Figure 5
Employment Impacts of the Nenana Coal-Fired, Electric Power Facility

Employment Sector	New Fulltime Jobs
1. Plant Operations	75
2. Nenana Commercial/Retail	35
3. Transportation	15
4. Agriculture	50-200
5. Timber/Wood Products	100-250
6. Other (Government, Schools, etc.)	15- 25
Totals	**165-600**

In addition to these fulltime, long term jobs, construction of the plant, related facilities and appurtenances will create approximately 2,000 work years in the Alaska construction industry.

Environmental Impacts: All water and air emissions and impacts will be maintained in strict compliance with Federal and State standards.

Selection of the fluidized bed firing technology and use of air cooled condensers and/or waste heat sales will assure minimal environmental impacts from the plant.

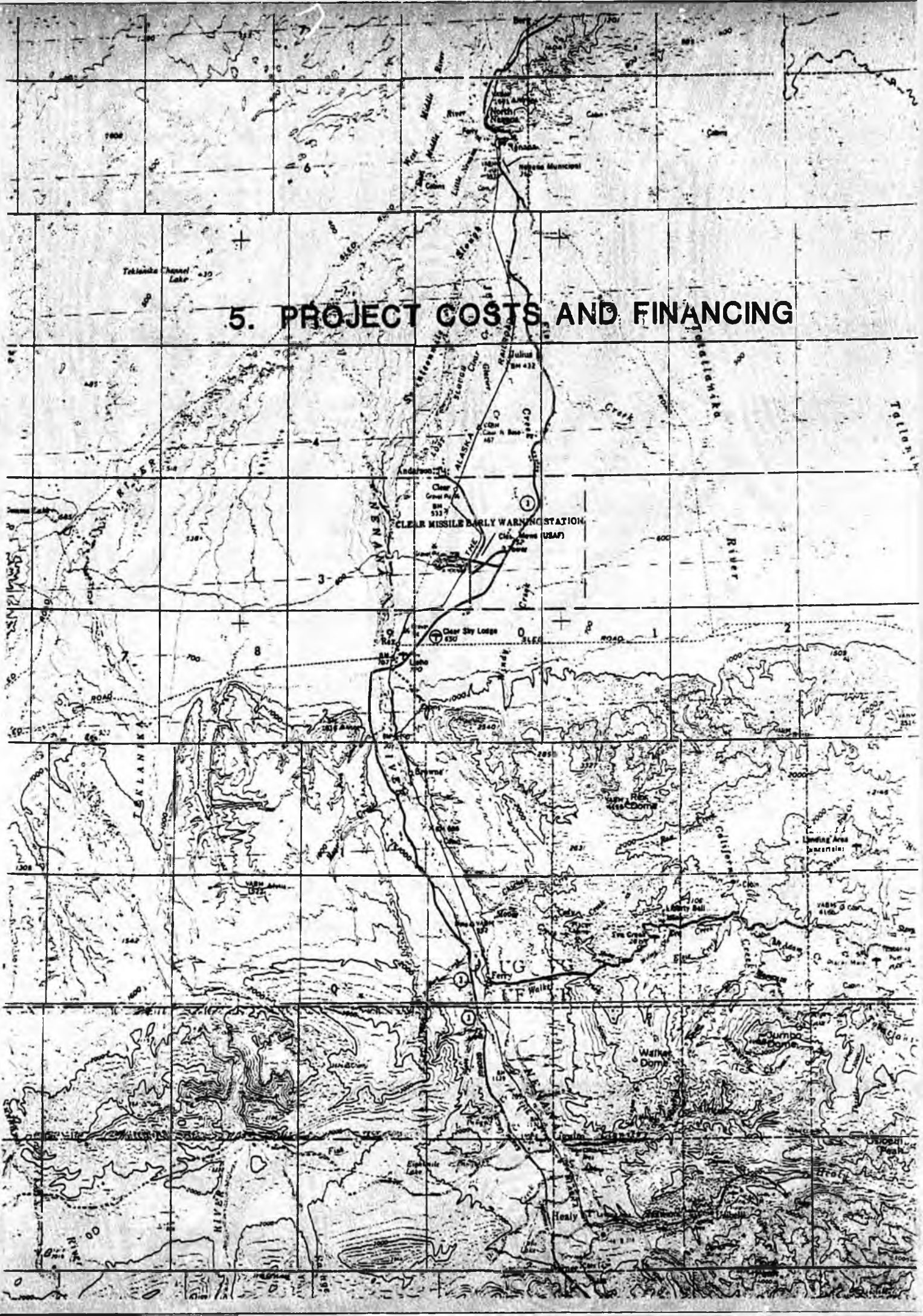
Air quality will not be jeopardized by plant operations, as the fuel burned will be low sulfur. The plant and firing system design assures that all, or virtually all, visual and physical impacts from emissions are eliminated in the firing process.

Use of air-cooled condensers will eliminate the need for disposal of heated water into the river system. No cooling ponds or direct dumping will be required or employed, as heated water will be recycled back into the plant.

All environmental impacts, mitigating measures and implementing actions must be defined and agreed upon at the local, State and Federal level prior to construction of the plant.

Socio-Economic Impacts: Construction and operation of the plant and related facilities will have a substantial impact on the social and economic conditions in Nenana and the surrounding area.

Over the long term the population of the community may at least double. Additional schools and other government services will be required, and a new zoning ordinance will be required. Numerous transportation, housing, recreation, cultural, public safety and other programs will require consideration and action to manage growth. During construction careful attention will be required to assure maintenance of public safety and transportation facilities for residents and visitors. Each requirement in the socio-economic impacts program must be defined, and mitigating actions and their costs shown, prior to construction of the plant.



5. PROJECT COSTS AND FINANCING

5. COSTS AND FINANCING

5.1 Introduction

The electric power industry typically identifies costs according to three basic categories: 1) fixed costs; 2) non-fuel operating costs, and 3) fuel costs. In this report we have grouped all debt service costs under "fixed costs." We have grouped all labor, materials, ash disposal, limestone, fuel oil and materials costs under "non-fuel operating costs," and we have provided the cost of coal under "fuel costs."

These costs are expressed in terms of their projected annual costs and in terms of mils per kilowatt hour (mils/kwh).

Development of a Cost Model: In order to develop the cost assumptions shown in this Section, we have constructed a cost model, which is included in Appendix F. This cost model provides assumption on plant efficiencies, turbine heat rate, combustion efficiency, fuel quality, plant production rate, capital costs, debt service interest, and other factors important to the cost of electric production.

While precise cost figures and a detailed financing plan cannot be obtained without conducting the preliminary engineering phase of the project, we have never-the-less provided initial cost assumptions in this document to show the likely cost range of power to be generated at this new facility. This cost range forecast is provided in subsections below and summarized in subsection 5.5, along with the mid-case or "likely" power cost. The cost model in Appendix F also provides cost data in the mid-case or "likely" cost range.

Finally subsection 5.6 below presents an outline of the approach to be taken to obtain financing for the project.

5.2 Fixed Costs

The line item elements contained within the general category of "fixed costs" are shown in Figure 6, along with their likely costs. These are the items which will most likely be bonded for.

Figure 6
Fixed Cost Components for the Nenana Facility

Item	Cost (Millions)
Construction Financing Costs	$ 33.30
Plant and Other Facility	181.20
Major Maintenance Reserve	18.10
Insurance/Operating Reserve	8.00
Bond Sale Costs	2.40
Total Debt	**$243.00**

For the purpose of this report, we have assumed a 35 year maturity and three alternative interest rates of 8.0%, 8.75% and 9.5%, with 8.75% being the most likely case. Figure7 below shows the annual gross cost and impacts on power costs of these three interest rates.

Figure 7
Fixed Costs Impacts on the Nenana Facility

Interest Rate	Annual Cost ($Millions)	Average Cost (Mils/kwh)
8.0%	$20.85	27.75
8.75%	$22.45	29.87
9.5%	$24.09	32.06

5.3 Non-Fuel Operating Costs

The line item elements contained within the general category of non-fuel operating costs are listed below. Following that listing each line item is described in a narrative.

- **Administrative payroll, overhead and contracts**
- **Production payroll and overhead**
- **Ash disposal, limestone and fuel oil**
- **All parts and materials**

Administrative Payroll, Overhead and Contract Services: Appendix F contains a plant staffing and operating plan. This staffing and operating plan shows the assumptions made in presenting labor and other operating costs. The most likely case shows these costs to be approximately $1.49 million annually, with an impact of about 1.98 mils/kwh on the cost of electricity.

The low range for these costs will be about $1.19 million annually, at a cost of about 1.54 mils/kwh. The high range for these costs will be about $1.64 million annually and about 2.12 mils/kwh.

Production Labor (Operating) Payroll and Overhead: The assumptions made in presenting these costs are also shown in Appendix F. The likely annual cost for production labor payroll and overhead will be about $4.97 million, with an electrical cost impact of about 6.62 mils/kwh.

The low range for these costs will be about $3.98 million annually and about 5.14 mils/kwh. The high range for these costs will be about $5.47 million annually, with a power cost of 7.07 mils/kwh.

Ash Disposal: We assume that the ash generated by the plant will be disposed of at the mine. Each ton of coal will produce 200 pounds of ash and we estimate the ash disposal at a most likely cost of $7.00 per ton, with a low cost of $6.00 per ton and a high cost of $8.00 per tone. Under the most likely cost range ash disposal will cost about $.355 million annually and about 0.47 mils/kwh.

At the low cost range ash disposal will cost about $.304 million annually and about 0.40 mils/kwh. The high range for ash disposal costs will be about $.406 million annually and about 0.54 mils/kwh.

Limestone: It is assumed that the plant will use about one part limestone for five parts coal, or about 39,300 tons of limestone annually. We also assume that limestone can be profitably mined at about $15 per ton, with a low range of $12 per ton and a high range of $18 per ton. At the anticipated rate of $15 per ton, limestone will cost about $0.59 million annually, or about 0.79 mils/kwh.

At the low cost rate limestone will cost about $0.47 million annually and about 0.63 mils/kwh. At the high cost range, limestone will cost about $0.71 million annually and about 0.94 mils/kwh.

Fuel Oil: It is assumed the facility will consume 250,000 gallons of fuel oil per year. The anticipated cost of fuel is $.85 per gallon, with a low of $.70 per gallon and a high of $1.00 per gallon. At the anticipated rate the annual cost of fuel is about $.212 million. The unit cost of fuel oil is 0.28 mils/kwh.

At the low rate fuel will cost about $.18 million annually and about .23 mils/kwh. At the high rate fuel will cost about $.25 million annually and about .33 mils/kwh.

All Parts and Materials: Cost for small tools, expendables, materials and chemicals required for operations are estimated to total $.5 million annually, with a low of $.4 million and a high of $.6 million.. This anticipated range will entail a cost of about .67 mils/kwh. The low cost will equal .52 mils/kwh, and the high cost will equal .78 mils/kwh.

Summary of Non-Fuel Operating Costs: Figure 8 below shows the summary of costs for non-fuel operations under the low, anticipated and high cost scenarios, expressed in mils/kwh.

Figure 8
Non-Fuel Operating Costs for the Nenana Facility
(Figures Rounded Slightly)

Item	Low Cost	Anticipated	High Cost
Admin	1.54	1.98	2.12
Production	5.14	6.62	7.07
Ash Handling	0.40	0.47	0.54
Limestone	0.63	0.79	0.94
Fuel	0.23	0.28	0.33
Materials	0.52	0.67	0.78
Totals	8.46	10.81	11.78

5.4 Fuel Costs

As stated above, the cost of coal is the only component of fuel costs, and the anticipated cost of coal is $30 per ton. The coal will yield between 7,500 and 8,000 BTU per pound. The overall heat rate of the plant is assumed to be 10,500 BTU per Kilowatt hour. Based on coal consumption of 491,500 tons per year and an estimated cost of $30 per ton, the annual coal cost will be approximately $14.75 million. Coal will cost about 19.63 mils per kilowatt hour.

At a low cost of $24 per ton the annual coal cost will be about $11.8 million and about 15.70 mils/kwh. At a high cost of $36 per ton the annual coal cost will be about $17.69 million and about 23.54 mils/kwh.

5.5 Summary of Costs

Figure 9 below shows the summary of costs under the low, anticipated and high ranges by each of the major groups of cost factors described above.

Figure 9
Summary of Generation Costs for the Nenana Facility

Item	Low Cost	Anticipated	High Cost
Finance	26.08	29.87	30.13
Operations	08.46	10.81	11.78
Fuel	15.70	19.63	23.54
Totals	50.24	60.31	65.45

5.6 Project Financial Planning and Financing Approach Considerations

This subsection provides the order and type of considerations which will be investigated and defined to obtain financing for this project. The considerations are divided into five principal categories as follows: 1) financial policy; 2) security issues; 3) tax status; 4) capital requirements; 5) financing structure. Each of these items is presented below.

Financial Policy: Concurrent with the early phases of preliminary design, the financial policy guidelines for the project will be established. These policy considerations include items such as the fixed costs versus operating costs, relationship with the State of Alaska and the Federal government, participation of the private sector, ownership and operation of the plant and other items fundamental to the short and long term project financing terms, conditions and viability.

Security Issues: This investigation will require analysis of the number and individual financial strength of potential buyers of electricity, as well as development of contract terms for power sales agreements. The investigation and development of power sales agreements will include payment and price provisions, contract period of performance, rights and covenants, events of default and service and management conditions.

Tax Status: Investigation of tax issues will include both tax exempt and non-tax exempt bonding. The tax exempt investigation will include examination of potential municipal purchasers only and examination of the potential for obtaining a special exemption, in order to allow purchase by non-municipal utilities, while still retaining tax exempt status. The taxable bond investigation will include investigation of cooperatives and other ultimate users.

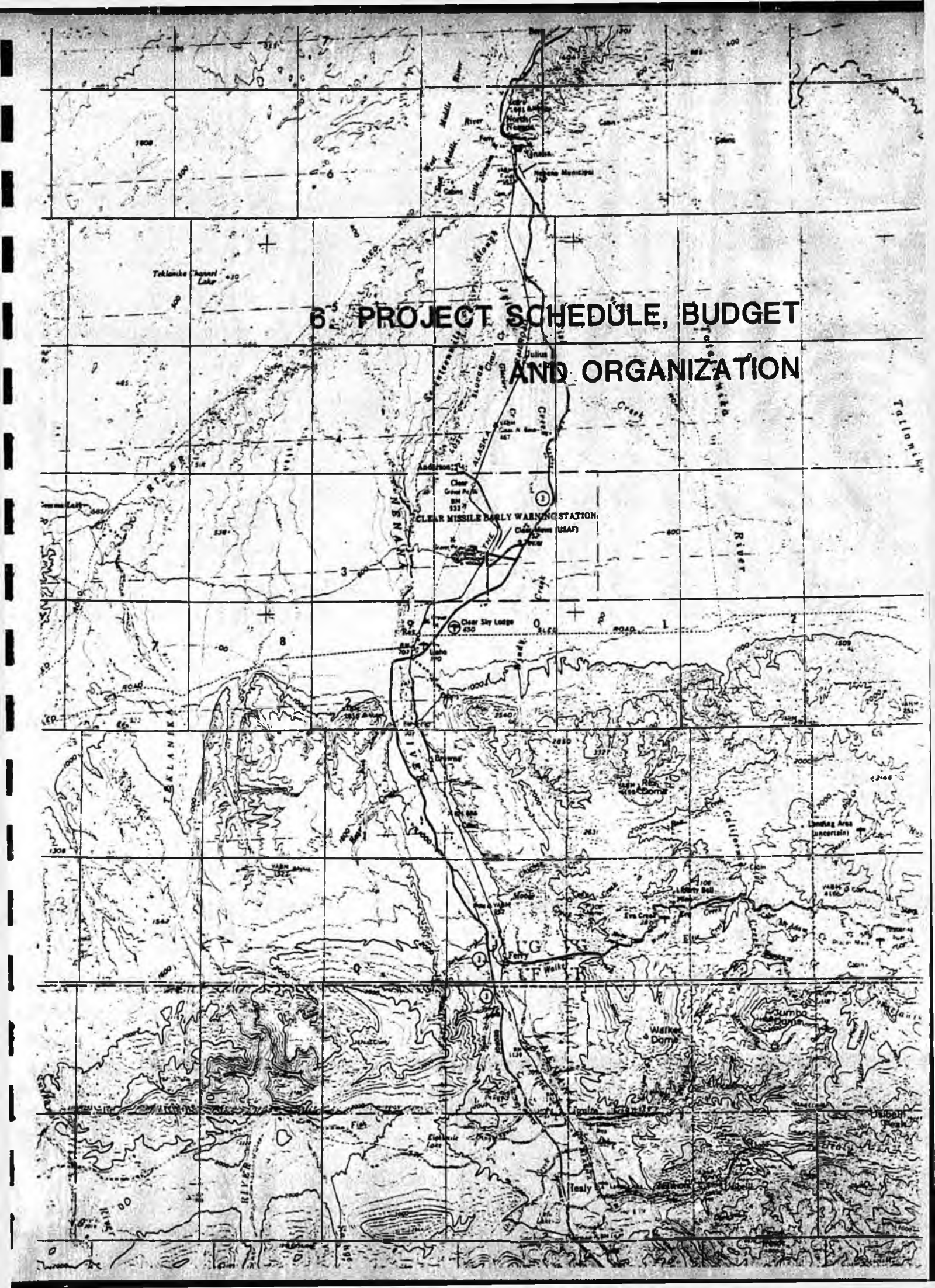
Capital Requirements: This investigation will be closely tied to the engineering work and will result in detailed estimates of plant and coal facilities, transmission facilities and other facilities. Next a schedule of cash flow requirements will be developed. Other elements in the capital requirements to be investigated will include reserve requirements, capitalized interest and financing expenses.

Financing Structure: Following completion of the work described above, the project financing structure will be defined in terms of construction financing and long term financing.

The construction financing will be defined in terms of long-term or short-term notes, single or multiple issues and the distribution of risk between the City of Nenana, power purchasers and external interests.

The long term financing will be defined with regard to the term of the bonds, call features, credit enhancement and issue structure.

Definition of the financing structure will be completed upon sale of long term financing bonds.



