

ALASKA LEGISLATURE COMMITTEE BILL FILES - 1987 - 1988 8879

CSSHB 75 cont. 238

5/6/87

@adopted

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Department of Health & Social Services

COMPONENT: Purchased Services
Preventive Services

Also see Summary Sheet

p 64?

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

The sum of \$34,000 is appropriated from the general fund to the Department as a direct grant to Women in Crisis-Counseling and Assistance for child sexual abuse prevention services and services for children from violent homes.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	34.0
800	MISCELLANEOUS	
	TOTAL	34.0

LEGISLATIVE MEMBER'S SIGNATURE:



	PFT	PPT	NON PERM
NO. POSITIONS			

5/6/87
Adopted

JB: y
WT: ob/wd

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health and Social Services

COMPONENT: Purchased Services/Preventive Services (page 65)
Page 05

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add Intent:

The following amounts are appropriated to these programs for payment as direct grants for prevention services:

Alaska Youth Advocates	342.5
Anchorage Child Abuse Board	337.1
Family Connection	157.2
Salvation Army	65.6
STAR	43.0

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

Senator Rick Uehling

	PFT	PPT	NON PERAT
NO. POSITIONS			

5/16/87
73
Adopted

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health and Social Services

COMPONENT: Fairbanks Social Services Block Grant

4 ST 156

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Request addition to Subcommittee proposed increment for Fairbanks Social Services Block Grant to partially meet identified needs in excess of current level of proposed funding. Requests by agencies for funding Exceed \$600,000

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	247.3
800	MISCELLANEOUS	
TOTAL		247.3

LEGISLATIVE MEMBER'S SIGNATURE:

DeWayne Fahrenkamp

	PFT	PPT	NON PERAT
NO. POSITIONS			

5/6/87
Adapted

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: HEALTH AND SOCIAL SERVICES

COMPONENT: STATE HEALTH SERVICES - NURSING

4160

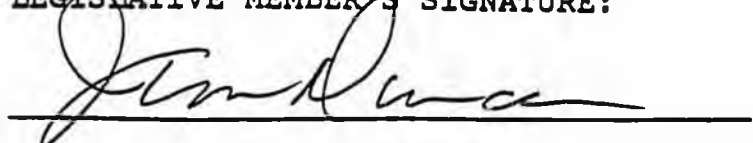
BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

ADD 107.5 TO RETAIN TWO PUBLIC HEALTH NURSES.

ONE FOR THE JUNEAU PUBLIC HEALTH CLINIC AND ONE ITINERANT NURSE FOR OUTLYING AREAS IN SOUTHEAST ALASKA.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	107.5
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
TOTAL		107.5

LEGISLATIVE MEMBER'S SIGNATURE:



SENATOR JIM DUNCAN

	PFT	PPT	NON PERM
NO. POSITIONS	2		

In summary, with this increment the Section of Nursing would be able to retain and fund PHN positions to the FY 86 level.

<u>To Be Restored</u>	<u>FY 88 Revised</u>	<u>Restored</u>
North Slope Contract	\$206.3	\$31.7
Manilaq Nursing Grant	178.6	26.8
Norton Sound Nursing Grant	287.8	58.4 -
Nurse I, Ketchikan	0.0	35.5
↗ Itinerant PHN, Juneau	0.0	55.1 -
↗ PHN IV, Juneau	0.0	52.4 -
Itinerant PHN, Anchorage	0.0	55.1 -
Clerk Typist III, Anchorage	0.0	28.4 -
PHN II, Fairbanks	0.0	48.5
PHN II, Fairbanks	0.0	48.5
Clerk Typist II, PPT, Fbks	7.0	<u>14.1</u>
Total: 6 - PHNs Restored		\$454.5
1.5 - CTs Restored		

5/6/87
 Adopted
 as Int'lnt
 only

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: H. & S.S.

COMPONENT: Emergency Medical Services Grant

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

The sum of \$20.0 is allocated as grant to provide ambulance operating support for Ketchikan, Wrangell, Petersburg and Hyder.

*Dis. Int'lnt
 PF: -> -> ->*

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	\$20.0
800	MISCELLANEOUS	
TOTAL		\$20.0

LEGISLATIVE MEMBER'S SIGNATURE:

Lloyd Jones

	PFT	PFT PERM	NON PERM
NO. POSITIONS			

5/6/87

Adopted

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health & Social Services

Division of Mental Health and Developmentally Disabled

COMPONENT: Fairbanks Mental Health

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

P. 204

Request is to fund a multidisciplinary, public and privately operated center to screen and provide comprehensive evaluation and treatment for seriously emotionally disturbed children in the Fairbanks area. The facility will provide for the earliest identification of emotionally disturbed kids. Nineteen agencies, including representatives from DEYS, FNSB School District, Fairbanks Mental Health Center, and Ft Wainwright are currently involved in the development of this program. The facility has been recently constructed and will remain vacant without this funding.

Note: this amendment is in two parts. See Mental Health Admin amendment.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	56.3
400	COMMODITIES	3.0
500	EQUIPMENT	30.0
600	LANDS, BLDGS., ETC.	
700	GRANTS CLAIMS ETC.	
800	MISCELLANEOUS	
TOTAL		89.3

LEGISLATIVE MEMBER'S SIGNATURE:

DeWayne Fahrenkamp

	PFT	PPT	NON PERM
NO. POSITIONS			

5/6/87

gfb: Adapted

at: 06/10/87

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: H & S. S.

COMPONENT: Community DD Grants

yp 212

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION.

Frontier Training Center

\$78.8

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS CLAIMS ETC.	\$78.8
800	MISCELLANEOUS	
TOTAL		\$78.8

LEGISLATIVE MEMBER'S SIGNATURE:

Paul Fischer

Senator Paul Fischer

	PFT	PFT PERM	NON PERM
NO. POSITIONS			

5/6/87
Adopted

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health and Social Services

COMPONENT: Developmentally Disabled

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Page 211 Developmentally Disabled:

Adopted
Add 60.0 to Grants Line

Adopted
It is the intent of the legislature that Protection and Advocacy for the Developmentally Disabled receive funding of \$166,800. This is \$46,800 under the FY'87R-5% grant level.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	60.0
800	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

Senator Rick Uehling

	PFT	PPT	NOI PERM
NO. POSITIONS			

5/6/87
Adopted

161

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health & Social Services

COMPONENT: Mental Health Administration

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

p214

Funding is for two Mental Health Clinicians and three clerical staff for new treatment center for seriously emotionally disturbed children in the Fairbanks area. Funding is in the Pers Serv line to allow maximum flexibility for staffing based on recommendations of program design working group, which is currently developing an operations plan for facility. If consensus of working group is for positions to be filled by private providers, funding will be transferred to grants line.

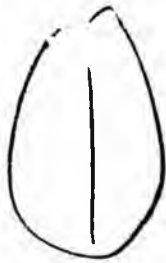
Note: this amendment is in two parts. See Fairbanks Mental Health

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	211.9
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS CLAIMS ETC.	
800	MISCELLANEOUS	
TOTAL		211.9

LEGISLATIVE MEMBER'S SIGNATURE:

Dettey Jakrenkamp

	PFT	PPT	NON PERAT
NO. POSITIONS	5		



FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health and Social Services

COMPONENT: Purchased Services/Preventive (page 65)

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Amend Intent Language:

A CHANGE IN INTENT LANG

The following amounts are appropriated to the listed programs for payment as direct grants for prevention services:

Alaska Youth Advocates	\$329.4	342.5
Anchorage Child Abuse Board	\$324.1	337.1
Family Connection	\$151.2	157.2
STAR	\$ 41.6	43.0

This amendment reduces the grant amount for e level and deletes one grant.

Salvation Army has been removed; it was 65.6

CODE	EXPEN	
100	PERSO.	
200	TRAVE	
300	CONTR	
400	COMMUNITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS CLAIMS ETC.	
800	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

[Signature]
SENATOR RICK UEHLING

	PFT	PFT PERAS	NOM PERAS
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

Amo # (2)

DEPARTMENT: University

COMPONENT: AEIDC

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Transfer from UAF 169.9 General Funds and other non-general fund sources for AEIDC.

Community College

Establish a new component under Southcentral University and CC BRU which reflects the transferred funds plus the addition of \$131.0 for a new general fund total of \$300.9.

Add the following intent:

It is the intent of the Legislature that AEIDC and the Climate Center continue to

be based in Southcentral Alaska.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANOS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

Uehling

Senator Rick Uehling

	PFT	PFT	NON PERM
NO. POSITIONS			

34

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Education

COMPONENT: Independent Living Rehabilitation

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Page 146

Add 40.0 to Grants

It is the intent of the Legislature the 40.0 is a supplement for Access Alaska in Anchorage and Fairbanks.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

	PFT	PFT PERM	NON PERM
NO. POSITIONS			

Senator Rick Uehling

41-

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Fish and Game

COMPONENT: Commissioner

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add 10.0 to grants

Add the following intent:

The sum of \$10,000 is appropriated to the Department for payment as a grant to the Alaska Zoo for the care of orphaned and injured animals.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS, ETC.	
700	GRANTS, CLAIMS, ETC.	10.0
800	MISCELLANEOUS	
TOTAL		10.0

LEGISLATIVE MEMBER'S SIGNATURE:

Senator Rick Uehling

NO. POSITIONS	PFT	PFT	NON PERM

5 T

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Education

COMPONENT: Community Schools

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Pg. 56

Add 140.0 to Grants

New Total 1022.5

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	140.0
800	MISCELLANEOUS	
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:

	PFT	PFT	NON PERAT
NO. POSITIONS			

Senator Rick Uehling

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: PUBLIC SAFETY AND CORRECTIONS

COMPONENT: Statewide Operations/Anchorage Annex Correctional Center

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

INVEST LABOR
Add the following to Public Safety and Corrections Page 150:
Anchorage Annex Correctional Center

100	1202.7
200	6.5
300	47.2
400	161.8
600	16.4
700	.1

1012 Care Trtmnt TOTAL 1434.7

The funds pay for keeping the 6th avenue jail open. Funding for this will come out of program receipts.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	1202.7
200	TRAVEL	6.5
300	CONTRACTUAL SERVICES	47.2
400	COMMODITIES	161.8
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	16.4
700	GRANTS CLAIMS, ETC.	.1
800	MISCELLANEOUS	
TOTAL		1434.7

LEGISLATIVE MEMBER'S SIGNATURE:



	PFT	PFT PERM	NON PERM
NO. POSITIONS			

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FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Public Safety

COMPONENT: Commissioner

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add 25.0 to grants

Add the following intent:

The sum of \$25,000 is appropriated to the department for payment as a grant under AS 37.05.316 to Abused Women's Aid in Crisis, Inc. to be used for payment of debts incurred in the construction of a women's and children's shelter in Anchorage.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS, ETC.	
700	GRANTS, CLAIMS, ETC.	25.0
800	MISCELLANEOUS	
TOTAL		25.0

LEGISLATIVE MEMBER'S SIGNATURE:

	PFT	PFT	NON PERAT
NO. POSITIONS			

Senator Rick Uehling

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Department of Health & Social Services

COMPONENT: Community Health Grants

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

It is the intent of the Legislature that the sum of \$35.0 is appropriated to the Department of Health and Social Services as a designated Grant to the Breast Cancer Detection Center in Fairbanks for the purpose of providing Breast Cancer Detection screening services.

John,

*27.3 of the
35.0 is in
the Dept.'s
Budget.*

John D.

		AMOUNT
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	35.0
800	MISCELLANEOUS	
TOTAL		35.0

LEGISLATIVE MEMBER'S SIGNATURE:

[Handwritten Signature]

	PFT	PFT PERM	NON PERM
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Department of Health & Social Services

COMPONENT: Purchased Services
Preventive Services

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

The sum of \$ 34,000 is appropriated from the general fund to the Department as a direct grant to Women in Crisis-Counseling and Assistance for child sexual abuse prevention services and services for children from violent homes.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS CLAIMS ETC.	34.0
800	MISCELLANEOUS	34.0
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:

[Handwritten Signature]

	PFT	PPT	NON PERAT
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: University of Alaska

COMPONENT: UAF - Organized Research

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add to line 40 \$236,000 for Petroleum Development Laboratory equipment.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	236.0
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
	TOTAL	236.0

LEGISLATIVE MEMBER'S SIGNATURE:

	PFT	PPT/	NONPERM
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: University of Alaska

COMPONENT: Interior/Western Univ & CC
University of Alaska/Fairbanks

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Transfer GNOSIS from Interior/Western Univ. & CC , University of Alaska/Fairbanks (\$200,000) to separate component under "Statewide Programs & Services" - entitled GNOSIS.

