

ALASKA LEGISLATURE

1803

HOUSE and SENATE FINANCE COMMITTEE FILES, 1997-1998

April 17, 1996

To Whom It May Concern

From: Bill Stamps

Reference: House Bill No. 220

Please accept this as my support for House Bill No. 220.

Bill Stamps

Bill Stamps
Peak Oilfield Service Co.
P.O. Box 130
Kenai, AK. 99611
(907) 283 2022



April 16, 1997

Mr. Greg Wolf
Vice President
AEDC
550 West Seventh Avenue
Suite 1400
Anchorage, Alaska

Dear Mr. Wolf:

I am writing to encourage and applaud your efforts to enact economic incentive legislation in Alaska. As you know, FedEx has a significant presence in Anchorage with a large and expanding air operations and package sorting facility employing over 826 Alaska residents. Obviously, we are very supportive of any efforts to increase the level of economic growth in this market.

It is common knowledge that in today's global market every state is competing vigorously for increased economic activity with a variety of economic incentive programs. In fact, we have recently taken advantage of such programs in site selection decisions. It seems critical that Alaska be active in this process given its proximity to Asian markets with that market's enormous growth potential. I know the Governor is keenly aware of this necessity.

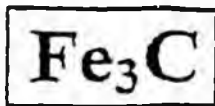
Again, we believe you are on the right track and wish you every success in your campaign to enact this legislation.

Sincerely,

Senior Representative
Government Affairs
901/395-5168

dew

VIA FAX



Alyeska Alloys, LLC.

Robert L. Braddock, Project Director

FAX TRANSMITTAL # 1 of 3 pages

TO: Patti DeMarco
907-259-5646

FROM: Bob Braddock
303-984-2060 FAX 303-989-4989

January 31, 1997

COPY

Mrs Debby Sedwick
Alaska Department of Commerce and
Economic Development
Frontier Building, Suite 700
3601 "C" Street
Anchorage, AK 99503

Dear Debby:

Introduction

With no clear understanding of how the Administration proposes to implement the Pioneer Incentives Program (the "Program"), but with a sense of the Administration's intent, Alyeska Alloy's ("Alyeska") has taken the presumptuous position of submitting a proposal for consideration.

Alyeska interprets the aims of the Program as:

- i. To capitalize on Alaska's strategic geographic location to create export markets for which Alaskan industry would hold competitive advantage;
- ii. To attract new enterprises to Alaska which will add diversity to the economy;
- iii. To induce new enterprises to locate in Alaska which create stable, high wage jobs; and
- iv. To increase the wealth created and retained in Alaska through the addition of value added processing to the existing natural resource extraction industries.

If Alyeska is accurate in our interpretation of the Program's goals, we are convinced that Alyeska's iron carbide project (the "Project") is an ideal candidate.

Although Alaska's prior growth has been created by government or large corporate sponsored projects, the State's present and future growth will be created by more nimble entrepreneurs of less substantial financial means (such as Alyeska). While the government and large corporations can, due to their enormous capital resources, press ahead with projects in spite of changes in the marketplace, entrepreneurs have no such luxury, for we are the creation of the marketplace, not its master. Alyeska's Project is driven by the marketplace. At present, the demand for iron carbide and other alternative iron units exceeds supply, but this situation will not last indefinitely. Should Alyeska's Project begin to stall, these potential customers will look elsewhere to meet their alternative iron needs. If so, the opportunity to establish this new industry in Alaska may be lost forever.

155 South Union Blvd., Suite 350
Lakewood, Colorado 80228-2211 - USA
Phone (303) 984-2060 - FAX (303) 989-4989

Ms Debbie Sedwick
Pioneer Incentives Program Proposal
Page 2
January 31, 1997

Having said all this, Alyeska remains confident that we are in the right place at the right time. Alyeska seeks a small assist from the Program, which would significantly increase the probability of success of the iron carbide Project and thereby benefit the State of Alaska.

Benefits to Alaskans

While much has been presented outlining the general features of the Project, Alyeska has not focused attention on the many sustaining benefits the Project provides to Alaska and its residents. These benefits include:

- During the two year construction phase, a major portion of the estimated \$190 million combined cost of the port and plant will be injected into the local economy through almost 350 construction jobs, local design, fabrication and erection services.
- Once operational, the Project will create 50 to 60 permanent, high paying plant jobs.
- An additional 20 to 30 jobs will be created in port operations, camp catering, air taxi and allied support services.
- This employment will be created in a region and locale which has a history of high unemployment.
- All but a select few of the total permanent jobs created will be filled by current Alaskan residents.
- The Project will consume almost \$20 million in natural gas annually, generating over \$1.5 million per year in royalties for the State.
- The Project will use Alaskan natural gas to increase the value of iron ore five fold.
- The Project will pay over \$1 million in property taxes annually to the Borough.
- A doubling or tripling of the Project is anticipated by 2003, creating more jobs, gas royalties and property taxes.
- The addition of a multi-use, deep water port on the west side of the Cook Inlet should help to unlock local coal and gravel projects which have languished for many years.
- The stable natural gas demand requirement of the Project should encourage the development of additional Cook Inlet natural gas reserves.
- The Project creates the stable manufacturing employment not typically found in the boom and bust cycles associated with natural resource development.

Project Status - Phase II

Alyeska has just begun the critical Phase II of development of the iron carbide Project. The following was accomplished during Phase I, recently completed at a cost of approximately \$500,000:

- The site was selected
- Natural gas and power supply agreements were negotiated
- Process license was obtained
- Engineering/Procurement/Construction contractor was selected
- Financial advisor was selected
- Environmental consultant was chosen.

Ms Debbie Sedwick
Pioneer Incentives Program Proposal
Page 4
January 31, 1997

Proposal for Program Involvement

Alyeska seeks to obtain \$300,000 from the Program to be applied towards the development of preliminary plant designs and environmental engineering required for permit applications. Alyeska will provide matching funds. The combination of this State and private funding will allow Alyeska to complete the critical permitting process, thus removing one of the last major obstacles to the development of the Project. Alyeska further proposes to refund the State's contribution to the Program at the time the Project closes on construction financing.

I hope we have made a compelling case for how the Program can materially assist in the development of the Project. Yes, there are risks, but we believe that the approach we have taken provides the State with a clear sense of the rewards generated by the successful completion of the Project.

Sincerely,

Robert L. Braddock

Robert L. Braddock

Project Director *bjm*

cc: Lauria Cunningham, ADCED
John McClellan, ASRC
Don Evans, Alyeska Holdings

The Competition Aggressively Seeks Manufacturing Operations

In the past, Alaska has been at a tremendous disadvantage in the manufacturing sector. High wages, distance from markets, and transportation costs have impaired Alaska's ability to compete in the manufacturing sector.

Recently, the tides have changed. The wage rate gap between the rest of the U.S. and Alaska is closing. Heavy utilization of air cargo compliments Alaska's strategic location in the middle of the Northern Hemisphere. Alaska is now in a position to make itself competitive in a variety of manufacturing sectors.

Other states understand the competition to attract manufacturing companies is intense. In order to attract new manufacturing operations, states are offering tax abatement, financial, and employment training incentives. In order to stay competitive, Alaska must consider offering incentives to attract new manufacturing.

A few examples of state incentive programs follows:

Alabama: Alabama's Economic Development Loan Fund can be used for the purchase of land, buildings, machinery, equipment and working capital.

Arizona: The state offers a corporate income tax credit equal to 5 percent of the purchase price on construction materials used to build new manufacturing facilities.

Connecticut: Product development financing in the form of risk capital for high-technology products and services is available.

Delaware: Targeted industry tax incentives - Corporate income tax credits are \$400 for each \$100,000 investment and \$400 for each new qualified employee for whom at least \$40,000 in new investment has been made.

Florida: Private activity bonds - Florida created a \$75 million pool of locally issued private activity bonds strictly for the benefit of manufacturing facilities.

Indiana: Infrastructure financing - The program finances public improvements including the design and construction of roads, water and sewer lines, and rail spurs.

Michigan: Renaissance Fund - A fund that assists with land assembly/reclamation, and infrastructure development. The fund generally spends \$250,000 to \$750,000 per project and \$10,000 per job created.

Oklahoma: Targeted industry tax credit - A \$500 per employee income tax credit for a net increase of full time equivalent employees in targeted sectors.

South Carolina: Pre-export working capital financing.



House Finance Committee

DATE: Feb 11, 98

PLACE: Cap 519

SUBJECT OF MEETING:
HB 264
SB 159

NAME	REPRESENTING	BUSINESS/PERSONAL MAILING ADDRESS	ZIP	(H) PHONE	(W) PHONE	DO YOU WANT TO TESTIFY?	WHAT SUBJECT/ WHICH BILL?
✓ Deborah Behr	Dept of LAW	Juneau AK	99811		465-2102	(Y) N	HB 264 - Neg Reg
✓ Ernie Hall	AEDC	144 E Potter Dr Anch AK	99518		562 2257	(Y) N	S.B. 159
✓ Douglas Mertz	RCAC	319 Seward, Juneau			6-4000	(Y) N	HB 264
John Ference	Div of Insurance	SOB			465 2560	Y (N)	
✓ Patty DeMarco	AEDC					(Y) N	
						Y N	
						Y N	
						Y N	
						Y N	
						Y N	
						Y N	

02/11/98
13:55:19

LEGISLATIVE TELECONFERENCE NETWORK SYSTEM
PARTICIPANT LIST (ALL PARTICIPANTS)
TCN:80245 SCHEDULED FOR:02/11/98 13:30 TO 16:00
PUBLIC HEARING HOUSE FINANCE

LTN1150
BY:GLN
FOR:GLN

LOCATION:GLENNALLEN
SB 159

MRS. DONNA

TOLLMAN ✓

TESTIFY

02/11/98
13:31:50

LEGISLATIVE TELECONFERENCE NETWORK SYSTEM
PARTICIPANT LIST (ALL PARTICIPANTS)
TCN:80245 SCHEDULED FOR:02/11/98 13:30 TO 16:00
PUBLIC HEARING HOUSE FINANCE

LTN1150
BY:ANC
FOR:ANC

LOCATION: ~~ANCHORAGE~~
SB 159

KEITH

LAUFER ✓

AIDEA

TESTIFY

SB

159

SFIN

FILE

FISCAL NOTE

REPORTED OUT OF
MAY 8 1997

STATE OF ALASKA
1997 LEGISLATIVE SESSION

Revision Date: April 15, 1997

Title: An Act relating to the new business incentive program.

Sponsor: SEN. PEARCE; Ellis

Requester: Senate Finance Committee

Department: DCED

ERU: AIDEA

Component: AIDEA

BILL NO. SB 159

L&C, FIN

COMPONENT SERIAL NO. _____

1234

Expenditures/Revenues	(Thousands of Dollars)					
OPERATING EXPENDITURES	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
PERSONAL SERVICES	74.0	74.0	74.0	75.0	75.0	75.0
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	74.0	74.0	74.0	75.0	75.0	75.0
CAPITAL EXPENDITURES	0.0	0.0	0.0	0.0	0.0	0.0
CHANGE IN REVENUES	0.0	0.0	0.0	0.0	0.0	0.0

FUND SOURCE	(Thousands of Dollars)					
1002 Federal Receipts						
1003 GF Match						
1004 General Fund						
1005 GF/Program Receipts						
1006 GF/MHTIA						
Other Corporate Receipts	74.0	74.0	74.0	75.0	75.0	75.0
TOTAL	74.0	74.0	74.0	75.0	75.0	75.0

Estimate of any current year (FY 97) cost: \$ 0.0

POSITIONS:

FULL-TIME	1	1	1	1	1	1
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

As currently written, SB 159 would require an additional staff position to provide oversight of the program and analysis on each applicant to assist the business in determining whether an applicant is qualified for the New Business Incentive Program. If amendments are made to the Bill so that the requirements to qualify for the incentive and the amount of the incentive are based on objective standards, an additional staff person would not be necessary and the fiscal note would be -0-.

