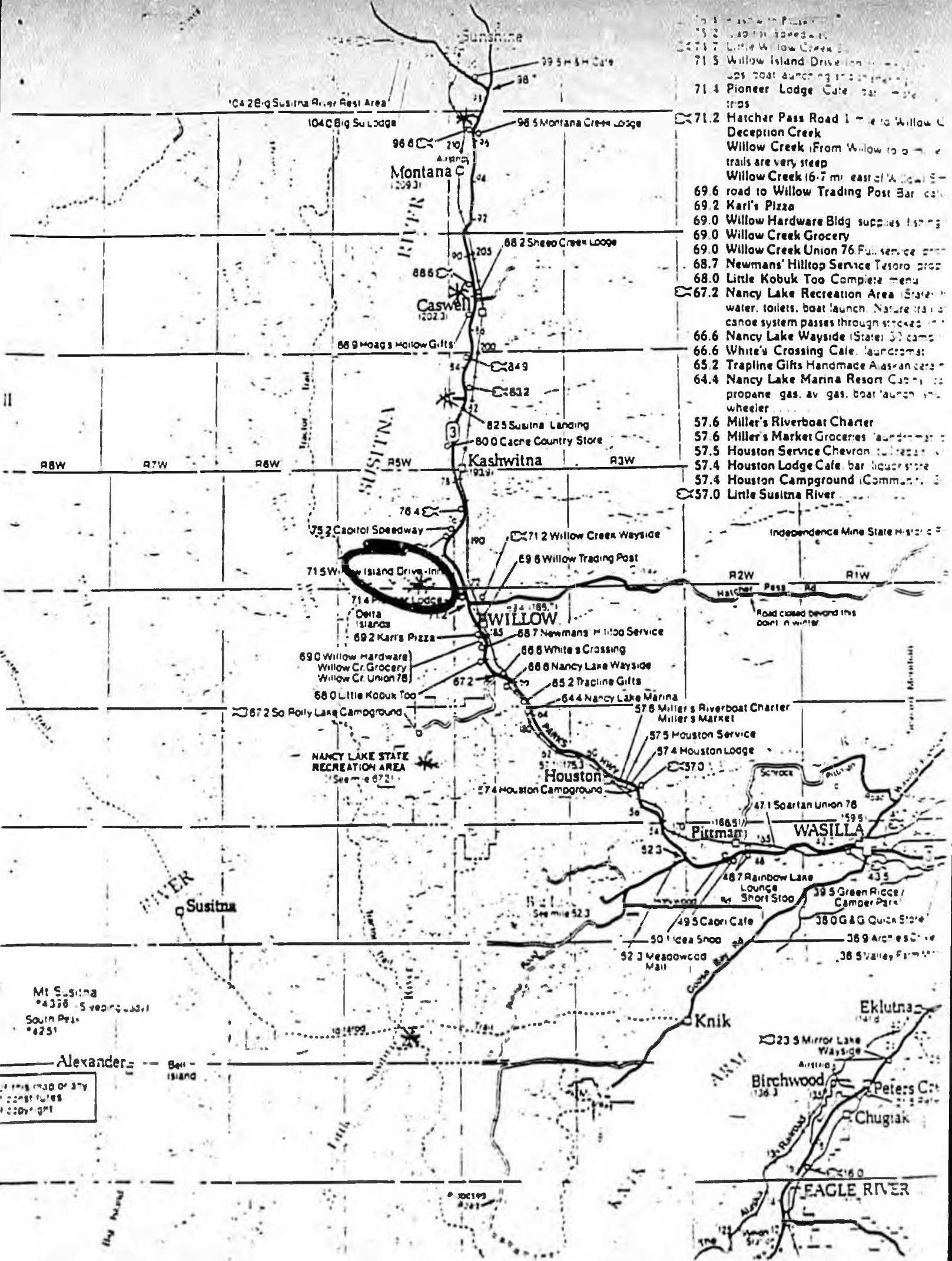


ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672

5494 SRES HB 18 - HB 59



- 71.5 Willow Island Drive-In
- 71.4 Pioneer Lodge Cafe
- 71.2 Hatcher Pass Road 1 mi. to Willow Creek
- Deception Creek
- Willow Creek (From Willow to ... trails are very steep)
- Willow Creek (6.7 mi. east of Willow) road to Willow Trading Post Bar
- 69.6 Willow Hardware Bldg supplies fishing
- 69.2 Karl's Pizza
- 69.0 Willow Creek Union 76 Full service
- 68.7 Newmans' Hilltop Service Tesoro prop
- 68.0 Little Kobuk Too Complete menu
- 67.2 Nancy Lake Recreation Area (State) water, toilets, boat launch, Nature trails canoe system passes through stocked
- 66.6 Nancy Lake Wayside (State) 30 camp
- 66.6 White's Crossing Cafe, laundromat
- 65.2 Trapline Gifts Handmade Alaskan goods
- 64.4 Nancy Lake Marina Resort Camp propane gas, av. gas, boat launch, wheelchair
- 57.6 Miller's Riverboat Charter
- 57.6 Miller's Market Groceries, laundromat
- 57.5 Houston Service Chevron, laundromat
- 57.4 Houston Lodge Cafe, bar, liquor store
- 57.4 Houston Campground (Community)
- 57.0 Little Susitna River

Mt. Susitna
 4378 - Steep, rocky
 South Peak
 4251

Alexander
 Bell Island

of this road or any
 construction
 copyright

Eklutna
 1419
 235 Mirror Lake Wayside
 Birchwood
 1363
 Peters Cr.
 Chugiak

EAGLE RIVER

MATANUSKA-SUSITNA BOROUGH

RESOLUTION SERIAL NO. 83-23

A RESOLUTION OF THE ASSEMBLY OF THE MATANUSKA-SUSITNA BOROUGH RECOMMENDING THAT THE STATE LEGISLATURE ESTABLISH THE WILLOW CREEK STATE RECREATION AREA.

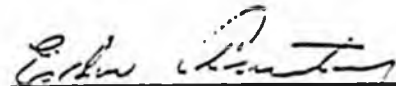
WHEREAS, the Matanuska-Susitna Borough and the State of Alaska, Division of Parks have jointly developed a plan for a proposed State recreation area along Willow Creek near Willow, Alaska; and

WHEREAS, the Matanuska-Susitna Borough has agreed to enter into a long term joint management agreement with the Division of Parks to manage Borough lands within the proposed recreational area; and

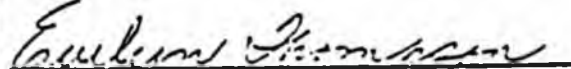
WHEREAS, the assembly finds this projected plan to be of public interest and requiring legislative designation.

NOW THEREFORE, BE IT RESOLVED that the Assembly of the Matanuska-Susitna Borough recommends that the State Legislature support a bill such as is attached which would establish the Willow Creek State Recreation Area and provide for an effective date.


ACCEPTED AND APPROVED by the Assembly of the Matanuska-Susitna Borough this 23rd day of March, 1983.


EDNA ARMSTRONG, MAYOR

ATTEST:


Evelyn Thompson, Clerk

REVIEWED AND APPROVED:


Gary Thurlow, Manager

(Seal)



Alaska Sportfishing Association

3605 Arctic Blvd., Suite 800 • Anchorage, Alaska 99503

February 9, 1987

Governor Steve Cowper
Pouch A
Juneau, AK 99811

Dear Governor Cowper:

RE: LEGISLATIVE PRIORITIES

The Alaska Sportfishing Association is a statewide organization headquartered in Anchorage. We currently have approximately 2,000 individual members and 135 business members. This organization stands ready to work cooperatively with you for good resource legislation.

Since we publish a monthly newsletter, we regularly pass along information to our members about resource and sportfishing issues. We feel we can assist your administration in disseminating information to sportfishing interests. We have worked with ADF&G in the past to this end.

We appreciate your support for the sportfishing industry as evidenced by your answers to our questionnaire last July. We understand the difficult job that you and the legislature face this session determining the course this great state must take for continued progress under a greatly restricted budget. This restriction may have a major impact on our short and long-term future. Thus our legislative priorities for 1987 address legislation that is important to the economic future of this state, but legislation without cost to the General Fund of the state.

All three of the Alaska Sportfishing Associations' legislative priorities address an important step forward in the necessary expansion of recreational fishing for Alaskans, and of Alaska's fledgling tourism industry of which recreation fishing is the major drawing card. As you have identified, development and expansion of this one industry will lead to increased trade with Pacific Rim and other countries. There are many actions that need to be taken to improve our ability to attract and provide suitable facilities for Alaskans, as well as U.S. and foreign tourists. The following are important steps forward and are our top priorities:

1. *Letter of Support
(see 2nd page for Willow
Creek endorsement)*

Governor Steve Cowper
Page 2
February 9, 1987

1. Passage of HB 93 to create an effective Recreational Rivers system that will protect both the fishery and environmental resource of six rivers in the Susitna drainage. Members of our organization will be in contact with legislators to work out details and work for passage. This legislation is of top priority to just about every outdoor and environmental organization in the state.
2. Passage of legislation which creates an effective public access acquisition and/or development program. Passage of SB 62 (and SB 26) will go a long way toward making possible the acquisition of critically needed public access sites and/or development of those sites. This legislation will not result in any General Fund expenditures. These bills raise the percentage of Federal Aid Breaux-Wollop funds which must be committed to access from 10 percent to 20 percent. The Breaux-Wollop funds are generated at the federal level by a tax on certain fishing items, and the funds must be used for sport fish projects. Since those funds are generated by sportfishermen, the sport fishing community should have a strong hand in deciding how they should be spent. Sport fishermen strongly support SB 62 and SB 26.
3. Passage of legislation to establish the Willow Creek State Recreational Area. HB 18 is enabling legislation which jointly involves Mat-Su Borough and state lands. It is not a duplication of the Recreation Rivers Bill mentioned above and will go a long way toward long-term protection of the Willow Creek area and access to a series of Susitna Drainage salmon and trout fisheries. }

We wish you, your administration, and the 1987 legislature the best in your endeavors.

Sincerely,

Alaska Sportfishing Association
Legislative Committee

Bob Hunter

Robert L. Hunter, Chairman

Russ Redick

Russ Redick

Jeff Parker

Jeff Parker

Virginia Hilliker

Virginia Hilliker

Jim Richardson

Jim Richardson

cc: Each Legislator
Commissioner, ADF&G
Commissioner, DNR
Alaska Outdoor Council

Kenai River Sportfishing Association
Mat-Su Valley Sportsmens Association
Alaska Professional Guide Association
Resource Development Council

HB

26



Sea Mart

MARKET CENTER SUPER



Ketchikan/Sitka

Hames Corporation—Box 1960—Sitka, Alaska—99835—(907) 747-6266

March 6, ~~1987~~ 11 1967

Senator Jack Coghill
P.O. Box V
Juneau, Alaska 99811

RE: SB 105 and HB 26

Dear Senator;

I want to thank you for the time allotted me at the hearing before the Senate Resources Committee, March 4, 1987.

My presentation seemed to be a bit different than the others that appeared before your committee that day. My 37 years in the Grocery industry in Alaska, enables me to be convinced that this is a useless, costly, regulation, only to have those costs passed on to our customers. It serves the greater majority of the populace of Alaska no worthwhile benefit. I believe I demonstrated that this regulation would not be with the Food Industry's norm, by having a manufactured or processed date, instead of a pull date, use before date, or just dated. It would be confusing to the customer. It would be short of impossible to keep the products in order at the retail level, let alone the problem it would cause the supplier to satisfy a isolated states regulation.

There is one other thing that I did not bring up in my presentation. I thought it best not to, however Senator Kerttula landed on me with both feet after my presentation, which caused me to change my mind.

I checked with A.P.O.C. to see if there was any reason for Kerttula to introduce such legislation related to campaign contributions. To my surprise I found nineteen (19) names, each giving \$1,000.00 with the same address and some under the name of Dairy West and New Horizons. This was on Kerttula's A.P.O.C. report filed September 6, 1984,

After serving four years as State Finance Chairman for the Republican Party, I know how hard it is to raise \$50.00, let alone the efforts it would take to raise \$19,000.00 from

Senator Jack Coghill

page two

one related industry, for just a candidate's campaign fund in general.

I recall this was a hotly contested race. \$19,000.00 would carry a candidate a great distance under such circumstances.

To quote the record, I will list the names of these contributors:

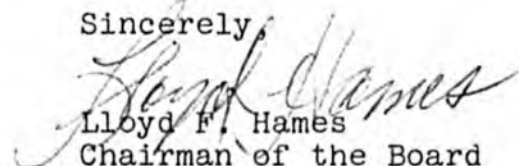
Ronald Ashe
Karen Crawley
Denice Edwards
Donald Edwards
Robert Edwards
Karen Lee

Edith Heim
Lyndon Heim
Terrence Fisher
Jolleen Fisher
Harry Shepherd
John Shepherd

Joanna Severson
Mark White
Cathy Witherspoon
Doug Witherspoon
Robert Wood
Albert Schneider

Senator, I am cognizant that this may be what we call hard ball, but I can see no useful benefit for this type of legislation in HB 26 and SB 105. It can only relate to an industry that the State has no business being involved in financially. I believe in the Free Enterprise System, and fewer regulations. I ask your support in not shackling the milk industry with such useless, burdensome regulation.

Sincerely,



Lloyd F. Hames
Chairman of the Board
Fort West Inc.
Hames Corporation

LFH/bh



SAFEWAY

STORES, INCORPORATED
1121 - 124th Ave., N.E., Bellevue, WA 98005

MAR 11 1987

March 6, 1987

Senator Jack Coghill
State Capitol
Pouch V
Juneau, AK 99811

Dear Senator Coghill,

My deep appreciation for taking the time to listen to our position in regards to House Bill 26. We certainly are hopeful that the information presented to all of you is beneficial. If we can answer any further questions, please don't hesitate to give us a call.

Also, on behalf of John Shepherd, Ed Streuli, and myself we appreciate the time you took prior to the meeting in saying hello, and your assurance that no decision on this bill would be made at this time.

Look forward to answering any questions you might have in regards to House Bill 26, and again, thank you for your time and understanding.

Sincerely,

CHERIE MYERS
Public Affairs Manager
(206) 455-6392

CM/lm

Alaska State Legislature

Senate Resources Committee



Sen. John B. (Jack) Coghill, Chairman
Sen. Paul Fischer, Vice-Chairman
Sen. Lloyd Jones
Sen. Arliss Sturgulewski
Sen. Jim Duncan
Sen. Fred Zhatoff
Sen. Dick Eliason

Box V
Juneau, Alaska 99811
(907) 465-4007

March 4, 1987

MEMORANDUM

To: Members of the Senate Committee on Resources

From: Committee Staff

Re: CSSB 26 (L&C), "Sale of Milk Products"

Rep. Martin has introduced a bill which would ensure that purchasers of milk products know when the product was processed.

Currently, the date on milk and cottage cheese cartons is there to tell grocers when to take it off the shelf. It does not indicate how long ago the milk has been processed. Consumers are left in the dark on the age and freshness of the milk product.

This bill is supported by DEC and DNR.

Included in your packet are:

Sponsor's memorandum relating to the committee substitute
Sponsor's statement
DEC position paper
Zero fiscal note on the committee substitute
Original fiscal note
DNR position paper

REP. TERRY MARTIN

ELECTIVE DISTRICT 13
MOUNTAIN VIEW
RUSSIAN JACK SPRINGS
NUNAKA VALLEY
ELMENDORF A.F.B.
CREEKSIDE
EAST ANCHORAGE



HOME
3960 REKA DRIVE-06
ANCHORAGE, AK 99508
PHONE 333-6990

DURING SESSION
P. O. BOX V
STATE CAPITOL BUILDING
JUNEAU, AK 99811
PHONE 465-3783

Alaska House of Representatives

M E M O R A N D U M

To: Senate Resources Committee Members
From: Rep. Martin
Date: March 3, 1987
Re: HB 26 - Sale of certain milk products

I would like to thank you for your consideration of HB 26, and hope you will act favorably on it. Attached to this memorandum are back-up materials for the bill including:

- Sponsor's statement
- DEC position paper and fiscal notes
- DNR position paper

Most of the differences between the original bill and the committee substitute are explained by the DEC position paper in which the department suggested changes to the original bill. However, an additional change made in the L&C substitute, and not covered by the DEC paper, is the removal of the requirement to imprint the date on which the milk product could be expected to go sour. It was this provision that caused DEC to attach its \$9000 fiscal note, and by deleting it, the bill has no fiscal impact. Deleting this requirement should not, however, diminish the intent of the legislation.

Finally, the bill was amended on the House floor to make a necessary technical change in the definitions section. The first CS included a definition for the phrase "date of processing", but did not use the phrase in the substantive portion of the bill. The definition was changed to apply to the word "processed", which is used in the bill.



SPONSOR'S STATEMENT

HB 26

"An Act relating to the sale of certain milk products."

This consumer protection bill has only one section, which would add new language to AS 17.05 (Standards of Sale for Food and Drink, in the Food and Drug Title) which would make it illegal to sell milk and cottage cheese unless its container is clearly marked showing the date the product was processed.

This requirement would not apply to canned milk, cheeses, ice cream or dehydrated milk. The requirement would be enforced by DEC.

This bill came about simply because, as milk products are now marketed, cartons display only the date on which the grocer should remove the container from the dairy case. This can be ambiguous to the buyer, particularly when producers advertise that the product is good for some time after the date stamped. There is a federal requirement that milk producers must encode the container to indicate the date of processing, but since every milk producer uses a different code, they provide no information for consumers.

The change proposed by HB 26 would give the consumer the information necessary to make a more informed purchase, by showing exactly what day the product was put into the container. Knowing as much as possible about the product's freshness at the time a purchase is considered, and being able to estimate how long it will stay fresh, should alleviate complaints among consumers.