Restore 3 full-time authorized positions which the Office of Management and Budget failed to include in the Governor's column.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	200.0
800	MISCELLANEOUS	200.0
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:



	PFT	PFT <i>has</i>	NON PERM
NO. POSITIONS	3		

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Department of Fish and Game

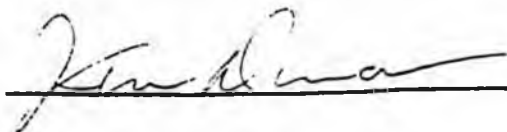
COMPONENT: FRED
 FRED
 page 22

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

MAN MONTHS
 Add 4mm for PCN 5085 to bring FB II position to full time 17.4
 This position is essential for FRED operations.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS. ETC.	
700	GRANTS CLAIMS ETC.	
800	MISCELLANEOUS	
TOTAL		17.4

LEGISLATIVE MEMBER'S SIGNATURE:



	PFT	PFT	NON PERR
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT:

University of Alaska

COMPONENT:

University of Alaska, Juneau
page ~~78~~ 110

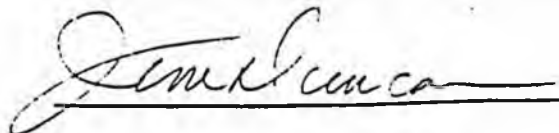
BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Change Grants and Claims Line to read 489.2

Adjust General Funds to reflect 375.0 increase.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
	INCREASE	TOTAL 375.0

LEGISLATIVE MEMBER'S SIGNATURE:



	PFT	PPT	NO. PERAS
NO. POSITIONS			

SENATOR ZHAROFF'S ADD-ON REQUESTS
SENATOR ZHAROFF'S BUDGET ADDITION REQUESTS

FISH & GAME

Com Fish

Biometrician II-Kodiak	74.1
Fish Biologist II-Kodiak (5.5 mm)	24.8
INPFC travel increase	18.0

FRED

Grant to Imarkpik Regional Aquaculture Assn Dillingham	40.0
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COMMERCE

APA-Increase travel for rural electrification p. 62	21.9
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HEALTH & SOCIAL SERVICES

Restore Clerk/Typist in Dillingham p. 78	33.3
Restore DFYS Social Worker-Naknek p. 78	38.6
KANA-South Central Area Alcohol Training Program p. 196	58.7
Naknek ASAP p. 196	26.6
APIA Older Alaskans & Alcohol program p. 196	21.1

LAW

Dillingham D.A. Secretary(Prosecution-3rd Jud Dist)p.10	32.9
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PUBLIC SAFETY

Domestic Violence & Sexual Assault-Naknek + intent p. (see attached amendment sheet)	10.0
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TOTAL 400.0

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Fish & Game

COMPONENT: Commercial Fisheries

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

This funding would reinstate two positions deleted in the Governor's revised budget in the Westward Regional Office in Kodiak and increase the Clerk/Typist position in the Dillingham office from 4 months to a 12 month full time position. All three of these positions are filled at the present time. A breakout of the personal services costs of these positions follows:

Biometrician II (PCN 1227 in Kodiak 12 mm).....74.1
 Shrimp Monitoring Fish Biologist TT (PCN 1399 in Kodiak 5.5 mm)..24.3

(Please refer to my memo of April 9 for more information on these positions)

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	98.9
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
TOTAL		98.9

LEGISLATIVE MEMBER'S SIGNATURE:

Fred F. Tharoff

NO. POSITION..	1	1
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FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Fish & Game

COMPONENT: Commercial Fisheries--Director's Office

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

This request would provide travel funds for the Alaskan members of the International North Pacific Commission for the meeting of the Alaskan members in Anchorage in September 1987 and for the international meeting in Vancouver B.C. in November.

This commission deals with a variety of important fishery and marine issues of concern to Pacific Rim nations. The Governor's revised budget includes \$7,000 for travel to these conferences. This request will increase this total to \$25,000 to adequately cover the costs of attending these meetings.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	18.0
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
TOTAL		18.0

LEGISLATIVE MEMBER'S SIGNATURE:

[Handwritten Signature]

NO. POSITION _____

SET: 287/1000 ACY 1988

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Fish & Game

COMPONENT: FRED *p 22*

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add 40.0 for the Imaprik Regional Aquaculture Association in Dillingham.

The Association is in the process of reorganizing and funds are needed to attain this objective.

Funds were granted to Imaprik several years ago for organizational purposes. The aquaculture association failed to organize successfully. New inspiration has come from people not previously involved with the earlier failure. This new organization has inspired the fishermen of Bristol Bay into attempting to reorganize the association.

The benefit of this request would be operational management of fisheries rehabilitation of Bristol Bay. This request represents start up organizational costs.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	40.0
900	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

Paul F. Z...

NO. POSITION	PFT	PPT	NON PERM

A-3

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Commerce and Economic Development

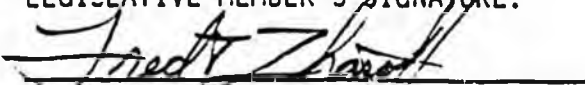
COMPONENT: Alaska Power Authority
Administration

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Increase travel line by \$21,900 for travel costs associated with rural electrification.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	21.9
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
Total:		21.9

LEGISLATIVE MEMBER'S SIGNATURE:


by Senator Zharoff

	PFT	PPT/	NONPERM
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health & Social Services

COMPONENT: Social Services-Southcentral Region

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

This request would restore funding for the Clerk/Typist III position in Dillingham (PCN 3863). This position was deleted in the Governor's revised budget. This position provides the only clerical support for the Social Workers in Dillingham.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	33.3
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS CLAIMS, ETC.	
300	MISCELLANEDUS	
TOTAL		33.3

LEGISLATIVE MEMBER'S SIGNATURE:

202 1/2/77

PET	DBY	ACH
	X	25221
NO. POSITION		

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health & Social Services

COMPONENT: Social Services--Southcentral Region (DFYS)

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

This request would restore funding for the Division of Family & Youth Services Social Worker position in Naknek that was not funded in the Governor's revised budget.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	38
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
900	MISCELLANEOUS	
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:

Phil Z. Hall

NO. POSITION	PER	PRO	NON PERM

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT. Health & Social Services

COMPONENT: Alcohol Abuse Grants

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

To provide continuation funding for the South Central Area Alcohol Training Program in Kodiak. The program was established in FY 86 with continuation funding provided in FY 87. An in-kind contribution of \$13,914 will be provided by the St. Herman's Seminary to compliment the state funds for the program. This program provides counselor certification courses and workshops in villages on Kodiak Island. Additional back-up was provided with my memo of April 9, 1987.

"The sum of \$58,700 is appropriated to the department of Health & Social Services as a direct grant to the Kodiak Area Native Association for the purposes of continuation of the South Central Area Training Program."

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:

[Handwritten Signature]

NO. POSITION

SET 1987

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Health & Social Services

COMPONENT: Alcohol Abuse Grants

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

This would provide funding to allow the Bristol Bay Area Health Corporation (BBAHC) to continue to provide the ASAP service to the Naknek/King Salmon area. These services can not be adequately provided by the Dillingham ASAP program. These funds should be appropriated to the DH&SS as a direct grant to the BBAHC for continuation of the Naknek ASAP program. (reference memo of April 9, 1987)

"The sum of \$26,600 is appropriated to the Department of Health & Social Services as a direct grant to the Bristol Bay Area Health Corporation for the purpose of continuation of the Naknek Alcohol Safety Action Program."

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:

Paul P. [Signature]

NO. POSITION _____

SET: 1 227/241 401 PER 21

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Law

COMPONENT: Prosecution--Third Judicial District

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

This funding would provide for the reinstatement of the District Attorney and Secretary positions in the Dillingham D.A. office. The Governor's revised budget provides funding for the paralegal position. The D.A. office serves the entire Bristol Bay area including Naknek.

The figures included in this request were provided by the department and reflect retention of the current attorney and secretary.

~~Attorney personal services..... 125,000~~
~~Secretary personal services..... 26,500~~
 32.9

I have included travel, contractual and supply funds in this request but these funds may already be included in the budget with the paralegal position.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	41 32.9
200	TRAVEL	28
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
900	MISCELLANEOUS	32.9
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

Ed A. [Signature]

NO. POSITION.	PFT	PFT	NON PERS

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: PUBLIC SAFETY

COMPONENT: DOMESTIC VIOLENCE & SEXUAL ASSAULT

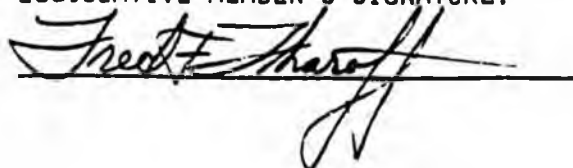
BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add 10.0 to the Grants Line along with the following intent:

"The sum of \$10,000 is appropriated for the SAFE program in Dillingham to work with the volunteers in Naknek."

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	10.0
800	MISCELLANEOUS	10.0

LEGISLATIVE MEMBER'S SIGNATURE:



PFT PPT/ NONPERM
NO. POSITIONS

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Public Safety

COMPONENT: Council on Domestic Violence *p 82*

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

The sum of \$26,700. is allocated as a grant to Women in Safe Homes Inc. (Ketchikan) to provide child abuse prevention programming for Ketchikan, Wrangell, Saxman and communities on Prince of Wales Island.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	-26 7-
800	MISCELLANEOUS	
TOTAL		

LEGISLATIVE MEMBER'S SIGNATURE:

Lloyd Jones
OK *[Signature]*

	PFT	PFT	NON PERAT
NO. POSITIONS	-0-	-0-	-0-

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Fish and Game

COMPONENT: Office of the Commissioner

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add \$50,000 for the Walrus Commission.

R 48



CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	50.0
800	MISCELLANEOUS	
TOTAL		50.0

LEGISLATIVE MEMBER'S SIGNATURE:

Willie Hershey

	PFT	PPT/	NONPERM
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Education

COMPONENT: Museums

P. 164

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Add \$130,000 for the NANA museum.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	130.0
800	MISCELLANEOUS	
	TOTAL	130.0

LEGISLATIVE MEMBER'S SIGNATURE:

Willie Henderson

	PFT	PPT/	NONPERM
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Community and Regional Affairs

COMPONENT: Designated Grants - Line 44

*MAY 1988
Disc.*

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

~~Allocation Intent:~~ *ONLY NOT AN ADDITION*

Sea Alaska Heritage	60.0
Fairbanks Native Association	40.0
Dillingham Commercial Fish Conference	17.0
KANA Cultural Program	40.0
Inupiat Illitqusiat Youth	148.0
Special Olympics	70.0
American Improvement Matrix Program	100.0
Rural Airport Assistance	38.2
RURALCAP Alkali Lake Training Session	37.0
Tyonek Documentary Completion	20.0
Institute for Alaska Native Art	15.3
	<u>585.5</u>

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	585.5
800	MISCELLANEOUS	
	TOTAL	585.5

LEGISLATIVE MEMBER'S SIGNATURE:

Willie Hendley

NO. POSITIONS	PFT	PPT/	NONPERM

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Community and Regional Affairs

COMPONENT: Designated grants

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Page 44 - Add designated grants:

City of Kotzebue Illilqaat Tupqaat Program	70.0
Nome Community Center	75.0
Nome Eskimo Youth Program	75.0

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	220.0
800	MISCELLANEOUS	
	TOTAL	220.0

LEGISLATIVE MEMBER'S SIGNATURE:

Willie Herder

	PFT	PPT/	NONPERM
NO. POSITIONS			

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Community and Regional Affairs

COMPONENT: Designated Grants

P 44

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

- Add: 1) \$125,000 for the Kenai Peninsula Borough for Senior citizen programs.
~~2) \$125,000 for the American Improvement Matrix programs~~
~~3) \$47,000 for Kodiak Area Association for cultural programs.~~

FISCHER
 BALANCE IN F.F.G.
 OF TUKA HATEWAY

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	292.0
800	MISCELLANEOUS	
	TOTAL	292.0

LEGISLATIVE MEMBER'S SIGNATURE:

[Signature]

NO. POSITIONS PFT PPT/ NONPERM

Senator Paul A. Fischer

164-166

DEPARTMENT: EDUCATION

COMPONENT: STATE MUSEUMS, SPECIFIC CULTURAL PROGRAMS

NANA Museum	\$134.0
PRATT Museum	\$110.0
DAMON Museum	\$ 25.0
FORT KENAI, CITY OF KENAI	\$ 50.0

~~INSTITUTE OF ALASKA NATIVE ARTS, INC. \$ 98.9~~

~~5~~

TOTAL

\$417.9

↑
JUST ADD
THIS
ONE



From The

**SENATE
FINANCE COMMITTEE**

EDUCATION

RSVP Pg. 90

FOO GRANTS

AOD 332.5





From The
**SENATE
FINANCE COMMITTEE**



Don -

We didn't pick up
the \$82,000 which was in
yesterday's run.

