CITY AND BOROUGH OF JUNEAU

SOLID WASTE MANAGEMENT PLAN
PHASE I REPORT

OCTOBER 1991

PREPARED BY

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R.W. BECK
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EXECUTIVE SUMMARY

The Assembly of the City and Borough of Juneau (CBJ) has resolved to promote solid waste management practices in a prioritized order that would minimize present and future threats to human health and the environment, and to update the 1983 Solid Waste Management Plan consistent with the commitment to integrated solid waste management.

Prior to the Assembly's action, the Channel Corporations (Channel) proposed to sell the privately held Channel Landfill, Inc., including the two incinerators, land, office and shops, to the CBJ. Channel further proposed two scenarios under which the CBJ could exercise varying degrees of control over solid waste collection services in Juneau. Both scenarios involved the CBJ contracting with Channel Sanitation Corporation for solid waste collection services, with the second including the transfer of Channel's APUC certificate to the CBJ. These offers remain outstanding. Thus, the Assembly is faced with the decision of whether or not to purchase Channel's landfill and incineration facilities.

This Solid Waste Management Plan - Phase I Report has been prepared to help the Assembly identify and evaluate the critical factors regarding the purchase of the Channel facilities. Key to that decision is whether or not other options exist that would allow the CBJ to control the solid waste management system and implement its integrated solid waste management goals. The options available to the CBJ to control the solid waste management system have been evaluated based on criteria developed after meetings with CBJ staff, the Citizens' Advisory Committee on Waste Management and citizens attending the public forums. The options evaluated and a brief summary of the "Advantages" and "Disadvantages" for each option follows.

EVALUATION OF OPTIONS

The options available to the CBJ to control the disposal of solid waste include: continuing with the status quo; the purchase of the Channel facilities; contracting for disposal with a private disposal company; and, developing new disposal facilities at a CBJ owned site. The options available to the CBJ to control the collection of solid waste generated within Juneau include: continuing with the status quo; the purchase of the Channel Sanitation and Juneau Sanitation APUC certificates and collection equipment and facilities; and, contracting for collection with a private APUC certificate holder.

Disposal Options

- STATUS QUO

  Advantages:

  - Requires no action on the part of the CBJ.
  - Avoids the need for any capital expenditures by the CBJ.

  Disadvantages:

  - Fails to achieve CBJ's solid waste management goals.
  - Fails to provide the CBJ with some degree of control over tip fees, future disposal practices, and future disposal services.
  - Fails to establish an environmental baseline, through a detailed environmental assessment, at the Channel site.
  - Provides highest risk of problems with dependability of service.

- PURCHASE OF CHANNEL FACILITIES

  Advantages:

  - Provides the CBJ the greatest degree of control over disposal in the shortest time frame.
  - Provides the CBJ the greatest assurance that regulations and standards protecting human health and the environment will be complied with at the Channel facilities.
  - Provides the greatest assurance of continuity of services in the short term.
  - Due to the relatively good conditions of the Channel facilities, it will be relatively straight forward to determine a purchase value of the incineration facility based on equivalent replacement value or other appropriate appraisal procedures.
  - Provides opportunity to establish an environmental baseline, through a detailed environmental assessment, at the Channel site.

- In many other communities a competitive situation exists where more than one private solid waste collection and disposal company provides service which in turn helps control rates. This situation does not exist in Juneau and, therefore, public ownership may provide the most effective means of controlling future rates.

- Simplifies implementing changes to the CBJ solid waste management system because CBJ can act directly in making changes and providing financing.

Disadvantages:

- Due to uncertainties regarding liability for past disposal practices and the requirements for future environmental control measures, it will be difficult to determine a precise purchase value for the Channel Landfill.

- Requires a large capital expenditure by the CBJ and may not result in tipping fees that are any lower than those currently charged by Channel.

- Poses the highest risk of CBJ liability under CERCLA because of past disposal practices. However, this increased liability may not result in significant additional costs to the ratepayers for several reasons:

  1. Significant remediation may not be required.
  2. There may not be other liable parties who have the ability to pay remediation costs and, therefore, these costs may be paid by the ratepayer in any case.

- Precludes the possibility of acquisition through default, such acquisition entails less risk for the CBJ under CERCLA.

• CONTRACT FOR DISPOSAL WITH PRIVATE OWNER

Advantages:

- Allows the CBJ to influence standards of service and tip fees through the contract negotiation process.

- Allows the CBJ to lower the risk of problems with service continuity through contract penalty clauses.

- Potentially avoids the need for the CBJ to issue bonds to finance the project. However, costs for required improvements implemented by the contractor would need to be recovered through rate increases.

- Provides the CBJ with a degree of control over disposal services in a short time frame.

Disadvantages:

- It may be difficult for Channel or other private disposal firms to obtain financing for needed system improvements.

- Determination of liability for past disposal practices can probably only follow lengthy and costly legal process.

- Creates uncertainty concerning cost to the CBJ since costs the CBJ might be required to incur are currently unknown.

- Creates uncertainty with respect to CBJ's ability to negotiate a satisfactory contract.

• DEVELOP NEW DISPOSAL FACILITIES

Advantages:

- Provides the CBJ disposal facilities that meet current environmental regulations and practices.

- Provides the potential for costs that may be less than current tipping fees at the Channel facilities.

- Provides an increase in the reliability of service continuity.

- Provides the CBJ direct control over tipping fees and standard of services.

- Provides the CBJ the option to contract for operation or to operate the facilities with municipal employees.

Disadvantages:

- It cannot be implemented in the near term and, therefore, does not provide solutions to the CBJ's current solid waste management problems.

- Potentially increases the CBJ's CERCLA risk for future disposal activities, but to a lesser degree than purchase of the Channel facilities.

- Requires a significant capital investment by the CBJ.

- Does not utilize existing disposal facilities which are capable of providing continued service to the community.

- Creates uncertainty regarding the future incineration of marine waste and the associated costs.

Collection Options

• STATUS QUO

Advantages:

- Allows the CBJ to control certain aspects of collection, such as mandatory collection, through ordinance and permits.

- Requires no capital investment by the CBJ.

Disadvantages:

- Provides the CBJ no ability to influence rates, which remain under APUC regulation.

- Provides the CBJ no control over certain aspects of collection, for example the CBJ would have no ability to implement variable can rates.

• PURCHASE APUC CERTIFICATES, COLLECTION EQUIPMENT AND FACILITIES

Advantages:

- Increases the CBJ's control over standards of service and rates.

- Increases reliability of collection services.

Disadvantages:

- Creates uncertainty since the costs for the APUC certificates are unknown.

- Potentially increases the CBJ's future CERCLA risk as a waste transporter.

• CONTRACT FOR COLLECTION WITH A PRIVATE APUC CERTIFICATE HOLDER

Advantages:

- Allows the CBJ to influence the standards of service and rates through negotiation of the contract.

- Increases the reliability of collection services through the use of penalty clauses in the contract.

Disadvantages:

- Potentially increases the CBJ's future CERCLA risks.

- Creates uncertainty with respect to the CBJ's ability to attract a private APUC holder that is willing to contract in a manner satisfactory to the CBJ.

CONCLUSIONS AND RECOMMENDATIONS

Disposal

Based on our review of the costs, risks and control issues surrounding the purchase of the Channel landfill and incinerator, the following conclusions may be drawn:

- There is a significant need for the CBJ to gain greater control over the disposal of solid waste within Juneau.

- With respect to the disposal of solid waste at the Channel facilities, greater control can be accomplished in two ways:

  a. By purchasing the disposal facilities.
  b. By contracting for service with the owner of the disposal facilities.

- The greatest amount of control can be gained through the purchase of the Channel disposal facilities.

- Control can also be gained through contracting for disposal services with the owner of the Channel facilities; however, it may not be possible to negotiate contract terms and conditions agreeable to both the CBJ and the facilities' owner.

- Evaluation of the Channel facilities indicates that the issue of liability for past practices is a concern only with the landfill and not the incineration facility. the incineration facility was designed to meet applicable environmental standards and, if necessary, can be modified to meet more stringent future standards.

- The CBJ's current position (i.e., Channel ownership) reduces the risk to the CBJ for liability associated with past practices of the landfill. For the CBJ to be held liable for past practices and incur costs associated with that liability, three things would have to occur:

  a) There would have to be documented damage to public health, private property or the environment.
  b) Action to recover damages would have to be taken.
  c) The CBJ would have to be found liable for the damages.

  The CBJ has placed government-generated waste at the Channel Landfill. Therefore, if operation of the facility was found to have resulted in damages, it is reasonable to assume that the CBJ would be assigned some of the costs. How much of the cost would be assigned to the CBJ is more uncertain. For the Channel Landfill responsible parties could potentially include the Channel Corporations, businesses using the facilities, the CBJ, and the State of Alaska. However, since CERCLA holds responsible parties to be jointly and severally liable, if none of the other responsible parties has the means to pay, the CBJ could be held liable for the full cost of damages.