6. PROJECT SCHEDULE, BUDGET AND ORGANIZATION

Work Item	Cost (000's)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		<---------- FY 1988 ---------->												<---------- FY 1989 ---------->											
Soils Investigation	200.0	x	x	x	x	x	x	x	x	x	x	x	x						x	x	x	x	x	x	x
Mapping	125.0	x	x	x	x	x	x	x	x	x	x	x	x						x	x	x	x	x	x	x
Permitting/Public Involvement	375.0																								
Permit Preparation			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x							
Permit Review & Approval																			x	x	x	x	x	x	x
Public Involvement		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Project Management	425.0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Impact Assessments																									
Transportation	190.0		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Environmental	350.0		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Socio/Economic	320.0		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Plant Process Analysis	150.0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Preliminary Engineering	800.0													x	x	x	x	x	x	x	x	x	x	x	x
Engineering Documents																									
Site Civil	350.0																					x	x	x	x
Construction Cost Estimating	200.0				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Vendor Agreements	55.0													x	x	x	x	x	x	x	x	x	x	x	x
Power Sales Agreements	175.0																								
Utility Discussions			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Contract Negotiations																			x	x	x	x	x	x	x
Legal review	325.0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Owner Administration	275.0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bond Package/Sale																							x	x	x
Begin Construction (Site/Civil)																									**
	4,315.0																								
Contingency	432.0																								
	4,747.0																								

Figure 10 - Project Budget & Schedule

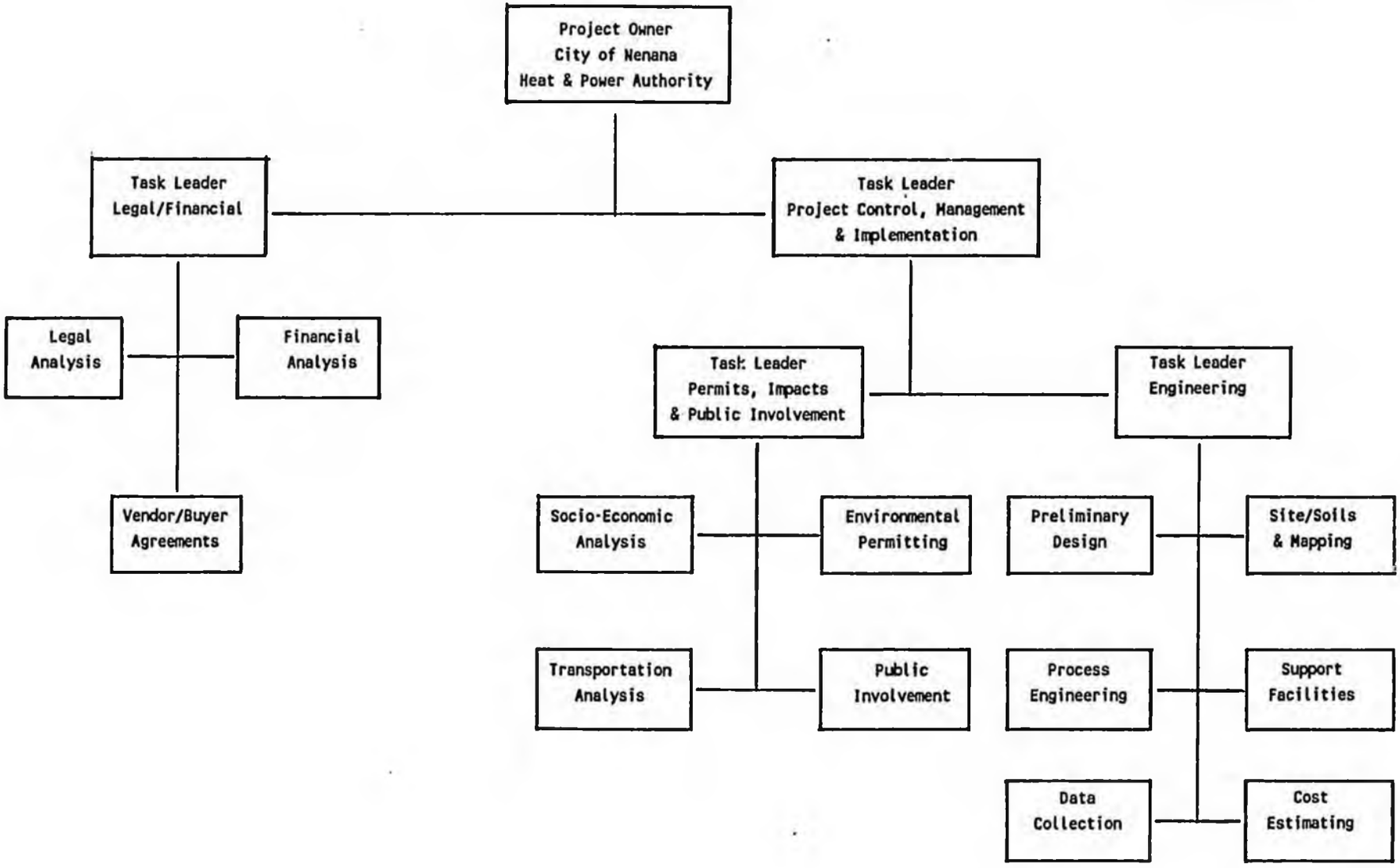
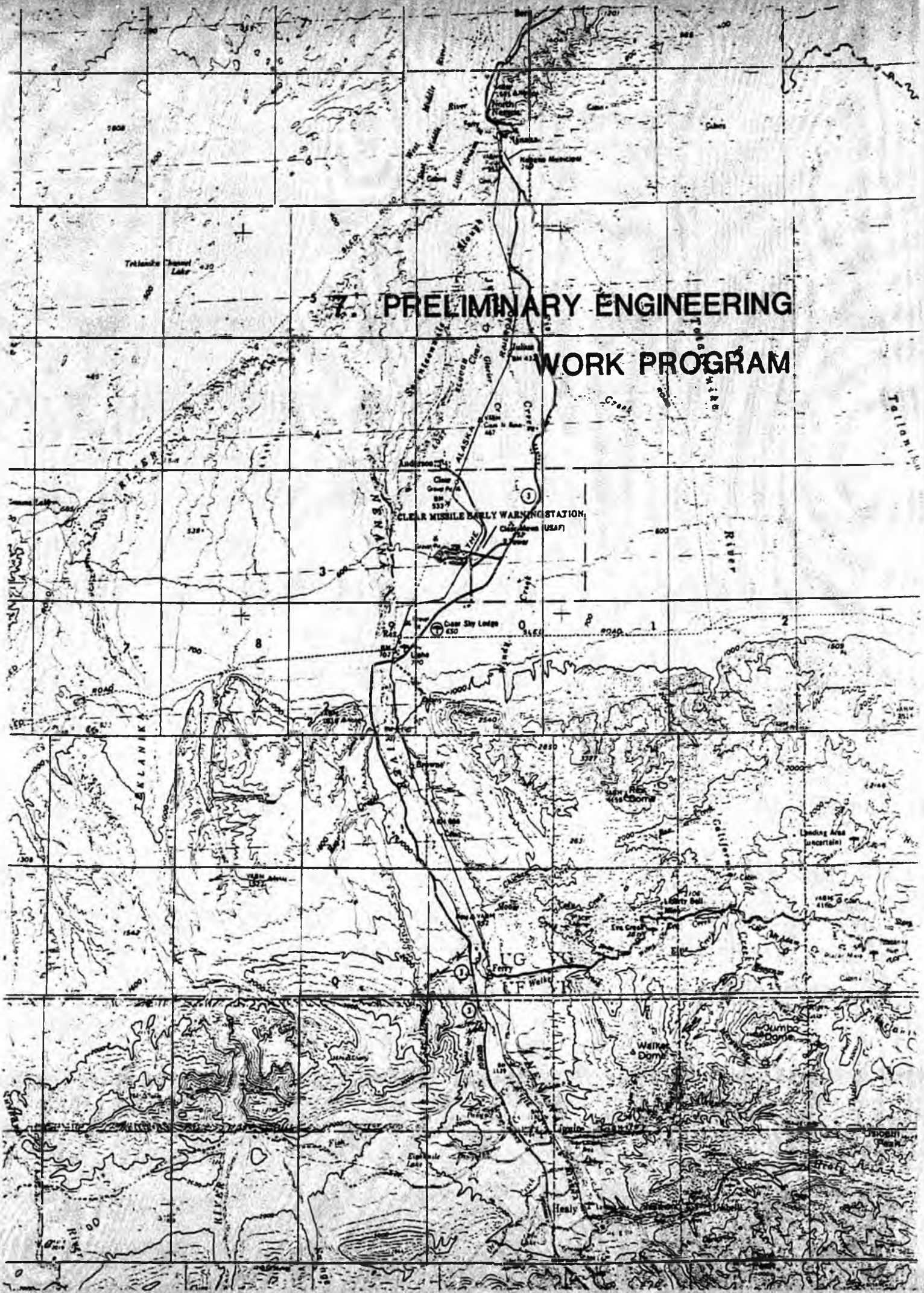


Figure 11 - Project Organization



7. PRELIMINARY ENGINEERING WORK PROGRAM

7. PRELIMINARY ENGINEERING WORK PROGRAM

The preliminary engineering phase of the Nenana Coal-Fired Generating Plant development project will be composed of four tasks as follows: 1) Project Management and Implementation Plan; 2) Legal/Financial Analysis; 3) Technical Analysis; 4) Engineering Support. The work to be accomplished in each of these tasks is described in subsections below.

7.1 Project Management and Control

This task will entail completion of two subtasks as follows: 1) Project Management; 2) Development of a Long Range Implementation Plan. Each of these subtasks is described below.

Project Management: This project will be performed by the City of Nenana and the City's project team. The result of this task will be delivery of project products on time, within budget and consistent with the standards required by grant agreements between granting Agencies and the City of Nenana. Activities accomplished under this task will include the following:

- Finalize and activate project agreement/scope
- Establish detailed project schedule
- Establish detailed project budget
- Coordinate input of specialized consultant services
- Coordinate implementation of regulatory, legal and policy requirements into the design concept
- Support coordination and conduct of public involvement
- Provide written status reports for circulation to the City of Nenana, the State of Alaska, the United States government, other government bodies and organizations, the general public and the project team
- Assure that all review comments from the public, interest groups and organizations, the City of Nenana, the State of Alaska, the United States government, railbelt utilities, local governments and the project team are incorporated into the project deliverables or that appropriate response is provided
- Prepare and present interim and final project reports

Project Implementation Plan: The implementation plan will consist of the action plans from other tasks below, as well as a descriptions of management actions and items required to design and construct the facility. The description of management actions and items will include the following:

- Implementation actions with personnel, budgets, key dates and phases for all aspects of the project
- Heavy engineering contract support, including contract documents and specifications
- Other appropriate management items
- Action plans from tasks 7.2-7.4 below

7.2 Legal/Financial Analysis

Legal/Financial Analysis will be composed of four subtasks, including: 1) Conduct of Task Support and Development of Implementation Actions; 2) Legal Analysis; 3) Financial Analysis, and 4) Development of Vendor/Buyer Agreements. Each of these subtasks is described below.

Task Support and Implementation Actions: This subtask will result in control and oversight of work conducted on the subtasks below, as well as production of a statement of legal/financial actions required as a part of the overall Project Implementation Plan. Each of these elements is described in more detail below.

1. Task Support: Work conducted under this element will include development, implementation, monitoring and control of budgets, schedules and work assignments for the Legal/Financial task. In addition this element will provide resources for quality control and coordination of the Legal/Financial task with other tasks in the project

2. Implementation Actions: Work completed under this element will include development of a description of Legal/Financial-related actions required over the long term, through construction of the Nenana Coal-Fired Generating Plant. These descriptions will be obtained as a result of work completed throughout all subtasks, including the present subtask. The activity descriptions will include the following items:

- A detailed description of key activities, including personnel, budgets, dates and phases
- Analysis of land use, environmental, energy and other regulatory requirements and methods for eliminating impediments posed by these requirements
- Analysis of commercial, tax and bonding requirements
- Analysis of utility law problems and opportunities associated with plant operations
- Development of detailed cash flow, cost and revenue projections
- Development and implementation of a project financing plan
- Evaluation of long range energy demand projections and relating those projections to plant design and vendor/buyer agreements
- Development and execution of vendor/buyer agreements

Legal Analysis: Work in this subtask will be delineated in the implementation plan. This work will include an examination of the legal, environmental and regulatory requirements for construction of the facility, an examination of the legal and regulatory framework within which the City of Nenana, as the plant's operator, will have to function and an examination of the legal requirements for financing the plant, including tax exempt bonds or other means.

Financial Analysis: Work in this subtask will be defined in detail by the implementation plan and will coincide with the approach assumptions delineated in subsection 5.6 of this document above.

Development of Vendor/Buyer Agreement Requirements: This subtask include development and execution of agreements between the City of Nenana and vendors/buyers, including power sales agreements.

This work will include identification of potential vendors/buyers, definition of agreement terms, coordination with other project team members and preparation of agreements for execution.

Potential vendors and buyers and their requirements will be identified and defined for power sales and transmission, coal purchase, coal shipment, waste ash shipment and sale/disposal, land purchase/lease and other appropriate areas.

Potential vendors and buyers will be involved in specific design and scheduling decisions made by management, and modifications will be made to draft agreements as required. Final agreements will be drawn up for execution prior to bond sales.

7.3 Permits, Impacts and Public Involvement

This task will be composed of five subtasks as follows: 1) Task Support and Implementation Actions 2) Socio-Economic Analysis; 3) Environmental Analysis; 4) Transportation Analysis, and 5) Public Involvement. Each of these subtasks is described in detail below.

Task Support and Implementation Actions: This subtask will result in control and oversight of work conducted on the various other subtasks, as well as production of a statement of technical research and development actions required as a part of the overall Project Implementation Plan. Each of these elements is described in more detail below.

1. Task Support and Oversight: Work conducted under this element will include development, implementation, monitoring and control of budgets, schedules and work assignments for the Technical Analysis task. In addition this element will provide resources for quality control and coordination of the Technical Analysis task with other tasks in the project

2. Implementation Actions: Work completed under this element will include development of a description of technical research and development-related actions required over the long term, through construction of the Nenana Coal-Fired Generating Plant. These descriptions will be obtained as a result of work completed throughout all subtasks, including the present subtask. The activity descriptions will include the following items:

- A description of key activities, personnel, budgets, dates and phases for technical research and analysis and other development-related work to be undertaken during preconstruction
- Preparation of a socio-economic impact statement for the project
- Preparation of an environmental impact statement for the project
- Identification of principal transportation issues and opportunities relating to the plant, including recommendations for action
- Conduct of the project public involvement program
- Preparation of support plans, programs and recommendations in the areas of land use, public safety, health and welfare, education, cultural resources and employment

Socio-Economic Analysis: Work in this subtask will result in development of a socio-economic impact analysis of the project, including specific measures the community should take to mitigate impacts and/or enhance development opportunities.

This work will include inventory and acquisition of an socio-economic data base, examination of the socio-economic regulatory framework, an audit of proposed project implementation tasks and measures, vis-a-vis their relation to the regulatory framework, development of an economic model for Nenana, a statement of the principal socio-economic implications of proposed development alternatives and scenarios and development of detailed plans and programs required as a result of the project.

The data base and regulatory framework examination will include, but will not be limited to, examination of land use, demographic characteristics and projections, economic conditions and forecasts, development of new industrial bases, programmed capital improvements and governmental structures.

The audit of project tasks will yield a new range of economic assumptions and projections for the community. The data base, regulatory examination and project task audit will then be used to develop an economic model for the community. This model will show anticipated ranges of growth, development and change under the range of assumptions and guidelines acquired in the data base, regulatory examination and project task audit.

These assumptions, guidelines and model outputs will then be used to produce detailed plans and programs of actions the City should take to mitigate impacts and enhance opportunities. These plans and programs will include the following:

- a comprehensive land use plan
- development of specific methods for attracting and keeping timber and agricultural industry in the Nenana area
- development of specific actions required to mitigate development impacts in the areas of public safety, education, health and welfare, cultural resources and employment
- completion of appropriate economic development grant documents

Environmental Analysis: Work in this subtask will result in the development of a Project Environmental Impact Statement (EIS), acceptable to State and Federal regulatory Agencies, local government, interest groups and the general public.

Work on the EIS will include inventory and acquisition of an environmental data base, examination of the environmental regulatory framework, an audit of proposed project implementation tasks and measures, vis-a-vis their relation to the regulatory framework, a statement of the principal environmental implications of proposed development alternatives and operating scenarios and detailed environmental analysis of the project and mitigation of environmental impacts.

The environmental data base will include information on plants, wildlife, air quality, water quality, noise, soils, aesthetics and other matters.

The examination of the regulatory framework will be closely coordinated with legal analysis. This examination will include regulations and policies at the Federal, State and local level, regarding air, water and solid waste pollution and management requirements. The examination will also include appropriate elements from the Resource Recovery and Conservation Act and the Superfund/Toxic Waste Act. Any probable changes to the regulatory framework will be noted. A regulatory "check list" will be developed from this review.

Next the individual development alternatives and operating scenarios under consideration by the engineering and transportation members of the study team will be reviewed. These tasks and measures will be applied to the checklist, and a statement of potential or probable environmental concerns will be issued for each alternative or scenario, including an assessment of the relative importance of the concern and the probable, required mitigation measured. This interactive process will have the affect of inputting environmental concerns to the design process, thus providing early opportunity to modify designs or amend cost estimates in the preliminary stages of the project.

The EIS will show the principal areas of environmental concern in the plant design, how those concerns were modified or will be mitigated during development. The EIS will also show actions needed to investigate and monitor environmental concerns through the construction and operation phase, including key actions and dates, personnel required and a budget for these personnel.

Transportation Analysis: Work in this subtask will include examination of the means of shipping coal to the plant, transportation of plant waste and by-products, localized transportation of labor force and goods, during and after construction, and transportation of plant construction materials and plant equipment.

Following acquisition of a data base on existing conditions, transportation subtask personnel will review alternatives and findings in the areas of socio-economic impacts, environment and engineering in order to assess likely transportation impacts of the new plant on the transportation infrastructure.

The assessment of likely impacts will take into account programmed capital improvements, potential capital improvement needs, railroad and highway operating characteristics, capital and operating cost ranges and transportation policy.

Following this assessment a report will be issued showing key transportation issues stemming from design and operating alternatives under consideration. These transportation issues will include the following:

- coal volumes by origin and destination
- probable best means of moving the coal, by mode, in relation to costs, impacts and the policy setting
- capacity of the existing transportation system
- ranges of capital improvements required
- likely Alaska Railroad Corporation operating scenarios relating to coal shipment
- cost estimates per ton-mile for coal transportation
- types, methods and impacts of moving plant construction materials and equipment, to the extent they are relevant to design decisions
- impacts of employee travel, transportation of waste and by-products and other plant-related demands on State and local streets and highways
- financial impact of the plant on the Alaska Railroad Corporation, particularly in regard to the Corporation's objective of becoming self-sustaining
- streets and roads plan for Nenana
- community transportation plan
- economic analysis of the proposed new dock facility on the Tanana River (see Section 4 above)

Public Involvement and Permitting: Public Involvement will consist of meetings with interest groups, utilities, government Agencies, private organizations and the general public, as well as production and dissemination of reports, findings and recommendations.

Meetings with interest groups, utilities, government Agencies and private organizations will be continuous throughout the project. These meetings will be conducted in order to provide accurate and timely project status reports to affected and interested parties, as well as to obtain information regarding concerns and suggestions.

Public hearings will be scheduled as required, to provide reports on major project accomplishments and findings and to obtain information regarding concerns, opinions and suggestions.

Meetings will also be held with railbelt media personnel to further distribute project-related information. Finally published materials will be provided to groups, Agencies and individuals expressing a desire for such materials.

The results of the public involvement program will become a part of the project record.

Permit applications will be developed as a result of information received from the engineering, environmental, socio-economic and transportation products. These applications will be discussed during public meetings, submitted and modified as required for final approval.

7.4 Engineering

This task is composed of a number of inter-related subtasks described below.

Task Support and Action Plan: This subtask will include support for engineering efforts and development of an action plan for engineering aspects of the project, through the construction phase. Each of these work elements are described below.

1. Task Support: Work schedules, coordination, quality control, budget control and report preparation will be accomplished in this work element. These functions will be continuously updated throughout the Project.

2. Action Plan: This work element will culminate in production of an action plan for engineering aspects of the project, including a description of actions required, personnel, budgets and schedules through the construction phase of the facility.

Soils Investigation and Geotechnical Analysis: This subtask will include examination of the area, preliminary soils investigation and production of findings and final soils investigation and production of findings and recommendations.

Examination of the area will include a geotechnical analysis of existing aerial photographs. Following this examination a drilling program will be conducted to confirm the siting of various project components.

This program will be provided to engineering team members responsible for plant, support facility and site design. Following a review of the preliminary soils investigation by these team members, a detailed soils investigation will be undertaken. This investigation will include new aerial photography as required, additional drilling and production of final findings and recommendations to be used in the detailed site analysis below.