John needs to add ^{an} additional
* \$82,000 to Com. Schools

EDUCATION

Pg. 56

ADD

1127.1
PUPIL TRANS. OUT

Pg. 26



FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Department of Administration

COMPONENT: Division of Pioneer Benefits

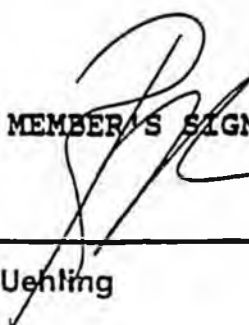
BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

Pg. 6 Under Longevity Bonus Grants.

Insert "If a version of SB 56 is not passed by the First Session of the Fifteenth Alaska State Legislature or does not become law, the sum of \$51,200,000 is appropriated to the Department of Administration for longevity bonus grants."

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:



NO. POSITIONS

PFT

~~PFT~~

NON
PERM

Senator Rick Uehling

FY 88 SENATE OPERATING BUDGET REQUEST

DEPARTMENT: Administration

COMPONENT: Public; Defender/Fourth Judicial District

BRIEFLY DESCRIBE REQUESTED DELETION/ADDITION:

LEGISLATIVE INTENT:

It is the intent of the Legislature that the Department keep the Mental Health Clinician in the Fairbanks Public Defender's Office.

CODE	EXPENDITURES BY OBJECT	AMOUNT
100	PERSONAL SERVICES	
200	TRAVEL	
300	CONTRACTUAL SERVICES	
400	COMMODITIES	
500	EQUIPMENT	
600	LANDS, BLDGS., ETC.	
700	GRANTS, CLAIMS, ETC.	
800	MISCELLANEOUS	
	TOTAL	

LEGISLATIVE MEMBER'S SIGNATURE:



NO. POSITIONS	PFT	PPT / SES	NON PERAT

E COWPER
GOVERNOR



STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

SS/HB 75

March 17, 1987

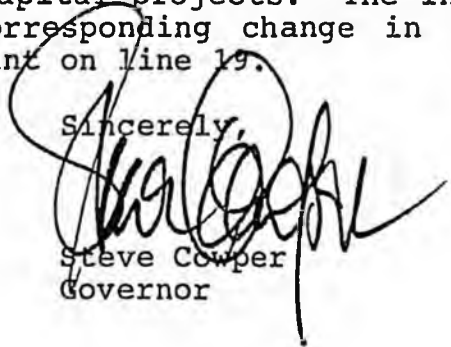
The Honorable Ben Grussendorf
Speaker of the House
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Representative Grussendorf:

Under the authority of art. III, sec. 18, of the Alaska Constitution, I am transmitting a Sponsor Substitute for HB 75, the FY 88 budget bill.

On page 3, line 28 of this sponsor substitute (sec. 18 of the bill), the appropriation from the power development revolving loan fund is increased by \$1,695,000. This increase is the result of repayment by the Alaska Power Authority (APA) of debt to that fund, through release of money in contingency accounts. The \$1,695,000 offsets appropriations in this bill to the APA for capital projects. The increase on line 28 necessitated a corresponding change in the total combined appropriation amount on line 19.

Sincerely,


Steve Cowper
Governor

* Sec. 4. The sum of \$4,700,000 is appropriated from the Railbelt energy fund in the general fund (AS 37.05.153) to the Alaska Power Authority for payment as a grant under AS 37.05.315 to the City of Nenana for conducting a feasibility study for a 105 MW coal-fired electrical generation plant. It is the intent of the legislature that the City of Nenana repay the amount of the grant to the state for the Railbelt energy fund if the city constructs the facility. It is the intent of the legislature that the study funded by this appropriation address all engineering, financial, economic, environmental, and related issues required to demonstrate that the project can be totally financed with revenue bonds."

Renumber remaining bill sections accordingly.

1 * Sec. 19. The sum of \$23,900,000 is appropriated from the general fund
2 to the Department of Transportation and Public Facilities for operating
3 expenses during fiscal year 1988 to be allocated as follows:

4	Central highways and aviation	\$5,722,300
5	Interior highways and aviation	4,715,800
6	Western highways and aviation	716,500
7	Southcentral highways and aviation	1,791,500
8	Southeast highways and aviation	1,953,900
9	Southeast vessel operations	4,500,000
10	Southwest vessel operations	500,000
11	Transfer task force	100,000
12	Dalton highway	3,218,000
13	Dalton facilities	682,000

14 * Sec. 20. The sum of \$200,000,000 is appropriated from the Railbelt
15 energy fund in the general fund (AS 37.05.153) to the power project fund
16 (AS 44.83.170) to fund loans under AS 44.83.170 to construct the Fairbanks-
17 Kenai Peninsula Intertie at 230 kv from the Bradley Lake delivery point to
18 Anchorage and at 345 kv between Anchorage and Fairbanks.

19 * Sec. 21. The sum of \$4,700,000 is appropriated from the power de-
20 velopment revolving loan fund (AS 44.33.600) to the power project fund
21 (AS 44.83.170) to fund a loan under AS 44.83.170 to the City of Nenana for
22 design/engineering and financing/bonding for a 105 MW coal-fired electrical
23 generation plant.

24 * Sec. 22. The sum of \$16,600,000 is appropriated from the general fund
25 to the Department of Commerce and Economic Development for power cost
26 equalization for fiscal year 1988.

27 * Sec. 23. The sum of \$40,800,000 is appropriated from the general fund
28 to the Department of Administration to supplement appropriations in sec. 25
29 of this Act for personal services, to be allocated among state agencies in

NENANA

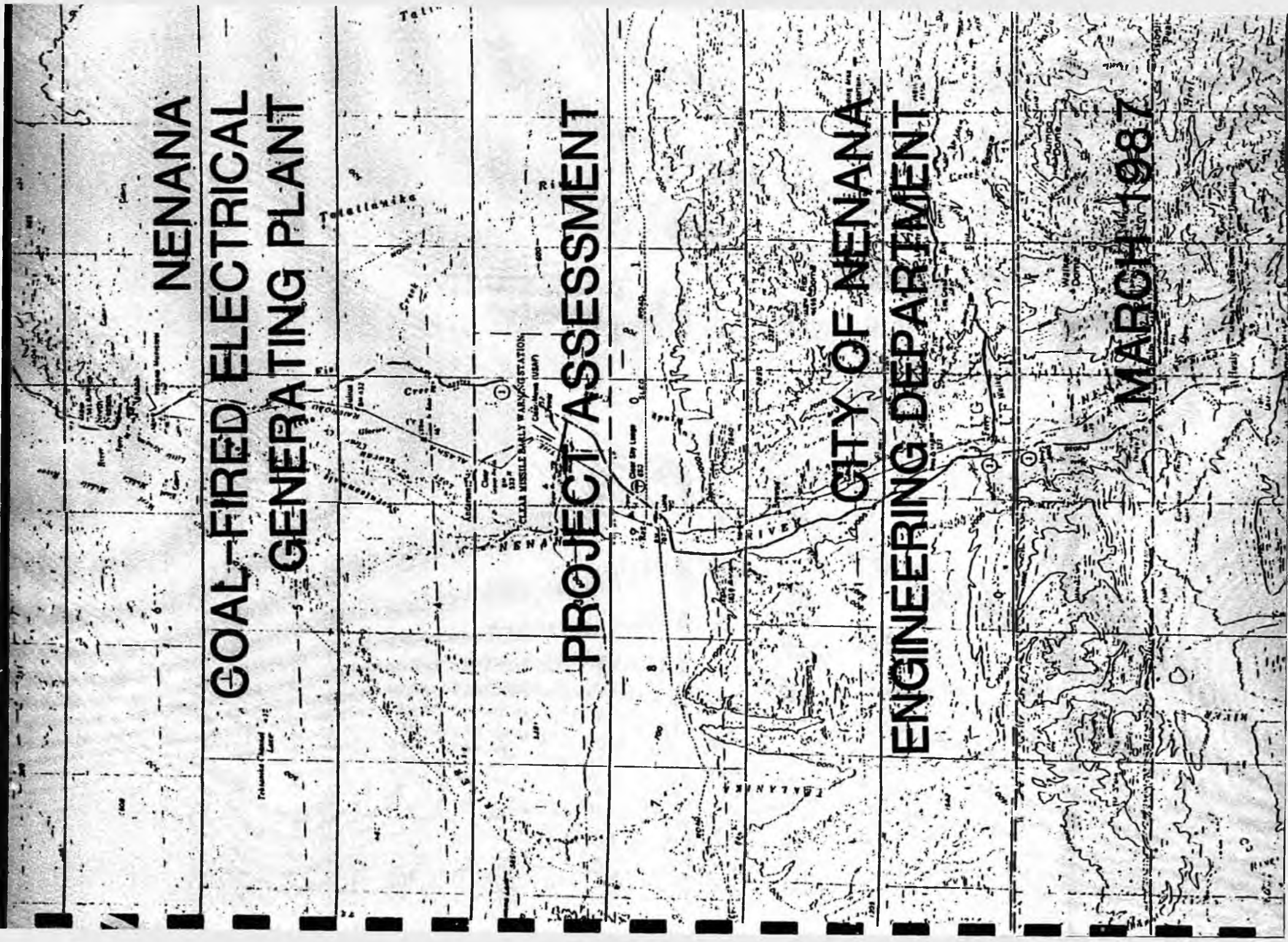
**GOAL-FIRED ELECTRICAL
GENERATING PLANT**

PROJECT ASSESSMENT

CITY OF NENANA

ENGINEERING DEPARTMENT

MARCH 1987



**NENANA HEAT AND POWER AUTHORITY
COAL-FIRED ELECTRICAL GENERATING PLANT**

**PROJECT ASSESSMENT
AND PRELIMINARY ENGINEERING WORK PROGRAM**

PREPARED BY

**THE CITY OF NENANA
ENGINEERING DEPARTMENT**

With Assistance from

**Holden Gerken & Associates
Fryer Pressley Engineers
Robertson Monagle and Estaugh
Robinson and Associates
John Nuveen & Company
Lahmeyer International**

