

SB

179

SENATE COMMITTEE REPORT
FIRST COMMITTEE OF REFERENCE

DATE: 3/6/91

FURTHER: Finance

Date of 5-Day Notice: 3/14/91
(in accordance with Uniform Rule 23)

DATE TURNED INTO OFFICE: 3-22-91

CRA Committee considered SB 179

Appropriations for water, sewer, and solid waste projects; efd.

and recommended:

replace with _____ CS SB 179 (C+RA) same title
 attached amendment(s) new title

_____ letter of intent adopted

do pass

do not pass

no recommendation

individual recommendations

further referral to _____

ATTACHES NEW FISCAL NOTE(S):

fiscal note(s) Dept/Date _____

zero fiscal note(s) Dept/Date _____

appropriation-no fiscal note

Governor's bill w/fiscal note

SIGNING DO PASS:

[Signature]
[Signature]
[Signature]
[Signature]

OTHER RECOMMENDATIONS:

True (Grace) No Rec

[Signature]
Chair: Signature and Recommendation

Alaska State Legislature

Al Adams
District L

WHILE IN SESSION
P.O. Box V
State Capitol
Juneau, Alaska 99811
(907) 465-3707

OUT OF SESSION
P.O. Box 333
Kotzebue, Alaska 99752
(907) 442-3245

3111 C Street
Anchorage, Alaska 99503
(907) 561-7622

Official Business

MAR 11 1991

March 8, 1991

TO: Sen. Steve Frank, Chairman
Senate Community & Regional Affairs Committee

FROM: Senator Al Adams *AK*

RE: SB 179

I would appreciate it if you would hold a hearing on SB 179 as soon as possible.

SB 179 appropriates \$39.1 million to the Department of Environmental Conservation, Village Safe Water, for water and sewer projects throughout the State. The list of projects included in this appropriation bill came from a prioritized list of public health concerns from the Department. Gary Hayden, Director, Division of Facility Construction and Operation, Department of Environmental Conservation, will be available to answer questions on any of the particular projects.

Your attention to this matter is much appreciated.

STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
OFFICE OF THE COMMISSIONER
P.O. BOX 0, JUNEAU, AK 99811-1800

TELEPHONE NO.
(907) 465-2600

March 15, 1991

The Honorable Steve Frank
Alaska State Senate
P.O. Box V
Juneau, AK 99811

MAR 15 1991

Dear Senator Frank:

This letter deals with the documented health problems stemming from inadequate water systems and sewer facilities/waste disposal practices in many Alaska communities. Outbreaks of Hepatitis A, Meningitis and other diseases have been directly attributed to these facilities and practices. In recognition of these serious problems, the Department of Environmental Conservation (DEC) has developed an inventory of such facilities.

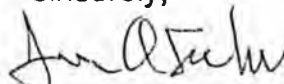
The DEC is working with the Departments of Health and Social Services, Community and Regional Affairs, and Commerce and Economic Development to confirm and update this assessment, and to develop a three to five year program to correct these problems. This program will, of course, involve all communities and a number of organizations including the Alaska Federation of Natives, ANCSA Regional Corporations and such groups as the Tanana Chiefs Conference.

We also want to work closely with the Legislature in this effort. First of all, we want to make sure we have a complete listing of those communities having these "health problem" facilities. Enclosed are the summaries of communities that have been compiled by the Department of Environmental Conservation. We would appreciate your office's review of this listing to be certain we are not overlooking any community's need.

In our work with other state departments and communities, we are also developing a strategy for funding these projects over the next three to five year period. We will explore matching grant options, General Obligation Bonds, and other opportunities for funding assistance from the Federal Government. Your advice on this strategy will also be appreciated.

We will look forward to whatever information and advice you can provide. Feel free to contact Gary Hayden at 465-2610 or Keith Kelton at 465-2640 for further information.

Sincerely,



John A. Sandor
Commissioner

Enclosures

cc: Gary Hayden, Director, ADEC/FC&O; Keith Kelton, Acting Director, ADEC/EQ

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**DEPARTMENT OF ENVIRONMENTAL
CONSERVATION**

**DIVISION OF FACILITY CONSTRUCTION &
OPERATION**

**COMMUNITY REQUESTS
CAPITAL PROJECTS**

PRIORITY CRITERIA SYSTEM

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
SFY 92

VILLAGE SAFE WATER PROGRAM

I. Problem Addressed

A. Public Health

- 1. A documented existing human disease event exists (documented by a recognized public health organization and confirmed by ADEC.) Construction of this facility will correct the existing problem. 500
- 2. Current conditions are sufficiently severe that a disease event should have taken place but it has not yet happened. 200
- 3. Conditions do not yet exist for a disease event to take place. However, development in the project area suggests that such events will most likely occur in the near future if this project is not constructed. 100

B. Environmental

- 1. A documented existing pollution event has taken place and construction of this facility will correct the existing problem. 300
- 2. Current conditions are sufficiently severe that a pollution event should have taken place but it has not yet happened. 200
- 3. Conditions do not yet exist for a pollution event to take place. However, development in the project area suggests that such events will most likely occur in the near future if this project is not constructed. 100
- 4. An esthetic pollution problem needs correcting. 25

C. Public Safety

- 1. The project is needed to provide public protection against fire or animal threats at landfills. Protection is to serve an existing population. 100
- 2. The project is needed to provide public protection against fire or animal attacks. Protection is to serve a projected population. 50

Criteria System

Page 2

II. Project Development Status

- A. Engineering plans and specifications have been prepared. 75
- B. Feasibility study or facility plan has been prepared. 45
- C. Comprehensive study has been prepared which addresses the need for project among other community needs. 20
- D. No documentation has been prepared. 0

III. Matching Funds Available

Points

- A. Matching funds are currently available. (Bonding issue passed, several fund appropriation) 100
- B. Matching funds are not currently available but source has been identified appropriate legal action has been initiated to serve funds. (bond issue not voted on yet, but approved by local authority; loan applied for and money appropriated but not yet delivered to City. 40

IV. Operational and maintenance costs have been considered and are either nonexistent or a source of funds has been identified to pay for them. 50

V. Phased or Segmented Project

- A. Part of project is already started. This phase is needed to make the project functional. 50
- B. Project is composed of more than one segment. This segment is needed to meet the water quality or public health intent of the plan but is not necessary to make the project functional. 25

VII. Effect on Other Projects. Project needs to be accomplished in conjunction with another project to reduce overall cost to State (paving, etc.). 15

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
50% MATCHING GRANTS FY 92

CRITERIA SYSTEM - WATER

Public Health Threat

A documented human disease event exists	150
Existing water quality exceeds standards	100

Public Safety

public fire protection for existing population	50
public fire protection for future population	20

Project Status

engineering plans approved	50
engineering plans available	40
management and implementation plan approved	30
feasibility study complete	20

Compliance

NOV for existing facility	50
under compliance order for existing facility	40
existing facility cannot meet permit conditions	20
existing facility has nuisance problems	10

Community Support

Community's number one capital budget request	40
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Funding

Local funding of fifty-percent match in place	50
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Operation and Maintenance

User fees approved by community	30
Operation and maintenance costs estimated	20

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CRITERIA SYSTEM - WATER
Page 2

Cost/Population Benefitted

Low	< 400	40
Medium	400 - 4000	30
High	> 4000	20

Effect on other projects

Part of another project to reduce overall costs ie - paving or resurfacing	30
Completes a phase of an existing project	20

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
50% MATCHING GRANTS FY 92

CRITERIA SYSTEM - WASTEWATER

Public Health Threat

A documented human disease event exists 150

Environmental Threat

A documented pollution event exists 100
 Development suggests pollution will occur 50

Project Status

engineering plans approved 50
 engineering plans available 40
 management and implementation plan approved 30
 feasibility study complete 20

Compliance

NOV for existing facility 50
 under compliance order for existing facility 40
 existing facility cannot meet permit conditions 20
 existing facility has nuisance problems 10

Community Support

Community's number one capital budget request 40

Funding

Local funding of fifty-percent match in place 50

Operation and Maintenance

User fees approved by community 30
 Operation and maintenance costs estimated 20

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CRITERIA SYSTEM - WASTEWATER

Page 2

Cost/Population Benefitted

Low	< 400	40
Medium	400 - 4000	30
High	> 4000	20

Effect on other projects

Part of another project to reduce overall cost ie - paving or resurfacing	30
Completes a phase of an existing project	20

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
50% MATCHING GRANTS FY 92

CRITERIA SYSTEM - SOLID WASTE

Environmental/Public Health Threat

A documented human disease event has occurred due to solid waste management practices	150
A documented pollution event has occurred from leachate, smoke or litter	100
Human/animal encounters are frequent	50

Project Status

engineering plans approved	50
engineering plans available	40
management & implementation plan approved	30
feasibility study complete	20

Compliance

NOV for existing facility	50
under compliance order for existing facility	40
existing facility cannot meet permit conditions	20
existing facility has nuisance problems (bears, rats, wind blown litter, fires, etc.)	10

Type of Project (more than one item can score)

project includes reduction, recovery or separation	50
project combines more than one community	30

Community Support

Community's number one capital budget request	40
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Funding

Local funding of fifty-percent match in place	50
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CRITERIA SYSTEM - SOLID WASTE

Page 2

Operation and Maintenance

User fees approved by community	30
Operation and maintenance costs estimated	20

Cost/Population Benefitted

Low	< 400	40
Medium	400 - 4000	30
High	> 4000	20

CRITERIA SYSTEM FOR DISTRIBUTION OF ALASKA CLEAN WATER FUND LOANS

SCORING OF PROJECTS

Project priority rankings are determined according to the following categories. Appropriate points are assigned to arrive at a point total and priority ranking for each project.

CRITERIA SYSTEM

1. READINESS TO PROCEED

- a) The community needs loan funding to complete a project already started which has already completed the environmental assessment process. 45
- b) The community has completed a facility plan and an environmental assessment has been published. 30
- c) The community has completed a facility plan and an environmental assessment has been prepared but not published. 15

2. COMMUNITY'S ABILITY TO REPAY LOAN

- a) The community has identified a viable source for repaying a loan. 5

3. TYPE OF PROJECT

- a) Initial phase(s) of treatment discharging into marine waters required to protect public health or achieve water quality standards; secondary treatment for discharge into fresh water; or any treatment required prior to discharge to groundwater (no existing sewage treatment facilities). 30
- b) Rehabilitation or expansion of treatment facilities or correction of infiltration/inflow of sewage collection systems where existing conditions are disrupting the efficiency of existing treatment facilities. 25
- c) Correction of infiltration/inflow of sewage collection systems where the required corrections are done in conjunction with a new treatment facility. 20
- d) Construction of new interceptor sewers, pump stations, and appurtenances. 15
- e) Upgrading existing treatment facilities to secondary or advanced wastewater treatment levels when required for reasons other than meeting water quality standards or the protection of public health. 5

4. USE OF RECEIVING WATER

This project will eliminate the adverse effect. (Score from highest point value only).

- a) **Freshwater/Groundwater**
 - 1) Drinking and food processing 10
 - 2) Propagation of fish & shellfish as a food source 5
 - 3) Water contact recreation 2
- b) **Marine Water/Estuaries**
 - 1) Propagation of fish & shellfish as a food source 5
 - 2) Water contact recreation 2

5. LOAN COST/POPULATION BENEFITTED

- a) Low cost/population ratio 0-400 10
- b) Moderate cost/population ratio 401-4000 6
- c) High cost/population ratio >4000 2

6. WATER QUALITY EFFECTS

- a) Project necessary to treat or eliminate a discharge contributing to a documented violation of Alaska Water Quality Standards. Documentation means a report has been provided showing the results of a water quality sample which violates a water quality standard. A treatment plant which is overloaded is presumed to violate water quality standards. 10
- b) Project necessary to minimize or eliminate documented contamination of groundwater or surface waters resulting from subsurface sewage disposal systems. 7
- c) Project will result in measurable enhancement of water quality but is not required to meet Alaska Water Quality Standards. 4
- d) Project necessary to prevent potential water pollution problems or where environment may be adversely affected due to the impact of accelerated development or industrial growth. 2

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ENCLOSURE 3

**PRIORITY LIST PROCEDURES
ALASKA CLEAN WATER FUND
FEDERAL LOAN PROGRAM**

The Alaska Clean Water Fund program offers low interest loans to communities for the planning, design, and construction of publicly owned wastewater treatment facilities. During the next three years, the program will receive federal grant monies to capitalize the Fund. The following procedures outline the processes the program uses to determine which projects will receive limited loan monies.

CRITERIA SYSTEM: During each funding cycle, a loan priority list is developed to determine the relative ranking of projects based on: (a) project type, (b) readiness to proceed, (c) the current use of receiving water, (d) the ratio of loan amount to population benefitted, (e) the effect of the project on water quality, and (f) the community's ability to repay a loan. The criteria system for ranking Alaska Clean Water Fund projects is detailed on the following page.

BYPASS OF PROJECTS: Eighty-three percent of the Alaska Clean Water Fund is capitalized by the federal government. If the State does not enter into loan agreements equal to each year's grant within a specified time, we lose the grant. Therefore, if it appears a community will not be ready to enter into a loan agreement within the time frame necessary to ensure the fund does not lose federal capitalization monies, their project will be bypassed. The next project on the list which is ready to proceed in a timely manner will be offered a loan.

If available funds are insufficient to meet a community's project financing needs, and the lack of funding will keep the project from proceeding in a timely manner, the project will be bypassed. The next project on the list which will be ready to proceed using the limited available funds will be offered a loan.

TIE SCORES: If two projects are equal in scoring, the following sequence will be used to differentiate between them:

1. If one project requires an earlier construction date as a result of a compliance agreement or other legal order from EPA or ADEC, that project will be placed ahead of the other.
2. The project with an earlier anticipated date for submitting a completed application will be placed ahead of the other.
3. If one project is already under construction and has already undergone the required environmental review, that project will be placed ahead of the other.
4. If both projects are from the same community, the community may decide which project should be placed ahead of the other.
5. The individual scores from each criteria category will be compared, beginning with category 1 and continuing until a difference is found. The project with the highest score in the individual category will be placed first.

The criteria system and priority list are subject to public review and comment. Public review is announced through individual mailings to communities and public notices in the newspapers of appropriate cities.

FUNDING HISTORYfy91.silk

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	A	B	C	D	E	F
1	YEAR	DEC - 50%	DEC - VSW	TOTAL - DEC	DIRECT - DOA	TOTAL STATE
2	70	\$8,000,000	\$3,000,000	\$11,000,000		\$11,000,000
3	72	\$32,000,000	\$1,000,000	\$33,000,000		\$33,000,000
4	76	\$29,500,000	\$1,500,000	\$31,000,000		\$31,000,000
5	78	\$19,890,000	\$7,750,000	\$27,640,000		\$27,640,000
6	80	\$23,000,000	\$10,000,000	\$33,000,000		\$33,000,000
7	82	\$9,359,000	\$1,608,900	\$10,967,900		\$10,967,900
8	83	\$4,580,000	\$515,000	\$5,105,000	\$28,441,700	\$31,546,700
9	84	\$18,302,889	\$680,610	\$18,993,579	\$108,587,100	\$128,580,679
10	85	\$15,700,000	\$7,872,000	\$23,672,000	\$132,501,525	\$156,173,525
11	86	\$1,823,100	\$1,218,000	\$3,042,100	\$25,115,300	\$28,157,400
12	87	\$14,880,850	\$9,784,000	\$24,674,710	\$45,984,182	\$70,638,892
13	88	\$5,980,300	\$5,623,200	\$11,603,500	\$4,311,500	\$15,913,000
14	89	\$11,795,000	\$6,367,475	\$18,162,475	\$9,643,300	\$27,805,775
15	90	\$7,050,000	\$7,781,100	\$14,841,100	\$12,215,008	\$27,056,108
16	91	\$7,480,000	\$7,829,295	\$15,319,295	\$9,783,500	\$25,102,795
17	TOTAL	\$210,381,018	\$72,880,510	\$283,221,628	\$374,583,115	\$657,584,744
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FEDERAL MATCHING FUNDS PROJECTS

ADEC 50% MATCHING GRANTS PROGRAM

5-Mar-91

<u>Community</u>	<u>Project Name</u>	<u>ADEC 50% Grant Request</u>	<u>Expected Federal Funding</u>
Nome	Wastewater Treatment Facility	\$1,332,000	\$2,800,000
Ketchikan	Primary Sedimentation Plant	\$521,000	\$2,465,000
Cordova	Sewer System Improvements	\$301,000	\$1,900,000
Juneau	Mendenhall-JD Sewage Treatment Imp	\$405,000	\$5,655,000
Take	Gunnuck Creek Sewer Project	\$515,000	\$260,000
Klawock	Sewage Treatment Plant & Outfall	\$387,500	\$75,000
Craig	Wastewater Treatment Plant	\$1,730,300	\$700,000
Klawock	Klawock Subdivision Water & Sewer	\$350,000	\$700,000
Hoonah	Garteen Highway W & S Extension	\$212,500	\$75,000
Klawock	Water Source Development	\$75,000	unknown
TOTAL		\$5,829,300	\$14,630,000

VILLAGE SAFE WATER MATCHING PROJECTS

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Federal Funding</u>
Chevak	Sewer upgrade	\$300,000	\$7,500
Klukwan	Lagoon	\$389,000	\$175,000
Kasaan	Water Supply Improvements- Phase I	\$306,000	\$75,000
Tanacross	Water & Sewer Expansion & Repair	\$200,000	\$850,000
Kiana	Sewage Treatment Renovation	\$968,000	\$584,000
Noorvik	Water & Sewer Upgrade	\$400,000	\$480,000
Selawik	Storage/Washeteria	\$800,000	\$1,420,000
Koyuk	Piped Water and Sewer Systems	\$1,200,000	\$1,200,000
White Mountain	Water and Sewer	\$617,000	\$2,517,000
Gambell	Water & Sewer Phase III	\$2,800,000	\$1,035,000
Chevak	Laundry & Sewer Disposal Lines	\$37,000	\$8,000
Nikolai	Water and Sewer Improvement Project	\$500,000	\$800,000
Stevens Village	Washeteria Upgrade	\$400,000	\$200,000
Kaitag	Water and Sewer Extension	\$217,380	\$125,000
Huslia	Sanitation Improvements	\$500,000	\$1,000,000
Shageluk	Washeteria/Water Treatment Plant Ren	\$300,000	\$600,000
Tyonek	Water & Sewer Phase III	\$742,000	\$912,000
Venetie	Washeteria Rehab	\$1,470,000	\$600,000
Mekoryuk	Flush Tank and Haul Demonstration Pr	\$180,000	\$50,000
Cheformak	Water & Sewer System	\$2,147,499	\$500,000
Kokhonak	Water & Sewer Improvements	\$100,000	\$181,500
Manokotak	Water System Improvements	\$300,000	\$487,000
New Stuyahok	Water Sewer & Solid Waste	\$477,000	\$200,000
Togiak	Togiak Water & Sewer Const.	\$257,000	\$350,000
Larsen Bay	Water Improvements	\$530,000	\$100,000
TOTAL		\$16,137,879	\$14,457,000

PROJECTS RECEIVING CONSIDERATION UNDER THE PUBLIC HEALTH SCORING CRITERIA

VSW PROJECTS

City	Projects	Grant Request	ED	Regional Area	Class
Various Statewide Communities	Engineering Feasibility Studies	\$100,000	99	VSW	
Statewide	Village clinic water/sewer upgrade	\$500,000		ANHB	IA1
St. Michael	Water tanker/fire truck/appurtenances	\$300,000	23	BBHD	IA1
Deering	Water/Sewer Phase I	\$1,998,427	22	Maniilaq	IA1
Koyuk	Piped Water and Sewer Systems	\$1,200,000	23	NSHC	IA1
Stebbins	Honey Bucket Access Road	\$38,000	23	NSHD	IA1
Alakanuk	Honey Bucket Haul	\$305,000	23	YKHC	IA1
Cheformak	Water & Sewer System	\$2,147,499	25	YKHC	IA1
Chevak	Sewer upgrade	\$300,000	23	YKHC	IA1
Hooper Bay	Water & Sewer Upgrade	\$990,000	23	YKHC	IA1
Kotlik	Honey Bucket Cleanup	\$50,000	23	YKHC	IA1
Tuluksak	Water, Sewer & Solid Waste Study	\$50,000	24	YKHC	IA1
Sub-Total for Class IA1		\$7,978,926			
Atka	Engr Evaluation Water/Sewer	\$100,000	26	Aleu/Prib Is Assoc	IA2
Chignik	Sewer Upgrade/Drainfield Replacement	\$200,000	27	BBAHC	IA2
Clarks Point	Extension of Water and Sewer	\$280,000	26	BBAHC	IA2
Kokhonak	Water & Sewer Improvements	\$100,000	26	BBAHC	IA2
Manokotuk	Water System Improvements	\$300,000	26	BBAHC	IA2
New Stuyahok	Water Sewer & Solid Waste	\$477,000	26	BBAHD	IA2
Togiak	Togiak Water & Sewer Const.	\$257,000	26	BBAHD	IA2
South Naknek	Septic Tank Project	\$581,000	26	BBHD	IA2
Port Graham	Engr Design/Study	\$75,000	5	CINHD	IA2
Tyonek	Water & Sewer Phase III	\$742,000	24	CINHD	IA2
Chistochina	Chistochina Safewater	\$25,000	17	CRHD	IA2
Glennallen	Sewer System	\$1,200,000	17	CRHD	IA2
Gulkana	Water & Sewer		17	CRHD	IA2
Matanuska-Susitna Borough	Talkeetna East Side Sewer and Water Construction	\$3,100,000	16	CRHD	IA2
Nelchina/Mendeltna Corporation	Waste Transfer Station & Well	\$42,600	17	CRHD	IA2
Larsen Bay	Water Improvements	\$530,000	27	KANA	IA2
Ouzinkie	Safewater Relocation	\$200,000	27	KANA	IA2
Port Lions	Water & Sewer	\$250,000	27	KANA	IA2
Kiana	Sewage Treatment Renovation	\$968,000	22	Maniilaq	IA2
Kivalina	Water Tank Upgrade	\$900,000	22	Maniilaq	IA2
Kotzebue	Sewer Main Rehab	\$1,370,000	22	Maniilaq	IA2
Kotzebue	Sewage Lagoon Upgrade	\$480,000	22	Maniilaq	IA2
Noatak	Solid Waste Site	\$300,000	22	Maniilaq	IA2
Noorvik	Water & Sewer Upgrade	\$400,000	22	Maniilaq	IA2
Selawik	Storage/Washeteria	\$800,000	22	Maniilaq	IA2
Shungnak	Solid Waste Improvements	\$120,000	22	Maniilaq	IA2
Chenega Bay	Solid Waste Disposal	\$383,891	6	N Pacific Rim	IA2
Anchor Point	Watering Point Facility	\$68,000	5	N. Pacific Rim	IA2
Brevig Mission	Water and Sewer Design	\$150,000	23	NSHC	IA2
Elim	Sewer Ocean Outfall Line Rehab	\$431,000	23	NSHC	IA2
Gambell	Water & Sewer Phase III	\$2,800,000	23	NSHC	IA2
Golovin	Water and Sewer Progressive Improvements Plan Ph. 8.	\$427,280	23	NSHC	IA2
Unalakleet	Solid Waste	\$1,414,000	23	NSHC	IA2
White Mountain	Water and Sewer	\$617,000	23	NSHC	IA2
Savoonga	Solid Waste	\$750,000	23	NSHD	IA2
Ketchikan Gateway Bor.	Mt. Point Water & Sewer Project	\$2,524,000	5	SEARHC	IA2
Klukwan	Lagoon	\$389,000	2	SEARHC	IA2
Point Barrow	Engineering Feasibility Study	\$25,000	2	SEARHC	IA2
Thorne Bay	Sewer Project	\$1,100,000	2	SEARHC	IA2
Anderson	Septage Disposal Facility	\$300,000	17	TCC	IA2
Birch Creek	Solid Waste Removal & Relocation	\$10,000	24	TCC	IA2
Birch Creek	Tank Rehabilitation	\$150,000	24	TCC	IA2
Grayling	Gallery Pump Project	\$100,000	24	TCC	IA2
Healy Lake Village	Water/Sewer Project	\$52,000	17	TCC	IA2
Huslia	Sanitation Improvements	\$500,000	24	TCC	IA2
Minto	Solid Waste Site	\$150,000	24	TCC	IA2
Nikolai	Water and Sewer Improvement Project	\$500,000	24	TCC	IA2
Northway	Sanitation facility upgrade	\$250,000	24	TCC	IA2
Nulato	Water & Sewer System Phase III	\$2,382,000	24	TCC	IA2

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<u>City</u>	<u>Projects</u>	<u>Grant Request</u>	<u>ED</u>	<u>Regional Area</u>	<u>Class</u>
Ruby	Sanitary Landfill	\$60,000	24	TCC	IA2
Shageluk	Washeteria/Water Treatment Plant Renovation	\$300,000	24	TCC	IA2
Takoma	Rehab of Sanitation Facilities	\$225,000	24	TCC	IA2
Tanacross	Water & Sewer Expansion & Repair	\$200,000	17	TCC	IA2
Bethel	Wastewater Treatment System Improvements	\$623,000	25	YKHC	IA2
Chevak	Laundry & Sewer Disposal Lines	\$37,000	23	YKHC	IA2
Eek	Feasibility Study-Water Well Drilling	\$22,500	25	YKHC	IA2
Lower Kalslag	Solid Waste Improvements	\$175,000	24	YKHC	IA2
Mekoryuk	Flush Tank and Haul Demonstration Project	\$180,000	25	YKHC	IA2
Sub-Total for Class IA2		\$31,143,471			
False Pass	Water Supply for New Community Dev. Proj.	\$280,250	26	Aleu/Prib Is Assoc	IA3
Chignik Lake	Landfill Relocation Design/Construction	\$25,000	27	BBAHC	IA3
St. Michael	Phase II Washeteria	\$474,200	23	BBHD	IA3
Ambler	Water and Sewer Lines	\$150,000	22	Maniilaq	IA3
Kobuk	Water, Sewer & Solid Waste	\$1,500,000	22	Maniilaq	IA3
Kotzebue	Sanitary Landfill Study	\$150,000	22	Maniilaq	IA3
Teller	Safe Water/Sewer/Solid Waste	\$200,000	23	NSHD	IA3
Coffman Cove	Water and Sewer Construction	\$800,000	2	SEARHC	IA3
Kasaan	Water Supply Improvements- Phase I	\$306,000	2	SEARHC	IA3
Metlakatla	Water Tank & Feeder Lines Replacement	\$584,200	2	SEARHC	IA3
Eagle Village	Washeteria, Lagoon & Water Project	\$1,600,000	17	TCC	IA3
Katag	Water and Sewer Extension	\$217,380	24	TCC	IA3
Stevens Village	Washeteria Upgrade	\$400,000	24	TCC	IA3
Venetie	Washeteria Rehab	\$1,470,000	24	TCC	IA3
Eek	Washeteria Upgrade	\$8,122	25	YKHC	IA3
Emmonak	Sewer and Water Expansion	\$1,000,000	23	YKHC	IA3
Scammon Bay	Village Safe Water	\$150,000	23	YKHC	IA3
Toksook Bay	Water Supply Improvements Project	\$550,000	25	YKHC	IA3
Sub-Total for Class IA3		\$9,865,132			

LEGEND

Aleu/Prib Is Assoc	Aleutian Pribilof Island Association
ANHB	Alaska Native Health Board
BBHC	Bristol Bay Health Corp
CINHD	Cook Inlet Native Health Corp
CRHD	Copper River Health Dept
KANA	Kodiak Area Native Association
NSHC	Norton Sound Health Corp
SEARHC	South East Alaska Regional Health Corp
TCC	Tanana Chiefs Conference
VSW	Village Safe Water
YKHC	Yukon Kuskokwim Health Corp

MATCHING GRANTS PROJECTS

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>	<u>ED</u>	<u>Regional Area</u>	<u>Class</u>
Kodiak	Water Filtration Plant	\$8,190,000	27	KANA	IA1
Kechikan Public Utilities	Water & Filtration Treatment Plant	\$35,000	1	SEARHC	IA1
Sub Total for Class IA1		\$8,225,000			
Seldovia	Water System Upgrade	\$260,000	5	CINHD	IA2
Sub Total for Class IA2		\$260,000			
TOTAL COSTS for all class IA1 Projects		\$16,203,926			
TOTAL COSTS for all class IA2 Projects		\$31,403,271			
TOTAL COSTS for all class IA3 Projects		\$9,865,152			
TOTAL COSTS for all Health related projects		\$57,472,349			

Organization of Chart

The chart is arranged in order as follows:

- The two programs, Village Safe Water and 50% municipal matching grants program are listed separately.
- Within each program projects are arranged by classification of health problem, i.e., IA1, IA2, IA3
- Within each health class projects are arranged in order of the regional health corporation located in that region
- Within each regional health corporation area projects are arranged alphabetically by community

1-1

ADEC 50% MATCHING GRANT REQUESTS FOR FY 92

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Cum. Request</u>
I. FEDERAL MATCH PROJECTS.			
Nome	Wastewater Treatment Facility	\$1,332,000	\$1,332,000
Ketchikan	Primary Sedimentation Plant	\$521,000	\$1,853,000
Cordova	Sewer System Improvements	\$301,000	\$2,154,000
Juneau	Mendenhall-JD Sewage Treatment Plant Improvements	\$405,000	\$2,559,000
II. CURRENTLY UNDER CONSTRUCTION WITH ADEC FUNDING (NEEDED TO COMPLETE)			
Kenai	Wastewater Treatment Plant Upgrade	\$250,000	\$250,000
Unalaska	Unalaska Water Project	\$1,250,000	\$1,500,000
Kenai Peninsula Borough	Seward and Soldotna, Solid Waste Facilities	\$2,106,000	\$3,606,000
III. PRECONSTRUCTION			
Statewide	Community Facility Planning & Design	\$500,000	\$500,000
IV. WATER & SEWER			
Bristol Bay Borough	King Salmon Sewer	\$1,703,000	\$1,703,000
Haines	Wastewater (E.P.A. Compliance)	\$1,000,000	\$2,703,000
Kodiak	Water Filtration Plant	\$8,190,000	\$10,893,000
Kake	Kake Gunnuck Creek - Sewer Project	\$515,000	\$11,408,000
Klawock	STP & Outfall	\$387,500	\$11,795,500
Seldovia	Water System Upgrade	\$260,000	\$12,305,500
Ketchikan Public Utilities	Tongass/Water Street Water Main Replacement Phase II	\$1,250,000	\$13,555,500
Craig	Wastewater Treatment Plant	\$1,730,300	\$15,285,800
Klawock	Klawock Subdivision Water & Sewer	\$350,000	\$15,635,800
Kenai	Thompson Park Sewer Interceptor	\$900,000	\$16,535,800
Wrangell	Water Main from Upper Reservoir to bypass Lower Reservo.	\$275,000	\$16,810,800
Wrangell	Water Main extension to the Airport	\$200,000	\$17,010,800
Homer	Port of Homer 30 Acre Sewer & Water Utility	\$225,000	\$17,235,800
Sand Point	Nagai Avenue Sewer	\$300,000	\$17,535,800
Valdez	Sewage Dump Station - Small Boat Harbor	\$6,800	\$17,542,600
Valdez	Oil and Grease Separators for Small Boat Harbor	\$27,500	\$17,570,100
Pelican	Continuation of Sewer System	\$248,582	\$17,818,682
King Cove	Harbor Water Extension (Phase I)	\$123,000	\$17,941,682
Skagway	Water Storage Tank	\$152,000	\$18,093,682
Hoonah	Garteeni Hwy. W & S Extension	\$212,500	\$18,306,182
North Pole	Northwest Utility	\$1,770,000	\$20,076,182
Yakutat	Sewage Treatment Facility Upgrade	\$450,000	\$20,526,182
Kenai	Thompson Park Water and Sewer Main	\$600,000	\$21,126,182
Klawock	Klawock Water Source	\$75,000	\$21,201,182
Ketchikan Public Utilities	Bear Valley Reservoir Construction	\$950,000	\$22,151,182
Ketchikan Public Utilities	Jefferson/Madison Street Water Main Replacement	\$200,000	\$22,351,182
Ketchikan Public Utilities	Tower Road Water Main Replacement	\$500,000	\$22,851,182
Dillingham	Airport Sewer Project	\$175,000	\$23,026,182

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ADEC 50% MATCHING GRANT REQUESTS FOR FY 92

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Cum. Request</u>
Kodiak Island Borough	Service District No. 1 Project No. 85-3(B)	\$666,800	\$23,692,982
Kodiak Island Borough	Service District No. 1 Project No. 86-1	\$934,350	\$24,627,332
Ketchikan	Central Waterfront Development - Sewer and Water	\$129,250	\$24,756,582
North Pole	Baker/Northstar Subdivision W & S.	\$2,290,000	\$27,046,582
Sitka	Inflow & Infiltration Reduction	\$1,000,000	\$28,046,582
Kodiak Island Borough	Monashka Bay Water and Sewer System Design	\$550,000	\$28,596,582
Kodiak Island Borough	Womens Bay Water and Sewer System Design	\$550,000	\$29,146,582
Wrangell	Church Street Wood Stave Water Main Replacement	\$200,000	\$29,346,582
Wrangell	Water and Sewer Main Replacement - Webber Street	\$50,000	\$29,396,582

V. SOLID WASTE

Kodiak Island Borough	Kodiak Landfill and Material and Leachate Treatment	\$559,863	\$559,863
Sand Point	Sand Point Landfill Construction	\$300,000	\$859,863
Sitka	Comprehensive Solid Waste Disposal	\$1,500,000	\$2,359,863
Valdez	Paved Road to Balefill	\$75,000	\$2,434,863
Dillingham	Landfill Improvements	\$100,000	\$2,534,863
North Pole	Solid Waste Incinerator	\$3,300,000	\$5,834,863
Kenai Peninsula Borough	Homer Balefill Improvements	\$820,000	\$6,654,863
Kenai Peninsula Borough	North Borough Transfer Station	\$597,375	\$7,252,238

VI. ANCHORAGE **

Anchorage	Anchorage Wastewater Projects	\$5,338,500	\$5,338,500
Anchorage	Anchorage Water Projects	\$1,544,500	\$6,883,000
Anchorage	Anchorage Regional Landfill Cell III	\$2,463,000	\$9,346,000
Anchorage	Merrill Field Landfill Methane Gas Collection Project	\$794,000	\$10,140,000
Anchorage	Areawide Water Quality Monitoring	\$100,000	\$10,240,000
Anchorage	Oil/Grease Separator Performance Monitoring	\$25,000	\$10,265,000
Anchorage	Storm Drain Monitoring and Characterization	\$25,000	\$10,290,000
Anchorage	Water Quality Public Education	\$40,000	\$10,330,000
Anchorage	Macroinvertebrate Water Quality Assessment	\$20,000	\$10,350,000

VII. FAIRBANKS **

Fairbanks	Ft. Wainwright Interceptor Rehabilitation - IIA	\$750,000	\$750,000
Fairbanks	Wastewater Sludge Landfill	\$6,750,000	\$7,500,000
Fairbanks	Waste Heat Exchanger - Water	\$325,000	\$7,825,000
Fairbanks	Firewell Improvements	\$125,000	\$7,950,000
Fairbanks	Lime Stabilization	\$225,000	\$8,175,000

VIII. JUNEAU **

Juneau	Glacier Highway Sewerage: Ross Way-Channel Drive	\$950,000	\$950,000
Juneau	Back Loop Road Sewerage-Design	\$600,000	\$1,550,000
Juneau	North Franklin Sewer/Storm Drain Separation	\$275,000	\$1,825,000
Juneau	Highlands Sewer/Storm Drain Separation	\$293,000	\$2,118,000
Juneau	Mountainside Estates-Reservoir & Pump Station	\$1,250,000	\$3,368,000
Juneau	Back Loop Sewerage - Phase I	\$7,700,000	\$11,068,000

IX. STATEWIDE SOLID WASTE

Community Solid Waste Planning Grants	\$1,500,000	\$1,500,000
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** NOTE: In prior years, a single appropriation was made for Anchorage, Fairbanks and Juneau, allowing them to set their own internal priorities

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**DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 DIV. FACILITY CONSTRUCTION & OPERATION
 COMMUNITY REQUESTS FOR VILLAGE SAFE WATER GRANT FUNDING
 3/8/91**

<u>Community</u>	<u>Project Title</u>	<u>Grant Request</u>	<u>Cumulative</u>
Alakanuk	Honey Bucket Haul	\$305,000	\$305,000
Koyuk	Piped Water and Sewer Systems	\$1,200,000	\$1,505,000
Stebbins	Honey Bucket Access Road	\$38,000	\$1,543,000
Deering	Water/Sewer Phase I	\$1,998,427	\$3,541,427
Tuluksak	Water, Sewer & Solid Waste Study	\$50,000	\$3,591,427
Nikolai	Water and Sewer Improvement Project	\$500,000	\$4,091,427
Chevak	Sewer upgrade	\$300,000	\$4,391,427
Tyonek	Water & Sewer Phase III	\$742,000	\$5,133,427
Huslia	Sanitation Improvements	\$500,000	\$5,633,427
Kotlik	Honey Bucket Cleanup	\$50,000	\$5,683,427
Statewide	Village clinic water/sewer upgrade	\$500,000	\$6,183,427
White Mountain	Water and Sewer	\$617,000	\$6,800,427
Thorne Bay	Sewer Project	\$1,100,000	\$7,900,427
Ketchikan Gateway Bor.	Mt. Point Water & Sewer Project	\$2,524,000	\$10,424,427
Anderson	Septage Disposal Facility	\$300,000	\$10,724,427
Glennallen	Sewer System	\$1,200,000	\$11,924,427
Anchor Point	Watering Point Facility	\$68,000	\$11,992,427
Klukwan	Lagoon	\$389,000	\$12,381,427
Takotna	Rehab of Sanitation Facilities	\$225,000	\$12,606,427
Noorvik	Water & Sewer Upgrade	\$400,000	\$13,006,427
Selawik	Storage/Washeteria	\$800,000	\$13,806,427
Mekoryuk	Flush Tank and Haul Demonstration Project	\$180,000	\$13,986,427
Unalakleet	Solid Waste	\$1,414,000	\$15,400,427
Nelchina/Mendeltna Corporation	Waste Transfer Station & Well	\$42,600	\$15,443,027
Matanuska-Susitna Borough	Talkeetna East Side Sewer and Water Construction	\$3,100,000	\$18,543,027
Cheformak	Water & Sewer System	\$2,147,499	\$20,690,526
Kokhonak	Water & Sewer Improvements	\$100,000	\$20,790,526
New Stuyahok	Water Sewer & Solid Waste	\$477,000	\$21,267,526
Togiak	Togiak Water & Sewer Const.	\$257,000	\$21,524,526
Gambell	Water & Sewer Phase III	\$2,800,000	\$24,324,526
Bethel	Wastewater Treatment System Improvements	\$623,000	\$24,947,526
Lower Kalskag	Solid Waste Improvements	\$175,000	\$25,122,526
Golovin	Water and Sewer Progressive Improvements Plan Ph. 2.	\$427,280	\$25,549,806
Nulato	Water & Sewer System Phase III	\$2,382,000	\$27,931,806
Emmonak	Sewer and Water Expansion	\$1,000,000	\$28,931,806
Kotzebue	Sewer Main Rehab	\$1,370,000	\$30,301,806
Kiana	Sewage Treatment Renovation	\$968,000	\$31,269,806
Ruby	Sanitary Landfill	\$60,000	\$31,329,806
Elim	Sewer Ocean Outfall Line Rehab	\$431,000	\$31,760,806
Hooper Bay	Water & Sewer Upgrade	\$990,000	\$32,750,806
Shageluk	Washeteria/Water Treatment Plant Renovation	\$300,000	\$33,050,806
Kaitag	Water and Sewer Extension	\$217,380	\$33,268,186
Manokotak	Water System Improvements	\$300,000	\$33,568,186
Port Lions	Water & Sewer	\$250,000	\$33,818,186

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<u>Community</u>	<u>Project Title</u>	<u>Grant Request</u>	<u>Cumulative</u>
Coffman Cove	Water and Sewer Construction	\$800,000	\$34,618,186
Savoonga	Solid Waste	\$750,000	\$35,368,186
Chignik	Sewer Upgrade/Drainfield Replacement	\$200,000	\$35,568,186
Various Statewide Communities	Engineering Feasibility Studies	\$100,000	\$35,668,186
Kotzebue	Sewage Lagoon Upgrade	\$480,000	\$36,148,186
Chistochina	Chistochina Safewater	\$25,000	\$36,173,186
Port Graham	Engr Design/Study	\$75,000	\$36,248,186
St. Michael	Water tanker/fire truck/ appurtenances	\$300,000	\$36,548,186
Northway	Sanitation facility upgrade	\$260,000	\$36,808,186
Kivalina	Water Tank Upgrade	\$900,000	\$37,708,186
South Naknek	Septic Tank Project	\$581,000	\$38,289,186
Clarks Point	Extension of Water and Sewer	\$280,000	\$38,569,186
Healy Lake Village	Water/Sewer Project	\$92,000	\$38,661,186
Tanacross	Water & Sewer Expansion & Repair	\$200,000	\$38,861,186
Atka	Engr Evaluation Water/Sewer	\$100,000	\$38,961,186
Grayling	Gallery Pump Project	\$100,000	\$39,061,186
Birch Creek	Solid Waste Removal & Relocation	\$10,000	\$39,071,186
Minto	Solid Waste Site	\$150,000	\$39,221,186
Larsen Bay	Water Improvements	\$530,000	\$39,751,186
Noatak	Solid Waste Site	\$300,000	\$40,051,186
Kotzebue	Sanitary Landfill Study	\$150,000	\$40,201,186
Chenega Bay	Solid Waste Disposal	\$383,891	\$40,585,077
Chevak	Laundry & Sewer Disposal Lines	\$37,000	\$40,622,077
Shungnak	Solid Waste Improvements	\$120,000	\$40,742,077
Point Baker	Engineering Feasibility Study	\$25,000	\$40,767,077
Eek	Feasibility Study-Water Well Drilling	\$22,500	\$40,789,577
St. Michael	Phase II Washeteria	\$474,200	\$41,263,777
Kasaan	Water Supply Improvements- Phase I	\$306,000	\$41,569,777
Toksook Bay	Water Supply Improvements Project	\$550,000	\$42,119,777
Stevens Village	Washeteria Upgrade	\$400,000	\$42,519,777
Brevig Mission	Water and Sewer Design	\$150,000	\$42,669,777
Ouzinkie	Safewater Relocation	\$200,000	\$42,869,777
Gulkana	Water & Sewer		\$42,869,777
Birch Creek	Tank Rehabilitation	\$150,000	\$43,019,777
Kobuk	Water, Sewer & Solid Waste	\$1,500,000	\$44,519,777
Scammon Bay	Village Safe Water	\$150,000	\$44,669,777
Metlakaala	Water Tank & Feeder Lines Replacement	\$584,200	\$45,253,977
Teller	Safe Water/Sewer/Solid Waste	\$200,000	\$45,453,977
Eagle Village	Washeteria, Lagoon & Water Project	\$1,600,000	\$47,053,977
Ambler	Water and Sewer Lines	\$150,000	\$47,203,977
Venetie	Washeteria Rehab	\$1,470,000	\$48,673,977
False Pass	Water Supply for New Community Dev. Proj.	\$280,250	\$48,954,227
Eek	Washeteria Upgrade	\$8,122	\$48,962,349
Chignik Lake	Solid Waste Study	\$25,000	\$48,987,349

7-LS0892G ✓
Cramer
3/19/91

CS FOR SENATE BILL NO. 179 (CRA)
IN THE LEGISLATURE OF THE STATE OF ALASKA
SEVENTEENTH LEGISLATURE - FIRST SESSION

BY THE SENATE COMMUNITY AND REGIONAL AFFAIRS COMMITTEE

Offered:

Referred:

Funding Information:	General Fund	\$112,372,017
	Other Funds	<u>-0-</u>
		\$112,372,017

Sponsor(s): SENATORS ADAMS, Hoffman, Shultz, Zharoff

A BILL

FOR AN ACT ENTITLED

1 "An Act making appropriations for water, sewer, and solid waste projects; and providing
2 for an effective date."