Flood Hazard Analysis: A flood hazard analysis for the proposed site will be prepared. The "design flood" will be defined for use in the Legal Analysis, Socio-Economic Analysis, Environmental Analysis and related engineering work. A report on flood hazard considerations and definitive recommendations will be generated from this work.

Site Analysis: This subtask will include evaluation of the proposed site in terms of hydrology, geology, permafrost and other soil conditions, based soil samples, new data collection, review of existing documentation and completion and review of aerial surveys. In conjunction with the flood hazard analysis, this work will be used to determine the optimum foundation arrangement, site design and soil conditions.

The results of this review will be presented in a general report on the site to be used in conjunction with site civil design, process and plant selection and schematic design (see below).

Mapping and Surveying: The results of this subtask will be presented on a site map of the scale 1:200, containing two foot contours and indicating the proposed location of the preferred area of site development.

Site Civil Design: This work will include design of the access road, to the project site, the bridge over the Nenana River, a rail spur into the site, landscaping, fencing and other improvements.

Process Selection and Plant Size: This subtask will result in the preliminary engineering for technical features of the plant, the total capacity of electrical power generation, the recommended number of generating units and the sizes of individual generating units.

This work will be accomplished in several consecutive steps, through evaluation of data and information developed in other tasks, as well as close coordination with the requirements identified as a result of Technical and Legal/Financial analysis conducted in tasks 7.2 and 7.3. In particular this work will include the following items:

- assessment of electrical power requirements, transmission line characteristics, load flows in the system, load variations on typical winter and summer days
- comparison of the proposed generation plant with other existing generation facilities and projected future power requirements
- evaluation of fuel properties and characteristics
- environmental issues and proposed solutions relative to such things as sulphur dioxide, NOX, ice fog, dust emissions, ash disposal, etc.
- selection of the most suitable type of firing system
- selection of other technical features and identification of the main parameters covering the primary subjects of regulations, economy, infrastructure, mode of control and protection, ease of operation and maintenance, etc.
- detailed calculation of fuel consumption, limestone consumption and ash production
- preparation of a draft report and drawings describing the selection of process and plant size
- coordination of the draft report recommendations with the opportunities and constraining requirements developed within other tasks
- preparation of a final report on the process selected and the proposed plant size and will include, in conjunction with the "Process Support Facilities" subtask below, bid descriptions for all long lead time project elements, including boilers, turbines, pumps, condensers and bag house

Preliminary Design: All elements of the project will be carried through a schematic design of a level appropriate to accurate construction cost estimating. One line diagrams will be produced of all processes; building foot-prints will be developed, written descriptions of each project element will be produced in support of cost estimating, and performance criteria for all major elements of the project will be developed. The following project elements will be included.

- coal storage and handling facilities
- steam generating plant, including flue gas precipitator
- ash handling plant
- turbine generation plant including condenser
- circulating water system
- feedwater system
- make-up water treatment
- instrumentation and control
- electrical equipment (switchgear, transformers, bus bars, distribution, electrical protection, cabling, etc.)
- auxiliary equipment (cranes, hoists, workshop, laboratory)
- site support systems

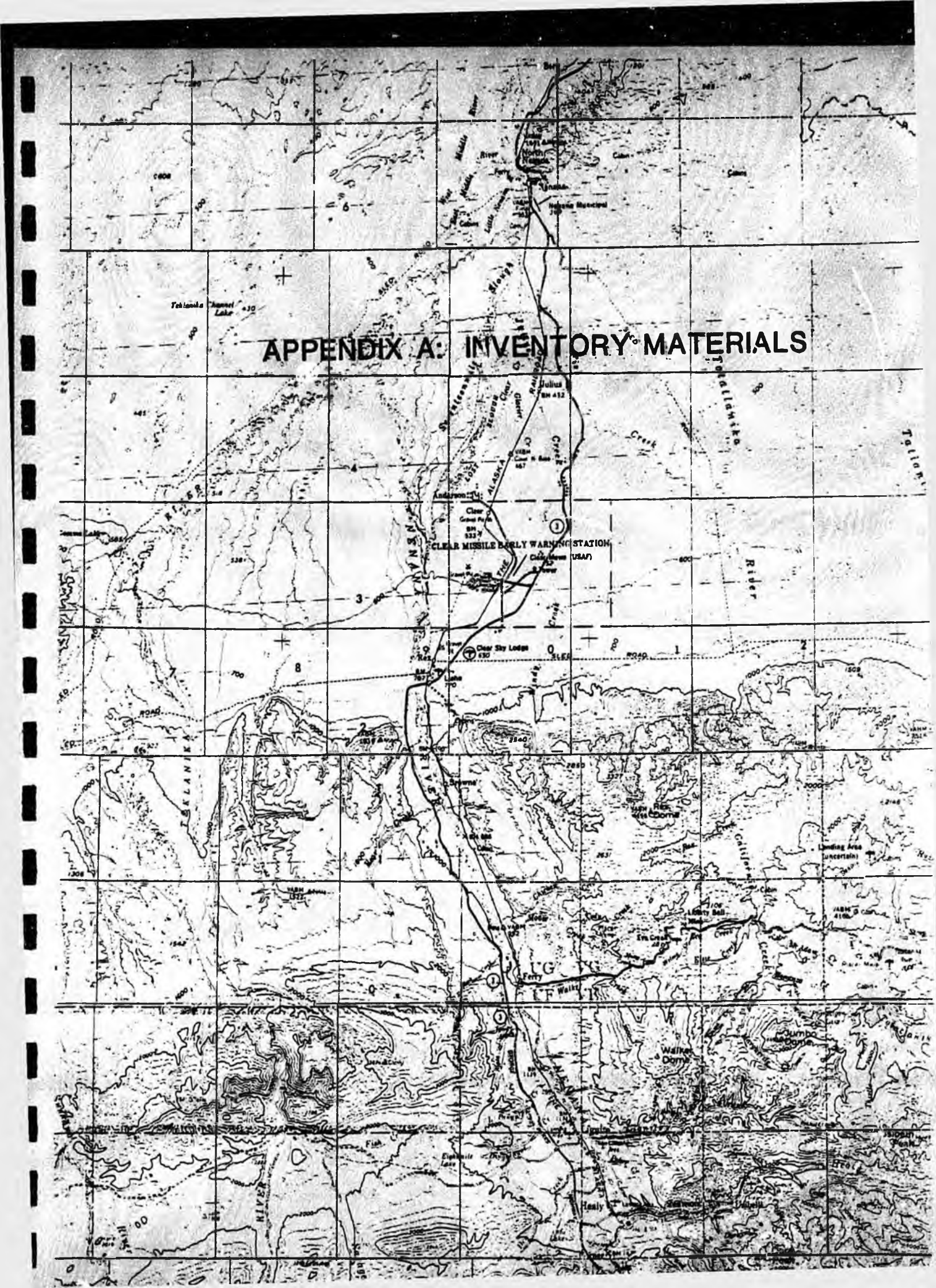
The determination of plant personnel requirements and preparation of an operational staff list, subdivided into management, administrative, technical and non-technical personnel per shift, will be performed.

The configuration of the components, as determined in this task (e.g., tower-type boiler or two-pass boiler, steel or reinforced concrete structure) will be incorporated with the site analysis. A model of the site development will also be produced.

Support of Bid Document Preparation: Technical and performance specifications will be developed for all major "long lead time" equipment items. This work will be performed in support of subtask 7.1 above.

Cost Estimating: Within this subtask power station installation cost and cash flow analysis will be performed. These projected costs will be based on the selected process, the required process support facilities and the schedule for implementation.

Power generation costs will be calculated, based on estimated investment cost and calculated fuel consumption. Operation costs will be based on generation cost, manpower requirements and estimated maintenance requirements. Unusual aspects relative to the region, such as permafrost, average income of local manpower, local cost of living, etc., will be included in the estimates, and these estimates will be broken down into funds reasonably expected to remain in Alaska and money which might be distributed outside of the State. In addition the project construction schedule will be prepared.


APPENDIX A: INVENTORY MATERIALS
CLEAR MISSILE EARLY WARNING STATION
Clear Sky Lodge
Julius
Anderson
Browns
Ferry
Healy
Walker Dome
Rex Dome
Landing Area (uncertain)
Liberty Bell
Jumbo Dome
Tatlanika
Rider
Creek
Slough
Glacier
Fish
Eightmile Lake
Tatlanika Channel Lake
Nenana River
Alaska Railroad
Clear Creek
Ferry Road
Clear Space Force Station
Clear Air Force Station (USAF)
Clear Group Park
Clear Res.
Clear Tank
Clear Water Tank
Clear Water Well
Clear Water Well No. 2
Clear Water Well No. 3
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Clear Water Well No. 99
Clear Water Well No. 100

TOTAL RAILBELT
ENERGY REQUIREMENTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
ANCHORAGE MUNICIPAL LIGHT AND POWER	869.8	881.6	885.7	881.7	887.1	886.3	892.6	913.4	934.3	945.3	951.8	968.0	987.0	1,011.6	1,037.6	1,064.1
CHUGACH ELECTRIC ASSOCIATION (RETAIL)	933.7	976.9	978.2	988.3	1,000.1	976.0	1,016.7	1,016.5	1,046.6	978.3	1,009.9	1,020.4	1,033.3	1,049.7	1,048.8	1,091.2
HOMER ELECTRIC ASSOCIATION	386.7	391.7	391.7	396.7	376.5	417.2	427.2	432.2	412.2	401.6	417.2	417.2	417.2	422.2	427.2	432.2
MATANUSKA ELECTRIC ASSOCIATION	478.1	475.2	474.0	474.5	425.9	437.7	433.7	442.8	470.3	471.3	472.1	479.5	483.1	496.2	510.4	527.6
CITY OF SEWARD	34.9	34.9	41.2	43.4	45.6	46.0	46.7	47.2	48.8	49.2	49.5	49.9	50.3	50.9	51.5	52.2
SYSTEM LOSSES	155.7	161.8	167.6	163.7	163.4	164.3	167.5	172.0	172.3	165.3	167.3	169.1	171.0	173.9	177.1	180.9
TOTAL (CEA)	1909.2	2010.5	2017.2	2016.7	2011.5	2026.1	2091.7	2141.2	2150.2	2085.7	2110.9	2136.1	2154.9	2192.8	2224.9	2281.0
FAIRBANKS MUNICIPAL UTILITY SYSTEM	166.2	172.9	174.6	176.3	179.9	183.3	187.0	192.8	196.6	202.5	204.5	208.6	212.8	217.0	221.4	225.8
GOLDEN VALLEY ELECTRIC ASSOCIATION	501.5	521.0	541.2	552.2	577.3	592.7	609.6	624.9	641.7	658.9	676.5	671.6	713.2	732.3	752.0	772.1
HOMER ELECTRIC ASSOCIATION	420.0	425.0	425.0	430.0	454.5	495.0	505.0	510.0	490.0	479.4	490.0	495.0	495.0	500.0	505.0	510.0
CHUGACH ELECTRIC ASSN	386.7	391.7	391.7	396.7	376.5	417.2	427.2	432.2	412.2	401.6	412.2	417.2	417.2	422.2	427.2	437.2
AEGT	33.3	33.3	33.3	33.3	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8
MATANUSKA ELECTRIC ASSN (TOTAL)	478.1	475.2	474.0	474.5	479.2	484.0	437.0	496.1	573.6	524.6	525.4	532.8	536.4	549.5	563.7	579.9
CHUGACH ELECTRIC ASSN	478.1	475.2	474.0	474.5	425.9	432.7	433.7	442.8	470.3	471.3	472.1	479.5	483.1	496.2	510.4	527.6
AEBT (BRADLEY LAKE)	0.0	0.0	0.0	0.0	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3
CITY OF SEWARD	34.9	34.9	41.2	43.4	45.6	46.0	46.7	47.7	48.8	49.7	49.5	49.9	50.3	50.9	51.5	52.2
TOTAL	3,559.9	3,652.3	3,682.0	3,720.2	3,781.9	3,851.6	3,913.0	4,003.4	4,054.1	4,021.5	4,077.9	4,138.5	4,199.0	4,284.9	4,377.0	4,477.2

CAPACITY REQUIREMENTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
PEAK DEMAND																
ANCHORAGE MUNICIPAL LIGHT AND POWER	164.0	166.7	166.9	166.2	166.3	167.1	168.2	172.1	176.1	178.1	179.9	182.4	185.9	190.5	195.4	200.2
CHUGACH ELECTRIC ASSOCIATION	191.3	198.4	197.0	197.4	198.1	195.6	199.0	202.2	200.6	191.3	193.5	195.6	198.0	201.2	204.8	209.1
FAIRBANKS MUNICIPAL UTILITY SYSTEM	29.3	30.0	30.6	31.2	32.1	33.4	34.4	35.5	36.5	37.6	38.7	39.9	41.1	42.3	43.6	44.9
GOLDEN VALLEY ELECTRIC ASSOCIATION	85.8	92.3	99.4	107.0	109.8	112.8	115.8	119.9	122.1	125.4	128.7	132.2	135.7	139.3	143.1	146.9
HOMER ELECTRIC ASSOCIATION	79.0	81.0	81.5	84.0	87.0	95.0	95.0	97.0	93.0	92.0	93.0	94.0	95.0	96.0	97.0	97.5
MATANUSKA ELECTRIC ASSOCIATION	90.3	94.9	96.5	93.6	95.5	98.4	97.5	99.3	105.8	94.9	95.7	96.5	97.0	97.5	99.7	101.2
SEWARD	7.0	7.0	10.0	11.0	12.4	12.5	12.7	[illegible]	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3
TOTAL SYSTEM PEAK	646.7	670.3	681.9	690.4	701.2	712.8	722.6	738.2	747.7	733.0	743.3	754.4	766.7	780.9	797.2	814.1
RESERVE REQUIREMENTS																
ANCHORAGE AREA	133.7	138.0	138.1	137.2	138.0	137.2	139.1	142.1	144.8	139.3	140.7	142.4	144.3	146.8	150.0	153.1
FAIRBANKS AREA	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	85.9	85.9	85.9
KENAI PENINSULA	38.0	38.0	38.0	38.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0
TOTAL RESERVE REQUIREMENT	232.6	236.9	237.0	236.1	249.9	249.6	251.0	254.0	256.7	251.2	252.6	254.3	256.2	283.7	286.9	290.1
TOTAL SYSTEM CAPACITY REQUIREMENT	879.3	907.2	918.9	926.4	951.1	962.4	973.6	992.2	1,004.3	984.1	995.9	1,008.7	1,022.8	1,064.6	1,084.6	1,104.1

Alaska Power Auth
January 1987

Note: This forecast is being used for: Preliminary Economic Assessment of Railbelt Transmission Alternatives

ALASKA REGULATED & UNREGULATED UTILITIES

Yukon Region-1985

Location	Symbol	Type(1)	UTILITY INSTALLED NAMEPLATE CAPACITY (KW) Hydro	Diesel (IC)	Gas Turbine	Steam Turbine	TOTAL	PEAK DEMAND(2) (MW)
Alakanuk	AVEC	C	0	825	0	0	825	.2
Anvik	AVEC	C	0	200	0	0	200	.1
Bettles	BL&P	P	0	900	0	0	900	.2
Chevak	AVEC	C	0	810	0	0	810	.2
Circle	CE	P	0	250	0	0	250	.1
Emmonak	AVEC	C	0	775	0	0	775	.3
Fairbanks Area	FHU	H	0	8,300	28,500	28,500	65,300	28.2
Fairbanks Area	GVEA	C	0	21,200	171,500	25,000	217,700	81.0
Ft. Yukon	GZUC	P	0	1,350	0	0	1,350	.6E(3)
Galena	M&D	P	0	1,125	0	0	1,125	.5
Grayling	AVEC	C	0	250	0	0	250	.1
Holy Cross	AVEC	C	0	285	0	0	285	.1
Hooper Bay	AVEC	C	0	775	0	0	775	.3
Hughes	HuP&L	P	0	25	0	0	25	.1E
Huslia	AVEC	C	0	285	0	0	285	.1
Kaltag	AVEC	C	0	365	0	0	365	.1
Kotlik	KC	H	0	470	0	0	470	.2E
Lake Minchumina	SS	P	0	130	0	0	130	.1E
Manley Hot Springs	MUC	P	0	185	0	0	185	.1E
Marshall	AVEC	C	0	260	0	0	260	.1
Minto	AVEC	C	0	250	0	0	250	.1
Mt. Village	AVEC	C	0	1,090	0	0	1,090	.3
Northway	NP&L	P	0	920	0	0	920	.4E
Nulato	AVEC	C	0	725	0	0	725	.1
Pilot Station	AVEC	C	0	366	0	0	366	.2
Rampart	WTC	P	0	150	0	0	150	.1E
St. Mary's	AVEC	C	0	1,500	0	0	1,500	.4
Pitkas Point	AVEC	C	0	0	0	0	0	.0
Andreafski	AVEC	C	0	0	0	0	0	.0
Scammon Bay	AVEC	C	0	290	0	0	290	.1
Shageluk	AVEC	C	0	200	0	0	200	.1
Tanana	TPC	P	0	2,650	0	0	2,650	.5E
Tok	AP&T	P	0	4,895	0	0	4,895	1.4
TOTAL			0	51,801	200,000	53,500	305,301	

ALASKA REGULATED & UNREGULATED UTILITIES

Southcentral Region-1985

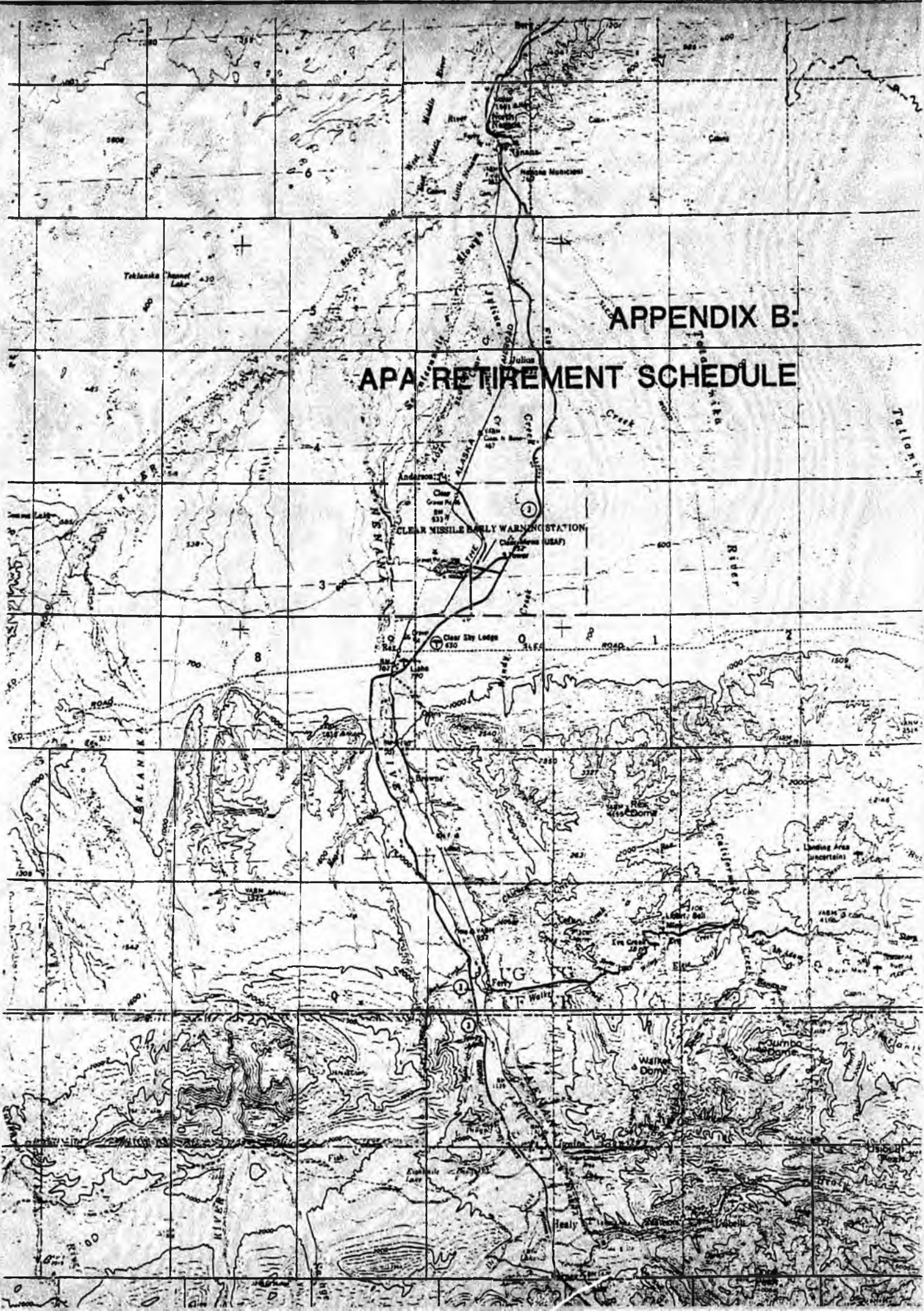
(Page 1 of 2)