SPONSOR'S STATEMENT

STATE OF ALASKA

STEVE COWPER, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

Telephone: (907) 465-2696

Address:

January 26, 1987
Contact: Douglas Donegan

POSITION PAPER HB 26

Title:

An Act relating to the sale of certain milk products

Effect of the Bill

This bill requires that all milk products sold in Alaska contain a date of "processing" and a date upon which the product becomes "unfit for human consumption."

Department Position

The Department supports the intent of HB 26. The labeling requirements will provide consumers with pertinent information necessary to make informed decisions regarding the relative freshness and shelf-life of their milk product purchases.

If the bill becomes law, DEC would analyze approximately 6 samples per week to confirm by laboratory analysis the accuracy of the "use-before" date. DEC would monitor the accuracy of "processing" date of in-state processors at milk processing facilities. Accuracy of "processing" date for milk products produced outside of Alaska will be confirmed by monitoring shipment dates of incoming milk products and date of "processing" on the containers.

Suggested Revisions

While DEC supports the overall approach, some modification is needed to make it workable. The term "date of processing" needs to be defined. The Department recommends that date of processing be defined as "the earliest date upon which the milk product has been heat treated in any manner such as pasteurization." This definition is suggested because there are several steps in the production of milk products which could be considered "processing" and this definition will eliminate potential ambiguities.

The term "unfit for human consumption" also needs a definition. The Department suggests that this term be defined as "when the milk product exhibits organoleptic or microbiological evidence of spoilage rendering it unacceptable for human consumption as determined by the Department's Environmental Health laboratory."


The definition of "milk product" should also exclude all "cultured" milk products including sour cream and yogurt.

DEC POSITION PAPER

THIS WAS NEGATED BY L&C COMMITTEE SUBSTITUTE

Fiscal Effect

The Department would monitor milk products to determine compliance with the labeling requirements. This would include evaluating the accuracy of the "unfit for human consumption" date. During routine inspections grocery and dairy inspections, DEC sanitarians would collect milk samples and send them to the Division's environmental health laboratory for analysis. The sample collection and analyses could be performed with existing staff. Consequently, the only additional monies necessary would be for sample containers, sample shipment, gel ice, laboratory supplies and equipment including glassware and media, and a refrigerator with a temperature recording device. The Department anticipates that increased costs would be \$9,500 the first year and \$7,000 per year thereafter.



Dennis D. Kiso
Commissioner

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

REQUEST: _____

Bill Version CSHB 26 (L&C)

Publish Date: HOUSE 2/2/87

Revision Date: 1/29/87

Title: An Act Relating to the sale of certain MTR products

Agency Affected: DEC

BRU: Environmental Health

Sponsor: Terry Martin

Requestor: _____

Component: Environmental Sanitation

Palmer Lab., Dairy Industry

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

This Bill as revised will have no fiscal impact on the Department of Environmental Conservation

Prepared by: Doug Donegan
Division: Environmental Health

Phone: 465-2696
Date: 1/28/87

Approved by Commissioner: *Amy D. K. L. H.*
Agency: Environmental Conservation

Date: 1/24/87

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

**STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE**

REQUEST: _____

Bill Version: Labor & Commerce
Publish Date: 1/19/87

Revision Date: _____

Agency Affected: DEC
BRU: Environmental Health

Title: An Act Relating to the sale
of certain milk products

Sponsor: Terry Martin

Components: Environmental Sanitation
Palmer Lab., Dairy Industry

Requestor: John Manley for Terry Martin

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	0	4.0	4.0	4.0	4.0	4.0
SUPPLIES	0	3.0	3.0	3.0	3.0	3.0
EQUIPMENT	0	2.5	0	0	0	0
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING		9.5	7.0	7.0	7.0	7.0

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND		9.5	7.0	7.0	7.0	7.0
FEDERAL FUNDS						
OTHER						
TOTAL		9.5	7.0	7.0	7.0	7.0

POSITIONS:

FULL-TIME						-
PART-TIME						-
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

Contractual monies will purchase six sample shipments/week to Palmer Laboratory, Supplies will purchase laboratory glassware, media and sample shipping containers and gel ice; Equipment will be a one-time purchase of laboratory refrigerator with external temperature recording device.

Prepared by: Doug Donegan
Division: Environmental Health

Phone: 465-2696
Date: 1/26/87

Approved by Commissioner: _____
Agency: Department of Environmental Conservation

Date: 1/26/87

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE COMMISSIONER

STEVE COWPER, GOVERNOR

400 WILLOUGHBY AVE.
JUNEAU, ALASKA 99801
PHONE: (907) 465-2400

February 17, 1987

The Honorable Adelheid Herrmann, Co-Chair
The Honorable Sam Cotten, Co-Chair
House Resources Committee
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Representatives Herrmann and Cotten:

Subject: The Committee Substitute (Labor and Commerce) for House Bill 26, relating to the sale of milk products.

Position: The Department of Natural Resources supports this bill which would require the date of processing to be displayed on milk products sold in Alaska.

Background: Since 1985, the State of Alaska has owned and operated the Matanuska-Maid Dairy. This bill would require the dairy to display on containers the date that milk and milk products are processed. Currently, the "pull-date" is the only date displayed on milk products sold in the state. This is the date identified by the processor as the last date the milk should be offered for sale.

Consumers would benefit from this bill because it would provide an additional guideline for consumers to use when selecting milk or milk products.

Some consumers prefer buying milk that will last for a long period of time after it is purchased. The "pull-date" is the guideline that is probably most important to this type of consumer.

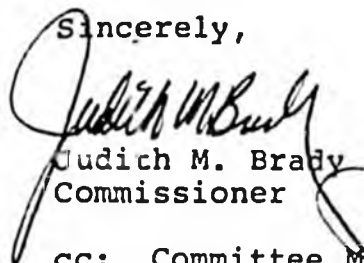
Other consumers use milk products quickly and are more interested in the freshness of the product than in the length of time it will keep. Displaying the milk product's processing date on the container will assist this type of consumer in selecting the freshest product.

House Resources Committee -2-

February 17, 1987

Please let me know if you would like additional information about this matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Judith M. Brady". The signature is written in dark ink and is positioned above the printed name and title.

Judith M. Brady
Commissioner

cc: Committee Members
Sponsor
Governor's Legislative Liaison

HB

54

SENATE COMMITTEE REPORT

FURTHER:

FINANCE

3/19/87

DATE TURNED INTO OFFICE _____

Mr. President:

RESOURCES

Committee considered

CSHB 54 (HESS)

creating an Alaska earthquake and volcano hazards assessment project.

and recommended:

[] replace with CS FOR _____) [] same title
[x] or adopt CSHB 54 (Hess) CS FOR _____) [] new title

[] attached amendment(s) and

[] do pass

[] do not pass

[] no recommendation

[x] individual recommendations

[] further referral to _____

[] letter of intent adopted _____

Committee [] attached or [x] adopted fiscal note(s)

[] new [] updated or [x] previous

[] zero [x] fiscal impact

MEMBERS SIGNING DO PASS

Julius Sturgulovich

OTHER RECOMMENDATIONS

Buy Jones Dollar Pass
Until DNR gets funds
for reforestation program.

Adrian no rec.

[Signature]
Chairman signature and recommendation

[] Committee Backup Attached



OFFICIAL BUSINESS

Alaska State Legislature
House of Representatives
COMMITTEE ON HEALTH, EDUCATION
AND SOCIAL SERVICES

POUCH V
JUNEAU, AK 99811
465-3759

LETTER OF INTENT

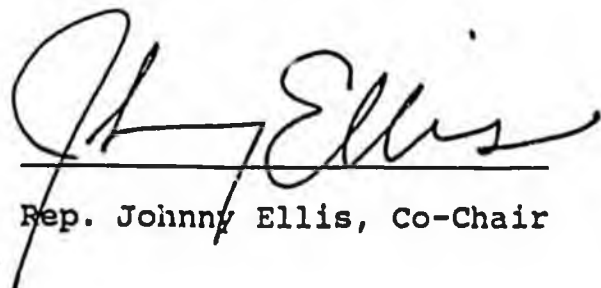
CSHB 54 (HESS)

"AN ACT CREATING AN ALASKA EARTHQUAKE AND VOLCANO HAZARDS
ASSESSMENT PROJECT"

It is the intent of the House Health, Education and Social Services Committee that a request be made for federal monies from the Federal Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) and other applicable federal sources to help offset the costs of The Alaska Earthquake and Volcano Hazards Assessment Project. The amount requested should match the state funding level for this program.

In an effort to save the State both time and expense, this letter is offered in place of a resolution to Congress and shall be delivered to the members of the Alaska Congressional Delegation with appropriate backup information.


Rep. Nillo Koponen, Co-Chair


Rep. Johnny Ellis, Co-Chair

February 18, 1986

Alaska State Legislature

Senate Resources Committee



Sen. John B. (Jack) Coqhill, Chairman
Sen. Paul Fischel, Vice-Chairman
Sen. Lloyd Jones
Sen. Arliss Sturgulewski
Sen. Jim Duncan
Sen. Fred Zharoff
Sen. Dick Ehasen

Box V
Juneau, Alaska 99811
(907) 465-4907

TO: SENATE RESOURCES COMMITTEE
FROM: COMMITTEE STAFF
DATE: MAY 6, 1987
RE: CSHB 54 (HESS), "An Act creating an Alaska
Earthquake and Volcano Hazard Assessment Project"

CONTENTS

1. SPONSOR'S LETTER OF INTENT AND POSITON PAPER
2. FISCAL NOTES FROM DNR AND UNIVERSITY OF ALASKA
3. MEMO TO REPRESENTATIVE AL ADAMS EXPLAINING FISCAL NOTES
4. ADDITIONAL EXPLANATIONS OF FISCAL NOTES
5. BACKGROUND INFORMATION

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

cc

REQUEST: _____

Bill Version: GSHB 54 (HESS)
Publish Date: HOUSE 3/13/87

Revision Date: _____
Title: Creating an Alaska earthquake & volcano hazards assessment project
Sponsor: Koponen & Davis
Requestor: House Finance Committee

Agency Affected: University of Alaska
BRU: _____
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES	-	-	-	-	-	-
TRAVEL	-	-	-	-	-	-
CONTRACTUAL	-	-	-	-	-	-
SUPPLIES	-	-	-	-	-	-
EQUIPMENT	-	-	-	-	-	-
LAND & STRUCTURES	-	-	-	-	-	-
GRANTS, CLAIMS	-	-	-	-	-	-
MISCELLANEOUS	-	-	-	-	-	-
TOTAL OPERATING	-	-	-	-	-	-

CAPITAL	-	-	-	-	-	-
---------	---	---	---	---	---	---

REVENUE	-	-	-	-	-	-
---------	---	---	---	---	---	---

FUNDING: (Thousands of Dollars)

GENERAL FUND	-	-	-	-	-	-
FEDERAL FUNDS	-	-	-	-	-	-
OTHER	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-

POSITIONS:

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

ANALYSIS : (Attach a separate page if necessary)

There is fiscal impact associated with this bill but funds are included in the FY 88 budget. These funds, as well as the need for any new funds, will be addressed through the budget process.

Prepared by: Al Adams, Chair *AAA*
Division: House Finance Committee

Phone: 465-3706
Date: 3/11/87

Approved by Commissioner: _____
Agency: _____

Date: _____

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

Bill Version: CSHB 54(HESS)
Publish Date: HOUSE 2/23/87

REQUEST: _____

Revision Date: 2/18/87

Title: Ak. Earthquakes and Volcanoes
Hazards Project

Sponsor: Rep. Koponen and Rep. Davis

Requestor: Rep. Koponen

Agency Affected: Natural Resources
BRU: Geology, Energy and Mining

Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING						

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND		75.1 **				
FEDERAL FUNDS						
OTHER						
TOTAL		75.1 **				

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

In the DNR FY 88 proposed budget, 75.1 is being transferred to the University of Alaska to consolidate the State's Seismic Monitoring efforts. This merging of the two programs will facilitate management and provide a measure of economy. (See Page 2)

Prepared by: Carol Wilson Phone: 165-2100
Division: Commissioner's Office Date: 2/19/87

Approved by Commissioner: [Signature] Date: 2/11/87
Agency: Natural Resources

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

REQUEST: _____

Bill Version: CSHB 54 (HESS)
Publish Date: HOUSE 2/23/87

Revision Date: _____

Agency Affected: University of Alaska
BRU: UAF Organized Research

Title: Creating Alaska Seismic Hazard Center

Sponsor: Koponen

Components: _____

Requestor: House Hess

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES		17.0	17.5	18.0	18.6	19.1
TRAVEL		17.0	17.5	18.0	18.6	19.1
CONTRACTUAL		40.0	41.2	42.4	43.7	45.0
SUPPLIES		4.0	4.1	4.2	4.4	4.5
EQUIPMENT		22.0	22.7	23.3	24.0	24.8
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING		100.0	103.0	106.1	105.3	112.6

CAPITAL						
---------	--	--	--	--	--	--

REVENUE						
---------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND		100.0	103.0	106.1	109.3	102.6
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME		0	0	0	0	0
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary) See attached

Prepared by: Brian Rogers, Director of Budget Development Phone: 907 474-6490
 Division: University of Alaska Date: February 20, 1987
 Approved by: Vice President Shirley Petty Date: February 20, 1987
 Agency: University of Alaska

Distribution (by preparer):
 Legislative Finance
 Legislative Sponsor
 Requestor
 Office of Management and Budget
 Impacted Agency(ies)
 Senate Secretary

CONTINUATION OF FISCAL NOTE ANALYSIS

No. 1
2/23/87

For Bill/Resolution No. CSHB 54 (HESS)

In August 1986, the UAF Geophysical Institute agreed to take over the seismic hazard program from the Alaska Department of Natural Resources. The FY88 UA budget contains \$130.5 in partial funding for this program. The additional funding contained in this fiscal note provides funding of Alaska's program for collection, recording and archiving of seismic data at an annual level equivalent to the level when the program was transferred to UAF.


R-11-30

Alaska State Legislature
Representative Niilo Koponen

Pouch V
Juneau, Alaska 99811
(907) 465-4992

542 4th Avenue, Suite C
Fairbanks, Alaska 99701
(907) 456-8161

MEMORANDUM

TO: SENATOR COGHILL AND SENATOR FISCHER
FROM: REPRESENTATIVE NIILO KOPONEN 
DATE: MARCH 24, 1987
RE: HB 54 "AN ACT CREATING AN ALASKA EARTHQUAKE AND
VOLCANO HAZARDS ASSESSMENT PROJECT"

I would appreciate it if you would schedule HB 54 at your earliest convenience.

The purpose of this legislation is to ensure that the State of Alaska maintains a viable seismographic network to record Alaska's earthquake and volcanic eruptions, by establishing the Alaska earthquake and volcanic hazards assessment project within the University of Alaska's Geophysical Institute's seismology program.

HB 54 amends AS.14.40 (University of Alaska and Community Colleges) by adding the Alaska Earthquake and Volcanic Hazards Assessment project within the University. AS.41.08.020 (Geological and Geophysical Survey) will maintain it's same responsibilities except for section (6) which will now read "collect, evaluate and distribute geologic data on seismic events and engineering geology of the state.

HB 54 has a zero fiscal note. The Department of Natural Resources has agreed to transfer monies over to help offset the program costs. The House Health Education and Social Services Committee has attached a letter of intent that a request be made for federal monies from the Federal Earthquake Hazards Reduction Act of 1977 in order to match the state funding level for this program.

HB 54 passed the House March 18 with a vote of 39-0.

I have enclosed backup material. If you need any further information on this bill, please feel free to contact me or my staff assistant, Shari Paul

Alaska State Legislature
Representative Niilo Koponen

Pouch V
Juneau, Alaska 99811
(907) 465-4992

542 4th Avenue, Suite C
Fairbanks, Alaska 99701
(907) 456-8161

POSITION PAPER
HB 54 "AN ACT CREATING AN ALASKA EARTHQUAKE
AND VOLCANO HAZARDS ASSESSMENT PROJECT"
FEBRUARY 17, 1987

From the International impact of the 1912 Katmai explosion and 1964 earthquake to the more recent eruptions of Mount St. Augustine last year and in 1976, the State of Alaska has been voted for its seismic activity.

The purpose of this legislation is to ensure that the State maintains a viable seismographic network to record Alaska's earthquake and volcanic eruptions, by establishing the Alaska earthquake and volcanic hazards assessment project within the University of Alaska's Geophysical Institute's seismology program.

To implement this project, the Department of Geological and Geophysical Survey has agreed to transfer to this project the money for seismic monitoring and seismic hazard mitigation for the state of Alaska. DGS will continue to be responsible for the geological aspects of seismic hazard mitigation.

HB 54 amends AS.14.40 (University of Alaska and Community Colleges) by adding the Alaska Earthquake and Volcanic Hazards Assessment project within the University. AS 41.08.020 (Geological and Geophysical Survey) will maintain its same responsibilities except for section (6) which will now read "collect, evaluate and distribute geologic data on seismic events and engineering geology of the state".

The creation of the hazards assessment project will place the state of Alaska at the forefront of seismic studies within the nation and the world and provide the data necessary to protect lives and property and preserve safe, cost-effective economic development and land use planning.



Alaska State Legislature

Representative Mike Davis

P.O. Box V
Juneau, Alaska 99811
(907) 465-4930/4941

Interim Office:
P.O. Box 81435
Fairbanks, Alaska 99708

MEMORANDUM

To: Rep. Al Adams, Chairman
House Finance Committee

From: Rep. Mike Davis, Member
House Finance Committee

Date: March 9, 1987

Re: CSHB 54 (Hess); An Act creating an Alaska earthquake
and volcano hazards assessment project.