Prepared by: D. Randy Simmons, Executive Director
 Division: AIDEA
 Approved by Commissioner: William L. Hensley
 Agency: Commerce and Economic Development

Phone: 907.269.3000
 Date: April 15, 1997
 Date: 4-16-97

PREPARER TO PROVIDE ALL DISTRIBUTION COPIES TO GOVERNOR'S LEGISLATIVE OFFICE
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FISCAL NOTE

NO. 1
Bill Version: CSSB 159 (L&C)
(S) Publish Date: 4-6-97

STATE OF ALASKA
1997 LEGISLATIVE SESSION

Revision Date: 4/3/97
Title: New Business Incentive Program

Department: Commerce and Economic Development
BRU: Trade and Development
Component: Trade and Development

Sponsor: Sen Pearce
Requestor: Senate Labor and Commerce Committee

COMPONENT SERIAL NO. 2056

Expenditures/Revenues (Thousands of Dollars)

OPERATING EXPENDITURES	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
PERSONAL SERVICES	10.8	11.1	11.4	11.8	12.1	12.5
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	10.8	11.1	11.4	11.8	12.1	12.5

CAPITAL EXPENDITURES	
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CHANGE IN REVENUES	
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 General Fund	10.8	11.1	11.4	11.8	12.1	12.5
1005 GF/Program Receipts						
1006 GF/MHTIA						
Other						
TOTAL	10.8	11.1	11.4	11.8	12.1	12.5

Estimate of any current year (FY 97) cost: \$ 0.0

POSITIONS

FULL-TIME	0.20	0.20	0.20	0.20	0.20	0.20
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

The Division supports this legislation, however must have 20% of one PFT to administer the reimbursement clause of the business incentive Grants program (Sec. 45.81.030). An inflation factor of 3.0% has been applied to the annual cost of 20% of 1 PFT, range 13F.

Prepared by: Bill Paulick
 Division: Division of Trade and Development
 Approved by Commissioner: *Just*
 Agency: _____

Phone: 465-3961
 Date: April 15, 1997
 Date: 4-16-97

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SENATE FINANCE COMMITTEE REPORT

DATE: 5/6/97

FURTHER: SFC REPORTED OUT OF MAY 1997

DATE TURNED IN TO OFFICE: 5-8-97

Finance Committee considered **SENATE BILL NO. 159**

"An Act relating to the new business incentive program."

and recommends:

- be replaced with _____ CS _____ (_____)
- adopt previous _____ CS SB 159 (LEC)
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to the _____ Committee

- Senate Bill:**
- same title
 - new title
- House Bill:**
- same title
 - technical change
 - new: SCR# _____

SIGNING DO PASS	DP	OTHER RECOMMENDATIONS	NR	DNP	AM
<i>Robert Hill</i>	✓				
<i>John Joseph</i>	✓				
Co-Chair: <i>Peace</i>	✓	Co-Chair:			
Co-Chair:		Co-Chair: <i>Ben King</i>			

NEW FISCAL NOTE(S):

Department Date Zero Fiscal

Department	Date	Zero	Fiscal
DCED - AIDEA	4/16		74.0

PREVIOUS FISCAL NOTE(S):*

Department Date Zero Fiscal

Department	Date	Zero	Fiscal
DCED	4/16		10.8

APPROPRIATION -- no fiscal note

*include fiscal notes accompanying Governor's bill

SENATE FINANCE

COMMITTEE 0-LS0868VF.1

Amendment Number: 1 Cook

Bill Number: SB 159 5/7/97

Sponsor: Phillips Date: 5/8/97

Logged In By: J. Soltani

A M E N D M E N T

OFFERED IN THE SENATE

BY SENATOR PHILLIPS

TO: CSSB 159(L&C)

1 Page 1, line 1, following "program":

2 Insert "; and relating to negatively amortizing loans originated under a program
3 **approved or sponsored by the state or federal government"**

4 Page 1, following line 5:

5 Insert a new bill section to read:

6 ** Sec. 2. AS 45.45.010(f) is amended to read:

7 (f) A bank, credit union, savings and loan institution, pension fund, insurance
8 company, or mortgage company may not require or accept any percent of ownership
9 or profits above its interest rate. This subsection does not apply to a loan if the
10 principal amount of the loan is \$1,000,000 or more and the term of the loan is five
11 years or more, or to a negatively amortizing loan originated under a program
12 approved or sponsored by the state or federal government."

13 Renumber the following bill section accordingly.

Municipality of Anchorage



Jordan
P.O. Box 196650
Anchorage, Alaska 99519-6650
Telephone: (907) 343-4431
Fax: (907) 343-4499
<http://www.ci.anchorage.ak.us>

Rick Mystrom, Mayor

OFFICE OF THE MAYOR

April 22, 1997

APR 25 1997

Senator Drue Pearce
Alaska State Legislature
Room 111
State Capitol
Juneau, AK 99801-1182

Dear Drue:

I am writing in support of SB159/HB220, an act related to the new business incentive program. The Municipality of Anchorage has placed a priority on expanding the global logistics operations at the Anchorage International Airport. The AIA is the largest of all cargo airports in the United States. It is important that we be in a position to add cargo to the planes that travel through Anchorage by means of time sensitive technical support adjacent to our airport.

Most other cargo hub centers offer significant state incentives for development of airport operations. Such businesses would include computer repair and return operations, final testing and assembly of electronics, and global distribution centers. The Municipality already has done its part with a property tax exemption program and an inventory tax exemption program to help with expanding such activities in Anchorage.

SB 159 allows Alaska to capitalize on its location and natural resources to enter high value, expanding global markets. As the budget deliberations in Juneau continue, we will be pressing for adoption of this measure. This program will help put Alaska on the horizon for future investment and add significantly to our economy.

Sincerely,

Rick Mystrom
Mayor

cc: Larry Anderson, Special Assistant to the Mayor
Patricia DeMarco, President, AEDC
"City of Lights and Flowers"



I am writing to you today to express our support for HB 220 and SB 159, legislation which would create a New Business Incentive Program for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

We intend to contact our legislators and encourage them to support this legislation.

Sincerely,

A handwritten signature in cursive script that reads "Suzanne Linford". The signature is written in dark ink and is positioned below the word "Sincerely,".



135 Cordova • Anchorage, Alaska 99501 • Phone (907) 272-5050 • Fax (907) 272-5073



CHUGACH ELECTRIC ASSOCIATION, INC.

April 30, 1997

Ms. Patricia M. DeMarco, Ph.D.
President
Anchorage Economic Development Corporation
550 West Seventh Avenue, Suite 1400
Anchorage, Alaska 99501

Dear Dr. DeMarco:

I am writing to you today to express support for **HB 220** and **SB 159**, legislation that would underwrite and create a **Business Incentive Program** for Alaska, currently under consideration by the State Legislature. I believe that passage of this legislation is crucial if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

The competitive nature of attracting manufacturing and other value-added enterprises is fierce and this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

Sincerely,



Evan J. Griffin, Jr.

Executive Manager,
Finance & Planning

 **KPMG** Peat Marwick LLP

601 West Fifth Avenue
Suite 700
Anchorage, AK 99501-2258

Telephone 907 276 7401

Telefax 907 274 4953

April 29, 1997

Patricia M. DeMarco, Ph.D.
President
Anchorage Economic Development Corporation
550 West 7th Avenue, Suite 1400
Anchorage, Alaska 99501

Dear Patty:


I am writing to you to express support for HB 220 and SB 159, legislation which would create a new Business Incentive Program for Alaska, currently under consideration by the State legislature. Passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively highpaying jobs in the manufacturing sector.

With the competitive nature of attracting manufacturing and other value-added enterprises, this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

Feel free to share this letter with State of Alaska legislators.

Very truly yours,

KPMG Peat Marwick LLP



Michael E. Stone
Managing Partner

MES:amo



Member Firm of
KPMG International

DEBENHAM

Electric Supply Co., Inc.

5333 Fairbanks Street · Anchorage, AK 99518 · (907) 562-2800

April 28, 1997

Patricia M. LeMarco, PH.D.
President
Anchorage Economic Development Corporation
550 West Seventh Ave, Site 1400
Anchorage, Alaska 99501

Dear Patty,

I am writing to you today to express our support for HB220 and SB159, legislation which would create a **NEW BUSINESS INCENTIVE PROGRAM** for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help "level the playing field" for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state. This incentive program will help Alaskan communities develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

We intend to contact our legislators and encourage them to support this legislation.

Sincerely,



Mitch Robison
Branch Manager
Debenham Electric Supply Company



April 28, 1997

Patricia M. DeMarco, Ph.D.
President
Anchorage Economic Development Corporation
550 West Seventh Avenue, Suite 1400
Anchorage, AK 99501

Dear Patty:

I am writing to you today to express our support for **HB 220 and SB 159**, legislation which would create a **New Business Incentive Program** for Alaska, currently under consideration by the state legislation. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help "level the playing field" for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state. This incentive program will help Alaskan communities develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

We intend to contact our legislators and encourage them to support this legislation.

Sincerely,

Marc Langland
President

hap



REGAL ALASKAN HOTEL

April 24, 1997

Senator Drue Pearce
716 W. 4th Avenue #500
Anchorage, AK 99501-2133

Dear Senator Pearce;

I am writing to you today to express our support for **HB 220** and **SB 159**, legislation which would create a **New Business Incentive Program** for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

Sincerely,

Max J. Lowe, CHA
General Manager

MJL:ta

A REGAL INTERNATIONAL HOTEL

4800 SPENARD ROAD • ANCHORAGE, ALASKA 99517-3236
PHONE 907.243.2300 • FAX 907.243.8815 • WORLDWIDE RESERVATIONS 800.222.8888
<http://www.regal-hotels.com/anchorage> • e-mail: regal@alaska.net



April 24, 1997

Patricia M. DeMarco, Ph.D.
President
Anchorage Economic Development Corporation
550 West Seventh Avenue, Suite 1400
Anchorage, AK 99501

Dear Patty:

I am writing to you today to express our support for HB 22G and SB 159, legislation which would create a New Business Incentive Program for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

We intend to contact our legislators and encourage them to support this legislation.

Sincerely,

Dennis C. Bird
Managing Director
Alaska Operations



April 24, 1997

Patricia M. DeMarco, PhD.
President
Anchorage Economic Development Corporation
550 West seventh Avenue, Suite 1400
Anchorage, Alaska 99501

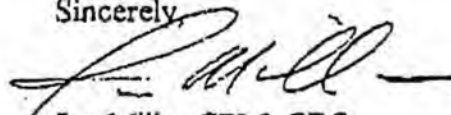
Dear Patty:

I am writing to you today to express our support for HB 220 and SB 159, legislation which would create a New Business Incentive Program for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

We intend to contact our legislators and encourage them to support this legislation.

Sincerely,



Joe Miller CPM, CRS

RE/MAX properties, inc.
2600 cordova street, suite 100
anchorage, alaska 99503
office: (907) 276-2761
direct line: (907) 257-0156
each office independently owned and operated

**Alaska
Power
Systems** INC.

8300 King Street
Anchorage, Alaska 99518
(907) 344-2531
Fax (907) 349-8764

April 23, 1997

Patricia M. DeMarco, Ph. D.
President
Anchorage Economic Development Corporation
550 West Seventh Avenue, Suite 1400
Anchorage, Alaska 99501

Dear Patty:

I am writing to you today to express our support for **HB 220 and SB 159**, legislation which would create a **New Business Incentive Program** for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing and high technology sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and know that this program will help level the playing field for talent in Alaskan communities, we can and have attracted some of the best talent from the lower 48. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

We will contact our legislators and encourage them to support this legislation.