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

4 * Section 1. The sum of \$38,915,197 is appropriated from the general fund to the Department of
5 Environmental Conservation for payment as grants from the village safe water program (AS 46.07) to
6 the following unincorporated communities and cities for the purposes and in the amounts stated:

7	COMMUNITY OR CITY	PURPOSE	ALLOCATION
8	City of Alakanuk	Honey bucket haul	\$305,000
9	City of Deering	Water/sewer phase I	1,998,427
10	City of Koyuk	Piped water and sewer systems	1,200,000
11	City of Tuluksak	Water, sewer, and solid waste study	50,000
12	City of Stebbins	Honey bucket access road	38,000
13	City of Kotlik	Honey bucket cleanup	50,000
14	City of Chefornak	Water and sewer system	2,147,499

WORK DRAFT		WORK DRAFT	WORK DRAFT
1	City of Hooper Bay	Water and sewer upgrade	990,000
2	City of St. Michael	Water tanker/fire truck/plumbing	300,000
3	City of Chevak	Sewer system rehabilitation	300,000
4	Chistochina	Chistochina safe water	25,000
5	City of Brevig Mission	Water and sewer design	150,000
6	City of Clarks Point	Extension of water and sewer	280,000
7	City of Lower Kalskag	Solid waste improvements	175,000
8	Nelchina	Waste transfer station and well	42,600
9	City of Nikolai	Water and sewer improvement project	500,000
10	City of Ouzinkie	Safewater relocation	200,000
11	City of Savoonga	Solid waste	750,000
12	Talkeetna	Talkeetna East Side sewer and water construction	3,100,000
13	Tanacross	Water and sewer expansion and repair	200,000
14	City of White Mountain	Water and sewer	617,000
15	City of Kiana	Sewage treatment renovation	968,000
16	City of Golovin	Water and sewer progressive improvement	
17		plan phase 8	427,280
18	City of Kivalina	Water tank upgrade	900,000
19	City of Huslia	Sanitation improvements	500,000
20	City of Nulato	Water and sewer system phase III	2,382,000
21	City of Atka	Engineering evaluation water/sewer	100,000
22	City of Grayling	Gallery pump project	100,000
23	City of Ruby	Sanitary landfill	60,000
24	Birch Creek	Solid waste removal and relocation	10,000
25	Birch Creek	Tank rehabilitation	150,000
26	City of Thorne Bay	Sewer project	1,100,000
27	Takotna	Rehabilitation of sanitation facilities	225,000
28	Mt. Point	Mt. Point water and sewer project	2,524,000
29	City of Shageluk	Washeteria/water treatment plant renovation	300,000
30	City of Noorvik	Water and sewer upgrade	400,000
31	Minto	Solid waste site	150,000

WORK DRAFT		WORK DRAFT	WORK DRAFT
1	Tyonek	Water and sewer phase III	742,000
2	Klukwan	Lagoon	389,000
3	City of Chignik	Sewer upgrade/drainfield replacement	200,000
4	City of Elim	Sewer line rehabilitation	431,000
5	City of Anderson	Septage disposal facility	300,000
6	Kokhanok	Water and sewer improvements	100,000
7	City of Larsen Bay	Water improvements	530,000
8	City of Manokotak	Water system improvements	300,000
9	City of New Stuyahok	Water sewer and solid waste	477,000
10	Noatak	Solid waste site	300,000
11	City of Port Lions	Water and sewer	250,000
12	City of Selawik	Storage/washeteria	800,000
13	South Nakenek	Septic tank project	581,000
14	City of Togiak	Togiak water and sewer construction	257,000
15	City of Unalakleet	Solid waste	1,414,000
16	Anchor Point	Watering point facility	68,000
17	City of Mekoryuk	Flush tank and haul demonstration project	180,000
18	City of Kotzebue	Sewer main rehabilitation	1,370,000
19	City of Kotzebue	Sewage lagoon upgrade	480,000
20	Glennallen	Sewer system	1,200,000
21	Healy Lake	Water/sewer project	92,000
22	Chenega	Solid waste disposal	383,891
23	Port Graham	Engineering design/study	75,000
24	City of Gambell	Water and sewer phase III	2,800,000
25	Gulkana	Rehabilitate water treatment plant and	
26		provide larger water storage tank	430,000
27	City of Shungnak	Solid waste improvements	120,000
28	Point Baker	Engineering feasibility study	25,000
29	City of Eek	Feasibility study - water well drilling	22,500
30	Northway	Water and sewer project	260,000
31	City of Bethel	Waste water treatment system improvements	623,000

1 " Sec. 2. The sum of \$500,000 is appropriated from the general fund to the Department of
2 Environmental Conservation for village water, sewer, and solid waste projects and for payment as grants
3 under the village safe water program (AS 46.07) for village clinic water and sewer upgrade.

4 * Sec. 3. (a) The sum of \$72,156,820 is appropriated from the general fund to the Department of
5 Environmental Conservation for payment as grants under AS 46.03.030 (the 50 percent construction grant
6 program) to the following municipalities for the purposes and in the amounts stated:

7	MUNICIPALITY	PURPOSE	ALLOCATION
8	City of Nome	Wastewater treatment facility	\$1,332,000
9	City of Ketchikan	Primary sedimentation plant	521,000
10	City of Cordova	Sewer system improvements	301,000
11	City and Borough of		
12	Juneau	Mendenhall-JD sewage treatment plant	
13		improvements	405,000
14	City of Kenai	Wastewater treatment plant upgrade	250,000
15	City of Unalaska	Unalaska water project	1,250,000
16	Kenai Peninsula Borough	Seward and Soldotna, solid waste facilities	2,106,000
17	Bristol Bay Borough	King Salmon sewer	1,703,000
18	City of Haines	Wastewater (E.P.A. compliance)	1,000,000
19	City of Kodiak	Water filtration plant	8,190,000
20	City of Kake	Kake Gunnuck Creek - sewer project	515,000
21	City of Klawock	Sewer treatment plant and outfall	387,500
22	City of Seldovia	Water system upgrade	260,000
23	City of Ketchikan	Tongass/Water Street water main replacement	
24		phase II	1,250,000
25	City of Craig	Wastewater treatment plant	1,730,300
26	City of Klawock	Klawock Subdivision water and sewer	350,000
27	City of Kenai	Thompson Park sewer interceptor	900,000
28	City of Wrangell	Water main from upper reservoir to bypass	
29		lower reservoir	275,000
30	City of Wrangell	Water main extension to the airport	200,000
31	City of Homer	Fort of Homer 30 acre sewer and water utility	225,000

WORK DRAFT	WORK DRAFT	WORK DRAFT
1	City of Sand Point	Nagai Avenue sewer 300,000
2	City of Valdez	Sewage dump station - small boat harbor 6,800
3	City of Valdez	Oil and grease separators for small
4		boat harbor 27,500
5	City of Pelican	Continuation of sewer system 248,582
6	City of King Cove	Harbor water extension (phase I) 123,000
7	City of Skagway	Water storage tanks 152,000
8	City of Hoonah	Garteeni Highway, water and sewer extension 212,500
9	City of North Pole	Northwest utility 1,770,000
10	City of Yakutat	Sewage treatment facility upgrade 450,000
11	City of Kenai	Thompson Park water and sewer main 600,000
12	City of Klawock	Klawock water source 75,000
13	City of Ketchikan	Bear Valley reservoir construction 950,000
14	City of Ketchikan	Jefferson/Madison Street water main replacement 200,000
15	City of Ketchikan	Tower Road water main replacement 500,000
16	City of Dillingham	Airport sewer project 175,000
17	Kodiak Island Borough	Water and sewer collection - Otmeloi subdivision 666,800
18	Kodiak Island Borough	Water and sewer collection - Kodiak subdivision 934,350
19	City of Ketchikan	Central waterfront development - sewer
20		and water 129,250
21	City of North Pole	Baker/Northstar subdivision, water and sewer 2,290,000
22	City and Borough of Sitka	Inflow and infiltration reduction 1,000,000
23	Kodiak Island Borough	Monashka Bay water and sewer system design 550,000
24	Kodiak Island Borough	Womens Bay water and sewer system design 550,000
25	City of Wrangell	Church Street wood stave water main
26		replacement 200,000
27	City of Wrangell	Water and sewer main replacement - Webber
28		Street 50,000
29	Kodiak Island Borough	Kodiak land fill and material and leachate
30		treatment 559,863
31	City of Sand Point	Sand Point landfill construction 300,000

WORK DRAFT	WORK DRAFT	WORK DRAFT
1	City and Borough of Sitka	Comprehensive solid waste disposal 1,500,000
2	City of Valdez	Paved road to balefill 75,000
3	City of Dillingham	Landfill improvements 100,000
4	City of North Pole	Solid Waste incinerator 3,300,000
5	Kenai Peninsula Borough	Horner balefill improvements 820,000
6	Kenai Peninsula Borough	North borough transfer station 597,375
7	Municipality of Anchorage	Anchorage wastewater projects 5,338,500
8	Municipality of Anchorage	Anchorage water projects 1,544,500
9	Municipality of Anchorage	Anchorage regional landfill cell III 2,463,000
10	Municipality of Anchorage	Merrill Field landfill methane gas
11		collection project 794,000
12	Municipality of Anchorage	Areawide water quality monitoring 100,000
13	Municipality of Anchorage	Oil/grease separator performance monitoring 25,000
14	Municipality of Anchorage	Storm drain monitoring and characterization 25,000
15	Municipality of Anchorage	Water quality public education 40,000
16	Municipality of Anchorage	Macroinvertebrate water quality assessment 20,000
17	City of Fairbanks	Ft. Wainwright interceptor rehabilitation -
18		phase IIA 750,000
19	City of Fairbanks	Wastewater sludge landfill 6,750,000
20	City of Fairbanks	Waste heat exchanger - water 325,000
21	City of Fairbanks	Firewell improvements 125,000
22	City of Fairbanks	Lime stabilization 225,000
23	City and Borough of Juneau	Glacier Highway sewerage: Ross Way to
24		Channel Drive 950,000
25	City and Borough of Juneau	Back Loop Road sewerage - design 600,000
26	City and Borough of Juneau	North Franklin sewer/storm drain separation 275,000
27	City and Borough of Juneau	Highlands sewer/storm drain separation 293,000
28	City and Borough of Juneau	Mountainside Estates - reservoir and
29		pump station 1,250,000
30	City and Borough of Juneau	Back Loop sewerage - phase I 7,700,000
31	(b) The sum of \$300,000 is appropriated from the general fund to the Department of	

1 Environmental Conservation for payment as grants under AS 46.03.030 (the 50 percent construction grant
2 program) for statewide community facility planning and design.

3 (c) The sum of \$1,500,000 is appropriated from the general fund to the Department of
4 Environmental Conservation for payment as grants under AS 46.03.030 (the 50 percent construction grant
5 program) for community solid waste planning.

6 * Sec. 4. The appropriations made by this Act are for capital projects and lapse under AS 37.25.020.

7 * Sec. 5. This Act takes effect immediately under AS 01.10.070(c).

7-LS0892J
Cramer
3/22/91

CS FOR SENATE BILL NO. 179 (CRA)

IN THE LEGISLATURE OF THE STATE OF ALASKA

SEVENTEENTH LEGISLATURE - FIRST SESSION

BY THE SENATE COMMUNITY AND REGIONAL AFFAIRS COMMITTEE

Offered:

Referred:

Funding Information:	General Fund	\$113,759,017
	Other Funds	<u>-0-</u>
		\$113,759,017

Sponsor(s): SENATORS ADAMS, Hoffman, Shultz, Zharoff

A BILL

FOR AN ACT ENTITLED

1 "An Act making appropriations for water, sewer, and solid waste projects; and providing
2 for an effective date."

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

4 * Section 1. The sum of \$39,302,197 is appropriated from the general fund to the Department of
5 Environmental Conservation for payment as grants from the village safe water program (AS 46.07) to
6 the following unincorporated communities and cities for the purposes and in the amounts stated:

7	COMMUNITY OR CITY	PURPOSE	ALLOCATION
8	City of Alakanuk	Honey bucket haul	\$305,000 ✓
9	City of Koyuk	Piped water and sewer systems	1,200,000 ✓
10	City of Stebbins	Honey bucket access road	38,000 ✓
11	City of Deering	Water/sewer phase I	1,998,427 ✓
12	City of Tuluksak	Water, sewer, and solid waste study	50,000 ✓
13	City of Chevak	Sewer system rehabilitation	300,000 ✓
14	City of Hooper Bay	Water and sewer upgrade	990,000 ✓

WORK DRAFT

WORK DRAFT

WORK DRAFT

1	City of Kotlik	Honey bucket cleanup	50,000 ✓
2	City of St. Michael	Water tanker/fire truck/plumbing	300,000 ✓
3	City of Chefornak	Water and sewer system	2,147,499 ✓
4	City of Marshall	Water system rehabilitation	350,000 ✓
5	City of Nikolai	Water and sewer improvement project	500,000 ✓
6	Tyonek	Water and sewer phase III	742,000 ✓
7	City of Huslia	Sanitation improvements	500,000 ✓
8	City of Bethel	Waste water treatment system improvements	623,000 ✓
9	City of White Mountain	Water and sewer	617,000 ✓
10	City of Thorne Bay	Sewer project	1,100,000 ✓
11	Mt. Point	Mt. Point water and sewer project	2,524,000 ✓
12	City of Anderson	Septage disposal facility	300,000 ✓
13	Glennallen	Sewer system	1,200,000 ✓
14	Anchor Point	Watering point facility	68,000 ✓
15	Klukwan	Lagoon	389,000 ✓
16	Talkeetna	Talkeetna East Side sewer and water construction	3,100,000 ✓
17	City of Noorvik	Water and sewer upgrade	400,000 ✓
18	Kokhanok	Water and sewer improvements	100,000 ✓
19	City of New Stuyahok	Water/sewer and solid waste	477,000 ✓
20	City of Selawik	Storage/washeteria	800,000 ✓
21	City of Togiak	Togiak water and sewer construction	257,000 ✓
22	City of Unalakleet	Solid waste	1,414,000 ✓
23	City of Gambell	Water and sewer phase III	2,800,000 ✓
24	City of Lower Kalskag	Solid waste improvements	175,000 ✓
25	City of Golovin	Water and sewer progressive improvement	
26		plan phase 8	427,280 ✓
27	City of Nulato	Water and sewer system phase III	2,382,000 ✓
28	City of Mekoryuk	Flush tank and haul demonstration project	180,000 ✓
29	City of Kotzebue	Sewer main rehabilitation	1,370,000 ✓
30	City of Kiana	Sewage treatment renovation	968,000 ✓
31	Takotna	Rehabilitation of sanitation facilities	225,000 ✓

WORK DRAFT		WORK DRAFT	WORK DRAFT
1	City of Ruby	Sanitary landfill	60,000 ✓
2	City of Elim	Sewer line rehabilitation	431,000 ✓
3	City of Shageluk	Washeteria/water treatment plant renovation	300,000 ✓
4	City of Manokotak	Water system improvements	300,000 ✓
5	City of Port Lions	Water and sewer	250,000 ✓
6	Nelchina	Waste transfer station and well	42,600 ✓
7	City of Savoonga	Solid waste	750,000 ✓
8	City of Chignik	Sewer upgrade/drainfield replacement	200,000 ✓
9	City of Kotzebue	Sewage lagoon upgrade	480,000 ✓
10	Port Graham	Engineering design/study	75,000 ✓
11	City of Kivalina	Water tank upgrade	900,000 ✓
12	South Naknek	Septic tank project	581,000 ✓
13	Northway	Water and sewer project	260,000 ✓
14	City of Clarks Point	Extension of water and sewer	280,000 ✓
15	Healy Lake	Water/sewer project	92,000 ✓
16	Tanacross	Water and sewer expansion and repair	200,000 ✓
17	City of Atka	Engineering evaluation water/sewer	100,000 ✓
18	City of Grayling	Gallery pump project	100,000 ✓
19	Birch Creek	Solid waste removal and relocation	10,000 ✓
20	Minto	Solid waste site	150,000 ✓
21	City of Larsen Bay	Water improvements	530,000 ✓
22	Noatak	Solid waste site	300,000 ✓
23	Chistochina	Chistochina safe water	25,000 ✓
24	Chenega	Solid waste disposal	383,891 ✓
25	City of Chevak	Laundry and sewer disposal lines	37,000 ✓
26	City of Shungnak	Solid waste improvements	120,000 ✓
27	Point Baker	Engineering feasibility study	25,000 ✓
28	City of Eek	Feasibility study - water well drilling	22,500 ✓
29	City of Brevig Mission	Water and sewer design	150,000 ✓
30	City of Ouzinkie	Safewater relocation	200,000 ✓
31	Gulkana	Rehabilitate water treatment plant and	

1 provide larger water storage tank 430,000 ✓
 2 Birch Creek Tank rehabilitation 150,000 ✓

3 * Sec. 2. The sum of \$500,000 is appropriated from the general fund to the Department of
 4 Environmental Conservation for village water, sewer, and solid waste projects and for payment as
 5 grants under the village safe water program (AS 46.07) for village clinic water and sewer upgrade.

6 * Sec. 3. (a) The sum of \$72,156,820 is appropriated from the general fund to the Department
 7 of Environmental Conservation for payment as grants under AS 46.03.030 (the 50 percent
 8 construction grant program) to the following municipalities for the purposes and in the amounts
 9 stated:

10 MUNICIPALITY	PURPOSE	ALLOCATION
11 City of Nome	Wastewater treatment facility	\$1,332,000
12 City of Ketchikan	Primary sedimentation plant	521,000
13 City of Cordova	Sewer system improvements	301,000
14 City and Borough of		
15 Juneau	Mendenhall-JD sewage treatment plant	
16	improvements	405,000
17 City of Kenai	Wastewater treatment plant upgrade	250,000
18 City of Unalaska	Unalaska water project	1,250,000
19 Kenai Peninsula Borough	Seward and Soldotna, solid waste facilities	2,106,000
20 Bristol Bay Borough	King Salmon sewer	1,703,000
21 City of Haines	Wastewater (E.P.A. compliance)	1,000,000
22 City of Kodiak	Water filtration plant	8,190,000
23 City of Kake	Kake Gunnuck Creek - sewer project	515,000
24 City of Klawock	Sewer treatment plant and outfall	387,500
25 City of Seldovia	Water system upgrade	260,000
26 City of Ketchikan	Tongass/Water Street water main replacement	
27	phase II	1,250,000
28 City of Craig	Wastewater treatment plant	1,730,300
29 City of Klawock	Klawock Subdivision water and sewer	350,000
30 City of Kenai	Thompson Park sewer interceptor	900,000
31 City of Wrangell	Water main from upper reservoir to bypass	

WORK DRAFT	WORK DRAFT	WORK DRAFT	
1	lower reservoir	275,000	
2	City of Wrangell	Water main extension to the airport	200,000
3	City of Homer	Port of Homer 30 acre sewer and water utility	225,000
4	City of Sand Point	Nagai Avenue sewer	300,000
5	City of Valdez	Sewage dump station - small boat harbor	6,800
6	City of Valdez	Oil and grease separators for small	
7		boat harbor	27,500
8	City of Pelican	Continuation of sewer system	248,582
9	City of King Cove	Harbor water extension (phase I)	123,000
10	City of Skagway	Water storage tank	152,000
11	City of Hoonah	Garteen Highway, water and sewer extension	212,500
12	City of North Pole	Northwest utility	1,770,000
13	City of Yakutat	Sewage treatment facility upgrade	450,000
14	City of Kenai	Thompson Park water and sewer main	600,000
15	City of Klawock	Klawock water source	75,000
16	City of Ketchikan	Bear Valley reservoir construction	950,000
17	City of Ketchikan	Jefferson/Madison Street water main replacement	200,000
18	City of Ketchikan	Tower Road water main replacement	500,000
19	City of Dillingham	Airport sewer project	175,000
20	Kodiak Island Borough	Water and sewer collection - Otmeloi subdivision	666,800
21	Kodiak Island Borough	Water and sewer collection - Kodiak subdivision	934,350
22	City of Ketchikan	Central waterfront development - sewer	
23		and water	129,250
24	City of North Pole	Baker/Northstar subdivision, water and sewer	2,290,000
25	City and Borough of Sitka	Inflow and infiltration reduction	1,000,000
26	Kodiak Island Borough	Monashka Bay water and sewer system design	550,000
27	Kodiak Island Borough	Womens Bay water and sewer system design	550,000
28	City of Wrangell	Church Street wood stave water main	
29		replacement	200,000
30	City of Wrangell	Water and sewer main replacement - Webber	
31		Street	50,000

WORK DRAFT	WORK DRAFT	WORK DRAFT
1	Kodiak Island Borough	Kodiak land fill and material and leachate
2		treatment
		559,863
3	City of Sand Point	Sand Point landfill construction
		300,000
4	City and Borough of Sitka	Comprehensive solid waste disposal
		1,500,000
5	City of Valdez	Paved road to balefill
		75,000
6	City of Dillingham	Landfill improvements
		100,000
7	City of North Pole	Solid Waste incinerator
		3,300,000
8	Kenai Peninsula Borough	Homer balefill improvements
		820,000
9	Kenai Peninsula Borough	North borough transfer station
		597,375
10	Municipality of Anchorage	Anchorage wastewater projects
		5,338,500
11	Municipality of Anchorage	Anchorage water projects
		1,544,500
12	Municipality of Anchorage	Anchorage regional landfill cell III
		2,463,000
13	Municipality of Anchorage	Merrill Field landfill methane gas
14		collection project
		794,000
15	Municipality of Anchorage	Areawide water quality monitoring
		100,000
16	Municipality of Anchorage	Oil/grease separator performance monitoring
		25,000
17	Municipality of Anchorage	Storm drain monitoring and characterization
		25,000
18	Municipality of Anchorage	Water quality public education
		40,000
19	Municipality of Anchorage	Macroinvertebrate water quality assessment
		20,000
20	City of Fairbanks	Ft. Wainwright interceptor rehabilitation -
21		phase IIA
		750,000
22	City of Fairbanks	Wastewater sludge landfill
		6,750,000
23	City of Fairbanks	Waste heat exchanger - water
		325,000
24	City of Fairbanks	Firewell improvements
		125,000
25	City of Fairbanks	Lime stabilization
		225,000
26	City and Borough of Juneau	Glacier Highway sewerage: Ross Way
27		Channel Drive
		950,000
28	City and Borough of Juneau	Back Loop Road sewerage - design
		600,000
29	City and Borough of Juneau	North Franklin sewer/storm drain separation
		275,000
30	City and Borough of Juneau	Highlands sewer/storm drain separation
		293,000
31	City and Borough of Juneau	Mountainside Estates - reservoir and

1	pump station	1,250,000
2	City and Borough of Juneau Back Loop sewerage - phase I	7,700,000

3 (b) The sum of \$300,000 is appropriated from the general fund to the Department of
 4 Environmental Conservation for payment as grants under AS 46.03.030 (the 50 percent construction grant
 5 program) for statewide community facility planning and design.

6 (c) The sum of \$1,500,000 is appropriated from the general fund to the Department of
 7 Environmental Conservation for payment as grants under AS 46.03.030 (the 50 percent construction grant
 8 program) for community solid waste planning.

9 * Sec. 4. The appropriations made by this Act are for capital projects and lapse under AS 37.25.020.

10 * Sec. 5. This Act takes effect immediately under AS 01.10.070(c).

(PROPOSED)

	DEP. OF ENVIRONMENTAL CONSERVATION		
	DISTRIBUTION OF \$16MILLION CAPITAL BUDGET		

2/19/91

STATEWIDE	CIP RECEIPTS		\$550,000
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ADEC 50% MATCHING GRANT REQUESTS FOR FY 92			
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Community	Project	Grant Amount	Cum Grants
Nome	Wastewater Treatment Facility	\$1,330,000	\$1,330,000
Ketchikan	Primary Sedimentation Plant	\$520,000	\$1,850,000
Cordova	Sewer System Improvements	\$300,000	\$2,150,000
Juneau	Mendenhall-JD Sewage Treatment Plant Improvements	\$400,000	\$2,550,000
Kanal	Wastewater Treatment Plant Upgrade	\$250,000	\$2,800,000
Unalaska	Unalaska Water Project	\$1,000,000	\$3,800,000
Kanal Peninsula Borough	Seward and Soldotna, Solid Waste Facilities	\$1,000,000	\$4,800,000
Statewide	Community Facility Planning & Design (see note)	\$300,000	\$5,100,000
Bristol Bay Borough	King Salmon Sewer	\$1,800,000	\$6,700,000
Haines	Wastewater (E.P.A. Compliance)	\$1,000,000	\$7,700,000
Anchorage	Water, Wastewater & Solid Waste	\$1,000,000	\$8,700,000
Fairbanks	Ft. Wainwright Interceptor	\$750,000	\$9,450,000

VILLAGE SAFE WATER GRANT REQUESTS			
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Community	Project	Grant Amount	Cum Grants
Kanuk	Honey Bucket Haul	\$305,000	\$305,000
Koyuk	Piped Water and Sewer Systems	\$1,200,000	\$1,505,000
Stebbins	Honey Bucket Access Road	\$38,000	\$1,543,000
Deering	Water/Sewer Phase I	\$1,998,427	\$3,541,427
Tul'yak	Water, Sewer & Solid Waste Study	\$50,000	\$3,591,427
Nikolai	Water and Sewer Improvement Project	\$500,000	\$4,091,427
Tyonek	Water & Sewer Phase III	\$742,000	\$4,833,427
Huslia	Sanitation Improvements	\$500,000	\$5,333,427
Kotlik	Honey Bucket Cleanup	\$50,000	\$5,383,427
Statewide	Village clinic water/sewer upgrade	\$500,000	\$5,883,427
White Mountain	Water and Sewer	\$617,000	\$6,500,427

STATE WIDE	Solid waste planning projects		\$300,000
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NOTE:

EXAMPLES OF FACILITY PRE-CONSTRUCTION PROJECTS			
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Ketchikan Public Utilities	Water & Filtration Treatment Plant	\$35,000	\$35,000
Yakutat	Sewage Treatment Facility Upgrade	\$50,000	\$85,000
Cordova	Water Supply Improvements	\$150,000	\$235,000
Wrangell	Comprehensive Water Study	\$40,000	\$275,000
Sitka	Drinking Water Treatment Evaluation	\$25,000	\$300,000

ADEC 50% MATCHING GRANT REQUESTS FOR FY 92

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Cum. Request</u>
I. FEDERAL MATCH PROJECTS.			
Nome	Wastewater Treatment Facility	\$1,332,000	\$1,332,000
Ketchikan	Primary Sedimentation Plant	\$521,000	\$1,853,000
Cordova	Sewer System Improvements	\$301,000	\$2,154,000
Juneau	Mendenhall-JD Sewage Treatment Plant Improvements	\$405,000	\$2,559,000
II. CURRENTLY UNDER CONSTRUCTION WITH ADEC FUNDING (NEEDED TO COMPLETE)			
✓ Kenai	Wastewater Treatment Plant Upgrade	\$250,000	\$250,000
✓ Unalaska	Unalaska Water Project	\$1,250,000	\$1,500,000
✓ Kenai Peninsula Borough	Seward and Soldotna, Solid Waste Facilities	\$2,106,000	\$3,606,000
III. PRECONSTRUCTION			
✓ Statewide	Community Facility Planning & Design	\$500,000	\$500,000
IV. WATER & SEWER			
✓ Bristol Bay Borough	King Salmon Sewer	\$1,703,000	\$1,703,000
✓ Haines	Wastewater (E.P.A. Compliance)	\$1,000,000	\$2,703,000
✓ Kodiak	Water Filtration Plant	\$8,190,000	\$10,893,000
✓ Kake	Kake Gunnuck Creek - Sewer Project	\$515,000	\$11,408,000
✓ Klawock	STP & Outfall	\$387,500	\$11,795,500
✓ Seldovia	Water System Upgrade	\$260,000	\$12,305,500
✓ Ketchikan Public Utilities	Tongass/Water Street Water Main Replacement Phase II	\$1,250,000	\$13,555,500
✓ Craig	Wastewater Treatment Plant	\$1,730,300	\$15,285,800
✓ Klawock	Klawock Subdivision Water & Sewer	\$350,000	\$15,635,800
✓ Kenai	Thompson Park Sewer Interceptor	\$900,000	\$16,535,800
✓ Wrangell	Water Main from Upper Reservoir to bypass Lower Reservoir	\$275,000	\$16,810,800
✓ Wrangell	Water Main extension to the Airport	\$200,000	\$17,010,800
Homer	Port of Homer 30 Acre Sewer & Water Utility	\$225,000 ✓	\$17,235,800
Sand Point	Nagai Avenue Sewer	\$300,000 ✓	\$17,535,800
Valdez	Sewage Dump Station - Small Boat Harbor	\$6,800 ✓	\$17,542,600
Valdez	Oil and Grease Separators for Small Boat Harbor	\$27,500 ✓	\$17,570,100
Pelican	Continuation of Sewer System	\$248,582 ✓	\$17,818,682
King Cove	Harbor Water Extension (Phase I)	\$123,000 ✓	\$17,941,682
Skagway	Water Storage Tank	\$152,000 ✓	\$18,093,682
Hoonah	Garteen Hwy, W & S Extension	\$212,500 ✓	\$18,306,182
North Pole	Northwest Utility	\$1,770,000 ✓	\$20,076,182
Yakutat	Sewage Treatment Facility Upgrade	\$450,000 ✓	\$20,526,182
Kenai	Thompson Park Water and Sewer Main	\$600,000 ✓	\$21,126,182
Klawock	Klawock Water Source	\$75,000 ✓	\$21,201,182
Ketchikan Public Utilities	Bear Valley Reservoir Construction	\$950,000 ✓	\$22,151,182
Ketchikan Public Utilities	Jefferson/Madison Street Water Main Replacement	\$200,000 ✓	\$22,351,182
Ketchikan Public Utilities	Tower Road Water Main Replacement	\$500,000 ✓	\$22,851,182
Dillingham	Airport Sewer Project	\$175,000 ✓	\$23,026,182

ADEC 50% MATCHING GRANT REQUESTS FOR FY 92

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Cum. Request</u>
Kodiak Island Borough	Service District No. 1 Project No. 85-3(B)	\$666,800 ✓	\$23,692,982
Kodiak Island Borough	Service District No. 1 Project No. 86-1	\$934,350 ✓	\$24,627,332
Ketchikan	Central Waterfront Development - Sewer and Water	\$129,250 ✓	\$24,756,582
North Pole	Baker/Northstar Subdivision W & S.	\$2,290,000 ✓	\$27,046,582
Sitka	Inflow & Infiltration Reduction	\$1,000,000 ✓	\$28,046,582
Kodiak Island Borough	Monashka Bay Water and Sewer System Design	\$550,000 ✓	\$28,596,582
Kodiak Island Borough	Womens Bay Water and Sewer System Design	\$550,000 ✓	\$29,146,582
Wrangell	Church Street Wood Stave Water Main Replacement	\$200,000 ✓	\$29,346,582
Wrangell	Water and Sewer Main Replacement - Webber Street	\$50,000 ✓	\$29,396,582
V. SOLID WASTE			
Kodiak Island Borough	Kodiak Landfill and Material and Leachate Treatment	\$559,863 ✓	\$559,863
Sand Point	Sand Point Landfill Construction	\$300,000 ✓	\$859,863
Sitka	Comprehensive Solid Waste Disposal	\$1,500,000 ✓	\$2,359,863
Valdez	Paved Road to Balefill	\$75,000 ✓	\$2,434,863
Dillingham	Landfill Improvements	\$100,000 ✓	\$2,534,863
North Pole	Solid Waste Incinerator	\$3,300,000 ✓	\$5,834,863
Kenai Peninsula Borough	Homer Balefill Improvements	\$820,000 ✓	\$6,654,863
Kenai Peninsula Borough	North Borough Transfer Station	\$597,375 ✓	\$7,252,238
VI. ANCHORAGE **			
Anchorage	Anchorage Wastewater Projects	✓\$5,338,500	\$5,338,500
Anchorage	Anchorage Water Projects	✓\$1,544,500	\$6,883,000
Anchorage	Anchorage Regional Landfill Cell III	✓\$2,463,000	\$9,346,000
Anchorage	Merrill Field Landfill Methane Gas Collection Project	✓\$794,000	\$10,140,000
Anchorage	Areawide Water Quality Monitoring	✓\$100,000	\$10,240,000
Anchorage	Oil/Grease Separator Performance Monitoring	✓\$25,000	\$10,265,000
Anchorage	Storm Drain Monitoring and Characterization	✓\$25,000	\$10,290,000
Anchorage	Water Quality Public Education	✓\$40,000	\$10,330,000
Anchorage	Macroinvertebrate Water Quality Assessment	✓\$20,000	\$10,350,000
VII. FAIRBANKS **			
Fairbanks	Ft. Wainwright Interceptor Rehabilitation - IIA	✓\$750,000	\$750,000
Fairbanks	Wastewater Sludge Landfill	✓\$6,750,000	\$7,500,000
Fairbanks	Waste Heat Exchanger - Water	✓\$325,000	\$7,825,000
Fairbanks	Firewell Improvements	✓\$125,000	\$7,950,000
Fairbanks	Lime Stabilization	✓\$225,000	\$8,175,000
VIII. JUNEAU **			
Juneau	Glacier Highway Sewerage; Ross Way-Channel Drive	✓\$950,000	\$950,000
Juneau	Back Loop Road Sewerage-Design	✓\$600,000	\$1,550,000
Juneau	North Franklin Sewer/Storm Drain Separation	✓\$275,000	\$1,825,000
Juneau	Highlands Sewer/Storm Drain Separation	✓\$293,000	\$2,118,000
Juneau	Mountainside Estates-Reservoir & Pump Station	✓\$1,250,000	\$3,368,000
Juneau	Back Loop Sewerage - Phase I	✓\$770,000	\$11,068,000
IX. STATEWIDE SOLID WASTE			
	Community Solid Waste Planning Grants	✓\$1,500,000	\$1,500,000

** NOTE: In prior years, a single appropriation was made for Anchorage, Fairbanks and Juneau, allowing them to set their own internal priorities

VSW Projects Receiving Consideration Under the Public Health Scoring Criteria

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>
Alakanuk	Honey Bucket Haul	\$305,000
Deering	Water/Sewer Phase I	\$1,998,427
Koyuk	Piped Water and Sewer Systems	\$1,200,000
Tuluksak	Water, Sewer & Solid Waste Study	\$50,000
Stebbins	Honey Bucket Access Road	\$38,000
Kotlik	Honey Bucket Cleanup	\$50,000
Chefornak	Water & Sewer System	\$2,147,499
Hooper Bay	Water & Sewer Upgrade	\$880,000
St. Michael	Water tanker/fire truck/ appurtenances	\$300,000
Chevak	Sewer upgrade	\$300,000
Statewide	Village clinic water/sewer upgrade	\$500,000
	Sub-Total for Class (A1)	\$7,878,928
Bethel	Wastewater treatment system improvements	\$623,000
Northway	Sanitation facilities upgrade	\$260,000
Chistochina	Chistochina Safewater	\$25,000
Brevig Mission	Water and Sewer Design	\$150,000
Clarks Point	Extension of Water and Sewer	\$280,000
Lower Kalskag	Solid Waste Improvements	\$175,000
Nelohina/Mendaitna Corporation	Waste Transfer Station & Well	\$42,600
Nikolai	Water and Sewer Improvement Project	\$500,000
Ouzinkie	Safewater Relocation	\$200,000
Savoonga	Solid Waste	\$750,000
Matanuska-Susitna Borough	Talkeetna East Side Sewer and Water Construction	\$3,100,000
Tanacross	Water & Sewer Expansion & Repair	\$200,000
White Mountain	Water and Sewer	\$517,000
Kiana	Sewage Treatment Renovation	\$968,000
Golovin	Water and Sewer Progressive Improvements Plan Ph. 2	\$427,280
Kivalina	Water Tank Upgrade	\$900,000
Huelia	Sanitation Improvements	\$500,000
Nulato	Water & Sewer System Phase III	\$2,382,000
Atka	Engr Evaluation: Water/Sewer	\$100,000
Grayling	Gallery Pump Project	\$100,000
Ruby	Sanitary Landfill	\$60,000
Birch Creek	Solid Waste Removal & Relocation	\$10,000
Birch Creek	Tank Rehabilitation	\$150,000
Thorne Bay	Sewer Project	\$1,100,000
Takotna	Rehab of Sanitation Facilities	\$225,000
Ketchikan Gateway Bor.	Mt. Point Water & Sewer Project	\$2,524,000
Shageluk	Washeteria/Water Treatment Plant Renovation	\$300,000
Noorvik	Water & Sewer Upgrade	\$400,000
Minto	Solid Waste Site	\$150,000
Tyonek	Water & Sewer Phase III	\$742,000
Klukwan	Lagoon	\$389,000
Chignik	Sewer Upgrade/Drainfield Replacement	\$200,000
Ellm	Sewer Ocean Outfall Line Rehab	\$431,000
Anderson	Septage Disposal Facility	\$300,000
Kokhonak	Water & Sewer Improvements	\$100,000
Larsen Bay	Water Improvements	\$530,000

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>
Manokotak	Water System Improvements	\$300,000
New Stuyahok	Water Sewer & Solid Waste	\$477,000
Noatak	Solid Waste Site	\$300,000
Port Lions	Water & Sewer	\$250,000
Selawik	Storage/Washeteria	\$800,000
South Naknek	Septic Tank Project	\$581,000
Togiak	Togiak Water & Sewer Const.	\$257,000
Unalakleet	Solid Waste	\$1,414,000
Anchor Point	Watering Point Facility	\$68,000
Makoryuk	Flush Tank and Haul Demonstration Project	\$180,000
Kotzebue	Sewer Main Rehab	\$1,370,000
Kotzebue	Sewage Lagoon Upgrade	\$480,000
Glennallen	Sewer System	\$1,200,000
Healy Lake Village	Water/Sewer Project	\$92,000
Chenega Bay	Solid Waste Disposal	\$383,891
Port Graham	Engr Design/Study	\$75,000
Gambell	Water & Sewer Phase III	\$2,800,000
Gulkana	Water & Sewer	
Chevak	Laundry & Sewer Disposal Lines	\$37,000
Shungnak	Solid Waste Improvements	\$120,000
Point Baker	Engineering Feasibility Study	\$25,000
Eek	Feasibility Study-Water Well Drilling	\$22,500
Northway	sanitation facility upgrade	\$260,000
	Sub-Total for Class IA2	\$31,143,271

Bethel	Wastewater Treatment System Improvements	\$623,000
Kobuk	Water, Sewer & Solid Waste	\$1,500,000
Scammon Bay	Village Safe Water	\$150,000
Stevens Village	Washeteria Upgrade	\$400,000
St. Michael	Phase II Washeteria	\$474,200
Kahtag	Water and Sewer Extension	\$217,380
Coffman Cove	Water and Sewer Construction	\$800,000
Metlakatla	Water Tank & Feeder Lines Replacement	\$584,200
Emmonak	Sewer and Water Expansion	\$1,000,000
Kasaan	Water Supply Improvements- Phase I	\$308,000
Venetie	Washeteria Rehab	\$1,470,000
Kotzebue	Sanitary Landfill Study	\$150,000
Teller	Safe Water/Sewer/Solid Waste	\$200,000
Eagle Village	Washeteria, Lagoon & Water Project	\$1,800,000
Toksook Bay	Water Supply Improvements Project	\$550,000
Ambler	Water and Sewer Lines	\$150,000
Eek	Washeteria Upgrade	\$8,122
	Sub Total for Class IA3	\$10,182,902

Matching Grant Projects Receiving Consideration Under the Public Health Scoring Criteria

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>
Kodiak	Water Filtration Plant	\$6,182,500
Ketchikan Public Utilities	Water & Filtration Treatment Plant	\$35,000
	Sub Total for Class IA1	\$6,217,500

Seldovia

Water System Upgrade

\$260,000

Sub Total for Class 1A2

\$260,000

SB 179

ANALYSIS OF COMMUNITIES SERVED BY THE RMW PROGRAM

Community	Project	Allocation
Alakanuk	Honey bucket haul	\$305,000
Deering	Water/sewer phase I	\$1,998,427
Koyuk	Piped water and sewer system	\$1,200,000
Tuluksak	Water, sewer, and solid waste study	\$50,000
Stebbins	Honey bucket access road	\$38,000
Kotlik	Honey bucket cleanup	\$50,000
Chefornak	Water and sewer system	\$2,147,499
Hooper Bay	Water and sewer upgrade	\$990,000
St. Michael	Water tanker/fire truck/plumbing	\$300,000
Chevak	Sewer system rehabilitation	\$300,000
Chistochina	Chistochina safe water	\$25,000
Brevig Mission	Water and sewer design	\$150,000
Clarks Point	Extension of water and sewer	\$280,000
Lower Kalskag	Solid waste improvements	\$175,000
Nelchina	Waste transfer station and well	\$42,600
Nikolai	Water and sewer improvements project	\$500,000
Ouzinkie	Safewater relocation	\$200,000
Savoonga	Solid waste	\$750,000
Talkeetna	Talkeetna East Side sewer and water cons	\$3,100,000
Tanacross	Water and sewer expansion and repair	\$200,000
White Mountain	Water and sewer	\$617,000
Kiana	Sewage treatment renovation	\$968,000
Golovin	Water and Sewer progressive Improvements phase 8	\$427,280
Kivalina	Water tank upgrade	\$900,000
Huslia	Sanitation Improvements	\$500,000
Nulato	Water and sewer system phase III	\$2,382,000
Atka	Engineering evaluation water/sewer	\$100,000
Grayling	Gallery pump project	\$100,000
Ruby	Sanitary landfill	\$60,000
Birch Creek	Solid waste removal and relocation	\$10,000
Birch Creek	Tank rehabilitation	\$150,000
Thorne Bay	Sewer project	\$1,100,000
Takotna	Rehabilitation of sanitation facilities	\$225,000
Mt. Point	Mt. Point water and sewer project	\$2,524,000
Shageluk	Washeteria/water treatment plt. renovati	\$300,000
Noorvik	Water and sewer upgrade	\$400,000
Minto	Solid waste site	\$150,000
Tyonek	Water and sewer phase III	\$742,000
Klukwan	Lagoon	\$389,000
Chignik	Sewer upgrade/drainfield replacement	\$200,000

=communities served by a Remote Maintenance Worker

Ellm	Sewer line rehabilltation	\$431,000
Anderson	Septage disposal facility	\$300,000
Kokhanok	Water and sewer improvements	\$100,000
Larsen Bay	Water improvements	\$530,000
Manokotak	Water system improvements	\$300,000
New Stuyahok	Water sewer and solid waste	\$477,000
Noatak	Solid waste site	\$300,000
Port Lions	Water and sewer	\$250,000
Selawik	Storage/washeteria	\$800,000
South Nakenek	Septic tank project	\$581,000
Togalak	Township water and sewer construction	\$257,000
Unalakleet	Solid waste	\$1,414,000
Anchor Point	Watering point facility	\$68,000
Mekoryuk	Flush tank and haul demonstration project	\$180,000
Kotzebue	Sewage main rehabilltation	\$1,370,000
Kotzebue	Sewage lagoon upgrade	\$480,000
Glennallen	Sewer system	\$1,200,000
Healy Lake	Water/sewer project	\$92,000
Chenega	Solid waste disposal	\$383,891
Port Graham	Engineering design/study	\$75,000
Gambell	Water and sewer phase III	\$2,800,000
Gulkana	Rehabilitate water treatment plant and provide larger water storage tank	\$430,000
Shungnak	Solid waste improvements	\$120,000
Point Baker	Engineering feasibility study	\$25,000
Eek	Feasibility study-water well drilling	\$22,500
Northway	Water and sewer project	\$260,000
Bethel	Waste water treatment syst. improvement	\$623,000

=communities served by a Remote Maintenance Worker

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL QUALITY

SURFACE WATER TREATMENT RULE

Senate Community and Regional Affairs Committee requested information on the Surface Water Treatment Rule. The following is a summary of the Rule and its effect in Alaska.