The House Finance Committee established a subcommittee to review CSHB 54, and the subcommittee was specifically directed to address conflicts regarding the bill's fiscal notes. The establishment of an Alaska earthquake and volcano hazards assessment project does not in itself have a fiscal impact, although there would be costs associated with the project's future activities.

Based on the information provided below, the subcommittee recommends that the bill be allowed to proceed with a zero fiscal note. The subcommittee further recommends that the fiscal note state that budget hearings are the proper forum in which to determine the level of funding to be appropriated for the project.

CSHB 54 is accompanied by two fiscal notes. DNR provided a net-zero fiscal note consisting of a 75.1 transfer from the department to the University of Alaska, whereas the university provided a fiscal note of 100.0 for FY 88 and of slightly more than 100.0 per year for the next four years.

These conflicts emanate from circumstances beyond either party's control. In August 1986, DNR and the university agreed to transfer the position and duties of the state seismologist from DNR to the university's geophysical institute, pending legislative approval. This agreement was based on the understanding that DNR would transfer to the university all of the funds that the department had allocated for that purpose.

The funds in question consisted of 75.1 from DNR's seismic engineering program and 56.4 from the department's seismic monitoring program, for a total of 131.5 [due to a 1.0 discrepancy, the university understood that 130.5 was involved in the transfer]. Prior to the agreement taking place between the agencies, funding for the seismic engineering program had been reduced from 115.7 to 75.1, and funding for the seismic monitoring program had been reduced from 83.0 to 56.4.

Subsequent to the agreement, DNR eliminated all funding for the seismic monitoring program. This funding was eliminated under the direction of OMB, since the 56.4 in question was a one-time-item appropriation that had been provided last year in HB 574.

The result of these actions is that the Department of Natural Resources FY 88 budget shows an outgoing transfer of 75.1 to the University of Alaska, whereas the University of Alaska FY 88 budget shows an incoming transfer of 130.5. The university's 100.0 fiscal note is intended as a supplement to the anticipated transfer of 130.5, for a total FY 88 budget of 230.5.

The subcommittee on CSHB 54 believe that these conflicts are best resolved through the budget process. It is the belief of the subcommittee that the sponsors of the legislation, the University of Alaska, and the Department of Natural Resources concur in taking this approach.

January 15, 1987

Mr. Merritt Helfferich
Assistant Director for Administration
Geophysical Institute
University of Alaska
Fairbanks, AK 99775-0800

Dear Mr. Helfferich:

The concern for the Seismic Monitoring function expressed in your November 26, 1986, letter is well founded and shared by the Department of Natural Resources. It is, and always has been, the practice of this department to honor its commitments. However, in this instance, a commitment was based on erroneous information. A brief background discussion of the issue may be useful.

Of the FY 87 operating budget appropriation for the Geology, Energy and Mining BRU, Land/Public Safety component, \$115.7 was allocated to the Seismic Engineering function. (This is the amount referenced in Pedro Denton's September 10, 1986, memorandum). Additionally, Section 212 of the Reappropriations Bill (CSHB 574) appropriated \$83.0 to the DGGs operating budget for monitoring of St. Augustine and for statewide monitoring. Section 213 provided an additional \$80.0 CIP appropriation for monitoring tsunami potential off St. Augustine. Governor Sheffield vetoed \$16.6 of the \$83.0 operating appropriation, leaving \$66.4 available for Seismic Monitoring. In July, the entire operating budget was reduced by Governor Sheffield as part of the "FY 87 Revised" budget. At that time, the Seismic Engineering operating budget allocation was reduced from \$115.7 to \$75.1, and the operating reappropriation (CSHB 574) was reduced from \$66.4 to \$56.4. (The \$80.0 CIP was completely restricted, but later made available.)

January 15, 1987

In August, 1986, an agreement was reached with the Geophysical Institute to transfer the Seismic Monitoring Program from DNR/DGGS to the University, with the following operating funding:

FY 87 Operating - Land/Public Safety Component	\$ 74.1
FY 87 Operating - Reappropriation Bill	56.4
TOTAL	<u>\$130.5</u>

(Reference Pat O'Rourke's August 27, 1986, memorandum. Additionally, please note that the agreement for \$74.1 is \$1.0 less than the allocation of \$75.1. This is due to a misunderstanding of the amount available by the DGGS representative.)

As we have since learned, the reduced reappropriation of \$56.4 is considered to be a one-time item and was not included in the department's FY 88 budget base. Unfortunately, DNR staff involved in developing the August agreement with the University was not aware of this fact. In essence, staff committed funds that were not available.

DNR has been advised by OMB that the FY 87 Operating Reappropriations Bill for \$83.0 (reduced to \$56.4 by the Governor) was a one-time item and would not be added to the budget base and could therefore not be transferred (via C-4) to the University.

In an attempt to carry through with the agreement, DNR has transferred all available Seismic Engineering funds, \$75.1 (\$1.0 more than the agreement) from the Land/Public Safety Operating Budget to the Geophysical Institute. We simply cannot transfer what we do not have.

We would need to further reduce funding for other DNR projects to transfer the additional \$56.4 to the University for FY 88. I am certain you will understand that, because of the severe program cuts already proposed in our FY 88 budget, this is an action we cannot take.

In light of these circumstances, it may be necessary to change the terms of the agreement or perhaps void it entirely. I suggest that DNR and University staff meet as soon as possible to discuss this matter. If this is agreeable, please contact Laurel Murphy in Anchorage (762-2170) concerning meeting arrangements.

Mr. Merritt Helfferich

-3-

January 15, 1987

I fully understand your concerns about this matter and hope that an acceptable solution can be found.

Sincerely,

Robert D. Arnold
Deputy Commissioner

cc: Laurel Murphy
Dick Reger
Virginia Stonkus

MEMORANDUM

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING & GEOLOGY

TO: Esther C. Wunnicke
Commissioner

State of Alaska

DATE: September 10, 1986

FILE NO:

TELEPHONE NO: 762-2177

FROM: Pedro Denton
Director

SUBJECT: Transfer of Seismic
Monitoring Program

As a result of the reduced FY 87 operating budget for the Division of Geological and Geophysical Surveys and because we anticipate that operating budgets will continue to decrease during the next few years due to sustained low oil prices, we are considering elimination of various DGGs programs. One program that was established when budgets were much larger is the Seismic Monitoring Program. Our present level of funding for this program (\$115.7) is about one-third the amount that we consider sufficient to maintain an adequate seismograph network in Alaska and to effectively coordinate seismic-monitoring efforts among the many agencies engaged in this activity. In addition, the layoff procedures recently agreed to between the State and APEA makes our ability to maintain the expertise necessary to the project very uncertain.

During the past several years, the Geophysical Institute of the University of Alaska (Fairbanks) has made important contributions in the area of seismic monitoring and engineering. This organization possesses the largest concentration of seismic specialists in the state. Discussions with Dr. Patrick O'Rourke, Chancellor of the Fairbanks campus, Dr. Juan Rhoderer, retiring Director of the Institute, and Dr. Syun Akasofu, incoming Director of the Geophysical Institute, resulted in a verbal agreement that the Geophysical Institute will accept available state funds to support maintenance of the existing seismic network for the rest of FY 87 and will provide an appropriate Research Associate position for our seismologist, John N. Davies, who will voluntarily leave DGGs and join the University staff. Our agreement also stipulates that an equivalent amount of seismic-monitoring funds will be deleted from the adjusted base for the FY 88 DMG operating budget and this amount will be added to the adjusted base of the University of Alaska (Fairbanks) operating budget. Further, it was agreed that in the future the University of Alaska Geophysical Institute will be responsible for generating funding support for seismic monitoring in Alaska and Institute personnel will accept responsibility for maintaining the existing seismograph network in Alaska and for coordinating their activities with other agencies engaged in seismic monitoring. Discussions between Dr. Akasofu and John Davies, who is presently on annual leave Outside, indicate that this arrangement is satisfactory. We are currently preparing an RSA for the balance of the project funding to complete the first step in the process of transferring the program out of DNR.

PD/lkb

cc: Dick Reger
Randy Updike

TRANSFERS FROM/DELETIONS:

AGENCY Department of Natural Resources
 BRU Geology, Energy and Mining
 COMPONENT Land & Public Safety
 PROJECT Seismic Engineering

TRANSFERS TO/ADDITIONS:

AGENCY University of Alaska
 BRU Organized Research
 COMPONENT Geophysical Institute
 PROJECT Seismic Monitoring

FUNDING INFORMATION

What is being transferred from or deleted from this unit? Why? Include PCN and position title.

The Seismic Engineering Project is being transferred to the University of Alaska to consolidate the State's Seismic Monitoring efforts. In the past this project has worked closely with the University to monitor and document earthquake activity in Alaska. This merging of the two programs will facilitate the management process and provide a measure of economy as fiscal resources decline.

AMOUNT	EXPEND. BY OBJECT	AMOUNT
(71.1)	100 Pers. Service	71.1
(1.0)	200 Travel	1.0
(2.0)	300 Contractual	2.0
(0.8)	400 Supplies	0.8
	500 Equipment	
	600 Lands/Bldgs.	
	700 Grants, Claims	
	800 Miscellaneous	
(75.1)	TOTAL	75.1
	I-A Transfer	
	1002 Fed. Receipts	
	1003 CF Match	
(75.1)	1004 General Fund	75.1
	1006 I-A Receipts	
	Other	
	15 PFT	
	16 PPT	
	17 Non Permanent	
	18 Staff Months	

What is being transferred to or added to this unit? Why? Include PCN and position title.

The Seismic Engineering Project is being transferred to the University of Alaska to consolidate the State's Seismic Monitoring efforts. In the past this project has worked closely with the University to monitor and document earthquake activity in Alaska. This merging of the two programs will facilitate the management process and provide a measure of economy as fiscal resources decline.

272

CA TRANSFER WITHIN ADJUSTED BASE

AGENCY Department of Natural Resources
 BRU Geology, Energy and Mining
 COMPONENT Land & Public Safety

Cowper 1/87

FY 88

Page 1 of 1
 Revised Date

PROJECT NUMBER	PROJECT TITLE	PRIOR YEAR FY 86 ACTUAL		CURRENT YEAR FY 87 AUTHORIZED										FY 88 REQUEST		GOVERNOR'S BUDGET	
		GENERAL FUNDS	TOTAL	GENERAL FUNDS	TOTAL	FY 87 REVISED		FY 88 TRANSFERS		FY 88 DECREMENTS		FY 88 INCREMENTS		GENERAL FUNDS	TOTAL	GENERAL FUNDS	TOTAL
						GENERAL FUNDS	TOTAL	GENERAL FUNDS	TOTAL	GENERAL FUNDS	TOTAL	GENERAL FUNDS	TOTAL				
98	Archaeological Surveys			250.0	250.0	212.5	212.5	(212.5)	(212.5)					0.0	0.0		
99	Archaeological RSA				470.6		470.6		(470.6)					0.0	0.0		
100	Statewide Engineering Geology			302.0	302.0	283.6	283.6	65.9	65.9	(49.4)	(49.4)			300.1	300.1	300.1	300.1
101	Seismic Engineering			115.7	115.7	75.1	75.1	(75.1)	(75.1)					0.0	0.0		
102	Statewide Seismic Monitoring			66.4	66.4	56.4	56.4			(56.4)	(56.4)			0.0	0.0		
103	Interagency Technical Support			704.3	704.3	595.0	595.0	(470.7)	(470.7)	(124.3)	(124.3)			0.0	0.0		
104	Federal Receipts Land/ Public Safety				97.0		97.0								97.0		97.0
105	Coastal Marine Boundary			316.8	316.8	296.8	296.8	358.9	358.9	(50.8)	(50.8)		105.4	604.9	710.3	604.9	604.9
106	District Survey			59.4	59.4	14.4	14.4			(14.4)	(14.4)			0.0	0.0		
107	Survey Coordination			337.3	337.3	288.3	288.3	(288.3)	(288.3)					0.0	0.0	0.0	0.0
108	Survey Operations			29.4	293.4	256.4	256.4	(71.0)	(71.0)	(30.0)	(30.0)		794.5	155.4	949.9	155.4	155.4
TOTAL																	

0120X

P1

PROJECT LISTING

AGENCY Department of Natural ResourcesLRU Geology, Energy and MiningCOMPONENT Land & Public Safety

Comper 1/87

FY 88

Page 1 of 2

Revised Date

STATE OF ALASKA
DIVISION OF BUDGET REVIEW

DATE: 01/28/87
TIME: 14:38:36
PROG: OPRRPT9

GOVERNOR'S FY '88 OPERATING BUDGET REQUEST COMPONENT SUMMARY

AGENCY: DEPARTMENT OF NATURAL RESOURCES
COMPONENT: LAND AND PUBLIC SAFETY

BUDGET REQUEST UNIT: GEOLOGY, ENERGY AND MINING

***** COMPARISON OF AGENCY BUDGET SUBMISSION TO GOVERNOR'S REQUEST, BY IMPACT ITEM *****

DESCRIPTION	REF NUM	TRANS TYPE	PROPOSED BY	AGENCY SUBMISSION					GOVERNOR'S REQUEST				
				PFT	PPT	TOTAL	GEN FUND	OTH FUNDS	PFT	PPT	TOTAL	GEN FUND	OTH FUNDS
FY '87 REVISED AUTHORIZATION				29.0	12.0	2,646.1	2,078.5	567.6	29.0	12.0	2,646.1	2,078.5	567.6
Transfer to provide ANWR Support	1515	TROUT	AGENCY	-1.0	0.0	-45.9	-45.9	0.0	-1.0	0.0	-45.9	-45.9	0.0
Transfer Publication Spec. to Land and Water	1516	TROUT	AGENCY	-1.0	0.0	-41.6	-41.6	0.0	-1.0	0.0	-41.6	-41.6	0.0
Transfer Archaeology function to Parks	1517	TROUT	AGENCY	-2.0	-5.0	-683.1	-212.5	-470.6	-2.0	-5.0	-683.1	-212.5	-470.6
Consolidate publications/information function	1518	TRIN	AGENCY	4.0	0.0	182.7	182.7	0.0	4.0	0.0	182.7	182.7	0.0
Transfer Seismic Engineering project to University	1519	ATROUT	AGENCY	0.0	0.0	-75.1	-75.1	0.0	0.0	0.0	-75.1	-75.1	0.0
Seismic Monitoring One-Time Item	2008	OTI	AGENCY	0.0	0.0	-56.4	-56.4	0.0	0.0	0.0	-56.4	-56.4	0.0
Juneau Surveyor position	2047	DEC	AGENCY	0.0	-1.0	-14.4	-14.4	0.0	0.0	-1.0	-14.4	-14.4	0.0
Reduce technical support divisions	2049	DEC	AGENCY	-3.0	-1.0	-124.3	-124.3	0.0	-3.0	-1.0	-124.3	-124.3	0.0
Engineering Geology position	2060	DEC	AGENCY	0.0	-1.0	-49.4	-49.4	0.0	0.0	-1.0	-49.4	-49.4	0.0
Downgrade land disposal surveyor	2089	DEC	AGENCY	-1.0	1.0	-30.0	-30.0	0.0	-1.0	1.0	-30.0	-30.0	0.0
Coastal Marine Boundary Surveyor	2090	DEC	AGENCY	-1.0	0.0	-50.8	-50.8	0.0	-1.0	0.0	-50.8	-50.8	0.0
Downgrade Ebks Mining Info positions	2092	DEC	AGENCY	-3.0	3.0	-53.9	-53.9	0.0	-3.0	3.0	-53.9	-53.9	0.0
Add AK Power Auth RSA receipts	2114	INC	AGENCY	0.0	2.0	288.3	0.0	288.3	0.0	2.0	288.3	0.0	288.3
Convert Survey Operation to Prgn Rcpts	2117	INC	AGENCY	7.0	0.0	476.3	0.0	476.3	0.0	0.0	0.0	0.0	0.0
Provide prior land disposal survey needs	2118	INC	AGENCY	5.0	1.0	282.0	0.0	282.0	0.0	0.0	0.0	0.0	0.0
Add Coastal Entry/SW Platting funding	2119	INC	AGENCY	0.0	0.0	141.6	0.0	141.6	0.0	0.0	0.0	0.0	0.0
*** COMPONENT TOTALS ***				33.0	11.0	2,792.1	1,506.9	1,285.2	21.0	10.0	1,892.2	1,506.9	385.3

→ Inlet change CIP

(4)

TITLE OF INCREMENT/DECREMENT: Line Item Spread	AGENCY CONTACT/PHONE NUMBER: John Davies 474-6166	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;">CODE</th> <th style="width:75%;">EXPENDITURE BY OBJECT</th> <th style="width:10%;">AGENCY REQ.</th> <th style="width:10%;">GOV'S REQ.</th> </tr> </thead> <tbody> <tr><td>100</td><td>Personal Services</td><td></td><td></td></tr> <tr><td>200</td><td>Travel</td><td>12.3</td><td></td></tr> <tr><td>300</td><td>Contractual Services</td><td>49.4</td><td></td></tr> <tr><td>400</td><td>Supplies</td><td>4.7</td><td></td></tr> <tr><td>500</td><td>Equipment</td><td></td><td></td></tr> <tr><td>600</td><td>Lands, Buildings, Etc.</td><td></td><td></td></tr> <tr><td>700</td><td>Grants, Claims, Etc.</td><td></td><td></td></tr> <tr><td>800</td><td>Miscellaneous</td><td>(66.4)</td><td></td></tr> <tr><td colspan="2" style="text-align: center;">TOTAL</td><td>0.0</td><td></td></tr> <tr><td colspan="4" style="text-align: center;">I-A Transfer (NON-ADD)</td></tr> <tr><td>1002</td><td>Federal Receipts</td><td></td><td></td></tr> <tr><td>1003</td><td>General Fund Match</td><td></td><td></td></tr> <tr><td>1004</td><td>General Fund</td><td></td><td></td></tr> <tr><td>1006</td><td>I-A Receipts</td><td></td><td></td></tr> <tr><td></td><td>Other</td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: center;">POSITION INFORMATION</td><td>PFT</td><td></td></tr> <tr><td colspan="2"></td><td>PPT</td><td></td></tr> <tr><td colspan="2"></td><td>Non Permanent</td><td></td></tr> <tr><td colspan="2"></td><td>Staff Months</td><td></td></tr> </tbody> </table>	CODE	EXPENDITURE BY OBJECT	AGENCY REQ.	GOV'S REQ.	100	Personal Services			200	Travel	12.3		300	Contractual Services	49.4		400	Supplies	4.7		500	Equipment			600	Lands, Buildings, Etc.			700	Grants, Claims, Etc.			800	Miscellaneous	(66.4)		TOTAL		0.0		I-A Transfer (NON-ADD)				1002	Federal Receipts			1003	General Fund Match			1004	General Fund			1006	I-A Receipts				Other			POSITION INFORMATION		PFT				PPT				Non Permanent				Staff Months	
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C5	INCREMENT/DECREMENT REQUEST
Agency Priority _____ of _____	