MARCH 1987

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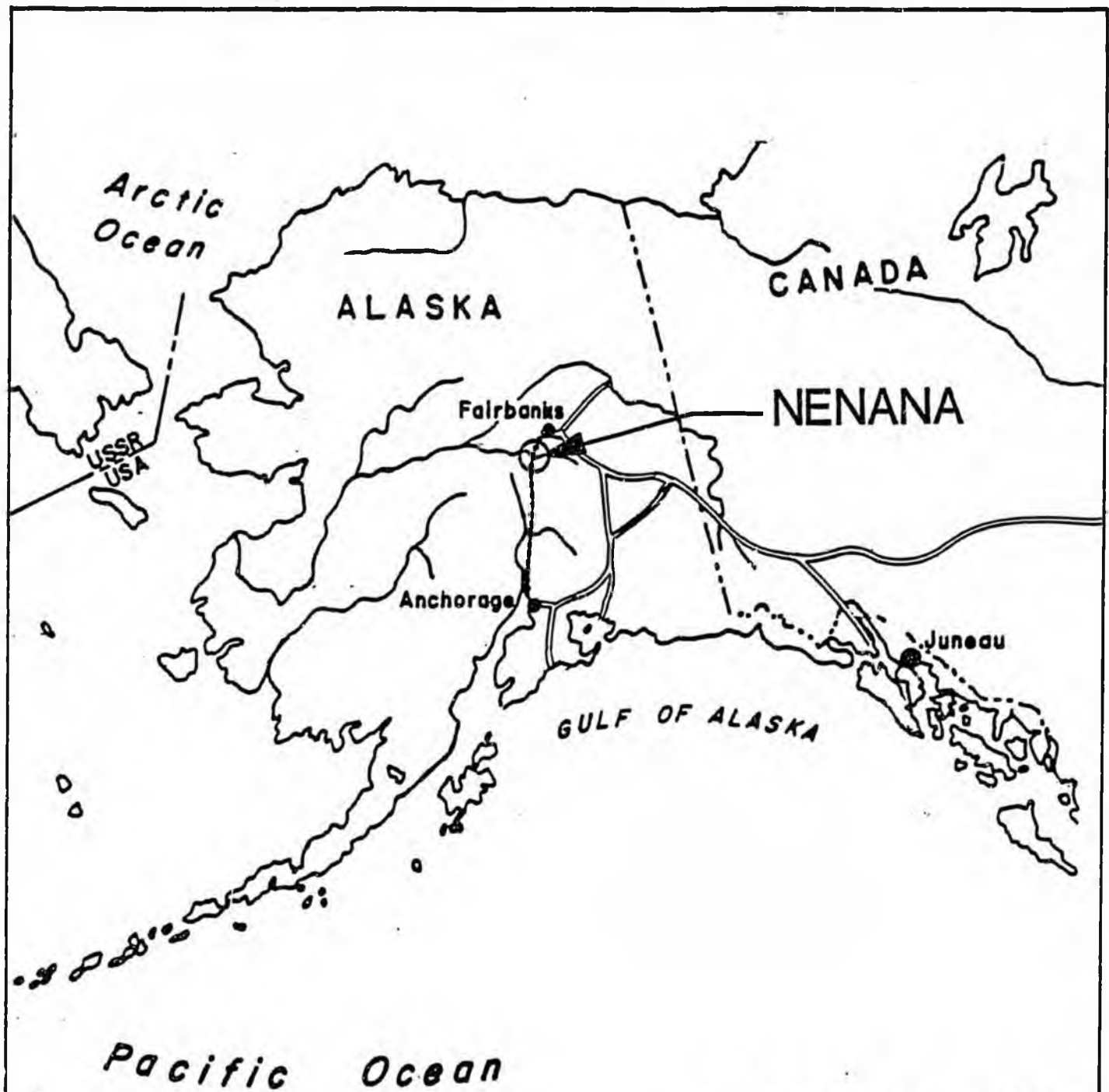
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Appendices

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Appendix B.....	APA Retirement Schedule
Appendix C.....	Coal Information
Appendix D.....	Nenana Area Description
Appendix E.....	Project Components
Appendix F.....	Project Cost Model/Staffing Plan
Appendix G.....	Definitions
Appendix H.....	Project Review Materials

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10. Project Budget and Schedule	31
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0 100 200 300 400 500MI.
STATUTE MILES

**NENANA COAL FIRED
ELECTRICAL GENERATING FACILITY
MAP 1: PROJECT LOCATION**

FRYER/PRESSLEY ENGINEERING INC.
MARCH 1987

1. PROJECT OVERVIEW

1.1 The Project

The City of Nenana is constructing a coal-fired, electrical generating plant at the Nenana townsite. The plant will be owned and operated by the Nenana Heat and Power Authority, operating as an independent Agency of City government. Map 1 which precedes this Section, shows general location of Nenana in Interior Alaska. Map 2 which follows shows the specific location of the City in proximity to major rail, highway, river and utility corridors.

The Nenana plant will employ a circulating atmospheric fluidized bed firing system to minimize environmental impacts during operations and to maximize electrical output for the fuel consumed. This plant will have a first phase capacity of approximately 105 megawatts. Power from the plant will contribute to the base load for the Alaska railbelt.

The plant will also include the capacity to cogenerate waste heat for use in development of timber and agriculture industries in the area. This waste heat will be sold to the Nenana Port Authority for subsequent resale to timber and agricultural ventures doing business in the Nenana area.

The estimated construction cost of the project will be between \$160 million and \$180 million, or between \$1,600 and \$1,800 per kilowatt hour. The project will require approximately four years to design and construct and will be in operation in 1991. Power produced at the plant will cost in the range of \$.05-\$.065 per kilowatt hour, with a likely cost of about \$.06 per kilowatt hour at the bus bar (i.e. the point where the power enters the distribution grid).

The plant facilities will occupy a total site of about fifty acres, divided between two twenty-five acre sites located on the east and west banks of the Nenana River. The main plant will be located on the west bank of the river, and transportation and coal handling facilities will be located on the east bank. Both parcels are within a mile of the City of Nenana. Facilities located on the overall site will include the following:

- the power plant building itself
- a warehouse
- an administrative building
- a shop and equipment storage building
- coal and ash handling conveyors and elevators
- coal processing facilities
- a coal storage yard
- air cooled condenser units
- a water treatment plant
- a bag house and stack
- a switch and transformer yard
- a bridge across the Nenana River
- required approach roads and parking areas.

The grounds surrounding the site will be landscaped to assure proper surface water runoff and for aesthetic purposes. This landscaping will require grading for drainage, planting of grass and other plant materials indigenous to interior Alaska.

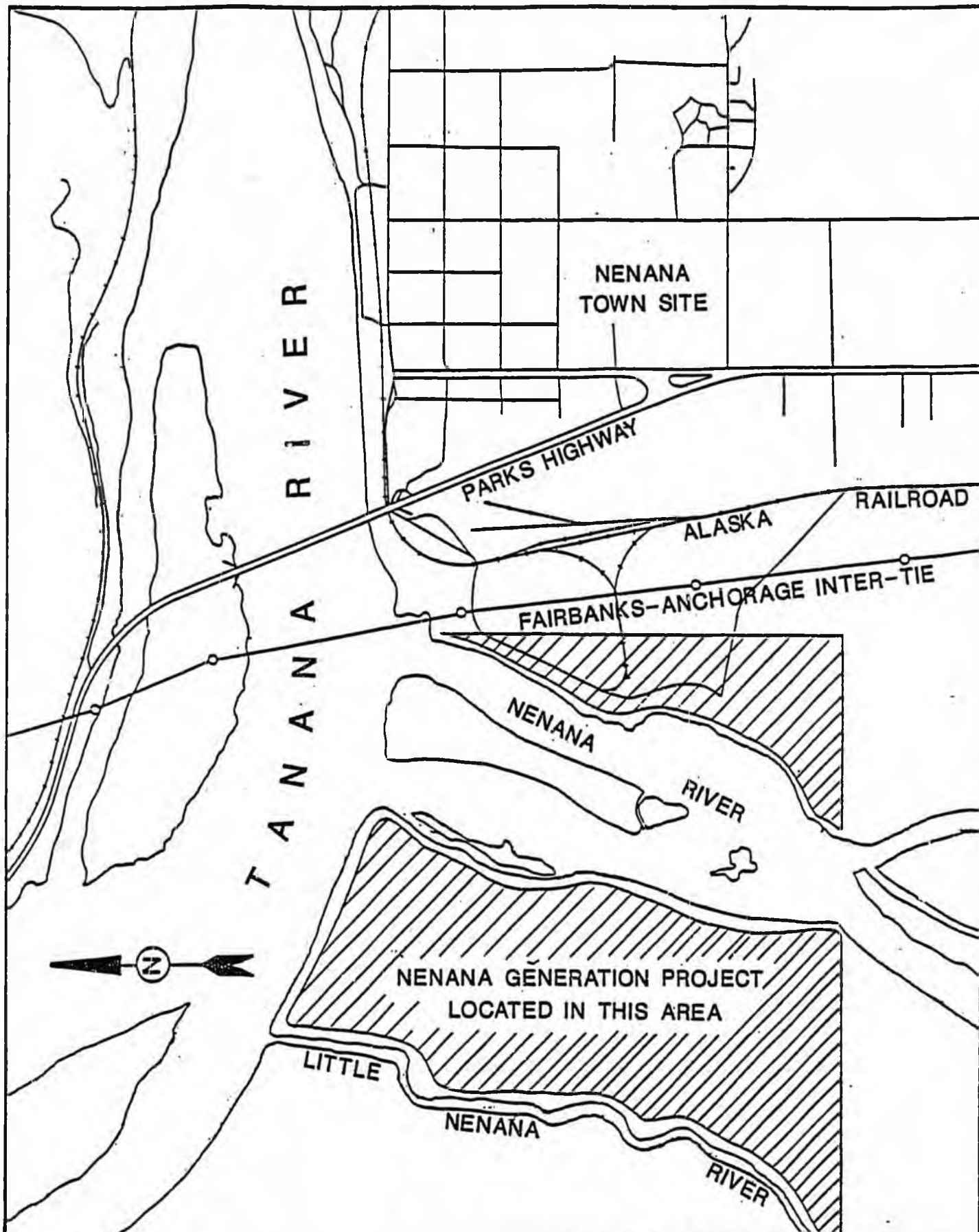
A railroad spur, rail car storage area, rail car shaker and coal handling facility and ash handling facility will be constructed on the east side of the Nenana River.

Coal and ash will be transported between the rail yard and the plant by means of a conveyor system. The conveyor system will be supported across the Nenana River by the new vehicle bridge. Power plant construction and future industrial developments will be supported by a barge loading facility to be constructed on the south bank of the Tanana River. This improvement will require construction of a 400 foot dock, providing crushed a rock surface for approximately three acres and construction of a road connecting the river front area to the site. A more detailed description of the project area, facilities, site and impacts is presented in Section 4 of this document below.

1.2 Development and Review of the Present Document

The Nenana project is under development as a result of expressed interest by Railbelt utilities and officials from the City of Nenana. The project team employed to prepare the present document has included experts in the fields of engineering, impact assessment, program development, project management, finance, utility law, and power plant design and construction.

The present document has also been discussed with and reviewed by national and international experts in coal-fired power plant design and construction, as well as experts in the field of power plant feasibility analysis and financing. In addition representatives of Fairbanks utilities have commented on the project. Letters of review and comment from these individuals and organizations are included in Appendix F.



**NENANA COAL FIRED
ELECTRICAL GENERATING FACILITY
MAP 2: PROJECT VICINITY**

FRYER/PRESSLEY ENGINEERING INC.
MARCH 1987

(PAGE 3)

2. PROJECT FEASIBILITY

2.1 Introduction

The purpose of this Section is to present analysis and conclusions relating to the feasibility of construction of a coal-fired electrical generating plant at Nenana. These analyses and conclusions are presented in subsections below, which include the background and setting for development of Alaska electrical generation facilities, Alaska railbelt electrical supply and demand, potential markets for electrical power produced at Nenana and a summary conclusion of the feasibility of the Nenana project.

2.2 Background and Setting for Development of Alaska Electrical Generation Facilities

Natural Gas-Driven Electrical Production Technologies: Figure 1 below graphically portrays the substantial amount of the natural gas-driven electric power generating capacity in the Alaska railbelt. The trend toward the use of natural gas generating technologies dates to the early 1960's, when Cook Inlet natural gas suppliers signed long term contracts with Chugach and other power producers, and the price of natural gas was low.

In the past natural gas electrical production technologies have been attractive to the utilities because units have a low capital cost to install and because of the availability of long term contracts for low cost natural gas. These conditions have resulted in production of gas-driven electrical power at wholesale costs of three-to-four cents (\$.03-.04) per kilowatt hour.