  Thus, while it is possible that the CBJ would ultimately be responsible for payment of all remediation costs regardless of who owns the facility, it is also possible that the magnitude of the costs incurred by the CBJ could be affected if the CBJ elects to purchase the Channel facility. Based on preliminary evaluation of future cost and liability from past disposal practices, the following conclusions are drawn:

  - If remediation is required, even a relatively small increase in the CBJ liability would result in significant cost to CBJ. For example, if remediation costs were $12,000,000 and the CBJ liability were increased by 25%, it would result in additional costs of $3,035,000 which would equate to approximately $300,000 per year, assuming the cost was financed over 20 years.

- If the CBJ decides to purchase the Channel facilities, the value of the landfill (as opposed to the incineration facilities) should be substantially discounted until more information is available to determine if remediation will be required at the site. Due to unknowns regarding potential liability, the landfill appears to have no (or potentially negative) value at this time.

- The actual risk of liability to the CBJ will never be known unless some remediation action is required and liability is established through the complex legal procedures required under CERCLA and RCRA. A fundamental policy issue facing the CBJ is whether or not to accept some degree of increased risk at this time in order to achieve greater control over solid waste management, thereby allowing the CBJ to accomplish other desired goals and objectives.

- Through analysis of ongoing groundwater monitoring data, an environmental site assessment and negotiations with ADEC, it should be possible to more precisely estimate potential liability to the CBJ should it purchase the landfill facility.

Assuming that the CBJ wishes to gain additional control over the disposal of solid waste within Juneau, we recommend that the CBJ simultaneously pursue the following options related to solid waste disposal:

- **Work with Channel to determine if a mutually advantageous contract for solid waste disposal services can be achieved.**

- **Take the steps necessary to purchase the Channel facilities.**

There are potential problems with each of these options that may not become apparent for some time, and it is probably necessary for the CBJ to pursue both options at this time in order to avoid heading down a dead end. In our opinion, pursuing both of these options at this time will not delay the process nor significantly add to the CBJ's costs since most of the steps involved with either option would be necessary regardless of which option is chosen.

We also recommended that the CBJ proceed with identifying available options for a new landfill which could be developed at some time in the future if both of the preferred options prove to be unacceptable in the long term. We are <u>not</u> recommending that the CBJ develop a new landfill at this time, but only provide a potential backup system that is consistent with prudent planning practice.

The implementation actions recommended are set forth in Table ES-1.

Collection

To achieve direct control over rates and standards of service for collection of solid waste within Juneau, the CBJ would have to acquire the APUC certificates and collection equipment and facilities from both Channel Sanitation and Juneau Sanitation. Control over solid waste collection services could be achieved through contracting with a private collection company.

The level of collection services (e.g., implementing variable can rates, providing curbside recycling) will in part depend on future decisions that the CBJ makes during Phase II of the Solid Waste Management Plan concerning the types of recycling programs it wishes to implement. Potential negotiations with a private disposal company for disposal services also may affect the type of collection services that the CBJ requires. Therefore, we recommend that **the decision regarding the purchase of APUC certificates and collection equipment and facilities be made subsequent to completion of Phase II of the Solid Waste Management Plan and subsequent to resolution of issues related to contracting for disposal.**

Table ES-1
Implementation Actions

Purchase of Channel Facilities		
Task	Estimated Duration	Description
*1. Initial discussions with Channel	1 month	•Identify principal, technical, environmental, legal and financial issues. •Set objectives and schedule for negotiations.
*2. Continue environmental monitoring and evaluation of data at landfill.		•Analyze quarterly samples. •Develop database of environmental data for use in site assessment.
*3. Discussions/negotiations with ADEC.		•Establish regulatory issues. •Establish agency position regarding remediation. •Establish agency position regarding future environmental control measures.
4. Policy determination on level of acceptable risk.	2 months	•Review regulatory financial issues. •Assembly decision on level of acceptable risk.
5. Conduct environmental assessment.	6 months	•Site history/file review. •Field investigations of surface soils, sedimentary surface water and landfill gas. •Additional borings. •More detailed analysis of environmental data.
6. Conduct appraisal of incinerator and other on-site facilities to determine reasonable purchase price.	3 months	•Confirm future improvements for regulatory compliance. •Based on facility audit conducted in Phase I, prepare appraisal based on equivalent replacement value or other appropriate valuation procedure.

*Tasks common to both purchase of facilities and development of contract for disposal services.

7. Prepare valuation of landfill.	3 months	•Prepare valuation based on income, cost and market value approaches. •Discount value based on liability/risk issues.
*8. Evaluate backup disposal system.	2 months	•Evaluate availability of suitable sites. •Establish site selection process. •Identify permitting, land use issues, site development requirements and schedule.
9. Negotiate purchase contract with Channel.	3 months	•Establish purchase price. •Finalize terms and conditions. •Execute contract.

Develop Contract for Disposal		
Task	Estimated Duration	Description
*1. Initial discussions with Channel.	1 month	•Identify principal, technical, environmental, legal and financial issues. •Set objectives and schedule for negotiations.
2. Legal review of flow control and mandatory collection.	2 months	•Determine legislative/legal authority to implement flow control and mandatory collection.
3. Review procurement requirements.	1 month	•Determine requirements for competitive bidding and other procurement procedures required by state and local codes and regulations.
*4. Discussions/negotiations with ADEC.		•Establish regulatory issues. •Establish agency position regarding remediation. •Establish agency position regarding future environmental control measures.

*Tasks common to both purchase of facilities and development of contract for disposal services.

5. Review availability of financing.	2 months	•Determine ability of private firm to finance future improvements. •Develop financing options.
6. Develop contract terms and conditions.	6 months	•Negotiate draft contract including provisions for the following: a. Scope of services to be provided b. Location of disposal and/or transfer site(s) c. Minimum hours of operation d. Scope and conditions of operation e. Scope and conditions of maintenance f. Staffing, equipment, safety and utilities requirements g. Fee and rate schedules h. Compliance with any and all applicable federal, state and local law requirements i. Flow control j. Passage of ownership of waste received k. Right to salvage l. Tonnage requirement (if applicable) m. Insurance requirements n. Indemnity o. Term of agreement and right to renew p. Default provisions and penalties q. Bankruptcy and insolvency provisions r. Closure/post-closure requirements s. Closure financial assurance fund establishment t. Host fees and/or surcharges u. Amendments v. Arbitration w. Reporting and audit requirements
7. Determine payment (rates).	2 months	•Establish disposal tip fee and escalation rates.
8. Negotiate contract for disposal services.	3 months	•Execute contract.
*9. Evaluate backup disposal system.	2 months	•Evaluate availability of suitable sites. •Establish site selection process. •Identify permitting, land use issues, site development requirements and schedule.

*Tasks common to both purchase of facilities and development of contract for disposal services.

CHAPTER 1:
INTRODUCTION

R.W. BECK
AND ASSOCIATES

CHAPTER 1: INTRODUCTION

In March 1990, the Assembly of the City and Borough of Juneau (CBJ) adopted as policy the concept of integrated solid waste management to guide decisions regarding solid waste management in the CBJ.[1] To minimize present and future threats to human health and the environment, the Assembly resolved to promote the following solid waste management practices in the following order of priority:

- Waste reduction
- Recovery of resources from solid waste sources
- Repeated use of packaging and products
- Recycling of all eligible materials, including large appliances if they are usable or repairable
- Recovery of heat or electricity from waste incineration
- Treatment and processing of waste to reduce volume
- Waste incineration
- Landfilling and disposal of remaining solid waste and ash in an environmentally sound manner

The Assembly further resolved to update the Solid Waste Management Plan, originally prepared in November 1983, consistent with the commitment to integrated solid waste management.

Prior to the Assembly's action, the Channel Corporations (Channel) sent a letter to the CBJ, dated April 4, 1989, proposing to sell the privately held Channel Landfill, Inc., including the two incinerators, land, office and shops, to the CBJ for under $7 million dollars.[2] Channel further proposed to keep the solid waste pick-up service and container rental service, and enter into a five year minimum contract with the CBJ for Channel Sanitation Corporation to provide collection services throughout the CBJ. Channel Sanitation Corporation is a privately held corporation, with identical ownership to Channel Landfill, Inc. This offer remains outstanding.

In August 1990, Channel submitted a proposal to transfer the Channel Sanitation Corporation's Alaska Public Utilities Commission (APUC) certificate to the CBJ in exchange for a long-term contract for Channel Sanitation Corporation to provide solid waste pick-up service.[3] This offer also remains outstanding.

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[1] Resolution of the City and Borough of Juneau, Alaska, Serial No. 1433, adopted March 19, 1990.

[2] An exact selling price was not given by Channel.

[3] "A Proposal to Transfer the Channel Sanitation APUC Permit to the City and Borough of Juneau," prepared by Ernest E. Polley on behalf of the Channel Corporations, dated August 21, 1990.

Thus, the Assembly of the CBJ is faced with the decision of whether or not to purchase Channel's landfill and incineration facilities.