Location	Symbol	Type(1)	UTILITY INSTALLED NAMEPLATE CAPACITY (KW) Hydro	Diesel (IC)	Gas Turbine	Steam Turbine	TOTAL	PEAK DEMAND(2) (MW)
Anchorage	AML&P	H	0	2,600	262,700	34,000	299,300	153.4
Anchorage	CEA	C	15,000	0	421,300	57,000	493,300	197.2
Anchorage-Palmer	MEA	C	0	0	0	0	0	89.0
Anchorage-Palmer	APA-E	F	30,000	0	0	0	30,000	32.0
Chistochina	CTP	P	0	78	0	0	78	.2
Cordova	CEC	C	0	10,803	0	0	10,803	4.2
Glennallen	CVEA	C	0	7,642	0	0	7,642	4.7
Homer-Kenai Penin.	HEA	C	0	0	0	0	071	71.0
Kodiak & Pt. Lions	KdEA	C	0	29,875	0	0	29,875	14.8*
Terror Lake (KdEA)	APATL	S	20,000	0	0	0	2,000	13.5
Larsen Bay	LBES	H	0	220	0	0	220	.1E(3)
Old Harbor	AVEC	C	0	310	0	0	310	.1
Paxson Lodge	PLI	P	0	375	0	0	375	.1
Seldovia	HEA	C	0	2,100	0	0	2,100	0.0
Seward	SES	H	0	10,500	0	0	10,500	6.0
Valdez	CVEA	C	0	10,004	0	0	10,004	5.0
Solomon Gulch (CVEA)	APASG	S	12,000	0	0	0	12,000	7.9
TOTAL			77,000	74,507	684,000	91,000	926,507	

*Terror Lake peak is included in KdEA's peak.

APPENDIX A
Existing Electric Power Generation Capacity on the Railbelt

Operator	Fuel	Capacity(mw)
UAF	Coal	1.5
	Diesel	2.75
Healy Coal	Coal	25.0
GVEA	Diesel	2.75
	Diesel	64.7
	Diesel	64.7
	Diesel	18.4
	Diesel	17.4
	Diesel	2.8
	Diesel	2.8
	Diesel	21.0
FMUS	Coal	5.0
	Coal	2.0
	Coal	1.5
	Diesel	1.5
	Coal	20.5
	Diesel	23.1
	Diesel	2.75
	Diesel	2.75
	Diesel	2.75
Military	Oil	2.5
	Oil	6.25
	Oil	3.0
	Oil	2.5
	Coal	20.0
	Coal	2.0



APPENDIX B:

APA RETIREMENT SCHEDULE

RAILBELT EXISTING EQUIPMENT RETIREMENT SCHEDULE

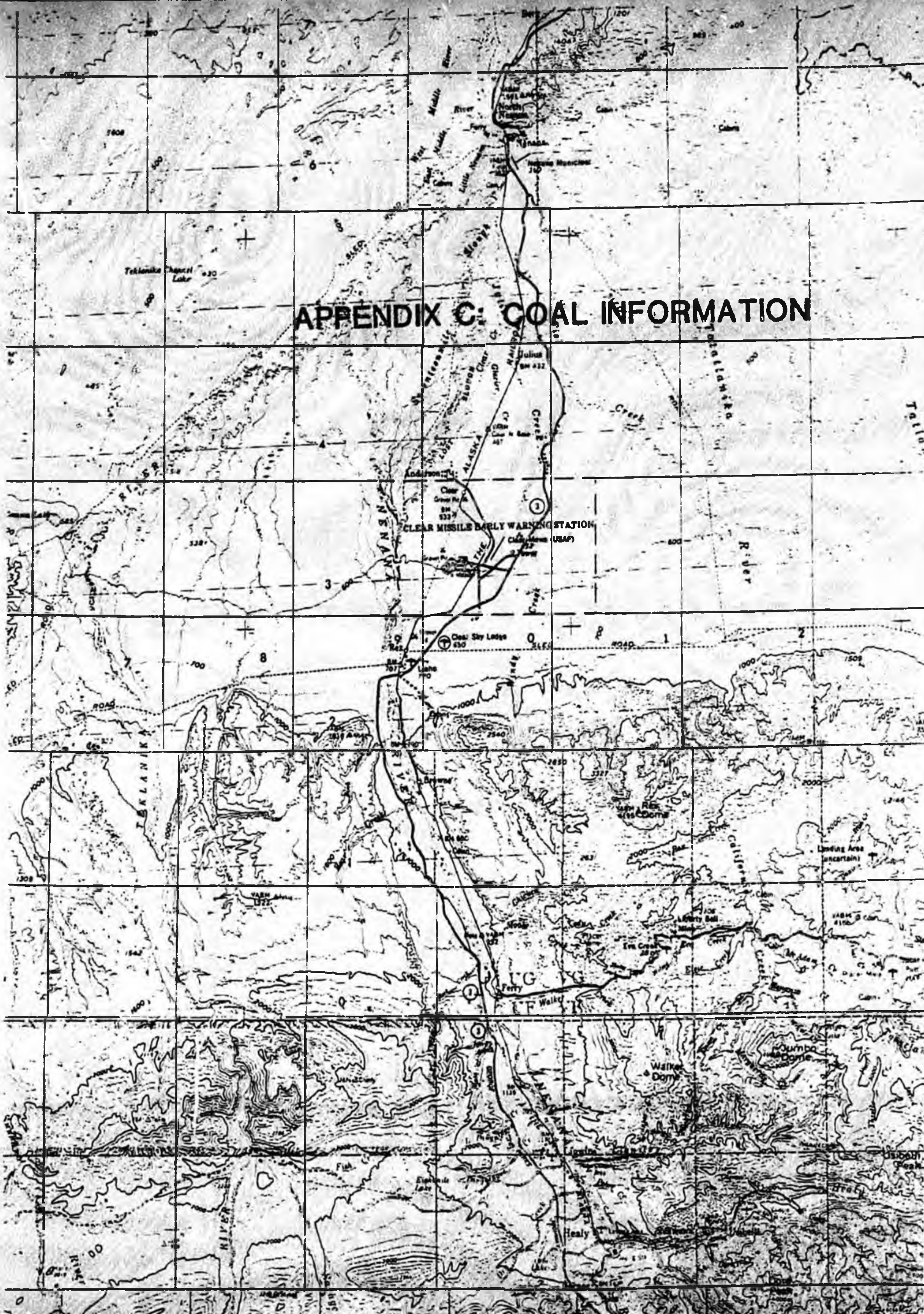
Year	AMLP Capacity Retired (MW)	AMLP Unit Name[1]	CEA Capacity Retired (MW)	CEA Unit Name	HEA Capacity Retired (MW)	HEA Unit Name	SES Capacity Retired (MW)	SES Unit Name	FMUS Capacity Retired (MW)	FMUS Unit Name	GVEA Capacity Retired (MW)	GVEA Unit Name	TOTAL RAILBELT Annual Capacity Retired (MW)	TOTAL RAILBELT Cumulative Capacity Retired (MW)	Year
1985									6.1	CHENCT #4			6.1	6.1	1985
1986														6.1	1986
1987														6.1	1987
1988			8.9	BERNCT #1									8.9	15.0	1988
1989														15.0	1989
1990	32.4	AMLPCT #1&2			0.3	SELDIC #1	3.0	SESIC #1&2					35.7	50.7	1990
1991	19.9	AMLPCT #3									5.7	DSLIC #1,2,&3	25.6	76.3	1991
1992	33.8	AMLPCT #4							8.4	FMUSIC #1,2,&3			42.2	118.5	1992
1993														118.5	1993
1994			32.2	BELCT #1&2	0.6	SELDIC #2							32.8	151.3	1994
1995							2.5	SESIC #3					2.5	153.8	1995
1996			58.5	BELCT #4, INTCT #1,2,&3							3.8	UAFIC #7&8	62.3	216.1	1996
1997			18.4	BERNCT #2							2.6	HEALIC #2	21.0	237.1	1997
1998														237.1	1998
1999	156.8	AMCC #5&6&76	116.8	BELCT #3&5									273.6	510.7	1999
2000					0.6	SELDIC #3			8.6	CHENST #1,2,&3	5.2	DSLIC #5&6	14.4	525.1	2000
2001											18.0	ZENCT #1	18.0	543.1	2001
2002											43.0	HEALST #1 ZENCT #2	43.0	586.1	2002
2003														586.1	2003
2004			54.4	BERNCT #3&4									54.4	640.5	2004
2005									20.0	CHENST #5			20.0	660.5	2005
2006									26.1	CHENCT #6	60.9	NOPOCT #1	87.0	747.5	2006
2007			201.2	BELCC #6&7&8							60.9	NOPOCT #2	262.1	1009.6	2007
2008														1009.6	2008
2009	87.0	AMLPCT #8											87.0	1096.6	2009
2010														1096.6	2010
2011														1096.6	2011
2012					0.6	SELDIC #4							0.6	1097.2	2012
Total	329.9		490.4		2.1		5.5		69.2		200.1		1097.2		
											Not Retired:	Eklutna	30.0		
												Cooper	17.4		
											Total Online:		1144.6		

[1] Key to plant types: CC: Gas-fired combined cycle
CT: Combustion turbine
H: Hydroelectric
IC: Oil-fired internal combustion (diesel)
ST: Coal-fired steam turbine

401271
851107

EXHIBIT 12

APPENDIX C: COAL INFORMATION



USIBELLI COAL MINE, INC
MARKETING
2173 University Avenue So.
Suite 101
Fairbanks, Alaska 99709
(907) 479-2630
FAX 479-2793

December 16, 1986

TO: Mr. Steve Bainbridge

The proximate and ultimate analyses of standard specification coal from Usibelli Coal Mine are as follows:

Parameter	Average Assay	
Heat Value (BTU/lb)	7820	As received *
Moisture Content	26.15%	As received
Ash	8.66%	As received
Volatile Matter	35.42%	
Fixed Carbon	29.78%	
Sulfur Content	0.18%	**

*Range 7600-8300 BTU/lb. In first three months of 1986 heat value has averaged in excess of 8000 BTU/lb.

**Rarely exceeds this value.

In addition the ash-fusion temperature of Usibelli coal falls within the following range: IDT (oxidizing) 2100 - 2350 Degrees Fahrenheit (Average: 2150 Degrees Fahreneheit).

Sincerely,

John Sims
VICE-PRESIDENT
MARKETING

Comparison of Healy Coal to Some U.S. Coals

Coals are typically described as belonging to four general classes: Anthracite, Bituminous, Subbituminous and Lignite. This classification scheme generally corresponds to the heating values of each class. Anthracite coals have the highest heating value at around 12,500 BTU per pound, while the lignite is the lowest quality having a heat value of about 7,000 BTU per pound. The following table compares the laboratory analysis of two coals mined in the contiguous States with Healy Coal.

	Subbituminous C Wyoming(1)	Lignite North Dakota(1)	Healy Alaska(2)
Heat Value(BTU/Lb)	8,560	7,000	7,820
Moisture Content (%)	25.1	36.8	26.2
Ash (%)	6.8	5.9	8.7
Volatile Matter (%)	30.4	27.8	35.4
Fixed Carbon (%)	37.7	29.5	29.8
Sulfur Content (%)	0.3	0.9	0.18

Notes: (1) From *Standard Handbook for Mechanical Engineers*

(2) Healy coal is classified as a "low sulfur" subbituminous coal. Some coal contain as much as 4% sulfur, 20 times the amount contained in Healy coal. Being classified as subbituminous, Healy coal has a relatively low heating value as can be seen by the table above.

TABLE 2

COMPARISON OF BASE FUEL ANALYSES FOR AFBC DEMONSTRATIONS

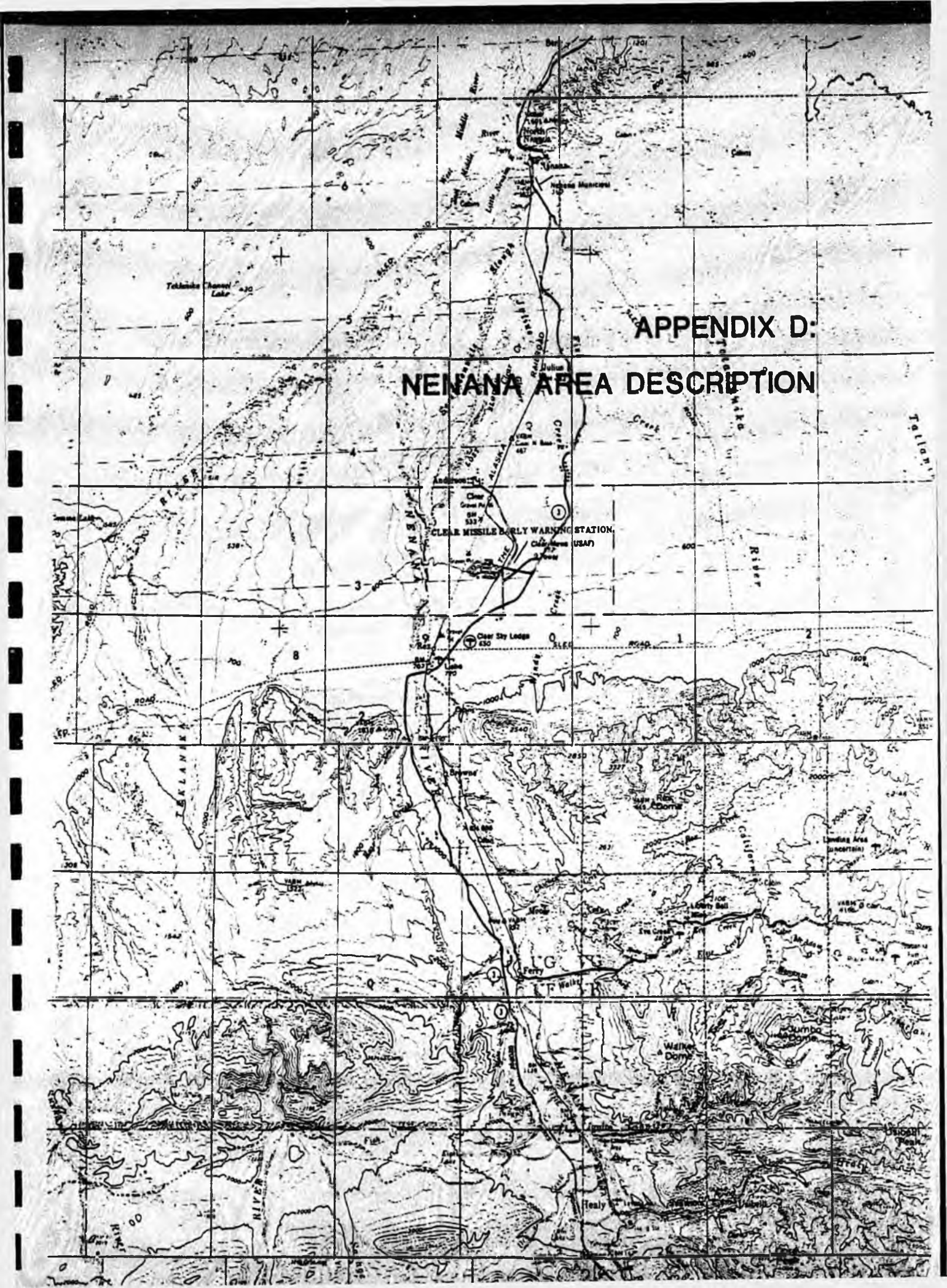
	TVA (WESTERN KENTUCKY)	NSP (MONTANA)	COLORADO-UTE (COLORADO)
Carbon, %	53.8	49.7	55.17
Hydrogen, %	3.7	3.2	3.63
Oxygen, %	5.3	10.7	7.51
Nitrogen, %	1.1	.7	.98
Sulfur, %	4.4	.9	.73
Moisture, %	12.8	23.9	5.86
Ash, %	19.2	10.8	26.08
HHV, KJ/Kg	23,957	19,770	22,545
(Btu/Lb.)	(10,300)	(8,500)	(9,693)

TABLE 3

UTILITY-SCALE AFBC UNITS

Utility	Size [MW(e)]	No. of Units
City of Duisberg	96	1
Wisconsin Electric Power Co.	120	4
Texas-New Mexico Power	156	4
Montana-Dakota Power	70	1

Note: "AFBC" means atmospheric fluidized bed. The source for this data is the Electric Power Research Institute (EPRI) in Palo Alto, California.


APPENDIX D:
NENANA AREA DESCRIPTION
CLEAR MISSILE EARLY WARNING STATION
Clear Sky Lodge
Healy

APPENDIX D
DESCRIPTION OF THE NENANA AREA

Community Location, History and Population: The Nenana townsite is located in Interior Alaska, at the confluence of the Nenana and Tanana Rivers, approximately fifty miles southwest of Fairbanks, Alaska.

Originally an Athapascan fishing site and village, the modern Nenana community was established about the turn of this century as the site for the Saint Marks Indian Mission. In 1908 the community was the scene of a gold rush, and a Post Office was established at Nenana in that year. In 1918 the community became the northern headquarters for construction of the Alaska Railroad, which was completed in 1925.

Today the City of Nenana population is about 550 persons, of whom approximately 40% are Athapascan or other Alaska Native and 60% are white. Approximately 1,000 persons reside in the area within and immediately surrounding the City limits.

Climate and Geography: Nenana's climate is influenced by the the Alaska Range to the south, which controls local weather patterns. In general the climate is typical of Interior Alaska. Winters are cold and clear, with temperatures ranging to below 50 degrees (minus 46 degrees C). Summer temperatures range to the upper 70 degree range (middle 20s C). Mean annual precipitation is 11.4 inches (29 centimeters). Winter sunlight is four hours or less, and summer sunlight is twenty hours or more.

Nenana is at 350 feet elevation and is located about 800 river miles from the Bering Sea, by way of the Tanana and Yukon Rivers. The river gradient at Nenana is about one foot per mile.