Today however these long term contracts are expiring, and the price of the natural gas is increasing, as evidenced by recent rate hike requests to the Alaska Public Utilities Commission by the Chugach Electric Association. At present the outlook for long term, low priced natural gas contracts is at best unclear. Many analysts feel that the costs will increase more than 200% over their historic levels and that contracts will not be issued for periods greater than five years.

In addition natural gas may provide more value to producers and the State as an export commodity than as a fuel for electrical generation.

Alternative Electrical Production Technologies: Partly in recognition of the problems associated with natural gas-driven electrical production technologies, planning for Alaska railbelt electric power production since the mid-1970s has focused on large hydroelectric projects. Hydroelectric projects entail a high capital cost to install but produce electric power at a stable cost over long term.

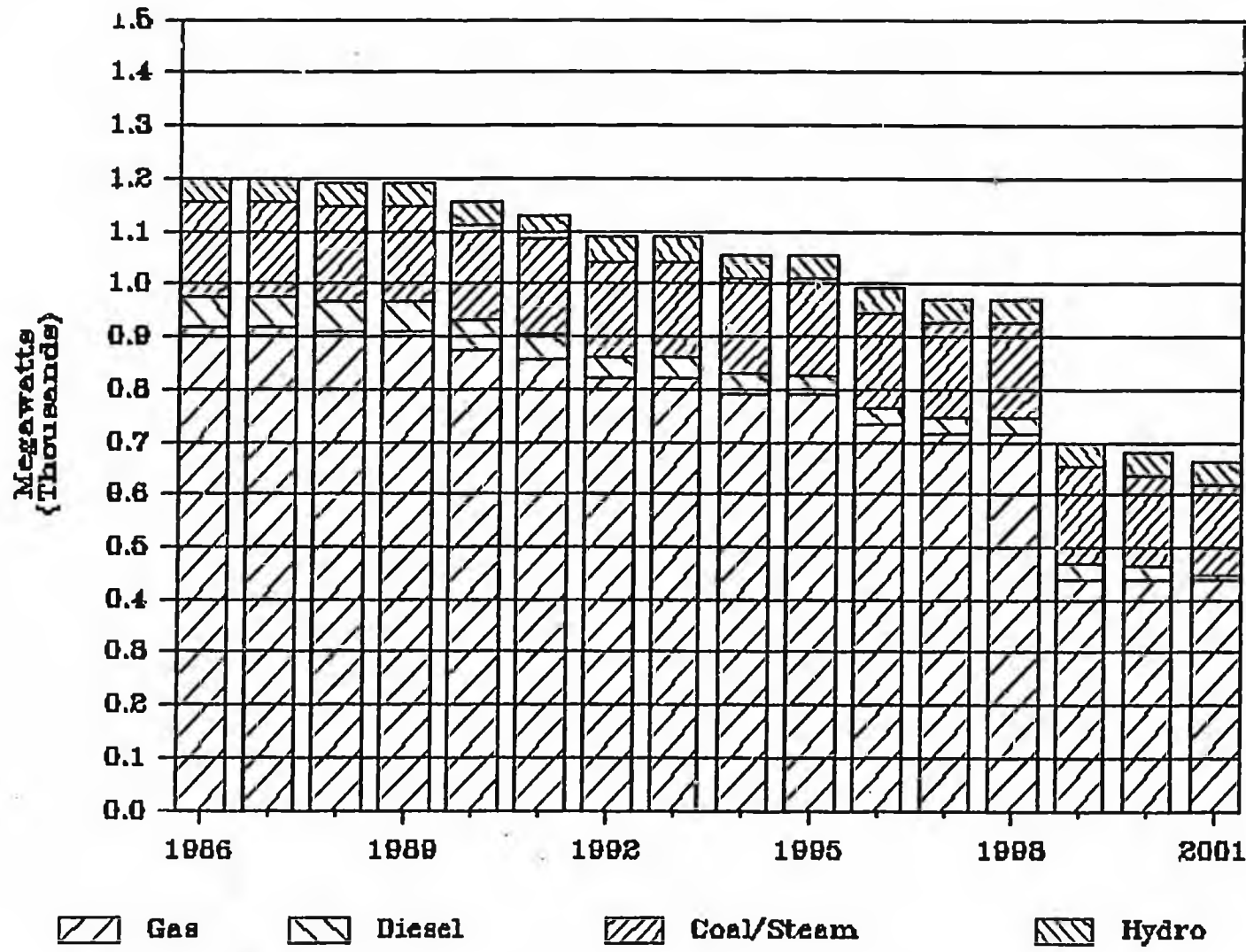


Figure 1 - System Capacity by Prime Mover

In recent years the feasibility of large hydroelectric plants has been seriously challenged. These challenges to hydroelectric feasibility have resulted from concerns over the environment, concerns over long term demand and capital costs, and a drastic decline in oil prices. Owing to high capital cost, a high demand is required to assure the feasibility of projects such as the proposed Susitna hydroelectric. The recent collapse and subsequent volatility in world oil prices has resulted in a recession in Alaska, and the demand projections underscoring the feasibility of the Susitna project have been questioned.

Volatile oil and natural gas prices have changed the economics of all energy projects. In the present economic environment, smaller scale projects with stable long term electric costs have become more attractive.

This new economic reality is demonstrated in the Alaska Power Authority's (APA) promotion of the ninety megawatt, Bradley Lake hydroelectric project on the Kenai Peninsula.

As presently proposed the Bradley Lake facility will be employed to provide blocks of power to meet peak demand during the fall, winter and spring months. This use of Bradley lake will preclude the need to burn expensive natural gas otherwise required to meet peak demand.

The proposed Nenana Coal-Fired Generating Plant also fits within this new category of potentially viable projects. The proposed Nenana coal-fired plant will have about the same capacity as the Bradley Lake Hydroelectric Project (ninety megawatts at Bradley Lake versus 105 megawatts at Nenana).

The Nenana plant entails a higher capital cost than diesel or gas-fired plants, but the price of coal for the Nenana plant can be guaranteed over the long term, through execution of long term sales contracts. Consequently the Nenana Coal-Fired Electrical Generating Plant can provide a long term, fixed cost source of power to Alaska railbelt.

Relationship Between Natural Gas-Driven Electrical Production and Alternative Production Technologies: From the above analysis we conclude natural gas-driven electrical production cannot be relied upon to provide a fixed cost source of power over the long term. This lack of power cost reliability is tied to the inability to execute long term, fixed price contracts for the purchase of natural gas. Therefore, over the long term, natural gas-driven production units should not be employed to provide for the base electrical demand for the Alaska railbelt. Rather these units should be employed to provide peak and reserve requirements and to provide for the overall reliability of the railbelt grid.

Power produced from coal-fired and hydroelectric plants, on the other hand, may be employed over the long term to meet the base demand of the railbelt. These generating technologies allow for long term, fixed cost power sale agreements and can assure that the railbelt does not experience volatile power costs.

2.3 Existing Alaska Railbelt Electric Power Supply and Future Demand

This subsection is presented to show existing Railbelt energy demand and installed capacity and to provide one scenario of future capacity and demand relationships. The findings and scenario presented here will not determine the feasibility of the Nenana project.

Demand and Installed Capacity: Appendix A of this document contains several tables produced by the Alaska Power Authority (APA) relating to railbelt electric power supply and demand. These supply tables are reproduced from the eleventh edition of "Alaska Electric Power Statistics: 1960-1985," (APA, December 1986). The demand tables are reproduced from the "Preliminary Economic Assessment of Railbelt Transmission Alternatives," developed by railbelt utilities and published by the APA in January 1987.

Tables in Appendix A show that the total railbelt system demand will increase from about 905 megawatts in 1987 to about 990 megawatts in 1992. Beyond 1992 the tables show a projected demand of about 1,105 megawatts by the year 2001.

Additional tables in Appendix A present an inventory of railbelt hydroelectric, diesel, gas turbine and steam turbine installed generating capacities, also obtained from the December 1986 APA document. The final tables in Appendix A show a detailed inventory of Fairbanks area generating units, including coal-fired units, developed by Fryer Pressley Engineering. Figure 2 below provides a summary of this inventory by utility and by technology, obtained from figures provided by the APA, Fryer Pressley and verified through a poll of the independent utilities.

Figure 2
Inventory of Railbelt Installed Generation Capacity
by Technology

<u>Utility</u>	<u>Technology</u>	<u>Capacity (MW)*</u>
AML&P	Gas Turbine	262.7
	Gas/Steam Turbine	34.0
	Diesel	2.6
Chugach Electric	Gas Turbine	421.3
	Gas/Steam Turbine	57.0
	Hydroelectric	15.0
Mat-Su/Homer G&T	Gas Turbine	40.0
APA (Federal)	Hydroelectric	30.0
Seward	Diesel	10.5
FMUS	Gas Turbine	28.5
	Coal/Steam Turbine	28.5
	Diesel	8.3
GVEA	Coal/Steam Turbine	25.0
	Diesel	185.7
Military	Diesel	14.3
	Coal/Steam Turbine	22.0
UAF	Coal/Steam Turbine	<u>15.0</u>
Total		1,200.4

Ratio of Installed Capacity-to-Firm Power Requirements (System Reliability): Figure 2 shows a total installed railbelt generating capacity of about 1,200 megawatts. According to railbelt utilities 905 megawatts of firm power are required in the railbelt today ("firm power" means the total peak demand, plus needed reserves). This existing firm power requirement equals about 75% of the present installed capacity. The APA report shows that in five years 990 megawatts of firm power, or about 82% of the present installed capacity will be required for railbelt demand. And by 2001 the APA report shows 91% of the present installed railbelt generating capacity will be required for firm power.

The desired ratio of installed capacity-to-firm power requirement is contingent upon a number of factors, including the number, size and condition of active and surplus plants, configuration and characteristics of the transmission system, relationships between power producers and retail power distributors, climate, power uses and user preferences. The desired ratio of installed capacity-to-firm power requirements for the Alaska railbelt is therefore subject to interpretation and changing criteria. For the purposes of this discussion, we have assigned 70% as a desired ratio of firm power requirement-to-installed capacity.

To obtain a firm power requirement-to-installed capacity ratio of 70% in Alaska's railbelt, approximately ninety-five megawatts of new power is required today. If no units are retired, then to achieve this 70% ratio in 1992 will require the addition of approximately 215 megawatts of new power. By 2001 this 70% ratio will require about 380 megawatts of new power, again if no units are retired.

Plant Retirement: In the future some additional generation will be needed to offset scheduled retirement of existing plants. APA analysis contained in Appendix A shows that, of the electric power generation plants that now serve the railbelt, about 110 megawatts of installed capacity will be retired by 1992 and a total of about 540 megawatts will be retired by 2001.

Most of this retired generating capacity will be gas turbine units, which provides an opportunity for the Railbelt utilities to now diversify production technologies and promote a more stable cost base. In addition, because gas turbine units have a low capital cost and rapid installation time, new gas turbine units can be quite easily obtained to meet any unexpected future surges in demand.

Summary of Demand: Future Railbelt energy demand will be contingent upon a number of factors, including plant retirement, desired ratios of firm power-to-system capacity, growth in base and peak demand and other factors. The scenario presented in this subsection shows one example of what could occur in the Railbelt and how demand for new production could increase over time. However, unlike Susitna or other large scale projects, the proposed Nenana project is not reliant upon increasing demand to be feasible. Rather the Nenana project is reliant upon specific markets for its feasibility, as described below.

2.4 Markets for Electrical Power from the Nenana Coal-Fired Plant

The ultimate feasibility test for the Nenana project will be the willingness of purchasers to execute power sales agreements. The willingness of purchasers to execute power sales agreements will be contingent upon the configuration and characteristics of the Railbelt transmission grid, the relationships between purchasers and producers and the cost of Nenana power.

Configuration and Characteristics of the Transmission Grid: An upgraded Kenai-Fairbanks intertie would allow power producers throughout the railbelt, including the Nenana Heat and Power Authority, to provide power to a grid. In its present condition the intertie is capable of handling power produced at Nenana for sale in the Fairbanks area market.

