OMPLETE OMPLETE
	6A500 6A600	6A600 6A700	0 C OPB 1 C2 0 C OPB 1 C2	632	THERMAL GENERATION RESOURCE ST CO	DMPLETE DMPLETE
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•	00839 00839	6C700 6C900	0 C OPB 1 C8 0 C OPB 1 C2	030 1	LUHU MHNHUC & CUNDERVE CI	OMPLETE OMPLETE
	4D100 4D300	6D200 6D3A0	0 C OPB 1 C2 0 C OPB 1 C2	6361 6362	GENERATION PLAN PARAMATERS GENERAT PLAN ANALY & REPORT ST	OMPLETE OMPLETE
	6D3A0 6D400	6D400 6D500	0 C OPB 1 C2 0 C OPB 1 C2	6362 6362	GENERAT PLAN ANALY & REPORT ST GENERAT PLAN ANALY & REPORT CT-1 GENERAT PLAN ANALY & REPORT CT-2 C	OMPLETE OMPLETE OMPLETE
	6D500	60600	0 C OFB 1 C2	6362	GENERAT FLAN ANALY & REPORT FIN COSTUDY COORD-ALTERNATIVE SITE CT-2 COSTUDY COORD-ALTERNATIVE SITE ST	JAPLETE ONEL ETE
	71200 70800	71000	0 C OPB 1 CB	701 7011	STUDY COORD-ALTERNATIVE SITE ST	DMPLETE
	71000 79200	79300	0 C OPB 1 CB 0 C OPB 1 CB	7011 702	STUDY COORD-ALTERNATIVE SITE CT-1 MONITOR FIELD ACTIVITIES ST	DMPLETE
	71000 73000	73100	0 C OPB 1 C8 0 C OPB 1 C8	7041 705	MONITOR FIELD ACTIVITIES ST WATER RESOURCE ALT SITES SOCIOECONOMIC ANALYSIS ST	DMPLETE
	73100 72400		0 C OPB 1 C8 0 C OPB 1 C8	/05	SOCIOECONOMIC ANALYSIS CT-1 C RECREATION PLANNING ST C	UMPLETE OMPLETE
• •	71200 736A0	73500	0 C OFR 1 C8 0 C OFR 1 C8	7091 7101	GENERAT PLAN ANALY & REPORT ST GENERAT PLAN ANALY & REPORT CT-1 GENERAT PLAN ANALY & REPORT CT-2 GENERAT PLAN ANALY & REPORT FIN STUDY COORD-ALTERNATIVE SITE CT-2 STUDY COORD-ALTERNATIVE SITE ST STUDY COORD-ALTERNATIVE SITE CT-1 MONITOR FIELD ACTIVITIES WATER RESOURCE ALT SITES SOCIOECONOMIC ANALYSIS SOCIOECONOMIC ANALYSIS SOCIOECONOMIC ANALYSIS ST CORRESOURCE SOCIOECONOMIC ANALYSIS ST SOCIOECONOMIC ANALYSIS ST CORRESOURCE SOCIOECONOMIC ANALYSIS ST CORRESOURCE SOCIOECONOMIC ANALYSIS ST CORRESOURCE SOCIOECONOMIC ANALYSIS ST CORRESOURCE ST SOCIOECONOMIC ANALYSIS ST CORRESOURCE ST SOCIOECONOMIC ANALYSIS ST CORRESOURCE SOCIOECONOMIC ANALYSIS SOCIOECONOMIC ANALYSIS SOCIOECONOMIC ANALYSIS SOCIOECONOMIC ANALYSIS SOCIOECONOMIC ANALYSIS SOCIOECONOMI	OMPLETE

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•	25200 25400 23200 24100 22300	25400 25500 23400 24200	4 R OPA C3 7 OPA C3 3 R OPA C3 8 R OPA C3 1 R OPA C3	207 207 2081 2082 210	SITE SPECIFIC SURVEYS SITE SPECIFIC SURVEY AIR PHOTOS & MAPPING-1980 AIR PHOTOS & MAPPING-1981	CT-1 FIN FIN FIN	6APR81 4MAY81 6APR81 6APR81	1MAY81 19JUN81 24APR81 29MAY81	27APR81 25MAY81 20APR81 18MAY81	22MAY81 10JUL81 8MAY81 10JUL81	0	43 0 0 0	d wind shad shad shad
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	24600 36600 37500 37600	24800 36800 37600 37700	4 R OPA C3 49 R OPB 1 C4 2 R OPB 1 C4 26 OPB 1 C4	215 216 3022 3032 3033							5 17 1 0 0	13 1 0	1 1 1 CRITICAL 1 CRITICAL
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	30400 39000 39200 35600	30400 39100 39300 35800	17 OPB 1 C4 8 OPB 1 C4 8 OPB 1 C4 3 R OPB 1 C4	3061 3063 3064 3071	HYDRLICS & ICE WIR LYLS HYDR&ICE-RESER SLIDE SURGE HYDR&ICE-RSVR TEMP REGIME SEDIMENT YIELD & DEPOSITION	FIN FIN ST	3AUG81 6APR81 6APR81	31JUL81 27NOV81 29MAY81 29MAY81 24AFR81	50CT81 1JUN81 1JUN81	28AUG81 29JAN82 24JUL81 24JUL81 10JUL81	4 9 8 8 11	0 8 4 4 5	1