Sincerely,

Frank Tucker
President

cc: Scott Thompson CEO,

Brian Chronister Marketing Director,

Rob Shipley Operations Manager

4-23-97 10:08 AM DOWL 006100012 00700000017

DOWL

ENGINEERS

A Division of DOWL, Incorporated

April 22, 1997
W.O. D00001

Senator Drue Pearce, Co-chair
716 West 4th Avenue, Suite 500
Anchorage, Alaska 99501-2133

Fax: 465-3872

Dear Senator:

I am writing to you today to express our support for **HB 220** and **SB 159**, legislation which would create a **New Business Incentive Program** for Alaska, currently under consideration by the state legislature. We believe that passage of this legislature is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

Very truly yours,
DOWL Engineers



Melvin R. Nichols, P.E.
President

cc: Anchorage Economic Development Corporation

D00001.Pearce.MRN.042297.kmp

April 17, 1996

To Whom It May Concern

From: Bill Stamps

Reference: House Bill No. 220

Please accept this as my support for House Bill No. 220.



Bill Stamps
Peak Oilfield Service Co.
P.O. Box 130
Kenai, AK. 99611
(907) 283 2022

Federal Express Corporation
Government Affairs
1000 Norcross Boulevard
Memphis, TN 38132

U.S. Air Mail 727
Memphis, TN 38194-1947

Telephone 901-945-5170
Fax 901-945-5172



April 16, 1997

Mr. Greg Wolf
Vice President
AEDC
550 West Seventh Avenue
Suite 1400
Anchorage, Alaska

Dear Mr. Wolf:

I am writing to encourage and applaud your efforts to enact economic incentive legislation in Alaska. As you know, FedEx has a significant presence in Anchorage with a large and expanding air operations and package sorting facility employing over 826 Alaska residents. Obviously, we are very supportive of any efforts to increase the level of economic growth in this market.

It is common knowledge that in today's global market every state is competing vigorously for increased economic activity with a variety of economic incentive programs. In fact, we have recently taken advantage of such programs in site selection decisions. It seems critical that Alaska be active in this process given its proximity to Asian markets with that market's enormous growth potential. I know the Governor is keenly aware of this necessity.

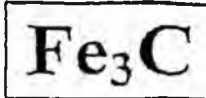
Again, we believe you are on the right track and wish you every success in your campaign to enact this legislation.

Sincerely,

Senior Representative
Government Affairs
901/395-5168

dew

VIA FAX



Alyeska Alloys, L.L.C.

Robert L. Braddock, Project Director

FAX TRANSMITTAL # 1 of 4 Pages

TO: Patti DeMarco

907-258-6645

FROM: Bob Braddock

303-984-2060 FAX 303-989-4989

January 31, 1997

COPY

Ms Debby Sedwick
Alaska Department of Commerce and
Economic Development
Frontier Building, Suite 700
3601 "C" Street
Anchorage, AK 99503

Dear Debby:

Introduction

With no clear understanding of how the Administration proposes to implement the Pioneer Incentives Program (the "Program"), but with a sense of the Administration's intent, Alyeska Alloy's ("Alyeska") has taken the presumptuous position of submitting a proposal for consideration.

Alyeska interprets the aims of the Program as:

- i. To capitalize on Alaska's strategic geographic location to create export markets for which Alaskan industry would hold competitive advantage;
- ii. To attract new enterprises to Alaska which will add diversity to the economy;
- iii. To induce new enterprises to locate in Alaska which create stable, high wage jobs; and
- iv. To increase the wealth created and retained in Alaska through the addition of value added processing to the existing natural resource extraction industries.

If Alyeska is accurate in our interpretation of the Program's goals, we are convinced that Alyeska's iron carbide project (the "Project") is an ideal candidate.

Although Alaska's prior growth has been created by government or large corporate sponsored projects, the State's present and future growth will be created by more nimble entrepreneurs of less substantial financial means (such as Alyeska). While the government and large corporations can, due to their enormous capital resources, press ahead with projects in spite of changes in the marketplace, entrepreneurs have no such luxury, for we are the creation of the marketplace, not its master. Alyeska's Project is driven by the marketplace. At present, the demand for iron carbide and other alternative iron units exceeds supply, but this situation will not last indefinitely. Should Alyeska's Project begin to stall, these potential customers will look elsewhere to meet their alternative iron needs. If so, the opportunity to establish this new industry in Alaska may be lost forever.

165 South Union Blvd., Suite 350
Lakewood, Colorado 80228-2211 - USA
Phone (303) 984-2060 - FAX (303) 989-4989

Ms Debbie Sedwick
Pioneer Incentives Program Proposal
Page 2
January 31, 1997

Having said all this, Alyeska remains confident that we are in the right place at the right time. Alyeska seeks a small assist from the Program, which would significantly increase the probability of success of the iron carbide Project and thereby benefit the State of Alaska.

Benefits to Alaskans

While much has been presented outlining the general features of the Project, Alyeska has not focused attention on the many sustaining benefits the Project provides to Alaska and its residents. These benefits include:

- During the two year construction phase, a major portion of the estimated \$190 million combined cost of the port and plant will be injected into the local economy through almost 350 construction jobs, local design, fabrication and erection services.
- Once operational, the Project will create 50 to 60 permanent, high paying plant jobs.
- An additional 20 to 30 jobs will be created in port operations, camp catering, air taxi and allied support services.
- This employment will be created in a region and locale which has a history of high unemployment.
- All but a select few of the total permanent jobs created will be filled by current Alaskan residents.
- The Project will consume almost \$20 million in natural gas annually, generating over \$1.5 million per year in royalties for the State.
- The Project will use Alaskan natural gas to increase the value of iron ore five fold.
- The Project will pay over \$1 million in property taxes annually to the Borough.
- A doubling or tripling of the Project is anticipated by 2003, creating more jobs, gas royalties and property taxes.
- The addition of a multi-use, deep water port on the west side of the Cook Inlet should help to unlock local coal and gravel projects which have languished for many years.
- The stable natural gas demand requirement of the Project should encourage the development of additional Cook Inlet natural gas reserves.
- The Project creates the stable manufacturing employment not typically found in the boom and bust cycles associated with natural resource development.

Project Status - Phase II

Alyeska has just begun the critical Phase II of development of the iron carbide Project. The following was accomplished during Phase I, recently completed at a cost of approximately \$500,000:

- The site was selected
- Natural gas and power supply agreements were negotiated
- Process license was obtained
- Engineering/Procurement/Construction contractor was selected
- Financial advisor was selected
- Environmental consultant was chosen.

The following Phase II activities should take approximately one year and require the expenditure of up to \$2 million:

- Preliminary plant and port designs will be developed
- All permits will be obtained
- A fixed price contract for construction of the plant will be negotiated
- Background site data will be obtained for the plant and port
- Bids will be received for the port construction
- Iron ore supply agreements will be negotiated
- Iron carbide purchase agreements will be negotiated
- Equity partners will be selected
- Lenders for the Project will be chosen.

Phase II will be completed upon closing of financing for the plant and port, and is anticipated to occur during the first quarter of 1998. Phase III, construction, will begin immediately following closing of financing.

The critical Phase II can be broken down into two major activities. During the first half of Phase II, virtually all of the third party agreements, preliminary designs and permit applications will be completed. The second half will be devoted to the documentation required to close on construction financing. Of the \$2 million anticipated to be expended during this Phase, fully \$1 million will be associated with creating the preliminary designs needed to apply for permits and the actual environmental permitting process. The remaining \$1 million will be used to complete documentation and legal fees associated with closing. It is in mitigating the costs associated with permitting that the greatest assist to the Project can be achieved, for it is in this area that the Project faces its last major obstacle to completion.

The preparation of permit applications for a project such as Alyeska's is no trivial matter. Much engineering and site evaluation work must be completed before a complete application can be filed. The relatively large amount of money required to accomplish this task occurs at a time in the Project development cycle where development funding is expensive, particularly because the uncertainty associated with permit issuance still hangs over the Project, a real "Catch 22." As virtually all Alaskan projects must contend with overcoming the lack of infrastructure and costs associated with constructing in a remote environment, the additional perceived risk associated with permitting can prove to be that one last straw which breaks the proverbial camel's back.

Alyeska has reached the critical point where development capital is being assembled to complete Phase II. Approximately one quarter of the required funding has been secured, with financial advisors assembling the remainder. It is through this critical period, the turning point, that the State of Alaska can provide a small, but critical financial boost, for it is at this stage that judicious application of funds yield oversized benefits.

Ms Debbie Sedwick
Pioneer Incentives Program Proposal
Page 4
January 31, 1997

Proposal for Program Involvement

Alyeska seeks to obtain \$300,000 from the Program to be applied towards the development of preliminary plant designs and environmental engineering required for permit applications. Alyeska will provide matching funds. The combination of this State and private funding will allow Alyeska to complete the critical permitting process, thus removing one of the last major obstacles to the development of the Project. Alyeska further proposes to refund the State's contribution to the Program at the time the Project closes on construction financing.

I hope we have made a compelling case for how the Program can materially assist in the development of the Project. Yes, there are risks, but we believe that the approach we have taken provides the State with a clear sense of the rewards generated by the successful completion of the Project.

Sincerely,

Robert L. Braddock

Robert L. Braddock
Project Director *RJB*

cc: Laurie Cunningham, ADCED
John McClellan, ASRC
Don Evans, Alyeska Holdings

Alaska State Legislature

During Interim:
716 West 4th Avenue, Suite 510
Anchorage, Alaska 99501-2133
(907) 258-8185
Fax (907) 258-0226



During Session:
State Capitol
Juneau, AK 99801-1182
(907) 465-4993
Fax (907) 465-3872

Senator Drue Pearce
District F

Memorandum

To: Senator Bert Sharp, Chair
Senate Finance Committee

From: Senator Drue Pearce
Senate Finance Committee

A handwritten signature in cursive script, reading "Drue Pearce", written over the printed name in the "From:" field.

Date: May 6th, 1997

Re: Bill Hearing Request

I respectfully request that you schedule Senate Bill 159. This bill would create the new business incentive program to encourage a diverse array of manufacturing and employment opportunities in Alaska.

Your consideration of this request is appreciated.



REGAL ALASKAN HOTEL

April 24, 1997

Senator Bert Sharp
119 N. Cushman St. #201
Fairbanks, AK 99701

Dear Senator Sharp;

I am writing to you today to express our support for **HB 220** and **SB 159**, legislation which would create a **New Business Incentive Program** for Alaska, currently under consideration by the state legislature. We believe that passage of this legislation is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

Sincerely,

Max J. Lowe, CHA
General Manager

MJL:ta

A REGAL INTERNATIONAL HOTEL

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UNITED BROTHERHOOD OF
Carpenters and Joiners of America

LOCAL UNION NO. 1281

407 DENALI
SUITE 100
PHONE 278-2093
ANCHORAGE, ALASKA 99501
Fax : 276-7962



April 23, 1997

Sen. Bert Sharp
FAX : 1-907-465-2070

Dear Sen. Sharp,

As long time supporters of economic development, we at Carpenters Local 1281 urge you to support S.B. 159.

We believe this is a major step towards expanding Alaska's economic base and employment opportunities.

Sincerely,

Royce Rock

RR/wh



April 22, 1997
W.O. D00001

Senator Bert Sharp, Co-chair
119 N. Cushman, Suite 201
Fairbanks, Alaska 99701

Fax: 465-2070

Dear Senator:

I am writing to you today to express our support for HB 220 and SB 159, legislation which would create a **New Business Incentive Program** for Alaska, currently under consideration by the state legislature. We believe that passage of this legislature is critical if Alaska is to expand its economic base and employment opportunities with relatively high paying jobs in the manufacturing sector.