HISTORY

In 1986, Congress unanimously passed the Safe Drinking Water Act amendments that directed EPA to develop more extensive drinking water regulations, including the Surface Water Treatment Rule. Congress was responding to the continued occurrence of waterborne disease outbreaks in water systems that met the old standards: the conclusion was that better treatment was necessary to control microbiological contamination of drinking water.

The new federal Surface Water Treatment Rule (SWTR) became effective on December 31, 1990. It affects all water systems that use surface water, or ground water subject to contamination by surface water. Alaska's public water systems are subject to the same regulations as the rest of the U.S. The rule requires nearly all surface water systems to filter and disinfect the water they serve to the public.

REASON FOR THE RULE

Depending on what is in it, contaminated surface water can cause illnesses such as mild to severe stomach and intestinal problems, giardiasis ("beaver fever") and hepatitis. A disease outbreak in Missouri last winter demonstrated that microbiological contamination of a public water supply can have very severe consequences: in a town of 2200 people, 240 became ill, 34 had to be hospitalized, and three died.

Disease-causing organisms can be distributed by humans and by wild animals. The high potential for contamination of surface waters is emphasized in the advice we routinely give to travellers and backpackers: all are warned not to drink surface water in Alaska without first boiling it, or if boiling is not possible, at least filtering it and adding a disinfectant. The SWTR essentially gives the public a similar margin of safety from their public water supplies by requiring filtration and disinfection.

EFFECT ON ALASKAN WATER SYSTEMS

Most surface water and shallow groundwater systems in Alaska depend exclusively on chlorine disinfection to kill disease-causing organisms. Unfortunately, disinfection systems are not totally reliable. Most disease outbreaks end up being traced to a failure or irregularity in disinfection.

The principle behind the SWTR is to create a "double barrier" of page 2
March 18, 1991

filtration and disinfection to improve the reliability of drinking water systems. Filtration works by removing organisms, while disinfection works by inactivating organisms. Together, they provide a substantial margin of safety to keep disease-causing organisms out of public water supplies. In order to provide reliably safe water, nearly all surface water supplies in Alaska will have to install or upgrade filtration facilities. The deadline for installing appropriate filtration is June 1993, but the rule allows for extensions of this date where compelling factors make it impossible to meet the deadline. An extension to the deadline must be part of a compliance agreement with interim milestones of progress. DEC will work with water systems that need to apply to EPA for extensions.

SMALL VS. LARGE WATER SYSTEMS AND THE SWTR

The SWTR specifies four acceptable filtration methods. These methods are commonly used by medium and large water systems. Consequently, their effectiveness is well documented and understood. The rule also contains a category called "alternative technology". This allows the State to work with small and very small water systems to find affordable technology that is consistently effective and easily maintained.

DEC recognizes the special needs of Alaska's small and remote water systems. As a first step to meeting those needs, DEC held a 2-day conference in Anchorage in February, devoted to the SWTR and small system technology. It was attended by DEC engineers, Public Health Service engineers, water system operators and consultants. HDR/Ott Engineering and the Water Quality Association provided technical information on existing technology that could be adapted for cost-effective operation in very small systems. Cartridge filters and bag filters are promising alternatives because they are reliable and simple; very small units are widely used for single household applications so they were designed with simplicity in mind.

DEC engineers will not impose unreasonable treatment methods on small systems. If there are no reasonable filtration options available for a particular system at this time, DEC will assist the water system in requesting an extension to the filtration deadline from EPA.

**Villages Served by Remote Maintenance Worker Program
(By Regional Health Corporations)**

Bristol Bay Area Health Corporation

Chignik Bay	Dillingham	Ivanof Bay	Perryville
Chignik Lagoon	Ekwok	Koliganek	South Naknek
Chignik Lake	Goodnews Bay	Manokotak	Togiak
Clark's Point	Igiugig	Naknek	Twin Hills
New Stuyahok			

Tanana Chiefs Corporation

Alatna	Chalkyitsik	Huslia	Nikolai	Kaltag
Northway	Takotna	Circle	Allakaket	Dot Lake
Koyukuk	Nulato	Tanacross	Beaver	Eagle
Manley	Rampart	Tetlin	Hughes	Minto
Ruby	Venetie	Birch Creek		
Stevens Village		Arctic Village		

Southeast Alaska Regional Health Corporation

Angoon	Kake	Port Protection
Craig	Kasaan	Port Alexander
Klawock	Saxman	Klukwan
Thorne Bay	Hoonah	Hydaburg
Yakutat		

Norton Sound Health Corporation

Gambell	Shaktoolik	Wales	Savoonga
Golovin	Shishmaref	Diomede	Brevig Mission
Koyuk	Stebbins	Unalakleet	Elim
St. Michael	Teller	White Mountain	

Yukon Kuskokwim Health Corporation

Napakiak	Oscarville	Akiak	Kasigluk
Napaskiak	Tuluksak	Atmoutluak	St. Mary's
Kwethluk	Akiachak	Nunapitchuk	Sheldon's Point
Alakanuk	Pilot Station	Emmonak	Kotlik
Marshall	Pitkas Point	Russian Mission	
Mountain Village			

Maniilaq Association

Ambler	Kivalina	Point Hope
Buckland	Kobuk	Selawik
Deering	Noatak	Shungnak
Kiana	Noorvik	

STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

COMMISSIONER'S OFFICE
P.O. BOX O, JUNEAU, AK 99811-1800

Telephone:
(907) 465-2600

FAX:
(907) 586-1391

March 21, 1991

The Honorable Steve Frank
Alaska State Senate
P.O. Box V
Juneau, AK 99811

Dear Senator Frank:

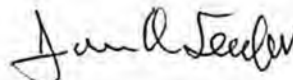
Several members of the Alaska Legislature have asked about the Department of Environmental Conservation's (DEC) role in follow-up action to the contamination problem discovered in the City of Marshall's water system.

The enclosed chronological listing of activities may be helpful in understanding the serious nature of this problem, and the process the Public Health Service (PHS) and the DEC is following in dealing with this problem.

The summary also explains the limitation of the use of the Oil and Hazardous Substance Release Response Fund (the so-called "470 Fund"). The DEC will use the Fund for investigation and clean-up. However, the 470 Fund has a specific statutory prohibition as to capital projects.

If you have any questions regarding the action being taken in this or similar problems, please let me know.

Sincerely,



John A. Sandor
Commissioner

JAS:mlc

STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

OFFICE OF THE COMMISSIONER
P.O. BOX 0, JUNEAU, AK 99811-1800

TELEPHONE NO.
(907) 465-2600

March 21, 1991

The Honorable Georgianna Lincoln
Alaska House of Representatives
P.O. Box V
Juneau, AK 99811

Dear Representative Lincoln:

I have received a copy of your letter to Governor Hickel dated March 19, 1991 regarding the City of Marshall's water system. I feel it is important to clarify a number of the issues you raised.

Past Activities. DEC was first notified of a metal taste in the water on December 12, 1990. On December 18, the department received the results of its water samples indicating benzene contamination. A health advisory was immediately issued.

DEC and PHS personnel met over the next few days to discuss the problem and identify the potential sources of the contamination. The City Manager agreed to have the fuel lines pressure tested.

Between December 26 and January 2, DEC personnel attempted to fly into Marshall, however poor weather in Bethel cancelled the flights. On January 3, we received notification from PHS that they would not perform any cleanup work.

On January 4, a meeting was held in Anchorage to discuss federal grant funds. DEC personnel were joined by people from PHS, Health Corporation, Lower Kuskokwim School District (LKSD) and the Department of Agriculture. The representative from the City of Marshall who was expected did not show up.

On January 7, grant information was faxed to the City Manager. Included were guidelines for required engineering cost estimates. DEC personnel reviewed the application with the City Manager and provided him with a contact at LKSD from whom

he could obtain a listing of interested engineering firms. The City Manager was also given a list of firms who do fuel line pressure testing.

Between January 8 and 11, there were daily contacts between DEC and the City about the grant application. On January 14, DEC personnel travelled to Marshall and inspected the fuel tanks and pumps. No sign of significant contamination was found. DEC personnel also took this opportunity to again work with the City Manager on completing the grant application.

On January 17, the Department of Agriculture received the grant application from Marshall. \$350,000 was requested and a 30 to 45 day response time from Washington D.C. was expected. On January 18, DEC and PHS discussed what actions PHS would take relating to design work for filtration and limited plumbing work the would be associated with cleaning the system.

On January 18, DEC coordinated with the City Manager and school principal to establish a temporary watering point. This has been completed. Continued work in Marshall led to the discovery of eight abandoned wells, one of which is currently being developed cooperatively by PHS and the Remote Maintenance Worker. All of this information has been previously provided to your staff.

On February 19, DEC personnel met with representatives of the City, the village corporation, PHS and Tim Troll to further discuss the needs of Marshall's residents and DEC's investigation into the contamination source, which appears to be leaking fuel lines. A follow-up letter to Mr. Troll dated March 5 was copied to you.

As stated in that letter, PHS and DEC are continuing to do investigatory work in order to determine the extent of the contamination. However, as you know, the weather may hinder our ability to begin remediation at this time.

Short Term Solutions. In the short term, we felt it was critical to develop an alternative water source. As stated above, that has been done. We have talked with Richard Oney, Marshall's City Manager on the status of the watering point. He said it is functional and being used by the residents. It did freeze once when someone mistakenly attached a garden hose to it. Without the hose, it does not freeze.

Investigation. We will use the Oil and Hazardous Substance Release Response Fund (the so-called "470 Fund") to do the investigation in order to determine the exact extent and source of the contamination. Right now, our target date for beginning this investigation is the end of April if the weather is cooperative. Once the source is identified, we will know who the responsible party is and will look to them for cleanup costs. If the responsible party is unable or unwilling to undertake this activity, this department will.

Long Term Solutions. The 470 Fund has a specific statutory prohibition as to capital projects. A new drinking water source cannot be established using that money. Instead, a legislative appropriation may be required. It may also be possible that PHS will either fund or assist with the funding of the construction.

We are continuing to look at the different design options in order to come up with a cost estimate for the new water system. It is our intent to meet the community's functional needs as well as ensure safe drinking water for its residents. We also must ensure that the new water source will not become contaminated. Therefore, until we are certain as to the extent of the contamination and all its sources, we cannot finalize a new water source design. However, our preliminary reviews indicate a cost of approximately \$500,000 for a new water source that can be tied into the community's existing system.

Representative Lincoln, I understand you want your constituents to have a new drinking water source as quickly as possible. So do I. But, we must all recognize that soil and groundwater contamination is difficult to deal with, particularly in the winter. Information on the extent of the contamination and its sources cannot be reliably obtained. As I have said, it is critical to have the best information we can in order to protect the integrity of the new water source.

I believe the actions taken by DEC staff were reasonable and in good faith. Please rest assured we will continue to work with the various government agencies and the citizens of Marshall. I also invite you to call me anytime with your questions or concerns.

Sincerely,



John A. Sandor
Commissioner

cc: Walter J. Hickel, Governor

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF ENVIRONMENTAL QUALITY

MARSHALL WATER SYSTEM

(March 21, 1991)

PHASE 1 Develop a Temporary Water System (PHS)

- o Public Health Service (PHS) temporary safe watering point developed--"Head Start Well"
- o Eight gallons per minute...tests to date indicate no contamination
- o Temporary watering point operational today at temperature of +15 degrees F
- o Freezing problems occurred when someone connected hose to spigot causing system to freeze
- o PHS to complete construction this week
- o DEC to continue water testing monthly

PHASE 2 Analysis and Definition of Contamination (DEC-EQ)

- o DEC term contractor funded with Response Funds will begin drilling exploratory wells by May 1
- o DEC conducts sample testing as wells are drilled
- o Contamination mapping/characterization completed by June 1

PHASE 3 Develop a New Water Source (DEC-VSW/PHS)

- o DEC Village Safe Water (VSW) and PHS begin construction by July 1
- o DEC-VSW and PHS complete construction by September 1

PHASE 4 Clean Up Contamination

- o Contamination ranked by DEC with other sites by threat posed to health and environment by July 1
- o Cleanup proceeds in accordance with ranking with respect to other contaminated sites and funding availability

Other Notes

- o Phase 3 is contingent upon funding. A grant application has been submitted to the Department of Agriculture for \$350,000. A \$500,000 general fund appropriation is required in case funding is not available from the Department of Agriculture, or the amount is insufficient.

PUBLIC HEALTH AND SANITATION
RELATED TO
DRINKING WATER AND WASTE DISPOSAL
IN ALASKA

INTRODUCTION

Winblad et. al. (1980) concluded their review on sanitation and disease in developing countries with the following remarks:

There are no shortcuts to improved public health in developing countries. Vaccination, chemotherapy and insecticides are in most cases of limited value. Lasting results can only be achieved with the general introduction of satisfactory systems of water supply, waste-water disposal and sanitation together with intensive health education campaigns.

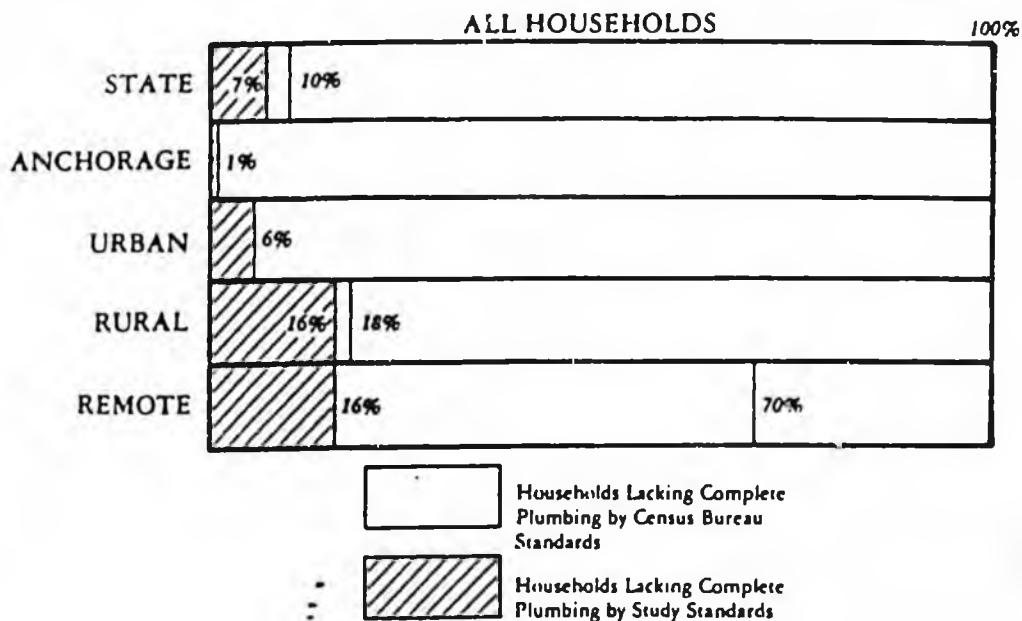
Comparison of Alaska to developing countries in the area of sanitation and public health reveals many similarities. Alaska finds itself in the position of rapid growth and economic development while attempting to bring up to date its drinking water supplies and waste disposal facilities. Without the necessary utility development, the public health of Alaskan cities will be adversely impacted, through unnecessary and often costly exposure to disease.

WATER AND HEALTH

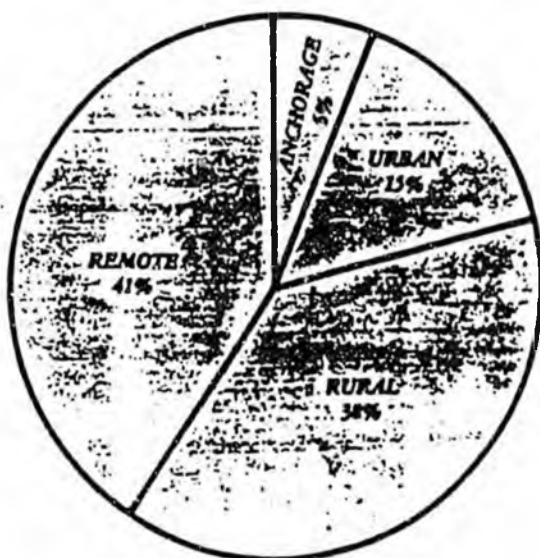
Water and health are closely connected; in fact, the World Health Organization (WHO) has estimated that 80 percent of the world's disease and illness is due to contaminated water. Water can cause intestinal and parasite infection either by contamination, as in the case of drinking water supplies, or by providing an environment in which disease carriers can flourish. Lack of

Housing Assistance

PROPORTION OF HOUSEHOLDS LACKING COMPLETE PLUMBING WITHIN THE STATE AND REGIONS

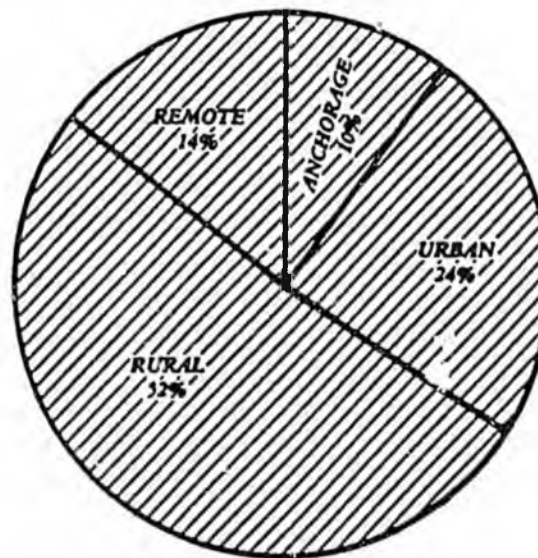


DISTRIBUTION OF HOUSEHOLDS LACKING COMPLETE PLUMBING AMONG REGIONS



CENSUS BUREAU STANDARDS

(Represents shaded and hatched areas in above bar chart)



STUDY STANDARDS

(Represents hatched areas in above bar chart)

FIGURE 1

water results in a poor standard of personal hygiene, which in turn leads to the transmission of infection by means of unwashed hands, crockery, etc.

Water-associated infective diseases can be classified under four categories:

1. Infections spread through water supplies -- waterborne diseases (tylphoid, cholera).
2. Diseases due to lack of water for personal hygiene -- water-washed diseases (scabies, trachoma).
3. Infections transmitted by aquatic invertebrate animals -- water-based diseases (schistosomiasis, guinea worm).
4. Infections spread by insects that depend on water -- water-related insect vectors (malaria, sleeping sickness).

To these must also be added a further group of infections associated with defective sanitation (hookworm). The more common water-associated diseases and their sources are shown

TABLE I
WATER RELATED DISEASES WITH THEIR WATER ASSOCIATIONS AND
PATHOGENIC AGENTS¹

Water-Related Disease	Pathogenic Agent
Amoebic dysentery	C
Ascariasis	D
Bacillary dysentery	A
Balantidiasis	C
Cholera	A
Diarrhoeal disease	H
Enteroviruses (some)	B
Gastroenteritis	H
Giardiasis	C
Hepatitis (infectious)	B
Leptospirosis	E
Paratyphoid	A
Tularaemia	A
Typhoid	A
Conjunctivitis	H
Leprosy	A
Louse-borne relapsing fevers	E
Scabies	H
Skin sepsis and ulcers	H
Tinea	F
Trachoma	B
Flea/lice/tick/mite- borne typhus	G
Yaws	E
Clonorchiasis	D
Diphyllobothriasis	D
Fasciolopsiasis	D
Guinea worm	D
Paragonimiasis	D
Schistosomiasis	D
Arboviral infections (some)	B
Dengue	B
Filariasis	D
Malaria	C
Onchocerciasis	D
Trypanosomiasis	C
Yellow Fever	B

A = bacteria; B = virus; C = protozoa D = helminth;
E = spirochaete; F = fungus; G = rickettsiae; H = miscellaneous

COMMON WATER-ASSOCIATED DISEASES AND THEIR CHARACTERISTICS

Water-borne or water-washed

Diarrhoeal diseases are caused variously by bacteria, viruses, and protozoa, and together make up the most common group of water-associated diseases in tropical countries. There can be few of us who have not at some time experienced a mild form of this complaint.

In addition to the endemic water-borne diseases mentioned above, there are also serious epidemic diseases, such as typhoid and cholera, which are associated with contaminated water and can cause high local death rates.

Water-washed diseases

This category might better be described as water-unwashed diseases. Lack of water for purposes of hygiene leads to the transmission of eye infections, such as trachoma, which may produce partial or even complete blindness. Skin complaints are also widespread where adequate water for washing is not available.

Water-based diseases

These are all due to worm infections. One of these, Schistosoma, makes use of a snail host and has a somewhat complicated life cycle; the guinea worm, another common infection, requires a small crustacean as its host.

Schistosomiasis or bilharzia is a disease caused by a parasitic worm or blood fluke, which enters the human through the skin from infected water.

Water-related insect vectors

Malaria, a disease producing an acute fever, is transmitted by the bite of an infected mosquito. The larvae of the mosquito live in stagnant water. Filariasis is also spread by mosquito. The worms obstruct the lymphatic system causing fluid to accumulate in the legs and external genital organs, sometimes with the bizarre results suggested by its alternative name, elephantiasis.

Diseases due to defective sanitation

These diseases include hookworm and roundworm. Hookworms exist in damp soil, for example around wells, and can penetrate the skin to enter the system. They cause major blood loss and can lead to anaemia. Roundworms can be transmitted by, for example, dirty food; the effect is to divert food from the victim.

BENEFITS AND COSTS OF GOOD SANITATION FACILITIES

Most of the benefits of sewerage schemes are not directly quantifiable. In brief, they can be divided into two categories, private and external benefits. Private benefits include:

1. ~~1.~~ Convenience of having a waterborne waste disposal unit in the home;
2. Improved household hygiene;
3. Reduced health hazards;
4. Property value appreciation; and
5. Reduction in space required for sewage disposal on the property by alternative means such as septic tanks.

External benefits include:

1. Improvements in the urban environment by removal of the sight and smell of sewage at the soil surface and in canals;
2. Benefits to public health;
3. Reduced downstream river pollution;
4. Increased potential for tourism;
5. Introduction of new technologies with spinoff benefits of training, experience, and employment generation;
6. Institutional development; and
7. Water pollution monitoring, legislation, and enforcement programs usually initiated in parallel with major wastewater collection investments.

Ill-health costs foregone

These may be grouped into costs due to: 1) premature loss of life; 2) loss of productivity; 3) treatment; and 4) measures taken in avoiding the disease. A fifth and important loss of productivity is more difficult to estimate but included here as 5) debility losses.

As Alaska becomes more densely populated, the unavailability of adequate sanitation facilities can scarcely be hidden. The presence of fecal material or standing pools of sewage where water is available, and swarms of flies readily identify a breakdown in our society's responsibility to its members. The proximity of these sites to homes where people eat and children play assures the spread of enteric disease and provides a setting for explosive outbreaks when Hepatitis A may be passing through.

The argument as to whether the absence of proper water supply is of greater significance than the absence of adequate sanitation facilities in determining the health of a population will not easily be resolved, nor need it be. The absence of either will assure the spread of disease. In fact, the provision of water supply in the absence of adequate excreta disposal facilities may exacerbate the situation by assuring easier and wider spread of human waste. The desire for a water service does not flow from an appreciation that a proper water service would improve health. Rather, water is, and is perceived to be, an essential utility necessary for life itself.

Therefore, while it is not likely that a community will opt for improved sanitation ahead of water supply, the commitment should be made to both at the same time. Such commitments have been made in word but not yet in deed.

Water supply and sanitation facilities are often not yet available to our people in rural areas, villages, and in some urban areas.

ALASKA'S FUNDING OF SANITATION PROJECTS

Since 1970, Alaska has spent close to \$500 million in providing basic sanitation services in the State. The U.S. Public Health Service estimates it would take an additional \$200 million to meet the needs of rural Alaska alone.

For the last three years, 70 percent of the money appropriated by the State has been for sanitation projects in what could be classified as urban areas, and only 30 percent has been spent in rural communities.

A 1982 Alaska Statewide Housing Study prepared by the Department of Community and Regional Affairs defines adequate plumbing on a regional bases as:

Metropolitan and urban - Facilities including hot and cold water piped to a kitchen sink and bathtub or shower, and a flush toilet.

Rural - Facilities including hot and cold water piped to a kitchen sink and bathtub or shower and a human waste disposal system.

Remote - A human waste disposal system and source of potable water.

The study results are presented in Figure 1. While only one percent of Anchorage homes lack adequate plumbing, seventy percent of remote/rural homes lack adequate plumbing.

INCIDENCE OF DISEASE IN ALASKA

Let's look at one type of waterborne disease currently identified in some of our remote villages -- Hepatitis A. The method of transmission is from person to person by the fecal-oral route. Common outbreaks in the Norton Sound villages of Stebbins and St. Michaels have been related to contaminated water and unsanitary conditions. Where environmental sanitation is poor, infection is common at an early age. •

Physicians working at the Norton Sound Regional Hospital in Nome are worried these outbreaks will continue unless better sanitation facilities are made available to these people.

It is both interesting and sad that studies suggest a diminishing frequency in the contiguous states but on the increase in remote Alaskan villages.

4-0

4-0

**DEPARTMENT OF ENVIRONMENTAL
CONSERVATION**

**DIVISION OF FACILITY CONSTRUCTION &
OPERATION**

**COMMUNITY REQUESTS
CAPITAL PROJECTS**

PRIORITY CRITERIA SYSTEM

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
SFY 92

VILLAGE SAFE WATER PROGRAM

I. Problem Addressed

A. Public Health

- 1. A documented existing human disease event exists (documented by a recognized public health organization and confirmed by ADEC.) Construction of this facility will correct the existing problem. 500
- 2. Current conditions are sufficiently severe that a disease event should have taken place but it has not yet happened. 200
- 3. Conditions do not yet exist for a disease event to take place. However, development in the project area suggests that such events will most likely occur in the near future if this project is not constructed. 100

B. Environmental

- 1. A documented existing pollution event has taken place and construction of this facility will correct the existing problem. 300
- 2. Current conditions are sufficiently severe that a pollution event should have taken place but it has not yet happened. 200
- 3. Conditions do not yet exist for a pollution event to take place. However, development in the project area suggests that such events will most likely occur in the near future if this project is not constructed. 100
- 4. An esthetic pollution problem needs correcting. 25

C. Public Safety

- 1. The project is needed to provide public protection against fire or animal threats at landfills. Protection is to serve an existing population. 100
- 2. The project is needed to provide public protection against fire or animal attacks. Protection is to serve a projected population. 50

Criteria System
Page 2

II. Project Development Status

- A. Engineering plans and specifications have been prepared. 75
- B. Feasibility study or facility plan has been prepared. 45
- C. Comprehensive study has been prepared which addresses the need for project among other community needs. 20
- D. No documentation has been prepared. 0

III. Matching Funds Available

Points

- A. Matching funds are currently available. (Bonding issue passed, several fund appropriation) 100
- B. Matching funds are not currently available but source has been identified appropriate legal action has been initiated to serve funds. (bond issue not voted on yet, but approved by local authority; loan applied for and money appropriated but not yet delivered to City. 40

IV. Operational and maintenance costs have been considered and are either nonexistent or a source of funds has been identified to pay for them. 50

V. Phased or Segmented Project

- A. Part of project is already started. This phase is needed to make the project functional. 50
- B. Project is composed of more than one segment. This segment is needed to meet the water quality or public health intent of the plan but is not necessary to make the project functional. 25

VII. Effect on Other Projects. Project needs to be accomplished in conjunction with another project to reduce overall cost to State (paving, etc.). 15

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
50% MATCHING GRANTS FY 92

CRITERIA SYSTEM - WATER

Public Health Threat

A documented human disease event exists	150
Existing water quality exceeds standards	100

Public Safety

public fire protection for existing population	50
public fire protection for future population	20

Project Status

engineering plans approved	50
engineering plans available	40
management and implementation plan approved	30
feasibility study complete	20

Compliance

NOV for existing facility	50
under compliance order for existing facility	40
existing facility cannot meet permit conditions	20
existing facility has nuisance problems	10

Community Support

Community's number one capital budget request	40
---	----

Funding

Local funding of fifty-percent match in place	50
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Operation and Maintenance

User fees approved by community	30
Operation and maintenance costs estimated	20

4-4

4-4

4-4

CRITERIA SYSTEM - WATER

Page 2

Cost/Population Benefitted

Low	< 400	40
Medium	400 - 4000	30
High	> 4000	20

Effect on other projects

Part of another project to reduce overall costs ie - paving or resurfacing		30
Completes a phase of an existing project		20

4-5

4-5

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
50% MATCHING GRANTS FY 92

CRITERIA SYSTEM - WASTEWATER

Public Health Threat

A documented human disease event exists 150

Environmental Threat

A documented pollution event exists 100
 Development suggests pollution will occur 50

Project Status

engineering plans approved 50
 engineering plans available 40
 management and implementation plan approved 30
 feasibility study complete 20

Compliance

NOV for existing facility 50
 under compliance order for existing facility 40
 existing facility cannot meet permit conditions 20
 existing facility has nuisance problems 10

Community Support

Community's number one capital budget request 40

Funding

Local funding of fifty-percent match in place 50

Operation and Maintenance

User fees approved by community 30
 Operation and maintenance costs estimated 20

4-6

4-6

CRITERIA SYSTEM - WASTEWATER

Page 2

Cost/Population Benefitted

Low	< 400	40
Medium	400 - 4000	30
High	> 4000	20

Effect on other projects

Part of another project to reduce overall cost ie - paving or resurfacing	30
Completes a phase of an existing project	20

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
50% MATCHING GRANTS FY 92

CRITERIA SYSTEM - SOLID WASTE

Environmental/Public Health Threat

A documented human disease event has occurred due to solid waste management practices	150
A documented pollution event has occurred from leachate, smoke or litter	100
Human/animal encounters are frequent	50

Project Status

engineering plans approved	50
engineering plans available	40
management & implementation plan approved	30
feasibility study complete	20

Compliance

NOV for existing facility	50
under compliance order for existing facility	40
existing facility cannot meet permit conditions	20
existing facility has nuisance problems (bears, rats, wind blown litter, fires, etc.)	10

Type of Project (more than one item can score)

project includes reduction, recovery or separation	50
project combines more than one community	30

Community Support

Community's number one capital budget request	40
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Funding

Local funding of fifty-percent match in place	50
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4-8

4-8

CRITERIA SYSTEM - SOLID WASTE
Page 2

Operation and Maintenance

User fees approved by community	30
Operation and maintenance costs estimated	20

Cost/Population Benefitted

Low	< 400	40
Medium	400 - 4000	30
High	> 4000	20

CRITERIA SYSTEM FOR DISTRIBUTION OF ALASKA CLEAN WATER FUND LOANS

SCORING OF PROJECTS

Project priority rankings are determined according to the following categories. Appropriate points are assigned to arrive at a point total and priority ranking for each project.

CRITERIA SYSTEM

1. READINESS TO PROCEED

- a) The community needs loan funding to complete a project already started which has already completed the environmental assessment process. 45
- b) The community has completed a facility plan and an environmental assessment has been published. 30
- c) The community has completed a facility plan and an environmental assessment has been prepared but not published. 15

2. COMMUNITY'S ABILITY TO REPAY LOAN

- a) The community has identified a viable source for repaying a loan. 5

3. TYPE OF PROJECT

- a) Initial phase(s) of treatment discharging into marine waters required to protect public health or achieve water quality standards; secondary treatment for discharge into fresh water; or any treatment required prior to discharge to groundwater (no existing sewage treatment facilities). 30
- b) Rehabilitation or expansion of treatment facilities or correction of infiltration/inflow of sewage collection systems where existing conditions are disrupting the efficiency of existing treatment facilities. 25
- c) Correction of infiltration/inflow of sewage collection systems where the required corrections are done in conjunction with a new treatment facility. 20
- d) Construction of new interceptor sewers, pump stations, and appurtenances. 15
- e) Upgrading existing treatment facilities to secondary or advanced wastewater treatment levels when required for reasons other than meeting water quality standards or the protection of public health. 5

4. USE OF RECEIVING WATER

This project will eliminate the adverse effect. (Score from highest point value only).

- a) Freshwater/Groundwater
 - 1) Drinking and food processing 10
 - 2) Propagation of fish & shellfish as a food source 5
 - 3) Water contact recreation 2
- b) Marine Water/Estuaries
 - 1) Propagation of fish & shellfish as a food source 5
 - 2) Water contact recreation 2

5. LOAN COST/POPULATION BENEFITTED

- a) Low cost/population ratio 0-400 10
- b) Moderate cost/population ratio 401-4000 6
- c) High cost/population ratio >4000 2

6. WATER QUALITY EFFECTS

- a) Project necessary to treat or eliminate a discharge contributing to a documented violation of Alaska Water Quality Standards. Documentation means a report has been provided showing the results of a water quality sample which violates a water quality standard. A treatment plant which is overloaded is presumed to violate water quality standards. 10
- b) Project necessary to minimize or eliminate documented contamination of groundwater or surface waters resulting from subsurface sewage disposal systems. 7
- c) Project will result in measurable enhancement of water quality but is not required to meet Alaska Water Quality Standards. 4
- d) Project necessary to prevent potential water pollution problems or where environment may be adversely affected due to the impact of accelerated development or industrial growth. 2

**PRIORITY LIST PROCEDURES
ALASKA CLEAN WATER FUND
FEDERAL LOAN PROGRAM**

The Alaska Clean Water Fund program offers low interest loans to communities for the planning, design, and construction of publicly owned wastewater treatment facilities. During the next three years, the program will receive federal grant monies to capitalize the Fund. The following procedures outline the processes the program uses to determine which projects will receive limited loan monies.

CRITERIA SYSTEM: During each funding cycle, a loan priority list is developed to determine the relative ranking of projects based on: (a) project type, (b) readiness to proceed, (c) the current use of receiving water, (d) the ratio of loan amount to population benefited, (e) the effect of the project on water quality, and (f) the community's ability to repay a loan. The criteria system for ranking Alaska Clean Water Fund projects is detailed on the following page.

BYPASS OF PROJECTS: Eighty-three percent of the Alaska Clean Water Fund is capitalized by the federal government. If the State does not enter into loan agreements equal to each year's grant within a specified time, we lose the grant. Therefore, if it appears a community will not be ready to enter into a loan agreement within the time frame necessary to ensure the fund does not lose federal capitalization monies, their project will be bypassed. The next project on the list which is ready to proceed in a timely manner will be offered a loan.

If available funds are insufficient to meet a community's project financing needs, and the lack of funding will keep the project from proceeding in a timely manner, the project will be bypassed. The next project on the list which will be ready to proceed using the limited available funds will be offered a loan.

TIE SCORES: If two projects are equal in scoring, the following sequence will be used to differentiate between them:

1. If one project requires an earlier construction date as a result of a compliance agreement or other legal order from EPA or ADEC, that project will be placed ahead of the other.
2. The project with an earlier anticipated date for submitting a completed application will be placed ahead of the other.
3. If one project is already under construction and has already undergone the required environmental review, that project will be placed ahead of the other.
4. If both projects are from the same community, the community may decide which project should be placed ahead of the other.
5. The individual scores from each criteria category will be compared, beginning with category 1 and continuing until a difference is found. The project with the highest score in the individual category will be placed first.

The criteria system and priority list are subject to public review and comment. Public review is announced through individual mailings to communities and public notices in the newspapers of appropriate cities.

**DEPARTMENT OF ENVIRONMENTAL
CONSERVATION**

**DIVISION OF FACILITY CONSTRUCTION &
OPERATION**

**COMMUNITY REQUESTS
CAPITAL PROJECTS**

PRIORITY CRITERIA SYSTEM

CRITERIA SYSTEM
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CAPITAL PROJECTS
SFY 92

VILLAGE SAFE WATER PROGRAM

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**WATER, SEWER and SANITATION
IN ALASKA NATIVE VILLAGES:
PROBLEMS AND RECOMMENDATIONS**

ALASKA NATIVE HEALTH BOARD

January 1991

INTRODUCTION

In any discussion of health problems in rural Alaskan communities, the issue of water and sewer inevitably comes up. Residents of both remote villages and larger rural communities consistently describe adequate water and sewer as a top priority and persistent problem. The problem exists not just in village households, but in the local health clinics. In a recent survey, 15 percent of the clinics in the Village Built Clinic Program were noted as having inadequate water and sewer systems.

Without adequate sanitation facilities, personal hygiene in a closely populated village area is difficult. The lack of facilities to properly dispose of human waste, combined with minimal quantities of safe water for drinking and washing, results in a threat to public health.

Village residents have experienced a number of communicable disease outbreaks which are directly related to poor sanitation. An example is the recent epidemic of Hepatitis A throughout rural villages. The highest number of cases reported are in the Yukon-Kuskokwim Delta region, where sanitation conditions are among the worst in the nation. In the Maniilaq region, the top three diagnoses for outpatient visits—otitis media, strep throat, and bronhitis—are all hygiene-related.

Local governments are also under increasing pressure from the federal government to improve water quality. The Alaska Area Native Health Service states that 165 of the 180 villages being served by their sanitation program have systems which are not in compliance with federal or state sanitation codes. Of the 50 states, Alaska ranks last in drinking water quality testing compliance. Yet at the same time that compliance is being emphasized, many village governments are struggling, often unsuccessfully, to pay for proper operation and maintenance of existing water and sewer facilities.

While money to build new facilities or repair/replace existing ones is important, it is not the entire solution to the problem. An important component often overlooked is the continued operation, maintenance, and management of the water and sewer systems. All too often, a multi-million dollar facility is built, only to break down due to operator error or lack of maintenance. Villages are given the responsibility of ownership but typically lack the funds to hire a trained and certified operator or pay for maintenance. The result is often a return to substandard sanitation and/or costly repairs or replacement.

BACKGROUND

Federal Involvement

Sanitation has been recognized as a serious problem in Alaskan bush communities since the 1950s. At the federal level, Public Law 86-121, the Indian Sanitation Facilities Construction Act, was enacted in 1959. This act gave the Indian Health Service (IHS) the authority to plan, design, and construct sanitation facilities for Indians and Alaska Natives. In Alaska, funding to implement P.L. 86-121 comes through the Alaska Area Native Health Service (AANHS). In addition, water and sewer construction projects are sometimes included in HUD's Indian Housing Program through the Regional Housing Authorities.

State Involvement - Village Safe Water Program

The State of Alaska has also played a major role in improving water and sewer facilities in rural Alaska, typically through the Village Safe Water (VSW) Program within the Department of Environmental Conservation (DEC). During the oil boom of the early 1980s, many village water and sewer projects were built using funds from the VSW Program.

The first step used by the VSW Program to secure project funding is to administer a questionnaire to each rural community. These typically have an 80 percent response rate. During October of each year, the questionnaires are scored using a capital projects ranking criteria and placed in a priority listing.

The criteria consider health need, pollution problems, planning status, confidence in supporting documentation, federal contributions, local priorities, and other factors. If the community does not consider this project their number 1 priority, the rating is usually not high enough for funding consideration. The questionnaires and priority ranking are reviewed with AANHS to check coordination, confirm data, and secure commitments for match funding on some projects.

Recommendations are then made to the Governor's office, which in turn will submit a proposed budget to the Legislature. The Legislature is then free to add, subtract, and/or make its own project lists. Once legislation is signed, final funding distribution through the VSW Program usually begins in August.

Many water and sewer projects are in fact cooperative ventures involving the state and AANHS. The VSW Program and the Environmental Health and Engineering branch of AANHS enjoy a close and productive working relationship, sharing data and pooling resources. If a particular project is judged a priority by both agencies, they will often collaborate in the planning, design, and construction of facilities. The other party involved in a water and sewer construction project is, of course, the local village government, which will take over ownership and management of the program upon completion.

CURRENT CONDITIONS / UNMET NEED

Plumbing (In)adequacy

Despite advances in arctic construction technology, considerable investment on the part of state and federal agencies in village sanitation projects, and significant improvements in rural water and sewer systems in the last 30 years, the majority of Alaskan villages still have substandard sanitation systems.

AANHS has defined five levels of water and sewer systems. These are:

- Level 5 - No water or sewer facilities
- Level 4 - Simple watering point/pit privy or honey bucket bunkers
- Level 3 - Central facility (washeteria)/central waste dump station
- Level 2 - Piped water in the home/piped waste disposal in home and treatment provided—minor deficiencies present
- Level 1 - Same as Level 2, but well operated

Only Levels 1 and 2 meet the U.S. Census definition of plumbing adequacy. By this definition, only 61 villages out of a total of 140 surveyed in 1990 have adequate plumbing. Sixty-six were served by community washeterias (Level 3), with residents hauling water to and waste from their homes. Eleven had only watering points and pit privies (Level 4).

Village Health Clinics

At the heart of the health care system in Native communities is the village health clinic. Community Health Aides manage the clinics and are the primary providers for their people, responding to emergencies, dealing with disease outbreaks and injuries, and providing preventive health care.

Almost all the village clinics in the state are leased by the Indian Health Service through the Village Built Clinic (VBC) Program, administered by AANHS. The owner of the clinic—typically the regional health corporation, IRA council, or village council—is responsible for maintenance and repair of the facility as well as utilities and insurance. Most clinics occupy free-standing structures, while some share space with other community programs under a common roof.

AANHS has established health standards for the village-built clinics and periodically inspects the facilities to determine if they are meeting the standards. AANHS Circular No. 89-50 states that facilities determined to be non-compliant will be given the opportunity to make improvements. The circular also states that if conditions are judged to constitute a health hazard, a written recommendation to amend or discontinue the lease contract will be made.

During the summer of 1990, IHS Service Unit Sanitarians assessed the condition of all 164 clinics in the VBC Program. Their conclusion was that 22 clinics require complete replacement and 47 clinics require major renovations or additions to meet the VBC standards. Twenty-four of the clinics were noted as having inadequate water or sewer systems.

RECOMMENDATIONS

New Construction

AANHS estimates that it would cost \$1.2 billion to provide all rural Alaskan communities with piped water and sewer (Level 1 standard). However, any increase in the level of service can provide an accompanying increase in health benefits. Significant improvements in sanitation could be made just by bringing all communities at Levels 4 and 5 up to Level 3 (washeteria/central dump station).

Washeterias contain clothes washing and drying facilities, men's and women's showers, toilets, and watering points from which safe water can be carried to the homes for drinking and cooking. Because they use coin-operated equipment, washeterias help generate the income needed to pay for operation and maintenance. Additional watering points for summer use can also be provided throughout a community at little additional cost.

Alaska Native Health Board recommends that piped water and sewer systems be constructed for all villages where the village has a track record of good management, and where village residents have named piped water and sewer as a top priority. All villages who meet these criteria should have piped water and sewer (Level 1) within the next ten years.

All other villages not currently up to a Level 3 standard should be brought to that level within the next four years.

Repair/Replacement

All village water and sewer facilities previously built but currently inoperable or operating at decreased capacity due to equipment failure should be repaired or replaced, as necessary.

Alaska Native Health Board also supports additional funding for the Remote Maintenance Worker program. ADEC has not provided adequate funds for RMWs for several years. Expansion of the RMW program is also needed. Currently eight remote maintenance workers, employed by Native non-profits, provide assistance to village water and sewer operators. AANHS supports four technical maintenance advisors to work with the state-funded RMWs. Engineers at AANHS report that the program is

very successful, providing savings to the State many times over what the program costs to operate. Recommendations have been made to add RMWs in Bethel, Aniak, and Kodiak. Alaska Native Health Board supports this recommendation as a minimum expansion of the program.

The State of Alaska also funds 16 sanitarian positions. However, almost all of these positions are in larger population centers such as Anchorage and Juneau. Alaska Native Health Board supports increasing the number of sanitarians to work primarily in the villages and rural hub communities. These individuals would work closely with the village leaders, water and sewer operators, and health providers to encourage proper maintenance and optimum use of water and sewer systems. The emphasis for sanitarians should be on providing support rather than serving a regulatory ("police") function. Ideally, the sanitarians would be Natives who are familiar with the unique culture, traditions, and conditions of village Alaska.

Training

Training is an integral component of successful operation, maintenance, and management of a water and sewer system. Historically, the State DEC has neglected training while emphasizing regulation. Such neglect is partly responsible for the deterioration and failure of many village water and sewer operations. Some investment in training and technical assistance could save the State hundreds of millions of dollars in repair and replacement costs.