The Fairbanks-Anchorage electrical intertie currently has three sections with differing capacities. The section from Anchorage to Willow has a capacity of about forty-eight megawatts (139 kv). The section from Willow to Healy has a capacity of about 298 megawatts (345 kv), and the section from Healy to Fairbanks has a capacity of about seventy megawatts (167 kv). The intertie runs through the Nenana area, just west of the proposed site for the Nenana coal-fired plant (see area map in Section 1 above).

The intertie section from Healy to Fairbanks is in better repair than the southern section, owing to line maintenance conducted in association with generation of power at the Healy coal mines. Railbelt utilities have requested that the line be upgraded to a uniform capacity of about 298 megawatts between Anchorage and Fairbanks.

The APA and the Alaska Systems Coordinating Council have executed an agreement to produce a feasibility study, economic analysis and preliminary design for the Anchorage-Fairbanks intertie upgrade by May 1, 1987. In addition the APA and several railbelt utilities are currently conducting a feasibility study, economic benefit analysis and preliminary design for an upgrade of the Kenai-Anchorage intertie. The Kenai-Anchorage Intertie report will also be available around May 1, 1987.

Current preliminary cost estimates for the Kenai-Anchorage Intertie place the cost at approximately \$100 million. Upgrade of the Anchorage-Fairbanks portion is currently estimated at about \$75 million.

Railbelt Generation and Transmission Authority: In addition creation of a railbelt generation and transmission authority would provide a single purchaser for Nenana power, for subsequent distribution along the grid.

The "Alaska Electrical Generation and Transmission Cooperative" (AEG&TC) is being organized at present to serve the generation, transmission and distribution requirements of the railbelt. The AEG&TC could act as the wholesaler of power in the railbelt and could be the customer for power produced at Nenana.

Failing an agreement with the AEG&TC, customers for power produced at Nenana would include those utilities choosing to execute power sales agreements. In this event the APA, as owner of the intertie, would act as the wholesale distributor of Nenana power.

Nenana Power Costs: Section 5 of this document below contains an analysis of costs associated with the proposed Nenana plant. This analysis shows the findings and assumptions used to develop a preliminary projection of power costs for the proposed Nenana project in the range of about \$.06 per kilowatt hour.

2.5 Feasibility Findings and Conclusions

Findings: In general we find that the feasibility of the Nenana Coal-Fired Electrical Generating Plant will be directly linked to the Kenai-Fairbanks intertie, the creation of a Railbelt AEG&TC and to the cost of the power produced.

Conclusions: As stated above the ultimate test of this project's feasibility will be the ability to execute power sale agreements. A substantial portion of the work undertaken during the preliminary engineering phase of this project will involve day-to-day work with railbelt utilities to reach understandings in regard to power sales agreements. The above analysis shows that power from the Nenana plant can be offered as a long term, fixed cost alternative to gas-driven power generation, if the price for Nenana power is competitive.

Although subject to refinement during the preliminary engineering phase of the project, these projections show the Nenana plant may be competitive in the present Alaska railbelt energy market.

3. THERMAL PLANT PROCESSES

3.1 Introduction

The purpose of this Section is four fold. First the Section provides a discussion of efficiencies related to the conversion of chemical energy to electrical energy. Next the Section contains a description of different coal combustion technologies, including fluidized bed technologies. Next the Section provides conclusions on the appropriate firing system for Nenana. Finally the Section contains preliminary design conclusions for the Nenana plant. Figure 3 below shows a standard process for conversion of chemical energy to thermal energy in a power plant

3.2 Inherent Plant Efficiencies Related to the Conversion of Chemical Energy to Electrical Energy

Combustion plant efficiencies are important to the cost of electricity produced through the thermal process. Items below describe these efficiencies in the context of the different stages required in the conversion process.

Conversion of Chemical Energy to Thermal Energy: Steam powered plants consist of a number of steps that involve the transformation of energy from one state, or from one media, to another. When coal or other carbon based fuels are burned, the burning process releases the potential energy contained in the fuel, from chemical energy to thermal energy. Some carbons in the fuel combine with oxygen in the combustion air to form a variety of compounds, including carbon dioxide, water and a variety of nitrous oxides (commonly referred to as "NOX").

In practical application, while the potential energy of the fuel can be fully converted into thermal energy through combustion in the furnace, this energy can never be fully utilized, in that 100% of the energy is never transferred to water/steam process. Part of the energy always escapes from the combustion process in the form of so-called "boiler losses."

The major element of boiler losses is is the loss of sensible heat in the exhaust gas. While the fuel and combustion air are introduced to the combustion process at ambient temperatures, their product flue gases leave the process at a much higher temperature, and the flue gases consequently carry away part of the energy released in the furnace during combustion. Owing to the need to reduce the incidence of sulfuric acid, escaping gases must be maintained at a temperature of 250-300 degrees (F).

In addition to the heat lost through escaping flue gases, additional boiler losses are entailed by the following factors:

- *Unburned fuel in the ash
- *Sensible heat in the ash
- *Heat loss through radiation
- *Heat loss through combustible gases present in the flue gases

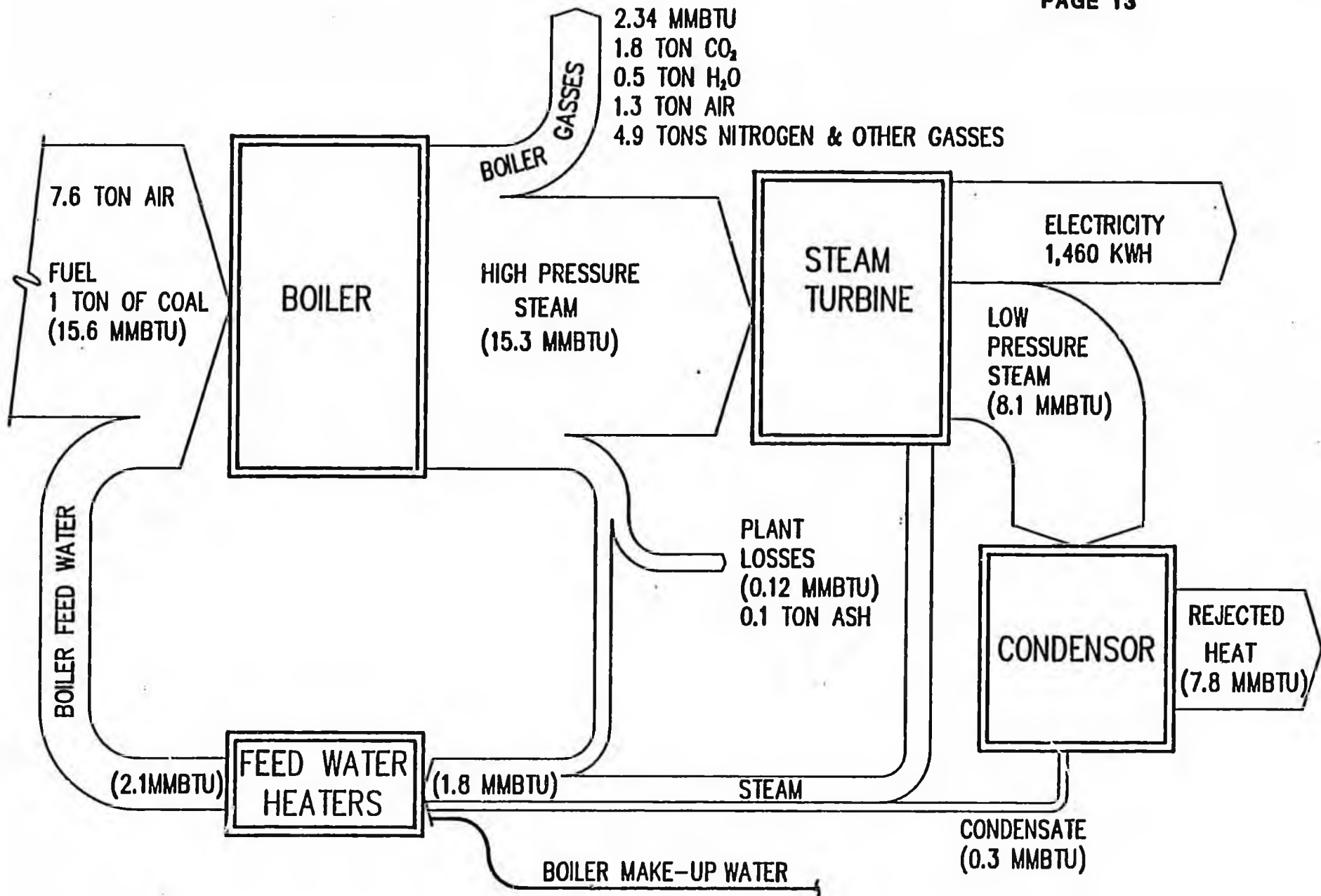


Figure 3 - Mass & Energy Balance

Boiler Efficiency: Depending on the type and composition of the fuel and the respective type and design of the firing system, the "boiler losses" described above account for a total of between 8.5% and 15% of the total potential energy. Losses in the range of 8.5% are common to oil and gas-fired boilers, and losses in the range of 15% are common to coal-fired boilers. The greater inefficiencies in coal-fired boilers are attributable to their higher excess air requirements, to unburned particles in slag and ash and to the heat present in slag and ash. In summary the boiler efficiency in the proposed Nenana project can be anticipated in the range of 85%-87%.

Moving the Thermal Energy from the Combustion Process to the Turbine: The energy from the combustion process is transferred to the turbine through generation of steam. To create steam water is fed into the boiler and heated by convection and radiation. The steam is then created through heating and evaporation of this water. The steam itself is then superheated prior to introduction to the turbine. For the discussion of the efficiency of this portion of the process see "Plant Heat Cycle" below.

Conversion of Thermal Energy to Mechanical Energy: This conversion occurs in the turbine. Upon introduction to the turbine, the steam expands (i.e. its potential energy or "enthalpy" becomes kinetic energy), driving the turbine. For the discussion of the efficiency of this portion of the process see "Plant Heat Cycle" below.

Conversion of Mechanical Energy to Electric Energy: An electric generator is coupled to the end of the turbine wheel. As this generator rotates, it produces electricity. This portion of the process is efficient at a rate of 98% or more.

Plant Heat Cycle: The plant's heat cycle is composed of the water/steam portion of the boiler, the turbine, the condenser, condensate extraction pumps and various interconnecting pipes. Within this heat cycle the circulating medium passes alternately as water and steam. Energy is lost and plant efficiency reduced as this medium circulates through the heat cycle. Several measures can be employed to reduce the potential energy loss of the heat cycle. These measures are as follows:

- *Selection of high live steam temperature and pressure
- *Application of multi-stage, regenerative feedwater heating, with turbine extraction
- *Regenerative combustion air heating with boiler exhaust gas
- *Improvements to the condenser vacuum
- *Application of steam reheating

The extent to which these measures can be implemented to reduce heat cycle energy loss and improve plant efficiency is contingent upon economic factors such as fuel prices, plant utilization factors and capital costs. Therefore improvements to the heat cycle efficiency are determined as a part of the overall detailed design of the plant, at which time tradeoffs between capital costs, fuel costs and operating costs are calculated and adopted.

Auxiliary Power Consumption: The power plant is supported by a water treatment plant, lights and other energy consuming appliances. All of these energy consuming elements add to further plant inefficiencies. Coal-fired power plants generally require power for auxiliary operations in the range of 7%-10% of gross generation.

Summary of Power Plant Efficiency: Figure 4 below shows the anticipated efficiency for a coal-fired generating plant of the type proposed at Nenana.

**Figure 4
Proposed Nenana Coal-Fired Generating Plant
Efficiency Summary**

Item	Anticipated Efficiency
Boiler	87%
Heat Cycle/Internal Turbine	41%
Mechanical Turbine	99%
Electric Generator	99%
Auxiliary Power	92%
Overall Plant Efficiency	32%

This efficiency can be further decreased if the plant does not operate at its maximum capacity. Because the Nenana plant is intended to help provide power for the base load requirements of the railbelt, the operating hours will be in the range of 97% of capacity, and the impact on overall plant efficiency will be minimal. We estimate that the overall plant efficiency will be in the range of 30%-32%.