The goal of this Solid Waste Management Plan - Phase I Report is to provide the Assembly with an issue-oriented document that identifies and evaluates the critical factors regarding the purchase of the Channel facilities and facilitates the decision-making process. This Phase I Report provides an overview of the existing solid waste management system serving the CBJ, an evaluation of the various solid waste management options available to the CBJ, a reconnaissance evaluation of the Channel facilities and alternative sites for locating a new landfill, and a recommendation for whether or not the CBJ should purchase the Channel facilities. The Assembly's policy of integrated solid waste management influenced the preparation of this Phase I Report. Public comment received at two public forums consistently highlighted the need to deal with two central issues, control and cost, when evaluating what course of action the CBJ should take related to the Channel facilities.[4]

The process followed to develop this Phase I Report involved working closely with the staff of the CBJ, meeting regularly with the Citizens' Advisory Committee on Waste Management, attending two public forums, meeting with representatives of Channel and reviewing information provided by them, interviewing Alaska Department of Environmental Conservation staff and reviewing their files, interviewing Alaska Public Utilities Commission staff, and reviewing the draft Closure Study Report - Channel Landfill, prepared by Sweet-Edwards/EMCON (completed while this Phase I Report was being developed).

[4] Public Forums were held to obtain citizen input on June 5 and July 1, 1991.

The staff of the CBJ and R.W. Beck and Associates would like to thank the individuals from the following organizations who assisted in the development of this Phase I Report:

- Citizens' Advisory Committee On Waste Management
- Alaska Department Of Environmental Conservation
- Alaska Public Utilities Commission
- Channel Corporations
- Citizens Attending the Public Forums

CHAPTER 2:
EXISTING CONDITIONS

R.W. BECK
AND ASSOCIATES

CHAPTER 2: EXISTING CONDITIONS

CURRENT SOLID WASTE MANAGEMENT SYSTEM SERVING THE CBJ

GENERAL DESCRIPTION

Juneau's current solid waste management system consists of a solid waste collection service, two incinerators, a landfill and a variety of recycling opportunities. The CBJ does not own or operate any part of the existing solid waste management system. The solid waste collection service provides pick-up of customers' solid waste at residential, commercial, industrial and governmental locations. The solid waste is then hauled to the Channel disposal site for processing and final disposal. Self-hauling of solid waste to the disposal site also occurs. The collection service is operated pursuant to an Alaska Public Utilities Commission (APUC) certificate. Two private companies hold APUC certificates; however, only one company, Channel Sanitation, is currently providing collection service in Juneau.

The landfill and incinerators at the Channel disposal site are operated pursuant to permits issued by the Alaska Department of Environmental Conservation (ADEC) (see Appendix H - Existing Permits). The Channel landfill and incinerators are located approximately half way between Juneau International Airport and downtown Juneau at 5600 Tonsgard Court in the lower Lemon Creek Valley. The site, which is open to the public from 8 a.m. to 5 p.m., Monday through Saturday, consists of approximately 44.5 acres. All vehicles disposing of waste at the site are weighed as they enter and exit the facility.

In addition to the landfill and the two incinerators, an office building, asphalt plant, car towing and temporary storage business, and equipment rental business are located on the site. Lemon Creek, Eagle Creek and Vanderbilt Creek flow in the vicinity of the site.

The incinerators are used to reduce the volume of the solid waste being landfilled. Each incinerator has a rated capacity of 36 tons per day, and is operated five days a week.

The active portion of the landfill consists of approximately 35 acres. Specific locations within the landfill site are set aside for the disposal of incinerator ash and non-combustible residue, inert material, asbestos, junked vehicles and unincinerated putrescible waste.

A portion of the community's household hazardous waste is diverted from the solid waste stream through collection days sponsored annually by the CBJ in conjunction with ADEC. This year, collections were held on June 20, 21 and 22, 1991.

OWNERSHIP

The disposal and collection portions of the solid waste management system are currently privately owned and operated by the Channel Corporations, a group of three investor-owned affiliated corporations: Channel Landfill, Inc., Channel Sanitation Corporation, and Channel Equipment Incorporated.

Channel Landfill, Inc., purchased the landfill site in 1977 from Chester Strohmeyer and installed the two incinerators at the site in 1985. According to ADEC records, Chester Strohmeyer operated Acme Disposal at the Channel site beginning in 1963. His property was approximately 90 acres. (Prior to 1963, solid waste generated within the CBJ was disposed of through open burning and/or landfilling at the Thane Rockdump site, located south of the CBJ's current sewage treatment plant. The prevalent method of disposal at both the Thane Rockdump and Channel sites was disposing of wastes in uncovered, unlined pits.)

Channel Sanitation Corporation is the affiliate that operates the collection services and holds an APUC certificate. Containers used for the collection of solid waste are rented through Channel Equipment Incorporated.

In July 1988, Juneau Sanitation, owned by Myron Klein, acquired an APUC certificate authorizing it to operate a competing solid waste collection service throughout Juneau. To date, Juneau Sanitation has not exercised its right to set up solid waste collection services in Juneau. Juneau Sanitation's APUC certificate was the subject of a court challenge brought by Channel; however, the Alaska Supreme Court recently up-held the validity of the certificate[1].

RATES

The rates charged for solid waste collection are subject to APUC approval since collection services are provided by a private company pursuant to an APUC certificate. The current rates charged by Channel Sanitation vary depending on the type and level of service received. The basic rate for weekly residential pick-up for up to three containers is $24.09 per month, and for weekly commercial pick-up for a one cubic yard container is $82.61 per month. (For a break-down of all rates currently charged, refer to Appendix E - Channel Rates.)

The disposal charge (tipping fee) assessed at Channel's disposal site is $120 per ton for mixed municipal waste. The charge is $40.00 per ton for self-hauled mud, stumps, and construction and demolition debris.[2]

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[1] Subsequent to the Alaska Supreme Court's ruling in favor of the APUC's granting of a certificate to Juneau Sanitation, Channel Sanitation has repeatedly filed requests with the APUC to have the Juneau Sanitation certificate revoked on grounds that Juneau Sanitation has failed to commence operations. Those requests have been denied.

[2] Per ton charges obtained from Channel staff.

Typically, a tipping fee is included as a cost of doing business in the rates charged by collection companies, and the tipping fee itself is not directly regulated by the APUC. However, when disposal facilities and collection services are owned by closely affiliated companies (as is the case with the Channel Corporations), the APUC will review the tipping fee.

RECYCLING

Recycling activities conducted by the Channel Corporations include the collection of household batteries, the separation of glass for stockpiling at the landfill, and the separation of metals and appliances. A mix of profit and non-profit organizations, as well as the Alaska Department of Administration, collect a variety of materials (including newspaper, white ledger paper, computer paper, car batteries, corrugated cardboard, plastic shopping bags, aluminum and steel cans, and non-ferrous metals) for transfer to market.

Table 2.1 sets forth a summary of the recycling activities in Juneau for 1990 prepared by the CBJ.[3]

[3] Information compiled by the Solid Waste Management Office, Division of Land and Resources.

TABLE 2-1

JUNEAU RECYCLING ACTIVITIES
1990 SUMMARY

RECYCLER	RECYCLABLE MATERIAL	AMOUNT COLLECTED	COMMENTS
Channel Sanitation	Glass	15 tons	The glass is currently being stockpiled, awaiting markets for glass to improve. Collection program began in July 1990.
	Household Batteries	N.A.	A sufficient quantity of batteries to ship to recycler have not been collected. Need 50 pounds. Collection began in July 1990.
Mendenhall Flying Lions Club	Newspaper	180 tons	
	White Office Paper	160 tons	
State of Alaska	Laser Computer Paper	75 tons	State collection program began in March 1990.
Pay N Save	Plastic Bags	75,000 bags	Estimation based on capacity of totes and number of totes filled. Bags are not weighed. Also includes shrink wrap in its collection. Program began in September 1990.
E & L Auto	Car Batteries	136 tons	Tonnage may include batteries collected from other communities.
	Non-Ferrous Metal	19.7 tons	
	Aluminum	2.7 tons	
	Steel (Ferrous Metal)	909 tons	
Project 2000	Non-Ferrous Metal	27.5 tons	Mostly aluminum.
Auke Bay Cans	Non-Ferrous Metal	N.A.	
North Tongass Salvage	Non-Ferrous Metal	40 tons	Rough estimate.
	Ferrous Metals	85 tons	Rough estimate.

In July 1989, the Mayor's Committee on Recycling was established to formulate practical, specific recommendations to promote recycling in Juneau and to provide comprehensive long-term strategies for community action. The Committee presented its recommendations in it Report to the Assembly, dated January 23, 1990. Among its many recommendations, the Committee recommended that a comprehensive recycling program be established within three years, and that the CBJ not acquire the landfill or subsidize additional incinerator capacity until the CBJ's commitment to recycling was determined.