Alaska Native Health Board strongly supports increased efforts to provide training to water and sewer operators, remote maintenance workers, and sanitarians, with an emphasis on Native recruitment. Training for some workers should include development of business management skills. When properly trained operators are holding down full-time, well-paid positions and have the support of other professionals, the rate of failure in rural water and sewer systems will drop drastically.

Village Clinics

All village health clinics should have piped water and sewer. Health providers who are trying to control outbreaks of infectious disease must be able to wash their hands frequently in clean water, and dispose of human waste safely. Yet substandard conditions in village clinics are common. Staff with the Village Built Clinic Program report that several clinics have been warned in the past that they must improve their sanitation or risk losing their lease with IHS. All too often, stop-gap measures are used when major renovation is really needed.

A recent report produced by the Village Built Clinic Program describes 22 clinics in need of complete replacement. Obviously, all of these clinics should be rebuilt to include running water and sewer. In some cases it may make sense to build them adjacent to the local washeteria or school so they can share the same water/sewer system. The report also describes 47 clinics that require major renovation. Where necessary,

renovation should include installing water/sewer systems that provide the highest possible level of service. Support should also be provided to Community Health Aides to keep water and sewer systems functioning properly.

CONCLUSION

In the last decade of the 20th century, piped water and sewer is something which the vast majority of Americans, including urban Alaskans, take for granted, enjoying positive health benefits as well as convenience. In Native villages throughout Alaska, this is not the case.

Positive strides were made during the "oil boom" years to improve the situation in rural Alaska, but funding still fell short of need. In villages where water and sewer systems were built, the need for ongoing operation and maintenance was often not adequately addressed, leading to system breakdowns.

The State of Alaska, in Fiscal Year 1991, is in the unexpected position of having a large surplus of funds, and the Governor has indicated support for capital improvement projects. It is hard to think of a more worthy cause than the health and well-being of rural Alaskans who comprise nearly one third of the state's population. Water and sewer construction and renovation, combined with improvements in operator training and facilities maintenance, would make a tremendous difference in improving the quality of life in Native communities.

Following the recommendations presented here would benefit Native people both directly, in terms of health promotion and disease prevention; and indirectly, by encouraging economic development. Construction projects employ large numbers of Alaskans. Rural Alaskans, in particular, are in desperate need of work. With an emphasis on Native recruitment and training, rural residents would also see improved job opportunities for facilities operators, remote maintenance workers, and sanitarians. A matching grant program for operation and maintenance would encourage local responsibility and help ensure that the benefits of water and sewer construction are lasting. Emphasis on operation and maintenance would also protect the State's investment.

The Alaska Native Health Board and regional health organizations recognize the important role that Native people must play in determining their own future. We are eager to facilitate communication between village residents and State personnel to encourage the necessary support and commitment of those who own and operate the water and sewer facilities. We ask that the State, in turn, renew its commitment to provide for the health needs of all Alaskans by providing funding and support for improved water and sewer in rural Alaskan communities.

**SUMMARY OF RECOMMENDATIONS
REGARDING VILLAGE WATER AND SEWER**

**ALASKA NATIVE HEALTH BOARD
January 1991**

1. All villages which have a track record of good management and which have named piped water and sewer as a top priority should have piped water and sewer (Level 1) within the next ten years.
2. All other villages not currently up to a Level 3 standard (washeteria/central dump station) should be brought to that level within the next four years.
3. All village water and sewer facilities previously built but currently inoperable or operating at decreased capacity due to equipment failure should be repaired or replaced, as necessary, with steps taken to ensure proper operation and maintenance following repair.
4. The State of Alaska should implement a matching grant program to assist rural communities with water and sewer expenses. The matching grant program would match local user fee collections. It would include annual reviews of sanitation facilities and technical assistance to participating communities. A 1-year pilot program, possibly in the Northwest Arctic Borough, should be implemented in FY 1992.
5. Adequate funding should be provided to ADEC for the Remote Maintenance Worker program. In addition, the program should be expanded to provide RMWs for Bethel, Aniak, and Kodiak, at a minimum.
6. The number of state-funded sanitarians should be increased to provide assistance in villages and rural hub communities, with emphasis on support rather than regulation.
7. Greatly increased efforts are needed to provide training for water and sewer operators, remote maintenance workers, and sanitarians, with an emphasis on Native recruitment.
8. All village health clinics should have piped water and sewer within the next four years. Assistance should be provided to villages to repair, renovate, or replace clinics currently out of compliance with federal and state standards. Installation of piped water and sewer systems should accompany replacement or renovation.

VSW Projects Receiving Consideration Under the Public Health Scoring Criteria

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>
Alakanuk	Honey Bucket Haul	\$305,000
Deering	Water/Sewer Phase I	\$1,998,427
Koyuk	Piped Water and Sewer Systems	\$1,200,000
Tuluksak	Water, Sewer & Solid Waste Study	\$50,000
Stebbins	Honey Bucket Access Road	\$38,000
Kotlik	Honey Bucket Cleanup	\$50,000
Chefornak	Water & Sewer System	\$2,147,499
Hooper Bay	Water & Sewer Upgrade	\$990,000
St. Michael	Water tanker/fire truck/ appurtances	\$300,000
Chevak	Sewer upgrade	\$300,000
Statewide	Village clinic water/sewer upgrade	\$500,000
	Sub-Total for Class IA1	\$7,878,926
Bethel	Wastewater treatment system improvements	\$623,000
Northway	Sanitation facilities upgrade	\$260,000
Chistochina	Chistochina Safewater	\$25,000
Brevig Mission	Water and Sewer Design	\$150,000
Clarks Point	Extension of Water and Sewer	\$280,000
Lower Kalskag	Solid Waste Improvements	\$175,000
Nelohina/Mendelina Corporation	Waste Transfer Station & Well	\$42,600
Nikolai	Water and Sewer Improvement Project	\$500,000
Ouzinkie	Safewater Relocation	\$200,000
Savoonga	Solid Waste	\$750,000
Matanuska-Susitna Borough	Talkeetna East Side Sewer and Water Construction	\$3,100,000
Tanacross	Water & Sewer Expansion & Repair	\$200,000
White Mountain	Water and Sewer	\$617,000
Kiana	Sewage Treatment Renovation	\$968,000
Golovin	Water and Sewer Progressive Improvements Plan Ph. 2	\$427,280
Kivalina	Water Tank Upgrade	\$900,000
Huslia	Sanitation Improvements	\$500,000
Nulato	Water & Sewer System Phase III	\$2,382,000
Atka	Engr Evaluation Water/Sewer	\$100,000
Grayling	Gallery Pump Project	\$100,000
Ruby	Sanitary Landfill	\$80,000
Birch Creek	Solid Waste Removal & Relocation	\$10,000
Birch Creek	Tank Rehabilitation	\$150,000
Thorne Bay	Sewer Project	\$1,100,000
Takotna	Rehab of Sanitation Facilities	\$225,000
Ketchikan Gateway Bor.	Mt. Point Water & Sewer Project	\$2,524,000
Shageluk	Washeteria/Water Treatment Plant Renovation	\$300,000
Noorvik	Water & Sewer Upgrade	\$400,000
Minto	Solid Waste Site	\$150,000
Tyonak	Water & Sewer Phase III	\$742,000
Klukwan	Lagoon	\$329,000
Chignik	Sewer Upgrade/Drainfield Replacement	\$200,000
Ellm	Sewer Ocean Outfall Line Rehab	\$431,000
Anderson	Septage Disposal Facility	\$300,000
Kokhonak	Water & Sewer Improvements	\$100,000
Larsen Bay	Water Improvements	\$530,000

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>
Manokotak	Water System Improvements	\$300,000
New Stuyahok	Water Sewer & Solid Waste	\$477,000
Noatak	Solid Waste Site	\$300,000
Port Lions	Water & Sewer	\$250,000
Selawik	Storage/Washeteria	\$800,000
South Naknek	Septic Tank Project	\$581,000
Togiak	Togiak Water & Sewer Const.	\$257,000
Unalakleet	Solid Waste	\$1,414,000
Anchor Point	Watering Point Facility	\$68,000
Mekoryuk	Flush Tank and Haul Demonstration Project	\$180,000
Kotzebue	Sewer Main Rehab	\$1,370,000
Kotzebue	Sewage Lagoon Upgrade	\$480,000
Glennallen	Sewer System	\$1,200,000
Healy Lake Village	Water/Sewer Project	\$92,000
Chenega Bay	Solid Waste Disposal	\$383,391
Port Graham	Engr Design/Study	\$75,000
Gambell	Water & Sewer Phase III	\$2,800,000
Gulkana	Water & Sewer	
Chevak	Laundry & Sewer Disposal Lines	\$37,000
Shungnak	Solid Waste Improvements	\$120,000
Point Baker	Engineering Feasibility Study	\$25,000
Eek	Feasibility Study-Water Well Drilling	\$22,500
Northway	sanitation facility upgrade	\$260,000
	Sub-Total for Class IA2	\$31,143,271

Bethel	Wastewater Treatment System Improvements	\$623,000
Kobuk	Water, Sewer & Solid Waste	\$1,500,000
Scammon Bay	Village Safe Water	\$150,000
Stevens Village	Washeteria Upgrade	\$400,000
St. Michael	Phase II Washeteria	\$474,200
Katag	Water and Sewer Extension	\$217,380
Coffman Cove	Water and Sewer Construction	\$800,000
Metlakatla	Water Tank & Feeder Lines Replacement	\$584,200
Emmonak	Sewer and Water Expansion	\$1,000,000
Kasaan	Water Supply Improvements- Phase I	\$306,000
Venetie	Washeteria Rehab	\$1,470,000
Kotzebue	Sanitary Landfill Study	\$150,000
Teller	Safe Water/Sewer/Solid Waste	\$200,000
Eagle Village	Washeteria, Lagoon & Water Project	\$1,800,000
Toksook Bay	Water Supply Improvements Project	\$550,000
Ambler	Water and Sewer Lines	\$150,000
Eek	Washeteria Upgrade	\$8,122
	Sub Total for Class IA3	\$10,182,902

Matching Grant Projects Receiving Consideration Under the Public Health Scoring Criteria

<u>City</u>	<u>Projects</u>	<u>Grant Request</u>
Kodiak	Water Filtration Plant	\$6,182,500
Ketchikan Public Utilities	Water & Filtration Treatment Plant	\$35,000
	Sub Total for Class IA1	\$6,217,500

Seldovia

Water System Upgrade

Sub Total for Class IA2

\$260,000
\$260,000

ADEC 50% MATCHING GRANT REQUESTS FOR FY 92

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Cum. Request</u>
I. FEDERAL MATCH PROJECTS.			
Nome	Wastewater Treatment Facility	\$1,332,000	\$1,332,000
Ketchikan	Primary Sedimentation Plant	\$521,000	\$1,853,000
Cordova	Sewer System Improvements	\$301,000	\$2,154,000
Juneau	Mendenhall-JD Sewage Treatment Plant Improvements	\$405,000	\$2,559,000
II. CURRENTLY UNDER CONSTRUCTION WITH ADEC FUNDING (NEEDED TO COMPLETE)			
Kenai	Wastewater Treatment Plant Upgrade	\$250,000	\$250,000
Unalaska	Unalaska Water Project	\$1,250,000	\$1,500,000
Kenai Peninsula Borough	Seward and Soldotna, Solid Waste Facilities	\$2,106,000	\$3,606,000
III. PRECONSTRUCTION			
Statewide	Community Facility Planning & Design	\$500,000	\$500,000
IV. WATER & SEWER			
Bristol Bay Borough	King Salmon Sewer	\$1,703,000	\$1,703,000
Haines	Wastewater (E.P.A. Compliance)	\$1,000,000	\$2,703,000
Kodiak	Water Filtration Plant	\$8,190,000	\$10,893,000
Kake	Kake Gunruck Creek - Sewer Project	\$515,000	\$11,408,000
Klawock	STP & Outfall	\$387,500	\$11,795,500
Seldovia	Water System Upgrade	\$260,000	\$12,305,500
Ketchikan Public Utilities	Tongass/Water Street Water Main Replacement Phase II	\$1,250,000	\$13,555,500
Craig	Wastewater Treatment Plant	\$1,730,300	\$15,285,800
Klawock	Klawock Subdivision Water & Sewer	\$350,000	\$15,635,800
Kenai	Thompson Park Sewer Interceptor	\$900,000	\$16,535,800
Wrangell	Water Main from Upper Reservoir to bypass Lower Reservo.	\$275,000	\$16,810,800
Wrangell	Water Main extension to the Airport	\$200,000	\$17,010,800
Homer	Port of Homer 30 Acre Sewer & Water Utility	\$225,000	\$17,235,800
Sand Point	Nagai Avenue Sewer	\$300,000	\$17,535,800
Valdez	Sewage Dump Station - Small Boat Harbor	\$6,800	\$17,542,600
Valdez	Oil and Grease Separators for Small Boat Harbor	\$27,500	\$17,570,100
Pelican	Continuation of Sewer System	\$248,582	\$17,818,682
King Cove	Harbor Water Extension (Phase I)	\$123,000	\$17,941,682
Skagway	Water Storage Tank	\$152,000	\$18,093,682
Hoonah	Garteen Hwy. W & S Extension	\$212,500	\$18,306,182
North Pole	Northwest Utility	\$1,770,000	\$20,076,182
Yakutat	Sewage Treatment Facility Upgrade	\$450,000	\$20,526,182
Kenai	Thompson Park Water and Sewer Main	\$600,000	\$21,126,182
Klawock	Klawock Water Source	\$75,000	\$21,201,182
Ketchikan Public Utilities	Bear Valley Reservoir Construction	\$950,000	\$22,151,182
Ketchikan Public Utilities	Jefferson/Madison Street Water Main Replacement	\$200,000	\$22,351,182
Ketchikan Public Utilities	Tower Road Water Main Replacement	\$500,000	\$22,851,182
Dillingham	Airport Sewer Project	\$175,000	\$23,026,182
Kodiak Island Borough	Service District No. 1 Project No. 85-3(B)	\$666,800	\$23,692,982

ADEC 50% MATCHING GRANT REQUESTS FOR FY 92

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Cum. Request</u>
Kodiak Island Borough	Service District No. 1 Project No. 86-1	\$934,350	\$24,627,332
Ketchikan	Central Waterfront Development - Sewer and Water	\$129,250	\$24,756,582
North Pole	Baker/Northstar Subdivision W & S.	\$2,290,000	\$27,046,582
Sitka	Inflow & Infiltration Reduction	\$1,000,000	\$28,046,582
Kodiak Island Borough	Monashka Bay Water and Sewer System Design	\$550,000	\$28,596,582
Kodiak Island Borough	Womens Bay Water and Sewer System Design	\$550,000	\$29,146,582
Wrangell	Church Street Wood Stave Water Main Replacement	\$200,000	\$29,346,582
Wrangell	Water and Sewer Main Replacement - Webber Street	\$50,000	\$29,396,582
Wrangell	Peninsula Street Asbestos Water Main Replacement	\$15,000	\$29,411,582
V. SOLID WASTE			
Kodiak Island Borough	Kodiak Landfill and Material and Leachate Treatment	\$559,863	\$559,863
Sand Point	Sand Point Landfill Construction	\$300,000	\$859,863
Sitka	Comprehensive Solid Waste Disposal	\$1,500,000	\$2,359,863
Valdez	Paved Road to Balefill	\$75,000	\$2,434,863
Dillingham	Landfill Improvements	\$100,000	\$2,534,863
North Pole	Solid Waste Incinerator	\$3,300,000	\$5,834,863
Kenai Peninsula Borough	Homer Balefill Improvements	\$820,000	\$6,654,863
Kenai Peninsula Borough	North Borough Transfer Station	\$597,375	\$7,252,238
VI. ANCHORAGE **			
Anchorage	Anchorage Wastewater Projects	\$5,338,500	\$5,338,500
Anchorage	Anchorage Water Projects	\$1,544,500	\$6,883,000
Anchorage	Anchorage Regional Landfill Cell III	\$2,463,000	\$9,346,000
Anchorage	Merrill Field Landfill Methane Gas Collection Project	\$794,000	\$10,140,000
Anchorage	Areawide Water Quality Monitoring	\$100,000	\$10,240,000
Anchorage	Oil/Grease Separator Performance Monitoring	\$25,000	\$10,265,000
Anchorage	Storm Drain Monitoring and Characterization	\$25,000	\$10,290,000
Anchorage	Water Quality Public Education	\$40,000	\$10,330,000
Anchorage	Macroinvertebrate Water Quality Assessment	\$20,000	\$10,350,000
VII. FAIRBANKS **			
Fairbanks	Ft. Wainwright Interceptor Rehabilitation - IIA	\$750,000	\$750,000
Fairbanks	Wastewater Sludge Landfill	\$6,750,000	\$7,500,000
Fairbanks	Waste Heat Exchanger - Water	\$325,000	\$7,825,000
Fairbanks	Firewell Improvements	\$125,000	\$7,950,000
Fairbanks	Lime Stabilization	\$225,000	\$8,175,000
VIII. JUNEAU **			
Juneau	Glacier Highway Sewerage: Ross Way-Channel Drive	\$950,000	\$950,000
Juneau	Back Loop Road Sewerage-Design	\$600,000	\$1,550,000
Juneau	North Franklin Sewer/Storm Drain Separation	\$275,000	\$1,825,000
Juneau	Highlands Sewer/Storm Drain Separation	\$293,000	\$2,118,000
Juneau	Mountainside Estates-Reservoir & Pump Station	\$1,250,000	\$3,368,000
Juneau	Back Loop Sewerage - Phase I	\$7,700,000	\$11,068,000
IX. STATEWIDE SOLID WASTE			
	Community Solid Waste Planning Grants	\$1,500,000	\$1,500,000

** NOTE: In prior years, a single appropriation was made for Anchorage, Fairbanks and Juneau, allowing them to set their own internal priorities

FEDERAL MATCHING FUNDS PROJECTS

ADEC 50% MATCHING GRANTS PROGRAM

5-Mar-91

<u>Community</u>	<u>Project Name</u>	<u>ADEC 50% Grant Request</u>	<u>Expected Federal Funding</u>
Nome	Wastewater Treatment Facility	\$1,332,000	\$2,800,000
Ketchikan	Primary Sedimentation Plant	\$521,000	\$2,465,000
Cordova	Sewer System Improvements	\$301,000	\$1,900,000
Juneau	Mendenhall-JD Sewage Treatment Imp	\$405,000	\$5,655,000
Kake	Gunnuck Creek Sewer Project	\$515,000	\$260,000
Klawock	Sewage Treatment Plant & Outfall	\$387,500	\$75,000
Craig	Wastewater Treatment Plant	\$1,730,300	\$700,000
Klawock	Klawock Subdivision Water & Sewer	\$350,000	\$700,000
Hoonah	Garteen Highway W & S Extension	\$212,500	\$75,000
Klawock	Water Source Development	\$75,000	unknown
TOTAL		\$5,829,300	\$14,630,000

VILLAGE SAFE WATER MATCHING PROJECTS

<u>Community</u>	<u>Project Name</u>	<u>Grant Request</u>	<u>Federal Funding</u>
Chevak	Sewer upgrade	\$300,000	\$7,500
Klukwan	Lagoon	\$389,000	\$175,000
Kasaan	Water Supply Improvements- Phase I	\$306,000	\$75,000
Tanacross	Water & Sewer Expansion & Repair	\$200,000	\$850,000
Kiana	Sewage Treatment Renovation	\$968,000	\$584,000
Noorvik	Water & Sewer Upgrade	\$400,000	\$480,000
Selawik	Storage/Washeteria	\$800,000	\$1,420,000
Koyuk	Piped Water and Sewer Systems	\$1,200,000	\$1,200,000
White Mountain	Water and Sewer	\$617,000	\$2,517,000
Gambell	Water & Sewer Phase III	\$2,800,000	\$1,035,000
Chevak	Laundry & Sewer Disposal Lines	\$37,000	\$8,000
Nikolai	Water and Sewer Improvement Project	\$500,000	\$800,000
Stevens Village	Washeteria Upgrade	\$400,000	\$200,000
Kaltag	Water and Sewer Extension	\$217,380	\$125,000
Huslia	Sanitation Improvements	\$500,000	\$1,000,000
Shageluk	Washeteria/Water Treatment Plant Ren	\$300,000	\$600,000
Tyonek	Water & Sewer Phase III	\$742,000	\$912,000
Venetie	Washeteria Rehab	\$1,470,000	\$600,000
Mekoryuk	Flush Tank and Haul Demonstration Prc	\$180,000	\$50,000
Chetomak	Water & Sewer System	\$2,147,499	\$500,000
Kokhonak	Water & Sewer Improvements	\$100,000	\$181,500
Manokotak	Water System Improvements	\$300,000	\$487,000
New Stuyahok	Water Sewer & Solid Waste	\$477,000	\$200,000
Togiak	Togiak Water & Sewer Const.	\$257,000	\$350,000
Larsen Bay	Water Improvements	\$530,000	\$100,000
TOTAL		\$16,137,879	\$14,457,000

FUNDING HISTORYfy91.silk

2-1

	A	B	C	D	E	F
1	YEAR	DEC - 50%	DEC - VSW	TOTAL - DEC	DIRECT - DOA	TOTAL STATE
2	70	\$8,000,000	\$3,000,000	\$11,000,000		\$11,000,000
3	72	\$32,000,000	\$1,000,000	\$33,000,000		\$33,000,000
4	75	\$29,500,000	\$1,500,000	\$31,000,000		\$31,000,000
5	78	\$19,880,000	\$7,760,000	\$27,640,000		\$27,640,000
6	80	\$23,000,000	\$10,000,000	\$33,000,000		\$33,000,000
7	82	\$9,358,000	\$1,608,900	\$10,967,900		\$10,967,900
8	83	\$4,590,000	\$515,000	\$5,105,000	\$26,441,700	\$31,546,700
9	84	\$19,302,969	\$690,610	\$19,993,579	\$108,587,100	\$128,580,679
10	85	\$15,700,000	\$7,972,000	\$23,672,000	\$132,501,525	\$156,173,525
11	86	\$1,823,100	\$1,219,000	\$3,042,100	\$25,115,300	\$28,157,400
12	87	\$14,880,650	\$9,784,060	\$24,674,710	\$45,964,182	\$70,638,892
13	88	\$5,980,300	\$5,623,200	\$11,603,500	\$4,311,500	\$15,915,000
14	89	\$11,785,000	\$8,367,475	\$20,152,475	\$9,643,300	\$27,805,775
15	90	\$7,050,000	\$7,791,100	\$14,841,100	\$12,215,008	\$27,056,108
16	91	\$7,490,000	\$7,829,265	\$15,319,265	\$9,783,500	\$25,102,765
17	TOTAL	\$210,381,019	\$72,660,810	\$283,021,829	\$374,583,115	\$857,584,744
18						

2-1

VSW Projects Receiving Consideration Under the Public Health Scoring Criteria

3/18/91

City	Projects	Grant Request	Class
Alakanuk	Honey Bucket Haul	\$305,000	IA1
Koyuk	Piped Water and Sewer Systems	\$1,200,000	IA1
Stebbins	Honey Bucket Access Road	\$38,000	IA1
Deering	Water/Sewer Phase I	\$1,998,427	IA1
Tuluksak	Water, Sewer & Solid Waste Study	\$50,000	IA1
Chevak	Sewer upgrade	\$300,000	IA1
Hooper Bay	Water & Sewer Upgrade	\$990,000	IA1
Kotlik	Honey Bucket Cleanup	\$50,000	IA1
St. Michael	Water tanker/fire truck/ appurtenances	\$300,000	IA1
Statewide	Village clinic water/sewer upgrade	\$500,000	IA1
Chefornak	Water & Sewer System	\$2,147,499	IA1
Sub-Total for Class IA1		<u>\$7,878,926</u>	
Nikolai	Water and Sewer Improvement Project	\$500,000	IA2
Tyonek	Water & Sewer Phase III	\$742,000	IA2
Huslia	Sanitation Improvements	\$500,000	IA2
Bethel	Wastewater Treatment System Improvements	\$623,000	IA2
White Mountain	Water and Sewer	\$617,000	IA2
Thomas Bay	Sewer Project	\$1,100,000	IA2
Ketchikan Gateway Bor.	Mt. Point Water & Sewer Project	\$2,524,000	IA2
Anderson	Septage Disposal Facility	\$300,000	IA2
Glennallen	Sewer System	\$1,200,000	IA2
Anchor Point	Warning Point Facility	\$68,000	IA2
Klukwan	Lagoon	\$389,000	IA2
Matanuska-Susitna Borough	Talkosma East Side Sewer and Water Construction	\$3,100,000	IA2
Noorvik	Water & Sewer Upgrade	\$400,000	IA2
Kokhonak	Water & Sewer Improvements	\$100,000	IA2
New Stuyahok	Water Sewer & Solid Waste	\$477,000	IA2
Selawik	Storage/Washeteria	\$800,000	IA2
Togiak	Togiak Water & Sewer Const.	\$257,000	IA2
Unalakleet	Solid Waste	\$1,414,000	IA2
Gambell	Water & Sewer Phase III	\$2,800,000	IA2
Lower Kalskag	Solid Waste Improvements	\$175,000	IA2
Galovin	Water and Sewer Progressive Improvements Plan Ph. B.	\$427,280	IA2
Nulato	Water & Sewer System Phase III	\$2,382,000	IA2
Mekoryuk	Flush Tank and Haul Demonstration Project	\$180,000	IA2
Kotzebue	Sewer Main Rehab	\$1,370,000	IA2
Kiana	Sewage Treatment Renovation	\$968,000	IA2
Takotna	Rehab of Sanitation Facilities	\$225,000	IA2
Ruby	Sanitary Landfill	\$60,000	IA2
Elim	Sewer Ocean Outfall Line Rehab	\$431,000	IA2
Shageluk	Washeteria/Water Treatment Plant Renovation	\$300,000	IA2
Manokotak	Water System Improvements	\$300,000	IA2
Port Lions	Water & Sewer	\$250,000	IA2
Nelchina/Mendelma Corporation	Waste Transfer Station & Well	\$42,600	IA2
Savoonga	Solid Waste	\$750,000	IA2
Chignik	Sewer Upgrade/Drainfield Replacement	\$200,000	IA2
Katzebue	Sewage Lagoon Upgrade	\$480,000	IA2
Port Graham	Engr Design/Study	\$75,000	IA2
Khvatna	Water Tank Upgrade	\$900,000	IA2
South Nainok	Septic Tank Project	\$581,000	IA2
Northway	Sanitation facility upgrade	\$260,000	IA2
Clarks Point	Expansion of Water and Sewer	\$280,000	IA2

City	Projects	Grant Request	Class
Healy Lake Village	Water/Sewer Project	\$92,000	IA2
Tanacross	Water & Sewer Expansion & Repair	\$200,000	IA2
Atka	Engr Evaluation Water/Sewer	\$100,000	IA2
Grayling	Gallery Pump Project	\$100,000	IA2
Birch Creek	Solid Waste Removal & Relocation	\$10,000	IA3
Minto	Solid Waste Site	\$150,000	IA2
Larsen Bay	Water Improvements	\$530,000	IA2
Noatak	Solid Waste Site	\$300,000	IA2
Chistochina	Chistochina Safewater	\$25,000	IA2
Chenega Bay	Solid Waste Disposal	\$383,891	IA2
Chevak	Laundry & Sewer Disposal Lines	\$37,000	IA2
Shungnak	Solid Waste Improvements	\$120,000	IA2
Point Baker	Engineering Feasibility Study	\$25,000	IA2
Ek	Feasibility Study-Water Well Drilling	\$22,500	IA2
Brevig Mission	Water and Sewer Design	\$150,000	IA2
Ouzinkie	Safewater Relocation	\$200,000	IA2
Gulkana	Water & Sewer		IA2
Birch Creek	Tank Rehabilitation	\$150,000	IA2
Sub-Total for Class IA2		<u>\$31,143,271</u>	

Emmonak	Sewer and Water Expansion	\$1,000,000	IA3
Katag	Water and Sewer Extension	\$217,980	IA3
Coffman Cove	Water and Sewer Construction	\$800,000	IA3
Kotzebue	Sanitary Landfill Study	\$150,000	IA3
St. Michael	Phase II Washeteria	\$474,200	IA3
Kasaan	Water Supply Improvements- Phase I	\$306,000	IA3
Tuksook Bay	Water Supply Improvements Project	\$550,000	IA3
Stevens Village	Washeteria Upgrade	\$400,000	IA3
Kobuk	Water, Sewer & Solid Waste	\$1,500,000	IA3
Scammon Bay	Village Safe Water	\$150,000	IA3
Meilakata	Water Tank & Feeder Lines Replacement	\$584,200	IA3
Teller	Safe Water/Sewer/Solid Waste	\$200,000	IA3
Eagle Village	Washeteria, Lagoon & Water Project	\$1,600,000	IA3
Ambler	Water and Sewer Lines	\$150,000	IA3
Venets	Washeteria Rehab	\$1,470,000	IA3
Ek	Washeteria Upgrade	\$8,122	IA3
Sub-Total for Class IA3		<u>\$9,559,902</u>	

MATCHING GRANTS PROJECTS

City	Projects	Grant Request	Class
Kodiak	Water Filtration Plant	\$8,190,000	IA1
Ketchikan Public Utilities	Water & Filtration Treatment Plant	\$35,000	IA1
Sub Total for Class IA1		<u>\$8,225,000</u>	
Seldovia	Water System Upgrade	\$260,000	IA2
Sub Total for Class IA2		<u>\$260,000</u>	

Organization of Chart

The chart is arranged in order as follows:

The two programs, Village Safe Water and 50% municipal matching grants program are listed separately.

Within each program projects are arranged by classification of health problem, i.e., IA1, IA2, IA3

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL QUALITY
MARSHALL WATER SYSTEM
(March 21, 1991)

PHASE 1 Develop a Temporary Water System (PHS)

- o Public Health Service (PHS) temporary safe watering point developed--"Head Start Well"
- o Temporary watering point operational today at temperature of +15 degrees F
- o Freezing problems occurred when someone connected hose to spigot causing system to freeze
- o PHS to complete construction this week
- o DEC to continue water testing monthly

PHASE 2 Analysis and Definition of Contamination (DEC-EQ)

- o DEC term contractor funded with Response Funds will begin drilling exploratory wells by May 1
- o DEC conducts sample testing as wells are drilled
- o Contamination mapping/characterization completed by June 1

PHASE 3 Develop a New Water Source (DEC-VSW/PHS)

- o DEC Village Safe Water (VSW) and PHS begin construction by July 1
- o DEC-VSW and PHS complete construction by September 1

PHASE 4 Clean Up Contamination

- o Contamination ranked by DEC with other sites by threat posed to health and environment by July 1
- o Cleanup proceeds in accordance with ranking with respect to other contaminated sites and funding availability

Other Notes

- o Phase 3 is contingent upon funding. A grant application has been submitted to the Department of Agriculture for \$350,000. A \$500,000 general fund appropriation is required in case funding is not available from the Department of Agriculture, or the amount is insufficient.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL QUALITY
MARSHALL WATER SYSTEM
(March 21, 1991)

December 1990

- 12 Initial contact indicating unusual taste
- 18 Preliminary testing results indicate benzene contamination
- 18 City issues health advisory
- 19 Samples obtained by PHS
- 20 Letter to City Manager, Mr. Richard Oney, summarizing taken and needed actions--reemphasizes health advisory
- 21 Sample obtained by PHS
- 24 Attempt to contact Marshall--no answer village or school
- 24 DEC meets with PHS to investigate treatment options
- 26 DEC investigating potential sources of contamination, weather aborts attempted site visit

January 1991

- 4 Interagency meeting to identify funding sources--FHA through Department of Agriculture identified
- 7 FHA grant application forwarded to City Manager
- 8-11 Assist City Manager in completing grant application
- 14 DEC staff to Marshall to further investigate and assist with grant application
- 17 Department of Agriculture receives grant application and contacts DEC
- 18 Meet with PHS on interim watering point, identify abandoned wells for testing

February 1991

- 6-19 Work shifts to establishing immediate interim safe water source
- 19 Meeting with agencies and City on interim water source

March 1991

- 8 Test results received indicating temporary water supply safe, water available to residents
- 8-21 System freezes as a result of tampering
- 12 DEC issues additional health advisory indicating continuing restricted water uses
- 21 PHS completing well building--safe water remains available

Final Report

ON THE IMPACT OF MARPOL ANNEX V UPON
SOLID WASTE DISPOSAL FACILITIES
OF COASTAL ALASKAN COMMUNITIES

Prepared By

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Anchorage, Alaska 99501

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Marine Entanglement Research Program
7600 Sand Point Way, N.E.
Bin C15700
Seattle, Washington 98115

October 1989

EXECUTIVE SUMMARY

On the Impact of MARPOL Annex V upon Solid Waste Disposal Facilities of Coastal Alaskan Communities

Coastal communities of Unalaska, Kodiak, and Bristol Bay host large fleets of fishing vessels, seafood processing plants, and related support industries. With new MARPOL rules requiring boat operators to bring more garbage ashore, the impacts to these communities' solid waste handling and disposal facilities may be considerable. Because on-shore impact depends greatly upon to what degree larger vessels install shipboard incinerators, the impact is difficult to project.

Already these communities generate more garbage on a per capita basis than the average lower 48 towns. Many vessels have already been bringing their wastes ashore in anticipation of MARPOL. Unalaska's garbage generation rate has recently jumped to 540% higher than the national norm.

The solid waste arriving at coastal landfills has a greater materials recycling value and heat content than average municipal wastes. Unalaska's waste has an estimated heat content almost equal to that of some Alaskan coal.

The Unalaska landfill has nearly reached capacity, with three to five years left. The baler/landfills at Kodiak and Bristol Bay can expect lifetimes of 15 to 30 years.

Recommendations (abbreviated):

1. Unalaska should begin an engineering feasibility study to evaluate incinerator disposal with energy recovery. The study should concentrate on needs of energy customers and incinerator specifications.
2. A regional solid waste collection and management study should be undertaken for the Bristol Bay area. The collection costs and area-wide recycling and hazardous waste reduction programs should receive detailed attention.

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On the Impact of MARPOL Annex V upon
Solid Waste Facilities
of Coastal Alaskan Communities

1.0 INTRODUCTION

New federal rules now require boat operators to bring their garbage ashore. This report concerns itself with the impact of this increase in garbage upon coastal Alaska fishing communities.

Three such communities were chosen -- Unalaska/Dutch Harbor, Kodiak, and Bristol Bay Borough. Each has different fishing seasons and fleets and different types and amounts of garbage.

Unalaska/Dutch Harbor serves as an international base of operations for factory trawlers that harvest and process bottomfish. About 40 of these 150 to 300 foot long vessels make several hundred deliveries to Unalaska/Dutch Harbor yearly. From 30 to 90 crew spend from 20 to 50 days at sea on a typical factory trawler. Other vessels from 12 foreign countries routinely tie up to nearly 20 docks in the area.

Kodiak hosts more of a resident fleet of medium and smaller multi-fishery vessels. Crabbers from 75 to 150 feet long carry a crew of five to eight for up to month long voyages. About 300 salmon purse seiners work out of Kodiak, averaging four crew members and four months at sea.

Bristol Bay witnesses an annual invasion of salmon gillnetters. Beginning in late May, nearly two thousand 30+ foot boats appear, each with a crew of two or three. After late July, few boats remain.

This report has been primarily written for city officials: the harbor masters and public works directors who receive the first impacts from garbage brought ashore. They provide the dockside dumpsters and contend with the increased volume of garbage.

Information in this report will also be of value to administrators, engineers, and planners who manage garbage handling and disposal. Those concerned include --

-- fishermen, boat operators, and processors who generate the garbage;

-- city officials who collect and dispose of it and who attempt to comply with complicated and changing environmental regulations; and

-- state officials who regulate garbage and fund construction of garbage handling facilities.

2.0 PURPOSE AND APPROACH

Purposes of this project, as outlined in the Request for Proposals [Ref 1] and further elaborated upon in the Proposal [Ref 2], included evaluation of

impacts to garbage handling and disposal facilities at Unalaska, Kodiak, and Bristol Bay;

possibilities for regional solutions to handle solid waste problems of many communities; and

funding sources that focus on user fees and governmental grant programs.

We also proposed to study various options for waste recycling and disposal in coastal communities, including pros and cons, and capital and operating costs. The impacts of new federal and state laws on these options would be addressed.

We approached the project in several manners and from several different angles.

To evaluate the impacts to the communities, we visited Unalaska/Dutch Harbor, Kodiak, and Naknek, interviewed both harbor masters and local solid waste officials, and inspected disposal sites. This enabled us to estimate current amounts and types of waste materials at these communities.

Solid waste operating, labor, and cost data from other coastal communities were obtained directly from those towns and from state agency records. Details of options for disposal of solid waste by incineration, compacting, recycling, and landfilling were obtained and evaluated.

To predict increased garbage volumes from fishing groups, questionnaires were sent to various industry representatives and the information returned was analyzed and digested. To gain further information from the fishing groups, we successfully urged the Coast Guard to hold MARPOL public hearings in Seattle to allow for Pacific and Alaskan fisheries input to the rule making process. By these methods, we estimated the amounts and types of waste materials that would be brought ashore with implementation of MARPOL Annex V.

3.0 BACKGROUND

Plastics disposal at sea has caught our attention. Almost every national magazine has displayed cover photos and featured articles lamenting our plastic laden beaches. Hideous images of gulls strangled by plastic six-pack yokes and of seals entangled in plastic fishing net haunt the classrooms of our schools. Plastic syringes float in our harbors. Plastic bags seize boat propellers and clog cooling water intakes. Discarded nets drown diving sea birds for years. Our outrage has led to laws controlling waste disposal at sea. Congress has also authorized money to study and mitigate these problems.

The NOAA Marine Entanglement Research Program allocates its funding in three general areas: 1) studies on impacts to marine life, 2) education to prevent disposal of garbage at sea, and 3) mitigation of the impacts. NOAA, the National Oceanic and Atmospheric Administration, has spent almost a million dollars a year along these lines. This project falls into the mitigation area, along with studies of on-board disposal methods, cleanup projects on beaches, research on plastics that degrade upon exposure to sunlight, and research on recycling of plastics.

The NOAA focus on the ports' role in implementing MARPOL began with case studies in Newport, Oregon from January 1987 through March 1988. [Ref 3] Careful records of the type and volume of garbage returned to shore were kept. Successful recycling programs were initiated. Public awareness programs made it all work effectively.

In continuing to evaluate ports' abilities to implement MARPOL, NOAA became concerned about MARPOL impact on remote ports with little solid waste management capacity and high vessel traffic. In 1988, NOAA funded a report "On the Effects of MARPOL Annex V on the Ports of Kodiak and Unalaska." [Ref 4] The present report follows up some of the recommendations of the 1988 study. The 1988 study projected trends in fishing activity and other vessels using these ports and estimated the garbage generation rates by various fishing fleets and by various other types of vessels.

Other environmental trends will be impacting our study. As new MARPOL laws will increase the garbage volumes coming ashore, new laws will change the ways these wastes can be disposed of. The new Clean Air Act will impose tougher limits on incineration of wastes, both in air emissions and in disposal of incinerator ash. New landfill siting criteria and operational rules will make it more expensive to dispose of solid waste. Today's garbage dump will become tomorrow's hazardous waste Superfund cleanup site.

One effect of these new laws will be to make it more expensive to dispose of solid waste, forcing --

-- industries to rethink their production of toxic chemicals;

-- marketers to change their packaging of products; and

-- consumers to change their habits of using disposable products

all of which will make recycling become economical.

With this background, we begin our study of MARPOL garbage impacts on three small Alaskan fishing communities.

4.0 LEGAL ANALYSIS

Legislative History hit a benchmark on December 29, 1987 when President Reagan signed the Marine Plastic Pollution Research and Control Act of 1987 (Public Law 100-220, hereinafter, "the Act"). As such, the United States ratified Annex V of the Protocol relating to the International Convention for the Prevention of Pollution from Ships (MARPOL). Annex V sets limits on the discharge of garbage into the sea and prohibits the discharge of any plastics into the sea. Annex V went into effect on December 31, 1988.

The Act authorized the Coast Guard to make rules to implement Annex V. On October 27, 1988, the Coast Guard issued a Notice of Proposed Rulemaking (53 FR 43622), proposed rules to existing rules in 33 CFR Parts 151, 155, and 158, as well as 46 CFR Part 25 (summaries of which are attached in pertinent part). The Coast Guard issued interim rules on April 28, 1989, making several changes to the regulations (copy attached). The interim rules took effect May 30, 1989.

As noted, these rules are interim, and still subject to change. The Coast Guard has not promulgated final rules for two reasons. First, they have not yet completed their work on information placards and record keeping requirements. Notice of these items will be published shortly. Secondly, the Coast Guard believes that they will benefit from a year's experience under the interim rule. Hence, comments will be taken on the interim rule until December 31, 1989. In the final rule, we are most likely to see "fine tuning" rather than alterations of the interim rules.

Annex V calls for a change in the way ships and ports or terminals manage garbage generated on board vessels.

4.1 Annex V sets specific requirements and restrictions for the discharge of garbage by vessels at sea. Annex V is divided into seven subsections, called "regulations," and this paper will refer to those subsections as such.

Annex V sets specific limits on shippers as to how far from shore certain types of garbage may be discharged. Annex V applies to all U.S. vessels, wherever located, and to all foreign vessels when in the navigable waters of the U.S. or within the 200 mile Exclusive Economic Zone of the U.S. However, excluded from these regulations are U.S. government owned or operated ships if they are in noncommercial service, and other ships excluded by MARPOL 73/78.

Regulation 3. The disposal into the sea of all plastics (as defined in Sec 4.10), including synthetic ropes, synthetic fishing nets, and plastic garbage bags is prohibited. This measure covers composite products where plastics are an essential component.

Some other types of garbage can be disposed of at sea, such as packing material, rags, pottery and bottles. Regulation 3 specifies the minimum distance from shore each permitted discharge may occur.

Dunnage, lining, and other package materials which will float can be discharged no closer than 25 miles from shore.

Food wastes and all other garbage including paper products, rags, glass, metal, bottles, crockery, and similar refuse can be discharged no closer than 12 miles from shore, unless those items are ground and are capable of passing through a screen with no openings greater than one inch.

When the garbage is mixed with other garbage having different requirements, then the more stringent requirements shall apply. For example, garbage mixed with plastics can never be disposed of at sea. Ground glass mixed with dunnage can be disposed of no closer than 25 miles from shore.

Regulation 4 prohibits the disposal of any of the aforementioned materials from fixed or floating platforms engaged in "exploration, exploitation, and associated offshore processing of seabed mineral resources, and from all other ships when within 500 meters of such platforms". There is an exception: food wastes from such platforms or from ships within 500 meters of such platforms may be disposed of provided that they have passed through a comminuter or grinder with screen openings of no more than one inch and that they are disposed of at least 12 miles from the nearest land.

Regulation 5 applies to special areas and will have no effect on Alaska.

Regulation 6 specifies exceptions to the disposal requirements of Regulations 3, 4, and 5 to provide for safety and accidental discharges. For example, the disposal of garbage at sea is not a violation when that disposal is necessary to secure the safety of those on board or to save a life at sea. Under this exception, garbage could be jettisoned if necessary to maintain the stability of a vessel in distress. As well, the escape of garbage resulting from damage to a ship or its equipment is not usually a violation of MARPOL Annex V. Finally, if there is an accidental loss of synthetic fishing nets or other

synthetic material incidental to the repair of such nets, provided that all reasonable precautions had been taken to prevent such loss, there will be no violation of MARPOL Annex V.

Regulation 7 requires the government of each signatory nation to ensure that all ports and terminals will provide facilities to receive garbage without causing undue delay to ships, and according to the needs of the ships using them. The government of each signatory nation is also required to notify the Organization of any inadequate facilities. These rules merely require the government to ensure adequate facilities for waste disposal.

4.2 Coast Guard Definitions in terms of MARPOL use.

1. "Terminal" means a boat or ship docking or wharfage facility. A terminal must be a single entity.
2. "Port" can mean a group of terminals acting together for a common purpose, say for garbage collection services. The Coast Guard allows for this and often encourages it. Terminal operators can join together and establish themselves as "Ports" when applying for Certificates of Adequacy, defined and discussed later.