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	38400 31100	38400 31300	4 OFB 1 C4 10 R OFB 1 C4	3082 309	TRANSMEN LINE-DET PARAMTR ACCESS ROADS HYDROLOGY	FIN	4MAY81 27APR81	29MAY81 3JUL81	17AUG81 7DEC81	11SEP81 12FEB82	15 32	31	1

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	45800 46000 42800 40200	46000 46200 43000 41800	. A	OPB 1 C1 OPB 1 C1 OPA C4 OPB 1 C1	408 408 409 410	DAM STABILITY CT-1 DAM STABILITY FIN LONG TERM MONITORING PROGRAM RESERVOIR INDUCED SEISMICITY SEISMIC GEOLOGY-FIELD STUDY EVALUATION & REPORT DRAFT ST EVALUATION & REPORT DRAFT CT-1	6APR81 22JUN81 27JUL81	19JUN81 31JUL81 29JAN82	4MAY81 17MAY82 21DEC81	17JUL81 25JUN82 25JUN82	222447 471600	0 47 21 26 0	· + + + + + + + + + + + + + + + + + + +
•	42400 41400 41600	42600 41600 41800	16 K	OPA C4 OPB 1 C1 OPB 1 C1	411 412 412	SEISMIC GEOLOGY-FIELD STUDY EVALUATION & REPORT DRAFT ST	6APR81 6APR81	24JUL81 230CT81	6APR81 6APR81	24JUL81 230CT81	26 0 0	26 0 0	1 1 CRITICAL 1 CRITICAL
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. •	45600 45200 51200	41800 45400 51600	22 3 R	OFB 1 C1 OFB 1 C1 OFB 1 C1	Δ1Λ	GROUND MOTION STUDIES ST GROUND MOTION STUDIES FIN DAM STABILITY CONSULTING SOIL SUSCEPTITY-SEISMIC FAIL AIR PHOTO INTERPRETATION FIN	6APR81 6APR81 6APR81	160CT81 4SEP81 24APR81	27AFR81 6JUL81 6AFR81	6NOV81 4DEC81 24APR81	0000503301	70	3
	52200 52400 52600 53800	52600 52600 52700 54000	2 R 20	OPA C4	505 506 506 507	1981 PROGRAM DESIGN FIN 1981 EXPLORATION PROGRAM ST 1981 EXPLORATION PROGRAM FIN	6APR81 6APR81 20APR81	17APR81 17APR81 4SEP81	13APR81 13APR81 27APR81	24APR81 24APR81 11SEP81	1 1 1	0	And 4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-
ຫຼາ	51600 53000 53400	51800 53200 53600	7 22 7	OPB 1 C1 OPB 1 C1 OPB 1 C1	5081 5082 5083	SOIL SUSCEPTITY-SEIGHIC FAIL AIR PHOTO INTERPRETATION FIN 1981 PROGRAM DESIGN FIN 1981 EXPLORATION PROGRAM ST 1981 EXPLORATION PROGRAM FIN 1982-4 PROGRAM DESIGN DATA ASSEMBLY-1980 FIN DATA ASSEMBLY-1981 DRAFT FIN DATA ASSEMBLY FINAL-DRAFT INVESTIGATE TUNNEL ALTERNATIVES	27APR81 6APR81 7SEP81	12JUN81 4SEP81 230CT81	27APR81 13APR81 1MAR82	19MARB2 12JUN81 11SEP81 16APR82	28 0 1 25	28 0 0 25	1 CRITICAL
0	64300 67000 67100 67200	67100 67100 67200 672A0	2 R 1 2 3	OPB 1 C4 OPB 1 C4 OPB 1 C4 OPB 1 C4	602 6052 6052 6053	SELECT REPORT EIGHT DEVEL CT"1	7.70004	4040004	7885564	A A A E P. C. C. A	1 2 1	0 1 0 77	4 mm 4 m
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		69400 69500 63600	7 1 2 R	UFB 1 C4	609 609 610	ESTAB WATANA DESIGN CRITERIA CT-2 ESTAB WATANA DESIGN CRITERIA FIN ESTAB DEVIL CANYN DESGN CRIT CT-1	29JUN81 7SEP81 15JUN81	14AUG81 11SEP81 26JUN81	27JUL81 14SEP81 13JUL81	1185EP81 185EP81 24.III.81	1 4	300	***
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