Cogeneration Plant: One approach to maximizing plant efficiencies is to employ "cogeneration" technologies. Cogeneration is the term coined to describe a thermal plant process specifically designed to produce both electric energy and useful thermal energy ("waste heat"). An efficient electric power generation plant rejects heat at a relatively low temperature. The heat rejected is of relatively low quality, typically has little value and is normally wasted to the atmosphere.

In the case of cogeneration, the plant is specifically designed to extract steam from the turbine while the steam still contains enough useful energy to perform other tasks, including provision of heat to residential, commercial, public and industrial users. Examples of Alaska cogeneration plants exist at the University of Alaska campus in Fairbanks, the City of Fairbanks, the U.S. Army base near Fairbanks and the cogeneration plants located at the U.S. Air Force Bases near Anchorage and Fairbanks.

3.3 Combustion Technologies for Coal Fired Plants

Any of several types of boilers can be used to convert coal to thermal energy. Boiler selection is contingent upon fuel type, fuel quality, plant load characteristics and environmental factors. Basic types of boilers are described below.

Spreader Stoker Boilers: This type of boiler features a travelling grate which forms the bottom of the furnace. Depending on the boiler size, the travelling grate consists of one or more parallel sections with individual drives. Moving on the travelling grate, coal fed to the boiler is passed through various zones of combustion, including drying and heating, coking, burning and cooling.

The relatively low travelling speed of the stoker constitutes long reaction times for the fuel and combustion air and therefore provides good conditions for combustion. In addition these long reaction times to some extent mitigate otherwise harmful environmental impacts, by allowing for sulfur retention in the slag through introduction of limestone and by reducing thermal NOX-formation.

In addition this process allows adjustments to be made to rates of travelling speed, air distribution to individual grate zones and the air distribution between the undergrate and overfire. These adjustments in turn allow the use of a variety of coal types in spreader stoker boilers.

Spreader stoker boilers do not require fine coal sizing and do not therefore require coal crushing or milling. Rather coal can be introduced to the firing system as it is received from the mine screening station.

This technology is suitable for boilers up to a capacity of approximately 180 megawatts. However, while this technology is proven and simple, the emissions resulting from the spreader stoker combustion process do not generally conform to present environmental standards. This firing system is not recommended for the Nenana project.

Pulverized Coal Dust Boilers: This type of boiler burns finely ground coal dust in a state of suspension. The boiler type is characterized by very high combustion temperatures and a high release of heat in reference to furnace volume and furnace cross section.

The coal is ground by coal mills which are a part of the firing equipment. Combustion air is used to blow the pulverized coal dust into the furnace. The boiler type may be designed for wet or dry slag tapping. In the case of dry slag, less than 20% of the slag is tapped from the furnace hopper, and the remaining slag is carried in the flue gases for ultimate separation in a bag house or electrical precipitator.

Pulverized coal dust boilers are designed for short reaction times between fuel and combustion air achieved through high combustion temperatures. Owing to these short reaction times, these boilers are not capable of retaining satisfactory amounts of sulfur dioxides in the slag and ash or of reducing NOX formation in the furnace. Consequently, to meet current emissions standards, this boiler type requires installation of separate flue gas scrubber stations for sulfur dioxide and NOX separation.

Pulverized coal dust boilers are commonly employed to meet high output requirements, in the range of 300 megawatts or more. Lower capacities are feasible but are not economical. This firing system is therefore not recommended for the Nenana project.

Coal Gasification-Combined Cycle: This process requires conversion of coal to a carbon-rich gas and then combustion of that gas in a turbine. To obtain the gas coal is first ground to a slurry and pumped into a high temperature reactor, where a large percentage of carbon is driven off as a "coal gas."

This gas is cleaned in a second process and routed to a gas turbine where it is burned in an air stream. Upon combustion the expanded gases exert pressure on the turbine blades, creating mechanical energy which is subsequently translated to electrical energy.

The hot gases leaving the turbine are passed through a heat exchanger and used to create steam. The steam is then used to drive a steam turbine, which itself translates to electrical energy.

This system has an advantage to traditional coal-fired plants in that the plant efficiencies are somewhat higher, owing to the double use of combustion products for electrical generation, and the system is capable of using high sulfur coal. On the other hand the technology employed in these plants is highly sophisticated and quite new. This technology may present difficulties during adaptation to remote or cold regions.

A prototype, 117 megawatt coal gasification-combined cycle plant is now operating in California. This plant is in the third year of a five year commercial demonstration. This facility warrants further examination.

Fluidized Bed Boilers and Their Benefits: Fluidized bed combustion technology has evolved over the past decade. This technology combines the long reaction time characteristic of the spreader stoker boiler and the suspended fuel characteristic of the pulverized coal dust boiler. This long reaction time for the suspended fuel allows thorough combustion of coarse coal particles at low temperatures and also allows the introduction of limestone to the combustion process. The benefits of this technology are numerous and substantial. These benefits are listed below.

***Little requirement to pulverize coal**

The fluidized bed system may be fired with larger fuel particles than are used in the pulverized coal firing system. These larger fuel particles are suspended in a vertical moving air stream.

***Ability to burn a broad quality of coal/other fuel**

***Little slagging or fouling tendency**

Lower grades of fuel may be burned effectively in this type of furnace. Today fluidized bed plants are used to incinerate trash, sewage, wood chips and sawmill slash, lignite and sub-bituminous coal.

***Low atmospheric emission of sulfur dioxide**

***Little origin of NOX**

The capability to burn larger particles allows introduction of limestone with the coal as a method of reducing sulfur dioxide emission. When coal is burned in the presence of lime, the sulfur and lime react together to produce gypsum, and the sulfur passes from the process as a constituent of the ash. Sulfur dioxide is the material that, when released into the atmosphere, combines with water to form sulfuric acid, a constituent of "acid rain", and the fluidized bed technology thus mitigates this problem.

Fluidized bed reactors are capable of efficient combustion at lower temperatures than are characteristic of most other firing systems. The cooler combustion process effectively reduces the production of NOX emissions from the process. These characteristics of the fluidized bed reactor reduce the requirement to scrub flue gases before expelling them out the stack; thus reducing the cost of the power plant.

***Reasonable investment and operating costs**

***Dependable technology, with a high availability**

Section 5 shows the construction cost per kilowatt hour for the proposed Nenana plant will be in the range of \$1,600-\$1,800, with anticipated cost of \$1,750. This price is competitive with and in some respects advantageous to alternative generating technologies (see also Section 2 above). This technology is dependable and available in today's market, as further described in subsection 3.4 below.

3.4 Fluidized Bed Boiler Types

Fluidized bed technology on the scale of the Nenana Project has been evolving over the past decade, and various kinds of fluidized bed boilers now exist. These boiler types are described below.

Stationary Atmospheric: The furnace for this boiler type operates at atmospheric pressure, and the combustion air velocity is adjusted to keep the fuel in suspension. The combustion air is introduced to the furnace from the bottom, by means of nozzles. The bed materials consist mainly of ash, with a small incidence of coal. The recirculation of the separated bed material to the furnace provides for highly efficient combustion. The fly ash escaping via the cyclone separators from the combustion process is eventually retained in the bag house.

The heat exchange surface is composed of bundles of tubes partly submerged in the bed material.

This particular technology was the first step in the evolution of fluidized bed firing systems. The technology is suitable for low firing capacities but has become increasingly superseded by the circulating fluidized bed technology. This technology is therefore not recommended for the Nenana project.

Circulating Atmospheric: This technology also maintains the ash and coal in a state of suspension and gets its name from the fact that a portion of the materials and gases leaving the reaction are recaptured and recycled through the reactor. This recirculation of combustible materials increases the fuel efficiency of the process and more completely reacts the sulfur with the limestone to further reduce sulfur dioxide emissions.

The circulation of combustibles is caused by "cyclone separators" located at the top of the reactor, which remove the bed materials from the stream of flue gases. These separated bed materials are then fed back down to the reactor and subjected to additional combustion. Prior to arriving at the bag house, the flue gases leaving the cyclone separators stream across tube bundles and transfer heat to the economiser, evaporator, superheater and combustion air heater.

Combustion air is admitted to the reactor in two stages. Approximately 60% of the air is introduced at the bottom of the furnace, and the remaining 40% is admitted at a higher level on the furnace walls. This multi-stage introduction of combustion air creates extended coal combustion areas within the reactor, while allowing for low furnace temperatures.

A number of different circulating atmospheric fluidized bed technologies exist, differing primarily in the flue gas temperature leaving the reactor and the amount of circulating bed materials. However all circulating atmospheric technologies are based on the same fundamental principals described above.

The circulation of hard combustion substances in this technology combines long reaction times with reasonable high heat release rates, when expressed as a function of furnace dimensions. These characteristics result in the suitability of this technology for larger unit sizes. The largest circulating atmospheric fluidized bed unit constructed to date has a firing capacity of 226 megawatts. Larger units are under development at present, in response to orders from utilities. This technology holds great promise for Nenana.

Pressurized: This technology is characterized by the fact that the furnace is completely housed in a pressurized containment. The technology may be adapted to either a stationary combustion process, under investigation at present, or a circulating combustion process, which may be developed soon. The pressurized fluidized bed combustors conceptualized to date apply the stationary technology.

The high pressure combustion process (140 psi) provides for small specific dimensions and thus lower capital costs. The high pressure combustion process also provides for an efficient reaction of combustible materials with air and absorbents. Thus the environmental aspects of this technology are quite promising.

In the pressurized process, the escaping flue gases must be led by means of a gas turbine, this requires the problematic separation of dust from the hot gases under pressure. Another hurdle in this process is the introduction of coal, at atmospheric pressure, against the pressurized furnace.

As stated above this technology is still under development and is not yet proven. Current estimates show that circulating atmospheric plants can provide for demand in the range of up to 150-200 megawatts, and pressurized units will provide for demand of up to 300 megawatts. In the future this technology may provide promising results in applications such as the Nenana project.

3.5 Firing System Conclusions

This analysis suggests that, because of emissions requirements established by the Federal government under the National Environmental Protection Act (NEPA), the nature of the available coal (see Appendix C), the size of the unit anticipated by this study and the nature of the load to be served, a circulating atmospheric fluidized bed combustion process is most appropriate for the proposed Nenana project.

The specific fluidized bed firing system to be employed in the Nenana project will be selected following a detailed analysis of the characteristics of available fuels, as well as an analysis of the environmental and economic conditions of the project area.

The power plant described herein would be capable of producing about 750 million kilowatt hours of electricity and nearly 3 trillion BTU of usable thermal energy per year. The energy contained within the stream of useful thermal energy available from the proposed project is the energy equivalent of 20 million gallons of fuel oil per year. These detailed plant characteristics are more fully provided in the cost model assumptions provided in Appendix F.

3.6 Heat Cycle Conclusions

Ease of plant operations and maintenance are primary objectives for the plant design. Therefore the configuration of the plant heat cycle and main design considerations should be selected so as to provide reasonable thermal efficiency without requiring sophisticated technical plant features. Obtaining these design objectives will require identifying and making tradeoffs between thermal efficiency (fuel and construction costs) and plant simplicity (operating and maintenance costs), in order to arrive at the balance appropriate to the Nenana setting. Some preliminary design conclusions are expressed below.

Boiler: A natural circulation (drum type) boiler is recommended, and it is further recommended to refrain from use of a reheater or use of austenitic steel. This design would allow for steam characteristics of 1600 psi and 980 degrees (F). A six-stage regenerative heater is also recommended, with one stage designed as a deaerator (i.e. devise which removes air from the steam, causing condensation).

Condensor: An air-cooled condensor is recommended, as the average ambient air temperature at Nenana will not result in a substantially less dependable vacuum in the air-cooled condensor, as compared to a water-cooled condensor. In addition use of an air-cooled condensor has definite environmental advantages.