Ports can include marinas, shorebases for mineral or oil industry activity, commercial fishing facilities, shipyards, or yacht clubs. But, a port is not an unattended boat launching ramp.

Ports can be areas set up and designated by the Coast Guard for special purposes. Ports can also be a geographic place, such as Port Graham, but this has no particular meaning for MARPOL purposes.

3. "Reception Facility" means a place to hold garbage, such as a "dumpster" or other garbage container, or even mobile facilities, such as a modified ship or barge.
4. "Garbage" means all kinds of solid waste generated during the normal operation of the ship. Solid waste includes refuse, trash, waste foodstuff, bottles, cans and paper, packing material, and plastic. Other definitions of garbage can be found in Section 5.1 "Types of Solid Waste." Garbage does not mean fish waste from fish caught and processed at sea. Garbage does not include sewage, sink water, or shower water.
5. "Plastics" means materials containing synthetic chemicals that persist for long periods without decay. Plastics are formed or molded from raw resins under pressure. Plastics may be filaments, fabric, or

combined into products, either rigid or elastic, hard or soft.

Typical marine plastics include nets, net floats, lines, ropes, strapping materials, buckets, bottles, expanded foam, and films, such as visqueen. Plastics also include composite products in which plastic plays a minor but essential element in its function. For example, in a plastic-lined paper cup.

Plastics include biodegradable and photodegradable plastics. MARPOL has allowed no special exceptions for so-called degradable plastics.

6. "Animal and Plant Inspection Service (APHIS) Wastes" mean "quarantined" garbage and include meat, dairy, and produce garbage originating from foreign ports outside the U.S. and Canada.
7. "Medical Waste" means isolation wastes, infectious agents, human blood and blood products, pathological wastes, sharps, body parts, contaminated bedding, surgical wastes and potentially contaminated laboratory wastes, dialysis wastes, and other items as prescribed by federal regulation.
8. "Person in charge" means the owner, operator, or person authorized to act on behalf of the port or terminal. In essence, the person in charge is the person responsible for the day to day operation of the port or terminal.

4.3 Coast Guard Rules fall into four categories that will affect ports in western Alaska:

- a) capability of ports and terminals to receive and handle garbage, APHIS-regulated and other wastes;
- b) garbage and plastics waste disposal;
- c) APHIS waste disposal and approval; and
- d) Certificates of Adequacy (COA's).

The following sections elaborate on these categories.

Port Capability Requirements Each day a port or terminal is in operation, the person in charge of the port or terminal must be able to provide or ensure the availability of a reception facility that is capable of receiving the garbage that a ship wishes to discharge EXCEPT

- a) large quantities of spoiled or damaged cargoes not usually discharged by a ship; or,
- b) garbage from ships not generally having commercial transactions with that port or terminal.

The person in charge of a port must ensure that the port or terminal's reception facility

- a) is capable after August 28, 1989 of receiving APHIS-regulated garbage at the port or terminal no later than 24 hours after notice is given to the port or terminal of such incoming garbage;
- b) is capable of receiving medical wastes (as defined in Section 4.2) and hazardous wastes, unless the port or terminal operator can provide to the master, operator, or person in charge of a ship, a list of persons authorized by federal, state, or local law or regulation to transport and treat such wastes;
- c) is arranged so that it does not interfere with port or terminal operations, is conveniently located so that mariners unfamiliar with the terminal can easily locate it, and is situated so that garbage that has been discharged to it from ships cannot easily reach the water;
- d) holds permits or licenses required by environmental and public health laws governing garbage handling.

A reception facility for a ship repair yard is not compelled to meet this requirement if it is capable of completing the transfer of garbage from a ship before the ship departs from the yard.

*Hazardous wastes (including certain solvents, wastewater, and chemical substances) are defined in 40 CFR 261.3 and generally refer to corrosive, toxic, ignitable wastes.

Waste Disposal Requirements cite three ways of dealing with ship-generated garbage. First, if the plastics have been separated for onshore disposal, then the remaining garbage may be

- 1) incinerated on board the ship;
- 2) discharged in accordance with the minimum distances in Regulation 3 of Annex V; or
- 3) retained on board for disposal ashore.

Second, if the plastic is mixed with other types of garbage, then

- 1) the mixed garbage may be incinerated on board the ship or,
- 2) the mixed garbage must be retained on board for disposal or resource recovery ashore.

The disposal of incinerator ashes and "clinkers" within three nautical miles of shore is prohibited. Clinkers made of plastic may NOT be discharged at sea, ever.

Finally, if APHIS-regulated wastes are to be disposed of at a port or terminal in the U.S., then the master or person in charge must notify the port or terminal at least 24 hours before entering the port, giving the name of the ship and the estimated volume of garbage requiring disposal at an approved APHIS facility.

For further discussion of the various disposal options for plastics, as well as regular "garbage," see later sections of this report. Plastics, including garbage mixed with plastics, can never be disposed of at sea, they must be brought to shore for ultimate disposal. Any regular garbage mixed with any amount of plastics must be treated as plastics for disposal at sea. For example, any incinerator ash containing unburned plastic must come ashore for shoreside disposal. Ports or terminals receiving such wastes must comply with solid waste disposal requirements of the Resource Conservation and Recovery Act and state requirements on landfilling. Both these subjects will be discussed in later sections.

APHIS Waste Requirements Ports and terminals that receive foreign ships must arrange for APHIS waste handling and disposal facilities. Ports and terminals must be able to receive APHIS "quarantined" garbage within 24 hours of notice of such incoming garbage.

APHIS wastes include meat, dairy, and produce garbage originating from foreign ports outside the U.S. and Canada. Approved facilities usually involve incinerators or sterilizers. APHIS must approve a written agreement specifying handling and disposal details. Ports or terminals receiving more than 25 port arrivals per year by ships whose last port of call was outside the Continental U.S. or Canada will have to show on Form C (Certificate of Adequacy form) the name of the APHIS approved contractor.

Exempt from providing APHIS reception facilities are ports and terminals that do not receive any foreign ships.

One particular development within the Animal and Plant Health Inspection Service has added flexibility for those handling APHIS wastes. Regarding barging or shipping APHIS wastes in the Aleutian chain or Bristol Bay areas, APHIS advised that it probably acceptable to transfer wastes to a disposal facility, assuming the use of a covered, leakproof barge or ship. To gain approval, each step involved in the transfer of waste, from the offloading vessel to the final facility, would have to be specified. Each step in the transfer process system would be subject to periodic compliance inspections at APHIS' discretion.

Generally, waivers from the APHIS requirements or any other requirements may be requested by anyone who feels that a requirement of the regulations is "impractical or unreasonable." Those seeking waivers must indicate an alternative providing at least equivalent compliance with MARPOL 73/78 Annex V.

APHIS Waste Disposal include three possible methods:

- 1) incineration to ash;
- 2) sterilization in an autoclave such that the internal temperature maintains at ~~least~~ a constant 212 degrees F for 1/2 hour, then landfilled; and
- 3) grinding for disposal into an approved sewer system.

Certificates of Adequacy

What is a COA?

A Certificate of Adequacy is a document issued by the Coast Guard which states that a port or terminal meets the requirements of the Coast Guard regulations with respect to reception facilities. Although all ports and terminals must provide waste reception facilities, not all of them are required to have COA's.

Who needs a COA?

Ports and terminals are required to have COA's if

- 1) they receive oceangoing ships of 400 gross tons or more, or tankers carrying residues and mixtures containing oil;
- 2) they receive oceangoing ships carrying Noxious Liquid Substances;
- 3) there are commercial fishing facilities which receive more than 500,000 pounds per year of commercial fishery products.

Dutch Harbor and other fishing ports in the Aleutians and the Bristol Bay areas will easily meet the 500,000 pound benchmark, and therefore, will require COA's.

Obtaining a COA

The applicant for a COA required under Annex V is the person in charge of the port or terminal (see definition in 4.2). In essence, the Coast Guard expects that the person responsible for the day to day operation of the port or terminal is the proper applicant for a COA.

Applicants must apply to the Captain of the Port (COTP) of the zone in which the port or terminal is located. For western Alaska, file applications with

Commanding Officer
USCG Marine Safety Office
701 C Street Box 17
Anchorage, Alaska 99513

There will be no extensions given for applications for COA's. However, if a port or terminal believes that the COA requirement is "impractical or unreasonable", it may file a request for a waiver with the Captain of the Port (under 33 CFR 158.150).

4.4 Coast Guard Enforcement The United States is the first signatory to Annex V to have a comprehensive enforcement plan for implementation.

The Coast Guard has identified 23 people -- 4 lieutenants and 19 petty officers -- for nationwide enforcement of MARPOL rules. These people are not solely detailed to MARPOL enforcement, since their duties entail other assigned duties. While the Coast Guard intends to request more funding for MARPOL enforcement in the future, there will be a practical limitation on enforcement under the new rules.

The initial enforcement tools to be used by the Coast Guard include on the spot corrections, letters of warning from the Captain of the Port, and the assessment of civil penalties of up to \$25,000 per violation. Further, the Captain of the Port has the option of denying entry by ships to ports that do not have adequate reception facilities or Certificates of Adequacy (COA's). For gross or willful violations, the Coast Guard can seek the criminal prosecution of violators, including fines of up to \$50,000, and imprisonment.

At first, the Coast Guard will seek cooperation and voluntary compliance, affording ports, terminals, or vessels the opportunity to correct any minor deficiencies promptly before seeking penalties. On the other hand, the environmental community considers plastics pollution a major priority. One would expect the Coast Guard to consider the "good faith" efforts made by operators in applying for COA's, providing reception facilities, and so forth.

The MARPOL Act provides for a bounty system whereby individuals reporting violations would receive half of any fines obtained. The record has shown concern that such a system could result in substantial abuse. The Coast Guard has not yet proposed rules to implement a bounty system.

4.5 Foreign Vessel Enforcement under Annex V allows the U.S. to take action against any foreign ship within 200 miles of our EEZ. If a foreign vessel is registered to a non-signatory nation to Annex V and the Coast Guard has determined that the vessel has violated MARPOL regulations, the vessel will be treated the same as a U.S.-flagged vessel.

If a foreign vessel is registered to a signatory nation to Annex V, the Coast Guard will notify the "flag state" of the violation by letter through the State Department. The flag state is expected to proceed with proper enforcement. While the U.S. does not share any fines received by the flag state, the U.S. is entitled to a report on enforcement action taken by the flag state.

5.0 TYPE AND AMOUNT OF SOLID WASTE

Alaskan coastal fishing communities and Alaskan fishing vessels produce different types and amounts of solid waste from that normally encountered. This section provides a background in typical solid waste patterns and then compares the Alaskan situation to the norm.

5.1 Types of Solid Waste have been characterized according to a standard set of categories. Waste from most Alaskan communities studied in this report seems to be well described by these categories. In this report, the following names will be used to refer to these types of solid waste.

Table 5-1 SOLID WASTE TYPES AND PROPERTIES

Type	Name	Main Components (Sources)	Density lbs/cuft	Heat Btu/lb	Moisture Content
0	Trash	Paper, cardboard, wood, plastic (Business and Commercial)	8-10	8500	10%
1	Rubbish	Metal and lumber debris, rags, scraps, sweepings (Industrial or Construction)	8-10	6500	25%
2	Refuse	Food waste, paper, plastic (Residential: 50% trash, 50% garbage)	15-25	4300	50%
3	Garbage	Food waste, packing materials (Restaurant, Hotel)	30-35	2500	70%
4	Animal [Seafood]	Carcasses, organs, tissue wastes (Food processing)	45-55	1000	85%

This system, developed as "Incinerator Standards" by the Incinerator Institute of America in 1968, has been used by the City of Petersburg in their solid waste feasibility report [Ref 5] and well describes waste from the City of Juneau [Ref 6].

In the fisheries context of this report, "trash" describes a large fraction of the packing waste and dunnage from seafood processing plants and factory trawlers. "Rubbish" includes the waste from construction activities associated with port development. "Animal" waste also characterizes discarded seafood waste.

The composition of typical American municipal waste has been summarized below. [Ref 7]

Table 5-2 MUNICIPAL WASTE COMPOSITION

Type of Waste	Percent by Volume	
Trash	40%	
Paper		31%
Wood		4%
Plastic		5%
Garbage (Food Wastes)	35%	
Rubbish	23%	
Recyclable (Aluminum)		2%
Non-Recyclable Metal		7%
Glass		9%
Rags, Rubber, Leather		5%
Other	2%	

5.2 Volume of Municipal Wastes for Alaskan communities seems to range within or above normal limits for residential type refuse. "Normal limits" for the average American runs just over five pounds per capita per day. [Ref 7] For purposes of this report, 5.0 lb/capday will be used as the "Population Equivalent" for solid waste generation.

Normal seasonal changes in the average American's solid waste generation rates seem to hold less in common for Alaskan communities. Typical seasonal waste generation patterns seem to bottom out in February at 20 percent below the yearly average and peak from May to July at 15 percent above the yearly average. [Ref 8]

On a yearly average, Juneau's solid waste generation rates turn out typical in volume, at 5 lb/capday, but with a higher than average trash component of waste paper contributed by government offices. [Ref 6]

Petersburg's waste generation practices were studied in detail with a six month study [Ref 5] involving regular weighing of garbage trucks and periodic sorting of waste by type. In 1988, Petersburg residents discarded more than 6.6 lb/capday, 32 percent above the national average. The bottom month of the study period -- December -- fell 30 percent below the average month. The peak month -- July --

produced 30 percent above the average. During October, an average month, the waste was sorted by hand and classified into standard types, tabulated as follows.

Table 5-3 PETERSBURG WASTE TYPES

Type	Name	Composition
0	Trash	15%
1	Rubbish	33%
2	Refuse	45%
3	Garbage	7%

The resulting mix was calculated to have a heat value of about 5500 Btu per pound and density of 12 to 16 pounds per cubic foot.

5.3 Typical Vessel Waste production rates have been estimated in the literature. Unfortunately, such rates tend to take on units of measure not easily useful for those who have to provide dumpsters and haul the waste away. In the following table, we start with waste generation rates provided from Coast Guard sources [Ref 10], make some assumptions about the character of the waste, and convert the generation rates to volumetric units.

Table 5-4 VESSEL WASTE GENERATION RATES

Vessel Type	Rate (kg/ capday)	Garbage Type	Assumed Density (lb/cuft)	Volume Generated (cuyds/capday)
Harbor Vessel	1.0	Refuse	15	0.005
Coastal Vessel	1.5	Refuse	15	0.008

A harbor vessel does not leave the vicinity of the port. A coastal vessel usually travels in MARPOL restricted waters.

For example, if a tour ship with crew and passengers of 1000 has been in coastal waters for three days and in compliance with MARPOL, the waste generated would be

$$(1000 \text{ persons}) \times (3 \text{ days}) \times (0.008 \text{ cuyds/capday}) = 24 \text{ cubic yards}$$

For cargo associated waste, other waste generation factors have been calculated as follows, again converted from metric weights (kg) given in Ref 10 to English volumes (cubic yards), assuming the waste is dunnage-like trash with a density of ten pounds per cubic foot.

Table 5-5 CARGO ASSOCIATED WASTES

Type of Cargo -----	Cubic Yards of Waste per Ten Thousand Tons of Cargo -----
Break Bulk	600.0
Dry Bulk	7.5
Containerized	3.0

In this table, cargo tons means standard tons (2000 lbs), not metric tons (2200 lbs).

5.4 Fishing Vessel Wastes have been characterized in this study. Questionnaires were sent to fishing groups asking for information about the volume and type of wastes generated during fishing. A copy of the questionnaire and summaries of the results can be found in Appendices E and F.

Estimates of solid waste generated in Western Alaska have been tabulated for both various salmon gear groups and herring roe fisheries.

Kodiak fishing generation wastes had been researched in the Pacific Associates report [Ref 4] as a result of the Fishermen's Wives Club survey. Week long trips with a crew of three to four would produce one to two 30-gallon bags of waste. Assuming that waste had the same character as normal household refuse, that is a density of about 15 lbs/cuft, the waste generation rates range from 1.9 to 3.8 lb/capday, with the mid range value of 2.8 lb/capday. These Kodiak rates conform with typical generation rates noted in the record of the MARPOL rule making process.

From the questionnaire survey conducted during this study, six crabbers provided estimates of waste generation. The crew ranged from five to six, days out from five to eleven, and the per capita generation rates ranged from 2.1 to 6.0 lbs/day, with an average of 4.0 lb/capday.

Questionnaire responses also provided information about the composition of typical fishing vessel wastes. From 17 crabbers delivering to Akutan and Unalaska, the following table summarizes the waste types.

Table 5-6 FISHING VESSEL WASTE COMPOSITION

Type of Waste	Percent by Volume	
-----	-----	-----
Trash	33%	
Packing Materials		17%
Plastic		16%
Garbage (Food Wastes)	38%	
Rubbish	29%	
Recyclable (Aluminum)		16%
Non-Recyclable Metal, Glass		13%

5.5 Factory Trawlers present a different picture for type and volume of waste. Factory trawler wastes can contain a large amount of waste cardboard and packing materials from the on-board processing and packaging of seafoods. Factory trawlers range far from shore, often greater than the 25 mile limits for overboard disposal of dunnage, packing material, and floating fiber. Many trawlers have practiced overboard disposal of these wastes and may continue to do so legally. On the other hand, several factory trawlers have made a practice of bringing in all their waste regardless of MARPOL or 25 mile limits.

Another practice will affect the on-shore impact of MARPOL waste. Many factory trawlers -- about 25 percent of those contacted in our late 1988 survey -- have installed on-board incinerators for disposal of garbage and smaller trash. Another 25 percent indicated they'd be installing incinerators within a year. Most new factory trawlers will be installing incinerators. Incinerators reduce waste to 20 to 30 percent of their original volume. Plastic-free incinerator ashes may be thrown overboard outside the three mile limit.

Questionnaire results ranged in value and some information appears doubtful. Some responses may have excluded packing materials from galley wastes. Other responses were clearly horseback estimates. Nevertheless, waste generation estimates ranged from 1 to 16 lb/capday.

Questionnaire responses from factory trawlers also indicated a high portion of packing materials in their waste. The average of 14 responses showed the following composition of waste.

Table 5-7 FACTORY TRAWLER WASTE COMPOSITION

Type of Waste	Percent by Volume
Trash	59%
Packing Materials	43%
Plastic	16%
Garbage (Food Wastes)	17%
Rubbish	24%
Recyclable	10%
Non-Recyclable	14%

This relative composition of wastes appeared to be similar to the waste survey responses from two mothership/processors, except that the motherships produce slightly less food waste.

Information from the Unalaska/Dutch Harbor Port Director [Ref 11] and from the local garbage hauling contractor, Williwaw Sanitation [Ref 12], yields a reliable factor for those factory trawlers who will be returning all their uncompacted waste. Several factory trawlers are known for their practice of returning all their waste to dockside. These vessels carry crews of 80 to 100 for trips of 15 to 21 days. Observation confirms this waste consists of mostly trash (cardboard and fiber) and some garbage. Assuming a density of 12.5 pounds per cubic foot, the factory trawler waste generation rates range from 8 to 21 pounds per person per day, with a likely median value of 13 lb/capday. If the density drops to 10 lb/cuft, the waste generation rate reduces to about 11 lb/capday.

Thus the factory trawler per capita waste generation rates appear to exceed normal vessel rates by three to four fold, the excess being attributable to high Btu value packing wastes.

5.6 SUMMARY

A partial summary of the types, volumes, and composition of solid wastes has been presented in the two following charts. To characterize the "Alaskan Coastal Resident," the Petersburg study has been selected because of its detail of information and similarity to the other coastal fishing communities under study.

Table 6-8 SOLID WASTE GENERATION
US Average vs Alaskan

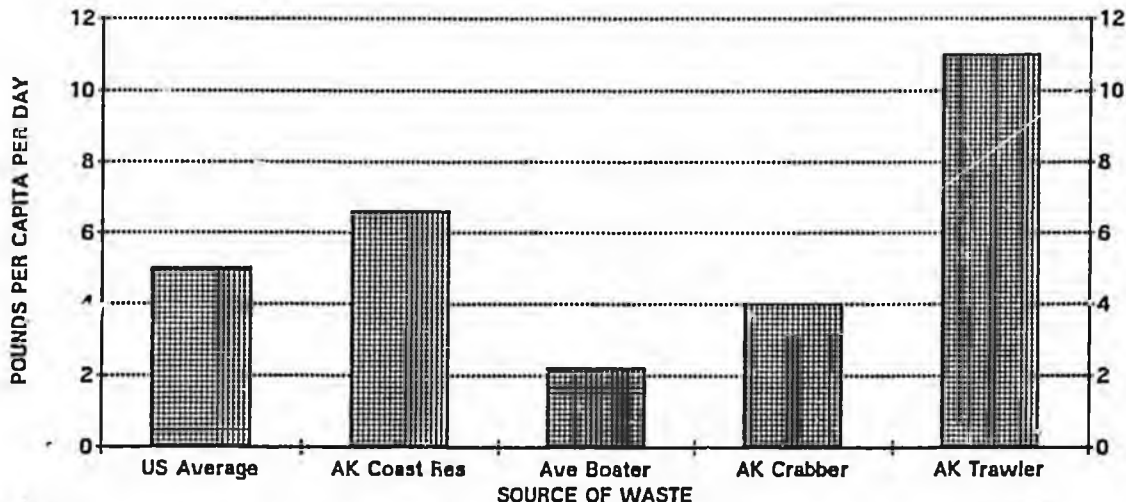
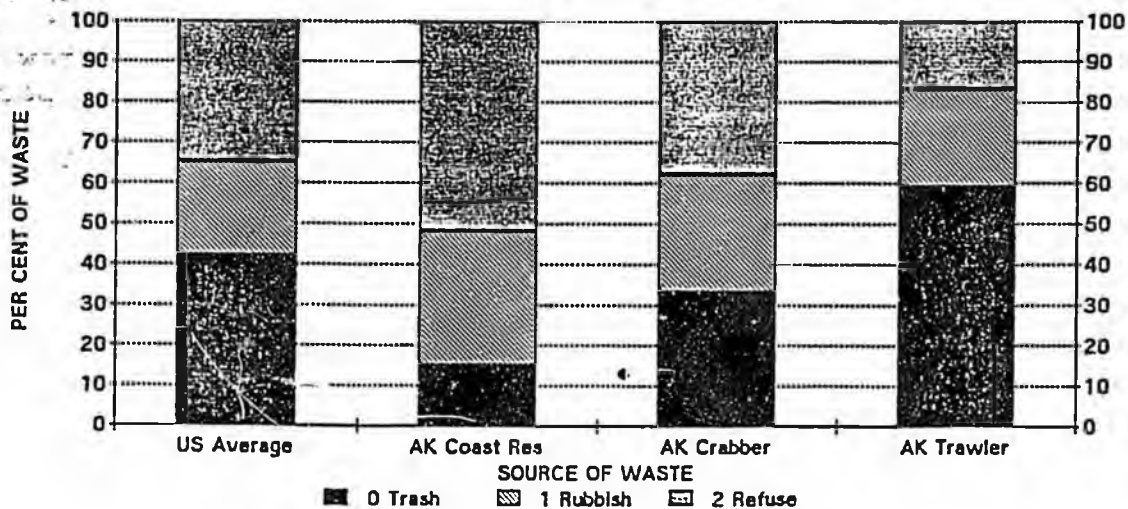


Table 6-9 SOLID WASTE COMPOSITION
US Average vs Alaskan



Here again, in the Alaskan fisheries context, trash means cardboard and packing material. Rubbish means construction debris. Refuse includes food wastes and some other paper wastes.

6.0 DISPOSAL OPTIONS: LANDFILLS

The most common disposal method for municipal solid waste is the sanitary landfill. Until recently, most regulatory efforts have been directed at upgrading open dumps into sanitary landfills. Open dumps often smolder, emitting odors and smoke, and attract rats and birds.

Landfills serve as ultimate disposal for more than simple garbage. Garbage that has been compacted and bound in the "baling" process, to be discussed in detail later in this section, is stacked and eventually covered in a landfill. Incinerator ash is often landfilled as well. Recycling operations also generate a fraction of unusable waste, which is generally landfilled.

Landfills will be discussed in terms of Southwestern Alaskan climate and terrain conditions and of MARPOL and fishing-related solid waste generation.

Specific problems for solid waste collection and disposal in coastal Alaskan communities include--

- ** lack of cheap gravel or other fill material to cover garbage, bales, or incinerator ash at landfills;
- ** lack of flat land for recycling or disposal operations, the best flat land being reserved for airports, which, because of hazards to aircraft from gulls attracted to garbage, conflicts with solid waste disposal uses;
- ** constant high winds which blow garbage away as fast as it's dumped or deposited;
- ** high rainfall which necessitates covered, leakproof collection and storage facilities and makes for high leachate potential for garbage and ash; and
- ** high water table, which restricts the depth of excavation and makes landfills spread out more quickly.

These conditions affect garbage receptacle and dumpster design, transfer stations, temporary storage facilities, landfill operations, and other types of recycling and disposal operations.

The following limitations on landfill disposal options have been extracted from regulations of the Alaska Department of Environmental Conservation, "DEC."

6.1 General Operating Requirements affect all landfill disposal options. These limitations have been in effect for some years and disposal facilities have had intermittent success in attaining compliance.

Accumulation and Storage Individual owners of solid waste facilities must store wastes in a safe manner that prevents litter violations until those wastes can be disposed of. [Ref 17] This will require port operators to keep dumpsters on docks. Individuals subject to this requirement who have made contractual arrangements for the removal of accumulated solid waste are not relieved of the responsibility for that removal. [Ref 17]

Transport Individuals transporting solid waste must do so in a manner that keeps the waste contained during its transport. This means that solid waste transporters must have nets or covers for trash on trucks. Furthermore, persons spilling solid waste during transport must promptly pick up the waste and clean the affected area. [Ref 17]

Solid Waste Disposal Facility The owners or operators of a solid waste facility must ensure that surface water from outside the facility does not come into contact with any covered or uncovered solid waste. Likewise, they must ensure that solid waste is not placed in surface water. Further, they must see that waste, leachate, or eroded soil from the facility does not cause a violation of water quality standards. [Ref 19] For example, culverts and trenches may be necessary to divert streams around landfills.

Owners or operators of solid waste facilities must protect against disease vectors (that is, rats, flies, and perhaps certain birds), requiring action be taken to prevent rodent infestation -- a problem that has plagued landfills in the past.

High winds, a consistent problem in Southwest Alaska, will necessitate control measures such as fencing to contain windblown litter. Litter must be kept within the facility and clear of access roads. [Ref 17]

Permit Applications Article 2, Section 200-210 of the solid waste regulations [Ref 17] mandate the requirements for solid waste facility permits and applications. A solid waste facility application may cost between \$10,000 and \$25,000. Unfortunately, the permit process is not only expensive, but often also time consuming, and with specific requirements.

Other State regulations require the owner or operator of a landfill to ensure that the working face of a

landfill is kept as small as is practical to reduce the potential for windblown litter and for the attraction of birds and animals. Solid waste must be compacted in two-foot increments, and be compacted before applying operational or final cover. Operational cover must also be applied to the compacted solid waste in accordance with a schedule set out according to population served. For landfills serving more than a population equivalent to a city of 2000, operational cover must be applied on a daily basis. [Ref 17]

If solid waste will not be deposited in a partly filled active portion of the facility within 30 days, then operational cover must be applied. This has presented problems for Dutch Harbor, as very little gravel is available in Southwest Alaska.

The state has the discretion to increase the cover frequency as permit stipulations for site specific conditions, such as rats or flies, nuisance bears, windblown litter, and so forth. [Ref 17]

Article 3, Section 310 [Ref 17] specifies monitoring requirements for landfill operators and sets out sample wells and required analyses. These monitoring requirements may be seen as extraordinary, but the costs are minimal compared to the cost of cleanup if wells would ever indicate hazardous waste contamination.

OL
SU: Article 4, Section 410 [Ref 17] sets out requirements for the closure of solid waste landfills. We should be aware that the closure of a landfill, which may take place soon in Unalaska/Dutch Harbor, is an expensive, lengthy procedure. A number of specific provisions may be required, depending on the location, such as diverting streams, preventing rainfall from percolating through the landfill, and continued testing for five years -- with liability for cleanup if testing shows violations.

Permits for Wastewater Discharges to waters or lands, including leachate from landfills, must be issued or certified by DEC. Certain exceptions exist for small discharges of household sewage.

Discharge to Sewers advises landfill operators that if collected leachate is dumped into a city sewer and the city sewer treatment plant is overloaded, a landfill operator may have to treat his leachate before it enters the sewer.

Minimum Treatment sets end-of-pipe standards for dischargers of liquid wastes to surface waters or the surface of the land. Such liquid wastes include leachate from landfills. Leachate is often stronger than untreated

sewage. If leachate is collected by underdrains beneath a landfill or naturally drains to a point, it must be treated to meet secondary treatment standards -- the same standards as for sewage -- before entering a stream (18 AAC 72.029).

Sludge Disposal requires a DEC waste permit in order to have sludge disposed of at a site.

System Plan Review requires that leachate collection and treatment be designed by professional engineers and be approved by DEC before construction.

6.2 Baler/Landfills have several advantages over landfills receiving uncompacted garbage. The solid waste is compacted, according to manufacturer, to about a 4-to-1 ratio and tied with strapping tape. Post-compacter handling costs are reduced. Cover material is only required once a week or so. Bales can be stacked neatly with no windblown litter problem. Rats and birds cannot easily invade the bales.

On the other hand, the leachate potential remains about the same, except that rainfall and surface water diversions are easier to manage because the entire fill area has been reduced by the volume of compaction. So while the potential for leachate extraction (in pounds of dissolved contaminants) remains the same, the volume of leachate generation (in gallons of flow-through) will be reduced.

Another limitation of balers is their inability to handle odd items of fisheries related waste because of shape and strength, and to handle discarded fishing nets. The compaction ratio is either not up to specifications or the baler becomes entangled.

6.3 New Landfill Operating Requirements will be forthcoming as a result of changes to RCRA, the Resource Conservation and Recovery Act, increasing regulatory pressure to upgrade operations and maintenance at existing sites. New landfills will face almost impossible odds to survive the new selection criteria for siting. [Ref 18]

Location Criteria, in the form of proposed federal rules, will make it difficult or impossible to build new solid waste disposal facilities if they are to be located --

- ** within 10,000 feet of a jet airport;
- ** within 5,000 feet of a piston-aircraft airport;
- ** in wetlands;
- ** near landslide or avalanche areas;
- ** in fault areas; and
- ** in seismic impact zones.

New Operational Restrictions would also impose tough operational and maintenance requirements for landfills, such as --

- ** cover with fill material EACH operating day;
- ** effective measures to eliminate rats and birds;
- ** means to control explosive gases;
- ** dikes, trenches, etc. to divert water around a landfill;
- ** liners and sewers to collect drainage underneath the landfill and
- ** treatment of collected underground drainage;
- ** financial assurance to close the landfill when its useful life ends and to correct any problems that might arise after closure;
- ** training for operators to recognize and turn away people who would be disposing of hazardous wastes;
- ** monitoring wells around landfills to sample for hazardous wastes; and
- ** capability to remove and clean up hazardous wastes if recognized or detected.

Sanitary landfills are not suitable for APHIS-regulated foreign garbage disposal without additional treatment, such as sterilization or incineration.

7.0 INCINERATION

Incineration reduces the volume of waste to be disposed of by 80% to 90% and eliminates the nuisance factor in garbage. Rats and birds are not attracted to incinerator ash. Much of the organic leachate potential is reduced, although some metals might enter into solution as rainfall passes through an incinerator ash landfill.

7.1 On-Shore Incineration appears well-suited for solid waste containing large portions of wood, fiber, and easily burned packing material. Such wastes add to the Btu content without increasing the potential for ash disposal problems. Energy recovery could be attractive with waste generation peaks coinciding with power demand peaks, as would be the case with fishing waste production and fish processing energy needs. Also to be considered in remote areas of Alaska are the high costs of energy, both in heating oil for residences and in diesel-electric power generation.

Disadvantages for incineration deal with the uncertainties of future federal law in air emissions from incinerators and in ash disposal from incinerators. If ash disposal at landfills is prohibited part or all of the time, then costs for ash stabilization would be added. Ash easily forms into concrete products which, due to the lack of building materials in some remote sites, could have recoverable value. Ash-concrete blocks for protection from wave erosion comes to mind, considering needs in coastal communities to protect roads, harbors, and airports.

Another important factor in energy recovery for steam and hot water systems is being able to locate an incinerator within a few hundred feet of the energy customers. Thus, if seafood processors were to be the energy customers, there would be little land use or zoning conflicts for an incinerator facility to be located nearby.

For ash disposal from incineration, the law makes a distinction between ash originating from ship-board wastes and ash from shore-side wastes. MARPOL allows plastic-free ash disposal from ships if the correct distance offshore is maintained. However, ocean dumping of shorebase-generated ash would require an EPA permit, which would be nearly impossible to obtain.

7.2 Shipboard Incineration has several obvious advantages over shore-side incineration. First, the costs of disposal are more directly borne by the generator. A small incinerator will cost between \$10,000 and \$20,000, not counting installation. Ash disposal overboard, if plastic-

free, is allowed, if far enough offshore. And air pollution permit and emission control requirements outside the three-mile limit are nonexistent.

The main disadvantage is deck space limitations which restrict incinerator use to larger vessels. Smaller incinerators do not enhance the shore-side communities' position for energy recovery. To the coastal communities, the disadvantage to ship-board incinerators is that they only dispose of part of the total waste in the region, while taking some of the high volume waste generators out of participating in a comprehensive solution.

7.3 Plastics incineration produces a relatively high Btu output, about quadruple that of normal municipal solid waste on a pound-for-pound basis. HDPE releases about 20,000 Btu/lb, nearly the same as a pound of diesel fuel. But, according to the Plastics Institute of America, the replacement of HDPE would require nearly 60,000 Btu/lb to form the plastic from its chemical raw products. Further, even efficient incineration of plastics will form hydrogen chloride gas, an aggressive, corrosive acid and toxic air pollutant. [Ref 24] Inefficient, that is low temperature, combustion of plastics will form more pollutants as unburned, reactive hydrocarbons.

7.4 Restrictions on incineration focus on the air emissions and ash disposal.

Air Quality Control considerations play a role in incinerator design and operation. Existing state of the art control technology, electrostatic precipitators or baghouse filters, remove 99+ percent of the dust in the exhaust, but some of the trace organics resist breakdown by burning and may remain in troublesome concentrations. Addition of dry lime scrubbers to existing technologies is being tested and may remove the trace organics.

Until recently, visible emissions have been the basis for regulatory control of incinerators. Even low levels of smoke emissions indicate poor combustion at low temperatures, an indicator of poor overall performance. Water vapors complicate smoke level readings but trained observers can distinguish the difference. Visible emissions levels are measured in opacity, measured in percent. According to DEC regulations, emissions from solid waste incinerators cannot exceed 20 percent opacity for more than three minutes in any hour.

Other emission standards for incinerators or fuel burning equipment using solid waste are based upon the dust concentrations per cubic foot of exhaust gas, adjusted to standard temperatures and other conditions. These

standards are based upon type and capacity of the burner and what is being burned. Measurement of dust concentrations is a complex, costly endeavor.

Permits are required by the state DEC for incinerators burning more than 1000 pounds per hour, which for a 24 hour day, equates to the garbage of a city of 4,800. Even though incinerators with less than 1000 lb/hr rating do not require permits, they must meet the emission standards and fall under other air quality limits for pollutant levels in the atmosphere. [Ref 20]

7.5 New Federal rules may restrict incinerator applications. EPA is in the process of reviewing the need for setting separate, more precise standards for incineration and incinerator ash disposal. That review encompasses the concept that some ashes may be able to be disposed of as solid waste, and some ash may have to be handled as hazardous waste. The results of that EPA initial review (and Congressional consideration) could mean that incinerator ash would require special treatment beyond disposal in approved landfills, again leading to substantial and costly design and construction factors.

The ability of states and communities to meet air emissions standards is under review in the reauthorization of the Clean Air Act pending in Congress, with specific focus on toxic air emissions. Depending on which wastes our coastal communities may wish to consider incinerating, toxic standards may apply.

8.0 RECYCLING AND ENERGY RECOVERY

Recycling does not solve the ultimate disposal problems nor does recycling take care of all constituents of solid waste, but recycling is necessary as part of the picture. Recycling reduces the volume of waste to be disposed of and makes the disposal process easier and safer. Recycling can remove the paper, metals, and plastics that make incinerator emissions and ash toxic, and that make landfill leachate toxic.

This section sets out some background information, then discusses in detail plastics recycling, energy from garbage, and pelletizing.

Recycling can take two approaches. Each has its limitations and advantages.

First, wastes can be segregated at the source. Thus several collection systems would be in place, one for aluminum cans, one for ferrous metals, one for plastics, one for glass. Quite a bit of management control and attention is necessary to keep wastes segregated. Public education programs play a big part in this. The advantage is cheaper costs for the recycler. The disadvantage is reliance on consumers to do a good job in segregating.

Second, combined wastes may be mechanically separated at a processing plant. Typically, wastes are shredded and separated by air or water schemes. Such systems are more complex. Several of these systems will be described later in more detail.

Recycling and energy recovery involves 10 percent of the 320,000,000,000 pounds of solid waste -- both industrial and municipal -- produced in the United States each year.

One outgrowth of the need to deal with vessel wastes through incineration is resource recovery/reuse of the waste material. Federal and state law do not currently require resource recovery, although there is obviously substantial interest in waste reduction and its impact on need for additional landfill sites and conversion capacity. The valuable metals contained in the ash, and the sand to gravel consistency of the non-metallic fraction lend themselves to potential economic benefits.

Magnets, screens, and other mechanical products may be used to recover ferrous and non-ferrous metal. Techniques for recovery of the larger metallic components, those over one inch, are well developed. Metals are not recovered currently on an industry-wide scale in the U.S. because of

depressed scrap metal markets. Certain metals such as gold, copper, and silver could only be recovered through chemical processes.

The major component of ash is the inert, non-metallic fraction. Because its properties are similar to those of traditional aggregates, ash is commonly used as a substitute for conventional aggregate in Europe. Europeans have also used bottom ash for asphaltic paving material and as road bed and common fill material. Combined bottom and fly ash has been used in concrete. In Portland, ash is now used as an aggregate in concrete.

Municipal solid waste combustion ash has excellent properties for use in concrete by itself. It is pozzolanic, meaning that it forms a weak cement-like substance. The possibility of leaching of toxic metals from cement blocks of ash is still being researched.

8.1 Materials Recycling is preferred to energy recovery by incineration. Many waste products tend to be chemically complex. The chemical energy invested in the refining and manufacture of complex products often exceeds the energy released when incinerating them as wastes. This especially holds with plastics, a less renewable energy source as compared, say, to firewood.

The economics of materials recycling hinges on the market prices for scrap materials. In the last several years, the prices for scrap aluminum and paper have bounced around, well above and well below the break even points for economic recycling operations.

The success of any recycling business depends on a stable scrap price and a steady supply of the right kind of product, meaning well-sorted without contamination by other wastes. Often a small amount of contamination can double the re-processing costs of materials being recycled.

When considering materials recycling, the contamination factor has thermodynamic advantage. The natural forces of the universe favor more disorganization and less purity. With each cycle through the refining process, the physical and chemical properties of materials suffer a loss. To maintain these properties requires a substantial import of external energy. Take paper for an example. If you recycle clean white bond paper, you lose quality such that the recycled product is fit for use as newsprint. If you recycle newsprint, you get cardboard stock. Recycled cardboard comes back as packing material. It's often possible to retard this decay process by blending recycled materials with virgin feedstock. Each refining process takes energy. Eventually, you might incinerate

some wastes to recover energy. Then you deal with the ash residue.

Metals can generally be easily separated and have high economic value. Iron and steel wastes can be removed by magnet separators. Aluminum and other metals can be removed by air or water separation.

Fiber, meaning wood, paper, and cardboard, can be relatively easily separated and recycled.

Plastics recycling has increasing potential, especially in fisheries waste. Generally, plastics make up about 7 percent of America's municipal solid waste. By the year 2000, that portion will increase to 10 percent, amounting to 38 billion pounds nationwide. More than half of that plastic comes from packaging. Less than 1 percent of the municipal waste plastics are now recovered. [Ref 27]

Yet within the plastics industry, recycling of waste plastics is commonly and economically practiced, from 75 percent to 95 percent. [Ref 23]

Before this will be explained, let's begin with an introduction to the common types of plastics, both those used in packaging and in fishing. With each plastic, an abbreviation will be identified and then used throughout the rest of the section.

Table 8-1 TYPES AND USES OF PLASTICS

High-Density Polyethylene HDPE

Common Uses: rigid jugs for milk, soap, water
 Fishing Uses: 5-gal buckets, motor oil jugs, totes
 Recycling: second most common type of recycled plastic, moderate loss of strength with re-processing
 Products: drain pipe, drums, pails, toys, lumber,
 Notes: polyethylenes (including the type that follows) are the most widely used of all plastics

Low-Density Polyethylene LDPE

Common Uses: trash bags, ziplock bags, visqueen sheets
 six-pack yokes
 Fishing Uses: bait wrapping, PE yarns form trawl nets, liners for fish boxes, vacuum packaging
 Recycling: can be mixed with HDPE without problems

Polyethylene Terephthalate PET

Common Uses: heavy duty rigid containers, carbonated water, sodas, beer
 Fishing Uses: strapping tapes, buckets
 Recycling : most commonly recycled plastic, up to 20% of waste PET bottles recycled, about 150 million pounds per year; colored PET lowers recycling value; maintains excellent strength, other physical properties upon re-processing
 Products: fiberfill insulation, polyurethane insulation and boat hulls
 Notes: reinforced bases, aluminum caps increase recycling processing costs

Polystyrene PS

Common Uses: Type 1) rigid: cups, trays, forks.
 Type 2) foam: coffee cups, foam trays
 Fishing Uses: floats for gillnets, bait trays
 Recycling : Type 1) rigid: slight to moderate degradation upon re-processing
 Type 2) foam: much degradation of physical properties, strength

Polyvinyl Chloride PVC

Common Uses: plumbing pipes
 Fishing Uses: process water piping for seafood plants
 Notes: very tough plastic

Polypropylene

PP

Common Uses: disposable diaper lining,
Fishing Uses: floating lines and ropes, battery cases,
PP yarns form trawl nets, strapping tape
Recycling : moderate degradation of physical properties
upon re-processing

Nylon

Nylon

Common Uses: fabric
Fishing Uses: gillnets, anchor lines, sinking ropes,
some trawl nets, crab pot netting,
monofilament line
Recycling: can not be simply remelted as preceding
plastics, must be chemically broken down
and reformed into polymers
Notes: commonly used fishing line involves two
plastics, a nylon sheath and a PET core

[Ref 24, 25, 26, 28]

Each of these types of plastics have different melting points and other physical properties as well as different chemical bonding properties.

By themselves, any type of the above plastics can be easily and cheaply recycled. They can NOT be easily recycled if --

- ** two or more plastic types are mixed together; or
- ** a plastic type is contaminated with other wastes.

To reprocess contaminated plastics such as HDPE or PET, they must go through several steps, generally described as follows:

- a) grinding or shredding the waste into granules;
- b) compressed air separating the light contaminants;
- c) sink/float separating the heavy contaminants (such as aluminum from caps) which also washes labels and dissolves adhesives;
- d) drying;
- e) secondary shredding;
- f) extrusion, that is, melting into plastic pellets, ready for molding into plastic products.