The CBJ recently distributed a Community Recycle Directory that informs residents of what materials may be recycled and where to take the recyclable material for recycling. The Directory was created by The Friends of Recycling and sponsored by the Citizens' Advisory Committee on Waste Management.[4]

SOLID WASTE MANAGEMENT PLANNING

In November 1983 the CBJ prepared a Solid Waste Management Study in reaction to two compelling problems. The first involved a near-term shortage of landfill capacity, and the second involved a serious problem with sewage treatment plant sludge disposal. The CBJ wanted to evaluate the potential benefits that could be derived from recycling programs and energy recovery from waste. This Phase I Study begins the CBJ's first major effort to update its Solid Waste Management Plan since 1983.

CITIZENS' ADVISORY COMMITTEE ON WASTE MANAGEMENT

The Citizens' Advisory Committee on Waste Management was formed to serve as a liaison between the community and the CBJ Assembly and administration on waste-related issues that affect Juneau. The Committee advises the Assembly and administration on the development of policies and the implementation of programs related to waste management. The Assembly has charged the Committee to address the following issues: waste reduction; recovery of resources from solid waste sources; reuse of products and packaging; recycling of waste; waste treatment and processing; waste incineration; waste disposal and landfilling; transportation of waste; litter control; household hazardous wastes; medical wastes; mining wastes; Superfund investigations; sewage sludge disposal; and, public education and information on waste management.

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[4] A copy of the Community Recycle Directory may be obtained by contacting the CBJ Citizens' Advisory Committee on Waste Management at 586-5266.

WASTE GENERATION TRENDS AND CHARACTERIZATION

WASTE QUANTITY

In 1990, the Channel incinerator and landfill facilities accepted 29,759 tons of solid waste. Channel classified approximately 90% of this as mixed municipal waste and approximately 10% as mud, stumps or demolition debris. Juneau's population in 1990 was 28,881.

As with all forecasts, future waste stream projections are subject to uncertainty. Factors that affect the amount of waste generated by a community include population fluctuations, waste reduction practices and recycling rates. Within Juneau three additional factors will affect the amount of waste requiring disposal:

- Recycling practices and markets (affects recycling rates)
- Future mining activity in the area (affects population)
- Initiation of mandatory collection and flow control[5] (potentially affects how much waste goes to the disposal facilities)

To bracket the variations in future Juneau waste quantities, two sets of six projections were performed, for a total of twelve waste quantity scenarios. Projections for three scenarios, baseline (no major mines coming into operation), reopening of the Alaska-Juneau (AJ) Mine, and opening of both the AJ and Kensington mines, were performed assuming both no recycling, and assuming a 2% increase in recycling per year beginning in 1991 and leveling out at 25% recycling in 2003. These six scenarios were then repeated, assuming addition in 1994 of a third 36 ton per day incinerator at the Channel facility. The projections assumed constant per capita waste generation, and were based on figures from 1990. These twelve scenarios are presented in Appendix G - Waste Stream Projections.

For the set of projections based on retaining two incinerators, the baseline scenario with recycling, yields the lowest waste stream projections for the CBJ, with a cumulative total of approximately 272,900 tons of solid waste requiring landfill disposal for the period 1989-2009. The most conservative projection is the scenario that assumes two incinerators, opening of both mines, and no recycling. This scenario projects a cumulative total of approximately 524,800 tons requiring disposal for the period 1989-2009. Addition of a third incinerator would reduce the amount of waste requiring disposal. The projection for the baseline scenario (with recycling) is a cumulative total of 214,900 tons requiring landfill disposal for the period 1989-2009.

The CBJ currently neither mandates waste collection, nor directs all waste to Channel by flow control. If mandatory collection and/or flow control were to be instituted within the next few

[5] "Flow control" is used to describe where all solid waste generated in Juneau is directed to be disposed of at a designated disposal site.

years, the waste stream going to the disposal facilities would likely increase. This factor would have an effect on the amount of waste requiring disposal in the CBJ.

WASTE COMPOSITION

No waste composition studies have been performed for the CBJ. In the Report to the Assembly from the Mayor's Committee on Recycling, dated January 23, 1990, the composition of residential waste was reported as:

- Paper 39%
- Misc. 22% (plastic, rags, appliances, furniture, etc.)
- Yard Waste 12%
- Food Waste 10%
- Glass 9%
- Metal 7%
- Aluminum 2%

The Mayor's Committee derived these figures from average figures for Washington State, and the figures do not necessarily represent the composition of residential waste in Juneau.

The total percentage of paper in the non-residential waste stream is probably higher in Juneau than in other southeast Alaska communities due to the presence of a significant number of government offices.

Solid waste from cruise and cargo ships represent a fraction of Juneau's waste stream, and are somewhat unique to Juneau and other southeast Alaska cities. The federal Marine Pollution Annex V (MARPOL V) provisions require that certain marine wastes be incinerated. This requirement, and the fact that Juneau and Sitka are the only cities in southeast Alaska that have incinerators, result in a significant contribution of this waste to the Channel incinerator facility. The U.S. Custom Service estimates a total of 337 cruise ship stops in the 1990 season.[6]

[6] "Juneau Trends: A Review of Current Economic and Social Trends," February 1991.

The amount of waste off-loaded from each ship varies. The quantity is influenced by the ship's itinerary, number of crew and passengers, and length of stay in Juneau. No field studies to estimate quantity and composition of Juneau's marine waste have been performed. Channel records summarize cruise ship waste as follows:

Year	Cruise Ship Waste
1988	582 tons
1989	652 tons
1990	1,285 tons
1991	+12% over 1990

Channel reports that cruise ship waste appears to be predominantly food waste, similar to waste from restaurants and hotels. Data from other U.S. ports indicate that the amount of waste off loaded may range from .5 to 15.5 tons per ship. In Ketchikan, a total of approximately 10 tons or more of waste is off loaded from cruise ships per summer day. Ketchikan's volume of cruise ship traffic is similar to Juneau's. Recent (unpublished) U.S. Navy audits suggest that the waste stream generated from ocean-going ships is different in composition from typical mixed municipal solid waste. The Navy estimates that the percentage of food wastes from ships comprise about 35% of the waste stream compared to only about 7 to 9% for typical mixed municipal solid waste. The percentage of plastics on ships is similar to the plastics percentage in mixed municipal solid waste. However, the percentage of plastics off loaded from ships in Juneau (as well as other ports) is probably high because MARPOL V prohibits ocean dumping of plastics regardless of distance from shore.

For additional information concerning MARPOL V, see the discussion of MARPOL V later in this chapter.

REGULATORY ENVIRONMENT

This section focuses on the authority that regulatory agencies and the CBJ have over the management of solid waste in Juneau, and any anticipated changes to that authority. Future changes in regulation may be significant to the CBJ's decision regarding purchase of the Channel facilities because these changes can have a substantial effect on the cost of developing, operating, and closing solid waste management facilities.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The Alaska Department of Environmental Conservation is the primary regulatory agency governing the management of solid waste in Juneau. ADEC has been empowered under the laws of Alaska to:

> adopt regulations necessary to effectuate the purposes of [the Alaska Environmental Conservation Law], including, by way of example and not limitation, regulation providing for
>
> (A) control, prevention and abatement of air, water, or land or subsurface land pollution;
>
> ...
>
> (E) collection and disposal of garbage, refuse, and other discarded solid materials from industrial, commercial, agricultural and community activities or operations;[7]

Solid Waste Management Regulations, 18 AAC 60

ADEC is the agency responsible for administering the state regulations for solid waste management set forth in the Alaska Administrative Code (AAC), Title 18, Chapter 60. These regulations establish requirements for the following:

- General design and operation of solid waste disposal facilities
- Specific design and operation of landfills
- Disposing of special and hazardous wastes (e.g., vehicular or construction equipment, sewage sludge, asbestos, low-level radioactive waste, polychlorinated biphenyls (PCBs) and infectious waste)
- Recycling of recyclable waste metals
- Obtaining a waste disposal permit
- Monitoring facilities
- Taking remedial action

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[7] Alaska Statutes 46.03.020, Powers of the Department.

- Maintaining records
- Submitting reports
- Closing landfills[8]

A person may dispose of solid waste, or construct, modify or operate a solid waste disposal facility only in accordance with a waste disposal permit issued by ADEC pursuant to 18 AAC 60.200. The Channel landfill operates under ADEC permit 8511-BA016. Along with the specific conditions included in its ADEC permit, Channel must comply with the landfill requirements set forth in 18 AAC 60.045 and the solid waste disposal facility requirements set forth in 18 AAC 60.035.

18 AAC 60.035 establishes general requirements for solid waste facilities. These include the following:

- Surface water run-on must be controlled to prevent water from entering solid waste.
- Solid waste must not be placed in standing water.
- Waste, leachate and eroded soil must not cause a violation of the water quality standards set forth in 18 AAC 70.
- In an aquifer, leachate must not cause violation of drinking water standards set forth in 18 AAC 80.020 and .050.
- A facility located in a floodplain must not restrict the flow of a flood and must be designed to protect against washout of solid waste from the facility.
- Disease vectors must be controlled.
- Birds must not pose an hazard to aircraft.
- Wildlife must be prevented from reaching putrescible wastes.
- Public access must be controlled.
- Incineration of solid waste must be conducted in an incinerator.
- Dust, odor, noise, traffic and litter must be controlled.
- On-site salvaging must be controlled.
- Access roads must be kept passable.