We understand the competitive nature of attracting manufacturing and other value-added enterprises and believe that this program will help level the playing field for Alaskan communities. Most other states already have incentive programs on their books and Alaska needs this tool if we are to attract new business investment to our state and, in the process, develop a sustainable economic base that generates high quality, year-round jobs for our citizens.

Very truly yours,
DOWL Engineers

A handwritten signature in cursive script, appearing to read 'Melvin R. Nichols'.

Melvin R. Nichols, P.E.
President

cc: State of Alaska Department of Environmental Conservation

D00001.Sharp.MRN.042297.kmp

SB

160

HFIN

FILE

FISCAL NOTE

STATE OF ALASKA
1998 LEGISLATIVE SESSION

No. 1
 Bill Version: CS SB 160(L&C)
 (S) Publish Date: 4/13/98

Revision Date: _____
 Title: An Act relating to radiological equipment used in
the practice of dentistry.
 Sponsor: Senator Taylor by request
 Requestor: Senate Labor & Commerce

Department: Commerce and Economic Development
 BRU: Occupational Licensing
 Component: Operations

COMPONENT SERIAL NO. 1844

Expenditures/Revenues

(Thousands of Dollars)

OPERATING EXPENDITURES	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04
PERSONAL SERVICES	20.3	20.3	10.1	10.1	10.1	10.1
TRAVEL	0.0	0.0	0.0	0.0	0.0	0.0
CONTRACTUAL	3.0	3.0	1.5	1.5	1.5	1.5
SUPPLIES	1.0	1.0	1.0	1.0	1.0	1.0
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	24.3	24.3	12.6	12.6	12.6	12.6

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES	48.6	0.0	25.2	0.0	25.2	0.0
---------------------------	-------------	------------	-------------	------------	-------------	------------

FUND SOURCE

(Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 General Fund						
1005 GF/Program Receipts	24.3	24.3	12.6	12.6	12.6	12.6
1037 GF/Mental Health						
Other (Specify Type)						
TOTAL	24.3	24.3	12.6	12.6	12.6	12.6

Estimate of any current year (FY 98) cost: \$ 0.0

POSITIONS

FULL-TIME						
PART-TIME	1	1	1	1	1	1
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

CSSB 160(L&C) transfers regulation of x-ray equipment in a dentist office from the Division of Public Health, Department of Health and Social Services to the Board of Dental Examiners in the Division of Occupational Licensing, Department of Commerce and Economic Development. The board currently regulates level of entry into the profession and the practice of dentistry. By assuming responsibilities in the bill, new costs will be incurred through establishing necessary regulations, registering equipment and requiring periodic inspection of radiological equipment. An explanation of the costs are explained on the attached page.

Prepared by: Jennifer Strickler, Administrative Manager
 Division: Occupational Licensing
 Approved by Commissioner: Deborah B. Sedwick
 Agency: Commerce and Economic Development

Phone: 465-2144
 Date: 4/2/98
 Date: 4/2/98

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FISCAL NOTE

STATE OF ALASKA
1998 LEGISLATIVE SESSION

BILL NO.: CSSB 160(L&C)

#1

ANALYSIS: (Continued)

DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT FISCAL NOTE CALCULATIONS

Personal Services

Occupational Licensing Examiner I position, Range 12, PPT, GGU 20.3

This half-time position will be responsible to monitor and maintain inspection records of dental x-ray equipment and collect applicable fees. Additionally, this position will assist the board in preparing regulations regarding dental radiological equipment. It is anticipated that a half-time position will only be necessary for the first two years. By the third year and thereafter, only a quarter time of the position is anticipated to be necessary in providing support to these tasks.

Contractual Services

3.0

The contractual services will fund expenses associated with adoption of new regulations concerning x-ray equipment in dental offices, including public notices, postage, printing of the regulations and registration forms, and regulation hearings via teleconferencing. This expense is reduced after the first two-years assuming the regulations will be in place.

Supplies

Funding provides daily desk top and other operating supplies. 1.0

TOTAL: \$24.3

FISCAL NOTE

STATE OF ALASKA
1998 LEGISLATIVE SESSION

No. 2
 Bill Version: CSSB 160 (LEC)
 (S) Publish Date: 4-14-98

Revision Date: 04/03/98
 Title: Testing radiological equipment

Dept. Affected: Health and Social Services

BRU: State Health Services

Component: Laboratory Services

COMPONENT SERIAL NO. 291

Sponsor: Senator Taylor

See also (SN#): _____

Requestor: Senate L&C

Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY99	FY00	FY01	FY02	FY03	FY04
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGES IN REVENUES ()						
--------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (please specify)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of any current year (FY98) cost: 50.0

ANALYSIS: (Attach a separate page if necessary)

With the proposed elimination of the on site inspection and certification of dental radiologic equipment, the Division will generate the revenue for supporting the existing Radiological Health Program by assuring responsibility for the Federally required inspection of mammography equipment.

4/3/98
 Prepared by: Peter M. Nakamura, MD, MPH *PM* Phone: (907)465-3090
 Division: Public Health Date: 04/03/98
 Approved by Commissioner: Karen Perdue, Commissioner Date: 4/2/98
 Agency: Department of Health & Social Services

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adopted
NO/OBJ

0-LS0825Q.2'
Lauterbach
5/7/98

AMENDMENT 2

OFFERED IN THE HOUSE

TO: CSSB 160(L&C)

- 1 Page 4, following line 20:
- 2 Insert a new subsection to read:
- 3 "(c) Notwithstanding other provisions of this Act, a person is not considered to be
- 4 in violation of AS 08.36.075(c) or (d), added by sec. 1 of this Act, unless the violation occurs
- 5 more than one year after the effective date of regulations adopted by the Board of Dental
- 6 Examiners to implement AS 08.36.075, added by sec. 1 of this Act."

Conceptual Amendment 2

Page 4 following line 20:

- (C) Notwithstanding other provisions of this Act, dental radiologic equipment which has been registered under AS 08.36.075 (c) before January 1, 1999 shall be issued an initial inspection seal valid until July 1, 1999 after payment of the fee

Conceptual so legal
can improve wording

HOUSE COMMITTEE REPORT

(11)

Date Referred to Committee: May 5, 1998

FURTHER REFERRALS:

Date of Committee Action: 5/7/98

The FINANCE Committee considered:

CSSB 160(L&C)

CS FOR SENATE BILL NO. 160(L&C)

DENTAL RADIOLOGICAL EQUIPMENT

"An Act relating to radiological equipment used in the practice of dentistry."

recommends it be replaced with the following committee substitute HCSCS SB 160(FIN) the same title a new title

additional referral to _____ Committee

attached amendment(s)

ADOPTS: _____ Letter of Intent

ATTACHES NEW FISCAL NOTE(s): (Dept) _____

APPROVES PREVIOUS: (Dept/Date) _____

fiscal note(s) _____

fiscal note(s) DCED 4/3/98

zero fiscal note(s) _____

zero fiscal note(s) DHSS 4/14/98

SIGNING WITH RECOMMENDATIONS		DP	DNP	NR	AM
<i>Gene Therriault</i>	Therriault			X	
<i>Edson Mulder</i>	Mulder			X	
<i>Ferry Martin</i>	Martin			X	
<i>Vic Kohring</i>	Kohring		X		
<i>John Davis</i>	J. Davis		X		
<i>Ben Grussendorf</i>	Grussendorf		X		
<i>Charles E. Moses</i>	Moses			X	
<i>John G. Kelly</i>	G. Davis			X	
<i>John G. Kelly</i>	Kelly	✓			

CHAIR'S SIGNATURE

Gene Therriault
Therriault

0-I.S0825Q.1
Lauterbach
5/1/98

AMENDMENT |

OFFERED IN THE HOUSE

TO: CSSB 160(L&C)

1 Page 1, following line 8:

2 Insert new paragraphs to read:

3 "(1) satisfactorily completed a United States Department of Defense
4 biomedical equipment technician's course;

5 (2) a biomedical equipment technician certificate issued by the
6 International Certification Commission for Clinical Engineers and Biomedical
7 Technology;"

8 Renumber the following paragraphs accordingly.

adopted N/0

AMENDMENT |

OFFERED IN THE HOUSE

TO: CSSB 160 (L&C)

Page 1, line 9 through 15 and page 2, lines 1 through 2:

Delete all language

Insert:

“qualifications equivalent with the qualifications established in Applicant Profile and Job Qualification Summary for a state Radiological Health Specialist I on the effective date of this Act.”

Kate Coleman
923 D Street
Juneau, Alaska
99801 USA

EXPERIENCE

Alaska Radiological Health Director

- register and inspect x-ray equipment and accelerator produced radioactive materials
- investigate and respond to incidents involving possible over exposure to radiation
- maintain emergency response capability within the state and internationally
- represent the state to the Conference of Radiation Control Program Directors and federal agencies
- develop and manage grants and contracts
- provide information to government entities, industry and the citizens on the health effects of radiation exposure
- revise regulations

Washington State Radiological Health Manager

- supervise statewide radiological health section
- administer quality assurance and training program
- direct the radon program working with federal, state and local agencies to educate the public in the detection and mitigation
- serve on a national and international policy development committee

Washington State Emergency Response Coordinator

- coordinate planning activities between counties, the utility, and multiple state agencies
- write procedures
- conduct training and exercises
- represent the region on a national committee to develop training and communication
- coordinate regional conferences

Washington State Technical Support Program Manager

- coordinate office-wide activities such as audits, regulation revisions and contracts
- liaison with federal agencies
- develop and implement the radiation safety program and technical library

Washington State X-ray Compliance Inspector and Manager

- direct and supervise professional staff engaged in the inspection of x-ray facilities

- field inspector of x-ray facilities
- generate compliance action and evaluate corrective actions
- conduct federal contract on computer tomography

New Mexico State Uranium Mill Licensor

- develop guidelines and policies for licensing of uranium processes
- review license applications for new uranium processes
- provide public information services via press release, brochures and television shows

Washington State University Engineering Extension Graduate Assistant

- coordinate engineering short courses by developing program format, obtaining speakers, securing funding and advertising
- key word indexing

US Environmental Protection Agency Information Specialist Intern

- prepare congressional correspondence for congressman and their constituents
- organize a public information center to categorize and distribute all incoming documents

EDUCATION

Master of Science, Environmental Science, Washington State University, 1977

Bachelor of Science, Broadcast Journalism, University of Idaho, 1975

Alaska State Legislature

Chairman,
Judiciary Committee

Member,
Resources Committee
Rules Committee
Committee on Committees



State Capitol
Juneau, Alaska 99801-1182
(907) 465-3873
Fax: (907) 465-3922

50 Front Street, #203
Ketchikan, Alaska 99901
(907) 225-8088
Fax: (907) 225-0713

Senator Robin L. Taylor

Senate Majority Leader

SPONSOR STATEMENT

SENATE BILL 160

Senate Bill 160 changes the procedures for inspecting and registering dental radiological equipment. Current procedures are erratic and inutile. On-site inspections by the Department of Health and Social Services are unnecessary because the incidence of x-ray overexposure is so insignificant as to be non-existent. Some states do not even have a requirement for registration or inspection of dental radiological equipment.

SB 160 will transfer the registration of dental radiological equipment to the Board of Dentistry. Inspection activities will be done by the private sector. The owner or lessee of the equipment will be responsible for providing documentation to the Board that the equipment is registered and has been inspected within the past five years by an individual who meets the criteria established by the Board.