[Ref 25]

.Contamination causes the costs of recycling to skyrocket. In the case of PET containers, to remove the one

percent by weight of the aluminum caps involves about a third of the total recycling costs. [Ref 23]

To reprocess mixed plastics, they follow the above pattern except for additional separation steps. For example, to recycle nylon/PET fishing ropes, the additional steps involve dissolving the PET in naphthalene. Nylon remains undissolved and can be filtered out. The separated plastics can be further purified. [Ref 26]

Thus we have the explanation for why so few waste plastics have been recycled from municipal garbage. The problem is one of collection and sorting. According to Dennis Sabourin, Vice President of Wellman, Inc, the nation's largest user of recycled plastic, "There just isn't a collection infrastructure in place or a sorting infrastructure in place to generate the plastic." [Ref 27]

Mixed or "commingled" plastic wastes have been reprocessed in recently developed commercial extrusion equipment specially designed for mixed types of plastics and those contaminated with up to 15 percent non-plastic wastes. Products include synthetic lumber for high thickness, low stress applications. Planking for marina docks resists marine boring worms. Posts for horse stalls and slats for pig styes resist chewing. Inlays on floors can be easily cleaned up. Parking lot bumpers can take a beating and be replaced. [Ref 24] However, with ordinary lumber so plentiful in the United States, the plastic lumber has stiff competition for most applications.

Recycling of fishing nets has its pluses and minuses. Nets are designed to withstand great stresses and constructed with strength in mind. Thus, on the minus side, the plastics re-processing steps involve grinding and shredding with extra heavy duty equipment. Nylon nets are commonly recycled by Japanese gillnetters. [Ref 29] Trawl nets are likewise recycled in Japan, the process technology being simpler.

Economics of plastics recycling also takes the quality of recycled plastics into account. Likewise, the price of raw products for plastics, such as ethylene, varies with time and affects recycling. Raw ethylene has climbed from \$0.30 a pound in 1985 to \$0.40 a pound in 1989. [Ref 27] Since the cost of recycling HPDE milk jugs runs about \$0.25 per pound, the profit margin has at least tripled.

Recycled PET (with less than 100 ppm aluminum) sells for about \$0.25 to \$0.35 per pound. Virgin PET costs about twice that much. The capital costs of the re-processing plant would run up to \$2.5 million to handle 20 million pounds of PET yearly. At that rate, the plant could pay for itself in three to five years. [Ref 23]

Costs of re-processing quoted above do not include costs of collection. PET collection costs for emptying bins and baling bottles have ranged about \$0.40 to \$0.50 per pound in two English cities. [Ref 28] The State of California estimates that the cost of collecting, baling, and delivering bales to recycling plants to be around \$0.36 per pound, or about two to four cents a bottle. [Ref 24]

8.2 Energy Recovery presents an attractive option to Unalaska, where energy values in solid wastes are high and energy costs to heat buildings and supply seafood processing plants are also high.

Energy Costs for various fuel sources were evaluated. The following tabulated costs are all spot or higher prices. Larger or contract purchases would reduce some of these prices by 20 percent or so, but for comparison purposes they're all relatively the same. When possible, coastal Alaskan energy costs were used as a basis:

Table 8-2 ALASKAN ENERGY COSTS

Electricity	\$0.12/kw hr (City of Unalaska)
Propane	\$66 for 22 gal tank (Petromarine)
Wood	\$320/four cords spruce (Fairbanks)
Coal	\$36/ton (Usibelli spot price)
Oil #2	\$1.04/gallon (Petromarine)
Solid Waste	\$0.008/lb (collection cost, Unalaska)
Waste Pellets	\$50/ton (includes collection)

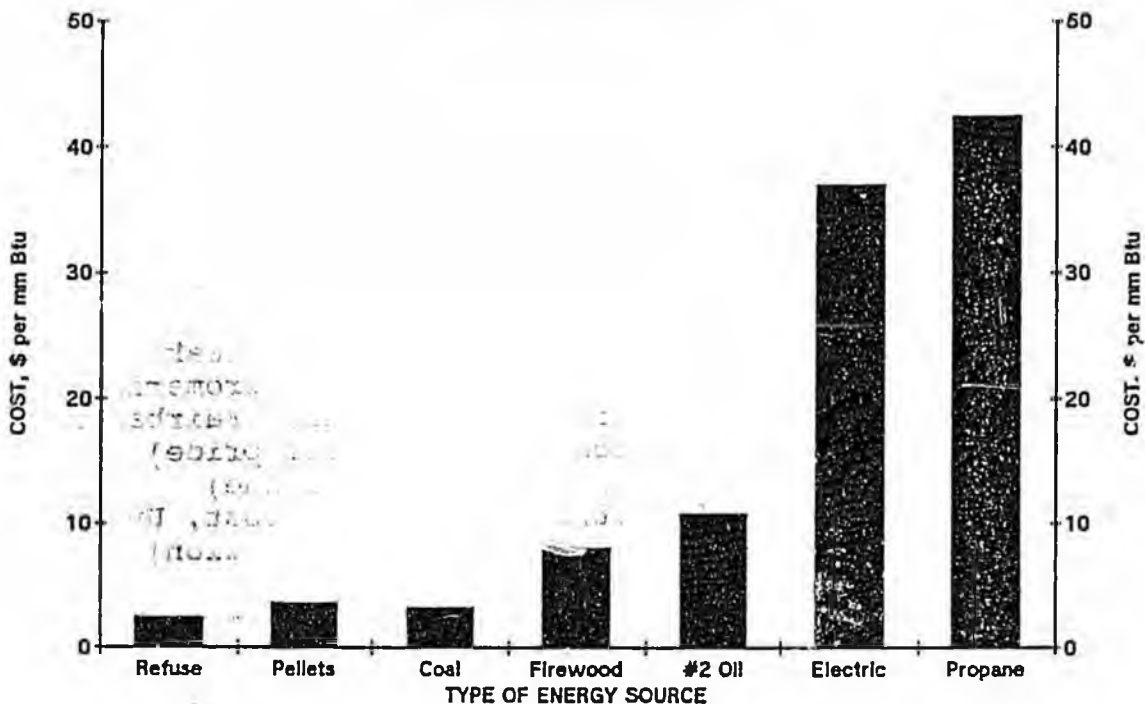
Usibelli's coal, although relatively low in Btu content when compared to western or eastern coals, has an extremely low sulfur content, meaning it'll burn cleanly with SO2 emissions in compliance with air pollution standards. The heat value of Usibelli coal averages about 8,000 Btu/lb, with eastern coal at 13,250 Btu/lb and western coal at 9,000 Btu/lb.

Firewood ranges quite a bit with heat value, but we've used two million Btu/cord for this comparison. For solid waste, we've used 7000 Btu/lb, that estimated for Unalaska waste. For solid waste pellets, we've scaled up from the standard 8,000 Btu/lb, which would be typical for U.S. municipal solid waste. For pellets derived from Unalaska-type waste, it would be reasonable to assume about 10,100 Btu/lb.

The following table also takes into account some efficiencies of conversion of fuel. Electricity was given a high 95 percent rating, which is reasonable for space heaters, but does not take into account transmission line losses from the power plant. Propane was rated at 78 percent while oil, coal, and dRDF pellets were rated 70 percent efficient. Wood was given only 50 percent efficiency, which would be reasonable for open fireplaces but a bit low for air-tight wood stoves of modern design.

With these assumptions and base costs, the following table gives a relative indication of the value of solid waste as a fuel type.

Table 10-3 WASTE ENERGY COSTS
Solid Waste Refuse and Pellets



Of course, these costs do not include the costs of buying and operating the heat conversion equipment, the furnaces, fireplaces, and incinerators. These will be discussed in other sections. But a few thoughts can be inserted here. First, construction of incinerators to burn solid waste can be 50 percent funded through grant programs from the state to a municipality or borough. Also, to burn refuse-derived pellets, only a fireplace is needed. Since pellets are stable and compact, they might also find an energy export market, say Japan or Korea, where energy costs may be higher. Much more about pellets is said in following sections.

8.3 Pelletizing aids both material recycling and energy recovery. Pelletizers grind up waste, form it into

brick-size blocks, and dry it. Metal cans and other scraps are easily removed from the incoming waste. Pellets burn well because of reduced moisture and removed uncombustibles.

Sixty to seventy percent of the garbage is paper, plastics and wood. These materials are processed into pellets (dRDF). The finished product is clean burning, low in sulphur content and can be stored for long periods of time. The pellets can be burned in wood or coal furnaces, and are especially well-suited for power plant use because of low emissions.

In some detail, the rest of this subsection describes the operating experience of two pelletizing operations in Fairbanks. Both operations have encountered management-related difficulties, but the use of pelletizers still shows promise that needs further testing and evaluation.

Fairbanks, by virtue of its size and location, has only a few similarities to the communities that will be impacted by Annex V of MARPOL. However, it was chosen for purposes of this report because of its experience with resource recovery of municipal solid waste. Discussion of Fairbanks' solid waste management program will lead to discussion of available resource recovery technology in Alaska.

The Fairbanks baler began operation in 1979 and served as the chief method of solid waste processing at the landfill until October 1987. The Fairbanks baler is a high density baler with a 9-to-1 ratio. Approximate capital costs were \$4.5 million in 1977. In the 80's, the Borough received unsolicited proposals for the development and implementation of local resource recovery projects. In response to these overtures, the Borough issued an RFP in 1986, which requested interested parties to submit proposals on any proposed method for processing the Borough's solid waste.

Also in 1986, a test burn was performed at the University of Alaska Fairbanks power plant of a mixture of coal and densified refuse derived fuel (dRDF), more commonly known as pellets. This burn was very successful and resulted in a substantial increase in Btu output over 100 percent coal. No visible increase in emissions was detected, nor did the University experience any operational problems during the test burn. This burn was conducted as a demonstration of the feasibility of burning pellets in Fairbanks area power plants and served as part of the impetus behind the efforts of two private enterprises, Environmental Recycling, Inc (ERI), and Alaska Solid Waste (ASW) to process solid waste into fuel pellets. Both

processes were researched and have been described in the following sections.

Environmental Recycling Inc received the Borough contract in 1987 to process all the garbage being dumped at the landfill, recycle 90 percent of that garbage, and landfill the remainder. This contract also involved ERI's installation of two solid waste densifier lines within the baler building for the purpose of manufacturing fuel pellets from the garbage. These pellets would then be sold to local power plants and burned with the coal for increased Btu production.

Since contract inception, ERI as been working to install and operate pellet manufacturing equipment within the same building that houses the Borough's baler. Unfortunately, ERI has been unable to achieve the required recycling percentage of 90 percent due to a combination of equipment and operational problems. These problems are partially caused by the attempted use of relatively untested densifying equipment. While similar equipment from the same manufacturer is in use in a few other selected areas, the application of this technology to municipal solid waste is relatively new. As a result of being on the leading edge of such technology, ERI has experienced considerable problems. The equipment appears to be undersized for the municipal waste stream, resulting in severe breakage and performance problems. Also, the attempt to fit the two equipment lines into the existing baler building has resulted in additional problems relating to a considerable lack of space for both the dumping and processing of the garbage.

Review of other areas' recycling and pelletizing operations appear to indicate that the contractual requirement of 90 percent is probably impossible to achieve, even if the ERI's operational and equipment problems could be overcome. Other areas are also experiencing problems with this manufacturer's equipment. No other area contacted is approaching 90 percent recycling, or expecting to achieve a percentage near that figure.

In 1988 ERI managed to recycle 4.1 percent of the 58,893 tons of solid waste received at the landfill. In addition, only 65.8 percent of the garbage was baled in 1988, while in 1987 86.5 percent was baled. ERI operated the landfill for the last three months of 1987.

Unless efforts achieve a much higher reduction in the volume of solid waste at the landfill, it appears the Borough will need a new landfill facility by 1997. Larry Kelly, General Manager of ERI, cited several problems with recycling. Current technology is too labor intensive. Inexpensive sources of fuel, such as coal, are also mentioned contributing factors in ERI's inability to produce

and market pellets. Mr. Kelly also feels that the public's attitude toward recycling is indifferent.

Alaska Solid Waste also submitted a proposal to the Borough for processing solid waste. Although the Borough did not select the ASW proposal, ASW decided to continue, through private financing, to pursue plans for construction of a solid waste processing facility.

While ASW attempted to design their equipment to eliminate some of the equipment problems experienced by ERI, ASW has yet to test their process over a long period to see if problems similar to ERI's, such as excessive breakage, jamming, have been eliminated.

ASW's system is designed to handle 250 tons of garbage per day, with 10 percent of the 250 tons going directly to a landfill. Landfilled material will be dirt, ash, gravel, glass and large construction material. The balance of the garbage will be separated into components of metals, rubbers, non-ferrous metals, paper and plastics. The equipment handles roughly 95 percent of this separation process; the balance is hand-sorted. ASW projects that the sale of scrap metal will pay for the labor required to operate the equipment.

ASW has done testing of pellets in Fairbanks, Washington, Minnesota and North Dakota. In every test, ASW claims the dRDF burned hotter, cleaner, and with less emissions than coal.

Small scale units are in final development for communities with a population of 2500 or more. The pelletizer scheduled to begin operation in Cordova is the prototype model. The smaller versions are designed to handle a maximum of 5 tons an hour. ASW estimates garbage processing costs of \$20/ton and collection costs at \$30/ton. In the case of Cordova, ASW also expects to recover the full amount of processing and collection by the sale of pellets and other recyclables. According to Cordova city officials, the successful operation of the pelletizer is essential to Cordova Refuse's profit margin.

ASW assumes the following composition of average municipal solid waste:

Table 8-4 MUNICIPAL SOLID WASTE PRODUCTS

Content	Constituent	Final Disposition
60-70%	Paper, plastics, wood	dRDF fuel
10%	Metals (cans, steel)	Baled
3%	Rubber (tires, rubber products)	Shredded
1%	Aluminum	Baled
1%	Cloth	Baled
1%	Wood (large materials)	Processed
10%	Dirt, ash, glass	Landfill

ASW's device will process all material to 2" size. Paper, plastics, and products smaller than 2" go into a furnace and are burned for heat in the plant. Most of the ash, dirt, and glass go through the furnace where supplemental heat is added for clean burning.

ASW has attempted to get its machinery operational, and to begin accepting and processing municipal garbage. ASW intends to charge a tipping fee of only \$10 per ton for recyclable garbage, a disposal cost less than half of ERI's current tipping fee of \$21 per ton at the Fairbanks Landfill. If this plant does begin to operate, it may compete with other operations both for raw materials (recyclable residential and commercial garbage) and for the market in which to sell the manufactured product (the Fairbanks area power plants which would burn the fuel pellets produced). ASW has also stated its intention to possibly import garbage from the Anchorage area if necessary to ensure an adequate supply of raw materials.

9.0 HAZARDOUS WASTES

The impact of hazardous wastes upon MARPOL practices and upon solid waste disposal facilities will be difficult to project. Hazardous waste definitions and rules are in their infancy. The extent of their effect may be comprehensive.

Ordinary household solid waste contains enough paints, solvents, cleaning agents, pesticides, and toxic compounds to often pass the tests for hazardous wastes. Solid waste from boats and shipyards is more likely to be classified as hazardous wastes, considering the bottom paints, fiberglass resins, wood preservatives, polyurethane compounds, and other chemicals associated with marine activities.

Even used motor oil could easily become classified as hazardous wastes. A small amount of gasoline or dry cleaning solvent, such as Tri-Chlor or Per-Chlor, would transform waste lube oil into hazardous waste.

Considering how sensitive the lower limits are for the tests that classify solid waste, incinerator ash, or waste lube oil as hazardous waste, almost any landfill and almost any waste oil drum can be expected to prove out as contaminated at some level of "hazardous waste."

Hazardous Waste considerations present the ultimate nightmare for landfill operators. One midnight dumping can turn a landfill into a Superfund cleanup site. Fairly common wastes -- gasoline, dead batteries, acids or poisons -- and many marine products -- paints, anti-fouling compounds, and fiberglass resins -- can all do untold damage to the site and environment, and cause serious problems for the landfill operator. Some of the tests for hazardous properties emphasize conditions encountered at landfills. Many existing landfills will have to be dug up and hazardous components of the waste will have to be placed in drums and shipped by a certified shipper to an approved disposal site. The costs for such cleanups will be astronomical.

Solid waste disposal site operators must treat hazardous wastes in special ways. For example, landfill or incinerator operators must screen incoming waste to identify and isolate obvious items of hazardous wastes, such as lead/acid batteries and some paint solvents. Special training will be required for operators.

Also, since the performance standards for landfills (meeting leachate toxicity standards) and for incinerators (meeting ash toxicity standards) will require that hazardous wastes be eliminated from solid wastes, one common recommendation would be to set up community hazardous waste

cleanup programs whereby household waste chemicals can be collected and disposed of.

Handling and transport of hazardous chemicals can only be done by firms certified by the U.S. Environmental Protection Agency. There are no approved hazardous waste disposal sites in Alaska.

For information about hazardous wastes, EPA maintains a "Hotline" 1-800-424-9346. The local state DEC office may also be able to provide information.

Ports must accept hazardous wastes if a vessel so requests, as regulated by the Coast Guard under MARPOL authority in much the same fashion as plastics wastes. MARPOL Annex I requires operators of certain ports and terminals to provide reception facilities, meaning storage tanks, for boats to offload oily wastes, such as used lube oil. A Certificate of Adequacy is required to demonstrate a port operator's ability to receive oily wastes. In these two aspects -- reception facilities and COAs -- MARPOL Annex I parallels MARPOL Annex V.

Oily waste disposal may also have parallels with solid waste/plastic waste disposal. Both wastes can be incinerated. Oily wastes, with their high Btu content, would enhance the burning ability of the combined wastes. And generally, the higher the Btu content of incinerator feedstock, the more cleanly it burns, with lessened conventional air pollutant emissions such as carbon monoxide and particulates.

Federal rules (40 CFR 264) for disposal of hazardous material were proposed on August 30, 1988, with final rules in late 1989. Specifics have not yet been worked out, but the rules will include leachate protection systems, liners, groundwater monitoring, or some combination of the three. Some upgrading may be necessary for use as a disposal site for incinerator ash. This will need to be reviewed when a community studies its options for incineration and landfilling.

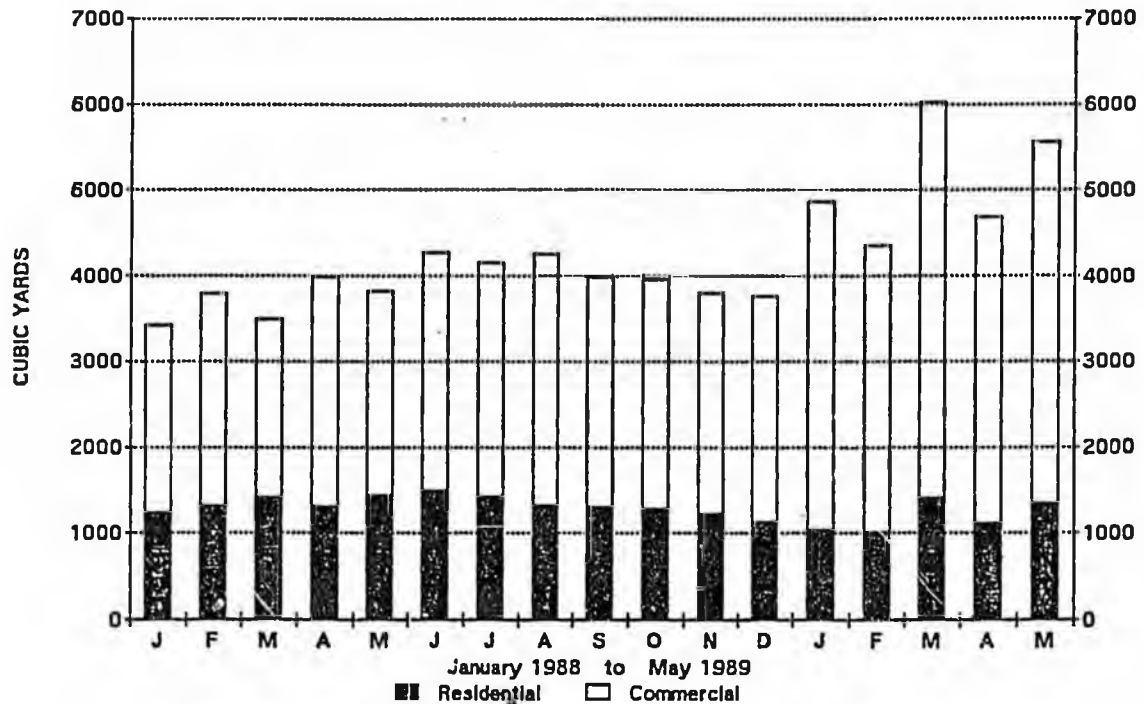
APHIS Wastes and Medical Wastes may, by MARPOL law, become part of the combined waste disposal problem. If vessel operators wish to offload such wastes, port operators are required to provide reception facilities. Such wastes may not be disposed of in landfills. Incineration is one of the acceptable disposal methods for such wastes.

10.0 UNALASKA

The Unalaska/Dutch Harbor area, now in the midst of a bottomfishing boom, has an interesting volume and type of solid waste, both far in excess of normal generation rates and of high quality in terms of energy content and recyclable value. City officials claim to have "some of the finest garbage in the nation." This may be true.

10.1 Volume of generation appears to be about four times greater than normal expected rates. The following graph displays the monthly hauling of Williwaw Sanitation from January 1988 to May 1989. [Ref 32] Williwaw estimates that they haul 80 percent of the waste generated in Unalaska/Dutch Harbor.

Table 7-1 UNALASKA MONTHLY WASTE
Cubic Yards Hauled by Williwaw



January 1989 noted an increase in commercial waste volume from seafood processors and fishing vessels. In 1988, about 35 percent of the total waste load came from seafood processors and vessels. Since January 1989, about 52 percent of the waste load originates from these sources. About a third of this increased load comes from vessels.

The residential output remains fairly steady, averaging about 1265 cubic yards per month. Assuming 15 pounds per cubic foot, on the light side of residential

refuse, this equates to a population equivalent of 3400 people at 5 pounds per capita per day.

The commercial waste originates from seafood processors, dock activities, construction, and general business and support activities. The average volume of 2983 cuyd/mo when combined with a mid-range density of 10 lb/cuft calculates to an average population equivalent of 5400 for the last 17 months. However, if you focus on the recent surge in seafood activity, the population equivalent jumps to 7100.

The combined equivalent populations add up to 8800 over the 17 month period. When you account for the other 20 percent of the waste not hauled by Williwaw, the existing estimated population, based upon waste production, comes to more than 11,000 people.

Looking at the weight of both types of waste, using densities as assumed above, the daily combined waste generation amounts to 29 tons per day over the last 17 month period.

Or looking at it another way -- based upon a recent population estimate by city officials [Ref 13] of 2100 -- the per capita waste generation comes to 27 pounds per day, or about 550 percent more than the average expected rate.

Based upon the residential/commercial ratio, the combined waste has the following estimated characteristics. Included in this mixture is a 10 percent input for construction debris, estimated by Williwaw. [Ref 32]

Table 10-2 UNALASKA SOLID WASTE CHARACTERISTICS

Parameter	Value
Generation Rate	27 pounds per capita per day
Density	12 pounds per cubic foot
Heat Value	7000 Btu per pound
Moisture	23%
Incombustibles	6%

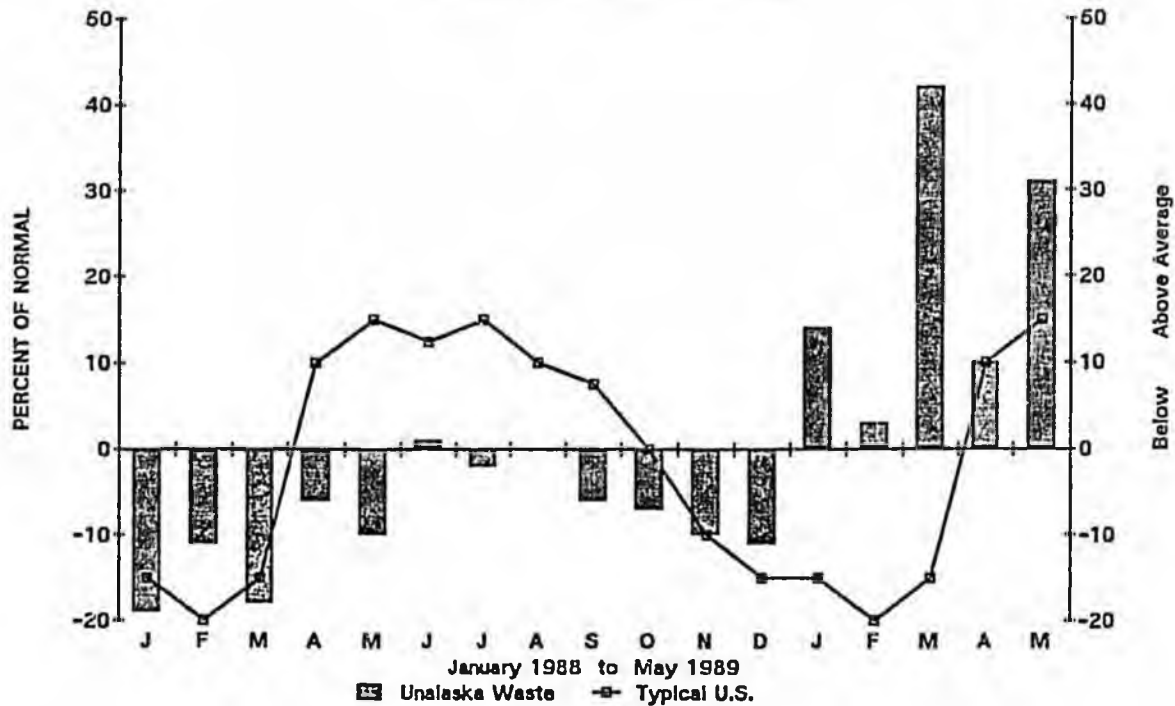
10.2 Composition of Unalaska's commercial waste consists of a large fraction of packing materials, such as cardboard, strapping, and pallets. Fishing wastes such as polypropylene rope also contribute a sizeable portion of the waste load. Williwaw Sanitation estimates the composition of the waste to be as follows. [Ref 32]

Table 10-3 UNALASKA SOLID WASTE COMPOSITION

Component	Volume Fraction
Wood, Cardboard, Fiber	30%
Plastic	30%
Waste Foodstuff	20%
Paper, Rubbish	20%

10.3 Seasonal Variations of Unalaska waste generation seems to hold no patterns, either as compared to typical municipal waste or within Unalaska from year to year. See Table 10-4, as follows.

Table 7-4 UNALASKA WASTE PATTERN
By Month, Compared to Typical U.S.



10.4 Disposal Practices have improved recently. At one time, the Unalaska landfill had gained some notoriety for rat and windblown litter problems. With increased diligence in covering the incoming garbage on a more regular pattern, these problems have been somewhat abated. Nevertheless, leachate drainage from the landfill site is readily evident. Monitoring wells have been required. Other nagging problems include proper diversion of runoff from the hillside above the landfill and the lack of decent cover material. Oversized items, such as from construction activity, tend to accumulate in one area of the landfill.

10.5 Costs were obtain from both the City of Unalaska, responsible for operating the landfill [Ref 31], and from Williwaw Sanitation, the contractor to haul garbage which transports about 85% of the waste to the landfill [Ref 32]. The remaining 15% is hauled by individuals, construction firms, or seafood processors.

<u>Capital Costs:</u>	\$230,000
<u>Operating Costs:</u>	97,000/yr
<u>Collection Costs:</u>	115,000/yr

Capital costs includes two pieces of heavy equipment, a grader @ \$115,000 and a bulldozer @ \$113,000. Land, fencing, and office are not included.

Operating costs does not include construction of trenches and culverts to divert surface run-off around landfill, or the cost of monitoring well or testing. This is the budget amount.

11.0 KODIAK

11.1 Volume of garbage generation per capita in Kodiak appears more stable and normal than other communities in this study. This probably results from a large non-fishing population in Kodiak and, of the fishing population operating out of Kodiak, a large fraction, say half, of those are resident. Compare this to Unalaska or Bristol Bay, where about 96 percent of the fishermen live elsewhere.

According to Kodiak Sanitation, the contractor hauling solid waste for the Kodiak Island Borough, the year-round average garbage hauling rate is three trips a day, seven days a week, at 31 cubic yards per trip. [Ref 35] At normal waste densities of 10 to 15 pounds per cubic foot, this equates to 12 to 19 tons per day. When compared to the number of bales per day and the likely weight per bale, the higher range seems reasonable.

According to the Borough engineer, the volume averages 30 bales a day or 180 bales a week based on a six day week. The Borough engineer estimates bale weights at about 3300 pounds each.

11.2 Composition of waste in Kodiak has a noticeable fisheries character, but seems to be diluted by a large portion of "normal" garbage. More so than any other community under study, Kodiak has a dominant fraction of regular household refuse. Even the fisheries in Kodiak seem to operate out of households in Kodiak, with the highest residence of fishermen in this study. Nevertheless, a diversity of wastes associated with the fishing industry arrives at the disposal site. Fred Nass, former owner of Kodiak Sanitation says "the garbage in Kodiak is different from most garbage elsewhere." [Ref 4] Shipping containers, pallets, wooden spools from fishing line, net and web, marine batteries, and other obvious fishing waste items catch your eye.

The problem with such odd fishing waste is that it doesn't compact well. The baling operation does not achieve the design compaction ratio of 4-to-1 with pallets and spools in the waste stream.

Kodiak fishing waste also contains an amount of pre-compacted garbage. As a result of a program developed by the Kodiak Fishermen's Wives association, some of the resident fleet have installed Sears compacters on board vessels. This aspect of fishing generated waste is compatible with the Borough's baling operation, since the

boat compacted trash on-board does compress down to the 4-to-1 ratio claimed by the manufacturer. [Ref 33]

11.3 Seasonal Variation in Kodiak has been difficult to research. Every year seems to be different. Fishermen gear up for an opening, which always generates an influx of waste, then the fishery is closed without foreseeable reason. So it's hard to look back at fishery activity and relate that to waste collection. Some fisheries have less of a panic mobilization than others, resulting in less buildup in garbage production. And Kodiak has much more diversified fishing activity than any other community under study, with about ten species being attended by various gear groups. When we asked about seasonal variation in waste generation, we were repeatedly told there was no pattern in Kodiak.

The following table, taken from the Pacific Associates MARPOL report [Ref 4], demonstrates the seasonal nature of the number of Kodiak fisheries.

Table 11-1 KODIAK FISHERIES

Species	Opening Date	Season Length	Gear Type	Number of Boats
Tanner Crab	Jan 15	3 weeks	pots	200
Herring	April	3 weeks	seine	42
Herring	April	3 weeks	gillnet	57
Salmon	June	Sept	seine tenders	376 40
Dungeness	May	Dec	pots	45
Sablefish	April	July	longline	250
Halibut	May, Jun, Sep	6 days	longline	1800
Groundfish	January	December	trawl	40
Groundfish	January	December	longline	30

Peak fishing garbage generation estimates were provided by Kodiak Sanitation. [Ref 35] The various small boat harbor collection sites provide a total of nine dumpsters at 5.5 cubic yards each. When fishermen are gearing up for an opening, about 40 such dumpsters will be emptied per week. For these periods, this increment of 32 cubic yards per day, about one truck load, adds about a 33 percent increase to the average daily load.

11.4 Disposal Practices now are being improved with a view towards approaching future requirements of federal landfill operating requirements. Kodiak climate and terrain conditions do not favor landfill operations. High rainfall causes high leachate potential. Costly controls

such as construction of impermeable layers, leachate collection and control systems, monitoring programs, and so forth have been incorporated into the operating permits. [Ref 14] Even considering the costs of operating a landfill in these conditions, the Kodiak landfill has ample potential for consideration as a regional solid waste disposal site.

Unfortunately, the fisheries wastes complicate matters. Bulky fish waste items do not fit well or compact well in the baler. Many such items must be handled and disposed of separately.

Kodiak's baler has been operational since July 1987. Until July 1988, when the borough resumed control, the baler and landfill were operated by a private contractor. Dave Krose, the borough engineer, is responsible for the operation of the baler/landfill and is satisfied with the baler. He cited the obvious benefits - increased life of the landfill and decreased debris, birds and rats. He also cited reduced operating costs of the baler versus a sanitary landfill. Kodiak currently uses only 6" of cover a week. Balers are stacked five high and ten wide. Shade screens of a material similar to typar are used for the exposed edges, thus eliminating the need for constant filling.

Borough officials estimate there are twelve to fifteen years left on the landfill. The Coast Guard now uses the borough landfill, and original estimates have been lowered. However, Robert McFarland of the facilities department who provided the capital costs of the baler, estimates the life of the landfill to be greater.

11.5 Costs of operation and maintenance were obtained from the Kodiak Island Borough [Ref 33], Kodiak Sanitation [Ref 35], and the Alaska Department of Environmental Conservation [Ref 34].

<u>Capital Costs:</u>	\$3,135,000	1987
	1,050,000	1989
<u>Operating Costs:</u>	204,000/yr	
<u>Collection Cost:</u>	240,000/yr	
<u>Revenue:</u>	\$4.00/cubic yard tipping fees	

January 1987 (capital) equipment costs \$3,135,000 includes site upgrade, building, baler, design fees and administrative costs.

Recently funded capital costs of one million to install leachate collection system.

The operating and maintenance costs of the baler/landfill were intended to be paid entirely by tipping

and user fees. Figures for revenue generated by such fees were not available. Dave Krose stated that it is not yet a break even operation because of the need to purchase new equipment. Kodiak recently requested \$508,980 in the FY 90 capital budget for landfill material and leachate control.

12.0 BRISTOL BAY

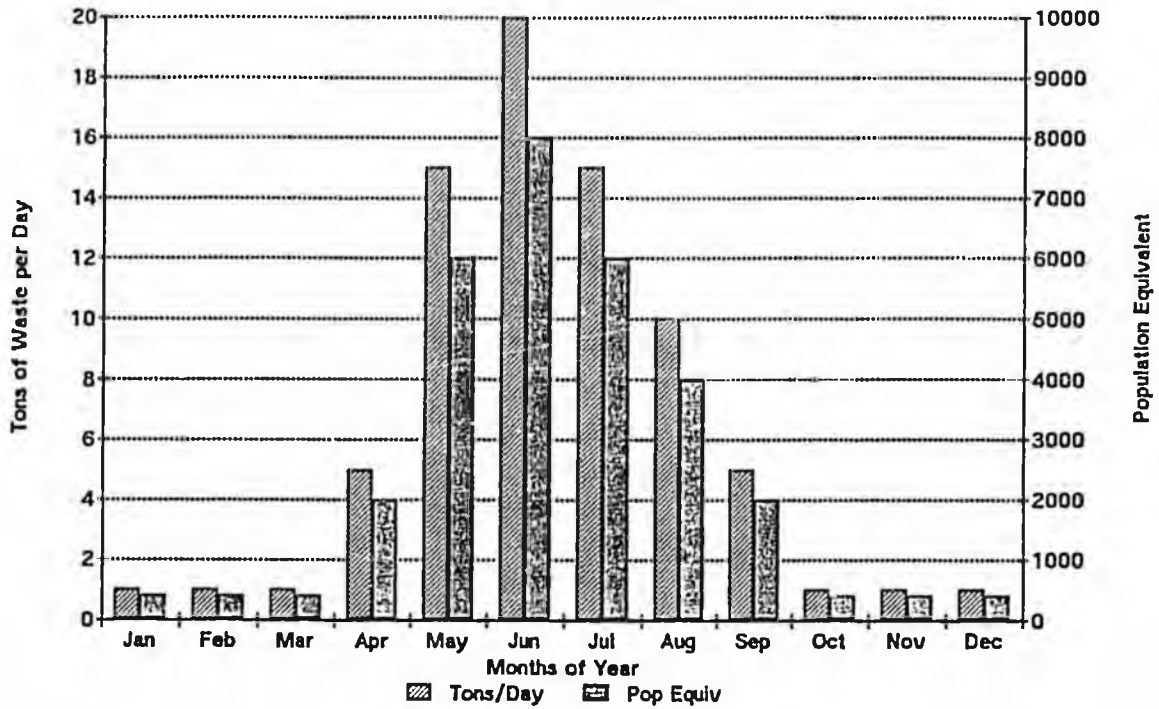
12.1 Volume of waste generation on a per capita basis eludes analysis. Certainly the volume of total waste generation is easy enough to assess, but counting the people who contribute to the garbage is a problem. There are gillnetters, seafood plant workers, and support industry workers who make up a seasonal influx of activity beyond normal census abilities. Perhaps the best way to count the people is to estimate the total garbage generation per day and divide by the standard generation factor of five pounds of garbage per person per day. This has been done in the graph in this section. Borough officials estimate that the average garbage production on a yearly basis runs between six and seven tons per day.

12.2 Composition of waste in the Naknek landfill reflects both fisheries and military influences. Discarded gillnets cause problems with entangling the tracks of earth moving equipment. Special areas of the landfill have been set aside for discarded nets. Borough officials feel the net disposal rate is higher for the Bristol Bay area than for other gillnet fisheries. In less hectic fisheries, time allows a gillnetter to repair or mend a net. In Bristol Bay, there's so little time and so much pressure to fish that it's common practice to carry spare nets and replace nets more frequently. [Ref 36]

12.3 Seasonal Variation in the Naknek landfill probably sets some sort of record for extremes. Borough officials estimate the high-to-low seasonal ratio runs up to 20-to-1 or so. [Ref 36, 37] See the chart on the next page.

12.4 Disposal Practices for a baler/landfill operation in the Naknek site will probably be in good shape in the immediate future. The landfill site will probably pass muster for the new federal rules that will be cracking down on landfill operations. Limited rainfall limits leachate potential and the site is well removed from other terrain problems associated with flooding and surface runoffs. The baler, to be in operation in summer 1989, will solve the windblown litter and cover problems. The disposal system suits the situation and the Bristol Bay Borough seems to be in a good position to handle a regional solid waste disposal system. The only obstacle here might well be a regional collection program.

Table 7-6 NAKNEK WASTE PATTERN
Tons per Day & Population Equivalent



12.5 Cost information for 1988 landfill operations and for 1989 baler/landfill projections were obtained from the Bristol Bay Borough Manager [Ref 36] and from the Bristol Bay Borough Public Works Office [Ref 37].

Capital Costs: \$600,000 1989
Operating Costs: 75,000/yr

New baler construction costs break down as:

Item	Cost
Building, office	\$250,000
Baler fob Seattle	233,000
Conveyor	49,000
Shipping Costs	25,000

Operating costs were estimated at \$30,000 per year for electricity and \$45,000 for labor.

13.0 REGIONAL OPTIONS

Cooperation for both 1) collection and 2) disposal solid waste systems exist for communities in the Aleutian Chain, Alaska Peninsula, and in the Bristol Bay areas who may wish to look beyond individual capability for the reception and disposal of wastes. There are two basic options.

The first option is for all affected ports to contract one outside operator, to provide reception and disposal services to the communities. Here, one regional solid waste transportation system could take the place of many. Possibilities for such shared facilities could vary from shared mobile barge-mounted incinerators, to a single-location incinerator and landfill, to a single landfill serving as a central solid waste facility. If such an option were pursued, a thorough discussion with the Alaska Public Utilities Commission would be necessary, as such a facility may be considered a utility under state law.

Another possible means of consolidating waste reception and disposal responsibilities would be for a group of communities around Dutch Harbor to establish a port authority for Dutch Harbor/Unalaska, or for a number of communities on the chain.

The establishment of a port authority is regulated by state law. However, the process differs, depending on the status of the community. An unorganized borough must have authority from the state; an organized borough or municipality may need additional authority (depending upon its class) from the State Legislature in order to function as a port authority. The establishment of a port authority can allow for one entity to exercise control and coordination over a number of entities within a port area. Managing and planning capacity, financing capacity-- including bonding and other revenue generating, are both within the power of a port authority.

Generally, port authorities may function in three areas:

- 1) Management of ports and enforcement of regulations; e.g., port agencies are typically granted regulatory functions such as zoning enforcement and fire fighting.
- 2) Provision of maritime and transportation infrastructure; e.g., land-use planning, project development, and operations, including waste management planning and financing.

- 3) Economic development functions; e.g., revenue generating, bond issuance, sale or lease of land adjacent to the waterfront.

Obviously, if a community or communities wished to pursue a port authority, additional research into Title 29 of the State statutes and further discussion with the State would be in order.

Provision of maritime and transportation infrastructure are the functions most widely associated with port agencies-- the ones that give some independent port authorities great notoriety and provide the basis for active development and management of ports. These functions include: project planning and initiation, project development and project operations.

A port agency engaged in project planning and initiation typically engages in the planning for a port project and serves as the local sponsor to promote a particular project built by either the agency itself, another public agency (e.g., Alaska Department of Environmental Conservation) or a private group.

Port agencies often prepare development plans for the port district to determine what type of development is desired and the mechanisms for project development. Some ports have authority to enter long-term leases providing for another party to develop and operate facilities. The capability of financing projects often determines the agency's role in project development. If the port lacks access to funds or financing methods, then project development is largely a marketing function and often requires a public sector agency or private enterprise to build the desired facilities. If financing alternatives are available, the port agency may assume a more aggressive posture as project developer.

Port agencies take very different attitudes toward project operations. "Landlord Ports," typified by major California ports, take an active role in project initiation and development but then lease out the facilities on a long term basis for rental income tied either to value, volume or both.

"Operating Ports" may choose to carry out some or all operations at port facilities to provide better service to multiple users or to gain some other service advantage. Operating ports support operations via user charges as defined in published tariffs normally promulgated by the governing body of the port. Level of charges are generally dictated by statute or policy (i.e. break even or profit

making provisions) or in some cases may be arbitrarily set to provide competitive advantage over competing ports or transport modes.

Alaska Port Powers through Title 29 of the Alaska Statutes provides the authority which enables cities and boroughs to establish a port organization; plan for waterfront development; own, lease or manage properties; raise funds through the sale of revenue and general obligation bonds; and exercise financial control over public port activities.

General Law Municipalities, in AS 29.48.030, are granted the powers necessary to provide harbors, wharves and other marine facilities. These powers vary somewhat for different types of municipalities; however, they are ample and generally include the authority to

- * develop and construct facilities
- * operate facilities
- * collect user fees
- * join with other public or private entities to develop or finance port projects.

Formation of Port Agencies are authorized under Title 29 and guided by the Alaska Constitution, whereby municipalities may assume port powers and undertake a variety of port functions as an activity of local government. Typically, port functions are carried out by a port director who reports directly to the city manager or by a municipal department such as Transportation (as in Anchorage) or Public Works (as in Juneau).

Aside from staff, the governing structure of ports usually consists of port commissioners (elected or appointed), city manager, mayor or council/assembly.

All municipalities are given the authority to regulate the facilities and services they provide by Sec. 29.48.035. Municipalities have the power to regulate port facilities, including user fees, berthing policies and other management tools.

Use of General Tax Revenue may be spent for operating and maintenance expenses incurred to manage a port and, in fact, when the state builds a dock or berthing facility, local municipalities are responsible for operation and maintenance as part of the lease terms.

If the port facilities are owned and operated by the municipality, the port facilities are treated like any other service of local government. The budget of the port facility's operation is reviewed and approved as is a budget presented by any other department. Port expenses are

projected and budgeted. Home rule municipalities such as Anchorage have established port enterprise funds which allow revenues collected from port facilities to be retained in a special account to cover operation, maintenance and improvement costs. In this way, revenues collected by the ports (such as user fees) are not treated in the same manner as other general municipal revenue.

User Fees may be collected by municipalities for publicly owned port facilities, just as fees are collected for garbage pickup and sewer service. Municipalities are urged by the State Department of Transportation and Public Facilities to set fees at a level sufficient to meet operating and maintenance expenses. The level of user fees to be charged is determined by the council or assembly. Fees collected may be kept separate from general tax revenue, and entered into an enterprise account. [Ref 30]

14.0 MODELS

Models provide information upon which to predict various outcomes, in this instance, the onshore impacts of MARPOL on Alaskan coastal communities. The predicted outcomes consider variables and how those variables might change in the future. In this instance, variables include such things as --

- vessel activity in Alaskan waters;
- waste generation by vessels;
- waste returned to shore facilities;
- types of wastes returned to shore; and
- costs of handling and disposal of wastes.

In this section, we'll examine these variables and estimate to what extent they might be expected to change as trends, and then determine how these changes will impact coastal Alaskan communities. In each set of conditions, reasonable assumptions will be explained.

14.1 Variables

Vessel Activity will focus on factory trawlers for several reasons. First, they produce most of the MARPOL garbage generation potential in the Southwestern Alaskan region. When you factor in the number of people and their days at sea, factory trawlers dominate the vessel activity factors.