Industry and Employment: Nenana is a transportation center for the Tanana and Yukon River valleys, owing to a number of factors including the following:

- Nenana's location downstream from Fairbanks on the Tanana River, a tributary of the Yukon River.
- The lack of obstructions to heavy marine traffic between Nenana and the mouth of the Yukon River.
- The Nenana port can accommodate barges with drafts of fifteen-twenty feet, for transshipment of goods to communities located along the Tanana and Yukon Rivers.
- The Alaska Railroad serves Nenana.
- Nenana is located along the Parks Highway, a portion of the United States Interstate and Defense Highway System.
- Nenana is located along the Fairbanks-Anchorage electrical intertie.
- The City owns and operates a 1,000 acre airport, with a 5,000 foot paved, lighted runway and a 4,000 foot float plane basin; the airport runway can be expanded to 6,000 feet

The City of Nenana is in the process of developing the economic base in the community to exploit Nenana's role as a transshipment center.

The City recently created the "Nenana Port Authority" to own and operate the 238 acre, Nenana port and related facilities and to promote economic development in the area. The Nenana Port Authority recently expanded the Nenana sheet pile, bulkhead facility through construction of an additional 1,500 feet of dock and a new 10,000 square foot warehouse.

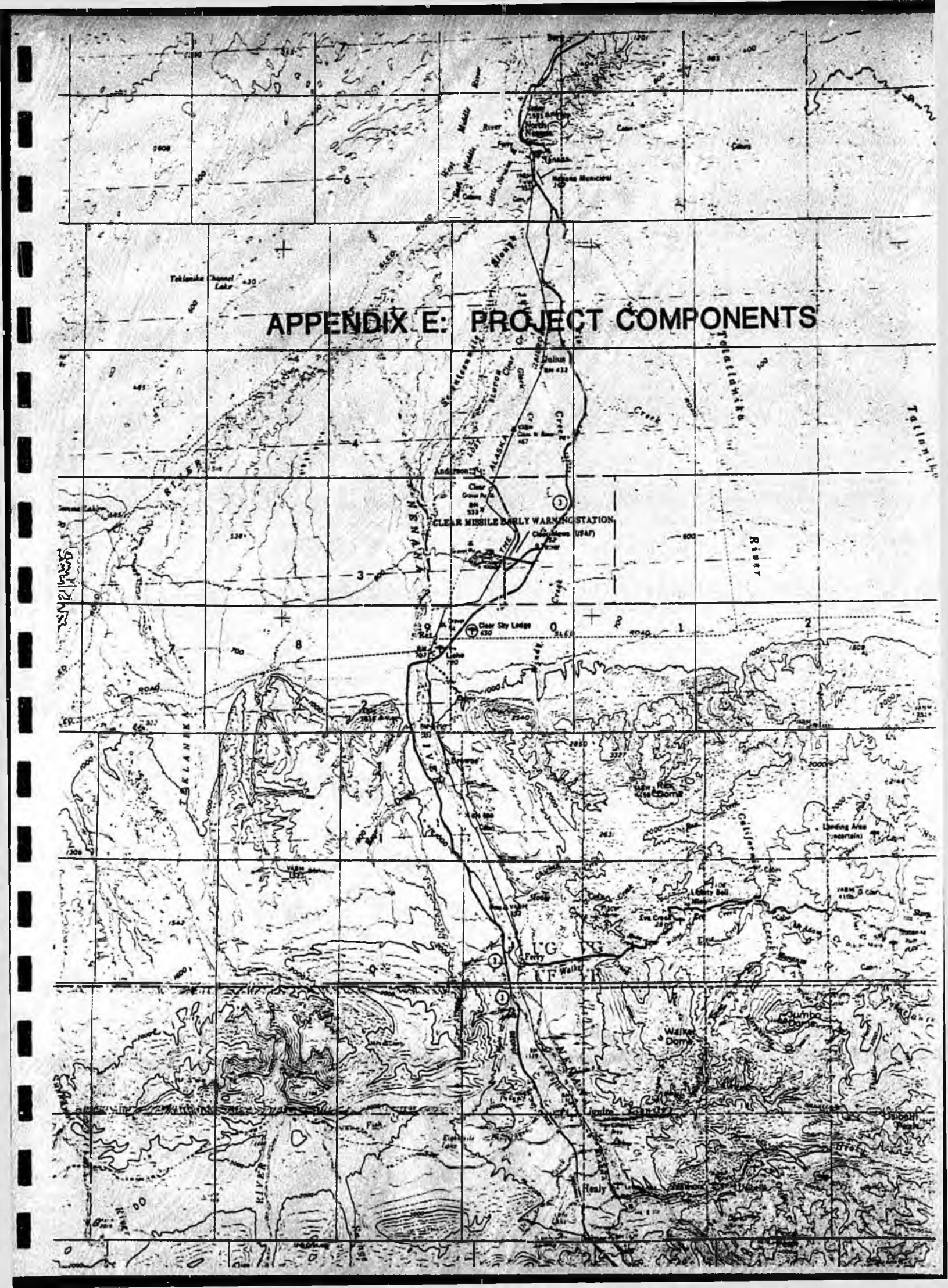
The City has also created the "Nenana Heat and Power Authority," responsible for generation and sale of electrical power and related activities.

Mining has an economic impact on Nenana, owing to the proximity of coal mines at Healy, fifty miles to the south, and gold mines in the immediate Nenana area.

Nenana helps support a substantial national defense-related industry, sponsored by construction of a major radar site at the community of Clear, twenty miles to the south of Nenana, along the Alaska Railroad.

In addition to local commerce, the major occupations in the Nenana area are highway construction and maintenance, gold and coal mining, defense industry construction, education and public administration.

Several feasibility studies and other preliminary work conducted in recent years have shown that a timber industry can be supported in the Tanana River valley, if a reliable source of power and waste heat is made available to the industry. In addition a reliable source of waste heat may make development of a year round agricultural industry feasible in the Nenana area. During the design phases of the present project, the City will examine the costs and benefits of beneficiation at the Nenana generating plant ("beneficiation" is the process whereby waste heat from the generating facility is used to dry coal for use as a fuel at the plant or for sale elsewhere).


APPENDIX E: PROJECT COMPONENTS
CLEAR MISSILE EARLY WARNING STATION
Clear Sky Lodge
Anderson
Healy
Ferry
Walker Dome
Liberty Bell
Landing Area (uncertain)
Eva Creek
Stampede Trail
Parks Highway
Nenana River
Tanana River
Tatalanika River
Tatalina River
Julius
Clear Creek
Little Moose Creek
Middle Fork
Tolovana Hot Springs
Tolovana Channel Lake
Fish Lake
Fish Creek
Lignite
Usibelli Peak
Dumbo Dome
Rex Dome
Caribou Creek
Moose Creek
Slough
Ferry
Walker
Healy
Lignite
Fish
Clear
Slough
Creek
River
Road
Trail
Lake
Cabin
Airstrip
Camp
Ferry
Walker
Healy
Lignite
Fish
Clear
Slough
Creek
River
Road
Trail
Lake
Cabin
Airstrip
Camp

Project Components and Foot Prints

A - Plant and Accessories	Page 1 of 4
Plant Building	Size
Reactor House	22,500 sq.ft.
Turbine House	22,500 sq.ft.
Central Control Room	2,000 sq.ft.
Offices	
- Production Superintendant	200 sq.ft.
- Shift Superintendant	120 sq.ft.
- Plant Engineer	120 sq.ft.
- Conferance	320 sq.ft.
- Clerical, Records & Files	500 sq.ft.
- Library/Plan Room	500 sq.ft.
Shops	
- Welding	800 sq.ft.
- Plumbing	800 sq.ft.
- Machine	800 sq.ft.
- Electrical	800 sq.ft.
- Insturments/Electronic	800 sq.ft.
Plant Vehicle Garage	600 sq.ft.
Plant Stores	5,000 sq.ft.
Toilet/Shower Rooms	400 sq.ft.
Locker Rooms	600 sq.ft.
Laundry	300 sq.ft.
Employee Lunch Room	400 sq.ft.
Laboratories	
- Fuels	350 sq.ft.
- Water	200 sq.ft.
Allowances	
- tools, equipment and furnishings	
- circulation space	9,092 sq.ft.
Plant Totals	69,702 sq.ft.
Baghouse and Stack (foot print)	30,000 sq.ft
Water amd Air Cooled Condensors (foot print)	18,000 sq.ft.
Switch/Transformer Yard (foot print)	160,000 sq.ft.

Project Components and Foot Prints

B - Support Buildings Page 2 of 4

Administration Building		Size
Reception/Security		400 sq.ft.
Offices		
- General Manager		400 sq.ft.
- Comptroller		160 sq.ft.
- Administrative Manager		160 sq.ft.
- Outside Plant Superintendant		160 sq.ft.
- Chief Electrical Engineer		160 sq.ft.
- Chief Mechanical Engineer		160 sq.ft.
- Engineering/Drafting		320 sq.ft.
- Accounts Payable/Payroll		400 sq.ft.
- Clerical		320 sq.ft.
Office Storage		160 sq.ft.
Conferance Room		250 sq.ft.
Board Room		2,000 sq.ft.
Records Storage		400 sq.ft.
Allowances		
- tools, equipment and furnishings		
- circulation space @	20.0%	1,090 sq.ft.
		6,540 sq.ft.
Warehouse		
Warehouse office		200 sq.ft.
Chemical Storage		15,000 sq.ft.
Plant Supplies		10,000 sq.ft.
Shops Supplies		10,000 sq.ft.
		35,200 sq.ft.
Vehicle Shops & Warm Storage		
Vehicle Shops		1,440 sq.ft.
Warm Storage		2,880
		4,320 sq.ft.

Project Components and Foot Prints

C - Civil Improvments Page 3 of 4

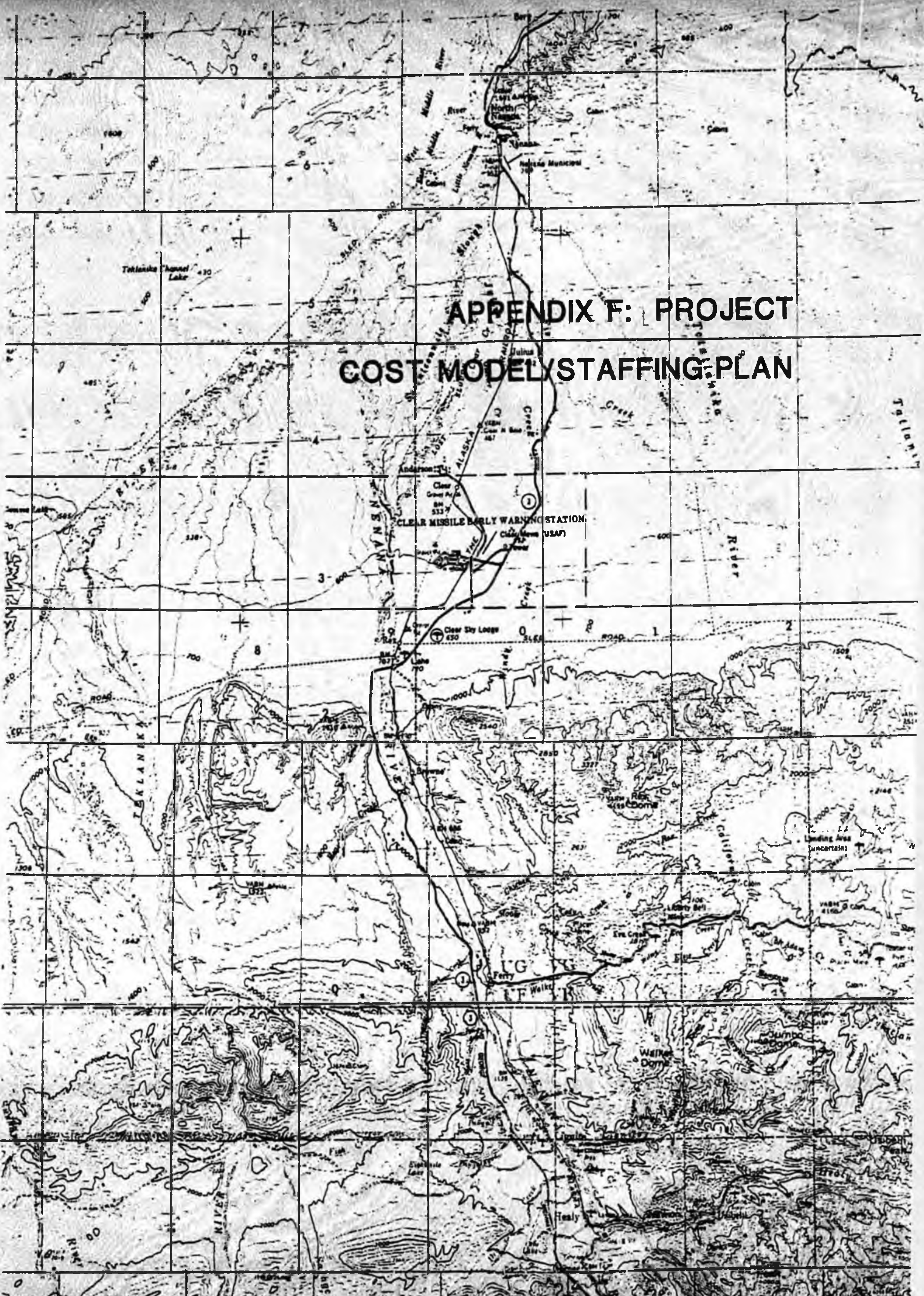
	Spaces	sizes
Rail Spur & Car Storage Track		12,000 L.ft.
Fuel Oil Storage Tank (500,000 gallons)		1,800 sq.ft.
Paved Areas	Spaces	
Rail Side parking (heated)	3	1,050 sq.ft.
Rail Side parking (wo/heat)	12	4,200 sq.ft.
Plant Parking (heated)	30	10,500 sq.ft.
Plant Parking (w/o heat)	20	7,000 sq.ft.
Admin. Parking (heated)	14	4,900 sq.ft.
Admin. Parking (w/o heat)	10	3,500 sq.ft.
River Dock Marshalling Area		60,000 sq.ft.
Site Drainage and Out-Side Storage		20,000 sq.ft.
Sub-Total of Paved Areas		111,150 sq.ft.
Coal Yard		100,000 sq.ft.
Water Intake Structure and Pipeline		800 L.ft.
Water Discharge Structure and Pipeline		800 L.ft.
Dock Structure		400 L.ft.
Access and Circulation Roads		8,500 L.ft.
Nenana River Bridge		440 L.ft.
Graded Landscaping and Planting Areas		
Plant Building		22,000 sq.ft.
Warehouse		15,000 sq.ft.
Administration		8,000 sq.ft.
Treatment Plants		10,000 sq.ft.
Baghouse & Stack		10,000 sq.ft.
Condensors		10,000 sq.ft.
Roads		340,000 sq.ft.
Parking		25,000 sq.ft.
Sub-Total of Lanscaped Areas		440,000 sq.ft.
Graded and Drained Gravels Surfaces		
Rail Yard		25.00 acres
Switch Yard		4.00 acres
Site Fencing		8,000 L.ft.

Project Components and Foot Prints

D - Other Support Facilities page 4 of 4

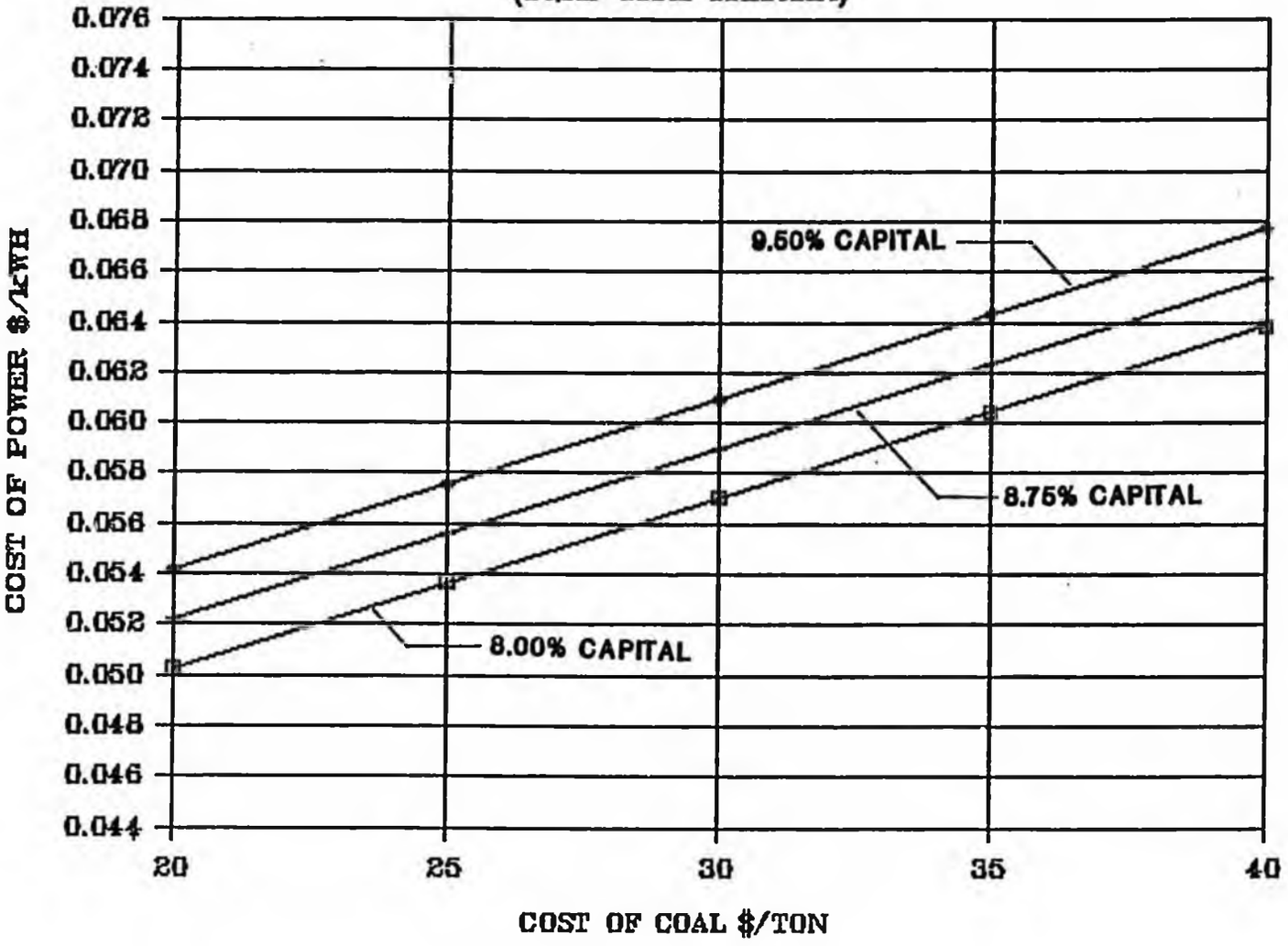
Ash Handling (foot print) - plant side		1,500 sq.ft.
Ash Handling (foot print) - rail side		1,500 sq.ft.
Water Treatment Plant	(foot print)	10,000 sq.ft.
Waste Water Treatment Plant	(foot print)	10,000 sq.ft.
Car Shaker & Coal Thaw Shead	(foot print)	6,000 sq.ft.
Coal Handling - plant side	(foot print)	3,000 sq.ft.
Coal Handling - rail side	(foot print)	3,000 sq.ft.
Coal Conveyor (100 ton/hour)		1,600 L.ft.
Ash Conveyor (10 ton/hour)		1,600 L.ft.
Security House		500 sq.ft

APPENDIX F: PROJECT COST MODEL/STAFFING PLAN



Effects of Coal & Capital Costs

(other costs constant)



COST OF ELECTRICITY

Summary of Costs	Annual Amount	$/kwh	%
Cost of Coal	14,750,000	0.01963	32.55%
Cost of Capital	22,450,000	0.02987	49.53%
Cost of Operating	8,120,000	0.01081	17.92%
Cost of Electricity	45,320,000	0.06031	100.00%
Value of Waste Heat	0	0	
Net Cost of Electricity	45,320,000	0.06031	