Inspections and needed adjustments are routinely performed by trained dental supply company technicians who are far more qualified to perform such inspections than representatives from the Department of Health and Social Services. SB160 will establish the criteria required for technicians who will be acceptable inspectors under this legislation.

Under SB 160, if a dentist or their employees use equipment that is not registered or equipment that does not have a current inspection sticker, they will be subject to a civil penalty in the form of a fine, levied by the Board, not to exceed \$5000 for each violation.

District A:

Hyder • Ketchikan • Kupreanof • Meyers Chuck • Petersburg • Saxman • Sitka • Wrangell

Alaska State Legislature

Chairman,
Judiciary Committee

Member,
Resources Committee
Rules Committee
Committee on Committees



State Capitol
Juneau, Alaska 99801-1182
(907) 465-3873
Fax: (907) 465-3922

50 Front Street, #20
Ketchikan, Alaska 99901
(907) 225-8088
Fax: (907) 225-0713

Senator Robin L. Taylor

Senate Majority Leader

TO: Rep. Gene Therriault, Co-Chair
House Finance Committee

FROM: Senator Robin Taylor *RLT*

DATE: May 6, 1998

RE: SB 160 "Relating to dental radiological equipment."

SB 160 was introduced to address an ongoing problem relating to the inspection of dental radiological equipment. Inspections have been under the Department of Health and Social Services Radiological Health Division. According to the dental community, some dentists have gone as long as ten years between inspections by the department.

Senate Bill 160 will put in place a more meaningful inspection program that will both serve the dental community and the public more effectively and efficiently. There is one amendment I would like added to the bill that deals with the inspectors. We inadvertently omitted two groups of qualified persons that routinely perform these types of inspections. A copy of the amendment is attached.

SB 160 is revenue neutral as the costs of administering the program will be paid for by the owners or lessees of the equipment.

Thank you in advance for your consideration.

District A:

Hyder • Ketchikan • Kupreanof • Meyers Chuck • Petersburg • Saxman • Sitka • Wrangell



Article 4

Continuing Education

Post-it® Fax Note 7671

Date	3-10	# of pages	18
To	M. HELMRECHT	From	J. MALONE
Co/Dept	ALASKA	Co.	ADA 1-800-
Phone #		Phone #	621-8099
Fax #	9074524775	Fax #	3124462536

X-Radiation: Potential Risks and Dose-Reduction Mechanisms

*Kenneth Abramovitch, DDS, MS
Associate Professor*

*Lisa P. Thomas, RDH, DDS
Clinical Assistant Professor*

*Section of Radiology
Department of Oral Diagnostic
Sciences
Dental Branch
University of Texas Health Science
Center at Houston
Houston, Texas*

Learning Objectives

After reading this article the reader should be able to:

- define and list the maximum permissible dose for occupationally and nonoccupationally exposed individuals.
- list four sources of naturally occurring background radiation.
- discuss the dose and risk considerations for each critical organ with regard to dental x-radiation exposures.
- list methods available to reduce dental x-radiation to the patient.
- describe how collimation affects patient exposure to dental x-radiation.

Table 1—Annual Maximum Permissible Radiation Doses¹

Occupationally exposed (includes dental workers who take x-rays)	5,000 mRem (50 mSv)
Nonoccupationally exposed (the general public)	500 mRem (5 mSv)

Nearly a century after its discovery in 1895, x-radiation remains a controversial diagnostic modality. It has been associated with several risks and side effects, some of which are difficult to substantiate. Despite the controversy, radiography is a reliable and convenient diagnostic aid for the dental profession. This article will discuss relative risks associated with dental x-rays and the mechanisms available to reduce those risks.

Radiobiologic Risks

Biologic Risks and the Maximum Permissible Dose

X-radiation is an ionizing form of electromagnetic radiation. When absorbed in human tissues,

energy levels of this magnitude alter the electrostatic charges and molecular bonding of complex structural and regulatory proteins. Such changes can affect the basic conformation of cytoplasmic and nuclear organelles. These alterations increase the risk of permanent, demonstrable damage to the tissues by slowing, accelerating, altering, or stopping their normal biologic function.

Because of these risks, the International Commission of Radiological Protection (ICRP) has defined a safety limit for tissue exposure to

ionizing radiation below which the risks are considered minimal. The safety limit is referred to as the maximum permissible dose (MPD). More specifically, this dose can be summarized as the amount of radiation received chronically or acutely over a lifetime, which, in light of present knowledge, is not expected to cause appreciable body injury.¹ The annual MPD values are listed in Table 1.

The MPDs for individuals working with radiation (ie, occupational exposure, which includes dental personnel) is 10 times higher than

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for the general population (ie, non-occupational exposure). Occupationally exposed personnel are assumed to be willing to accept a higher risk of radiation exposure for the lifestyle attained by their employment. Yet, if all radiation workers were to realize this tenfold increase in radiation exposure, it is not expected to affect the mutation rate of the whole population for any pathologic entity.

The ICRP has a lower MPD for occupationally exposed women who are pregnant. They have the same MPD as the lay population. This is to protect the fetus, which should not be considered occupationally exposed.

The ICRP has recently suggested lowering the MPD values to 200 mRem(2mSv)/y.³ This limit is presently being reviewed by several organizations.

Environmental and Diagnostic Radiation

MPD values were established because people are regularly exposed to naturally occurring environmental sources of ionizing radiation (Table 2). Consequently, biologic systems are constantly exposed to these sources of radiation, which must be considered within the range of tolerance. Radon and

its decay products are the major sources of naturally occurring background radiation. Note: the average whole-body exposure limits are below the MPD values for occupational and nonoccupational individuals.

Medical and dental diagnostic x-radiation exposures can also contribute to the annual whole-body exposures. However, these values are not considered in MPD calculations because diagnostic x-rays are assumed to be beneficial to the life span of an individual. Note the relatively low dose equivalent for diagnostic radiation compared to the naturally occurring sources of background radiation. The sum of all of these procedures remains below MPD values.

Critical Organs

Critical organs affected by dental x-radiation are defined as the tissues that, by virtue of their radi-

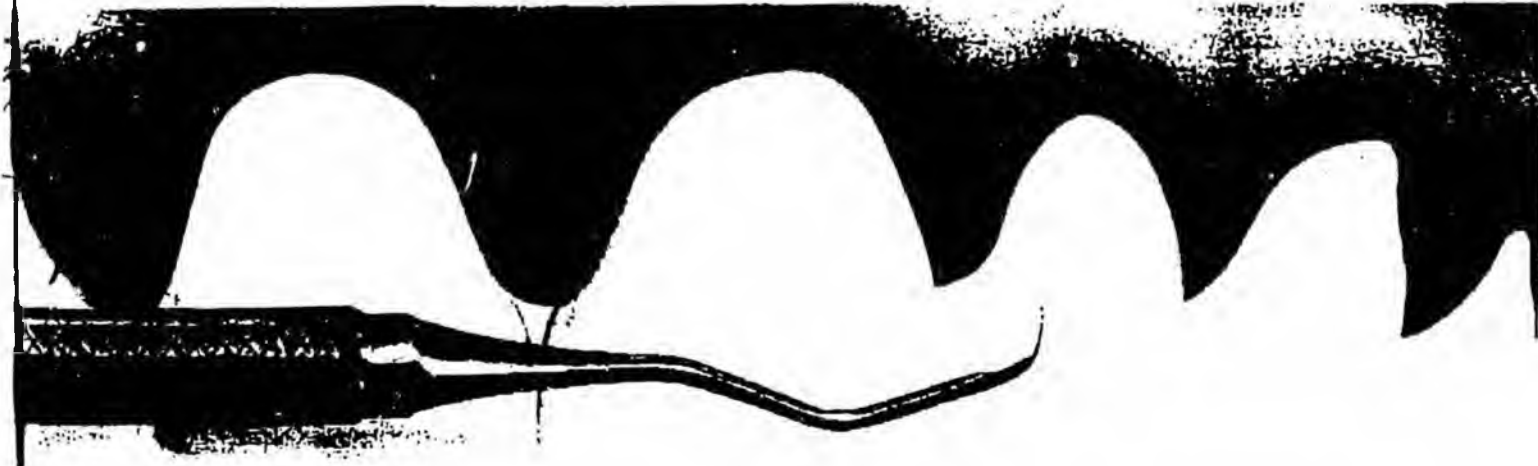
osensitivity or proximity to the dental beam, are possibly vulnerable to pathologic or life-threatening sequelae.³ These critical organs and their potential risks are listed

Table 2—Average Individual Annual Effective Dose Rate of Ionizing Radiations¹

Natural	mRem	mSv
Radon	200	2.0
Cosmic	27	0.27
Terrestrial	28	0.28
Internal	39	0.39
Artificial		
Medical		
X-ray diagnosis	39	0.39
Nuclear medicine	14	0.14
Consumer products	10	0.1

Table 3—Critical Organs and Their Potential Risks

Organ	Risk
Skin	Carcinoma
Bone	Leukemia
Gonads	Mutation
Eye lens	Cataracts
Thyroid gland	Carcinoma
Embryo/Fetus	Congenital defects



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in Table 3. The dose and risk considerations for each of the critical organs are discussed separately.

Skin

Dental exposures for a full mouth series of x-rays vary considerably, depending on the technique used. The type of film speed, kilovoltage, filtration, collimation, etc, all affect the amount of exposure. Several dosimetry studies have shown that a trend for decreasing exposures is evident.⁴ According to current ICRP data, a full mouth x-ray series using 70 kV, D-speed film, and round collimation yields an average effective dose of 840 mRems (8.4 mSv).⁵ A full mouth x-ray series procedure taken with D-speed film, round collimation, 80 to 90 kV, and a 16-inch long-cone focal distance, has a maximum cumulative skin dose at any one site of approximately 1,250 mRem (12.5 mSv).⁶ The approximate skin dose from the intraoral exposure of one diagnostic-quality radiographic image with D-speed film is 200 mRems (2 mSv).⁶ Increased risk to the earliest type of skin cancer is not evident below dose levels of 25,000 mRems (250 mSv).⁶ Keeping the proper risk perspective (according to these numbers), carcinoma induction from dental radiographic exposures that are approximately 1% to 5% of acute threshold doses seems very low.

Bone Marrow

Leukemia induction is the major risk associated with x-ray exposures of bone marrow. Approximately 5% of the body's bone marrow gets exposed from dental radiographic procedures. The bone marrow dosage ranges from 1 to 3 mRems (.01 to .03 mSv) for 1 exposure and 9 to 14 mRems (.09 to .14 mSv) for a full mouth x-ray series.⁶ Whole-body exposures of 5,000 mRems (50 mSv) are reported to increase the risk of leuke-

Table 4—Quality Assurance Measures

- x-ray equipment testing and maintenance
- good radiographic technique (ie, film placement, reversed film, etc)
- using film holders
- proper exposure parameters
- proper film handling before and after exposure
- proper time/temperature film processing
- darkroom maintenance to prevent film fogging (ie, checking for light leaks, storing film at proper temperature, etc)

mia induction. Linus⁷ showed no significant increase in leukemia risk from long-term (chronic) fractionated doses of up to 30,000 mRems (300 mSv).

Gonads

Dental x-ray exposure to genetic tissues in the gonads results primarily from secondary scatter radiation off the skull. The gonadal scatter exposure from a standard full mouth x-ray series is about 0.5 mRems (0.005 mSv).⁶ This dose can be reduced by 95% by using a lead apron. The average daily gonadal radiation exposure from natural background radiation is 0.15 to 0.3 mRems (.0015 to .003 mSv).⁶ The full mouth x-ray series gonad exposure with lead apron protection is about seven times less than the average daily gonadal exposure of the US population from background radiation. At higher elevations (ie, Denver, Colo), these doses double because of the earth's proximity to the cosmic sources of background radiation.⁹ Radiation doses of this low magnitude have very little effect on the genetically significant dose of the US population, ie, the dose of radiation required to affect genetic mutation rates.