AGENCY Department of Natural Resources

BRU Geology, Energy and Mining

COMPONENT Land & Public Safety

PROJECT Statewide Seismic Monitoring

FY87 REVISED

FY 88

Page 1 of 1
Revised Date _____

TITLE OF INCREMENT/DECREMENT: 15% Reduction		AGENCY CONTACT/PHONE NUMBER: John Davies 474-6166		CODE	EXPENDITURE BY OBJECT	AGENCY REQ.	GOV'S REQ.
DESCRIBE WHY THIS INCREMENT/DECREMENT IS NEEDED AND WHAT IT PURCHASES: Reductions to this project will limit the installation of monitoring devices on Mt. Augustine and throughout Southcentral Alaska. Funding is also intended to provide for the monitoring, telemetry, and analyses of the devices. At the reduced level only limited interpretation of the data is possible, primarily resulting in only archive of information obtaine.				100	Personal Services		
				200	Travel	(5.0)	
				300	Contractual Services	(5.0)	
				400	Supplies		
				500	Equipment		
				600	Lands, Buildings, Etc.		
				700	Grants, Claims, Etc.		
				800	Miscellaneous		
				TOTAL		(10.0)	
				I-A Transfer (NON-ADD)			
				1002	Federal Receipts		
				1003	General Fund Hatch		
				1004	General Fund	(10.0)	
				1006	I-A Receipts		
					Other		
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Agency Priority _____ of _____

AGENCY Department of Natural Resources
BRU Geology, Energy and Mining
COMPONENT Land & Public Safety
PROJECT Statewide Seismic Monitoring

FY87 REVISED

FY 88

Page 1 of 1
Revised Date _____



APR 13 1987

April 10, 1987

Jack Coghill
Chair, Senate Resources Committee
PO Box V (Mail Stop 3100)
Juneau, AK 99811

VOLCANIC HAZARDS OF MT. ST. AUGUSTINE

Enclosed, for your information, is a copy of a brief summary of our key public responses to the recent eruption of Mt. St. Augustine, which we put together in response to a request from Henry Cole, Science Advisor to the Governor. The key to our response was the remote seismograph network on the volcano that is radio-linked to our Fairbanks laboratory.

We hope that this information will be useful to you in discussions concerning the bill introduced by Nilo Koponen to create the State Seismologist/Volcanologist position. Please call us if you have any further questions.


JUERGEN KIENLE (474-7467) AND JOHN DAVIES (474-6166), GEOPHYSICAL INSTITUTE

vli
Enclosures

Geophysical Institute, University of Alaska
Fairbanks, Alaska 99775-0800

PHONE: 907-474-7558 TELEX: 35414 GEOPH INST FBK
FAX: 907-474-7290 TELEMAIL: GEOPH.INST.FBK



MEMO March 30, 1987

TO: Henry Cole

FROM: John Davies and Juergen Kienle

SUBJECT: Monitoring of the 1986 eruption of Augustine

Per your request, we have prepared the attached, one page account of our key actions during the recent eruption of Mt. St. Augustine. Implicit in this account is the fact that none of these public service actions would have been possible without the continuous operation of the seismic network on and around Augustine over the past 15 years or so. As you are aware this capability is now in jeopardy since we have no funding to continue this work beyond July 1, 1987.

Also attached are copies of

1. letter from Cervantes, Director, OES, Anchorage
2. letter from Miller, volcanologist, USGS, Anchorage
3. Aviation Week article of April 7, 1986
4. Geo. Inst. Quarterly issue of July 1986
5. EOS article of April 8, 1986
6. EOS article of July 22, 1986

These will provide considerable background and amplification to our necessarily limited one-page account. Please call if you need any further info.

Geophysical Institute, University of Alaska
Fairbanks, Alaska 99775-0800

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FAX: 907-474-7290 TELEMAIL: GEOPH.INSTFBK

KEY ACTIONS RESULTING FROM THE SEISMIC MONITORING CAPABILITY OF
THE GEOPHYSICAL INSTITUTE DURING THE RECENT ERUPTION OF MT. ST.
AUGUSTINE VOLCANO IN MARCH AND APRIL OF 1986

John Davies and Juergen Kienle, March, 1987

Public alerts and interpretations of the seismic activity of Mt. St. Augustine during the 1986 eruption were based on an understanding of the patterns of seismic activity gained from research on previous eruptions. Much of this information was presented in a 1985 report by Kienle and Swanson entitled "Volcanic Hazards from Future Eruptions of Augustine Volcano, Alaska". In particular, this report contained an observation that successive intervals between eruptions of Mt. St. Augustine were systematically decreasing (see Fig. 2, July 22 EOS) such that only 12 years had elapsed between the 1964 and 1976 eruptions and that if this pattern continued we could expect another eruption about a decade following 1976.

The first hint that Mt. St. Augustine was reawakening was a swarm of small volcanic earthquakes in July, 1985. With increasing seismic activity and reports of fumarolic activity in February, 1986 (see Fig. 3, July 22 EOS) we participated in the decision to alert the FAA, USAF, and DES. By prior agreement this task fell to the USGS in Anchorage. In our discussions we noted that in 1976 a swarm of volcanic earthquakes had preceded the eruption by about 8 months, a pattern that was repeated in 1986. Our concerns are documented in an article written for EOS in early March and published on April 8, 1986 with an editor's note to the effect that events had justified our concerns.

On the afternoon preceding the eruption we noted the dramatic increase of activity (Fig. 3, loc. cit.) and made two phone calls to the USGS suggesting that follow-up alerts to the briefing meetings were in order. At about 2AM on March 27 Mt. St. Augustine erupted and for the next ten days a 24-hour per day watch was maintained in the Seismology Lab of the Geophysical Institute. During this watch we were able to provide minute by minute reports of new plume activity. This information was provided immediately to DES, the Governor's Office, USGS, and through them to the FAA, USAF and the Coast Guard.

Early on March 27 the Air Force evacuated many of their aircraft from the Anchorage area and for three days commercial air service nearly ceased. The immediate threat was to aircraft and fishing vessels operating in the vicinity of Mt. St. Augustine. Other concerns were whether the ash clouds would require the closure of the Beluga power plant, schools and offices in Anchorage. We were asked to provide input to these decisions of the Municipality of Anchorage through the DGGS. Through DES and local emergency officials we provided advice and information to the people on the lower Kenai Peninsula. A major concern here was the possibility of a repeat of the 1883 volcanogenic tsunami. Scientists from the Institute and IMS received emergency NSF funds to model the effects of the impact in the sea of a major debris avalanche from Mt. St. Augustine (Fig. 5, July 22 EOS). This effort confirmed the seriousness and quantified the time frame and spatial extent of the hazard.

Municipality of Anchorage



FIRE DEPARTMENT
Administration
(1361 East 80th Avenue)

POUCH 6-650
ANCHORAGE, ALASKA 99502-0650
(907) 267-4900

TONY KNOWLES
MAYOR

March 12, 1987

Dr's. Juergen Kienle
and John Davies
Geophysical Institute
University of Alaska
Fairbanks, Alaska 99775-0800

Dear Sirs:

I would like to take this opportunity to comment on the valuable services provided by the Geophysical Institute during the volcanic eruption of Mt. Augustine in 1986. The observations provided by the Institute and the United States Geological Survey were critical to the decision-makers in the Municipality of Anchorage in determining actions contemplated if a serious emergency had occurred.

When Mt. Augustine erupted on March 27, 1986, the plume of ash-fallout was directed to the northeast up Cook Inlet and towards Anchorage and the power station at Beluga. Initially, there was not much concern, until it was learned of the potentially deleterious effects the ash could have on electrical generators and turbines. If significant amounts of ashfall were detected approaching these power stations, there would have been no alternative to shutting down the generators, causing the loss of between 67 and 75% of the electrical service provided to the Municipality. The potential for the disruption of day-to-day activities could have been devastating. As it was, a large segment of the municipal, state and federal workforce was released to go home in anticipation of traffic jams caused by the loss of signals from power failures.

The Emergency Operations Center was activated at 11:00 a.m. on March 27th in order to monitor volcanic activities and keep the administration advised on the latest information from Mt. Augustine. The EOC maintained its operation for 69 hours until it could be determined that volcanic activity subsided or significant wind changes occurred.

The most prevalent rationale for keeping the EOC open was to monitor reports coming from the Geophysical Institute, USGS, Alaska Division of Emergency Services, Weather Service, and the Federal Aviation Administration. After subsidence in

Dr's. Kienle & Davies

March 12, 1987

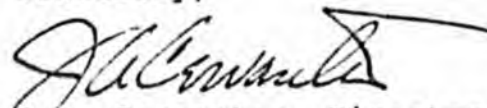
Page Two

volcanic activity; the EOC was closed. However, the potential for another significant eruption demanded the close liaison between the Municipal Office of Emergency Management and the Geophysical Institute, at least through the months of April and May, 1986.

One year later the potential for another catastrophic volcanic eruption has not diminished. To reduce the vulnerability of ash damage to major electrical generators will cost millions of unavailable dollars to acquire air filtration systems. The electric companies are unwilling to expend monies for a contingency they perceive to be remote. It makes more economic sense to them to have sufficient warning to shut down generators in case of ashfall approaching their power plants. Therefore, it would appear the burden will fall to the Geophysical Institute to provide continuous monitoring of volcanoes that can produce ashfall with potential to inundate the upper Cook Inlet.

For the foreseeable future, the Office of Emergency Management will continue to rely upon the services of the Geophysical Institute for information concerning the seismic activity of the Cook Inlet volcanoes. Needless-to-say, the loss of the Geophysical Institute's monitoring program would produce a crippling effect on Anchorage's emergency preparedness.

Sincerely,


J.A. Cervantes, Director
Office of Emergency
Management

JAC:mj



United States Department of the Interior

GEOLOGICAL SURVEY

Branch of Alaskan Geology
4200 University Drive
Anchorage, Alaska 99508-4667

March 25, 1987

Drs. John N. Davies and Juergen Kienle
Geophysical Institute
University of Alaska
Fairbanks, Alaska 99775-0800

Dear John and Juergen:

As we approach the anniversary of the March 27, 1986, eruption of Augustine volcano, I think it's appropriate to acknowledge the response of the seismological group at the Geophysical Institute to the eruption and to the hazards posed to life and property.

The five station seismic array on the island proved invaluable in interpreting events both prior to and during the three main episodes of eruptive activity. The precursor seismic activity coupled with our visual overflights allowed us to brief the Division of Emergency Services, the FAA, the USAF, and the media about the hazards and nature of possible Augustine eruptions several weeks prior to the actual event. Many of the changes in the character of the eruption were detected seismically and allowed timely notification of the appropriate government agencies and the general public. Much was learned in terms of eruption prediction and in basic science.

I hope you will be able to continue the seismic monitoring of Augustine volcano and indeed to participate in additional geophysical monitoring in the future. We all know the hazards associated with Augustine volcano; the 1986 eruption was "for practice" and with the knowledge gained from the eruption and the 10 years of background research on the island by the Geophysical Institute, we can respond to future eruptions so as to protect the public. Let's hope the funding for our hazard-related studies continues.

Congratulations on a job well done.

Sincerely yours,

Dr. Thomas P. Miller
Chief,
Alaska Volcanic Hazards Project

NTSB impounds United 767 After Engine Power Loss

San Francisco—National Transportation Safety Board has impounded a United Airlines/Boeing 767 transport while it seeks to learn what caused both engines to lose power briefly, shortly after takeoff from here Mar. 31.

Soon after the incident, United instructed its flight crews to change procedures for operation of its 767s' Pratt & Whitney JT9D-R4D engines.

The aircraft, Flight 310 bound for Denver with 183 passengers, was passing through 3,400 ft. when both engines lost power, according to the NTSB. The board has designated the occurrence an accident.

A United official said the engines were out for about 30 sec., but that the aircraft did not lose altitude during that time. The engines were restarted and the aircraft returned to San Francisco International Airport, landing without incident, the airline official said.

The NTSB official said the aircraft was impounded here because board investigators need to examine and test such items as the engines and electrical system. The cockpit voice recorder and flight data recorder were removed and were scheduled to be taken to Washington, D. C., for analysis.

The United official said engine power was lost when the flight crew switched from manual operation to the engine electronic control system. He said that shortly after the incident, United's 767 crews were instructed not to make the switch until the aircraft had reached 30,000 ft., and to make the change one engine at a time rather than simultaneously.

Routine Switch

A Pratt & Whitney official said the company has made no recommendation as to when the switch should be made. United routinely disengages the system before takeoff and reengages it at about 3,000 ft., he said. Other operators keep the system engaged during takeoff, he said.

While the 767 is designed to operate with the electronic engine control (EEC) system engaged at all times, United last year elected to operate with it disengaged during takeoff and climb after a problem with the system's overtemperature warning feature caused three incidents of power reduction. Two of these occurred in flight during climb and one on takeoff, causing an abort, according to an industry official source. The problem was due to chafing of the wire harness for the exhaust gas temperature (EGT), which signaled a false impending overtemperature warning and tripped a throttle cutback.

Operators were advised of the problem

by Boeing and the EEC manufacturer—United Technologies' Hamilton Standard Div.—and instructed how to delete the overtemperature feature. As United had experienced the three spurious warning incidents, it elected to disengage the system during takeoff and climb pending deletion of the feature, according to an industry official source.

No Apparent Cause

There is no immediately apparent reason for engaging the EEC to cause engine power loss, he said. Engagement involves lifting the plastic guards on two buttons located on the aisle stand just below the throttle levers and pushing the buttons.

The same aircraft—also operating as Flight 310—was involved in a dual-engine shutdown incident on Aug. 19, 1983, on a Los Angeles-Denver flight, but the occurrences appear to be unrelated (AW&ST Aug. 29, 1983, p. 30). In that case, a compressor stall related to an anti-ice valve malfunction led to both engines overheating, being purposely shut down and then restarting, United said. The airline pointed out that the engines have been changed several times since that incident, most recently within the last 60 days. □

Ransome Airlines Buy

Washington—Pan Am Corp. is planning to purchase Ransome Airlines, which is scheduled to begin full operation under the name Pan Am Ransome Express by June 1.

"A key element of Pan Am's marketing strategy is to increase its U.S. domestic feed," C. Edward Acker, chairman and chief executive officer of Pan Am Corp. and Pan American World Airways, said. Approximately 70% of the airline's business is international.

Ransome, a regional carrier, will become the third subsidiary of Pan Am Corp. The other two are Pan American World Airways and Pan Am World Services, Inc., a contract services company specializing in aviation and aerospace management and technical assistance.

Pan Am Ransome Express will operate a feeder system linking Pan American's Kennedy International Airport service with Albany, Rochester and Syracuse, N. Y.; Hartford and New London, Conn.; Providence, R. I.; Allentown, Lancaster and Philadelphia, Pa.; and Baltimore, Md.

Pan Am Ransome Express will continue to operate flights on its existing routes. The transaction is subject to regulatory review and a definitive buy agreement.

Alaskan Air Traffic Disrupted by Ash From Volcano

San Francisco—Volcanic ash from eruptions of Alaska's Augustine volcano last week was disrupting commuter air traffic in the southern Alaska area, while operations at Anchorage International Airport had returned to normal following a three-day period of flight cancellations.

Air carrier service at Anchorage was nearly at a standstill Mar. 27-29, due to clouds of highly abrasive volcanic ash that were driven into the Anchorage and Kenai Peninsula areas by southerly winds. The National Weather Service reported that the wind subsequently shifted to a northerly direction, carrying the airborne ash away from those areas and over Kodiak Island, where it has disrupted commuter airline traffic between Anchorage and the airports at Kodiak and King Salmon.

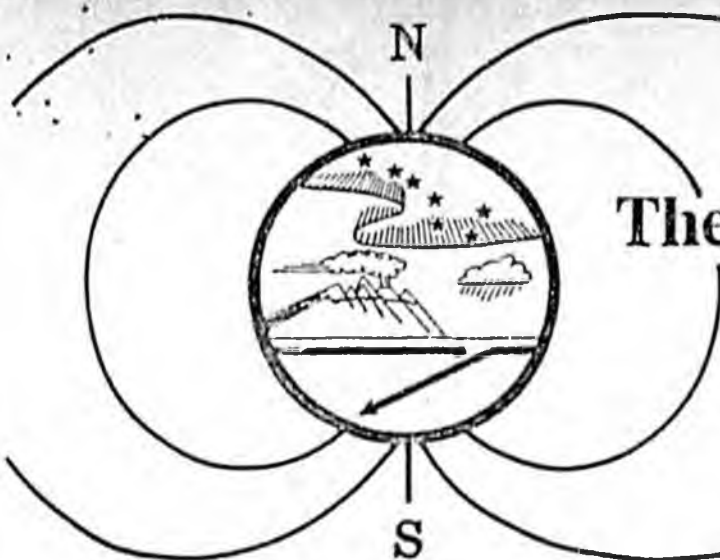
The volcano, located on Augustine Island in the lower Cook Inlet about 175 mi. southwest of Anchorage, began a series of eruptions during the early morning of Mar. 27 that continued last week. According to the National Weather Service, the volcanic ash cloud has stayed below 15,000 ft., but a strong eruption Mar. 31 sent ash up to as high as 30,000 ft.