Annual Operating Costs	Annual Amount	$/kwh	Unit Costs
- Production labor	4,973,000	0.00662	see attached list
- Administrative costs	1,490,000	0.00198	see attached list
- Materials costs	500,000	0.00067	see attached list
- Ash disposal	355,000	0.00047	7.00 $ per ton
- Limestone	590,000	0.00079	15.00 $ per ton
- Fuel Oil	212,500	0.00028	0.85 $/gal
Total Annual Cost	8,120,500	0.01081	

COSTS & VALUES

- capital investment	243,000,000	
- cost of money	8.75%	
- life of bonds	35	years
- price of fuel	$30.00	per ton
- waste heat sold	5	% of capacity
- annual production (E)	751	million KWH
- annual production (T)	0.17	trillion BTU
- annual coal consumption	491,518	tons
- value of waste heat	$0.75	per million BTU
- ash for disposal	50,725	tons
- limestone used	39,321	tons annually
- fuel oil consumed	250,000	gals annually

PLANT & PROCESS ASSUMPTIONS

Assumed Plant Size:	105 MW (E)
- overall plant efficency	32.6%
- plant heat rate	10,465 BTU per KW
- turbine heat rate	9,000 BTU per KW
- boiler efficiency	86 %
- heat content of coal	8,000 BTU per pound
- heat recovery efficiency	70 %
- turbine efficiency	80 %
- annual production hours	8,322
- in-service rate	95 % of the time
- average production rate	86 %

MAXIMUM HOURLY OPERATIONAL CHARACTERISTICS

- Thermal Input	1,099 million BTU (chemical) 69 Tons of coal per hour
- Thermal Production (boiler output)	945 million BTU
- Electric Production (at buss bar)	105 megawatts
- Thermal Energy for Sale (maximum production)	410 million BTU

Summary Estimated Capital Costs

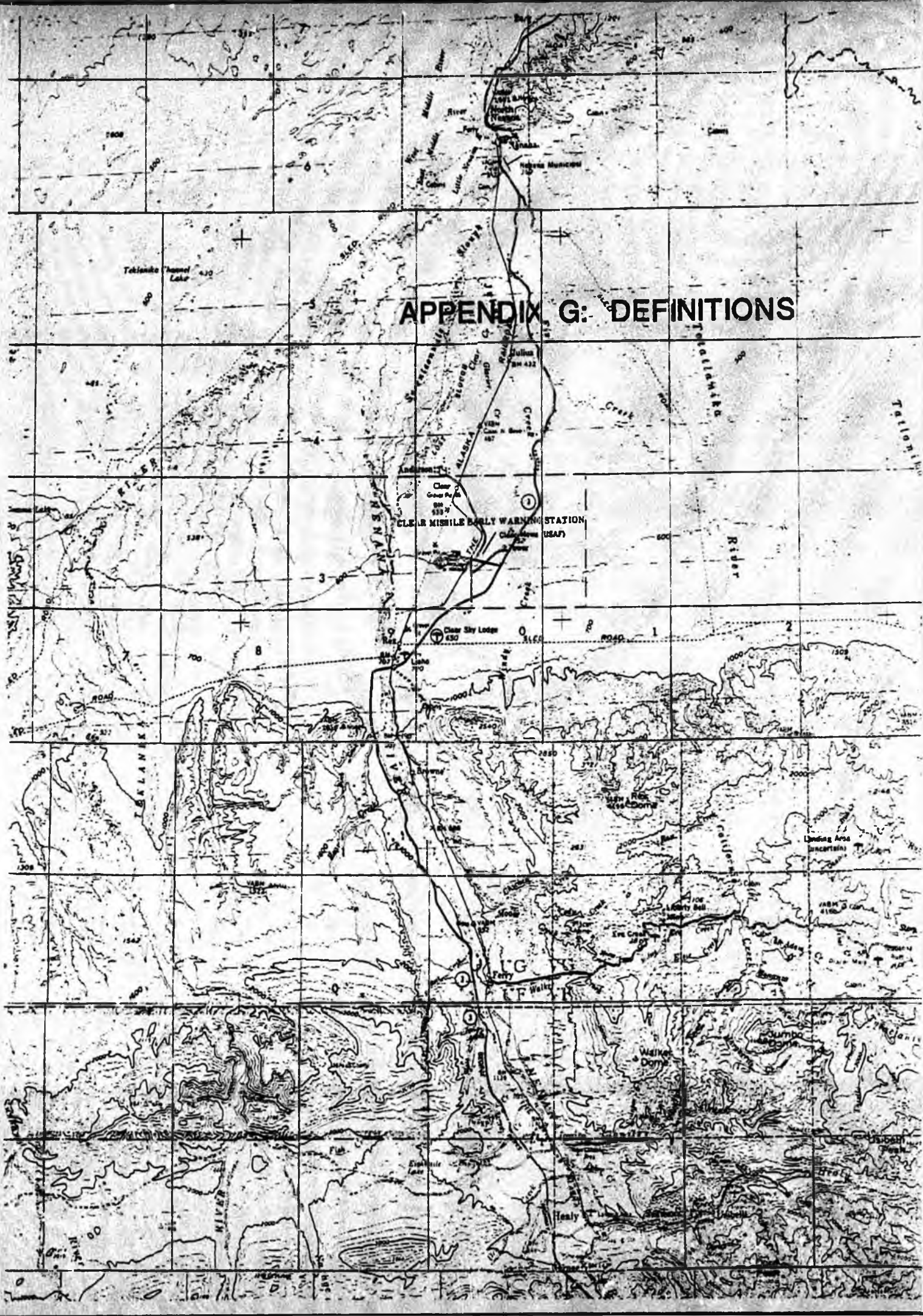
Cost Element			Estimated Costs
Plant & Accessories	275,000 sq.ft.	6.35 acres	115,000,000
Other Buildings	80,000 sq.ft.	1.85 acres	15,000,000
Civil Improvements		45.00 acres	12,000,000
Construction Contingency @	15.0%		21,300,000
		53.20 acres	163,300,000
Engineering			
Survey and Geotechnical Analysis			1,500,000
Pre-construction		4.00%	6,500,000
Construction Administration		2.25%	3,700,000
			11,700,000
Project Administration			
Legal & Financial			1,200,000
Project Management		1.75%	3,100,000
			4,300,000
Administrative Contingency			
12.0% of non-construction costs			1,900,000
Total Construction Budget			181,200,000
Other Capital Costs			
Major Maintenance Reserve			18,100,000
Interim Financing Interest			33,300,000
Insurance & Operating Reserve			8,000,000
Financing Fees			2,400,000
			61,800,000
Total Estimated Capital Cost			243,000,000

ANALYSIS OF LABOR COSTS - Operating Positions & Wages

		Direct Wages	Number of Positions
Plant			
Shift Superintendents		245,000	4.6
Shift Firemen		226,000	4.6
Apprentice Fireman		42,500	1.0
Plant Engineer		48,000	1.0
Electrical Forman		55,000	1.0
Shift Electricians		226,000	4.6
Machanical Forman		55,000	1.0
Shift Mechanics		226,000	4.6
Instrument Forman		54,000	1.0
Control Mechanics		226,000	4.6
Inside Laborers		85,000	2.0
Custodian		30,000	1.0
Sub-Total of Direct Plant Wages		1,518,500	31.1
Outside Plant			
Outside Plant Superintendant		55,000	1.0
Outside Formen		232,000	4.6
Yard Men		210,000	4.6
Yard Men		210,000	4.6
Safty & Security		49,000	1.0
Mechanic Forman		55,000	1.0
Equipment Mechanic		49,000	1.0
Warehouse Forman		49,000	1.0
Warehouse Man		45,000	1.0
Equipment Operators		210,000	4.6
Conveyor Operators		210,000	4.6
Treatment Plant Operators		210,000	4.6
Coal Plant Operators		210,000	4.6
Labor Formen		210,000	4.6
Outside Labor		42,500	1.0
Sub-Total of Direct Outside Plant Wages		2,046,500	43.9
Total Operating Wages & Positions		3,565,000	74.9
Indirect Operating Wage @	35.00%	1,248,000	
Total Operating Labor Cost		4,813,000	
Contract Engineering		20,000	
Contract Maintenance		40,000	
Expendables & Small Tools		100,000	
Total M&O Budget		4,973,000	

ANALYSIS OF LABOR COSTS - Administrative Positions & Wages

		Direct Wages	Number of Positions
Administrative Payroll			
General Manager		68,000	1
Production Superintendent		75,000	1
Comptroller		58,000	1
Electrical Engineer		52,500	1
Mechanical Engineer		52,500	1
Administrative Manager		48,000	1
Engineering Technician		34,500	1
Accounts Payable Clerk		34,500	1
Payroll Clerk		34,500	1
Secretary		32,000	1
Receptionist		28,500	1
Custodian		30,000	1
Total of Direct Administrative Wages		548,000	12.0
Other Administrative Costs			
Indirect Admin' Wage @	35.0%	192,000	
Administrative Supplies and Expense		50,000	
Lights, Heat and Maintenance		500,000	
Security Contract		200,000	
Total Annual Administrative Costs		1,490,000	



APPENDIX G: DEFINITIONS

Definitions of Some Technical Terms

The state of the technical American language today is confusing to the technologist, not to mention the layman. Every other technical society on earth has, today, adopted the metric system to aid in communication of technical and commercial thought, except for the United States of America. Thus, the following table of definitions is offered in an attempt to provide some explanation of technical terms used in the text of this report.

Prefixes:

Prefixes used in the expression of electrical units are taken from the metric expressions of electrical units and are defined in multiples of one thousand (1,000).

Giga-	One billion
Gigawatts:	A billion Watts. 1,000,000,000 Watts. A million Kilowatts. 1,000,000 Kilowatts. (see watts listed under Power)
Gigawatt-hours:	A billion Watt-hours. 1,000,000,000 Watt-hours. A million Kilowatt-hours). 1,000,000 Kilowatt-hours). (see watt-hours listed under Energy)
Kilo-	One thousand
Kilovolts:	A thousand Volts. 1,000 Volts. (see watts listed under Electric Units)
Kilowatts:	A thousand Watts. 1,000 Watts. (see watts listed under Power)
Kilowatt-hours:	A thousand Watt-hours. 1,000 Watt-hours. (see watt-hours listed under Energy)
Mega-	One million
Megavolts:	A million Volts. 1,000,000 Volts. A thousand Kilovolts. 1,000 Kilovolts. (see watts listed under Electric Units)

Megawatts: A million Watts.
1,000,000 Watts.
A thousand Kilowatts.
1,000 Kilowatts.
(see watts listed under Power)

Megawatt-hours: A million Watt-hours.
1,000,000 Watt-hours.
A thousand Kilowatt-hours).
1,000 Kilowatt-hours).
(see watt-hours listed under Energy)

Energy:

"Energy" and "Work" mean the same thing to the engineer. The exertion of "power" over a period of time. The units of work are:

British Thermal Units (BTU)

In this paper, thermal energy, or heat is expressed in British Thermal Units. For example, an average home in the Nenana area will require about 200 million British Thermal Units of thermal energy to keep it warm over the period of an average year. That thermal energy is contained in about 1,450 gallons of fuel oil. Similarly, one pound of Healy coal contains about 7,750 British Thermal Units of potential thermal energy.

Watt-hours

The electrical counterpart of the BTU is the "watt-hour". A 100 watt light bulb, burning for one hour will expend 100 watt-hours of energy.

One watt-hour = 3.412 BTU

Power:

Power is the term that is typically used to express the instantaneous expenditure of work. For example the 100 "horsepower" engine has a capability of producing 100 horsepower at any moment. This term is contrasted with that same engine performing over a period of time, expending horsepower-hours of energy.

BTU per hour

The instantaneous capacity to produce heat. For example, an average home in the City of Nenana will be heated by a furnace or boiler capable of producing about 150,000 BTU per hour. Seemlier, the same home could be heated with a 45 Kilowatt electric heater.

Watt

The watt is the metric counterpart of the BTU per hour. This unit is typically used to indicate the capacity of an electrical appliance to consume or produce electrical power.

An electric power plant is typically described by the fuel it consumes, the process it uses to convert the fuel to electric energy and its maximum capability to generate power. For example, a coal fired, 100 Megawatt, steam power plant. Such a plant is capable of producing a million watts of electric power at any time.

Electrical Units:

Amps

Amps (or ampere) is the unit of measure that depicts the flow of electrons through an electrical circuit. A typical coffee pot requires about two amps of electrical current at ordinary household voltage.

Volts

Volts is the term used to express electrical potential. Even though electricity is not flowing between the power source and the appliance, the voltage can be measured. In household application, the "electrical potential" (volts) is typically designed to be either 120 or 240 volts. When electric energy is transmitted over long distances, higher voltages are required. Electrical transmission lines are typically rated at "Kilovolt" (1,000s of volt) capacity.

Volt-Amps

Volt-amps is a term depicting the product of voltage multiplied by amperage. In the most non-complex electrical system this unit is equivalent to one watt. In complex systems, however, this relationship is not true and, thus, must be expressed as a volt-amp, rather than a watt.

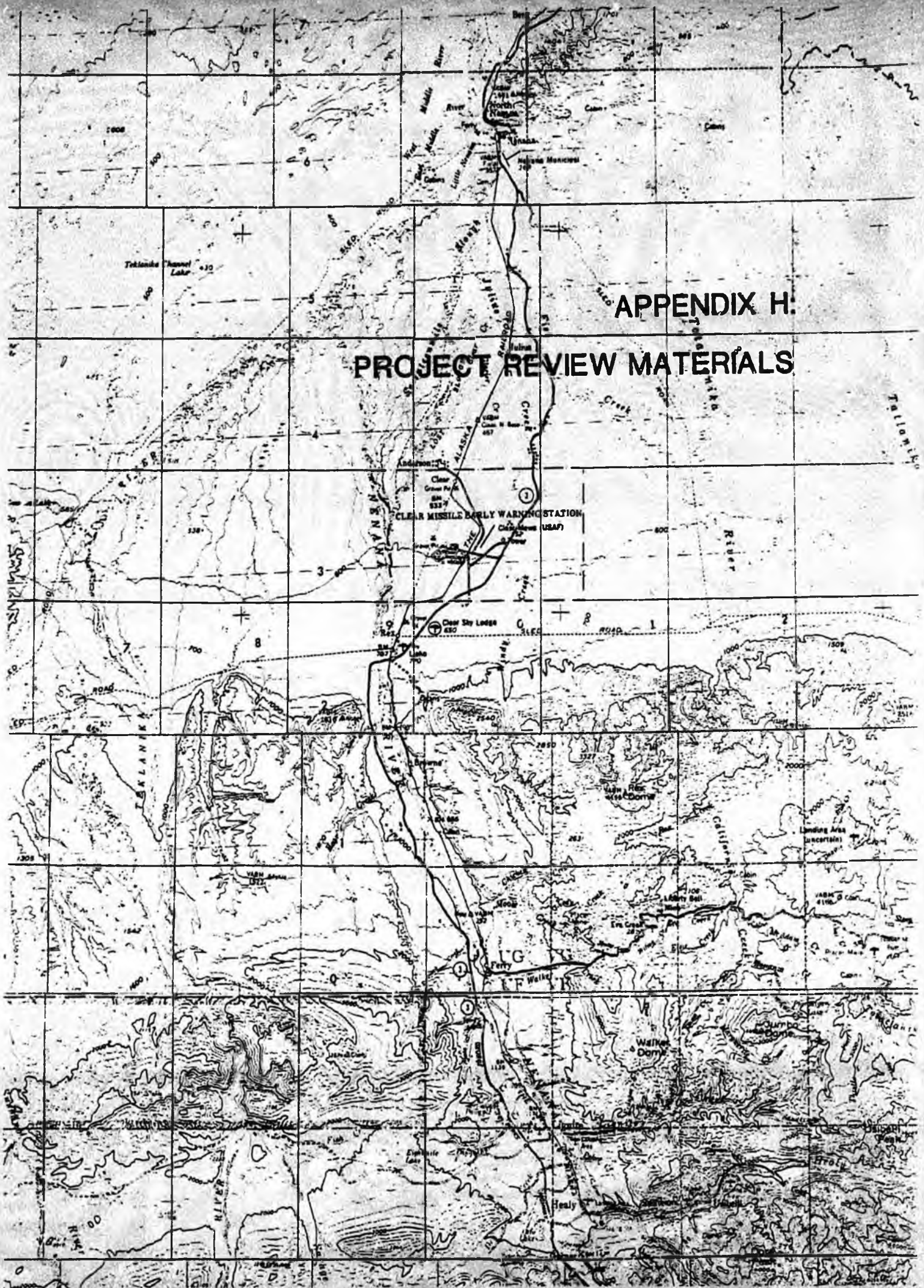
The volt-amp is used to distinguish the size of such electrical constructions as electrical transformers and transmission lines. We then see the expression Kilovolt-amp (1,000ys of volt-amps) used to express the capacity of electrical transmission lines.

Definitions of other terms appearing in this report:

Ash

Ash is the inorganic constituent of the coal that will remain in solid form after the coal is burned.

Combined Cycle	The term combined cycle is used to describe heat machines that are characterized by the combining of two or more thermal machines in their design. For example, a gas turbine combined machine with a steam turbine system is termed a "combined cycle" machine.
Fixed Carbon	Fixed carbon is the term used to approximately describe the portion of the carbon contained in a coal sample that resides as a solid material after volatile matters have been removed during certain coal testing processes.
Heat Value	The heat value of the coal is the potential the coal, when burned, has to create thermal energy. The term is expressed in BTU per pound (see Energy above).
Moisture Content	Coal is a "water loving" material. Unprocessed, coal will accumulate water from its surroundings, even from moisture contained in the air. Generally the lower the quality of the coal, the greater affinity the substance has for water. Thus, of the weight of subbituminous coals, such as those found at Healy, as much as 25% (measured by weight) may be water held within the structure of the coal.
NOX	Oxides of Nitrogen: Nitric oxide, Nitrogen dioxide, Nitrous acid, Nitrogen trioxide, Dinitrogen pentoxide, Ammonium nitrate.
Sensible Heat	When a substance is heated and its temperature changes, the product of the specific heat of the substance and the change in its temperature is called the "sensible heat". When heat is added to a stream of gases, and the gases are heated, the sensible heat is the heat required to change the temperature of the gases.
Sulfur	All coals contain some amount of sulfur. The sulfur content is the measure of sulfur contained in a coal sample.
Volatile Matter	This parameter consists generally of the gases (except water) that are driven from a coal sample during certain tests. These gases include carbon monoxide, hydrogen and methane among others.


APPENDIX H:
PROJECT REVIEW MATERIALS
CLEAR MISSILE EARLY WARNING STATION
Clear Sky Lodge
Healy

Fairbanks Municipal Utilities System

March 20, 1987

Mayor Joe B. Cooper
City of Nenana
P.O. Box 70
Nenana, Alaska 99760

Dear Mayor Cooper:

I appreciated our opportunity to discuss the proposed Nenana coal-fired electric generating plant. FMUS is supportive of your goals and sincerely appreciates the opportunity for our staff to be involved in reviewing the various preliminary reports and engineering studies.

We wish you luck in identifying funding sources for the proposed preliminary engineering work program, and if we can assist you in that process please so advise.