Eye Lens

Cataract formation is very debilitating and can eventually cause blindness. Exposures of greater than 200,000 mRems (2,000 mSv) are required to induce cataract formation.⁸ The standard full mouth x-ray series yields a lens dosage of

60 mRems (0.6 mSv). Again, it seems highly unlikely that dental exposures, which are 0.0003% of the threshold, contribute to this problem. They do contribute to a cumulative dose for cataract formation. However, fractionating the dose to this degree decreases the harmful effect.⁹

Thyroid

Radiation doses of 5,000 to 7,000 mRems (50 to 70 mSv) are required for thyroid carcinoma induction.⁴ The thyroid exposure during a standard full mouth x-ray series is about 23 mRems (0.23 mSv). Again, carcinoma induction from a dental x-ray beam is very unlikely. It is also significant to note that of all the neoplasias affecting humans, thyroid cancer has only a 10% incidence of mortality.¹⁰

Harmful effects to the thyroid gland in children may be more significant because growing children have more active metabolic rates. The use of the lead thyroid collar diminishes the exposure to a negligible amount.

Embryo/Fetus

Dental x-ray exposure of pregnant patients is not recommended except in an acute emergency where the benefit of the diagnostic information far exceeds the radiation risk to the fetus. The National Council of Radiation Protection and Measurements (NCRP) has reported that the production of congenital defects is negligible from gonadal exposures of 5,000 mRems

(50 μ Sv) or less.¹¹ Danforth and Gibbs¹² calculation of relative risks has shown that the chances of having a first-generation defect from a dental x-ray examination is 9 in 1 billion (ie, 1,000,000, 9% or 9.0×10^{-7} %).

The ALARA Principle

It is evident from the preceding discussion that risks of long-term biologic damage from dental x-ray exposures are extremely low.

However, it remains very difficult to scientifically document the long-term (30 to 50 years) cumulative effects of low-dose chronic exposure. Recently, it was reported that dental x-ray exposures may be causing higher incidences of salivary gland and brain tumors.^{13,14} This risk estimate was based on several assumptions and estimations of the number of dental radiation exposures and the type of equipment used on the patients in their past dental treatment, all of which are difficult to prove. Consequently, a direct cause-effect relationship between previous dental radiation exposure and future cancer could not be made.

Regardless of the accuracy of these risk associations, radiobiologic damage does occur from exposure to x-radiation, so the ALARA (as low as reasonably

achievable) principle¹⁵ should be followed. This principle recognizes that knowledge of the cumulative long-term effects of exposure to low levels of diagnostic radiation may be minimal, but it still remains a risk entity. Scientific data is not available that can demonstrate a threshold radiation dose below which no harmful effect will ever occur. It is therefore prudent that we adhere to the ALARA principle, whereby all diagnostic radiographic procedures use the maximum amount of dose reduction possible. This would minimize the potential risks and any adverse sequelae to diagnostic radiation.

Various techniques are available to reduce radiation exposure from dental radiography. Incorporating these techniques into dental practices will have a profound effect on patient dose reduction.

Techniques for Reducing Radiation Exposure

The NCRP is a private organization composed of experts in various aspects of radiation. They operate under a congressional charter as an advisory group that makes recommendations governing the use of x-radiation. It is the responsibility of each individual state to make its own rules and regulations

regarding radiation exposure based on these recommendations. The Texas Radiation Control Act, enforced by the Texas Department of Health, is based on many of the NCRP recommendations. Some of these regulations will be alluded to in the following discussion.

Beam Collimation

Based on an NCRP recommendation, it is mandated in most states that the dental x-ray beam be no larger than 7.0 cm in diameter (2.75 inches) at the patient's skin surface. Most dental units are sold with a 2.75-inch, lead-lined cylindrical cone (ie, BID or beam indicating device) collimation. However, smaller rectangular-shaped collimators are also available that further restrict the size of the beam. This kind of enhanced collimation can reduce the scatter radiation by 45% to 95%, depending on the site in question.⁴ Scatter radiation is so dramatically diminished that the gonadal scatter from a 20-exposure full mouth x-ray series with rectangular collimation is the same as the scatter from 4 bite-wing exposures with the size 2.75-inch-diameter, round collimation.⁴ An earlier study¹⁶ showed that rectangular collimation reduced the bone marrow dose by 60%.



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Wood et al¹⁷ went so far as to recommend that the scatter to the gonads is so minimal with rectangular collimation that a lead apron is not needed when rectangular collimators are used. Using the smaller-size beam from rectangular collimation may be more technically demanding, but Parks¹⁸ concluded that radiography with rectangular collimation is no more difficult a technical skill for novice dental hygiene students to learn than dental radiography with round collimation.

Film Speed

E-speed film is the fastest, most sensitive, commercially available film speed. This film speed reduces dental radiation exposures by up to 50% when compared with D-speed film.¹⁹ These are the only two film speeds available commercially for intraoral radiography. Exposure parameters for diagnostic dental films deliver a skin entrance dosage of 100 to 200 mRms (1 to 2 mSv).⁴ The suggested exposure limit set by National Evaluation of X-Ray Trends (NEXT) is 400 mRms (4 mSv), which is a very lenient limit. Although images on E-speed film have less contrast than regular D-speed film images, there is no loss of diagnostic detail for caries and periodontal evaluations and endodontic procedures.^{20,21}

The American Academy of Oral and Maxillofacial Radiology strongly recommends that the dental profession use E-speed instead of the slower D-speed film. E-speed film reduces exposure to both the patient and operator by reducing the number of retakes necessary as a result of patient or machine movement.²¹

Constant Potential X-Ray Generators

In the last 10 years, several new dental units have become available that produce x-radiation with a

steadier stream of higher kilovoltage x-ray photons. Because the x-ray beam from this machine has a greater proportion of high-energy photons, shorter exposure cycles can be used. In addition, fewer of the lower kilovoltage (ie, lower energy) x-ray photons are produced. The lower energy x-ray photons are those in the beam that are too low in energy to contribute to the x-ray image, but are of sufficient energy to contribute to the patient's radiation dose. Constant potential dental x-ray machines can reduce radiation dose by up to 30%. Intrex²², Castle²³ HDX²³, and Heliodent²⁴ MD are examples of commercially available machines with this capacity. The only drawback to these units is that they are more expensive, costing approximately twice the amount of a regular dental unit. Fortunately, the price is not a major deterrent for many dental offices.

High-Energy Beams

Commercially available dental units range in their kilovoltage capacity from 60 to 100 kV. Machines with higher range kilovoltage potentials, ie, 80 to 90 kilovoltage, have larger generators with clinically larger tube heads. These larger units also have a higher purchase price. However, higher kilovoltage beams with the appropriate filtration and increased focal distances (16 inches) reduce the radiation exposure to the patient.²¹ Higher kilovoltage beams produce long scale contrast images with many shades of gray that demonstrate more information on tissue density. This is extremely helpful for the early detection of caries and crestal bone changes in periodontal disease. Higher kilovoltage

beams are also better for producing images for skull cephalometry.

Filtration

Filtration removes low-energy x-ray photons from the x-ray beam. The low energy photons do not contribute to the image but still affect the radiation dose. Radiographic units are manufactured with built-in filtration, which is dependent on the tube voltage. The greater the tube voltage the more the filtration. Adding extra filters made with rare earth metals to the x-ray unit has been shown to reduce radiation from 25% to 71%.²⁵ Added filtration with niobium decreases radiation exposure by up to 47%.²⁶ In each study, diagnostic images were produced with minimal loss of image information. However, the benefits of added filtration have yet to be determined because use of added filtration also increases the exposure time, and hence, the tube load.

Lead Aprons

Lead aprons are generally required for all patients exposed to dental radiation. For example, it is a regulation of the Texas State Board of Dental Examiners (Chapter 113.2) that all patients wear a lead apron during direct exposure to dental radiation. Scatter radiation to the thoracic, abdominal, and gonadal areas is reduced by up to 94% with a lead apron.²⁷ The apron also has a positive psychological or comforting effect on the patient.

Thyroid collars similarly reduce radiation exposure to the thyroid gland. These collars are highly recommended, provided they do not interfere with the image. This precludes their use during panoramic exposures. Thyroid collars reduce dental x-ray exposure to the thyroid gland up to 94%.^{28,29}

Quality Assurance

A quality-assurance program is also needed to reduce radiation ex-

²² KEYSTONE X-RAY, Inc, Dental Div, Neptune, NJ 07753

²³ MDT Diagnostic Co, North Charleston, SC 29411

²⁴ Pelton & Crane, A Siemens Co, Charlotte, NC 28224

Feature

X Rays: What is the Risk?

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Introduction

If it hasn't happened already, it will. It's simply a matter of time before one of your patients will ask: "How much radiation is involved with these x rays?" or "Aren't these x rays harmful?" or, "Are you using the latest methods to reduce my exposure to x rays?" Dentists and their office personnel are continually asked questions pertaining to the use of x rays. Your response, or that of your staff, may have a profound effect on your practice. To respond with a clear and concise answer will serve to increase their confidence in you as a practitioner. On the other hand, to simply ignore these questions, or treat them lightly, may create the impression of a lack of concern for their overall well being. This may not only result in a loss of the patient's confidence in your ability, but also the loss of a patient.

There is no question that ionizing radiation in general, and x rays in particular, have a potential harmful effect on humans. It is known beyond a shadow of doubt that if exposed to sufficient quantities of radiation, humans will experience an increased risk of nonfatal and fatal cancer, hereditary disease, or loss of life expectancy. It is the purpose of this article to provide you with the information to put these risks into perspective, allowing you to use x rays when needed for diagnosis.



Frederiksen

Radiation in our Environment

No matter who we are or where we live, we are subjected to quantities of radiation exposure from a variety of sources. Because not all of these sources are responsible for exposure of the whole body, the quantities of radiation they deliver are expressed in terms of effective dose. This unit, effective dose, is calculated from both whole- and partial-body exposures. It is the dose that may be expected to result in the same total risk of harm as that from a uniform whole-body exposure of the same magnitude. Effective dose is then a useful term that allows comparisons to be made between sources of radiation exposure which expose only portions of the body, such as radiographic techniques, and whole-body exposures, including those resulting from natural or background radiation. The unit of effective dose is the sievert (Sv). A millisievert (mSv) is one thousandth of a sievert.

Estimates of the radiation

exposure of all persons living in the United States resulting from all sources have been made. By totaling these individual exposures and then dividing by the population, an average dose has been determined (1) (Table 1). In this manner, it has been estimated that an average individual living in an average location in the United States receives an effective dose of 3.6 mSv of radiation every year. Of this total, over 80 per cent (3.0 mSv) is the result of natural or background radiation. This means that every day of a person's life, they receive 0.008 mSv of radiation exposure from natural sources or sources over which they have no control. We are all concerned with the human contribution to radiation exposure; however, it is estimated that in total, this amounts to only 0.6 mSv. Including everything from the medical uses of radiation to consumer products (including some smoke alarms, airport inspection systems, and dental porcelain) to nuclear reactors, this category subjects an average individual to less than one third the radiation delivered by naturally occurring radon (2.0 mSv).