Operations Impact

Alaska Airlines reported the worst impact on its operations occurred Mar. 28, when it canceled 40 Anchorage arrivals and departures out of 78 scheduled operations, and also canceled a few flights to Fairbanks. During the three-day period, the airline was deleting the Anchorage stop of many of its Seattle-Anchorage-Fairbanks flights, resulting in many Anchorage-bound Easter travelers being delayed until flight conditions improved.

Western Airlines canceled its entire schedule of flights to and from Alaska Mar. 27-28, and flew a partial schedule on Mar. 29. Affected were flights between Anchorage and the Pacific Coast, Salt Lake City, Utah, and Honolulu. United Airlines, Northwest Airlines and other international carriers also canceled service during the period of worst ash conditions. United cancelled 35 Alaska flights during the Mar. 27-29 period.

A Federal Aviation Administration official reported that general aviation operations were very limited at Anchorage and surrounding areas during the Mar. 27-29 period, and the FAA's Alaska region office "strongly suggested" that pilots not fly in the Kenai Peninsula area. The FAA reduced the staffing of its Kenai flight service station to one person per shift, and shut down its air-route surveillance radar for a two-day period at that location to prevent equipment damage. □



The Geophysical Institute QUARTERLY

Editors: Gunter Weller
Carla Helfferich
Sue Keller
(907)474-7371

Vol. 4, No. 4

University of Alaska-Fairbanks

July 1986

Public Safety vs. Augustine's Eruption

Although all scientific work on hazardous natural phenomena such as weather, earthquakes, and volcanic eruptions can advance the public safety, sometimes direct considerations of safety demand specific actions. These actions are normally at the fringes of scientific research and become important only during some crisis, as in the eruption on March 27, 1986, of Augustine Volcano. That eruption called for coordinated action among several agencies, in an attempt to communicate in the most meaningful way possible a prediction of what could happen next and how it would affect the public. The agencies involved were the Geophysical Institute, the Alaska Division of Geological Surveys (DGGS), and the U.S. Geological Survey (USGS).

In February 1982 DGGS sponsored a meeting on seismic, volcanic, and tsunami hazards in Alaska. Following this meeting an informal agreement and a pooling of resources among the Geophysical Institute, DGGS, and USGS created a minimal Cook Inlet volcano monitoring capability at the Anchorage USGS office in Gould Hall. In addition to monitoring each of the Cook Inlet volcanoes from Augustine to Spurr, this informal "observatory" served as a continual reminder of the need to formalize a national research program centered on Alaska's volcanoes, to seek stable funding, and to decide how each agency would respond to a future volcanic event.

A Geophysical Institute report published by Juergen Kienle and Samuel Swanson in February 1985 gave a detailed

chronology and description of the previous eruptions of Augustine, especially those of 1963-64 and 1976. The generalized sequence of events in the previous eruptions was the scientific basis for the forecasts made at various stages of the 1986 eruption. Of course, none of the eruptive sequences were identical, so frequent re-interpretations of the events were necessary to assess the potential for future eruptive activity.

The first indication that Augustine was reawakening was a swarm of microearthquakes in July 1985. Our level of concern began to accelerate in February as the seismicity and the frequency of reports of fumarolic activity increased. In mid-March the USGS arranged meetings to brief the Federal Aviation Administration (FAA), the Air Force (USAF), and the State Division of Emergency Services on the potential hazards from an eruption of Augustine Volcano. On March 22, with support from DGGS, Geophysical Institute scientists visited Augustine to repair some of the existing seismic stations and to install one additional station, bringing the total on the island to five. On March 26 a dramatic increase in the seismicity rate from a few hundred events per day to 6,000 per day prompted an informal prediction that the volcano would soon erupt: it did, at two o'clock the next morning.

The demand for information during the first phase of the eruption was overwhelming. As many state and local agencies were referring calls to the USGS, the major burden of providing information

fell on the Gould Hall staff, who remained on duty around the clock during this phase. Personnel from DGGS and the Geophysical Institute kept a 24-hour-a-day watch at the Institute's Seismology Lab. Volcanologists from the USGS Cascade Volcano Observatory in Vancouver, Washington, assisted both at Gould Hall in Anchorage and at the Seismology Lab in Fairbanks.

Because the seismic events were again increasing, at an information meeting in Homer on April 22 a second informal prediction was made that a dome-building phase would soon begin. With the continued increase in event counts on the 23rd, the prediction was communicated to the FAA, the USAF, the Coast Guard, and the State Division of Emergency Services as well as to the press.

A new dome was emplaced during the period April 24-27. This phase was not accompanied by dramatic eruptive plumes (a possibility mentioned in the prediction given to the press), leading the media initially to report this as a failed prediction, while in fact it was in its main aspect completely correct.

Between and following the two main phases of the eruption, volcanologists from USGS, DGGS, and the Geophysical Institute visited the volcano to map and sample the flows, to repair the seismic stations, and to survey geodetic deformation networks. During the summer field season we hope to complete several research projects that will allow improved predictions of future eruptions of Augustine.

*John Davis
Alaska State Seismologist, DGGS*

VGP (cont. from p. 171)

News & Announcements

Augustine Volcano: Awake Again?

Editor's Note: The question posed in the title of the following item, which was written on March 20, was answered in the affirmative at 12:30 A.M. (Alaska time, equal to UT -9h) on March 27, 1986. As of March 31, the eruption had produced numerous pyroclastic flows, and the eruptive column had reached a maximum altitude of 14 km (see Figure 1). Air traffic in and out of Anchorage was disrupted. The 1976 dome is presumed to have been destroyed.

The first microearthquake activity since the spectacular eruptions of 1976 is occurring on Augustine Volcano, Cook Inlet, Alaska. Activity began in July 1985 and now averages 30-50 events of greater than 0.5 magnitude per day. The events are shallow, less than 1000 m deep, and occur within the 1976 lava dome. Beginning in mid-February 1986, numerous pilot reports have documented a dramatic increase in fumarolic activity, with associated melting of snow, light ashfalls, and plumes extending as far as 10 km from the summit.

The postglacial andesitic island volcano in the eastern Aleutian arc has had five significant eruptions since Captain James Cook discovered and named it on May 10, 1778 (St. Augustine's Day). Major eruptions occurred in 1812, 1883, 1935, 1963/1964, and 1976, each dramatically modifying the volcanic edifice. There has been a curious shortening of repose times, from 71 yr to 52 to 28 to 12, for these five historic eruptions. If the pattern of decreasing repose time between eruptions continues, another eruption may be imminent. The highly explosive nature of Augustine's eruptions and their short recurrence rate make Augustine the most hazardous volcano in the most populous part of Alaska.

The volcano is a symmetrical 1200-m-high cone consisting of an apron of pyroclastic deposits and a central complex of dome and dome remnants. Lava flows are rare. Augustine lavas are predominantly andesitic (57%-63% silica) with minor dacite and basalt. Eruptions are typically 0.5 km³ in volume (dense magma equivalent) and resemble those of Mount St. Helens, Washington, in character and explosivity.

Augustine eruptions typically begin with an explosive vent-clearing phase. During this phase, collapse of tall (10-15 km) eruption columns produces extensive pyroclastic flows that commonly reach the sea on nearly all flanks of the volcano. If the eruption occurs

in winter, melting of snow produces lahars. The last five eruptions all ended with extrusion of a new lava dome into the crater, often with spine development (in 1812, 1964, and 1976). Block and ash avalanche activity and *nubes ardentes* often accompanies dome extrusion as sections of the emerging dome collapse. During the last four eruptions, the block and ash avalanche paths were predominantly directed to the north-northeast through a northern breach in the summit crater.

Augustine Island is uninhabited. The nearest population centers are on the Kenai Peninsula and at Lake Iliamna, about 100 km distant. Nevertheless, historic eruptions of Augustine Volcano have had effects reaching that far and farther, including heavy regional ash falls and tidal waves, a special hazard of Augustine Volcano because of its island setting. Sudden displacement of a large volume of sea water by impact of a dry debris avalanche produced a tsunami in Cook Inlet during the 1883 eruption. G. Davidson gave a vivid description of the October 6, 1883, event in a paper published in 1884 in *Science*:

Twenty-five minutes after the great eruption, a great "earthquake wave," estimated as from twenty-five to thirty feet high, came upon Port Graham like a wall of water. It carried off all the fishing boats from the point, and deluged the houses. This was followed, at intervals of about five minutes, by two other large waves, estimated at eighteen and fifteen feet; and during the day several large and irregular waves came into the harbor . . . Fortunately it was low water, or all the people at the settlement must inevitably have been lost. The tides rise and fall about fourteen feet.

New, detailed mapping of the bathymetry surrounding Augustine Island has revealed at least five hummocky debris avalanche lobes extending up to 6 km offshore, suggesting repeated collapse of the volcanic edifice in the prehistoric past. Each one of these collapses could have been tsunamigenic. Avalanches of debris and of block and ash have enlarged the island to the north and west to a distance of 6-8 km from the vent, suggesting that the more recent pyroclastic flow activity was directed predominantly north and west. However, the distance from summit to shore on the southern and eastern flank of the volcano is only 3.5-5 km, and a debris avalanche descending in these directions could again produce tsunamis. A tsunami generated at Augustine would cross Cook Inlet to the nearest settlement in about 50 min to 1 hr. Such a wave today, particularly during the summer when there is heavy recreational use of the lower Kenai Peninsula shoreline, could take many lives and cause great property damage.

Regional ash falls from Augustine Volcano can be expected to affect much of the Cook Inlet area from Anchorage to Kodiak and out to the Gulf of Alaska. High-altitude winds will control ash dispersal; prevailing lower Cook Inlet winds are from the west, south-

west, and south. This wind pattern would disperse Augustine ash across Cook Inlet to Homer or Kenai or up the Inlet to Anchorage. Ash did spread over Kenai Peninsula communities during all five previous historic eruptions. During one particular ash fall, on January 25, 1976, a fall of sand grain-sized tephra reduced visibility in Homer at a distance of 100 km to a few hundred meters. The timing, cloud heights, and horizontal dispersion for 15 eruptions that occurred between January 15 and 22, 1976, were determined from radar measurements, reports of pilots intercepting the plumes, satellite photography, seismic data, and detection of infrasonic waves. Several of the plumes penetrated the stratosphere and were carried rapidly by the subpolar jet stream through southwestern Canada and the western United States, then northeast across the United States into the Atlantic. One plume was visually observed passing over Tucson, Ariz., on January 25.

Plumes of volcanic ash are a major hazard to airliners traveling at high altitudes. Anchorage, a metropolitan area of approximately 250,000 people (60% of Alaska's population), is a hub of commercial, civil, and military air traffic. A major approach route for the daily international trans-polar flights to Europe and also to Japan and the Far East is along Cook Inlet, downwind from Augustine Volcano. Aircraft could easily fly inadvertently into an ash cloud at night or in bad weather. Five civil and military aircraft (two F-4 Phantom jets, two DC-8's, and one Boeing 747) did in fact intercept hidden plumes from Augustine under overcast conditions in January 1976 during the violent vent-clearing phase of that eruption. Fortunately, nothing serious happened aside from heavy scouring of windshields, outside antenna leads, wings, and external tanks and ingestion of fine dust into the cockpits of the two F-4 Phantoms. However, the recent near-fatal encounters of two Boeing 747 passenger jetliners with eruption clouds from Galunggung, Indonesia, in 1982 are a reminder of how dangerous encounters of aircraft with ash-laden plumes can be. Ash ingested into jet aircraft engines, which operate at temperatures close to the melting point of andesitic tephra, can cause engine failure within minutes as turbine blades become coated with ceramic-like melted ash.

At present, monitoring of Augustine is minimal, with four radio-telemetered seismic stations and occasional visual overflight observations. One of the seismic stations is telemetered to Gould Hall on the Alaska Pacific University campus in Anchorage, where the U.S. Geological Survey (USGS) Branch of Alaska Geology (USGS-AB) offices are located. At the moment, there is an informal cooperative agreement, known as the Alaska Volcano Observatory, between the University of Alaska's Geophysical Institute in Fairbanks, where all four Augustine stations are being recorded, the USGS-AB, the State of Alaska Department of Natural Resources Di-

vision of Geological and Geophysical Surveys, and the Alaska Division of Emergency Services to coordinate responses to volcanic emergencies.

Although seismicity, tilt, and deformation patterns are fairly clearly related at certain basaltic volcanic centers (e.g., Krafla in Iceland, Kilauea in Hawaii), the relationship is not clear for andesitic volcanos. A problem has been that in many cases, detailed instrumentation at andesitic volcanos was installed only after the main eruptions had already occurred. Augustine, which may have entered a preparation stage for a new eruption, offers the best opportunity in the United States at present to test our forecasting theories and abilities.

This item was submitted by Juergen Kienle, Department of Geology and Geophysics and the Geophysical Institute, University of Alaska, Fairbanks.

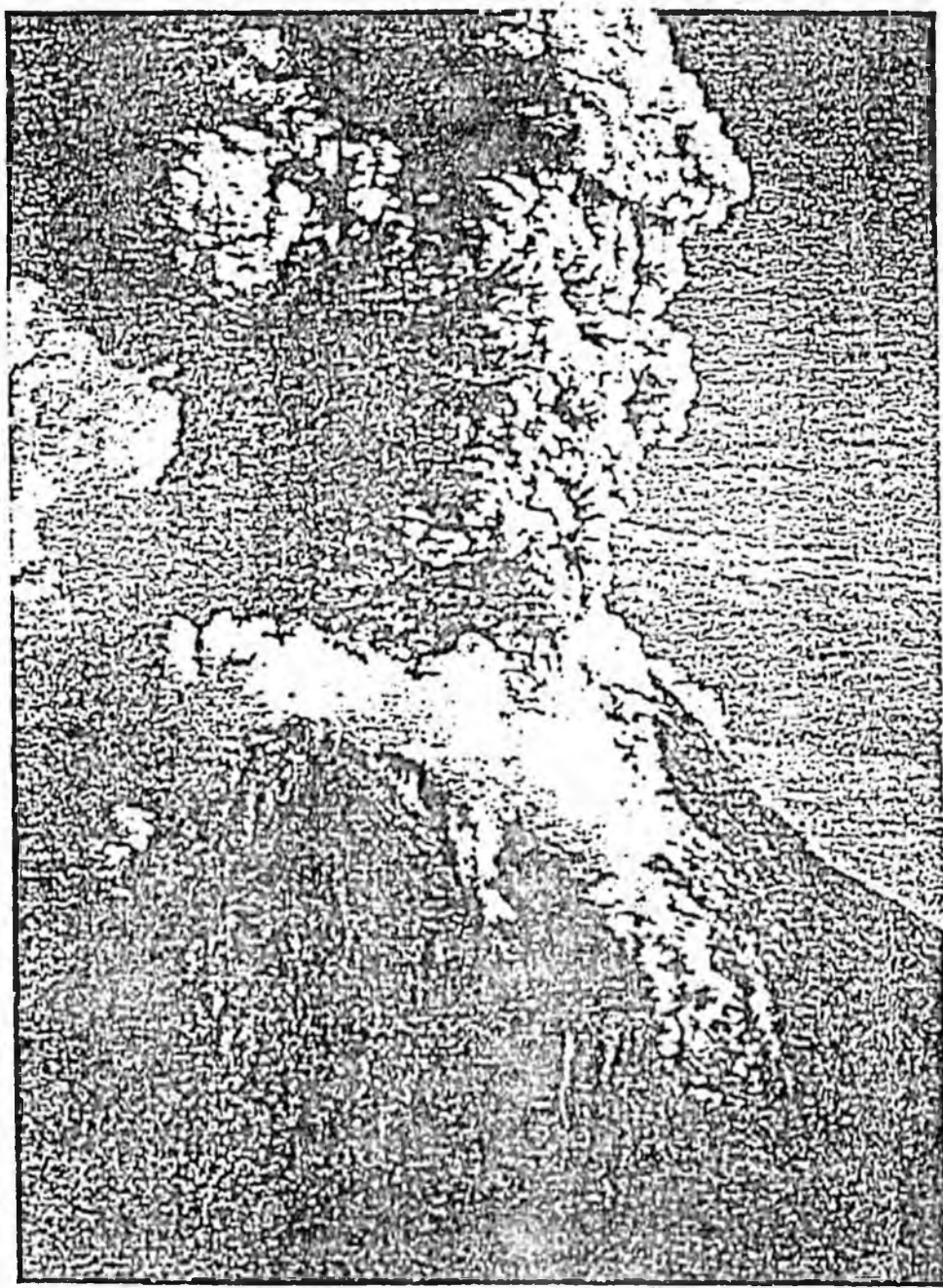


Fig. 1. Augustine Volcano, Alaska, in relatively mild eruption on March 31, 1986. This steady state plume was observed 5 h after a major explosion hurled debris to an altitude of 14 km, as observed by radar and a Japanese jetliner. Photograph by Juergen Kienle.

EOS July 22, 1986.