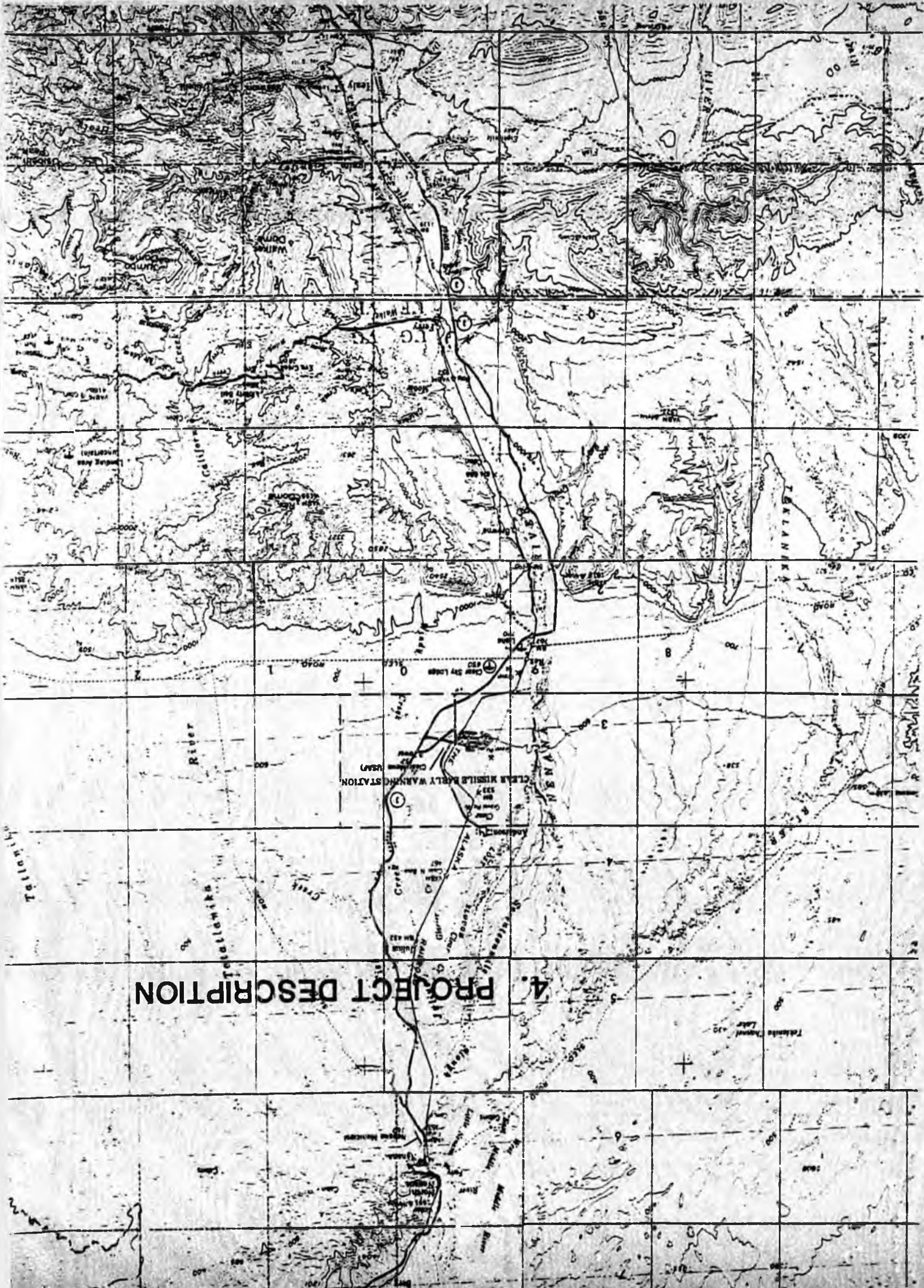
For example use of an air-cooled condensor will preclude problems with ice fog, which are associated with introduction of warm water into contact with the atmosphere during periods of low temperatures. Use of an air-cooled condensor will also preclude any water pollution problems associated with a water-cooled condensor.

Turbine: A condensing-type turbine is recommended, with one controlled steam extraction for co-generation purpose and six non-controlled steam extractions for regenerative feedwater heating. A compound turbine governing system is recommended, such that, within predetermined limits, the outputs of the electrical system and heating system are controlled independently of one another, in compliance with their respective demands.

Feed Water Supply: Approximately 2% of the live steam flow will be lost in the heat cycle. Make-up water for this loss should be provided by a chemical demineralizing plant, operating on the ion-exchange principal.

Equipment: To assure availability for plant operations, boiler fans, feedwater pumps, condensate pumps and other auxiliary equipment should be provided redundantly. A flue gas scrubber station is not recommended, since the circulating atmospheric fluidized bed technology will capture sulfur in the ash and will produce almost no thermal NOX.

4. PROJECT DESCRIPTION



4. PROJECT DESCRIPTION

4.1 Introduction

Sections 1 and 3 of this document provide a general description of the project and design considerations. In this Section we present descriptions of the proposed project facilities and characteristics, project site and project impacts. Each of these items is presented in a subsection below. In addition Appendix D provides a general description of the Nenana area, including location, history, climate, population and economy.

The project site development plans are shown on Map 3, which follows below. In addition Appendix E contains a detailed description of the project components. These plans require improvements to approximately fifty acres of land. Twenty-five acres on the east bank of the Nenana River will be developed and connected to a twenty-five acre development on the west bank by construction of a two lane road and bridge.

4.2 Project Facilities and Characteristics

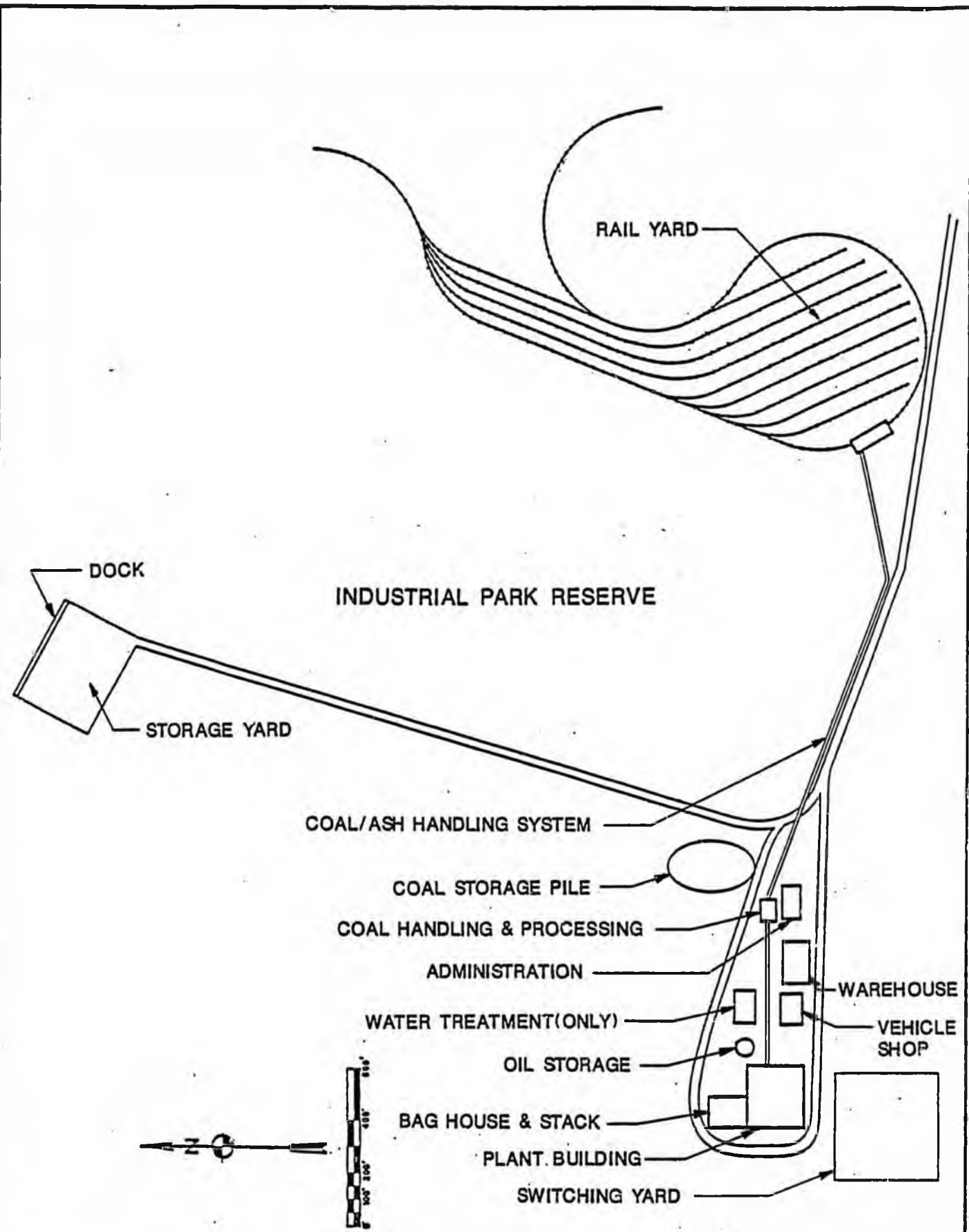
East Bank Development: About twenty-five acres will be dedicated to a rail yard, coal train storage and coal and ash handling facilities. These facilities will be located on the east bank of the Nenana River, about one-half mile to the south of the Tanana River.

Road and Bridge: A two-lane, paved drive will connect the Parks Highway with the development area. This drive will skirt the rail yard, and a new bridge will be constructed across the Nenana River to the site of the new generating plant, located on a twenty-five acre parcel on the west bank of the Nenana River. This bridge will also support a coal and ash conveyor system, which will be supported by the bridge.

West Bank Development: The generating plant site on the west bank of the Nenana River will include the boiler plant, turbine house, bag house, stack, coal storage, oil storage, water and waste water treatment and buildings for administration, warehousing and shops.

Other Improvements: Other improvements will include a four acre transformer and switch yard and nine acres of roadway, parking and landscaping.

Depending upon dredging requirements and an economic analysis, a 400 foot dock and access road may be constructed along the Tanana River, north of the west bank development. This dock and access road will support the plant and new development in a designated industrial area just north of the generating plant site.



**NENANA COAL FIRED
 ELECTRICAL GENERATING FACILITY
 MAP 3: SITE DEVELOPMENT CONCEPT**
 FRYER/PRESSLEY ENGINEERING INC.
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4.3 Project Site

The fifty acres in this site and the designated industrial park area are currently owned by either the State of Alaska (Alaska Railroad Corporation) or private individuals. No zoning or other land use restrictions exist on the site in relation to construction of the plant.

Flood Hazard: The City of Nenana was inundated by a 100 year flood in 1967, and the proposed project site remained above the maximum flood stage, which occurred at elevation 358. A hydrological site analysis is required to assure that construction or other events occurring during the intervening years will not adversely effect future development. The hydrological analysis is also required to assure that ancillary development, such as the bridge, switchyards, support buildings, coal storage and handling facilities and electric transmission structures, are located away from flood hazards. Applications for permits to construct the facility will require that flood hazards be addressed in detail.

Soils: The soils underlying the areas to be developed are thought to be well drained granular soils. Perched water tables have been reported in the area, and permafrost probably exists at some locations. These conditions will not effect the economics of site development but do set the requirement for a detailed geotechnical investigation. This geotechnical investigation will be conducted in two phases. The first phase will occur in support of site planning. The second phase will occur in support of detailed design.

4.4 Project Impacts

Related Industrial Development: The co-generation design of the plant will promote development of timber and agriculture in Nenana and throughout the Tanana and Yukon basins.

Plywood, particle board, dimensioned lumber and other forest product industries are natural candidates as user industries. Aquaculture and agricultural enterprise are also suited to benefit from power plant operations.

Industrial parksites and agricultural areas for these industries in the Nenana area will be developed and operated by the Nenana Port Authority, which will be responsible for purchase and resale of waste heat.

Employment Impacts: The new plant and related industrial and commercial development will have a significant impact on long term employment in the Nenana area and throughout the region. Figure 5 below shows preliminary estimates of these employment impacts.