Dental x-ray examinations are estimated to be responsible for an average annual effective dose of less than 0.01 mSv (2). This figure, equal to only 2.5 percent of medical x-ray diagnosis and 0.3 percent of the total average annual effective dose, is surprising when it is considered that dentists own over half of the x-ray machines in this country and perform an estimated 105 million examina-

X rays: What is the Risk?

tions per year using 380 million pieces of film. In spite of these figures, the use of x rays in dentistry is not considered as a source of exposure and for that reason not listed in Table 1. The exclusion of dental x rays as a source may have resulted in part from the introduction of the term "negligible individual dose" (3). Formulated by the National Council on Radiation Protection and Measurements, a private, nonprofit organization whose findings are made into law by most states, the negligible individual dose is that quantity of radiation that can be dismissed. Currently, this dose is established at 0.01 mSv per year, a quantity equal to that of the estimated average annual effective dose resulting from dental x-ray examinations.

Exposure From Dental X Rays Occupational Exposure.

Within twenty-five years of Roentgen's discovery of x rays, it had been estimated that over 100 early pioneers in radiology had died of cancer caused by their exposure to radiation (2). This finding, among others, has resulted in the establishment of limits on the amount of radiation a person may be exposed to in the course of their occupation. The Texas Regulations for the Control of Radiation state that each registrant shall control the occupational dose to individual adults such that it will not exceed an annual effective dose of 0.05 Sv (4). This limit has been set in an attempt to ensure that the lifetime fatal cancer risk as a result of exposure to x rays will be similar to the risk of accidental death in "safe" industries where there is no exposure to radiation. Because even this dose carries with it some risk, all individuals are further urged to follow the principles of ALARA (As Low As

Reasonably Achievable) which recognize that no matter how small the dose, there may be some risk of effect. The fact that the dental profession follows these principles may be illustrated by the fact that most recent data show that the annual effective dose of those occupationally exposed in the operation of dental x-ray equipment was 0.2 mSv (2). This figure is only 1/250 the allowable limit. This finding is perhaps one of the reasons that the State of Texas no longer requires radiation monitoring of dental employees.

Patient Dose. The dose delivered to the patient as a result of an x-ray examination is dependent in part on the specific area exposed, the size of the area exposed, and on the type of image receptor used. The latter may be either intraoral direct-exposure film, extraoral screen-type film, or some form of solid state detector as used in digital radiography, including computed tomography. Table 2 (5,6,7,8) lists the effective dose patients may receive by undergoing both some common and more specialized dental and medical radiographic examinations. By comparison of figures in the table, a lower GI series (barium enema) can be seen to deliver 27 times more radiation to the patient than a full-mouth series of oral radiographs and a radiograph of the chest about three times more than a panoramic film.

Risk

Risk is the chance or possibility of loss or injury. The probability of loss or injury may be considered in both relative and absolute terms. Relative risk can be illustrated by comparing doses received as a result of exposure to x rays for diagnostic purposes with natural or background

radiation. Table 2 lists the days of equivalent natural exposure. It can be seen from these data that a panoramic radiograph delivers a dose to the patient equal to 3.3 days of natural radiation exposure, a bitewing examination 4.8 days, and a full-mouth survey 18.8 days. Additionally, by comparison, radon in our environment (2.00 mSv, Table 1) is responsible for an annual exposure of over 13 times that of a full-mouth survey of intraoral films. These figures can also be used to make comparisons between persons living in various locations of the U.S. For example, it has been estimated that the effective dose from cosmic radiation in Denver, Colorado, is 0.24 mSv higher than the U.S. average (2). This is because of Denver's higher elevation. This would mean that a patient living in an average location of the U.S. who had almost four panoramic and bitewing examinations every year (total effective dose for these examinations is 0.064 mSv, Table 2) would incur the same risk of potential harm from radiation as a patient living in Denver who was not exposed by these examinations.

In absolute terms, risk can be described by calculation of detriment. Detriment is a term used to represent a combination of the probability of occurrence of an unfavorable health effect resulting from radiation exposure and a judgment as to the severity of the effect (9). Thus, radiation detriment can be expressed as the total harm that would eventually be experienced by an exposed population of individuals and their descendants as a result of radiation exposure. This includes the probability of fatal cancer, the weighted probability of nonfatal cancer, the weighted probability of hereditary effects, and the relative length of life

X rays: What is the Risk?

lost. Detriment can be calculated on the basis of the probability of incidents per million of exposed population, the population at risk (Table 2). For some of the more common examinations, this probability ranges from less than 0.1 per million for a single-film tomogram that may be made for oral implant diagnostics, to 11 per million for a full-mouth survey, to 296 per million for a lower GI series.

Calculation of risk per million from the use of x rays allows for comparison with risks patients are subjected to in the course of their everyday lives. Table 3 lists some of these risks compiled from various newspaper and news magazine articles over the years. These data, expressed as the probability of either death or developing cancer, show that patients have about the same risk of choking to death (13 per million) as expressing some detriment (from having a full-mouth survey (11 per million) made during the course of an oral examination. In all fairness, however, diagnostic x rays involve a risk generally much higher than that of being killed by falling airplane parts or in a shark attack.

Minimizing the Risk to Patients and Personnel

Although the risk from exposure to x rays may be comparable with everyday life, according to the principles of ALARA we should always try to employ techniques, equipment, and materials that will allow us to produce radiographs with the least amount of radiation. As an added benefit, everything we do to reduce patient exposure will reduce the possibility of exposure of ourselves and our personnel.

The following is a summary of methods of exposure reduction that

can be used in oral radiography (2). Patient selection is probably the single most effective way in which exposure can be reduced (See *Guidelines*, this issue). If the decision is made that radiographs are not necessary, this represents a 100 percent reduction in patient exposure. An almost 50 percent reduction in patient exposure can be realized by using E-speed film rather than D-speed film. The use of digital intraoral imaging techniques also requires less radiation. Digital imaging has been found to require only 40 percent the radiation of E-speed film and 23 percent that of D-speed film (10). Rare-earth intensifying screens, such as Lanex[®] (Eastman Kodak Co., Rochester, NY), which may be used in extraoral radiography, are up to eight times more sensitive to x rays than conventional screens, resulting in a significant reduction in patient exposure. Long-cone instead of short-cone techniques for intraoral radiography may result in a 32 percent reduction in exposed tissue volume. Rectangular collimation will reduce the area of the patient's skin surface exposed by 60 percent over that of round collimation. Lead aprons and collars can reduce the amount of scatter radiation to the patient's abdomen by 98 percent and to the thyroid gland by 92 percent. And finally, good darkroom techniques, including time-temperature processing, may contribute to exposure reduction. Six percent of dental radiographs may not be readable because of poor darkroom techniques. Radiographs that must be remade because of inadequate exposure or processing techniques result in a doubling of patient exposure.

Finally, to ensure that a dental office consistently produces high

quality radiographs with a minimum of patient exposure, the American Dental Association recommends the establishment of a quality assurance program in each dental office (11). Such programs include inspection of the x-ray unit, darkroom, and ancillary equipment such as leaded aprons at suitable intervals and the establishment of written procedures for safe operation, exposure and processing techniques, and maintenance. Many of these items are required by the Texas Regulations for the Control of Radiation (4) (See *Message*, this issue).

The practice of dentistry requires lifelong learning. Every practitioner should keep in mind that developing and maintaining skills and acquiring knowledge is a continuous process. Every effort should be made to be aware of improvements in techniques in radiology and every field of dentistry so that patients may receive quality care.

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X rays: What is the Risk?

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Table 1.

Average Annual Effective Dose of Ionizing Radiations to a Person in the United States

Source	Effective Dose (mSV)
Natural	
External	
Cosmic	0.27
Terrestrial	0.28
Internal	
Radon	2.00
Other	0.40
Total	3.00
Man-Made	
Medical	
X-ray diagnosis	0.39
Nuclear medicine	0.14
Consumer products	0.10
Other	
Occupational	<0.01
Nuclear fuel cycle	<0.01
Fallout	<0.01
Miscellaneous	<0.01
Total	0.60
Total = Natural plus Man-Made	3.60

Dental not listed

X rays: What is the Risk?**Table 2.****Effective Dose by Radiographic Technique**

Technique	Effective Dose (mSv)	Days Equivalent Natural Exposure	Probability (per million)
Dental			
Intraoral			
Periapical (15 films)	0.111	13.9	8.1
Bitewing (4 films)	0.038	4.8	2.8
Full-mouth survey (19 films)	0.150	18.8	11.0
Extraoral			
Panoramic	0.026	3.3	1.9
Film tomography *	<0.001-0.030	<0.1-3.8	<0.1-2.2
Computed tomography.			
Maxilla	0.104	13.0	7.6
Mandible	0.761	95.1	55.6
Medical			
Lower GI series	4.060	507.5	296.4
Upper GI series	2.440	305.0	178.1
Chest	0.080	10.0	5.8

* Scanora® integrated imaging system (Orion/Soredex, Helsinki, Finland). The effective dose is dependent on the region of the jaws exposed and the collimation option used, i.e., round or rectangular.

Table 3.**How Safe ?**

End Result And Cause	Probability of Occurrence (per million)
Cancer	
Exposure to termiticide (Chlordane)	100-300
Herbicides and fungicides on fruits and vegetables	278
Death	
Choking	13.0
Boating accident	4.6
Tornado	2.2
Bathtub accident	0.6
Struck by lightning	0.5
Overseas terrorist attack	0.1
Falling airplane parts	0.1
Shark attack	(0.001)

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FISCAL NOTE

STATE OF ALASKA
1998 LEGISLATIVE SESSION

No. 1
Bill Version: CS SB160(L&C)
(S) Publish Date: 4/3/98

Revision Date: _____
Title: An Act relating to radiological equipment used in
the practice of dentistry.
Sponsor: Senator Taylor by request
Requestor: Senate Labor & Commerce

Department: Commerce and Economic Development
BRU: Occupational Licensing
Component: Operations

COMPONENT SERIAL NO. 1844

Expenditures/Revenues

(Thousands of Dollars)

OPERATING EXPENDITURES	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04
PERSONAL SERVICES	20.3	20.3	10.1	10.1	10.1	10.1
TRAVEL	0.0	0.0	0.0	0.0	0.0	0.0
CONTRACTUAL	3.0	3.0	1.5	1.5	1.5	1.5
SUPPLIES	1.0	1.0	1.0	1.0	1.0	1.0
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	24.3	24.3	12.6	12.6	12.6	12.6

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES	48.6	0.0	25.2	0.0	25.2	0.0
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FUND SOURCE

(Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 General Fund						
1005 GF/Program Receipts	24.3	24.3	12.6	12.6	12.6	12.6
1037 GF/Mental Health						
Other (Specify Type)						
TOTAL	24.3	24.3	12.6	12.6	12.6	12.6

Estimate of any current year (FY 98) cost: \$ 0.0

POSITIONS

FULL-TIME						
PART-TIME	1	1	1	1	1	1
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

CSSB 160(L&C) transfers regulation of x-ray equipment in a dentist office from the Division of Public Health, Department of Health and Social Services to the Board of Dental Examiners in the Division of Occupational Licensing, Department of Commerce and Economic Development. The board currently regulates level of entry into the profession and the practice of dentistry. By assuming responsibilities in the bill, new costs will be incurred through establishing necessary regulations, registering equipment and requiring periodic inspection of radiological equipment. An explanation of the costs are explained on the attached page.

Prepared by: Jennifer Strickler, Administrative Manager
Division: Occupational Licensing
Approved by Commissioner: Deborah B. Sedwick
Agency: Commerce and Economic Development

Phone: 465-2144
Date: 4/2/98
Date: 4/2/98

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FISCAL NOTE

STATE OF ALASKA
1998 LEGISLATIVE SESSION

BILL NO.: CSSB 160(L&C)

1

ANALYSIS: (Continued)

DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT FISCAL NOTE CALCULATIONS

Personal Services

Occupational Licensing Examiner I position, Range 12, PPT, GGU 20.3

This half-time position will be responsible to monitor and maintain inspection records of dental x-ray equipment and collect applicable fees. Additionally, this position will assist the board in preparing regulations regarding dental radiological equipment. It is anticipated that a half-time position will only be necessary for the first two years. By the third year and thereafter, only a quarter time of the position is anticipated to be necessary in providing support to these tasks.