The VGP News

News & Announcements

1986 Eruption of Augustine Volcano: Public Safety Response by Alaskan Volcanologists

Although, in a general sense, all scientific work on hazardous natural phenomena such as weather, earthquakes, and volcanic eruptions can advance the public safety, we wish to describe some specific actions that were motivated by direct considerations of safety. These kinds of actions are normally at the fringes of scientific research and become important only during some crisis; in this instance, the crisis was the eruption on March 27, 1986, of Augustine Volcano (Figure 1). The agencies involved were the Geophysical Institute of the University of Alaska (UAGI), the Division of Geological and Geophysical Surveys of the State of Alaska (DGGs), and the Alaska Branch of the United States Geological Survey (USGS). The central theme of our mutual effort during the crisis was to communicate to response agencies and the public, in the most meaningful way possible, a prediction of what could happen next and how it would affect the public.

Between Eruptions (1982–July 1985)

Following the 1976 eruption of Augustine and prior to any indication that it might soon awaken (see "Augustine Volcano: Awake Again?" in *EOS*, April 8, 1986, p. 172), there were several key events that affected our scientific response to the 1986 eruption. There was a series of meetings about the hazards posed by Alaskan volcanoes. In February 1982, the DGGs sponsored a meeting on seismic, volcanic, and tsunami hazards in Alaska. A resolution from this meeting called for a national program focused on Alaska for comprehensive studies of explosive volcanism, in-

cluding a research consortium to study the Cook Inlet volcanoes. Subsequently, an informal agreement and a pooling of resources among the three agencies (UAGI, DGGs, and USGS) led to the creation of a minimal Cook Inlet volcano monitoring capability at the USGS office at Gould Hall in Anchorage, Alaska. Then, in February 1985, J. Kienle and S. E. Swanson published a report entitled "Volcanic hazards from future eruptions of Augustine Volcano, Alaska" (published by UAGI as Report R-275).

The informal "observatory" in Anchorage, in addition to possessing the ability to monitor each of the four Cook Inlet volcanoes from Augustine to Spurr, served as a continual reminder of the need to formalize the research program, to establish stable funding, and to agree how each agency was going to react to a future volcanic crisis. By the time of the 1986 eruption of Augustine a series of discussions had resulted in a draft Memorandum of Understanding, which specified that USGS would be the principal source of scientific information to the public. The guidelines provided by the memorandum were essentially followed during our response to the 1986 eruption of Augustine.

The Kienle and Swanson report proved to be a good basis for forecasting the imminent activity of Augustine. It provided a detailed chronology and description of the previous eruptions of Augustine (Figure 2), especially the events of 1963–1964 and 1976 and clarified a common event sequence.

Preeruption Period (July 1985–March 26, 1986)

The first indication that Augustine Volcano was reawakening was a swarm of microearthquakes in July 1985. For ~3 days the daily count of events detected at the summit station (AUII) reached approximately 300, before gradually returning to a "background" level of 0 to a few tens of events per day. This background level was maintained for most of the fall and winter of 1985–1986 before the seismicity began a rather steady increase in February and March 1986 (Figure 3).

As this crucial period of monitoring pro-



The VGP News: The focal point for volcanologists, geochemists, and petrologists.

Editor John C. Eichellberger, Geochemistry Division 1515, Sandia National Laboratories, Albuquerque, NM 87185 (telephone 505-846-0398, or leave message at 505-846-0212).

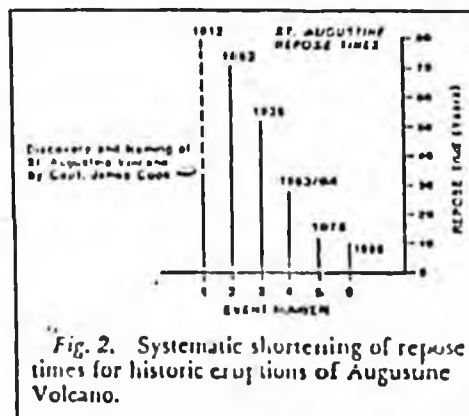


Fig. 2. Systematic shortening of repose times for historic eruptions of Augustine Volcano.

gressed, our level of concern increased. Proposals were written to improve the instrumentation on Augustine, to study the surficial geology on the island, to improve estimates of eruption and major landslide (debris avalanche) frequency, and to model the tsunami generated by the 1883 debris avalanche at Burr Point (north shore of Augustine Island).

Improvements in our monitoring capability were made more difficult by several factors:

- It was not clear even in late February that the eruption was only a month away.
- It was still winter in Alaska, and tasks such as installing tiltmeters or establishing a deformation net were difficult if not impossible.
- Many of the USGS volcanologists and much of their equipment were still committed to the monitoring effort at Ruiz Volcano in Colombia. Nevertheless, on March 22, with support from DGGs, UAGI scientists visited Augustine to upgrade some of the existing seismic stations and to install one additional station, bringing the total on the island to five.

The increase in seismic events and vapor emitted from the summit area of Augustine Volcano during February and early March strongly indicated that Augustine was headed for an eruption. The principal hazards of a typical Augustine eruption were judged to be

- hazards to aircraft by airborne ash,
- nuees ardentes, which would pose a danger principally to the herring fishing fleet in the vicinity, and

• the possibility of a massive failure of the volcanic edifice, resulting in a landslide-induced tsunami similar to that generated during the 1883 eruption.

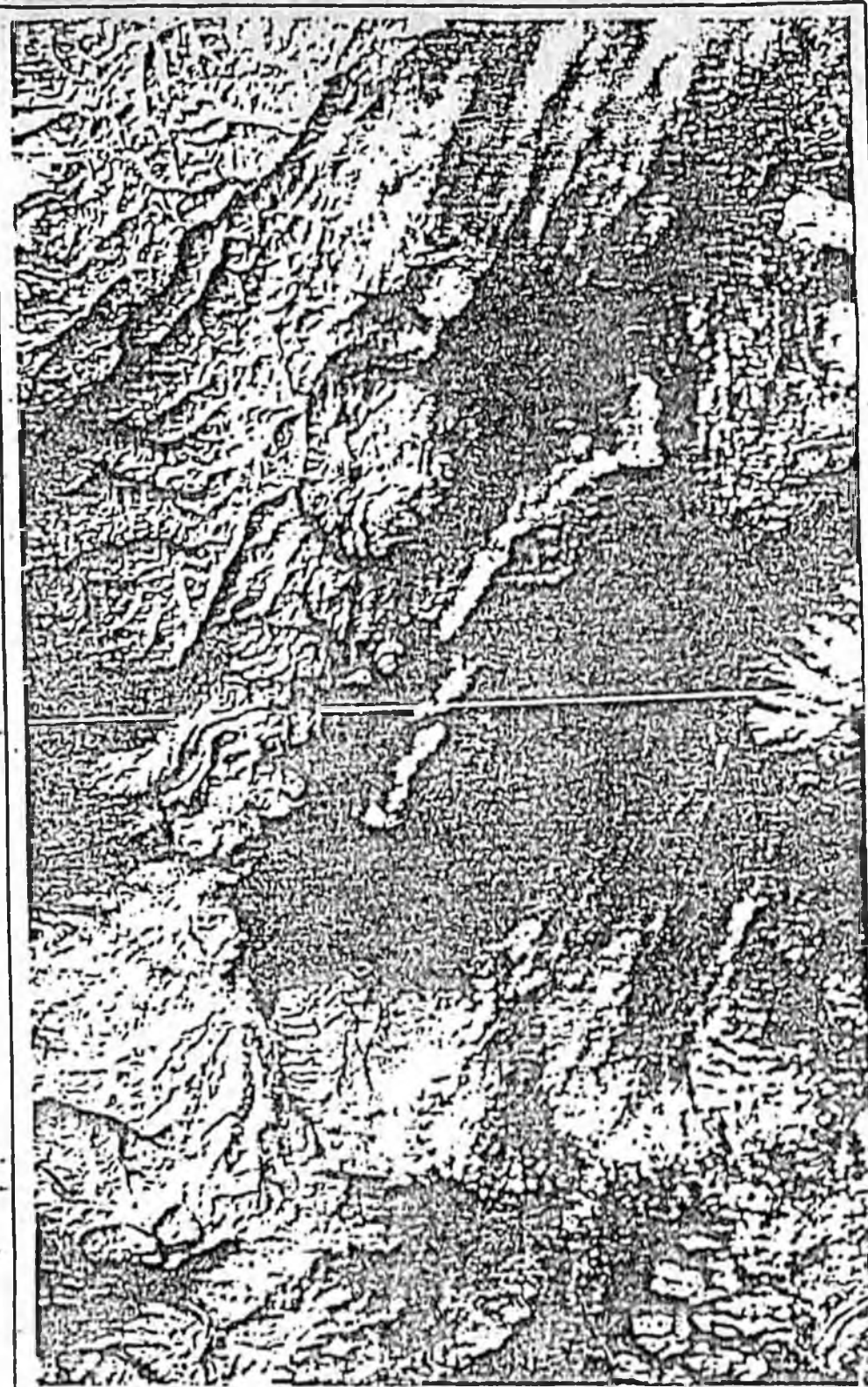
Accordingly, on March 18 and 21, 6–9 days prior to the eruption, the Federal Aviation Administration (FAA) and the U.S. Air Force (USAF) were briefed on the possibility of an eruption and its potential effects on aircraft and air traffic. Information and liaison procedures were established with both agencies. The increase in activity at Augustine was discussed several times with the Alaska Division of Emergency Services (DES) in the month prior to the eruption, and a summary briefing had been scheduled for March 27.

On Wednesday, March 26, 1986, a dramatic increase in the seismicity rate from a few hundred events per day to 5000–6000 events per day led us to believe that the volcano would soon erupt. The first eruption report was received by the U.S. Coast Guard (USCG) about 0230 AST (Alaska Standard Time, equal to UT – 9h), Thursday, March 27, from a fishing boat 55 km ESE of Augustine. The vessel reported smoke and orange flashes emanating from the volcano. Police department observers at Homer, 110 km ENE of the volcano, corroborated this report. Residents on the east side of Cook Inlet north of Augustine noted a strong sulfur smell preceding the first ashfalls.

Main Eruption (March 27–April 8, 1986)

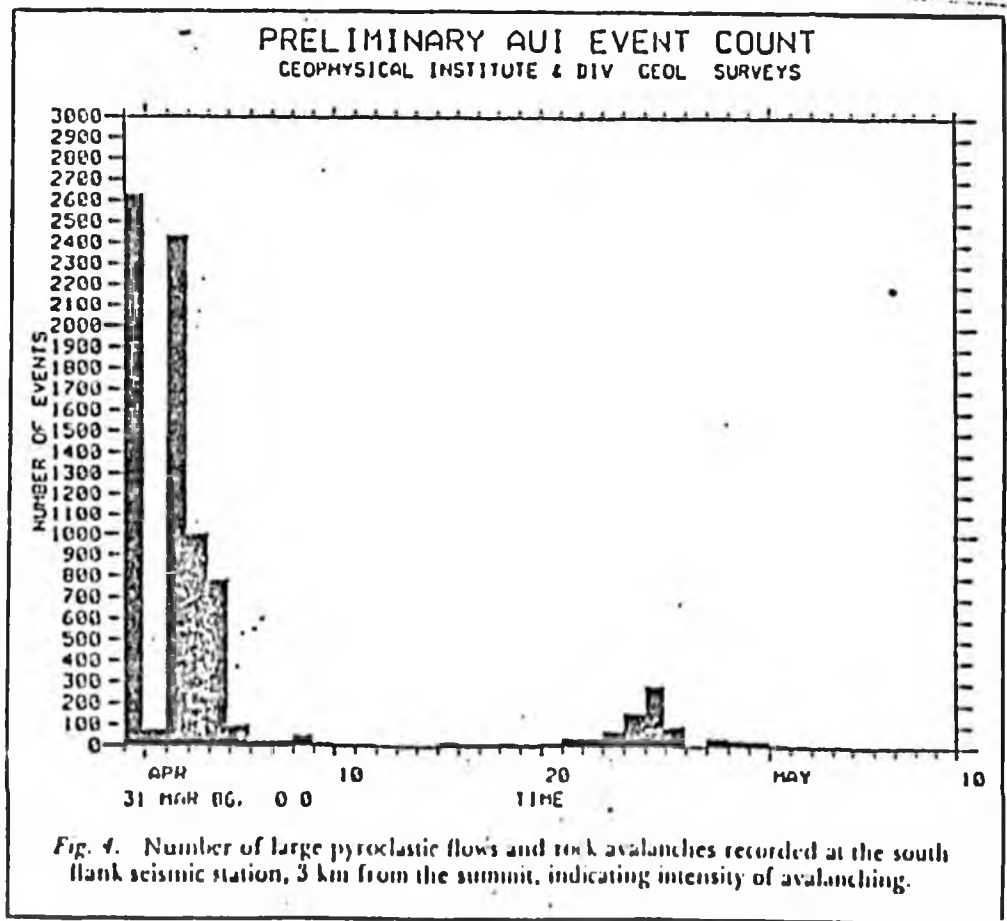
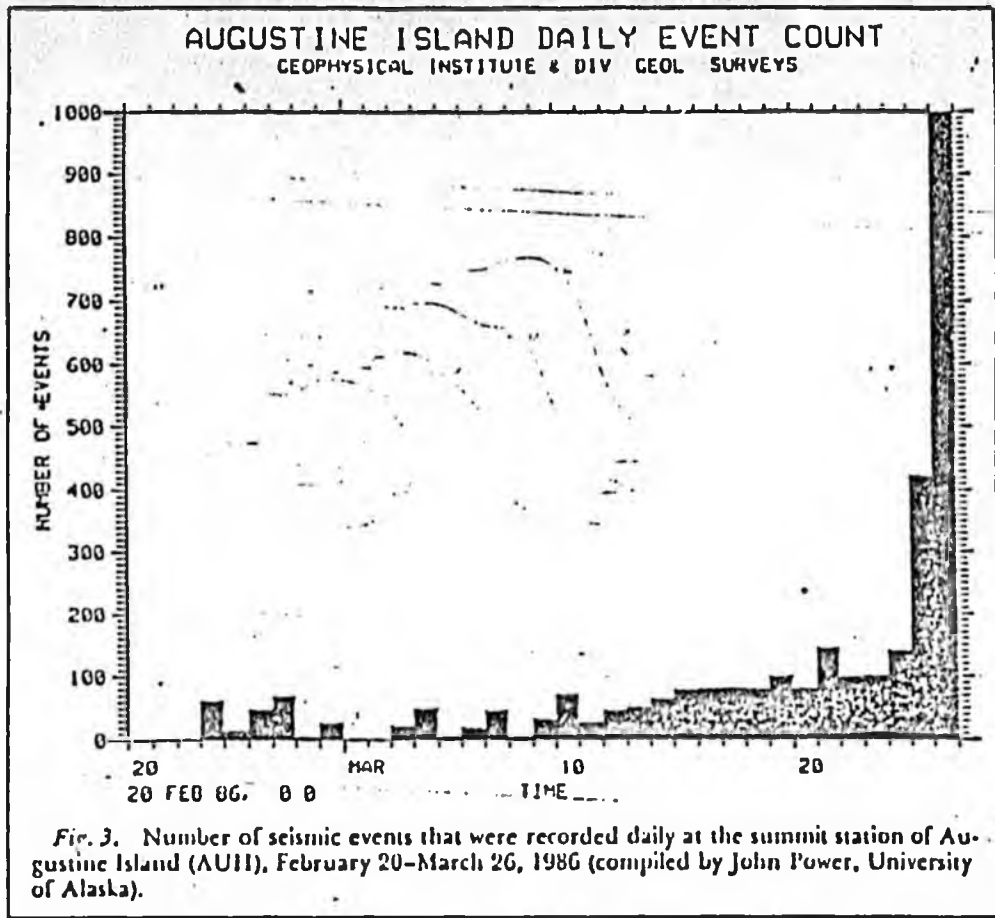
During the first several days of the eruption, the prevailing winds were from the south rather than from their usual west and northwest direction. Large amounts of airborne ash filled the lower atmosphere of the Cook Inlet bowl, and ash was carried north into the most densely populated parts of Alaska including Anchorage, the hub of air traffic in south-central Alaska (see cover). Early in the morning of March 27, the USAF evacuated their aircraft from Elmendorf Air Force Base and kept them away until March 30. The effect of airborne ash on air traffic, particularly commercial air traffic, was severe. Although Anchorage International Airport was never officially closed, most of the major interstate and international air carriers decided to cancel or divert flights away from Anchorage, principally out of concern for the effect of ash on engines, electronic gear, and fuselage components, including windshields. Several small intrastate air carriers cancelled Cook Inlet flights, in many cases on the advice of their insurance companies. On March 28, when Anchorage International Airport usually would have handled about 300 flights, only 16 flights departed or arrived. On March 29, one DC-10 airplane suffered significant abrasion of windshield and turbine parts while descending to Anchorage airport in near-zero visibility conditions caused by finely disseminated ash in the atmosphere. As the winds shifted, the Cook Inlet basin cleared; most flights resumed by March 31.

Ash falls had a moderate to severe effect on commerce and the populace. Most of



ALASKA	LANDSAT-5	BAND 0004
P70	R19	86-03-27
LA 58.71N	LO 153.38W	SUN EL 31 AZ 152
Augustine Island	Lin10-200	1:1000000
		660327/21472

Fig. 1. Landsat 5 image of March 27, 1986, 12:47 AST, showing an eruption plume that consists of distinct puffs drifting NNE, up the Cook Inlet estuary. Most of the mudflows and pyroclastic flows on Augustine Island were directed northward. The east-west diameter of the island is 14 km.



south-central Alaska derives its electricity from natural gas-powered generators that are located on the west side of upper Cook Inlet. Because of damage to these generators by ingestion of airborne ash during the 1976 eruption of Augustine, public officials considered shutting them down and drawing on power generated from utilities outside the immediate area. A shortfall in power supply was predicted, and requests for power conservation were made on March 27 to the public and to commercial users. There was also considerable concern with regard to the effects of ash on machinery, particularly automobiles, and on electronic equipment. As a result, numerous companies, government agencies, stores, restaurants, banks, and so on either closed or reduced their operations, sending employees home. Postal service was cancelled for the day.