18 AAC 60.045 establishes certain requirements specific to landfills. These include the following:

[8] For more information concerning the closure of the Channel landfill, refer to the "Closure Study Report - Channel Landfill," dated July 1991, prepared by Sweet-Edwards/EMCON, Inc.

- The working face must be kept as small as practical.
- Solid waste must be compacted in 2 foot increments.
- Operational cover, defined as at least 6 inches of soil, must be applied in accordance with a schedule included in the regulation.
- Cover must be placed over partially filled active areas.
- Final cover must be placed within specified timelines.
- Landfill gasses must be controlled.
- Surface water must be controlled on site.
- There must be a minimum 50 foot setback from the facility boundary.
- If a liner is used, it must conform to prescribed standards.

If Channel desires to expand, reconstruct or close its solid waste disposal facility,[9] then pursuant to 18 AAC 60.320, Channel must prepare and submit to ADEC record drawings that show the location, types and volumes of waste deposited at the facility. Furthermore, at the time of sale or other transfer of the property, Channel must provide a copy of the information to the purchaser or transferee.

ADEC intends to revise the solid waste management regulations to impose more stringent requirements, and is currently preparing a criteria document entitled "Minimum Design Parameters for Solid Waste Landfills Serving over 2,000 People in Southeast Alaska." This document will include requirements for landfill construction, operation, closure and post-closure; the preparation of work plans for environmental monitoring (surface water, groundwater, and methane gas); procedures for sludge and asbestos disposal; contingency action; and, surface water control.

Household Hazardous Waste, AS 46.03.309

ADEC is required under AS 46.03.309 to provide temporary collection of hazardous waste generated by households and small quantity generators, and to prepare the hazardous waste for shipment to a federally approved hazardous waste disposal site. Household hazardous collection days have become an annual event in Juneau, the most recent held June 20, 21 and 22 of this year. As these types of events become more common and residents become more familiar with how to properly disposal of household hazardous waste, there should be a significant reduction in the quantity of household hazardous waste being sent to the landfill.

[9] A "solid waste disposal facility" is defined in 18 AAC 60.910 to mean all contiguous land, structures, appurtenances and improvements, within the facility boundary used to treat, store or dispose of solid waste, including property used as a landfill, a land-spreading facility or other structure used for the final disposal of solid waste into or onto the land.

Air Quality Control Regulations, 18 AAC 50

ADEC is responsible for seeking compliance with the state's air quality control regulations set forth in 18 AAC 50. The air quality control regulations focus on emission sources, such as incinerators and industrial processes. If a gas flare is installed as part of a landfill gas control system, then these regulations would apply. If these regulations are revised to follow proposed federal air quality standards, they may require landfill gas control.

Under 18 AAC 50.300, an incinerator with a rated capacity of 1,000 pounds per hour or more is required to operate pursuant to an air quality permit issued by ADEC. The Channel incinerators, each with a rated capacity of 3,000 pounds per hour, operate pursuant to Air Quality Permit No. 9011-AA001.

ADEC is scheduled to revise the state's air quality control regulations in approximately four years to implement the November 1990 revisions to the federal Clean Air Act.

Water Quality Standards, 18 AAC 70

ADEC is responsible for seeking compliance with the state's water quality standards set forth in 18 AAC 70. The water quality standards establish different standards for fresh water and marine water based on the waters use. Fresh water and marine water used for the growth and propagation of fish, shellfish, other aquatic life and wildlife are located adjacent to the Channel site. Thus, these standards can have an important effect on the operation of the Channel facilities, and the development and operation of a new landfill.

ADEC is scheduled to revise the state's water quality standards by the end of 1991. ADEC will solicit public comment on the proposed revisions in late summer or early fall of this year. The scope of the planned revisions includes two important areas. First, the toxic water quality criteria would be revised to be quantitative instead of qualitative. The current standards adopt by reference the U.S. Environmental Protection Agency's (EPA) 1986 Quality Criteria for Water. The proposed revisions would list these criteria explicitly. Second, water quality criteria would be adopted that represent an acceptable exposure (i.e., a lifetime excess, or additional, cancer risk in the range of 1×10^{-5} to 1×10^{-7}). This represents one additional case in 100,000 to one additional case in 10,000,000 exposed individuals.[10]

ADEC is currently developing a policy to implement the anti-degradation language in the water quality standards. The anti-degradation language prohibits the degradation of state waters.[11]

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[10] "Closure Study Report - Channel Landfill," page 2-1, dated July 1991, prepared by Sweet-Edwards/EMCON, Inc.

[11] Id.

Drinking Water Regulations, 18 AAC 80

ADEC is responsible for obtaining compliance with 18 AAC 80, the state's drinking water regulations, which were recently revised to reflect federal drinking water regulation revisions. The drinking water regulations establish standards for drinking water quality and testing. Revisions cover two important areas. First, public notification requirements were modified, and second, a more stringent set of standards for volatile organic compounds[12] in drinking water were established.

ALASKA PUBLIC UTILITIES COMMISSION

The Alaska Public Utilities Commission is the primary regulatory agency governing the collection of solid waste in Juneau. The operation of a solid waste collection service is considered a public utility,[13] and APUC regulates public utilities pursuant to Alaska Statutes (AS) 42.05. APUC may investigate and hold hearings on the rates, classifications, rules, regulations, practices, services and facilities of a public utility; make or require just, fair and reasonable rates, classifications, regulations, practices, services and facilities; prescribe the system of accounts; and, regulate the service and safety of operations.[14]

Under AS 42.05.711(b), a municipally-owned solid waste collection service is exempt from APUC regulation, other than AS 42.05.221 - .281 (which deal with the APUC certificate requirements), unless the municipality directly competes with another collection service,[15] in which case all utilities[16] owned and operated by the municipality (e.g., sewer or water) become subject to APUC regulation.[17]

Under AS 42.05.221, a solid waste collection service may not operate and receive compensation without first obtaining an APUC certificate declaring that public convenience and necessity require or will require the service. The APUC must find the certificate applicant fit, willing and

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[12] "Volatile organic compounds" are essentially chemicals such as benzene that easily evaporate out of liquids into the air.

[13] The operation of a solid waste disposal site does not constitute a utility service; it is only the passing over control of solid waste to the disposal site operator that is regulated as a utility function. McClellan v. Kenai Peninsula Borough, 565 P.2d 175 (Alaska 1977).

[14] AS 42.05.141

[15] See the discussion in the "Municipal Authority" section concerning AS 29.35.050, which restricts the ability of a municipality to compete with an APUC certificated solid waste collection service.

[16] A "utility" is broadly defined in AS 42.05.990(4).

[17] A municipally owned utility in competition with other utilities is subject to the full gamut of regulation pertaining to other utilities, with exception relating to bond covenants. Public Utilities Commission v. Municipality of Anchorage, 555 P.2d 262 (Alaska 1976).

able to provide the solid waste collection service. An APUC certificate must describe the nature and extent of the authority granted in it, including a description of the authorized area and scope of operations.

Though an APUC certificate does not create a monopoly, the APUC may determine that competition is not in the public interest, and take actions appropriate to eliminate the competition and any undesirable duplication of facilities. Current APUC policy is to allow competition, and in Juneau, competing APUC certificates have been issued to Channel Sanitation and Juneau Sanitation. (Figure 4-2, included in Chapter 4, shows the areas of collection included in these two certificates.) If the CBJ decided to provide solid waste collection service, it would be required to comply with AS 42.05.221 regardless of whether competition existed or not, and obtain an APUC certificate.

Under AS 42.05.281, an APUC certificate may not be sold or transferred without the APUC's prior approval.

The APUC has the authority under AS 42.05.291 to establish the standards for service and facilities with which an APUC certificate holder must comply, and under AS 42.05.431 to set just and reasonable rates. However, if the CBJ provided the solid waste collection service without competition, it would be exempt from APUC regulation under this statute (except for the requirements concerning obtaining an APUC certificate).

Recently added to AS 42.05.431, the APUC is required when establishing solid waste collection rates to permit the recovery of reasonable net capital and operating costs related to solid waste recovery and recycling services, and to promote cost-effective recycling services in utility rate design.

MUNICIPAL AUTHORITY

A municipality, pursuant to AS 29.35.050, may by ordinance do the following:

- Provide for the establishment, maintenance and operation of a system of solid waste management collection and disposal for the entire municipality or district.
- Require all persons in the municipality or district to use the system and to dispose of their solid waste as provided.
- Award contracts for or use municipal employees for the collection and disposal of solid waste.
- Require property owners or occupants of premises to use the solid waste collection and disposal system provided by the municipality
- Fix charges against the property owners or occupants of premises for the collection and disposal.
- Provide penalties for violations of the ordinances.