Very truly yours,

V. M. Gillespie
Deputy City Manager-
Utilities

VMG:pah

645 Fifth Avenue • P.O Box 2215 • Fairbanks, Alaska 99707 • 907-456-1000

GOLDEN VALLEY ELECTRIC ASSOCIATION INC. Box 1249, Fairbanks, Alaska 99707-1249, Phone 907-452-1151

March 19, 1987

Mayor Joe B. Cooper
City of Nenana
P.O. Box 70
Nenana, Alaska 99760

Dear Mayor Cooper:

This letter will advise you that Golden Valley Electric Association (GVEA) continues to monitor with interest the City of Nenana's continued examination of the proposed Nenana Coal-Fired Electrical Generating Plant. One of our major objectives is to secure a long term, low cost, stable energy supply for our members. Your developing proposal presents yet another option for consideration.

We appreciate your update yesterday and understand you are seeking funding for a preliminary engineering work program. We have shared with you information concerning our current and projected loads and generating capacity as well as some future options for GVEA adding generating capacity when required. We will be pleased to furnish additional information you may require to proceed with your studies.

As we further discussed, GVEA will assist when requested by you in the review of the results of the preliminary engineering work as appropriate. We will also, when requested, comment as appropriate to the City of Nenana during conduct and analysis of the preliminary engineering work.

Thanks for keeping us informed. If you have any further questions, please contact me.

Best regards,

Michael P. Kelly
General Manager

cc: Board of Directors, GVEA
John Huber, Mgr Engr Svcs, GVEA
Bob Hansen, Mgr Admin Svcs, GVEA
A.W. Baker, Mgr Production, GVEA

NUVEEN

John Nuveen & Co. Incorporated
Investment Bankers

240 Main Street, Suite 601
Juneau, Alaska 99801

Telephone 907.586.1636
907.586.1708

March 12, 1987

The Honorable Joe B. Cooper
Mayor, City of Nenana
P.O. Box 00070
Nenana, AK 99760

Dear Mayor Cooper:

We have received the City of Nenana Coal Generation Project Report and believe that it provides a basis for further study and analysis. The Nenana Coal Project may be a feasible addition to the railbelt energy resource base if the substantial effort proposed by Ohe City in its proposal is carried out.

Should the technical and financial feasibility be developed during the proposed analysis and firm power sales contract with creditworthy utilities be enterd into, long term financing could be expected to be available under normal bond market conditions.

Yours truly,

Sterling Gallagher
Vice President

cc: Lloyd Robinson

Lahmeyer International GmbH, P.O.B. 710651, D-6000 Frankfurt (Main) 71

City of Nenana
Attn. Mr. Steven Bainbridge
City Engineer
P.O. Box 000/0
Nenana, Alaska 99760
United States of America

LAHMEYER INTERNATIONAL

CONSULTING ENGINEERS
INGENIEURS CONSEILS
INGENIEROS CONSULTORES

Lahmeyer International GmbH
Lyoner Straße 22
D-6000 Frankfurt (Main) 71
(069) 6677-0
linectra frankfurtmain
Telex 413478 lid
Fax (069) 6677-571,-572,-940

Your reference / Votre référence / Su referencia	Your letter / Votre lettre / Su carta	In your reply please quote / Prière d'indiquer dans v/réponse / Mencionese en la respuesta	Please contact / Contactez s.v.p. / Dirigirse a	Dial directly / Appel direct / Llamada directa 6677-	Date / Date / Fecha
		RT5/HG/LC/1523 [2762T]	Gräb	393	12/03/1987

Re.: Nenana Coal-Fired Power Station Project

Dear Sirs,

This letter is to confirm that our company as a partner of Fryer/Pressley Engineering Inc., Anchorage, has actively participated in the studies on the above mentioned project and in the preparation of the relevant report.

The services we contributed comprise the following:

* We determined the proposed type of firing system and thermal plant process on basis of the prevailing data and conditions as well as on basis of our experience in the design, construction and operation of coal-fired power stations. Subsequently we prepared Section 3 (Thermal Plant Process) of the report with the assistance of our Alaskan Partner FPE.

* The below mentioned Sections have been reviewed by us and include our respective comments.
  - Section 2 (Project Feasibility)
  - Section 4 (Project Description)
  - Section 5 (Project Costs and Financing)
  - Section 7 (Preliminary Engineering Work Plan).

Having rendered these services and having scrutinized the whole report, we commit ourselvess to its contents and support its findings and conclusions.

For the benefit of reviewers of the report to whom we may have not been known so far, the following information on our company is attached hereto:

* An outline of the company profile of LAHMEYER INTERNATIONAL GMBH
* Some general brochures about LAHMEYER INTERNATIONAL GMBH

LAHMEYER INTERNATIONAL

* Some lists of projects performed by LAHMEYER INTERNATIONAL GMBH
* A summary of coal-fired power plant projects handled by LAHMEYER INTERNATIONAL GMBH

It may be noticed that beyond the projects mentioned on the latter documentation, our relevant expertise is also constituted by the fact that Lahmeyer engineers have participated in the planning and implementation of coal-fired plant projects during former employments with manufacturers and utilizers.

In conclusion of this letter we would like to express our strong interest and willingness to extend our involvement in the Nenana Projet in partnership witn FPE over the engineering, implementation and operation phases. We assure you of a performance of our services to your full satisfaction.

Yours sincerely,

LAHMEYER INTERNATIONAL GMBH

(Dr. Heigl)
(Managing Director)

(Gräb)
(Department Head, Operation Services)

Encls.: as mentioned above

Offered: 4/30/87
Referred: Rules

wo0887hX

Original sponsor: Rules/Governor

IN THE HOUSE BY THE FINANCE COMMITTEE

CS FOR SPONSOR SUBSTITUTE FOR HOUSE BILL NO. 75 (Finance)

IN THE LEGISLATURE OF THE STATE OF ALASKA

FIFTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act making appropriations for the operating and loan program expenses of state government; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. Included within the general fund amounts appropriated according to the schedules in this Act, the following amounts are from the unreserved special accounts in the general fund:

Highway Fuel Tax Account	$20,000,000
Aviation Fuel Tax Account	8,000,000

* Sec. 2. Federal or other non-general fund program receipts that exceed the amounts appropriated in this Act are appropriated conditioned upon compliance with the program review provisions of AS 37.07.080(h).

* Sec. 3. If federal or other program receipts exceed the estimates appropriated by this Act, the appropriation from state funds for the affected program is reduced by the amount of the excess if the reductions are consistent with applicable federal statutes.

* Sec. 4. If federal or other program receipts fall short of the estimates appropriated by this Act, the affected appropriation is reduced by the amount of the shortfall in receipts.

* Sec. 5. If the federal receipts under Title XX of the Social Security Act (42 U.S.C. 1397 - 1397f) fall short of the estimate, the amount of the shortfall is appropriated from the general fund.

* Sec. 6. Amounts equivalent to the amounts to be received in settlement of insurance claims for property losses are appropriated from the

general fund to the affected agency for the purpose of replacing the facility or service lost as a result of the incident giving rise to the claim.

* Sec. 7. The amount required to pay interest on revenue anticipation notes issued by the commissioner of revenue under AS 43.08.010 is appropriated from the general fund to the Department of Revenue.

* Sec. 8. The amount required to be paid by the state for the principal of and interest on all issued and outstanding state-guaranteed bonds is appropriated from the general fund to the state bond committee to make all payments by the state required under its guarantee for principal and interest.

* Sec. 9. The sum of $109,472,700 is appropriated from the general fund to the Department of Education for school bond debt retirement.

* Sec. 10. The sum of $8,378,200 is appropriated from the international airports revenue fund to the state bond committee for payment of debt service and trustees fees on outstanding international airports revenue bonds.

* Sec. 11. The amount of the Rebate Requirement, as defined by Resolution No. 86-5 of the state bond committee, is appropriated from the International Airports Revenue Fund to the state bond committee for deposit in the Rebate Fund established by Resolution No. 86-5 of the state bond committee.

* Sec. 12. The sum of $147,965,600 is appropriated from the general fund to the state bond committee for payment of debt service and trustee fees on state general obligation bonds.

* Sec. 13. The income of the Alaska permanent fund allocated annually to pay permanent fund dividends as provided in AS 43.23.045(b) is appropriated to the dividend fund (AS 43.23.045(a)) for the payment of the 1987 permanent fund dividend and administrative and associated costs.

* Sec. 14. All unrestricted mortgage loan interest payments and all

other receipts, including, without limitation, mortgage loan commitment fees, received by or accrued to the Alaska Housing Finance Corporation during the period of July 1, 1987 through June 30, 1988, and all income earned on assets of the corporation during that period, are appropriated to the Alaska housing finance revolving fund (AS 18.56.082) for the purposes described in AS 18.56.

* Sec. 15. The sum of $1,200,000 is appropriated from the general fund to the fisheries enhancement revolving loan fund (AS 16.10.505) for the fisheries enhancement loan program.

* Sec. 16. The sum of $35,032,000 is appropriated to the general fund, as an additional revenue source, from the following enterprise funds:

World War II Veterans' Revolving Fund (AS 26.15.090)	$ 838,600
Commercial Fishing Revolving Loan Fund (AS 16.10.340)	7,821,500
Child Care Facility Revolving Loan Fund (AS 44.33.240)	89,500
Historical District Revolving Loan Fund (AS 45.98.010)	207,800
Mining Loan Fund (AS 27.09.010)	4,693,500
Alternative Energy Revolving Loan Fund (AS 45.88.010)	5,504,200
Residential Energy Conservation Fund (AS 45.89.010)	1,868,600
Power Development Revolving Loan Fund (AS 44.33.600)	5,805,600
Agriculture Revolving Loan Fund (AS 03.10.040)	7,682,700
Grain Reserve Revolving Loan Fund (AS 03.12.040)	520,000

* Sec. 17. The sum of $314,200 is appropriated from the general fund to the Department of Revenue for costs associated with oil and gas tax litigation.

* Sec. 18. The sum of $9,483,800 is appropriated from the general fund to the Department of Law to fund legal proceedings involving oil and gas revenue due or paid to the state or state title to oil and gas land, including, but not limited to, the North Slope royalty case (State v. Amerada Hess, et al.), the oil and gas corporate income tax case (Arco v. State),

the Trans-Alaska pipeline rate case, litigation against the Alaska Oil Company, and United States v. Alaska, for fiscal year 1988 and succeeding fiscal years.

* Sec. 19. The balance on July 1, 1987, of the oil and hazardous substance release mitigation account in the general fund (AS 46.08.020(b)) is appropriated to the Department of Environmental Conservation, oil and hazardous substance release response fund (AS 46.08.010).

(Section 20 begins on page 7)

FISCAL YEAR 1988 BUDGET SUMMARY BY FUNDING SOURCE

FUNDING SOURCE	OPERATING BUDGET	LOANS BUDGET	NEW LEGISLATION BUDGET	CAPITAL BUDGET	TOTAL BUDGET
FEDERAL RECEIPTS	261,991,400				261,991,400
GENERAL FUND MATCH	88,450,200				88,450,200
GENERAL FUND	1,517,680,800				1,517,680,800
INTER-AGENCY RECEIPTS	84,355,500				84,355,500
INTEREST INCOME	6,211,700				6,211,700
LICENSE/PERMITS/CERTIFICATION	5,098,800				5,098,800
CARE AND TREATMENT	5,960,400				5,960,400
PUBLICATIONS AND OTHER SERVICES	674,400				674,400
DORMITORY/FOOD/AUXILARY SERVICES	13,710,100				13,710,100
GIFTS/BEQUESTS/DONATIONS	295,000				295,000
RESOUCE ASSESSMENT RECEIPTS	6,668,800				6,668,800
APA PLANT MAINTENANCE & OPERATION	3,764,000				3,764,000
CONTRACT SERVICES REIMBURSEMENT	3,943,600				3,943,600
USER FEES	16,280,600				16,280,600
AGRICULTURAL LOAN FUND	1,129,200				1,129,200
STATE CORPORATION RECEIPTS	11,149,300				11,149,300
FICA ADMINISTRATION FUND ACCOUNT	100,200				100,200
FISH AND GAME FUND	8,061,800				8,061,800
CHILD SUPPORT ENFORCEMENT	2,261,000				2,261,000
HIGHWAY WORKING CAPITAL FUND	18,340,500				18,340,500
INTERNATIONAL AIRPORT REVENUE FUND	28,042,800				28,042,800
PROGRAM RECEIPTS/GENERAL FUND	1,667,000				1,667,000
PUBLIC EMPLOYEES RETIREMENT FUND	7,191,200				7,191,200
SCHOOL FUND (CIGARETTE TAX)	3,500,000				3,500,000
SECOND INJURY FUND RESERVE ACCOUNT	2,387,600				2,387,600
DISABLED FISHERMANS RESERVE ACCOUNT	1,443,200				1,443,200
SURPLUS PROPERTY REVOLVING FUND	94,100				94,100
TEACHERS RETIREMENT SYSTEM FUND	5,023,300				5,023,300
VETERANS REVOLVING LOAN FUND	363,600				363,600
COMMERCIAL FISHING LOAN FUND	785,300				785,300
LEGAL SETTLEMENT RECEIPTS	630,500				630,500
STUDENT TUITION/FEES/SERVICES	20,407,300				20,407,300
INDIRECT COST RECOVERY	6,494,500				6,494,500
HANDICAPPED VENDOR FACILITY FUND	60,000				60,000
JUDICIAL RETIREMENT SYSTEM	32,000				32,000
PUBLIC LAW 81-874/GENERAL FUND	21,246,100				21,246,100
NATIONAL GUARD RETIREMENT SYSTEM	26,300				26,300
TITLE 20	5,401,500				5,401,500
UNIVERSITY RECEIPTS	27,281,700				27,281,700
TRAINING AND BUILDING FUND	696,100				696,100
PERMANENT FUND DIVIDEND FUND	11,408,300				11,408,300
SMALL BUSINESS LOAN FUND	111,500				111,500
TOURISM REVOLVING LOAN FUND	34,800				34,800
CORRECTIONAL INDUSTRIES FUND	1,658,400				1,658,400
CAPITAL IMPROVEMENT PROJECT RECEIPTS	65,704,400				65,704,400
HOUSING ASSISTANCE LOAN FUND	2,763,300				2,763,300
PUBLIC SCHOOL FUND	7,510,100				7,510,100
MINING REVOLVING LOAN FUND	201,300				201,300
CHILD CARE REVOLVING LOAN FUND	35,100				35,100
HISTORICAL DISTRICT REVOLVING LOAN FUND	8,100				8,100
FISHERIES ENHANCEMENT REVOLVING LOAN FUN	235,600				235,600

ALTERNATIVE ENERGY REVOLVING LOAN FUND	251,400				251,400
RESIDENTIAL ENERGY CONSERVATION LOAN FUN	194,200				194,200
**** TOTALS ****	$2,279,017,900				$2,279,017,900

* SEC. 20 THE FOLLOWING APPROPRIATION ITEMS ARE FOR OPERATING EXPENDITURES FROM THE GENERAL FUND OR OTHER FUNDS AS SET OUT IN THE FISCAL YEAR 1988 BUDGET SUMMARY BY FUNDING SOURCE TO THE AGENCIES NAMED AND FOR THE PURPOSES EXPRESSED FOR THE FISCAL YEAR BEGINNING JULY 1, 1987, AND ENDING JUNE 30, 1988, UNLESS OTHERWISE INDICATED.

	ALLOCATIONS	APPROPRIATION ITEMS	APPROPRIATION FUND SOURCES: GENERAL FUND	APPROPRIATION FUND SOURCES: OTHER FUNDS
* * * * * *	* * * * * *			
* * * * * OFFICE OF THE GOVERNOR * * * * *				
* * * * * *	* * * * * *			
COMMISSIONS/SPECIAL OFFICES		1,471,200	1,372,200	99,000
HUMAN RIGHTS COMMISSION (19 POSITIONS)	927,900			
EQUAL EMPLOYMENT OPPORTUNITY (7 POSITIONS)	346,500			
ALASKA WOMENS COMMISSION (3 POSITIONS)	196,800			
EXECUTIVE OPERATIONS		7,259,200	7,259,200	
EXECUTIVE OFFICE (67 POSITIONS)	4,802,000			

IT IS THE INTENT OF THE LEGISLATURE THAT THE OFFICE OF EQUAL EMPLOYMENT OPPORTUNITY, THE HUMAN RIGHTS COMMISSION, AND THE WOMEN'S COMMISSION REVIEW THEIR FUNCTIONS IN AN EFFORT TO CONSOLIDATE AND STREAMLINE FUNCTIONS. SPECIFICALLY, THE FOLLOWING PROPOSALS SHOULD BE REVIEWED:

1. COLLOCATION OF EEO, HRC, AND WC OFFICES.
2. CONSOLIDATION OF CLERICAL RESPONSIBILITIES FOR COLLOCATED OFFICES.
3. CONSOLIDATION OF CIVIL RIGHTS TRAINING

OFFICE OF THE GOVERNOR (CONT.)