As particulate content of the air rose, reaching $900 \mu\text{g}/\text{m}^3$ in Anchorage on March 28, local health officials became concerned about air quality and the possible effects of ash on people who suffered from respiratory problems. Although only traces of ash fell on Anchorage itself and no community in the Cook Inlet area received more than 6 mm, the ash was pervasive and was characterized by its fineness. As a result, the ash tended to hang in the air for relatively long periods. Grain size and ash particle morphology suggest that there was a strong phreatomagmatic component in this 1986 eruption.

The demand for information during this first phase of the eruption was overwhelming. Because many state and local agencies were referring calls to USGS, the major burden of providing information fell on the USGS staff at Gould Hall in Anchorage, which operated 24 hours a day throughout this period. Personnel from DCGS and UAGI kept a 24-hour per day watch at the UAGI Seismology Laboratory in Fairbanks. Volcanologists from the USGS Cascade Volcano Observatory in Vancouver, Wash., assisted both at Gould Hall Anchorage and at the UAGI Seismology Lab. USGS, assisted by personnel from UAGI, concentrated on overflights and visual reports; UAGI and DCGS concentrated on the seismicity. Visual and radar reports of eruptive activity were compared with seismic events, and interpretations of activity were made. Close communications, in some cases amounting to dozens of phone calls per day, between USGS in Anchorage and DCGS and UAGI in Fairbanks resulted in a smooth and uniform flow of information to those state and federal agencies concerned with public

health and safety, as well as to the media and the public.

Second Phase of the Eruption (April 23–28, 1986)

Most of the concerns and actions noted above abated after the first phase of the eruption ended on about April 8. However, public concern about the possibility of an eruption-induced tsunami persisted in low-lying eastern Cook Inlet communities on the Kenai Peninsula. Several meetings were held at the instigation of DES to address this topic. On April 11, representatives of DES, DCGS, UAGI, USGS, National Weather Service, Alaska Tsunami Warning Center (TWC), Alaska Department of Environmental Conservation, USCG, and USAF met to identify capabilities and shortfalls and to arrive at a recommended course of action. On April 22, DES organized a public meeting in Homer, at which representatives from USGS, DCGS, and TWC gave presentations on the progress of the eruption and fielded questions from the audience. This meeting was taped for later airing on a local radio station.

Daily seismic event counts began to increase again on April 20, peaking on April 25, when counts rose to about 300 events (Figure 4). On the basis of this seismicity increase, we advised the wire services and state and federal response agencies on April 23 that another eruptive phase appeared imminent. On April 24, we first observed new lava at the summit vent. We were concerned about the possibility of a major vent-clearing eruption, the stability of the upper cone, and the potential for a landslide-induced tsunami. The media gave much coverage to these possibilities. When dramatic explosive eruptions did not develop, they reported that the volcano had "fooled the scientists," although a major extrusive phase had indeed occurred. From about April 9 to April 28, lava extruded from the summit vent, piling on top of the 1976 lava dome, draping its east face, and feeding a short blocky lava flow. On May 16, another public lecture was given in Homer by UAGI at the request of the Pratt Museum, to discuss the tsunami hazard due to dome growth.

Media interest, both national and local, was intense throughout both phases of the eruption. The 1980 eruption of Mount St. Helens was recent enough to remain fresh in the media's memory, and the spectacular nature of some of the eruptive events at Augustine was sufficient to capture public interest. The low

probability but dramatic possibility that a major landslide would create a tsunami remained a central issue. Numerical modeling of long wave propagation across Cook Inlet completed in May confirmed that the debris avalanche at Burr Point on the north shore of Augustine Island could indeed have caused the tsunami run-up of 8 m reported in Port Graham in 1883 (Figure 5).

Posteruption Period (May 1986 to the Present)

Between and following the main eruptive events, the volcano was visited and studied by helicopter teams from USGS, UAGI, and DCGS. The pyroclastic flows were sampled, fumarole temperatures were measured, and seismic equipment was repaired and maintained. Preliminary results of this work have been reported in the March and April issues of the Scientific Event Alert Network (SEAN) Bulletin of the Smithsonian Institution (summaries appeared in *Eos*, May 6, 1986, p. 450, and June 17, 1986, p. 524). Reporting will continue during the summer field session, as will work on mapping, aerial photography, geochemistry of the eruptive products (ejecta and gas), tephrochronology of previous eruptions, dating of debris avalanches on the west, north, and east flanks of the volcano, installation of tide and tilt meters, and the surveying of a geodetic network on the island. This information should permit more precise predictions of future eruptions of Augustine than was possible this time.

Acknowledgments

We thank the faculty and students of the Geophysical Institute and the personnel of DCGS and USGS for helping during the most critical periods of the eruption: J. Dixon, M. Doukas, E. Endo, B. Gamble, L. Gedney, D. Gosse, Major B. Kent (USAF), R. McGimsey, P. Moore, S. Nelson, C. Nye, J. Power, J. Riehle, J. Roe, C. Rowe, J. Schmidt, D. Smith, C. Sonafrank, S. Stihler, D. Stone, and A. Till. We gratefully acknowledge emergency funding by the National Science Foundation under contracts EAR8612274 and EAR8612283, by the DCGS Seismic Engineering Program, the USGS Volcano Hazards Program, and State of Alaska general funds to the university.

This report was contributed by J. Kienle, Geophysical Institute of the University of Alaska, College, Alaska; J. N. Davies, Division of Geological and Geophysical Surveys, State of Alaska, Fairbanks; T. P. Miller and M. E. Yount, Alaska Branch, U.S. Geological Survey, Anchorage.

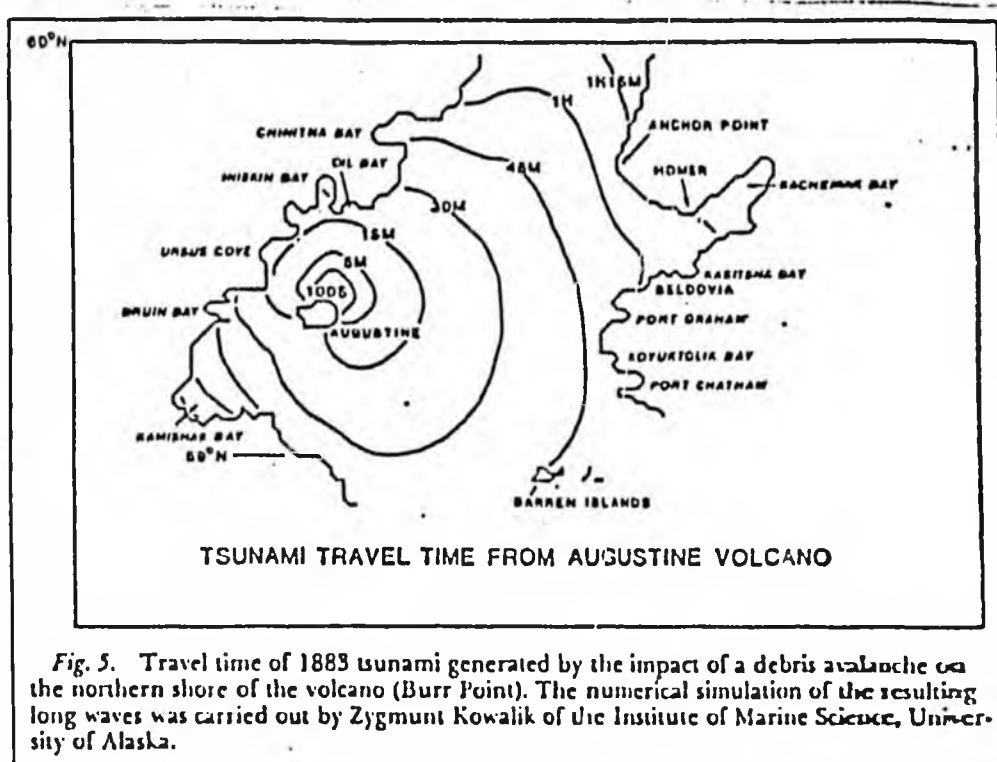


Fig. 5. Travel time of 1883 tsunami generated by the impact of a debris avalanche on the northern shore of the volcano (Burr Point). The numerical simulation of the resulting long waves was carried out by Zygmunt Kowalik of the Institute of Marine Science, University of Alaska.

HB

59

SENATE COMMITTEE REPORT

FURTHER:

JUDICIARY
FINANCE

3/26/87

DATE TURNED INTO OFFICE _____

Mr. President:

RESOURCES

Committee considered _____

CSHB 59 (Jud)

recycling and reduction of litter; efd.

and recommended:

[] replace with _____ CS FOR _____) [] same title
[x] or adopt CSHB 59 (JUD) CS FOR _____) [] new title

[] attached amendment(s) and

[x] do pass

[] do not pass

[] no recommendation

[] individual recommendations

[] further referral to _____

[] letter of intent adopted _____

Committee [] attached or [x] adopted fiscal note(s)

[] new [] updated or [x] previous
[x] zero [] fiscal impact

MEMBERS SIGNING DO PASS

OTHER RECOMMENDATIONS

[Signature]

[Signature]

[Signature]

[Signature] DO PASS
Chairman signature and recommendation

[] Committee Backup Attached



Alaska State Legislature

Representative Mike Davis

P.O. Box V
Juneau, Alaska 99811
(907) 465-4930/4941

Interim Office:
P.O. Box 81435
Fairbanks, Alaska 99708

MEMORANDUM

To: House Finance Committee

From: Rep. Mike Davis

Date: February 24, 1987

Re: CSHB 59 (Jud); An Act Relating to the Recycling and Reduction of Litter.

The 1986 legislature failed to fund the state's litter reduction and recycling program for FY 87, and the program is due to sunset on June 30, 1987. However, this is an important program that coordinates community efforts to clean up litter throughout the state. Litter along the state's highways has a negative impact upon visitors to Alaska as well as upon the state's residents, and maintaining a litter program should continue to make the state a destination point for tourists.

The provisions of HB 59 would reduce the costs of operating an effective litter program by repealing requirements for an advisory council and the publication of an annual report. The legislation also reduces costs by allowing, rather than requiring, DEC to provide litter bags. These changes have allowed HB 59 to receive a zero fiscal note. The bill also would repeal the sunset provision of the program.

HB 59 would reduce the penalty for littering from a misdemeanor to a violation in order to eliminate court costs, and a prison term would be eliminated as a penalty for littering. The bill would also establish a \$50 fine for minor offenders that may be paid by mail, while retaining a maximum fine of \$1,000 for major offenders. A minor offense is one in which the amount of litter has an aggregate weight of five pounds or less. Community service provisions, in which a litterer may be required to pick up litter in a designated area for a designated length of time, are also retained.

Discussions with ALPAR (Alaskans for Litter Prevention and Recycling), the Fairbanks Litter and Beautification Committee, the Department of Environmental Conservation, and several municipalities have been very positive toward this legislation. The remarks of a few municipal leaders are presented below:

City and Borough of Juneau, Mayor Ernest Polley: "The City and Borough certainly supports litter reduction and recycling programs. The City and Borough of Juneau has a considerable litter problem as well as disposal problems concerning metals, household garbage, and hazardous liquids. I feel that this is a statewide problem and should be addressed on a statewide basis. We would be happy to work with your office to review any proposed legislation in this area."

Municipality of Anchorage, Mayor Tony Knowles: "As a strong supporter of a healthy, clean environment, I share your wish to avoid sunsetting the litter reduction and recycling program within DEC. Although unfunded at this point, I believe a mechanism should exist for revitalizing this program should revenue levels again allow for funding of the program."

Matanuska-Susitna Borough, Mayor Dorothy Jones: "As for the litter reduction and recycling program, we find it a boon to the Matanuska-Susitna area and would most assuredly like to see funding restored and the program remain."



Alaska State Legislature

Representative Mike Davis

P.O. Box V
Juneau, Alaska 99811
(907) 465-4930/4941

Interim Office:
P.O. Box 81435
Fairbanks, Alaska 99708

MEMORANDUM

To: Senator Mitch Abood, Chairman
From: Representative Mike Davis *Mike Davis*
Date: March 9, 1987
Re: CSHB 59 (JUD); An Act Relating to the Recycling and Reduction of Litter.

I am writing to request a hearing for CSHB 59 in the Senate State Affairs Committee. The attached backup material provides statements of explanation and support for this bill, which would both revise and extend Alaska's litter reduction program. CSHB 59 has also been crafted in a manner that allows the bill to have a zero fiscal note.

CSHB 59 has the support of municipalities, chambers of commerce, and the state administration. Passage of the legislation would allow Alaska to continue to enforce litter laws and to coordinate cleanup activities. Failure to pass the legislation will result in the termination of the program, which has a sunset date of June 30, 1987.

Please call me if you or your staff have any questions regarding this bill.

Committee Backup CSHB 59 Jay



Alaska State Legislature

Representative Mike Davis

P.O. Box V
Juneau, Alaska 99811
(907) 465-4930/4941

Interim Office:
P.O. Box 81435
Fairbanks, Alaska 99708

MEMORANDUM

To: Senate Resources Committee

From: Rep. Mike Davis

Date: May 1, 1987

Re: CSHB 59 (Jud); An Act Relating to the Recycling and Reduction of Litter.

The 1986 legislature failed to fund the state's litter reduction and recycling program for FY 87, and the program is due to sunset on June 30, 1987. However, this is an important program that coordinates community efforts to clean up litter throughout the state. Litter along the state's highways has a negative impact upon visitors to Alaska as well as upon the state's residents, and maintaining a litter program should continue to make the state a destination point for tourists.

The provisions of HB 59 would reduce the costs of operating an effective litter program by repealing requirements for an advisory council and the publication of an annual report. The legislation also reduces costs by allowing, rather than requiring, DEC to provide litter bags. These changes have allowed HB 59 to receive a zero fiscal note. The bill also would repeal the sunset provision of the program.

HB 59 would reduce the penalty for littering from a misdemeanor to a violation in order to eliminate court costs, and a prison term would be eliminated as a penalty for littering. The bill would also establish a \$50 fine for minor offenders that may be paid by mail, while retaining a maximum fine of \$1,000 for major offenders. A minor offense is one in which the amount of litter has an aggregate weight of five pounds or less. Community service provisions, in which a litterer may be required to pick up litter in a designated area for a designated length of time, are also retained.

Discussions with ALPAR (Alaskans for Litter Prevention and Recycling), the Fairbanks Litter and Beautification Committee, the Department of Environmental Conservation, the Department of Public Safety, and several municipalities have been very positive toward this legislation. The remarks of a few municipal leaders are presented below:

City and Borough of Juneau, Mayor Ernest Polley: "The City and Borough certainly supports litter reduction and recycling programs. The City and Borough of Juneau has a considerable litter problem as well as disposal problems concerning metals, household garbage, and hazardous liquids. I feel that this is a statewide problem and should be addressed on a statewide basis. We would be happy to work with your office to review any proposed legislation in this area."

Municipality of Anchorage, Mayor Tony Knowles: "As a strong supporter of a healthy, clean environment, I share your wish to avoid sunseting the litter reduction and recycling program within DEC. Although unfunded at this point, I believe a mechanism should exist for revitalizing this program should revenue levels again allow for funding of the program."

Matanuska-Susitna Borough, Mayor Dorothy Jones: "As for the litter reduction and recycling program, we find it a boon to the Matanuska-Susitna area and would most assuredly like to see funding restored and the program remain."

Fairbanks North Star Borough, Mayor Juanita Helms: "As Mayor of the Fairbanks North Star Borough, I support passage of HB 59, An Act Relating to the Recycling and Reduction of Litter. Providing proper solid waste disposal and dealing with the accumulation of litter on our roadways are two problems which confront our community. The State's efforts in recycling and litter reduction help us to effectively resolve these problems. For this reason, I would urge the Alaska State Legislature to pass HB 59."

Amendments to CSHB 59 (Jud)

An Act relating to the
recycling and reduction of litter

The figure of "\$50" is replaced with "\$25" on page 3, line 17;
page 3, line 20; and page 4, line 1.

The above amendments are supported by ALPAR (Alaskans for Litter Prevention and Recycling), the Department of Environmental Conservation, and the prime sponsor of the legislation. The amendments are made in the belief that the lower fine will result in greater enforcement of the state's litter laws, while also minimizing court costs by reducing the number of legal challenges to the fine.

Rep. Mike Davis
February 24, 1987

Sectional Analysis of CSHB 59 (Jud)
An Act Relating to the Recycling and Reduction of Litter

Sec. 1. Technical amendment to the Judicial Code to accommodate the establishment of littering citations.

Sec. 2. AS 46.06.010 is rewritten to eliminate redundant language, and to incorporate the provisions of AS 46.06.040.

Sec. 3. AS 46.06.060 is amended to provide that the Department of Environmental Conservation and the Department of Public Safety may, rather than must, provide litter bags to the public.

Sec. 4. The penalty for littering is reduced from a Class B misdemeanor to a violation, and prison terms for littering are eliminated. The maximum \$1,000 fine currently in statute is retained.

Sec. 5. A peace officer may issue a citation providing for a \$50 fine to a person guilty of a minor littering violation. A minor littering violation is one in which the aggregate weight of the litter is five pounds or less. The fine may be paid either in person or through the mail.

Sec. 6. The following sections are repealed:

AS 46.06.020, which requires an annual report.

AS 46.06.030, which establishes an advisory council.

AS 46.06.040, which establishes public awareness programs. Provisions of this section have been incorporated into AS 46.06.010.

AS 46.06.070(b), which establishes litter patrol regulations. These regulations are authorized under AS 46.06.010(8).