A municipality may not prohibit an APUC certificated collection service from continuing to collect and dispose of solid waste in an APUC authorized service area if the APUC certificate was originally issued before the municipality provided similar services. Furthermore, a municipality may not provide solid waste collection and disposal service in an area to the extent it lies in an area granted to an APUC certificated collection service until the municipality has purchased the APUC certificate, equipment and facilities of the APUC certificated collection service, or that portion of the certificate that would be affected, at fair market value. A municipality may exercise the right of eminent domain to acquire the certificate, equipment and facilities.

If the CBJ wanted to provide solid waste collection service, it would have to determine in what areas it wanted to provide service, acquire the APUC certificates, equipment and facilities, or portions thereof, of the APUC certificate holders affected, and then prohibit the provision of collection service by any other individual or company within that area.[18]

A municipality also has the authority, under AS 29.35.050, to establish an intermediate transfer site for the collection and disposal of solid waste without purchasing the APUC certificate, equipment and facilities of any APUC certificated collection service. The municipality may, without compensating an APUC certificate collection service operating in the area, provide for or contract with a certificated or non-certificated entity to provide for the collection and disposal of solid waste left at the intermediate transfer site. Under AS 42.05.711, the collection and disposal by a municipality of solid waste deposited at an intermediate transfer site is exempt from APUC regulation.

Pursuant to AS 29.35.070, the CBJ may regulate, fix, establish and change the rates and charges imposed for solid waste collection services as long as the collection service remains exempt from APUC rate regulation.

Under AS 42.05.251, an APUC certificated solid waste collection service has the right to a permit to use public streets, alleys and other public ways. However, the municipality has the right to require that the collection service obtain a use permit, and may charge reasonable permit fees and set reasonable terms and conditions of use.

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[18] Alaska law is silent concerning the APUC's power to grant a private company an APUC certificate for solid waste collection in an area that a municipality has obtained the APUC certificates (i.e., control over the collection of solid waste) and subsequently prohibited competition by private collection companies. It is recommended that advice from legal counsel be sought concerning this issue if an option is pursued that would cause this issue to be raised.

FEDERAL LAW

Resource Conservation and Recovery Act (RCRA) Subtitle D

Federal involvement in solid waste management stems largely from the Resource Conservation and Recovery Act (RCRA) Subtitle D which was originally enacted in 1976. Although this legislation mandated little direct federal regulatory involvement, Congress did authorize the EPA to establish minimum performance standards to distinguish between "sanitary landfills" and prohibited "open dumps."

These early standards, which are still in effect, consist of performance and/or locational requirements that do the following:

- Restrict solid waste disposal activities in flood plains, near airports, and in critical habitat of endangered species.
- Prohibit the discharge of pollutants into surface water or groundwater that would violate the Clean Water Act or contaminate groundwater beyond the solid waste boundary.
- Establish allowable levels of explosive gases at facility property boundaries.

Enforcement of the original RCRA Subtitle D standards was left to the individual states. Amendments to Subtitle D contained provisions authorizing individuals, environmental groups and local governments among others to bring legal action for non-compliance with RCRA requirements.

New RCRA Subtitle D standards were published in the Federal Register on October 9, 1991. The new regulations set forth minimum criteria for location, operation, groundwater monitoring, corrective action, closure and post-closure care, and financial assurance for municipal solid waste landfills.

Following is a brief outline of the new RCRA Subtitle D (the "rule").

General

The new RCRA Subtitle D establishes a framework for federal, state and local government cooperation in controlling the management of nonhazardous solid waste. The approach adopted by the EPA, the "hybrid" option, combines a range of preventive measures appropriate for municipal solid waste landfills, and provides states seeking to accept the program with flexibility to adopt the preventive measures most appropriate to their state.

The purpose of 40 CFR Part 258 is to establish minimum national criteria for municipal solid waste landfills, including municipal solid waste landfills used for sludge disposal and disposal of nonhazardous municipal waste combustion ash (whether the ash is co-disposed or disposed of in an ash monofill). Part 258 sets forth minimum national criteria for the location, design, operation, cleanup, and closure of municipal solid waste landfill units. States will have flexibility in implementing these criteria where states wish to run the program. A municipal solid waste landfill that does not meet the Part 258 criteria will be considered to have engaged in the practice of "open dumping" in violation of § 4005 of RCRA.

Small Community Exemption

The small community exemption applies to the following:

1) Small Landfills - less than an annual average of 20 tpd.
2) With no evidence of existing ground-water contamination from the landfill.
3) Located in the following:

    a) an arid region (receiving less than 25 inches of rainfall a year) and the community served has no practicable waste management alternative; or,
    b) a remote area without any reasonable alternative for regionalization since surface transportation is interrupted annually for at least three consecutive months.

Eligible landfills are exempt from complying with the design criteria and the ground-water and corrective action requirements. However, they must still comply with the location standards, the operating criteria, closure and post-closure care requirements (excluding ground-water monitoring), and the financial assurance requirements appropriate to these activities.

§ 258.1(f) defines "small municipal solid waste landfill" as a landfill at which 20 tons or less of municipal solid waste is disposed of daily on an annual average.

Effective Dates

Other than for ground-water monitoring and financial assurance requirements, all provisions of the rule will become effective October 9, 1993 (24 months from the date the rule was published in the Federal Register). Ground-water monitoring requirements will be phased in over a five year period, and financial responsibility requirements will become effective April 9, 1994 (30 months after the rule was published).

All municipal solid waste landfills that receive waste on or after the effective date of the rule must comply with all provisions of 40 CFR Part 258 on the effective date. The rule does not apply to owners and operators of municipal solid waste landfills that stopped receiving waste prior to October 9, 1991, the date the rule was published. Municipal solid waste landfills that stop receiving waste between the date the rule is published and the effective date of the rule are exempt from all of the requirements of Part 258 except the final cover requirements.

State Program Approval[19]

The specific criteria by which state programs will be approved will be published in a separate rule (the "State Implementation Rule"), which will set forth specific conditions where state flexibility is appropriate.

An approved state's program must be capable of protecting ground-water that is currently used or reasonably expected to be used for drinking water at the relevant point of compliance.

In selecting a program to meet the rule's performance standard, an approved state may use the rule's specific comprehensive design, or it may use any program the state determines would be capable of meeting the performance standard.

Whenever a state develops a program to deal with local conditions, the federal comprehensive design alternative would have only the legal status of "guidance" and would not be mandatory. States are provided substantial flexibility to consider local site-specific conditions in determining how to address variable ground-water quality or location.

The EPA intends to propose public participation requirements for permitting decisions in the state program approval rule. Public participation in the state regulation development process is already required by the public participation requirements contained in 40 CFR Part 256.

Citizen Enforcement

Citizens may seek enforcement of the revised criteria, independent of any state enforcement program, by means of citizen suits under § 7002 of RCRA. § 7002 provides that any person may commence a civil action on his or her own behalf against any person who is alleged to be in violation of any permit, standard, regulation, condition, requirement, prohibition or order that has become effective pursuant to RCRA.

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[19] RCRA requires states to adopt and implement, within eighteen months of the promulgation of the rule, a permit program or other system of prior approval to ensure that MSW landfills are in compliance with the revised criteria.

Location Restrictions

There are six location restrictions, which include the following:

1) Airports (§ 258.10) - if within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,.524 meters) of any airport runway end used only by piston-type aircraft, must demonstrate that the municipal solid waste landfill does not pose a bird hazard to aircraft; proposed new municipal solid waste landfill or lateral expansions within a five mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the appropriate FAA office.

2) Floodplains (§ 258.11) - if within 100-year floodplain, may not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in the washout of solid waste so as to pose a hazard to human health or the environment.

3) Unstable Areas (§ 258.15) - must demonstrate to the state director's satisfaction that the integrity of the structural components of the unit will not be disrupted.

4) Wetlands (§ 258.12) - barred from wetlands unless can demonstrate to the director of a state program:[20]

   a) rebut the presumption that a practicable alternative is available that does not involve the wetlands;

   b) show that the construction or operation will not cause or contribute to violations of any applicable state water quality standard, violate any applicable toxic effluent standard or prohibition, jeopardize the continued existence of endangered or threatened species or critical habitats, or violate any requirement for the protection of a marine sanctuary;

   c) demonstrate that municipal solid waste landfill will not cause or contribute to significant degradation of wetlands; and,

[20] Because this demonstration must be approved by the director of an approved state, this provision effectively bans the siting of new MSW landfill units and lateral expansions in wetlands in states that do not have an EPA-approved permitting program.

d) demonstrate that steps have been taken to attempt to achieve no net loss of wetlands by first avoiding impacts to wetlands to the maximum extent practicable, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions.

5) Seismic Impact Zones (§ 258.14) - banned from locations in seismic impact zones. Exception exists for states with approved programs. Seismic impact zones are defined as areas having a 10% or greater probability that the maximum expected horizontal acceleration in hard rock, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

6) Fault Areas (§ 258.13) - banned from locations within 200 feet (60 meters) of faults that have experienced displacement during the Holocene Epoch. Exception exists for states with approved programs.