Another reason to focus on factory trawlers is their growth potential for the next several years. Ten new factory trawlers will be added each year to the fleet. New trawlers will be larger, with double the crew size and longer trips, say twice as long. [Ref 4] This quadruples the potential waste generation per trip.

Waste Production for factory trawlers is three to four fold greater than other fishing vessels.

Waste Returned to Shore depends mostly upon the installation of ship-based incinerators. Larger vessels have the deck space and the volume of waste to warrant ship-board incinerators. In 1988, about 25 percent of the factory trawlers surveyed had incinerators and another 25 percent indicated they'd be installing them. Newly built and outfitted factory trawlers will probably be installing them.

Type of Waste Returned may vary with the installation of compacters and incinerators on factory trawlers and according to the distance the vessels maintain offshore. Compacters would mean that waste foodstuff and galley garbage would be handled more easily with existing

dumpsters. Incinerator ash may likely be brought ashore if vessels operate close to shore or retain unburned plastic residue in their ash.

14.2 Assumptions for model impacts are given below. Of course, the purpose of models is to deal with varying factors, so a range of assumptions can be studied.

Factory Trawlers:

1988	40 vessels, 1250 crew
1989	50 vessels, 2000 crew
1990	60 vessels, 2750 crew

Days Fishing per Year for Fleet:

1988	(11 trips)(23 days)(40 vessels)	= 10,100 days
1989	1988 + (10 vessels)(320 days)	= 13,300 days
1990	1989 + (10 vessels)(320 days)	= 16,500 days

Waste Generation:

12 pounds per capita per day

Waste Type:

4 lb/capday	galley garbage
8 lb/capday	packing and dunnage

Incinerators:

Reduce Weight of Waste by 70% for galley garbage
 by 90% for packing and dunnage
 by 85% overall
 Contain plastic residue 50% of the time, the balance of ash will be disposed of at sea
 Installed in 50% of the factory trawlers

14.3 Model MARPOL Impacts can be calculated to range with expected changes.

Maximum MARPOL Impact assumes the unlikely for comparison purposes.

Assumptions

All factory trawlers bring all waste ashore.
 Per capita waste generation remains stable.

1988 Waste:

(40 trawlers)(11 trips/yr)(30 crew/trawler)(23 days/trip)
 @ (12 lb/capday) = 3.6 million lb/yr

1989 Waste:

(50 trawlers)(250 days/year)(40 crew)(12 lb/capday)
 = 6 million lb/yr

1990 Waste:

(60 trawlers)(45 crew/trawler)(260 days/year)(12 lb/capday)
= 8.4 million lb/yr

This projection, even though unrealistic in terms of impacts to ports, does have value by indicating the waste generation to be tripling in three years.

Minimum MARPOL Impact makes idealistic assumptions at the other limits of expectations.

Assumptions

Half of the factory trawlers install incinerators. Half of the incinerator ash contains plastic residues and must be returned to shore.

The other half of the factory trawlers separate their plastics from their galley waste and dispose of the galley waste overboard as allowed by MARPOL.

Dunnage and packing materials are either incinerated without plastic residue in the ash or disposed of overboard as allowed by MARPOL.

Taking 1989 Waste for an Example:

33% of total waste (from 14.3.1) is galley waste, so
galley waste = $(0.33)(6 \text{ million lb/yr}) = 2 \text{ million lb/yr}$
16% of galley waste is plastic, so
total plastic waste = $(0.16)(2 \text{ million lb/yr}) = 0.32$
million lb/yr
half of plastics separated taken ashore = 0.16 million lb/yr

half of galley waste incinerated, reduced in weight, only
half with plastic in ash taken ashore:
 $(0.5)(2 \text{ million lb/yr})(0.30)(0.5) = 0.15 \text{ million lb/yr}$

total waste ashore = 0.31 million lb/yr
= 310,000 lb/yr

14.4 Predicted MARPOL Impact ranges between these extremes. So to start with the 1989 maximum potential of 6,000,000 lb/yr and scale down to the more probable lower limits of 310,000 lb/yr of MARPOL wastes shows quite a range of impact, depending upon the practices of the trawler fleet.

15.0 CONCLUSIONS

The regulatory pressures arising from public concerns about clean air, hazardous waste, and marine plastic pollution have focused our attention on our solid wastes: their costs and liabilities in disposal versus their values for materials recycling and energy recovery.

The solid waste facilities in coastal Alaskan communities have already been affected by MARPOL, not its enforcement and its effective dates, but by the public concern and voluntary compliance by many of us. On the other hand, no person can walk a remote Alaskan beach without being appalled by the plastic trash under foot. More MARPOL waste will impact our coastal facilities, but the degree of impact will depend upon ship-board practices of the fishing fleets. Many of the larger vessels will be incinerating their wastes rather than returning them ashore.

On-shore, the potential for recycling and energy recovery of MARPOL wastes and related fishery wastes appears greater than for normal solid wastes. This is fortunate, because no landfill or incinerator will be able to operate in the future without recycling programs and hazardous waste control programs working in concert.

Unalaska has immediate solid waste disposal needs. The existing landfill has limited life, on the order of three to five years. Regulatory agencies would not likely permit a normal landfill operation as a replacement. Potentially, MARPOL wastes will impact Unalaska greatly. Already, Unalaska's per capita waste generation rate exceeds the national average by 540 percent.

Kodiak's baler/landfill can be expected to easily handle the small increase in projected MARPOL impact. The landfill, with upgrading and maintenance and with recycling and hazardous waste control programs, can be expected to operate for 15 to 30 more years under new stricter rules. Kodiak could serve as a regional waste disposal area.

The Bristol Bay Borough's Naknek baler/landfill begins its first year of operation in 1989 and should also be able to meet tougher operating rules. Projected MARPOL impacts could be significant with a marine-based collection system. This site could also serve as a regional disposal center.

Because of the resident nature of the Kodiak fishing fleet, the Kodiak area would best benefit from a public education program to heighten awareness about MARPOL.

16.0 RECOMMENDATIONS

The following recommendations have been organized with follow up actions that might be funded using monies earmarked for MARPOL in state and federal budgets.

16.1 Unalaska Feasibility Studies for Incinerator grants would be in order. Feasibility studies form the precursor to the DEC construction grant process. Such studies parallel an environmental impact study format and discuss the pros and cons of various incinerator options and how the community might be affected. Economics are taken into consideration, especially those of energy customers, type of energy (steam, hot water, electricity), seasonal energy demands, and energy sales.

The final product may set forth the specifications for an incinerator, including size, equipment characteristics, feeding system, ash handling system, auxiliary fuel type, waste oil burning capabilities, controls, instrumentation, operating temperatures, fan and ventilation equipment, overall dimensions, and so forth. Such a study may cost from \$40,000 to \$50,000.

16.2 Unalaska Port Authority should be established to provide legal authorization to provide area-wide MARPOL solid waste and MARPOL oily waste services and to provide for a tax system to fund the operation of services. The Port Authority could provide a small portable incinerator to handle APHIS wastes containing MARPOL plastics and some oily wastes until a municipal incinerator could be funded and built. The portable incinerator could handle wastes on a small regional scale for APHIS wastes. The smaller incinerators on the market run just under \$15,000 and the costs to organize a Port Authority could run up to \$15,000.

16.3 Bristol Bay Regional Solid Waste Study would be in order to fine tune the solid waste collection economics to include MARPOL wastes from the salmon and herring fisheries. Such a project would focus on garbage collection rate studies and the regional transportation system necessary to handle wastes. Again, the level of detail would get into equipment sizes and specifications and the economics of handling normal and compacted volumes of solid waste.

Recycling of metals and MARPOL plastics and creation of a regional infrastructure for recycling could set an example for solid waste management under new federal rules. Likewise, a system for community control of hazardous wastes, such as spring cleanup of household waste chemicals, could be part of this regional approach. Both recycling and hazardous chemical control will be integral to solid waste management in the future.

MARPOL plastics and other MARPOL wastes can serve to catalyze these programs. Public awareness programs would be necessary for these activities to be successful. An organization like the Southwest Alaska Municipal Conference could serve to organize regional recycling and hazardous waste control programs and publicize them as well. This type of study could cost up to \$75,000.

16.4 Pelletizer Operations of MARPOL wastes in Cordova should be monitored and evaluated. Not enough is known about the effectiveness of this process and how it handles fishing wastes. Information on the effectiveness and costs of a small scale recycling and energy recovery operation working on fishing community wastes, which would include a significant fraction of MARPOL wastes, would be of value, especially details about volume reduction, energy and moisture content of dRDF pellets. Such a study would cost about \$22,000.

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Roxanne Turner edited and helped publish the report.

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APPENDIX A

Glossary of Abbreviations, Acronyms, and Terms

We've tried to explain what these terms mean for MARPOL and coastal Alaskans rather than simply define them.

Other definitions can be found in the main body of this report. For Coast Guard legal type terms, see Sec 4.2. For an explanation of the types of trash, see Table 6-1. For a list of the abbreviations used for common types of plastics, see Table 10-1.

Some definitions are for terms we've avoided using in this report, but are found in MARPOL regulations and more profoundly written technical reports.

GOVERNMENT TERMS

"MARPOL" stands for marine pollution and refers to the International Convention for the Prevention of Pollution from Ships, 1973 that control discharges at sea, especially oily and solid wastes. MARPOL has five annexes which each deal with these specific wastes.

"Annex V" refers to plastics and other solid waste law under MARPOL

"AAC" stands for Alaska Administrative Code, which are regulations made by state agencies. The number before the AAC tells you which department's regulations they are. For example, 18 AAC means the Department of Environmental Conservation. Violations of regulations are most often misdemeanors, meaning fines up to \$5,000 and jail up to one year.

"AS" stands for Alaska Statute, which are laws passed by the Legislature and having more clout than regulations. They often carry more penalties for their violation.

"CFR" stands for Code of Federal Regulations, the publication that lists all rules of federal agencies.

"RCRA" refers to the federal statute that defines hazardous wastes and manages them. RCRA is often called a "cradle-to-grave" tracking system that tries to prevent midnight dumping of hazardous wastes by means of a "manifest" that records people's signatures for wastes received. RCRA stands for Resource Conservation and Recycling Act. RCRA sets tough limits on solid waste disposal sites so that they do not become dumping grounds for hazardous wastes.

"CERCLA" refers to the federal statute that deals with cleanup of abandoned hazardous waste dumps. CERCLA arose from the Love Canal incident and is often called the "Superfund" law.

"law" means all things that govern our acts. Law includes statutes passed by legislatures, acts of Congress, regulations of agencies, and terms of agency permits.

"rules" mean regulations passed by agencies. In this report, we've especially tried to use "rules" when we refer to federal regulations.

ENVIRONMENTAL TERMS

"leachate" means the liquid waste that flows from landfills. Leachate contains dissolved organic impurities and often reeks of sulfide gas. It encourages overgrowths of bacterial slimes in streams. Leachate sometimes contains other toxic compounds.

"bottom ash" means the heavy residues shoveled out of incinerators.

"fly ash" means the light residues that are generally removed by air pollution control devices from the exhaust stacks of incinerators.

"electrostatic precipitator" means an air pollution control device that removes dust by attaching an electrical charge to the dust and attracting the dust to a charge plate.

"dRDF" stands for densified refuse derived fuel. dRDF is made from garbage by shredding, air separating the light paper and plastics, drying, and compressing the garbage into pellets. Pellets contain less metal and toxic matter than garbage.

"dunnage" means the packing material placed inside boxes to prevent damage to the contents of the box. Dunnage includes bubble wrap and expanded foam plastics, like popcorn.

"clinker" means unburned ash residue that has formed into clumps. Clinkers do not necessarily have unburned plastic in them.

"graywater" means waterborne wastes that do not contain excrement, such as sink, laundry, and shower drainage.

"victual waste" means waste foodstuff.

"disease vector" means a carrier of a disease organism, like a rat carries fleas or a fly carries germs.

"comminuter" means an industrial-strength garbage grinder.

ABBREVIATIONS

"mm" means million, "k" means thousand

"lb/capday" means pound (of waste) per capita per day

"Btu" means British thermal unit, a measure of how much heat can be obtained by burning something.

"cuft" means cubic foot. About 7.5 gallons make a cuft.

"cuyd" means cubic yard. About 202 gallons make a cuyd.

"kg" means kilogram, about 2.2 pounds. Scientists use kg and other metric measures. We've tried to avoid metric measures in this report.

APPENDIX B

Layman's Guide to MARPOL Annex V

Reference to the International Convention for Prevention of Pollution from Ships, 1973, and Federal Registers dated April 28, 1989, October 27, 1988, and June 24, 1988.

4.1 History

On December 31, 1988, Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL) became law. The United States had signed MARPOL upon its creation in 1973, but, until 1988, had not signed Annex V. Annex V sets limits on the disposal of garbage at sea and prohibits the disposal of ANY plastics into the sea.

Annex V applies to all U.S. vessels, wherever located, and to all foreign vessels in U.S. waters or within the 200 mile Exclusive Economic Zone of the United States.

4.2 Plastic and Garbage Disposal Rules

The disposal into the sea of all plastics -- such as synthetic ropes and lines, synthetic fishing nets, monofilament line, strapping bands, visqueen, six-pack yokes, soap or beverage bottles, garbage bags, styrofoam and plastic lined cups, "degradable" or not -- is prohibited.

Disposal of the following garbage shall be made as far as practicable from the nearest land. Disposal is prohibited if the distance from nearest land is less than

- a) 25 miles for dunnage, lining, and packing materials, which will float;
- b) 12 miles for food wastes and other wastes such as paper products, rags, glass, metal, bottles, and crockery;
- c) 3 miles for items above in (b) that have been ground up smaller than one inch in size.

When the garbage is mixed with other garbage having different requirements, then the more stringent requirements shall apply.

In peril, vessel operators can cut loose plastic nets to save their ships. Also, fishermen are not required to bring in other people's garbage that becomes entangled in their nets.

4.3 Port and Terminal Rules

Each day of operation, a port or terminal operator must provide or ensure the availability of a reception

facility capable of receiving garbage that a ship wishes to discharge except

- a) large quantities of spoiled or damaged cargoes not usually discharged by a ship; or
- b) garbage from ships not having commercial transactions with that port or terminal.

Those in charge of a port or terminal must ensure that their garbage reception facility

- a) is arranged so that it does not interfere with port or terminal operations, and so that garbage that has been discharged cannot easily reach the water; and
- b) holds federal, state, and local permits or licenses required by environmental and health laws regarding garbage.

A ship repair yard operator must provide facilities for complete transfer of garbage from a ship before the ship departs from the yard.

4.4 Animal and Plant Health Inspection Service Wastes

Ports and terminals must be able to receive APHIS "quarantined" garbage within 24 hours of notice of such incoming garbage. APHIS wastes include meat, dairy, and produce garbage originating from foreign ports. For APHIS purposes, Canada does not count as "foreign." APHIS disposal facilities usually involve incinerators or sterilizers. APHIS must approve a written agreement specifying handling and disposal details.

4.5 Certificates of Adequacy (COA) will be issued by the Coast Guard to certify ports or terminals meet rules for vessel garbage reception facilities. All ports and terminals must provide garbage reception facilities, but not all are required to apply for COAs. Under the interim rules, ports and terminals must have COAs if they receive

- a) oil tankers or ships of 400 gross tons or more; or
- b) oceangoing ships carrying Noxious Liquids; or
- c) more than 500,000 lbs/yr of commercial fish products.

Upon application for an Annex V COA, an applicant must certify APHIS waste handling ability or request a waiver.

4.6 Waste Disposal of ship-generated waste follows.

If the plastics have been separated for on-shore disposal, then the remaining garbage may be

- a) incinerated on board the ship; or
- b) disposed of at sea if far enough offshore per Annex V;
- c) retained on board for disposal ashore.

c) retained on board for disposal ashore.

If the plastic is mixed with other types of garbage, then the mixed garbage

- a) may be incinerated on board the ship; or,
- b) must be retained for disposal ashore.

If incinerator ash contains visible lumps of plastic, the ash can not be disposed of overboard. If incinerator ash contains no lumps of plastic, the ash can be thrown overboard outside the three mile zone. There is debate over this provision and it may be modified.

APPENDIX C

Solid Waste Loads and Costs in
Other Coastal Alaskan Communities

As part of this study, the costs of disposal and collection of solid waste in many other coastal Alaskan communities were obtained and evaluated for comparison purposes. This information was also used to calculate unit costs for collection and disposal for use in Section 14 discussing Models.

These cost data were obtained from

- a) operating records of communities and contractors;
- b) engineering reports and feasibility studies;
- c) grant applications and agency budget records; and
- d) manufacturer's claims and information.

Beware of easy comparisons between the various sets of information. Also beware of comparisons from one supposedly similar set of data to another. Often, significant factors are overlooked, sometimes split and sometimes lumped. Some excellent operators keep sloppy records and some sloppy operators keep excellent records. The same question can result in different answers on different days. And time changes most information, especially with equipment costs.

SITKA Incinerator/Heat Recovery Operating Records
Re: City and Borough of Sitka Public Works [Ref 38]

Capital Costs:	\$3,200,000	1985
	100,000	1988
Operating Costs:	301,000/yr	Incinerator
	155,000/yr	Landfill
Collection Cost:	300,000/yr	
Revenue:	\$756,000/yr	tipping and collection fees

1985 capital costs included an incinerator and electrostatic precipitator for air emission control, while 1988 capital costs included an upgrade of air emission control and solving building problem.

The incinerator reduces volume by 80 percent, with ash disposed of at landfill. The landfill life span has increased from 5 to 40 years. Contributing to the operating costs, the landfill also receives items such as building materials and construction debris.

The revenue figure does not include heat sales to Sheldon Jackson college.

Volume: Averages 20 tons a day or 120 tons a week based on a six day week.

Background: Sitka installed an incinerator in 1985 that was designed to provide all heat to Sheldon Jackson College. The trash of the City of Sitka currently heats the college as well as a new gymnasium.

The incinerator has a rated capacity of 25 tons a day, which is more than adequate for the 20 tons a day of trash generated by the city. The incinerator runs on temperatures of between 1600 and 1800 degrees F, with 1800 F being optimum.

Sitka contracts with a private contractor for collection. Trash is not sorted at the incinerator. Some items such as building material and construction debris are taken directly to the landfill because of the size. Other items such as roofing material cannot be burned at the incinerator and are also taken directly to the landfill.

The dust from the incinerator is bagged and disposed of at the landfill. Jerry Simpson, the city public works director, estimates an 80 percent reduction in volume of municipal solid waste as a result of the installation of the incinerator. He also claims, "According to EPA, we have the best landfill in Alaska."

City ordinance mandates that everyone with an electrical hook-up be assessed a fee for garbage collection. Residential customers are charged two minimum monthly fees, \$6.75/month for collection and \$6.00/month for what Sitka refers to as a landfill charge. Payment of the monthly fees entitles residential customers to two free cubic yards in addition to what is collected, provided it is taken to the incinerator.

For any waste in excess of the two cubic yards, or any waste taken directly to the landfill, a 3.00 cubic yard tipping fee is assessed. A similar structure is set up for commercial customers. All operating and maintenance costs of the incinerator and landfill are paid by the user fees. The fee structure does not include replacement costs for the incinerator.

There have been some complaints from residents about emissions. City officials have conducted random air quality tests and have found no problems. The City is working on developing a continuous testing program to help alleviate resident concerns. Sitka uses the DEC hazardous waste disposal program and finds it satisfactory.

CORDOVA Baler/Landfill Operating Records
Re: Cordova Refuse Inc [Ref 39]

Capital Costs:	\$1,206,000	1985
	750,000	1980
Operating Costs:	136,000/yr	
Collection Cost:	252,000/yr	

1985 capital costs included baler, building, and land. The land was purchased in 1980 for \$750,000.

The annual operating costs are estimated by contractor for baler, utilities, labor, landfill cover material, and rent to city.

Volume: Averages 10 bales a day or 50 bales a week based on a five day week. Average weight, 1250 lbs per bale.

Background: In August 1988, the City of Cordova signed a five year contract with Cordova Refuse Inc. for garbage collection and disposal. Cordova requires residents living within city limits to pay for garbage pickup by attaching charges to electric bills. The City collects the pick up fees and turns them over to the contractor. CRI pays the city a monthly rental fee for the baler/landfill.

The baler at Cordova is the smallest that was on the market in 1985, rated at 2.5-1 or 3-1 compacting ratio. The baler hopper measures three feet by 3.5 feet.

Roger Bartlett of CRI describes the solid waste in Cordova as typical, with the exception of construction debris and fishing nets. The debris and nets, about 10 percent of the total volume, go directly to the landfill. This estimate depends on the time of year and how well fishing season fares. In winter, most everything is baled.

Cordova disposes of 15-20 fishing nets a month which are also handled separately and buried.

No significant problems with the baler/landfill appear. Seagulls and crows do hover about, but they're more likely attracted to the seafood plants.

Pelletizer: In summer 1989, CRI will install a pelletizer at no cost to the City. Don Moore, city manager, states, "Municipalities don't want to be on the leading edge of technology, but we'd like to see Alaska Solid Waste's pelletizer work." The City and CRI have an unusual agreement. The City has a contractor to maintain and operate their baler/landfill, and to provide collection services at no cost to the City. When the pelletizer is

installed and operating according to plan, up to ninety percent of Cordova's garbage will be recycled. The City can reap the obvious benefits with little risk or capital outlay. CRI will risk its capital expenditure on an once-tested prototype.

Cordova Refuse affiliates with Alaska Solid Waste of Fairbanks. ASW has patented a device that classifies and recycles trash. ASW estimates 70 percent of the garbage will be processed into densified refuse derived fuel (dRDF), commonly referred to as "pellets." Pellets can be burned in home wood stoves or in furnaces designed to burn solid fuel, such as coal.

CRI bases its profit in Cordova on the sale of resources recovered from the solid waste. If the project works, CRI and ASW will have proven a technology that currently doesn't exist on this small a scale.

If the pelletizer works according to plan, the life span of the landfill will increase from 5-8 years to 15-18 years.

According to Bartlett, the pelletizer can handle any wood, pallets, or construction debris that does not exceed a "4x12" in size. Nets will foul the pelletizer and will still have to be buried. Cordova Refuse plans to sell the pellets for home heating and sell scrap metal for recycling.

Cost estimates for a pelletizing operation, based upon a 50 ton per day maximum capacity device are

Capital Costs:	\$1,200,000
Operating Costs:	160,000

The capital costs include delivery and installation, but do not include a building or office.

The operating costs do not include debt service for equipment or building. The figure assumes about 6.25 tons/day for five days a week of Cordova waste and

Labor:	2 men @ \$ 12.50/hr + 33% benefits
Supervisor:	\$ 170/day (incl benefits)
Maintenance:	\$ 148/day (incl benefits)
Utilities:	\$ 2.27/ton
Insurance/Overhead:	\$ 1.50/ton

These costs do not consider revenue from sale of dRDF pellets or metals. If 60 percent of the waste converts to dRDF and sells at \$98/ton (the energy equivalent of #2 heating oil at \$0.85 per gallon), about \$100,000 per year would be recovered as revenue. With 1 percent aluminum at

\$0.30 per pound and 5 percent metals at \$25 per ton, the metal revenues would be \$12,000 per year. Thus, with energy and metal recovery, about 70 percent of the pelletizing operating costs will be paid.

JUNEAU Incinerator Operating Records
Re: Channel Sanitation Inc [Ref 40]

Capital Costs: \$3,500,000 1983
Operating Costs: \$1,850,000/yr

The 1983 capital costs included \$375,000 for an electrostatic precipitator for air emissions control.

The annual operating costs includes landfill for ash and oversize items. Yearly cost assumes six days per week, and doesn't include reserve. Operating cost breakdown:

Item	Cost \$/ton
Maintenance, Repair	45
Overhead	40
Reserve, Profit	15
Total	100

PETERSBURG Solid Waste Engineering Feasibility Study
Re: City of Petersburg Engineer [Ref 5]

	Landfill	Incinerator w/o Heat Rec	Incinerator w/ Heat Recovery
Capital Costs	\$6,000,000	\$2,200,000	\$3,200,000
Operation Costs/yr	345,000	226,000	321,000

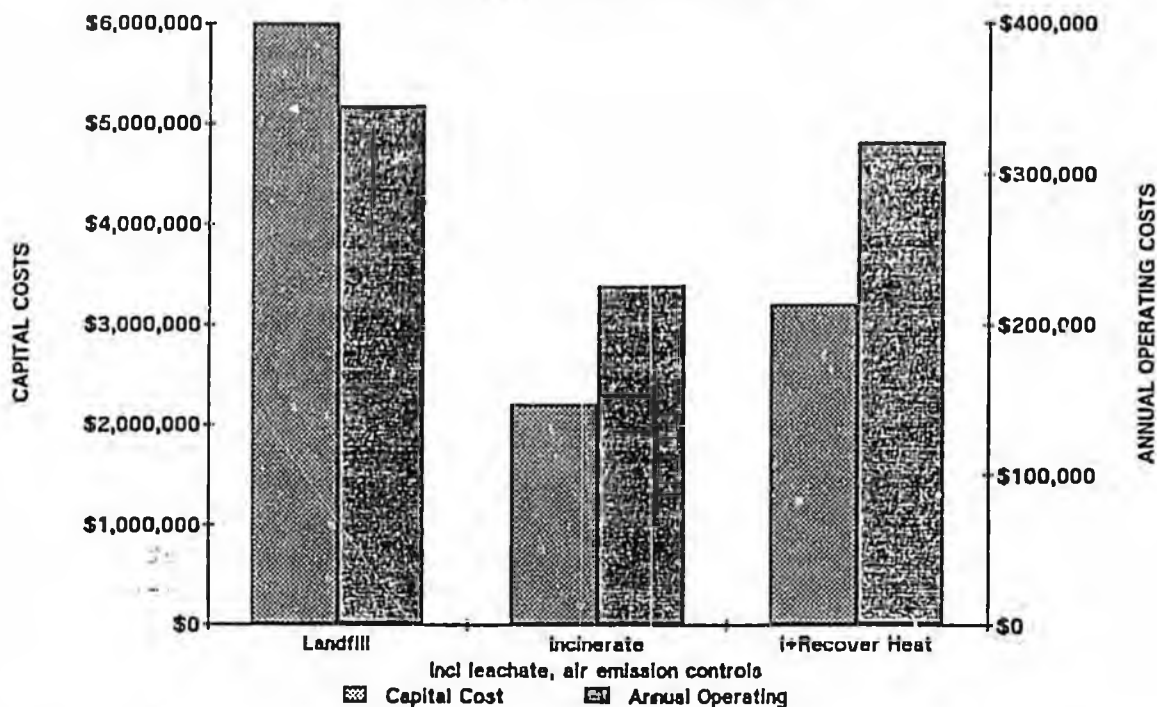
This well-researched engineering feasibility analysis sets a model for future solid waste costs. The costs cited above are only one set of a large number of cost options presented. The options considered compliance with strict new landfill rules, including leachate collection and treatment, testing for hazardous wastes, monitoring for groundwater contamination, fencing, daily cover of wastes, and so forth. Likewise, it considers the new limits on incinerator operations, including air pollution control and ash disposal. The study assumed

- a 1987 population of 3300, with several growth patterns;
- several monetary inflation schemes and bond interest rates;
- a per capita waste generation rate of 6.7 pounds per day, with consideration of future waste composition changes; and
- an average heat content of 5500 Btu/pound.

During the course of the study, city staff evaluated six manufacturers of incinerators, with calls to owners of incinerators for operating experience. They also evaluated heating needs and seasonal patterns of various possible heat customers, such as schools, government offices, and institutional housing.

These options and costs have been shown on the following graph. "I+Recover Heat" means incineration with a heat recovery system.

Table 13-1 PETERSBURG WASTE OPTIONS
Pop 3300 @ 6.7 lb/capday 5600 Btu/lb



This comparison provides foresight to future costs of landfill operations that comply with RCRA laws. Costs above do not include revenue from sale of heat.

For landfills, capital costs include berms, leachate collection, treatment, and outfall system, surface water, diversion systems, closure of the existing dump, offices, scales, fencing, and monitoring wells. Operational costs do take into consideration such items as depreciation for landfill equipment, labor, supplies, overhead, and pre-payments for construction of the next incremental landfill cells.

For incineration, capital costs include both baghouse and dry lime air pollution control devices, a road to the ash landfill, scales, building for incinerator, office, and pollution control devices, fencing, closure of the existing

dump, and a landfill for ash that would involve some of the capital items in the preceding paragraph. Operating costs include depreciation, labor, materials, overhead, and so forth. Costs of landfilling incinerator ash would be reduced with the lessened need for cover and reduced volume.

Energy recovery values were calculated using oil costs of 80 cents per gallon, heat conversion efficiencies of 56 percent, and 5500 Btu/lb heat content of solid waste. Heat customer peak demands did not coincide with peak waste generation periods, so some loss of revenue was calculated into the study.

The Petersburg study provides a good comparison for costs between various options for solid waste disposal. The study makes good assumptions, evaluates several funding options, covers total lifetime project costs, and looks at the three options under controlled conditions.

KETCHIKAN Incinerator Engineering Study
 Re: Ketchikan Public Works [Ref 41]

Capital Costs: \$5,000,000
 Operating Costs: 660,000/yr

Capital costs include closure costs for old dump, estimated at \$500,000 to close half the site: final compaction, diversion drainage, asphalt cap, fencing, monitoring wells.

The \$660,000/year figure is based on 11,000 tons per year and the following estimated operating cost breakdown:

Item	Cost \$/ton
-----	-----
Landfill for Ash and Oversize Items	22
Incinerator Operation:	
Labor	24.4
Electricity, Water	3.7
Fuel	1.2
Repairs	1.3
Miscellaneous	7.8
Sub Total	38.4
Total Landfill, Incinerator	60
-----	-----

KENAI/SOLDOTNA Operating Landfill and Projected Baler Data
Re: Environmental Conservation [Ref 34]

Capital Costs: \$5,400,000
Operating Costs: 1,312,000/yr

Capital expenses include the cost of closure of Kenai landfill, construction of a Kenai transfer station (\$755,000 to serve 14,136 population), construction of a baler at the Soldotna landfill, and upgrading the Soldotna landfill (installing a liner, etc.) to meet new standards.

The operating costs include cost of operating Kenai transfer station. The operational cost of old Kenai landfill was \$817,000 per year to serve a population of 26,000.

27,700 people are served by combined systems.

SKAGWAY Incinerator Engineering Estimates
Re: Environmental Conservation [Ref 34]

Capital Costs: \$771,000
Operating Costs: 91,700/yr

The capital costs include building, office, scales, air emission control devices, and provision for recycling equipment.

HOMER Landfill/Baler Operating Records
Re: City of Homer [Ref 42]

Capital Costs: \$3,100,000
Operating Costs: 246,000/yr

The landfill/baler serves a population of 10,400.

SEWARD Landfill/Baler Engineering Estimates
Re: Environmental Conservation [Ref 34]

Capital Costs: \$3,769,000
Operating Costs: \$350,000/yr

The landfill/baler serves a population of 4,426. The capital costs include a new landfill site with liner.

Summarizing Capital and Operating Cost data presents difficulties for interpretation. Use of existing operating records has a greater reliability, but the costs of equipment have increased. Use of engineering studies requires careful judgement and good sense of the future permit stipulations and the crystal ball of economics and future inflation and dollar values. It's best to compare existing records of incinerators with existing records of landfills. Likewise, compare engineering projections of incinerators with engineering projections of landfills.

COMPARISON OF EXISTING RECORDS

Existing Disposal Methods	Capital Costs \$/Person	Operating Costs \$/Person/Year
Landfill		
Unalaska	110	46
Landfill/Baler		
Kodiak	346	17
Cordova	1313	57
Homer	298	24
Incinerator no Heat Recovery		
Juneau	119	61
Incinerator w/ Heat Recovery		
Sitka	458	63

COMPARISON OF ENGINEERING PROJECTIONS

Proposed Disposal Methods	Capital Costs \$/Person	Operating Costs \$/Person/Year
Landfill		
Petersburg	1818	105
Baler/Landfill		
Soldotna	195	47
Seward	850	79
Bristol Bay Borough	353	44
Incinerator no Heat Recovery		
Ketchikan	417	55
Petersburg	667	68
Skagway	1000	115
Incinerator w/ Heat Recovery		
Petersburg	970	97

Even with like comparisons, the costs are difficult to interpret. Some baler operating costs include landfill costs -- others do not. Some landfills include the cost of land -- others do not. Neither revenue from scrap metal recycling nor that from heat recovery sales has been included. Many details have been lost in the above summaries. Use the summarized information with caution.

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Marine Plastic
Pollution
Research and
Control Act of
1987.
33 USC 1901
note.

TITLE II—PLASTIC POLLUTION RESEARCH AND CONTROL

SEC. 2001. SHORT TITLE.

This title may be cited as the "Marine Plastic Pollution Research and Control Act of 1987".

SEC. 2002. EFFECTIVE DATE.

(a) **IN GENERAL.**—Except as provided in subsections (b) and (c), this title shall be effective on the date on which Annex V to the International Convention for the Prevention of Pollution from Ships, 1973, enters into force for the United States.

(b) **EXCEPTIONS.**—Sections 2001, 2002, 2003, 2108, 2202, 2203, 2204, and subtitle C of this title shall be effective on the date of the enactment of this title.

(c) **ISSUANCE OF REGULATIONS.**—

(1) **IN GENERAL.**—The authority to prescribe regulations pursuant to this title shall be effective on the date of enactment of this title.

(2) **EFFECTIVE DATE OF REGULATIONS.**—Any regulation prescribed pursuant to this title shall not be effective before the effective date of the provision of this title under which the regulation is prescribed.

SEC. 2003. PREEMPTION; ADDITIONAL STATE REQUIREMENTS.

(a) **PREEMPTION.**—Except as specifically provided in this title, nothing in this title shall be interpreted or construed to supersede or preempt any other provision of Federal or State law, either statutory or common.

(b) **ADDITIONAL STATE REQUIREMENTS.**—Nothing in this title shall be construed or interpreted as preempting any State from imposing any additional requirements.

Subtitle A—Amendments to Act to Prevent Pollution From Ships

SEC. 2101. DEFINITIONS.

33 USC 1901.

Section 2 of the Act to Prevent Pollution from Ships (33 U.S.C. 1901 et seq.) is amended as follows:

(1) "(a)" is inserted after "SEC. 2".

(2) Subsection (a)(1) (as redesignated) is amended to read as follows:

"(1) 'MARPOL Protocol' means the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973, and includes the Convention;"

(3) Subsection (a)(2) (as redesignated) is amended by striking all after "and" the second time it appears and inserting in lieu thereof the following: "Annexes I, II, and V thereto, including any modification or amendments to the Convention, Protocols or Annexes which have entered into force for the United States;"

(4) Subsection (a)(3) (as redesignated) is amended by inserting "and 'garbage'" after "discharge".

(5) The following is added at the end of section 2:

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"(b) For purposes of this Act, the requirements of Annex V shall apply to the navigable waters of the United States, as well as to all other waters and vessels over which the United States has jurisdiction."

SEC. 2102. APPLICATION OF ACT.

33 USC 1902.

(a) IN GENERAL.—Section 3(a) of the Act to Prevent Pollution from Ships is amended to read as follows:

"(a) This Act shall apply—

"(1) to a ship of United States registry or nationality, or one operated under the authority of the United States, wherever located;

"(2) with respect to Annexes I and II to the Convention, to a ship, other than a ship referred to in paragraph (1), while in the navigable waters of the United States;

"(3) with respect to the requirements of Annex V to the Convention, to a ship, other than a ship referred to in paragraph (1), while in the navigable waters or the exclusive economic zone of the United States; and

"(4) with respect to regulations prescribed under section 6 of this Act, any port or terminal in the United States."

(b) EXCLUSIONS.—Section 3(b) of the Act to Prevent Pollution from Ships is amended to read as follows:

"(b)(1) Except as provided in paragraph (2), this Act shall not apply to—

"(A) a warship, naval auxiliary, or other ship owned or operated by the United States when engaged in noncommercial service; or

"(B) any other ship specifically excluded by the MARPOL Protocol.

"(2)(A) Notwithstanding any provision of the MARPOL Protocol, and subject to subparagraph (B) of this paragraph, the requirements of Annex V to the Convention shall apply after 5 years after the effective date of this paragraph to a ship referred to in paragraph (1)(A).

"(B) This paragraph shall not apply during time of war or a declared national emergency."

(c) REGULATIONS.—Section 3(c) of the Act to Prevent Pollution from Ships is amended to read as follows:

"(c) The Secretary shall prescribe regulations applicable to the ships of a country not a party to the MARPOL Protocol, including regulations conforming to and giving effect to the requirements of Annex V as they apply under subsection (a) of section 3, to ensure that their treatment is not more favorable than that accorded ships to parties to the MARPOL Protocol."

SEC. 2103. POLLUTION RECEPTION FACILITIES.

33 USC 1905

(a) DETERMINATION OF ADEQUACY OF FACILITIES.—Section 6(a) of the Act to Prevent Pollution from Ships is amended—

(1) by inserting "(1)" immediately after "(a)";

(2) in subsection (a)(1), as so redesignated, by striking "reception facilities of a port or terminal" and inserting in lieu thereof the following: "a port's or terminal's reception facilities for mixtures containing oil or noxious liquid substances"; and

(3) by adding at the end the following:

"(2) The Secretary, after consulting with appropriate Federal agencies, shall establish regulations setting criteria for deter-

Regulations

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mining the adequacy of reception facilities for garbage at a port or terminal, and stating such additional measures and requirements as are appropriate to ensure such adequacy. Persons in charge of ports and terminals shall provide reception facilities, or ensure that such facilities are available, for receiving garbage in accordance with those regulations."

33 USC 1905

(b) CONSIDERATION OF NUMBER AND TYPES OF SHIPS.—Section 6(b) of the Act to Prevent Pollution from Ships is amended by striking "terminal," the first time it appears and inserting in lieu thereof the following: "terminal, and in establishing regulations under subsection (a) of this section," and by striking "seagoing ships" and inserting in lieu thereof the following: "ships or seagoing ships"

(c) CERTIFICATE ISSUANCE.—Section 6(c) of the Act to Prevent Pollution from Ships is amended to read as follows:

"(c)(1) If reception facilities of a port or terminal meet the requirements of Annex V to the Convention and the regulations prescribed under subsection (a)(1), the Secretary shall, after consultation with the Administrator of the Environmental Protection Agency, issue a certificate to that effect to the applicant.

"(2) If reception facilities of a port or terminal meet the requirements of Annex V to the Convention and the regulations prescribed under subsection (a)(2), the Secretary may, after consultation with appropriate Federal agencies, issue a certificate to that effect to the person in charge of the port or terminal.

"(3) A certificate issued under this subsection—

"(A) is valid until suspended or revoked by the Secretary for cause or because of changed conditions; and

"(B) shall be available for inspection upon the request of the master, other person in charge, or agent of a ship using or intending to use the port or terminal.

"(4) The suspension or revocation of a certificate issued under this subsection may be appealed to the Secretary and acted on by the Secretary in the manner prescribed by regulation."

(d) ENTRY DENIAL.—Section 6(e) of the Act to Prevent Pollution from Ships is amended—

(1) by inserting "(1)" immediately after "(e)";

(2) by striking "(1)" and inserting in lieu thereof "(A)";

(3) by striking "(2)" and inserting in lieu thereof "(B)";

(4) in subparagraph (A), as so redesignated, by striking "the MARPOL Protocol" and inserting in lieu thereof the following: "Annexes I and II of the Convention"; and

(5) by adding at the end the following:

"(2) The Secretary may deny the entry of a ship to a port or terminal required by regulations issued under this section to provide adequate reception facilities for garbage if the port or terminal is not in compliance with those regulations."

33 USC 1907

SEC. 2104. VIOLATIONS.

(a) SHIP INSPECTIONS.—Section 8(c) of the Act to Prevent Pollution from Ships is amended by—

(1) striking "(1)" and inserting "(A)";

(2) striking "(2)" and inserting "(B)";

(3) inserting "(2)" immediately after "(c)";

(4) in the last sentence of paragraph (2) (as redesignated), striking "If a report made under this subsection involves a ship, other than one of United States registry or nationality or one

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operated under the authority of the United States, the" and inserting "The"; and

(5) inserting before paragraph (2) (as redesignated) the following: "(1) This subsection applies to inspections relating to possible violations of Annex I or Annex II to the Convention by any seagoing ship referred to in section 3(a)(2) of this Act."

(b) SHIP INSPECTIONS OTHER THAN AT PORT OR TERMINAL.—Section 8 of the Act to Prevent Pollution from Ships is amended by redesignating subsection (d) as subsection (f) and inserting after subsection (c) the following: 33 USC 1907.

"(d)(1) The Secretary may inspect a ship referred to in section 3(a)(3) of this Act to verify whether the ship has disposed of garbage in violation of Annex V to the Convention or this Act.

"(2) If an inspection under this subsection indicates that a violation has occurred, the Secretary may undertake enforcement action under section 9 of this Act.

"(e)(1) The Secretary may inspect at any time a ship of United States registry or nationality or operating under the authority of the United States to which the MARPOL Protocol applies to verify whether the ship has discharged a harmful substance or disposed of garbage in violation of that Protocol or this Act.

"(2) If an inspection under this subsection indicates that a violation of the MARPOL Protocol has occurred the Secretary may undertake enforcement action under section 9 of this Act."

SEC. 2105. CIVIL PENALTIES.

33 USC 1908

(a) PAYMENT FOR INFORMATION.—

(1) INFORMATION LEADING TO CONVICTION.—Section 9(a) of the Act to Prevent Pollution From Ships is amended by inserting after the first sentence the following: "In the discretion of the Court, an amount equal to not more than ½ of such fine may be paid to the person giving information leading to conviction."

(2) INFORMATION LEADING TO ASSESSMENT OF PENALTY.—Section 9(b) of the Act to Prevent Pollution From Ships is amended by adding at the end the following: "An amount equal to not more than ½ of such penalties may be paid by the Secretary to the person giving information leading to the assessment of such penalties."

(b) REFERENCE OF VIOLATION TO COUNTRY OF REGISTRY OR NATIONALITY.—Section 9(f) of the Act to Prevent Pollution from Ships is amended by striking "to that country" and inserting "to the government of the country of the ship's registry or nationality, or under whose authority the ship is operating".

SEC. 2106. PROPOSED AMENDMENTS TO PROTOCOL.

International
organizations.
33 USC 1909.

Section 10 of the Act to Prevent Pollution from Ships is amended—

(1) in subsection (a), by striking "Inter-Governmental Maritime Consultative Organization" and inserting "International Maritime Organization"; and

(2) in subsection (b), by striking "Annex I or II, appendices to the Annexes, or Protocol I of the MARPOL Protocol," and inserting "Annex I, II, or V to the Convention, appendices to those Annexes, or Protocol I of the Convention", and by striking "Inter-Governmental Maritime Consultative Organization" and inserting "International Maritime Organization".

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33 USC 1903.

SEC. 2107. ADMINISTRATION AND ENFORCEMENT; REFUSE RECORD BOOKS; WASTE MANAGEMENT PLANS; NOTIFICATION OF CREW AND PASSENGERS.

(a) ADMINISTRATION AND ENFORCEMENT, GENERALLY.—Section 4(a) of the Act to prevent pollution from ships is amended to read as follows:

“(a) Unless otherwise specified in this Act, the Secretary shall administer and enforce the MARPOL Protocol and this Act. In the administration and enforcement of the MARPOL Protocol and this Act, Annexes I and II of the Convention apply only to seagoing ships.”

(b) REFUSE RECORD BOOKS; WASTE MANAGEMENT PLANS; NOTIFICATION OF CREW AND PASSENGERS.—Section 4(b) of the Act to Prevent Pollution from Ships is amended by—

- (1) inserting “(1)” after “(b)”;
- (2) adding at the end the following:

“(2) The Secretary of the department in which the Coast Guard is operating shall—

Regulations.

“(A) within 1 year after the effective date of this paragraph, prescribe regulations which—

“(i) require certain ships described in section 3(a)(1) to maintain refuse record books and shipboard management plans, and to display placards which notify the crew and passengers of the requirements of Annex V to the Convention; and

“(ii) specify the ships described in section 3(a)(1) to which the regulations apply;

International agreements.