Sec. 7. All sunset provisions in AS 46.06 are repealed.

Sec. 8. Immediate effective date.

STATE OF ALASKA

STEVE COWPER, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

POSITION PAPER

Bill No: HB 59

Date: January 30, 1987

Title: An Act relating to the
recycling and reduction
of litter

Contact: Randy Bayliss
465-2600

Department's Position

We support the bill.

Effect of the Bill

HB 59 reenacts most of Alaska's litter program, now on the eve of its "sunset." It also reduces the costs of the program, either by eliminating some functions (such as the Litter Advisory Council) or by making most other functions optional. The bill would also change littering from a "misdemeanor" to a "violation," which eliminates jail time as a penalty.

According to several opinion polls, many Alaskans consider littering to be a top environmental priority. Litter alongside tourist attractions has drawn national attention on television news and magazines. The litter program has enjoyed popular support from Alaskan cities and has encouraged start-up and operations of many recycling centers throughout Alaska.

Impact on the Agency

HB 59 was drafted with minimal operating expenses in mind. We have prepared a "zero" fiscal note.


Dennis D. Kelso
Commissioner

**STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE**

REQUEST: _____

Bill Version: HB 59

Publish Date: _____

Revision Date: _____

Agency Affected: DEC

Title: An Act relating to the recycling
and reduction of litter

BRU: Environmental Quality

Sponsor: Representative Mike Davis

Components: Regional Offices

Requestor: House Resources

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL						
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME						-
PART-TIME						-
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

Prepared by: Randy Bayliss Phone: 465-2600

Division: Office of the Commissioner Date: January 30, 1987

Approved by Commissioner: Dennis D. Kelso Date: January 30, 1987

Agency: Environmental Conservation

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

BILL NO: CSHB 59 (JUD)

DATE: February 23, 1987

TITLE: "An Act relating to the recycling of litter; and providing for an effective date."

CONTACT: Maj. Walter J. Gilmour
Acting Director
Alaska State Troopers

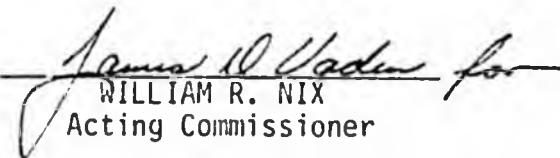
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A considerable expense is incurred by the state when cases involving incidental littering are pursued.

This legislation reduces littering offenses from a Class "B" misdemeanor to a "violation" and enables peace officers to issue a citation rather than make a physical arrest. Further, it allows the violator to mail in the fine rather than to make a court appearance. This will reduce officer court time and report writing in these minor cases.

Serious littering offenses (over 5 lbs.) remain a class "B" misdemeanor and thus, serious offenders can still be prosecuted.

The Division of Alaska State Troopers supports passage of this legislation.


WILLIAM R. NIX
Acting Commissioner

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

Bill: Version: CSHB 59 (JUD)

Publish Date: _____

REQUEST

Revision Date: _____

Title: "An Act relating to the re-cycling of litter..."

Sponsor: Rep. Davis

Requestor: House Finance

Agency Affected: Public Safety

BRU: Alaska State Troopers

Components: Detachments & CIB

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE						

FUNDING:: (Thousands of Dollars)

GENERAL FUNDS	0	0	0	0	0	0
FEDERAL FUNDS						
OTHER						
TOTAL						

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

No fiscal impact is anticipated.

JNR
2/24/87

Prepared by: Francis C. Allan
Division: Alaska State Troopers

Phone: 269-5691
Date: 2/23/87

Approved by Commissioner: William R. Nix
Agency: Public Safety

Date: 2/24/87

- Distribution (by preparer):
- Legislative Finance
 - Legislative Sponsor
 - Requestor
 - Office of Management and Budget
 - Impacted Agency(ies)
 - Senate Secretary

★ Fairbanks North Star Borough

809 Pioneer Road

P.O. Box 1267

Fairbanks, Alaska 99707

907/452-4761

January 30, 1987

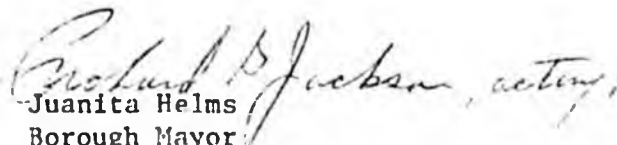
Representative Mike Davis
Pouch V
Juneau, Alaska 99811

Mail Stop 3100

Dear Representative Davis:

As Mayor of the Fairbanks North Star Borough, I support passage of HB 59, An Act Relating to the Recycling and Reduction of Litter. Providing proper solid waste disposal and dealing with the accumulation of litter on our roadways are two problems which confront our community. The State's efforts in recycling and litter reduction help us to effectively resolve these problems. For this reason, I would urge the Alaska State Legislature to pass HB 59.

Sincerely,


Juanita Helms
Borough Mayor

JH/HTS/mnb

BEAUTIFICATION AND LITTER CONTROL COMMITTEE

First National Center
100 Cushman Street

Greater Fairbanks Chamber of Commerce

(907) 458-1108

P.O. Box 74446
Fairbanks, Alaska 99707

January 29, 1987

Representative Mike Davis
Pouch V
Juneau, AK 99811

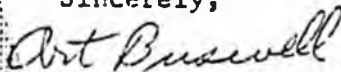
Mail Stop 3100

Dear Rep. Davis:

The Beautification and Litter Control Committee of the Greater Fairbanks Chamber of Commerce strongly supports passage of HB 59, An Act Relating to the Recycling and Reduction of Litter. Our committee has worked hard over the past several years to make Fairbanks a cleaner, more beautiful place for the enjoyment of residents and visitors alike. We feel that continued State support in the form of Litter reduction and recycling legislation is important to our success.

Litter reduction and recycling are more than just "environmental" concerns. These programs enhance economic development and tourism in our state. We are proud of the contributions our committee has made in these areas; we encourage the Alaska State Legislature to support our local efforts through passage of this legislation.

Sincerely,



Art Buswell
Co-Chairman



Heather Stockard
Co-Chairman

Fifth Annual Report

May 1985

**ALASKA
LITTER REDUCTION
AND
RESOURCE RECOVERY
PROGRAM**

BILL SHEFFIELD

Governor

State of Alaska

BILL ROSS

Commissioner

Department of Environmental Conservation

Pouch O, Juneau, Alaska 99811



INTRODUCTION

Early in fiscal year 1984 the Division of Legislative Audit completed its review and evaluation of the first four years of the Department of Environmental Conservation's (DEC) Litter Reduction and Resource Recovery Program. Its performance report concluded that the popular and successful program, and its authorizing legislation, should be continued. On June 8, 1984, the Litter Reduction and Resource Recovery Act was reauthorized until July 1, 1987.

Since the inception of the Litter Reduction and Resource Recovery Program in 1980, DEC has actively pursued projects to reduce litter and encourage recycling and large-scale resource recovery in Alaska. According to the 1983 Alaska litter survey, much has been achieved in the first years of the program. Some of the highlights are:

- 36% decrease in fresh litter generation
- 35% decrease in litter accumulation
- 63.3% decrease of hazardous items in litter
- 20% increase in car litter bag use
- 40% decrease in aluminum can litter
- 36.6% decrease in litter at sites where receptacles have been added

Large-scale resource recovery significantly decreases certain kinds of litter, and saves resources and energy. The program provides support and assistance to resource recovery endeavors throughout Alaska. With the establishment of a pulp (shredder) mill in Anchorage (to be in operation in late 1985), an estimated 20,000 tons a year of ferrous metals will be recovered and possibly sold to a Pacific Rim country. This tonnage will represent a substantial increase over past years. At present, about 7% of over 50,000 tons of paper shipped to Alaska per year is recovered for reuse. Due to recent reduction of rates by freight carriers, the potential for recovery of waste paper is increasing. As demand for both energy and resources rises and supplies decline, such recovery becomes even more important.

This report documents DEC's accomplishments in litter reduction, litter prevention, resource recovery, and increasing public support of the program during FY 1984. In 1984, the program changed its reporting period to coincide with the State's fiscal year. Some of the figures in the report may overlap with figures in the 1983 annual report, which was based on a calendar year.

LITTER REDUCTION

Results from the 1983 Alaska litter survey performed by the Institute for Applied Research indicate that during the first three years of the litter and recycling program's existence, there has been a 36% reduction in the rate that fresh litter is generated (Syrek, 1983). Similar decreases were measured in the rate at which long term accumulations of litter build up. These results show a 35% decline when corrected for traffic and weather conditions.

What are the causes of these significant decreases in litter? Alaskans are becoming more involved in both picking up litter already on the ground (litter reduction) and eliminating acts of littering (litter prevention).

In an executive proclamation, Governor Sheffield declared May 1984 as Litter Prevention and Cleanup Month. Letters seeking similar local declarations were sent to mayors. DEC staff sent mailouts to city and village councils, schools, community leaders, and local media asking for their involvement in cleanup efforts.

The results of these activities were once again gratifying. Again in 1984, Alaska saw an increase in the number of community cleanups statewide. A current list of communities with cleanups appears in Appendix A. Table I shows 1984 cleanup results.

Table I
1984 Spring Cleanups

	Southeastern Region	Southcentral Region	Northern Region	TOTAL
Communities with cleanups	18	126	61	205
Participants	3,124	31,223	18,505	52,852
Bags Collected	6,729	165,590	55,700	168,019
Truckloads	379	12,401	not available	12,753
Junk Autos Removed	63	2,198	366	2,621

Youth Litter Patrols

As part of statewide litter reduction efforts in 1984, summer youth litter patrols were funded for a second year by Alaskans for Litter Prevention and Recycling (ALPAR, a private organization of business and industry) and a cash grant of \$120,000 from the State. Approximately 284 young people on the patrols picked up litter in 26 communities, with more than double the participation of the first year of the program. Table II shows a comparison between 1983 and 1984.

Table II

Youth Litter Patrols

	<u>1983</u>	<u>1984</u>
Number of Participants	120	284
Number of Communities	11	26
Number of Patrols	27	71
Bags Collected	6,500	Data not available
Total Cost	\$82,000	\$171,348

Fairbanks, a star in the youth litter program, had an impressive 20 patrols in 1984, up from 4 patrols in 1983. The patrols worked for 13 weeks cleaning up 400 miles of roadways and over 300 bags of litter. This program created 21 full-time seasonal jobs for youths 14-17 years old in the Fairbanks area. The "bottom line" summary of the 1984 Greater Fairbanks litter patrol effort was 8.3 bags of litter abated per mile of roadway cleaned up, at a cost of \$13.90 per bag.

Anchorage doubled its youth litter patrols from 10 in 1983 to 20 in 1984. Communities with two patrols each in 1984 were Homer, Juneau, Kenai, Ketchikan, Nenana, Palmer, and Valdez. The following communities had one youth litter patrol each: Bethel, Deering, Delta Junction, Dillingham, Ekwok, Kodiak, Koliganek, Saxman, Skagway, Soldotna, Togiak, Wasilla, and Wrangell.

Alternative Sentencing and Pretrial Diversion Programs

The Department of Law Pretrial Diversion Program made an outstanding contribution to litter reduction in 1984. The results of the efforts of this program were well up over 1983 (See Table III).

Table III

The Department of Law Pretrial Diversion Program

	<u>1983</u>	<u>1984</u>
Number of participants	50	220
Number of hours	1,600	2,800
Number of communities	1 - Juneau	4 - Fairbanks, Juneau*, Kenai and Sitka

- * 40 assigned to ALPAR patrols for 700 hours
- 100 assigned to DOT/PF on weekends for 800 hours

In FY 1984, the Municipality of Anchorage's Community Work Services Program assigned 400 sentenced misdemeanants to 8,000 hours of litter pickup. These misdemeanants were referred by the Court to this program, and picked up a total of 250,000 pounds of litter. The program not only reduced litter in Anchorage, but seems to have a positive impact on the recidivism of the offenders, most of whom had been convicted of DWI. Other offenses included shoplifting, reckless driving, and littering. Virtually all the participants commented they would never litter again, after seeing firsthand what a problem litter is.

Working closely with the District Court, the Fairbanks North Star Borough's Environmental Services Division supervised the community service work required of litter offenders and those who had committed other minor offenses. The 53 individuals assigned to this program performed 1,001 hours of work, for an average of 18.9 hours per person. Juveniles performed 465 hours of work; adults, 536 hours. Thirty-three persons were assigned to community work service who did not perform the work, totalling 1344 hours of work assigned which was not performed.

Volunteer Efforts

DEC spring cleanups mobilize the people in a community and often lead to voluntary efforts to keep their communities clean year round. One spinoff of the DEC spring cleanup in 1984 was the voluntary placement of litter receptacles and antilitter signs in more than a dozen communities. Port Heiden went a step further, installing a large community dumpster and instituting a weekly pickup. In some areas, which did not have formal youth litter patrols, local people started voluntary cleanups. In Takotna such activity led to the demolition of three houses and the graveling over of the resulting vacant lot.

Many communities went beyond picking up litter and beautified areas which had previously been eyesores. They developed gardens and parks, planted trees, and placed flower boxes. In these communities volunteers did the work of creating and maintaining the beautified areas. Juneau and Fairbanks established committees, which included DEC litter program staff, to plan, carry out, and reward beautification activities. In Juneau the Beautification Subcommittee of the Mayor's Hospitality Committee honored individuals, businesses, and government agencies for their significant efforts to beautify Juneau. The Fairbanks Chamber of Commerce Beautification Committee beautified formerly littered areas in response to a perceived need in the community to enhance civic pride and foster ongoing antilittering behavior.

LITTER PREVENTION

Reduction of litter on the ground is necessary and desirable, but prevention of acts of littering is the key to long-term litter reduction in Alaska.

Litter is the result of personal habits and decisions. In order to affect the litter rate in Alaska, individual attitudes towards litter must be changed, and efforts made to influence personal decisions about the act of littering.

Secured Truckloads

The 1981 litter survey showed that deliberate littering comes from pedestrians aged 6 to 25 and occupants of motor vehicles aged 10 to 45. Most accidental littering is from unsecured truckloads and trash escaping from truck beds.

Since 1981 there has been a shift in the composition of litter. Deliberately littered convenience product packaging litter has decreased from 56% of all fresh litter items in 1981 to 49% in 1983. At the same time, the percentage of accidentally littered items from trash can spills, unsecured loads and uncovered truck beds has increased from 38% to 45%.

These figures indicate public attitudes towards deliberate littering is improving; fewer people are unconsciously tossing wrappers on the ground. The figures show, however, that more work needs to be done to motivate truck owners to cover their loads.

In 1984 the Municipality of Anchorage passed an ordinance requiring that trucks bringing loads to the municipal landfill be covered or pay an "uncovered load" fee of \$10.00 for small trucks and \$10.00 a ton plus a \$30.00 fee for large trucks. By July 1984, 98.8% of the trucks coming to the landfill were covered.

DEC will encourage other municipalities to follow the lead of this highly successful program and conduct their own covered load campaigns in FY 85.

Community Outreach

Using information provided by litter surveys, DEC gears educational efforts to those groups primarily responsible for litter in Alaska. Attitudes and decisions are substantially shaped by both the mass media and personal contact.

1984 DEC media efforts included press releases, production and distribution of public service announcements, and arrangement of media coverage of local cleanup and recycling efforts. Litter caused by travelers was addressed by a full page ad in the 1984 Milepost. A full page "ad" on uncovered loads was published in the April 1984 edition of the State of Alaska's Driver's Manual.

Public information and public education services are an important means of encouraging litter reduction and resource recovery activities throughout Alaska. Table IV shows public awareness services provided by litter program staff in FY 1984.

Table IV

Community Outreach Services

School Presentations	12
Community Presentations	44
Hotline Calls	1591
Newspaper Interviews	161
TV Interviews	18
Radio Interviews	3
Other	12

Commodities Distributed

Another way DEC encourages communities and citizens to become involved in litter control is by distributing free commodities. These range from car litter bags to cleanup incentives for children, including patches and "sort-n-save" magnets. Table V shows the items distributed during FY 1984.

Table V

Commodities Distributed

DEC car litter bags	27,550
SOHIO car litter bags	90,800
Cleanup bags	166,100
Milepost posters	123
Fish & Game posters	30
Pins	12,995
Patches	8,981
Receptacle decals	6,668
"Aluminum only" decals	928
Miscellaneous brochures	4,002

At the beginning of the 1984 tourist season, DEC sent 2,000 DOT/PF car litter bags to U.S. border stations at ALCAN/TOK and Skagway.

Education

Since young people comprise a large number of those groups identified as deliberate litterers, DEC has attempted to reach them through an elementary school curriculum.

The Legislature appropriated \$150,000 for litter reduction programs in schools. With the approval of the Litter Reduction and Resource Recovery Advisory Council, DEC contracted with the Department of Education to produce a series of three 15-minute lessons on videotape for the Learn/Alaska instructional television network. The series will be designed for grades 4-6 and aired on Learn/Alaska. Printed teacher's guides will be developed and used in conjunction with the video program.

The educational objectives of this series of video lessons are to increase the students' knowledge of their environment, affect their attitude toward conservation of natural resources, and encourage their personal commitment to antilitter, antiwaste behavior. By airing this program on the Learn/Alaska network, we expect to reach the largest possible target audience in the most effective way. The video series is expected to be aired on the Learn/Alaska network beginning in the fall semester 1985.

Litter Receptacles

An important means of preventing litter is to make receptacles available in high use areas. Litter receptacle regulations became effective in October, 1983. Those regulations require receptacles marked with the State's anti-litter logo to be installed, routinely serviced and maintained at commercial, recreation and civic areas. The 1983 litter survey showed a significant increase in receptacles at 10 commercial sampling sites (Syrek, 1983). Table VI shows the additions by site.