What Location Restrictions Apply?

Existing municipal solid waste landfills:

1) Airports
2) Floodplains
3) Unstable Areas

New municipal solid waste landfills and lateral expansions:

1) Airports
2) Floodplains
3) Unstable Areas
4) Wetlands
5) Seismic Impact Zones
6) Fault Areas

Existing municipal solid waste landfills that cannot make the airport safety, floodplain or unstable area demonstrations required under §§ 258.10(a), .11(a) or .15(a) must close within five years of the date of publication of the rule unless the director of an approved state extends the deadline. The director of an approved state may extend the deadline for up to two years.

Operating Criteria

All owners/operators must do the following:

- Exclude the receipt of hazardous waste
- Provide daily cover
- Control on-site disease vectors
- Provide routine methane monitoring
- Eliminate most open burning
- Control public access
- Construct run-on and run-off controls
- Control discharges to surface water
- Cease disposal of most liquid wastes
- Keep record that demonstrate compliance

Procedures for Excluding the Receipt of Hazardous Waste (§ 258.20) - programs for detecting and preventing the disposal of regulated quantities of hazardous wastes and polychlorinated biphenyl (PCB) wastes must be implemented.

Cover Material Requirements (§ 258.21) - disposed solid waste must be covered with at least six inches of earthen materials at the end of each operating day.

Disease Vector Control (§ 258.22) - on-site disease vector populations must be prevented or controlled.

Explosive Gases Control (§ 258.23) - the concentration of methane generated by the municipal solid waste landfill may not exceed 25% of the lower explosive limit in on-site structures or the lower explosive limit at the facility property boundary; routine methane monitoring programs must be implemented, with at least quarterly monitoring frequency; if the methane concentration limits are exceeded, the state director must be notified within seven days, and a remediation plan must be submitted and implemented within sixty days.

Air Criteria (§ 258.24) - applicable requirements of state implementation plans developed under § 110 of the Clean Air Act must be complied with.

Access Requirements (§ 258.25) - public access must be controlled, and illegal dumping of wastes, public exposure to hazards and unauthorized vehicular traffic must be prevented.

Run-On/Run-Off Control Systems (§ 258.26) - run-on and run-off control systems to prevent flow onto and from the active portion of the municipal solid waste landfill must be designed, constructed and maintained.

Surface Water Requirements (§ 258.27) - the National Pollutant Discharge Elimination System requirements must be complied with; any discharges of a non-point source of pollution into waters of the United States must be in conformance with any established water quality management plan developed under the Clean Water Act.

Liquids Restrictions (§ 258.28) - the disposal of bulk or non-containerized liquid waste[21] is prohibited, with two exceptions:

1) The waste is household waste (other than septic waste).

2) The waste is leachate or gas condensate that is derived from the municipal solid waste landfill, and the municipal solid waste landfill is equipped with a composite liner and leachate collection system.

Record-keeping Requirements (§ 258.29) - an operating record must be maintained that includes the documents listed in § 258.29(a).

Design Criteria

The design requirements apply to new municipal solid waste landfills and lateral expansions, not to existing municipal solid waste landfills.

Two basic design options are available:

1) A site-specific design that meets the performance standard in § 258.40, which requires that the design ensure that the maximum contaminate levels listed in Table 1 of the rule will not be exceeded at the relevant point of compliance, and is approved by the director of an approved state (§ 258.40(a)(1))[22]

2) A composite liner design (§ 258.40(a)(2)).

See Figure 2-1 for a graphic depiction.

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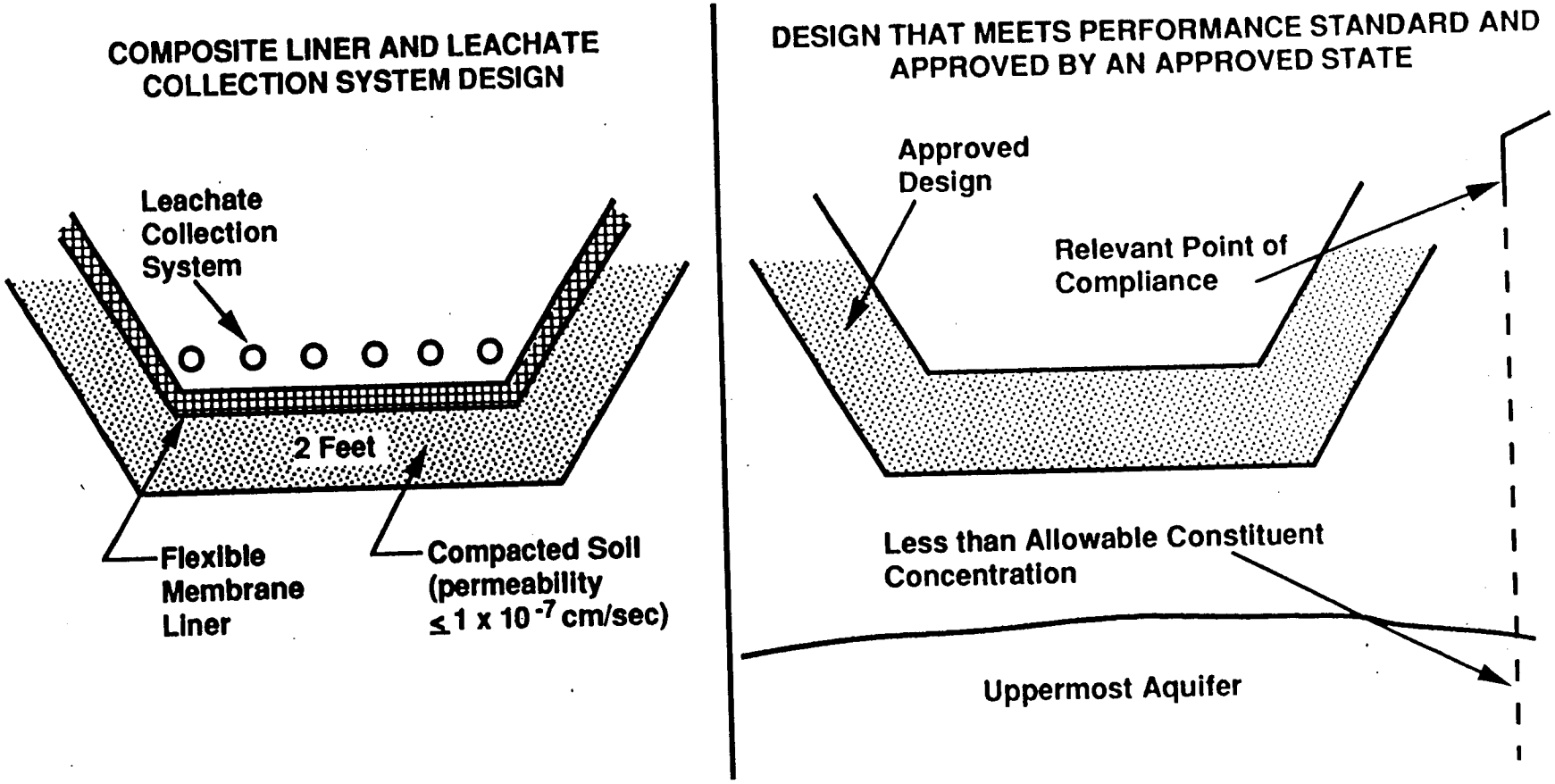
[21] Containers of liquid waste must be: 1) small containers similar in size to that typically found in household waste; 2) designed to hold liquids for use other than storage; or, 3) holding household waste. Liquid waste is defined as any waste material determined to contain free liquids as defined by Method 9095 "Paint Filter Liquids Test."

[22] If a state approved program does not exist, the EPA has established a petition process in § 258.40(e), which allows the owner/operator to use the performance standards in § 258.40(a)(1) if the state determines that the owner/operator's design meets the performance standard, the state petitions EPA to review the state's determination, and EPA approves the design. EPA will act on these petitions within 30 days of receipt.

FIGURE 2-1

DESIGN CRITERIA

New MSWLF units and lateral expansions must have one of the following designs:



SOURCE: RCRA Subtitle D, 40 CFR Parts 257 and 258, Solid Waste Disposal Criteria

Groundwater Monitoring and Corrective Action

A system of monitoring wells must be installed at new municipal solid waste landfills, lateral expansions and existing municipal solid waste landfills. municipal solid waste landfills that qualify for the small community exemption are not required to comply with the requirements of this subpart. A limited waiver exists if it can be demonstrated to the director of an approved state that the municipal solid waste landfill is located above a hydrogeologic setting that will prevent hazardous constituent migration to ground water during the active life of the unit, as well as during facility closure and the post-closure period (§ 258.50 (b)).

All existing municipal solid waste landfills must have ground-water monitoring systems in place within five years of the date of publication of the rule.