	ALLOCATIONS	APPROPRIATION ITEMS	APPROPRIATION FUND SOURCES GENERAL FUND	OTHER FUNDS
RESPONSIBILITIES IN THE EEO OFFICE.				
4. INCLUSION OF THE WC FUNCTIONS IN THE EEO OFFICE OR HRC UNDER A SINGLE DIRECTOR.				
THE LEGISLATURE CONTINUES TO SUPPORT THE COLLECTIVE BARGAINING PROCESS ESTABLISHED FOR STATE EMPLOYEES AND BELIEVES THAT EMPLOYEE COMPENSATION SHOULD BE ESTABLISHED AS A RESULT OF THE COLLECTIVE BARGAINING PROCESS AND NOT THE LEGISLATIVE BUDGET PROCESS. IT IS THE INTENT OF THE LEGISLATURE THAT FOR ALL BARGAINING UNITS FOR WHICH THE LEVEL OF SALARIES, BENEFITS, OR WORK RULES HAVE NOT BEEN AGREED FOR FY88, THE LEVEL OF PERSONAL SERVICES FUNDING IN THIS BUDGET SHALL NOT BE CONSTRUED TO ESTABLISH ANY SPECIFIC LEVEL OF SALARIES, BENEFITS, OR WORK RULE COSTS. IN THE EVENT THAT THE PRODUCT OF COLLECTIVE BARGAINING NEGOTIATIONS RESULTS IN A REQUIREMENT FOR ADDITIONAL PERSONAL SERVICES FUNDS ABOVE WHAT IS INCLUDED IN THIS BUDGET, THE OFFICE OF THE GOVERNOR SHALL PRESENT A SUPPLEMENTAL APPROPRIATION REQUEST TO THE SECOND SESSION OF THE FIFTEENTH ALASKA LEGISLATURE FOR CONSIDERATION.				
GOVERNOR'S HOUSE (4 POSITIONS)	279,200			
CONTINGENCY FUND	180,000			
IT IS THE INTENT OF THE LEGISLATURE THAT THE CONTINGENCY FUND BE USED TO MEET SPECIFIC UNFORESEEN EXTRAORDINARY				

OFFICE OF THE GOVERNOR (CONT.)				
		APPROPRIATION	APPROPRIATION FUND SOURCES	
	ALLOCATIONS	ITEMS	GENERAL FUND	OTHER FUNDS
OBLIGATIONS AND INITIATIVES, NOT TO SUPPLEMENT AGENCY BUDGETS OR PROGRAMS THAT HAVE BEEN REDUCED IN THE OPERATING BUDGET.				
LIEUTENANT GOVERNOR (7 POSITIONS)	539,500			
IT IS THE INTENT OF THE LEGISLATURE THAT THE FORMAT AND PUBLICATION OF THE ADMINISTRATIVE CODE BE ANALYZED FOR COST EFFICIENCIES, AND THAT THE LIEUTENANT GOVERNOR TAKE APPROPRIATE ACTIONS TO EFFECT COST SAVINGS IN THE FY89 BUDGET.				
OFFICE OF INTERNATIONAL TRADE (5 POSITIONS)	1,458,500			
OFFICE OF MANAGEMENT AND BUDGET		5,974,000	3,887,600	2,086,400
POLICY (9 POSITIONS)	621,800			
BUDGET REVIEW (15 POSITIONS)	879,000			
IT IS THE INTENT OF THE LEGISLATURE THAT, IN PREPARING THE GOVERNOR'S BUDGET FOR FY89, PROPOSED GENERAL FUND APPROPRIATIONS THAT ARE BASED ON ESTIMATED PROGRAM RECEIPTS BE IDENTIFIED AS "GENERAL FUND/PROGRAM RECEIPTS" TO DISTINGUISH THEM FROM OTHER GENERAL FUND APPRUPRIATIONS.				
AUDIT AND MANAGEMENT (12 POSITIONS)	698,200			
THE LEGISLATURE RECOGNIZES THE EXTREME IMPORTANCE OF THE INTERNAL AUDIT FUNCTION WITHIN THE EXECUTIVE BRANCH. THEREFORE IT IS THE INTENT OF THE LEGISLATURE THAT GREATER LEVELS OF INTERNAL AUDIT ACTIVITY BE PERFORMED				

		ALLOCATIONS	APPROPRIATION ITEMS	APPROPRIATION FUND SOURCES GENERAL FUND	OTHER FUNDS
OFFICE OF THE GOVERNOR (CONT.)					
IN FY88 COMPARED TO RECENT HISTORICAL LEVELS. THE DIVISION OF AUDIT & MANAGEMENT SHALL PROVIDE A REPORT TO THE FINANCE COMMITTEES OF THE LEGISLATURE BY THE 10TH DAY OF THE SECOND SESSION OF THE FIFTEENTH ALASKA STATE LEGISLATURE DETAILING: 1. THE NUMBER AND TYPES OF AUDITS PERFORMED DURING THE FIRST SIX MONTHS OF THE FISCAL YEAR. 2. CORRECTIVE ACTIONS TAKEN BY AGENCIES AS A RESULT OF AUDIT FINDINGS, 3. SIGNIFICANT AUDIT FINDINGS WHICH PERTAIN TO THE PREPARATION OF THE FY89 BUDGET, AND 4. A DETAILED WORKPLAN FOR THE REMAINDER OF THE FISCAL YEAR.					
	GOVERNMENTAL COORDINATION (26.5 POSITIONS)	3,675,500			
	ALASKA LAND USE COUNCIL (1.5 POSITIONS)	99,500			
IT IS THE INTENT OF THE LEGISLATURE THAT THE STATE OF ALASKA PARTICIPATE FUL . WITH THE FEDERAL GOVERNMENT IN THE OPERATIONS AND FUNCTIONS OF THE ALASKA LAND USE COUNCIL. FURTHER, IT IS THE INTENT OF THE LEGISLATURE THAT THE STATE EMPLOY SUFFICIENT PERSONNEL, INCLUDING A STATE STAFF COORDINATOR AND NECESSARY SECRETARIAL SUPPORT TO PROVIDE FULL CAPACITY TO SUPPORT THE STATE'S PARTICIPATION IN THE COUNCIL'S FUNCTIONS.					
ELECTIVE OPERATIONS			1,572,800	1,572,800	
	ELECTIONS (24 POSITIONS)	1,209,000			

OFFICE OF THE GOVERNOR (CONT.)					
			APPROPRIATION	APPROPRIATION FUND SOURCES	
	ALLOCATIONS		ITEMS	GENERAL FUND	OTHER FUNDS
GENERAL AND PRIMARY ELECTIONS	244,600				
IT IS THE INTENT OF THE LEGISLATURE THAT THE FY89 BUDGET					
REQUEST FOR THIS COMPONENT BE REDUCED FROM NORMAL					
EXPECTED LEVELS TO REFLECT THE FY88 APPROPRIATION.					
ELECTIONS DATA PROCESSING	119,200				
* * * * * *		* * * * * *			
* * * * * DEPARTMENT OF ADMINISTRATION		* * * * *			
* * * * * *		* * * * * *			
LONGEVITY BONUS			51,489,800	51,489,800	
GRANTS	51,200,000				
ADMINISTRATION (7 POSITIONS)	289,800				
PIONEERS HOME			21,515,700	18,744,600	2,771,100
SITKA (93 POSITIONS)	3,934,300				
FAIRBANKS (80 POSITIONS)	3,640,700				
PALMER (85 POSITIONS)	3,555,300				
ANCHORAGE (193 POSITIONS)	7,162,800				
KETCHIKAN (54 POSITIONS)	2,137,500				
JUNEAU	844,000				
CENTRAL OFFICE (4 POSITIONS)	231,100				
IT IS THE INTENT OF THE LEGISLATURE THAT THE DEPARTMENT					
OF ADMINISTRATION COORDINATE EFFORTS WITH THE PIONEERS					
HOME ADVISORY BOARD TO FULLY EXPLORE ALTERNATIVE METHODS					
OF OPERATING THE PIONEERS HOMES PROGRAM, INCLUDING					
CONTRACTING FOR ALL OR PART OF NECESSARY SERVICES, IN AN					

DEPARTMENT OF ADMINISTRATION (CONT.)				
		APPROPRIATION	APPROPRIATION FUND SOURCES	
	ALLOCATIONS	ITEMS	GENERAL FUND	OTHER FUNDS
EFFORT TO REDUCE PROGRAM COSTS. THE DEPARTMENT SHALL PRESENT A REPORT OF ITS FINDINGS AND RECOMMENDATIONS TO THE LEGISLATURE NO LATER THAN JANUARY 30, 1988. THE DEPARTMENT SHALL ACTIVELY SEEK PROPOSALS FROM PRIVATE OPERATORS FOR ALL OR PART OF THE OPERATION OF THE JUNEAU PIONEER HOME FOR FY 1988.				
PIONEERS HOMES ADVISORY BOARD	10,000			
OLDER ALASKANS COMMISSION (15 POSITIONS)		8,999,000	3,711,100	5,287,900
IT IS THE INTENT OF THE LEGISLATURE THAT THE KETCHIKAN CASE MANAGEMENT PROJECT BE CONTINUED AND FUNDED AT $50,000 THROUGH THE OLDER ALASKANS COMMISSION FOR FY88. THE OLDER ALASKAN COMMISSION SHALL REVIEW THE DUTIES AND RESPONSIBILITIES OF THE ADMINISTRATIVE STAFF TO INSURE THAT THE APPROPRIATE ACCOUNTING PERSONNEL ARE AVAILABLE TO MEET STATE AND FEDERAL FISCAL REPORTING REQUIREMENTS.				
PUBLIC DEFENDER		5,629,400	5,629,400	
FIRST JUDICIAL DISTRICT (11 POSITIONS)	649,000			
SECOND JUDICIAL DISTRICT (8 POSITIONS)	593,800			
THIRD JUDICIAL DISTRICT (47 POSITIONS)	2,806,100			
FOURTH JUDICIAL DISTRICT (21 POSITIONS)	1,369,700			
ADMINISTRATION AND SUPPORT (3 POSITIONS)	210,800			
OFFICE OF PUBLIC ADVOCACY (26 POSITIONS)		3,535,400	3,517,900	17,500
CENTRAL AND STATEWIDE SERVICES		16,637,000	9,772,400	6,864,600

DEPARTMENT OF ADMINISTRATION (CONT.)				
		APPROPRIATION	APPROPRIATION FUND SOURCES	
	ALLOCATIONS	ITEMS	GENERAL FUND	OTHER FUNDS
OFFICE OF THE COMMISSIONER (7 POSITIONS)	637,200			
IT IS THE INTENT OF THE LEGISLATURE THAT THE COMMISSIONER DIRECT THE PERSONNEL DIVISION TO REVIEW THE SALARY LEVELS OF PARTIALLY EXEMPT POSITIONS IN ALL DEPARTMENTS FOR EQUITY BASED ON THE LEVELS OF RESPONSIBILITY INVOLVED. THE COMMISSIONER SHALL PRESENT A REPORT OF HIS FINDINGS AND RECOMMENDATIONS TO THE LEGISLATURE NO LATER THAN JANUARY 30, 1988.				
ADMINISTRATIVE SERVICES (29 POSITIONS)	1,209,200			
MUNICIPAL GRANTS (3 POSITIONS)	150,800			
CIP DIRECT CHARGE POSITIONS AND COSTS (2 POSITIONS)	89,300			
PERSONNEL (53 POSITIONS)	1,931,100			
PRODUCTIVITY IMPROVEMENT CENTER (4 POSITIONS)	278,900			
LABOR RELATIONS (11 POSITIONS)	663,400			
FINANCE (49 POSITIONS)	2,394,500			
PURCHASING (23 POSITIONS)	1,182,200			
IT IS THE INTENT OF THE LEGISLATURE THAT THE DEPARTMENT, WHEN APPROPRIATE, GIVE MAXIMUM CONSIDERATION TO THE CORRECTIONAL INDUSTRIES PROGRAM BEFORE OUT OF STATE PURCHASES ARE MADE.				
PROPERTY MANAGEMENT (8 POSITIONS)	349,500			
CENTRAL DUPLICATING AND MAIL (29 POSITIONS)	2,028,300			
ARCHIVES (10 POSITIONS)	466,400			

DEPARTMENT OF ADMINISTRATION (CONT.)				
		APPROPRIATION	APPROPRIATION FUND SOURCES	
	ALLOCATIONS	ITEMS	GENERAL FUND	OTHER FUNDS
RETIREMENT AND BENEFITS (64 POSITIONS)	4,968,800			
RETIREMENT INCENTIVE OPERATIONS	133,800			
LABOR RELATIONS AGENCY	68,600			
RAILROAD LABOR RELATIONS AGENCY	85,000			
ALASKA PUBLIC OFFICES COMMISSION (10 POSITIONS)		533,300	530,300	3,000
RISK MANAGEMENT (7 POSITIONS)		22,124,000		22,124,000
INFORMATION RESOURCE MANAGEMENT		19,411,800	15,185,200	4,226,600
INFORMATION RESOURCE MANAGEMENT (88 POSITIONS)	11,632,700			
TELECOMMUNICATIONS OPERATIONS (50 POSITION)	4,919,600			
RURAL ALASKA TELEVISION NETWORK (6 POSITIONS)	2,859,500			

IT IS THE INTENT OF THE LEGISLATURE THAT THE DIVISION OF TELECOMMUNICATIONS, THE HOUSE SPECIAL COMMITTEE ON TELECOMMUNICATIONS, ALASKA PUBLIC BROADCASTING COMMISSION, AND OFFICE OF MANAGEMENT AND BUDGET JOINTLY REVIEW THE RURAL ALASKA TELEVISION NETWORK AND ALASKA PUBLIC TELEVISION SYSTEM IN AN EFFORT TO IDENTIFY COST EFFICIENCIES THAT MAY BE INCORPORATED INTO THE FY89 BUDGET. THE REVIEW TEAM SHOULD COORDINATE ITS EFFORTS WITH THE RATNET BOARD AND THE CORPORATION FOR PUBLIC BROADCASTING. THE DIVISION SHALL PRESENT A REPORT OF ITS FINDINGS AND RECOMMENDATIONS TO THE LEGISLATURE NO LATER THAN JANUARY 30, 1988.

IT IS FURTHER THE INTENT OF THE LEGISLATURE THAT THE REVIEW TEAM TAKE THE FOLLOWING ACTIONS:

DEPARTMENT OF ADMINISTRATION (CONT.)

	ALLOCATIONS	APPROPRIATION ITEMS	APPROPRIATION FUND SOURCES GENERAL FUND	OTHER FUNDS
1. OMB SHALL ENTER INTO NEGOTIATIONS WITH ALASCOM IN AN ATTEMPT TO REDUCE LEASING COSTS ASSOCIATED WITH THE RATNET AND SOUTHEAST MICROWAVE SYSTEMS.				
2. CLARIFY OWNERSHIP AND MAINTENANCE OBLIGATIONS OF ALL EARTH STATIONS AND RELATED EQUIPMENT COMPRISING THE RATNET SYSTEM.				
3. REVIEW THE RAMIFICATIONS OF TRANSFERRING FCC LICENSES FOR STATE-OWNED LOW POWER TELEVISION TRANSMITTERS NOT CURRENTLY IN USE TO LOCAL ENTITIES, OF CONSOLIDATING AND TRANSFERRING THE LICENSES TO A PRIVATE NON-PROFIT ENTITY, AND OF CONSOLIDATING AND RETAINING THE LICENSES UNDER STATE OWNERSHIP.				
4. REVIEW ALTERNATIVES AND ASSOCIATED COSTS FOR COMMUNITIES TO INDEPENDENTLY RECEIVE AND PAY FOR RECEIVING COMMERCIAL TELEVISION THROUGH THE USE OF STATE-OWNED LOW POWER TELEVISION TRANSMITTERS NOT CURRENTLY IN USE.				
5. REVIEW ALTERNATIVES AND ASSOCIATED COSTS FOR COMMUNITIES TO RECEIVE PUBLIC BROADCASTING PROGRAMMING THROUGH THE USE OF RATNET TRANSMITTERS. REVIEW COMMERCIAL NETWORK SYNDICATED PROGRAMMING THAT COULD BE TRANSMITTED OVER THIS SYSTEM WITHOUT JEOPARDIZING NON-TARIFFED LEASING RATES, AND DETERMINE THE COSTS OF THE PROGRAMMING. COORDINATE WITH THE UNIVERSITY OF				

DEPARTMENT OF ADMINISTRATION (CONT.)

	ALLOCATIONS	APPROPRIATION ITEMS	APPROPRIATION FUND SOURCES GENERAL FUND	OTHER FUNDS
ALASKA AND THE DEPARTMENT OF EDUCATION TO DETERMINE A COST-EFFICIENT AND INEXPENSIVE MEANS OF BROADCASTING EDUCATIONAL PROGRAMS OVER THE SYSTEM.				
6. NEGOTIATE WITH THOSE COMMERCIAL TELEVISION STATIONS THAT TRANSMIT PROGRAMS THROUGH THE SOUTHCENTRAL MICROWAVE SYSTEM IN AN ATTEMPT TO HAVE THE STATIONS DEFRAY THE COST TO THE STATE OF BROADCASTING THE PROGRAMS.				
7. THE RATNET BOARD SHALL UTILIZE TELECOMMUNICATIONS WHENEVER POSSIBLE TO REDUCE TRAVEL COSTS.				
PUBLIC BROADCASTING COMMISSION (4 POSITIONS)		6,871,800	6,871,800	
THE SUM OF $546,000 IS APPROPRIATED TO THE ALASKA PUBLIC BROADCASTING COMMISSION FOR KUAC-TV/FM AT THE UNIVERSITY OF ALASKA, FAIRBANKS.				
IT IS THE INTENT OF THE LEGISLATURE THAT THE DIVISION OF TELECOMMUNICATIONS, THE HOUSE SPECIAL COMMITTEE ON TELECOMMUNICATIONS, ALASKA PUBLIC BROADCASTING COMMISSION, AND OFFICE OF MANAGEMENT AND BUDGET JOINTLY REVIEW THE RURAL ALASKA TELEVISION NETWORK AND ALASKA PUBLIC TELEVISION SYSTEM IN AN EFFORT TO IDENTIFY COST EFFICIENCIES THAT MAY BE INCORPORATED INTO THE FY89 BUDGET. THE REVIEW TEAM SHOULD COORDINATE ITS EFFORTS WITH THE RATNET BOARD AND THE CORPORATION FOR PUBLIC BROADCASTING. THE DIVISION SHALL PRESENT A REPORT OF				

DEPARTMENT OF ADMINISTRATION (CONT.)

	ALLOCATIONS	APPROPRIATION ITEMS	APPROPRIATION FUND SOURCES GENERAL FUND	OTHER FUNDS
ITS FINDINGS AND RECOMMENDATIONS TO THE LEGISLATURE NO LATER THAN JANUARY 30, 1988.				
IT IS FURTHER THE INTENT OF THE LEGISLATURE THAT THE REVIEW TEAM TAKE THE FOLLOWING ACTIONS:				
1. OMB SHALL ENTER INTO NEGOTIATIONS WITH ALASCOM IN AN ATTEMPT TO REDUCE LEASING COSTS ASSOCIATED WITH THE RATNET AND SOUTHEAST MICROWAVE SYSTEMS.				
2. CLARIFY OWNERSHIP AND MAINTENANCE OBLIGATIONS OF ALL EARTH STATIONS AND RELATED EQUIPMENT COMPRISING THE RATNET SYSTEM.				
3. REVIEW THE RAMIFICATIONS OF TRANSFERRING FCC LICENSES FOR STATE-OWNED LOW POWER TELEVISION TRANSMITTERS NOT CURRENTLY IN USE TO LOCAL ENTITIES, OF CONSOLIDATING AND TRANSFERRING THE LICENSES TO A PRIVATE NON-PROFIT ENTITY, AND OF CONSOLIDATING AND RETAINING THE LICENSES UNDER STATE OWNERSHIP.				
4. REVIEW ALTERNATIVES AND ASSOCIATED COSTS FOR COMMUNITIES TO INDEPENDENTLY RECEIVE AND PAY FOR RECEIVING COMMERCIAL TELEVISION THROUGH THE USE OF STATE-OWNED LOW POWER TELEVISION TRANSMITTERS NOT CURRENTLY IN USE.				
5. REVIEW ALTERNATIVES AND ASSOCIATED COSTS FOR COMMUNITIES TO RECEIVE PUBLIC BROADCASTING PROGRAMMING THROUGH THE USE OF RATNET TRANSMITTERS. REVIEW				

DEPARTMENT OF ADMINISTRATION (CONT.)				
		APPROPRIATION	APPROPRIATION FUND SOURCES	
	ALLOCATIONS	ITEMS	GENERAL FUND	OTHER FUNDS
COMMERCIAL NETWORK SYNDICATED PROGRAMMING THAT COULD BE TRANSMITTED OVER THIS SYSTEM WITHOUT JEOPARDIZING NON-TARIFFED LEASING RATES, AND DETERMINE THE COSTS OF THE PROGRAMMING. COORDINATE WITH THE UNIVERSITY OF ALASKA AND THE DEPARTMENT OF EDUCATION TO DETERMINE A COST-EFFICIENT AND INEXPENSIVE MEANS OF BROADCASTING EDUCATIONAL PROGRAMS OVER THE SYSTEM.				
6. NEGOTIATE WITH THOSE COMMERCIAL TELEVISION STATIONS THAT TRANSMIT PROGRAMS THROUGH THE SOUTHCENTRAL MICROWAVE SYSTEM IN AN ATTEMPT TO HAVE THE STATIONS DEFRAY THE COST TO THE STATE OF BROADCASTING THE PROGRAMS.				
7. REVIEW THE POSSIBILITY OF ESTABLISHING A COMMUNITY-BASED ORGANIZATION TO OPERATE KUAC-TV/FM. THE COMMISSION SHALL UTILIZE TELECOMMUNICATIONS WHENEVER POSSIBLE TO REDUCE TRAVEL COSTS.				
IT IS THE INTENT OF THE LEGISLATURE THAT THE PUBLIC BROADCASTING COMMISSION ADOPT GUIDELINES FOR THE ALLOCATION OF GRANTS TO PREVENT CLOSURE OF ANY EXISTING PUBLIC RADIO STATIONS. BUDGET REDUCTIONS ARE TO BE DISTRIBUTED TO INSURE THIS INTENT.				
LEASING AND FACILITIES		35,561,900	31,992,200	3,569,700
ADMINISTRATION (6 POSITIONS)	561,500			