Contractual Services

3.0

The contractual services will fund expenses associated with adoption of new regulations concerning x-ray equipment in dental offices, including public notices, postage, printing of the regulations and registration forms, and regulation hearings via teleconferencing. This expense is reduced after the first two-years assuming the regulations will be in place.

Supplies

Funding provides daily desk top and other operating supplies. 1.0

TOTAL: \$24.3

FISCAL NOTE

STATE OF ALASKA
1998 LEGISLATIVE SESSION

No. 2
Bill Version: CSSB 160 (L&C)
(S) Publish Date: 4-14-98

Revision Date: 04/03/98
Title: Testing radiological equipment
Sponsor: Senator Taylor
Requestor: Senate L&C

Dept. Affected: Health and Social Services
BRU: State Health Services
Component: Laboratory Services
COMPONENT SERIAL NO. 291
See also (SN#): _____

Expenditures/Revenues:

(Thousands of Dollars)

OPERATING	FY99	FY00	FY01	FY02	FY03	FY04
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
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CHANGES IN REVENUES ()						
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FUND SOURCE

(Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (please specify)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of any current year (FY98) cost: \$0.0

ANALYSIS: (Attach a separate page if necessary)

With the proposed elimination of the on site inspection and certification of dental radiologic equipment, the Division will generate the revenue for supporting the existing Radiological Health Program by assuring responsibility for the Federally required inspection of mammography equipment.

4/13/98
Prepared by: Peter M. Nakamura, MD, MPH *PM* Phone: (907)465-3090
Division: Public Health Date: 04/03/98
Approved by Commissioner: Karen Perdue, Commissioner Date: 4/17/98
Agency: Department of Health & Social Services

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SB

161

HFIN

FILE

HOUSE COMMITTEE REPORT

(11)

Date Referred to Committee: April 23, 1997

FURTHER REFERRALS:

Date of Committee Action: 4/28/97

The FINANCE Committee considered:

CSSB 161(FIN)

CS FOR SENATE BILL NO. 161(FIN)

PERM. FUND CORP TO MANAGE MUNI ASSETS

"An Act relating to management of certain municipal assets by the Alaska Permanent Fund Corporation."

recommends it be replaced with the following committee substitute CSSB 161(FIN) the same title a new title

additional referral to _____ Committee
 attached amendment(s)

ADOPTS: _____ Letter of Intent

ATTACHES NEW FISCAL NOTE(s): (Dep't)

APPROVES PREVIOUS: (Dep't/Date)

fiscal note(s) _____

fiscal note(s) Revenue 4/15/97

zero fiscal note(s) _____

zero fiscal note(s) _____

SIGNING WITH RECOMMENDATIONS		DP	DNP	NR	AM
	Therriault	X			
	MULDER	X			
	Martin			X	
	J. Davis	X			
	MOSES			X	
	G. Davis			X	
	Kelly				
	FOSTER				

CHAIR'S SIGNATURE

Alaska State Legislature

SENATOR
BERT SHARP

DISTRICT P

CO-CHAIRMAN
SENATE FINANCE COMMITTEE

MEMBER
RESOURCE COMMITTEE



Senate

FAIRBANKS
DENALI BANK BUILDING
119 N. CUSHMAN, SUITE 201
FAIRBANKS, ALASKA 99701
(907) 452-7885/7886
FAX (907) 456-4221

SESSION ADDRESS:
STATE CAPITOL, ROOM 516
JUNEAU, ALASKA 99801-1182
(907) 465-3004/4921
FAX (907) 465-2070

SPONSOR STATEMENT

SB-161

BY: SENATOR BERT SHARP

THIS LEGISLATION AUTHORIZES THE PERMANENT FUND CORPORATION TO MANAGE THE ASSETS OF A MUNICIPAL SAVINGS OR INVESTMENT ACCOUNT.

THE PARAMETER OF A MANAGEMENT AGREEMENT STARTS ON PAGE 1, LINE 9 THROUGH THE REMAINDER OF THE BILL.

THESE WERE SET BY THE PERMANENT FUNDS CORPORATION AS CONDITIONS THEY COULD ACCOMMODATE WITHOUT COMPROMISING THEIR MISSION.

THIS OFFERS MUNICIPALITIES THE OPTION OF INVESTMENT MANAGEMENT SERVICES WITHIN ALASKA AND ONE IN WHICH THE AVERAGE CITIZEN HAS CONFIDENCE.

MANAGEMENT COSTS ARE TOTALLY REIMBURSABLE TO THE PERMANENT FUND CORPORATION BY THE MUNICIPALITIES .



REPRESENTING
GOLDEN HEART
OF ALASKA

LEGAL SERVICES

DIVISION OF LEGAL AND RESEARCH SERVICES
LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101

130 Seward Street, Suite 409
Juneau, Alaska 99801-2105

MEMORANDUM

April 11, 1997

SUBJECT: Management of municipal assets by the Alaska Permanent Fund Corporation (CSSB 161(); 20-LS0864\E)

TO: Senator Bert Sharp
Attn: Marilyn Wilson

FROM: Tamara B. Cook *TBC*
Director

Here is the sectional summary you requested of the above referenced draft.

Sec. 1. Requires the Alaska Permanent Fund Corporation to manage the assets in an account of a municipality when directed to do so by resolution of the municipal governing body if the account meets certain requirements. The municipality must pay an amount sufficient to reimburse the corporation for the costs of managing those assets. Payments are deposited in the earnings reserve account and the corporation may request the legislature to appropriate those payments for operations of the corporation.

TBC:jdr
97-262.jdr



CITY OF FAIRBANKS
James C. Hayes, Mayor
800 CUSHMAN STREET
FAIRBANKS, ALASKA 99701-4683
OFFICE: 907-459-6793



March 7, 1997

Senator Bert Sharp
State Capitol
Juneau, Alaska 99801-1182

Re: City of Fairbanks' Permanent Fund

Dear Senator Sharp:

Pursuant to our conversation earlier this week, I wish to formally request your sponsorship of legislation regarding the management of the City's Permanent Fund. As I explained to you, it is the City's desire that it be allowed to deposit the proceeds of the utility sale into the State's Permanent Fund, to be managed by the State Permanent Fund Corporation. Because the sale is expected to take place this summer, I would respectfully request that this legislation be proposed by late summer, and acted upon during this Legislative Session.

I am certain you are aware that this is currently being done for both the Alaska Mental Health LandsTrust and the Alaska Science Technology Foundation. This, I am sure, will help pave the way for the passing of this proposed legislation.

Thank you for your assistance. If you have any further questions, please do not hesitate to contact me.

Sincerely,

CITY OF FAIRBANKS

A handwritten signature in cursive script that reads "James C. Hayes".

James C. Hayes
Mayor

JCH:bss

RESOLUTION 97-02**ALASKA GOVERNMENT FINANCE OFFICERS ASSOCIATION****A RESOLUTION OF THE ALASKA GOVERNMENT
FINANCE OFFICERS ASSOCIATION SUPPORTING THE
ALASKA MUNICIPAL BOND BANK AUTHORITY AND THE
POSITION OF EXECUTIVE DIRECTOR.**

WHEREAS, many Alaska municipalities, especially smaller communities, have utilized the Alaska Municipal Bond Bank Authority (AMBBA) for the issuance of local debt for the past twenty (20) years; and

WHEREAS, municipalities are able to finance projects benefitting Alaskan communities in important areas such as safety, schools, docks, health and welfare; and

WHEREAS, communities can enjoy lower interest rates due to the AMBBA's ability to obtain the industry rating of "A" which is higher than the communities could obtain independently; and

WHEREAS, the authority is self supporting, paying to the Alaska State General Fund \$617,000 in 1996 and over \$19,600,000 in the past twenty (20) years; and

WHEREAS, AMBBA Executive Director is the only position authorized to be hired by Alaska State Statute (44.85.070) by its Board of Directors; and

WHEREAS, the AMBBA's Executive Director is the first contact who has sufficient knowledge and provides the technical assistance and expertise to local communities to structure and process loans for much needed public projects; and

WHEREAS, the AMBBA is currently obligated, by statute, to continue to assist Alaskan communities even if it is unable to issue debt; and

WHEREAS, the AMBBA, with the guidance of it's Executive Director, is vital to local communities in issuing debt and for the continuation of development of Alaska communities.

NOW, THEREFORE, BE IT RESOLVED, that the ALASKA GOVERNMENT FINANCE OFFICERS ASSOCIATION supports the Alaska Municipal Bond Bank Authority and position of the Executive Director.

BE IT FURTHER RESOLVED, that this resolution be forwarded to Governor Knowles, Senate and House of Representatives.

PASSED AND ADOPTED by the Alaska Government Finance Officers Association, in Homer, Alaska, this 18th day of April 1997.

ATTEST:

Renee VanNort /s/
Renee VanNort, Secretary

Tammy Clayton /s/
Tammy Clayton, President

Revision Date: _____ Dept. Affected: Revenue
 Title: An Act relating to management of certain municipal BRU: Alaska Permanent Fund Corporation
assets by the Alaska Permanent Fund Corporation. Component: Alaska Permanent Fund Corporation
 Sponsor: Senator Sharp
 Requestor: CRA, [REDACTED] COMPONENT SERIAL NO. 109

Expenditures/Revenues: (Thousands of Dollars)

OPERATING EXPENDITURES	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL	300.0	309.0	318.0	328.0	341.0	355.0
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	300.0	309.0	318.0	328.0	341.0	355.0

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ()	300.0	309.0	318.0	328.0	341.0	355.0
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other-Corporate Receipts	300.0	309.0	318.0	328.0	341.0	355.0
TOTAL	300.0	309.0	318.0	328.0	341.0	355.0

Estimate of any current year (FY97) cost \$ _____

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

See Attached.

Prepared by: Byron I. Malott
 Division: Alaska Permanent Fund Corporation
 Approved by Commissioner: Wilson L. Condon
 Agency: Revenue

Phone: 465-3172
 Date: April 11, 1997
 Date: April 11, 1997

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**Analysis to Accompany Fiscal Note for
Proposed Senate Community & Regional Affairs
Committee Substitute for Senate Bill 161**

April 11, 1997

Proposed SCS SB161(C&RA) provides for the management of certain municipal assets by the Alaska Permanent Fund Corporation (APFC). The APFC would hold and invest the municipal assets, provide quarterly financial reports and audited annual reports, make certain transfers and advise the municipality of revisions to investment policy or changes in asset allocation. The municipality will pay the corporation a management fee to cover the costs of managing these assets. This fee shall be deposited in the earnings reserve account and the APFC would request that the legislature appropriate these funds for the operations of the corporation.

The projected costs above are calculated based on a municipal fund value of \$90 million and a 3-4% growth rate. The management fee represents a pro-rata share of the APFC operating expenses which includes investment manager and custody fees and administrative costs for accounting, reporting, communications and other support.

This fiscal note is prepared on the assumption that the APFC would be directed to invest one municipal fund with approximately \$90 million in assets. If it turns out that a number of municipalities seek to take advantage of this legislation, it would likely raise at least two issues at the legislative level:

- Would the increased operating costs and administrative, accounting and reporting responsibilities required for the APFC to effectively and prudently manage a number of municipal funds be consonant with the corporation's primary fiduciary responsibility - the preservation of the Alaska Permanent Fund's principal and the cost-effective management and investment of its assets?
- Is it appropriate public policy for the APFC to compete with private sector investment firms who are able to provide virtually the same investment management services as the APFC?