“(B) seek an international agreement or international agreements which apply requirements equivalent to those described in subparagraph (A)(i) to all vessels subject to Annex V to the Convention; and

Reports

“(C) within 2 years after the effective date of this paragraph, report to the Congress—

“(i) regarding activities of the Secretary under subparagraph (B); and

“(ii) if the Secretary has not obtained agreements pursuant to subparagraph (B) regarding the desirability of applying the requirements described in subparagraph (A)(i) to all vessels described in section 3(a) which call at United States ports.”

SEC. 2108. COMPLIANCE WITH INTERNATIONAL LAW.

The Act to Prevent Pollution from Ships is amended by adding at the end the following:

33 USC 1912

“Sec. 17. Any action taken under this Act shall be taken in accordance with international law.”

Subtitle B—Studies and Report

33 USC 1902
note

SEC. 2201. COMPLIANCE REPORTS.

(a) IN GENERAL.—Within 1 year after the effective date of this section, and biennially thereafter for a period of 6 years, the Secretary of the department in which the Coast Guard is operating, in consultation with the Secretary of Agriculture and the Secretary of Commerce, shall report to the Congress regarding compliance with

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Annex V to the International Convention for the Prevention of Pollution from Ships, 1973, in United States waters.

(b) REPORT ON INABILITY TO COMPLY.—Within 3 years after the effective date of this section, the head of each Federal agency that operates or contracts for the operation of any ship referred to in section 3(b)(1)(A) of the Act to Prevent Pollution from Ships that may not be able to comply with the requirements of that section shall report to the Congress describing—

- (1) the technical and operational impediments to achieving that compliance;
- (2) an alternative schedule for achieving that compliance as rapidly as is technologically feasible;
- (3) the ships operated or contracted for operation by the agency for which full compliance with section 3(b)(2)(A) is not technologically feasible; and
- (4) any other information which the agency head considers relevant and appropriate.

(c) CONGRESSIONAL ACTION.—Upon receipt of the compliance report under subsection (b), the Congress shall modify the applicability of Annex V to ships referred to in section 3(b)(1)(A) of the Act to Prevent Pollution from Ships, as may be appropriate with respect to the requirements of Annex V to the Convention.

SEC. 2202. EPA STUDY OF METHODS TO REDUCE PLASTIC POLLUTION.

42 USC 6981
note.

(a) IN GENERAL.—The Administrator of the Environmental Protection Agency, in consultation with the Secretary of Commerce, shall commence a study of the adverse effects of the improper disposal of plastic articles on the environment and on waste disposal, and the various methods to reduce or eliminate such adverse effects.

(b) SCOPE OF STUDY.—A study under this section shall include the following:

Wildlife.
Safety.

(1) A list of improper disposal practices and associated specific plastic articles that occur in the environment with sufficient frequency to cause death or injury to fish or wildlife, affect adversely the habitat of fish or wildlife, contribute significantly to aesthetic degradation or economic losses in coastal and waterfront areas, endanger human health or safety, or cause other significant adverse impacts.

(2) A description of specific statutory and regulatory authority available to the Administrator of the Environmental Protection Agency, and the steps being taken by the Administrator, to reduce the amount of plastic materials that enter the marine and aquatic environment.

(3) An evaluation of the feasibility and desirability of substitutes for those articles identified under paragraph (1), comparing the environmental and health risks, costs, disposability, durability, and availability of such substitutes.

(4) An evaluation of the impacts of plastics on the solid waste stream relative to other solid wastes, and methods to reduce those impacts, including recycling.

(5) An evaluation of the impact of plastics on the solid waste stream relative to other solid wastes, and methods to reduce those impacts, including—

(A) the status of a need for public and private research to develop and market recycled plastic articles;

(B) methods to facilitate the recycling of plastic materials by identifying types of plastic articles to aid in their sorting.

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and by standardizing types of plastic materials, taking into account trade secrets and protection of public health:

(C) incentives, including deposits on plastic containers, to increase the supply of plastic material for recycling and to decrease the amount of plastic debris, especially in the marine environment;

(D) the effect of existing tax laws on the manufacture and distribution of virgin plastic materials as compared with recycled plastic materials; and

(E) recommendations on incentives and other measures to promote new uses for recycled plastic articles and to encourage or require manufacturers of plastic articles to consider re-use and recycling in product design.

(6) An evaluation of the feasibility of making the articles identified under paragraph (1) from degradable plastics materials, taking into account—

(A) the risk to human health and the environment that may be presented by fragments of degradable plastic articles and the properties of the end-products of the degradation, including biotoxicity, bioaccumulation, persistence, and environmental fate;

(B) the efficiency and variability of degradation due to differing environmental and biological conditions; and

(C) the cost and benefits of using degradable articles, including the duration for which such articles were designed to remain intact.

(c) CONSULTATION.—In carrying out the study required by this section, the Administrator shall consult with the heads of other appropriate Federal agencies, representatives of affected industries, consumer and environment interest groups, and the public.

(d) REPORT.—Within 18 months after the date of the enactment of this Act, the Administrator of the Environmental Protection Agency shall report to the Congress the results of the study required by this section, including recommendations in connection therewith.

SEC. 2203. EFFECTS OF PLASTIC MATERIALS ON THE MARINE ENVIRONMENT.

Reports.

Not later than September 30, 1988, the Secretary of Commerce shall submit to the Congress a report on the effects of plastic materials on the marine environment. The report shall—

(1) identify and quantify the harmful effects of plastic materials on the marine environment;

(2) assess the specific effects of plastic materials on living marine resources in the marine environment;

(3) identify the types and classes of plastic materials that pose the greatest potential hazard to living marine resources;

(4) analyze, in consultation with the Director of the National Bureau of Standards, plastic materials which are claimed to be capable of reduction to environmentally benign submits under the action of normal environmental forces (including biological decomposition, photodegradation, and hydrolysis); and

(5) recommend legislation which is necessary to prohibit, tax, or regulate sources of plastic materials that enter the marine environment.

42 USC 6981
note

SEC. 2204. PLASTIC POLLUTION PUBLIC EDUCATION PROGRAM.

(a) OUTREACH PROGRAM.—

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Sec. 2301

(1) **IN GENERAL.**—Not later than April 1, 1968, the Administrator of the National Oceanic and Atmospheric Administration and the Administrator of the Environmental Protection Agency, in consultation with the Secretary of Transportation, shall jointly commence and thereafter conduct for a period of at least 3 years, a public outreach program to educate the public (including recreational boaters, fishermen, and other users of the marine environment) regarding—

- (A) the harmful effects of plastic pollution;
- (B) the need to reduce such pollution;
- (C) the need to recycle plastic materials; and
- (D) the need to reduce the quantity of plastic debris in the marine environment.

(2) **AUTHORIZED ACTIVITIES.**—A public outreach program under paragraph (1) may include—

- (A) workshops with interested groups;
- (B) public service announcements;
- (C) distribution of leaflets and posters; and
- (D) any other means appropriate to educating the public.

(b) **CITIZEN POLLUTION PATROLS.**—The Secretary of Commerce, along with the Administrator of the Environmental Protection Agency and the Secretary of the Department in which the Coast Guard is operating, shall conduct a program to encourage the formation of volunteer groups, to be designated as "Citizen Pollution Patrols", to assist in monitoring, reporting, cleanup, and prevention of ocean and shoreline pollution.

Voluntarism.

Use SWAMC Letterhead

MARINE DEBRIS QUESTIONNAIRE

The Southwest Alaska Municipal Conference (SWAMC) is conducting a study to determine the impact of MARPOL Annex V on various Alaska communities. As part of the study, SWAMC is attempting to determine the amount and type of refuse generated by the fishing industry. We would appreciate your assistance in answering the following questions. Please return the questionnaire to SWAMC at the above address or drop in the marked box located outside of the Council meeting room. All responses will be kept confidential.

Your Name (optional): _____

Company/Vessel Name (optional): _____

Address (optional): _____

Phone Number (optional): _____

.....

1.) Type of vessel:

Factory Trawler ___ Longliner ___ Crabber ___ Catcher/Processor ___
Salmon Gillnet _____ Salmon Seine _____

2.) Size of vessel: Length _____ Width _____

3.) Number of crew: _____

4.) Homeport: _____

5.) Length of typical voyage:

Number of days in transit _____ Number of days fishing _____

6.) Number of voyages each year: _____

7.) If you deliver raw product, do you deliver to: Mothership ___ Port ___

8.) If you deliver to a port, which port(s) and how many times per year do you normally deliver?

Port Name _____ Number of times per year _____

page 2

Port Name _____ Number of times per year _____

Port Name _____ Number of times per year _____

9.) If your vessel is a factory trawler or catcher/processor, where and how many times per year do you deliver?

Where _____ Number of times per year _____

Where _____ Number of times per year _____

Where _____ Number of times per year _____

10.) Please estimate the total amount of refuse generated by your vessel per voyage. This estimate can be in weight, large garbage bags, compactor bags, etc.

11.) Of the refuse generated per voyage, please estimate the percentage that is

Food waste	_____ %
Plastic	_____ %
Non-recycleable metal and glass	_____ %
Recycleable metal (aluminum, etc.) and glass	_____ %
Packing materials	_____ %

12.) Where do you store your refuse on board? _____

13.) What do you currently do with your refuse?

Throw it overboard _____ Deliver it to port _____ Burn it _____

14.) Is storage space for refuse a problem? Yes _____ No _____

15.) Do you have a trash compactor on board? Yes _____ No _____

If "yes", what kind is it? _____

Do you feel that it assists you in storing your refuse? Yes _____ No _____

Why or why not? _____

page 3

If "no", do you feel that the use of one would:

Assist you in storing your refuse _____ Be practical _____

Be beneficial _____ Be cost effective _____

Do you intend to install one? Yes _____ No _____

18.) Do you have an incinerator on board? Yes _____ No _____

If "yes", do you feel that it:

Assists you in disposing of refuse _____ Is practical _____

Is cost effective _____ Is beneficial _____

What kind is it? _____

If "no", do you feel that use of an incinerator on your vessel would:

Assist you in disposing of refuse _____ Be practical _____

Be cost effective _____ Be beneficial _____

Do you intend to install one? Yes _____ No _____

If "no", why not? Too expensive _____ Don't generate enough refuse _____

Other _____

21.) Do you feel that the people you buy your supplies from are in tune with the need to reduce the amount of generated refuse on your vessel? Yes _____ No _____

22.) If the people you buy your supplies from were in tune with the need to reduce the amount of generated refuse, how much of a volume reduction do you think could be accomplished on your vessel? _____

23.) Do you have any suggestions about possible ways to handle refuse?

TABLE 1

AMOUNT OF REFUSE GENERATED BY GEAR GROUP, BY AREA,
IN WESTERN ALASKA SALMON FISHERIES

AREA	GEAR TYPE	NUMBER OF VESSELS ¹	AVERAGE NUMBER OF CREW	DAYS ENGAGED IN FISHING ²	ESTIMATED YARDS OF REFUSE GENERATED ³
Kodiak	Purse Seine	298	4	119	1 482
	Beach Seine	18	3	119	67
	Gillnet	0	0	0	0
	Set Net ⁴	188	N/A	N/A	N/A
	Tenders ⁵	40	4	119	199
	TOTAL	544			1 748
Chignik	Purse Seine	103	4	95	409
	Gillnet	0	0	0	0
	Set Net	0	0	0	0
	Tenders ⁵	27	4	95	107
	TOTAL	130			516
Ak. Penn. / Aleutians Southside	Purse Seine	84	5	95	417
	Gillnet ⁶	100	3	47	147
	Set Net ⁷	62	3	95	185
	Tenders ⁵	20	4	95	79
	TOTAL	266			828
AK Penn / Aleutians Northside	Purse Seine	124	4	95	492
	Gillnet ⁶	100	3	47	147
	Set Net ⁷	35	3	95	104
	Tenders ⁵	20	4	95	79
	TOTAL	279			822
Bristol Bay	Purse Seine	0	0	0	0
	Gillnet	1,822	2	40	1 523
	Set Net	1,013	N/A	N/A	N/A
	Tenders ⁵	100	4	40	167
	TOTAL	2,935			1 690
TOTAL	Purse Seine	609			2 800
	Beach Seine	18			67
	Gillnet	2 022			1 817
	Set Net	1,298			289
	Tenders	207			632
	TOTAL	4,154			5,605

TABLE 2

AMOUNT OF REFUSE GENERATED BY GEAR GROUP, BY AREA,
IN WESTERN ALASKA ROE HERRING FISHERIES

AREA	GEAR TYPE	NUMBER OF VESSELS ¹	AVERAGE NUMBER OF CREW	DAYS ENGAGED IN FISHING ²	ESTIMATED YARDS OF REFUSE GENERATED ³
Kodiak	Purse Seine	29	4	45	55
	Combo	1	N/A	N/A	N/A
	Gillnet	62	2	45	58
	Tenders	15	4	45	28
	TOTAL	107			141
Chignik	Purse Seine	7	4	45	13
	Gillnet	0	0	0	0
	Tenders	1	4	45	2
	TOTAL	8			15
AK. Penn./ Aleutians	Purse Seine ⁴	65	4	25	68
	Gillnet	25	2	25	13
	Tenders	12	4	25	13
	TOTAL	102			94
Bristol Bay	Purse Seine	423	4	21	371
	Gillnet	808	2	21	355
	Tenders	140	4	21	123
	TOTAL	1,371			849
TOTAL	Purse Seine	524			507
	Gillnet	895			426
	Tender	168			105
	TOTAL	1,587			1,038

SOURCE: CFEC, Permit File Statistics By Fishery By Residency, 1989
Chuck Meham & Pete Probasco, ADF&G, Anecdotal Comments

¹ Unless otherwise noted, this includes just those vessels which made deliveries

² Includes total number of days in or about the fishing grounds, whether or not the season was technically open for fishing.

³ Determined by multiplying the number of vessels times the average number of crew times the days engaged in fishing time .07 (the amount of refuse generated per day in thirty gallon bag equivalents per person) divided by 6.7 (to convert to years)

⁴ Although only 27 vessels actually made deliveries, 65 vessels showed up on the grounds for significant periods of time. This is often the case with this particular fishery as vessels that participated in the Bristol Bay herring fishery wait for the herring to show up here before they move on to other commitments.

TABLE 3

TYPE OF GARBAGE GENERATED IN THE SALMON FISHERIES OF WESTERN ALASKA¹

AREA	GEAR TYPE	CUBIC YARDS OF REFUSE GENERATED	CUBIC YARDS OF FOOD WASTE	CUBIC YARDS OF PLASTICS	CUBIC YARDS OF NON-RECYCLEABLE	CUBIC YARDS OF RECYCLEABLE	CUBIC YARDS OF PACKING MATERIAL
Kodiak	Purse Seine	1,482	459	237	237	222	296
	Beach Seine	67	21	11	11	10	13
	Gillnet	0	0	0	0	0	0
	Set Net	0	0	0	0	0	0
	Tenders	199	62	32	32	30	40
	TOTAL	1,748	542	280	280	262	350
Chignik	Purse Seine	409	127	65	65	61	82
	Gillnet	0	0	0	0	0	0
	Set Net	0	0	0	0	0	0
	Tenders	107	33	17	17	16	21
	TOTAL	516	160	83	83	77	103
AK. Penn./ Aleutians Southside	Purse Seine	417	129	67	67	63	83
	Gillnet	147	46	24	24	22	29
	Set Net	185	57	30	30	28	37
	Tenders	79	25	13	13	12	16
	TOTAL	828	257	133	133	124	166
AK. Penn./ Aleutians Northside	Purse Seine	492	153	79	79	74	98
	Gillnet	147	46	24	24	22	29
	Set Net	104	32	17	17	16	21
	Tenders	79	25	13	13	12	16
	TOTAL	823	255	132	132	123	165
Bristol Bay	Purse Seine	0	0	0	0	0	0
	Gillnet	1,523	472	244	244	228	305
	Set Net	0	0	0	0	0	0
	Tenders	167	52	27	27	25	33
	TOTAL	1,690	524	270	270	254	338
TOTAL	Purse Seine	2,800	868	448	448	420	560
	Beach Seine	67	21	11	11	10	13
	Gillnet	1,817	563	291	291	273	363
	Set Net	289	90	46	46	43	58
	Tenders	632	196	101	101	95	126
	TOTAL	5,606	1,738	897	897	841	1,121

¹ The percentage used to determine the amount of each type of garbage is the average percentage identified by the crab harvesting component of the refuse questionnaire

TABLE 4

TYPE OF GARBAGE GENERATED IN THE ROE HERRING FISHERIES OF WESTERN ALASKA¹

AREA	GEAR TYPE	CUBIC YARDS OF REFUSE GENERATED	CUBIC YARDS OF FOOD WASTE	CUBIC YARDS OF PLASTICS	CUBIC YARDS OF NON-RECYCLEABLE	CUBIC YARDS OF RECYCLEABLE	CUBIC YARDS OF PACKING MATERIAL
Kodiak	Purse Seine	55	17	9	9	8	11
	Gillnet	58	18	9	9	9	12
	Tenders	28	9	5	5	4	6
	TOTAL	141	44	23	23	21	28
Chignik	Purse Seine	13	4	2	2	2	3
	Gillnet	0	0	0	0	0	0
	Tenders	2	1	0	0	0	0
	TOTAL	15	5	2	2	2	3
AK. Penn./ Aleutians	Purse Seine*	68	21	11	11	10	14
	Gillnet	13	4	2	2	2	3
	Tenders	13	4	2	2	2	3
	TOTAL	94	29	15	15	14	19
Bristol Bay	Purse Seine	371	115	59	59	56	74
	Gillnet	355	110	57	57	53	71
	Tenders	123	38	20	20	18	25
	TOTAL	849	263	136	136	127	170
TOTAL	Purse Seine	507	157	81	81	76	101
	Gillnet	426	132	68	68	64	85
	Tender	165	51	26	26	25	33
	TOTAL	1,098	340	176	176	165	220

¹ The percentage used to determine the amount of each type of garbage is the average percentage identified by the crab harvesting component of the refuse questionnaire

SOURCE: CFEC, Permit File Statistics By Fishery By Residency, 1989
Chuck Mecham & Pete Probasco, ADF&G, Anecdotal Comments

-
- 1 Includes only those vessels which actually made deliveries.
 - 2 Includes total number of days in or about the fishing grounds, whether or not the season was technically open for fishing.
 - 3 Determined by multiplying the number of vessels times the average number of crew times the days engaged in fishing times .07 (the amount of refuse generated per day in thirty gallon bag equivalents per person) divided by 6.7 (to convert to yards).
 - 4 Refuse is generated on shore; therefore, not included in MARPOL impact calculations.
 - 5 Estimated.
 - 6 There are approximately 200 drift gillnetters who make deliveries on both sides of the Alaska Peninsula. Most of these vessels fish part of the year in the south and the other part of the year in the north. We assume 50% of the vessels fish 50% of the time on the south side, and vice versa for the north side.
 - 7 Refuse is generated at sea; therefore, amount is included in MARPOL impact calculations.

15 Min. Per Pass
 OAR No. Approved 2113-0543
 Exp. Date 12/31/81

APPLICATION FOR A CERTIFICATE OF ADEQUACY

FOR GARBAGE RECEPTION FACILITIES

FORM C

The Act to Prevent Pollution From Ships (33 USC 1901) authorized the Department of Transportation to issue certificates to terminals and ports verifying their adequacy to receive additional garbage from ships. Regulations implementing this program are in 33 Code of Federal Regulations Part 154. To continue to receive ships at a port or terminal, an applicant must hold a Certificate of Adequacy for Garbage if it receives or is on going to receive, or any other occupying one of 400 gross tons or more, carrying residues and wastes as defined in 33 CFR 154.101-101; if it receives or is on going to receive ships carrying hazardous liquid substances, or if it receives fishing vessels which offload more than 500,000 pounds of commercial fish products during a calendar year. To receive a Certificate of Adequacy for Garbage Reception Facilities application is required on the form.

Definitions:

"Terminal": an on shore facility or an offshore structure located in the navigable waters of the United States or subject to the jurisdiction of the United States and used, or intended to be used, as a port or facility for the transfer or other handling of a harmful substance. The definition of "navigable waters" for the purposes of this section may be found in 33 CFR § 329.23. Garbage is considered a harmful substance under MARPOL 73/78.

"Port": (1) a group of terminals that combines to act as a port and be considered a port for purposes of this part, or (2) a port authority or other organization that chooses to be considered a port for purposes of this part, and (3) a place (a bargeing area) or facility that has been specifically designated as a port by the Captain of the Port.

1 Complete this section if you are applying as a single "Terminal."

A. Terminal Section:

Name of Terminal _____

Street Address _____

City _____ State _____ Zip _____

Name of Terminal Person in charge
 () _____

Phone number _____ area code _____

Name of reception facility (if subcontracted) _____

Location of reception facility (City, State) _____

2 Check the following boxes if the terminal receives or discharges any of the following commodities from or to ships visiting the terminal:

- | | | |
|--|------------------------------------|----------------------------------|
| <input type="checkbox"/> Oil or petroleum products | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Bulk dry cargoes | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Bulk chemicals | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Fish | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Liquefied gases | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> General cargo | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |

3 Check the following boxes if the terminal handles or services any of the following ships:

- | | |
|--|---|
| <input type="checkbox"/> Ships of foreign registry | <input type="checkbox"/> Unmanned barges |
| <input type="checkbox"/> U.S. ships in domestic trade | <input type="checkbox"/> Chemical ships |
| <input type="checkbox"/> U.S. ships in foreign trade | <input type="checkbox"/> Container ships |
| <input type="checkbox"/> Passenger ships | <input type="checkbox"/> Break bulk ships |
| <input type="checkbox"/> Vessels servicing the offshore mineral and oil industry | <input type="checkbox"/> Ferry boats |
| | <input type="checkbox"/> Fishing vessels |

After completing this section go to Section C.

1 Complete this section if you are applying as a "Port."

B. Port Section:

Name of Port _____

Name of Port Person in charge _____

Street Address _____

City _____ State _____ Zip _____

Phone number _____ area code _____

Name of reception facility (if subcontracted) _____

Location of reception facility (City, State) _____

Number of Terminals which will be members of this Port? _____

Section B continues on the next page

B. Port Section: (cont'd)

Ports are to complete the following block entries for each individual terminal which is a member of the Port. If the Port listed in Section B.1. is also one of the terminals which will be using the reception facilities, please complete one of the terminal entries below.

2 Individual Terminal information:
(for terminals who wish to be members of a port)

Name of Terminal _____

Street Address _____

City _____ State _____ Zip _____

Name of Terminal Person in Charge _____
()

Phone Number _____ area code _____

Name of Reception Facility (if subcontracted) _____

Location of Reception Facility (City, State) _____

3 Check the following boxes if the terminal receives or discharges any of the following commodities from ships visiting the terminal:

- | | | |
|--|------------------------------------|----------------------------------|
| <input type="checkbox"/> Oil or petroleum products | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Bulk dry cargoes | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Bulk chemicals | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Fish | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Liquefied gases | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> General cargo | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |

4 Check the following boxes if the terminal handles or services any of the following ships:

- | | |
|--|---|
| <input type="checkbox"/> Ships of foreign registry | <input type="checkbox"/> Unmanned barges |
| <input type="checkbox"/> U.S. ships in domestic trade | <input type="checkbox"/> Chemical ships |
| <input type="checkbox"/> U.S. ships in foreign trade | <input type="checkbox"/> Container ships |
| <input type="checkbox"/> Passenger ships | <input type="checkbox"/> Break bulk ships |
| <input type="checkbox"/> Ships servicing the offshore mineral and oil industry | <input type="checkbox"/> Ferry boat ships |
| | <input type="checkbox"/> Fishing ships |

Signature of Person In Charge of Terminal

Signature indicates person in charge of terminal acknowledges and consents to being considered as a member of the port, described in Section B.1.

2 Individual Terminal information:
(for terminals who wish to be members of a port)

Name of Terminal _____

Street Address _____

City _____ State _____ Zip _____

Name of Terminal Person in charge _____
()

Phone Number _____ area code _____

Name of Reception Facility (if subcontracted) _____

Location of Reception Facility (City, State) _____

3 Check the following boxes if the terminal receives or discharges any of the following commodities from ships visiting the terminal:

- | | | |
|--|------------------------------------|----------------------------------|
| <input type="checkbox"/> Oil or petroleum products | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Bulk dry cargoes | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Bulk chemicals | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Fish | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Liquefied gases | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> General cargo | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Discharge | <input type="checkbox"/> Receive |

3 Check the following boxes if the terminal handles or services any of the following ships:

- | | |
|--|---|
| <input type="checkbox"/> Ships of foreign registry | <input type="checkbox"/> Unmanned barges |
| <input type="checkbox"/> U.S. ships in domestic trade | <input type="checkbox"/> Chemical ships |
| <input type="checkbox"/> U.S. ships in foreign trade | <input type="checkbox"/> Container ships |
| <input type="checkbox"/> Passenger ships | <input type="checkbox"/> Break bulk ships |
| <input type="checkbox"/> Ships servicing the offshore mineral and oil industry | <input type="checkbox"/> Ferry boat ships |
| | <input type="checkbox"/> Fishing ships |

Signature of Person In Charge of Terminal

Signature indicates person in charge of terminal acknowledges and consents to being considered as a member of the port, described in Section B.1.

After completing this section go to Section C.

This page may be locally reproduced to accommodate larger Ports

Section C: Circle the location of the USCG Captain of the Port Office which has authority in your area.

Commanding Officer USCG Marine Safety Office	1 Portland, ME
Commanding Officer USCG Marine Safety Office	2 Boston, MA
Commanding Officer USCG Marine Safety Office	3 Providence, RI
Captain of the Port, Long Island Sound	4 Long Island Sound, New Haven, CT
Captain of the Port, New York	5 New York, NY
Commanding Officer USCG Marine Safety Office	6 St. Louis, MO
Commanding Officer USCG Marine Safety Office	7 Huntington, WV
Commanding Officer USCG Marine Safety Office	8 Louisville, KY
Commanding Officer USCG Marine Safety Office	9 Memphis, TN
Commanding Officer USCG Marine Safety Office	10 Paducah, KY
Commanding Officer USCG Marine Safety Office	11 Pittsburgh, PA
Commanding Officer USCG Marine Safety Office	12 Baltimore, MD
Commanding Officer USCG Marine Safety Office	13 Hampton Roads, VA
Commanding Officer USCG Marine Safety Office	14 Philadelphia, PA
Commanding Officer USCG Marine Safety Office	15 Wilmington, NC
Commanding Officer USCG Marine Safety Office	16 Charleston, SC
Commanding Officer USCG Marine Safety Office	17 Jacksonville, FL
Commanding Officer USCG Marine Safety Office	18 San Juan, PR
Commanding Officer USCG Marine Safety Office	19 Savannah, GA
Commanding Officer USCG Marine Safety Office	20 Tampa, FL
Commanding Officer USCG Marine Safety Office	21 Miami, FL
Commanding Officer USCG Marine Safety Office	22 Mobile, AL
Commanding Officer USCG Marine Safety Office	23 Morgan City, LA
Commanding Officer USCG Marine Safety Office	24 New Orleans, LA
Captain of the Port, Houston	25 Houston, TX
Commanding Officer USCG Marine Safety Office	26 Galveston, TX
Commanding Officer USCG Marine Safety Office	27 Port Arthur, TX
Commanding Officer USCG Marine Safety Office	28 Corpus Christi, TX
Commanding Officer USCG Marine Safety Office	29 Chicago, IL
Commanding Officer USCG Marine Safety Office	30 Buffalo, NY
Commanding Officer USCG Marine Safety Office	31 Cleveland, OH
Commanding Officer USCG Marine Safety Office	32 Detroit, MI
Captain of the Port, Grand Haven	33 Grand Haven, MI
Captain of the Port, Sault Ste. Marie	34 Sault Ste. Marie, MI
Commanding Officer USCG Marine Safety Office	35 Duluth, MN
Commanding Officer USCG Marine Safety Office	36 Milwaukee, WI
Commanding Officer USCG Marine Safety Office	37 Toledo, OH
Commanding Officer USCG Marine Safety Office	38 Long Beach, CA
Commanding Officer USCG Marine Safety Office	39 San Diego, CA
Commanding Officer USCG Marine Safety Office	40 San Francisco, CA
Commanding Officer USCG Marine Safety Office	41 Portland, OR
Commanding Officer USCG Marine Safety Office	42 Puget Sound, WA
Commanding Officer USCG Marine Safety Office	43 Anchorage, AK
Commanding Officer USCG Marine Safety Office	44 Juneau, AK
Commanding Officer USCG Marine Safety Office	45 Valdez, AK
Commanding Officer USCG Marine Safety Office	46 Honolulu, HI
Commanding Officer USCG Marine Safety Office	47 Guam

After completing this section go to Section D.

Section D:

1. Does the terminal or port receive visits from ships arriving from foreign ports (except Canada).

Yes No *If the answer is "NO" go to question number 4.*

2. Does the terminal or port have facilities, either onboard or on contract, approved by the Administrator, Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, for the disposal of garbage from foreign ports (except Canada) in accordance with 7 CFR 330.400 and 9 CFR 94.5.

Yes No *(If the answer is "No" you may attach a waiver request in accordance with 33 CFR 158 on a separate attached sheet.)*

NAME OF APHIS APPROVED DISPOSAL FACILITY

TYPE (INCINERATOR, STERILIZER, AUTOCLAVE, ETC.)

()

CITY

STATE

PHONE NUMBER

AREA CODE

3. For those terminal(s)/port(s) requiring the services of an Animal and Plant Health Inspection Service approved facility, is the terminal or port capable of receiving all garbage from these ships visiting the terminal/port within 24 hours of vessel after notification of need for such services is given?

Yes No *(If the answer is "No" you may attach a waiver request in accordance with 33 CFR 158 on a separate attached sheet.)*

4. Is the terminal or port able to receive all garbage as defined in 33 CFR 158.120 which the master or person in charge of a ship desires to discharge, except:

- (1) large quantities of spoiled or damaged cargoes not usually discharged by a ship; or
- (2) garbage from ships not having commercial transactions with that terminal or port?

Yes No *(If the answer is "No" you may attach a waiver request in accordance with 33 CFR 158 on a separate attached sheet.)*

The terminal/port person in charge identified in the Application shall notify the U.S. Coast Guard Captain of the Port (COTP) in writing 30 days after any of the terminal/port information identified under 33 CFR 158.165(b)(3) changes.

Civil Penalties. A person who, after notice and an opportunity for a hearing, is found:

- a. to have made a false, fictitious or fraudulent statement or representation in any matter in which a statement or representation is required to be made under the Act to Prevent Pollution from Ships, or the regulations thereunder, shall be liable to the United States for a civil penalty, not to exceed \$5,000 for each statement or representation; or
- b. to have violated the Act to Prevent Pollution from Ships, or the regulations issued thereunder, shall be liable to the United States for a civil penalty, not to exceed \$25,000, for each violation. Each day of a continuing violation constitutes a separate

CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION PROVIDED IN THIS APPLICATION FOR A GARBAGE RECEPTION FACILITY CERTIFICATE OF ADEQUACY FOR GARBAGE RECEPTION FACILITIES IS COMPLETE, TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

SIGNATURE OF TERMINAL/PORT PERSON IN CHARGE _____

PRINTED OR TYPED NAME OF PERSON IN CHARGE _____

DATE SIGNED _____

ON OR BEFORE AUGUST 27, 1989 MAIL APPLICATION TO
 COMMANDANT (G MFS 1), U.S. COAST GUARD HEADQUARTERS
 2100 SECOND STREET SW
 WASHINGTON, D.C. 20543-0001
 ATTENTION: RECEPTION FACILITY DESK

AFTER AUGUST 27, 1989 MAIL APPLICATION TO
 THE LOCAL U.S. COAST GUARD CAPTAIN OF THE PORT (COTP) OFFICE
 (SEE PAGE 3 FOR THE LIST OF COTP OFFICES)

COMPLIANCE AGREEMENT

A. Regulated Garbage Handling Procedures

- (1) Garbage removed from foreign arriving aircraft will be: (Check appropriate box).
- () Incinerated;
 - () Steam sterilized and contracted for landfill burial without diversion;
 - () Transported by an approved garbage hauler for incineration or sterilization.

Scraping residue and runoff will be ground into an approved sewage system as defined in 7 CFR 300.400 or 4 CFR 94.5 03 and 04.

- (2) The caterer will meet aircraft originating from a foreign location, (foreign flight), on arrival for the purpose of decatering the aircraft. The caterer will immediately notify local Plant Protection and Quarantine (PPQ) if unable to meet a flight on arrival, in which case the caterer will provide control over regulated garbage through assigned caterer or airline personnel in a manner acceptable to PPQ.
- (3) Garbage removed from the ^{vessel} aircraft will be continually maintained in enclosed receptacles with no leakage, exposed garbage, or holes in plastic bags until disposed of in an approved manner.
- (4) The caterer is responsible for all regulated garbage including food waste, loose trays of food and unused meals, and will not allow its unauthorized diversion, removal, or use.
- (5) The dock area and the area around garbage sterilizers, compactors and/or dumpsters shall be kept clean and free of loose garbage. Compactor and dumpster leakage shall be contained in a manner acceptable by PPQ.
- (6) Caterers handling both foreign garbage and domestic garbage at the same catering kitchen will either handle both types of garbage as foreign garbage, or will:
- (a) Identify foreign flight galley equipment before its association with domestic flight equipment and/or garbage;
 - (b) Keep regulated garbage segregated from domestic garbage until incinerated, sterilized, or removed by an approved cartage firm;

- (c) Use easily identifiable containers for foreign garbage. Rigid containers shall be lettered with the words "REGULATED GARBAGE" or a similar acceptable phrase in English and any appropriate foreign language. Lettering shall be at least 2 inches high on indoor containers and at least 4 inches high on outdoor containers. Containers used for regulated garbage shall not be used for domestic garbage; nor shall containers used for domestic garbage be used for regulated garbage; and
- (d) Conspicuously post regulated handling procedures in the work area in English and other appropriate languages.

B. Equipment

(1) If a sterilizer is used:

- (a) It will be capable of heating garbage to a minimum internal temperature of 212 °F, and maintaining it at that temperature for at least 30 minutes. To achieve this the sterilizer will be calibrated for the following time/temperature setting.

Temperature setting _____ PSI _____ Minimum cooking cycle _____

A maximum load of _____ bags of garbage per cooking cycle is allowed.

- (b) A thermocouple probe will be used initially and twice each year to recalibrate the temperature recording device and adjust the sterilization cycle to assure that the garbage is heated to a minimum internal temperature of 212 °F for at least 30 minutes. The test load shall be at the maximum capacity of the sterilizer and of typical composition for the location. The tests will be supervised by an employee of PPQ, Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture (USDA). The adjusted sterilization cycle will be followed.
- (c) The time and temperature record of each batch of foreign garbage shall be dated and initialed by the sterilizer operator and signed by the supervisor. It will be retained at the establishment for at least 6 months and be available for review by PPQ representatives.
- (d) The bottom, rear drain of the sterilizer unit will be cleared between each cycle to assure proper steam circulation and drainage. This is accomplished by removing and cleaning the strainer inside the drain and then flushing the drain with a water hose to dislodge any foreign debris, or by cleaning the strainer and flushing the drain with another system acceptable to PPQ.

- (2) If an incinerator is used, it must reduce all regulated garbage to ash.

C. Training

- (1) The establishment shall present a training program to employees before they are permitted to handle or supervise the handling of regulated foreign arrival flight materials. This training program should be at least 1 hour in duration. Previously trained employees shall be provided review training annually. (This training may be given in more than one session.)
- (2) The training package must be approved by the local PPQ Officer in Charge, and may include both formal classroom training and on-the-job training. It must:
 - (a) Define regulated garbage;
 - (b) Explain the regulations and the purpose of the regulations;
 - (c) Include film, slides, or other training aids on foreign animal and plant diseases and pests;
 - (d) Specifically outline, by demonstration, illustration, or picture, proper regulated garbage handling procedures for the facility, step-by-step from stripping of aircraft to disposal; and
 - (e) Be presented in English and other appropriate languages.
- (3) Proof of training administered to employees shall be made available to PPQ personnel upon request.

D. Backup System

In the event the primary garbage disposal system is inoperable, the local PPQ-APHIS-USDA office must be notified in advance as to use of the following prearranged approved backup system: (Check one)

- () Incinerator located at _____
- () Sterilizer located at _____
- () Other (explain) _____

E. Notice

This agreement may be immediately cancelled or revoked for non-compliance. Violation of these Federal regulations can result in a criminal penalty of up to a \$5,000 fine, a year in jail, or both, or a civil penalty and a fine of up to \$1,000 per violation.

**DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIV. FACILITY CONSTRUCTION & OPERATION
COMMUNITY REQUESTS FOR VILLAGE SAFE WATER GRANT FUNDING
3/8/91**

<u>Community</u>	<u>Project Title</u>	<u>Grant Request</u>	<u>Cumulative</u>
Alakanuk	Honey Bucket Haul	\$305,000	\$305,000
Koyuk	Piped Water and Sewer Systems	\$1,200,000	\$1,505,000
Stebbins	Honey Bucket Access Road	\$38,000	\$1,543,000
Dccring	Water/Sewer Phase I	\$1,998,427	\$3,541,427
Tuluksak	Water, Sewer & Solid Waste Study	\$50,000	\$3,591,427
Nikolai	Water and Sewer Improvement Project	\$500,000	\$4,091,427
Chevak	Sewer upgrade	\$300,000	\$4,391,427
Tyonek	Water & Sewer Phase III	\$742,000	\$5,133,427
Huslia	Sanitation Improvements	\$500,000	\$5,633,427
Kotlik	Honey Bucket Cleanup	\$50,000	\$5,683,427
Statewide	Village clinic water/sewer upgrade	\$500,000	\$6,183,427
White Mountain	Water and Sewer	\$617,000	\$6,800,427
Thorne Bay	Sewer Project	\$1,100,000	\$7,900,427
Ketchikan Gateway Bor.	Mt. Point Water & Sewer Project	\$2,524,000	\$10,424,427
Anderson	Septage Disposal Facility	\$300,000	\$10,724,427
Glennallen	Sewer System	\$1,200,000	\$11,924,427
Anchor Point	Watering Point Facility	\$68,000	\$11,992,427
Klukwan	Lagoon	\$389,000	\$12,381,427
kotna	Rehab of Sanitation Facilities	\$225,000	\$12,606,427
Noorvik	Water & Sewer Upgrade	\$400,000	\$13,006,427
Selawik	Storage/Washeteria	\$800,000	\$13,806,427
Mekoryuk	Flush Tank and Haul Demonstration Project	\$180,000	\$13,986,427
Unalakleet	Solid Waste	\$1,414,000	\$15,400,427
Nelchina/Mendeltna Corporation	Waste Transfer Station & Well	\$42,600	\$15,443,027
Matanuska-Susitna Borough	Talkeetna East Side Sewer and Water Construction	\$3,100,000	\$18,543,027
Chefomak	Water & Sewer System	\$2,147,499	\$20,690,526
Kokhonak	Water & Sewer Improvements	\$100,000	\$20,790,526
New Stuyahok	Water Sewer & Solid Waste	\$477,000	\$21,267,526
Togiak	Togiak Water & Sewer Const.	\$257,000	\$21,524,526
Gambell	Water & Sewer Phase III	\$2,800,000	\$24,324,526
Bethel	Wastewater Treatment System Improvements	\$623,000	\$24,947,526
Lower Kalskag	Solid Waste Improvements	\$175,000	\$25,122,526
Golovin	Water and Sewer Progressive Improvements Plan Ph. 2.	\$427,280	\$25,549,806
Nulato	Water & Sewer System Phase III	\$2,382,000	\$27,931,806
Emmonak	Sewer and Water Expansion	\$1,000,000	\$28,931,806
Kotzebue	Sewer Main Rehab	\$1,370,000	\$30,301,806
Kiana	Sewage Treatment Renovation	\$968,000	\$31,269,806
Ruby	Sanitary Landfill	\$60,000	\$31,329,806
Elim	Sewer Ocean Outfall Line Rehab	\$431,000	\$31,760,806
Hooper Bay	Water & Sewer Upgrade	\$990,000	\$32,750,806
Shageluk	Washeteria/Water Treatment Plant Renovation	\$300,000	\$33,050,806
Kaltag	Water and Sewer Extension	\$217,380	\$33,268,186
Manokotak	Water System Improvements	\$300,000	\$33,568,186
rt Lions	Water & Sewer	\$250,000	\$33,818,186

<u>Community</u>	<u>Project Title</u>	<u>Grant Request</u>	<u>Cumulative</u>
Offman Cove	Water and Sewer Construction	\$800,000	\$34,618,186
savoonga	Solid Waste	\$750,000	\$35,368,186
Chignik	Sewer Upgrade/Drainfield Replacement	\$200,000	\$35,568,186
Various Statewide Communities	Engineering Feasibility Studies	\$100,000	\$35,668,186
Kotzebue	Sewage Lagoon Upgrade	\$480,000	\$36,148,186
Chistochina	Chistochina Safewater	\$25,000	\$36,173,186
Port Graham	Engr Design/Study	\$75,000	\$36,248,186
St. Michael	Water tanker/fire truck/ appurtenances	\$300,000	\$36,548,186
Northway	Sanitation facility upgrade	\$260,000	\$36,808,186
Kivalina	Water Tank Upgrade	\$900,000	\$37,708,186
South Naknek	Septic Tank Project	\$581,000	\$38,289,186
Clarks Point	Extension of Water and Sewer	\$280,000	\$38,569,186
Healy Lake Village	Water/Sewer Project	\$92,000	\$38,661,186
Tanacross	Water & Sewer Expansion & Repair	\$200,000	\$38,861,186
Atka	Engr Evaluation Water/Sewer	\$100,000	\$38,961,186
Grayling	Gallery Pump Project	\$100,000	\$39,061,186
Birch Creek	Solid Waste Removal & Relocation	\$10,000	\$39,071,186
Minto	Solid Waste Site	\$150,000	\$39,221,186
Larsen Bay	Water Improvements	\$530,000	\$39,751,186
Noatak	Solid Waste Site	\$300,000	\$40,051,186
Kotzebue	Sanitary Landfill Study	\$150,000	\$40,201,186
Chenegua Bay	Solid Waste Disposal	\$383,891	\$40,585,077
Chevak	Laundry & Sewer Disposal Lines	\$37,000	\$40,622,077
Shungnak	Solid Waste Improvements	\$120,000	\$40,742,077
Point Baker	Engineering Feasibility Study	\$25,000	\$40,767,077
Ek	Feasibility Study-Water Well Drilling	\$22,500	\$40,789,577
St. Michael	Phase II Washeteria	\$474,200	\$41,263,777
Kasaan	Water Supply Improvements- Phase I	\$306,000	\$41,569,777
Toksook Bay	Water Supply Improvements Project	\$550,000	\$42,119,777
Stevens Village	Washeteria Upgrade	\$400,000	\$42,519,777
Brevig Mission	Water and Sewer Design	\$150,000	\$42,669,777
Ouzinkie	Safewater Relocation	\$200,000	\$42,869,777
Gulkana	Water & Sewer		\$42,869,777
Birch Creek	Tank Rehabilitation	\$150,000	\$43,019,777
Kobuk	Water, Sewer & Solid Waste	\$1,500,000	\$44,519,777
Scammon Bay	Village Safe Water	\$150,000	\$44,669,777
Metlakatla	Water Tank & Feeder Lines Replacement	\$584,200	\$45,253,977
Teller	Safe Water/Sewer/Solid Waste	\$200,000	\$45,453,977
Eagle Village	Washeteria, Lagoon & Water Project	\$1,600,000	\$47,053,977
Ambler	Water and Sewer Lines	\$150,000	\$47,203,977
Venetie	Washeteria Rehab	\$1,470,000	\$48,673,977
False Pass	Water Supply for New Community Dev. Proj.	\$280,250	\$48,954,227
Ek	Washeteria Upgrade	\$8,122	\$48,962,349
Chignik Lake	Solid Waste Study	\$25,000	\$48,987,349