The ground-water monitoring system must consist of a sufficient number of appropriately located wells able to yield ground-water samples from the uppermost aquifer that represent the quality of background ground-water and the quality of ground-water passing the relevant point of compliance as specified by the director of an approved state (§ 258.51).

Each ground-water monitoring system must be certified as adequate by a qualified ground-water scientist or approved by the director of an approved state.

Closure and Post-Closure Care

Planning Requirements - all owners/operators must prepare closure and post-closure plans describing these activities and to comply with a minimum set of procedural requirements prior to the effective date of the rule or the initial receipt of waste, whichever is later.

Closure Requirements - must install a final cover designed to minimize infiltration and erosion. Infiltration layer must be a minimum of eighteen inches of earthen material that has a permeability less than or equal to the permeability of the bottom liner system or natural subsoils, or no greater than 1×10^{-5} cm/sec, whichever is less. The erosion layer must be a minimum of six inches of earthen material that can sustain native plant growth. Closure must begin within thirty days after the final receipt of waste and be completed within 180 days.

Post-Closure Care Requirements - must conduct post-closure care activities for a period of thirty years after the closure of a municipal solid waste landfill. During this period, all owners/operators must maintain the integrity and effectiveness of the final cover, and continue ground-water monitoring, gas monitoring, and leachate management.

Financial Assurance Criteria

Financial responsibility for the costs of closure, post-closure care and corrective action for known releases in an amount equal to the cost of a third party conducting these activities must be demonstrated by all owners/operators, except state and federal governmental entities. Cost estimates must be updated annually for inflation and whenever operation or design changes increase the costs at the municipal solid waste landfill.

The financial responsibility requirements are effective thirty months after the date of publication of the rule.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA was enacted in 1980 in an effort to eliminate unsafe hazardous waste sites. Approximately 20% of the sites now on the Superfund list were once municipal solid waste landfills. Amended in 1986 by the Superfund Amendments and Reauthorization Act of 1986 (SARA), CERCLA authorizes the EPA to clean up hazardous waste sites itself and creates a "Superfund" with which to fund EPA's activities. The Superfund is financed through a combination of appropriations, industry taxes and judgements received through legal actions to recover response clean-up costs from those responsible for the problems. CERCLA places the ultimate responsibility for clean-up by authorizing suit against four classes of parties:

- The owners and operators of a facility at which there is a release or threatened release of hazardous substances.
- The owners and operators of such a facility any time in the past when hazardous substances were disposed.
- Any person who "arranged for" treatment or disposal of an hazardous substance at the facility.
- The persons who transported hazardous substances to the facility.

Appendix C summarizes the legal risks that municipalities may face associated with CERCLA and RCRA based on previous legal memoranda prepared for the CBJ and the Channel Corporations.

Marine Pollution Annex V (MARPOL V)

MARPOL V refers to the "International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships, 1973, Annex V, Regulations for the Prevention of Pollution by Garbage from Ships." Included among the requirements of Regulation 3 of

MARPOL V are prohibitions of the ocean disposal of all plastic waste, including synthetic ropes, fishing nets and plastic garbage bags. Limitations are also placed on the ocean disposal of other refuse.

According to the IMO guidelines for the implementation of MARPOL V, the Port of Juneau is responsible for assuring the availability of waste reception facilities for waste from all ships that request such services. These waste are defined below using the waste categories from the IMO guidelines.

- Refuse and Food Waste - Refuse is defined as waste generated in living spaces of crew and passengers, and consists principally of paper products, textiles, glass, rags, bottles and plastics. Food waste is any spoiled or unspoiled provisions, such as fruits, vegetables, dairy products, poultry, food scraps and particles, and all other materials contaminated by such waste generated aboard ship, principally in the galley and dining areas. These are the wastes that are most commonly of concern from international passenger ships and require incineration.

- Cargo-Associated Wastes - This material is generated by break bulk and other cargo operations, including dunnage, shoring, pallets, lining and packaging materials, plywood, paper, cardboard, wire, nails and steel strapping. These waste are typically not required to be treated before disposal.

- Maintenance Wastes - The United States Coast Guard (USCG) designates this waste to include "all other garbage waste," including materials collected in and around the engine and deck compartments while maintaining and operating the vessel (such as soot, machinery deposits, scraped paint, deck sweepings, wiping waste and oily rags). These wastes are typically not required to be treated before disposal.

The United States Congress in December 1987 passed PL 100-220 which requires the U.S. Departments of Agriculture (USDA) and Commerce to adopt and enforce appropriate regulations to ensure that the intent of MARPOL V is met.

The USCG, which is a part of the Department of Commerce, has developed regulations that implement MARPOL V. The USDA has also developed regulations that regulate the handling and disposal of any organic materials that emanate from international shipping services or any material that has come into contact with such materials.

These laws and regulations require that port and terminal operators must assure that the proper facilities are available for the off-loading, treatment and disposal of refuse from foreign and domestic vessels.

Table 2-2

MARPOL V WASTE DISCHARGE PROHIBITIONS

REFUSE TYPE	OCEAN DUMPING RESTRICTIONS
Plastics (1)	Dumping prohibited everywhere
Floating Packing and Lining Material	Prohibited if less than 25 miles offshore
Food, Paper, Rags, Glass, Metal and Crockery	Prohibited if less than 12 miles offshore
Contaminated or Ground Food, Ground Paper, and Glass (2)	Prohibited if less than 3 miles offshore

(1) Does not apply to accidental loss of synthetic fishing nets, provided all reasonable precautions have been taken.
(2) Ground refuse must be able to pass through a screen with mesh size no larger than 25mm.

The USDA has initial jurisdiction over all waste entering the United States in order to prevent the entry of any biological (e.g., plant or animal) pests or any pathogen. The USDA has the authority to prohibit entry, require appropriate treatment or destroy any material, including packaging and waste materials, that are shown or suspected to harbor any biological pests or pathogens. As defined by USDA, regulated garbage means "all waste materials derived in whole or in part from fruits, vegetables, meats, or other plant or animal (including poultry) material, and other refuse of any character whatsoever that has been associated with any such material on board any foreign ship, aircraft or other means of transportation."

The USDA requires that international garbage be treated by an approved method, either incineration, sterilization, or grinding followed by discharge into a municipal sewer system.

Waste generated by ships traveling beyond the U.S. territorial waters of 200 miles off shore are assumed to have taken on foreign provisions and therefore would be a possible source of regulated waste. Additionally, waste taken off a ship that has been in any port outside of the United States and Canada within the previous 2-year period is considered to be regulated waste as previously defined.

Other types of waste that can present a management problem are cargo residues. Cargo residues, like grains, wood or natural fiber package materials may harbor foreign biological pests. If the USDA suspects a problem, it may prohibit the entry of the wastes, or it may require that the materials be treated, using sterilization or incineration.

Certificates of Adequacy (COA) are issued by the USCG to certify ports or terminals meeting rules for vessel garbage reception facilities. All ports and terminals must provide garbage reception facilities, but not all are required to apply for COA's. Under interim rules, ports and terminals must have COA's if they receive the following:

- Oil tankers or ships of 400 gross tons or more.
- Ocean-going ships carrying noxious liquids.
- More than 500,000 lbs/yr of commercial fish products.

Upon application for an Annex V COA, an applicant must certify the ability to meet the USDA requirements or request a waiver.

LONG-TERM SOUTHEAST REGIONAL PLANNING

Communities of Southeast Alaska have similar issues to confront when managing their solid wastes. Community issues include lack of appropriate sites for a landfill, lack of funds to develop environmentally-sound facilities, and a lack of local markets for recyclable materials. The Southeast Conference applied for and received a grant from ADEC to help the eight largest communities of Southeast Alaska (which include the CBJ, Ketchikan, Sitka, Craig, Haines, Skagway, Petersburg and Wrangell) address some of these shared concerns. The project investigated regional opportunities for the management of certain recyclable wastes and those waste streams that, for environmental reasons, should not be managed with the general municipal waste stream (e.g., waste oil and batteries).

The project explored collective market opportunities, and examined how barriers due to high transportation costs, may be overcome for commercial recyclables and troublesome waste streams. The preliminary results indicate that combined efforts on the part of communities will lead to lower costs for a wider range of recycling activities and special management services than possible if each provided those services independently. The project serves as a basis from which the communities may move to implement ADEC's preferred waste management hierarchy (i.e., waste source reduction, recycling, waste treatment, and waste disposal).

The study was guided by the Solid Waste Committee of the Southeast Conference. This committee includes representatives from each of the communities involved in the study. The Southeast Conference presented the findings of the regional project at the Conference's annual meeting which was held in September, 1991. A resolution was drafted which encourages the continued cooperation of communities, and which directs the Committee to continue discussions with the DEC and other appropriate agencies, and to work towards receiving funding for future cooperative efforts.

This regional project complements both this Phase I Report and the analysis that R.W. Beck and Associates will conduct of the CBJ's solid waste management system for Phase II. Implementing the recommendations generated by the regional project may allow the CBJ to divert a portion of the community's waste stream from local disposal.

CHAPTER 3:
CHANNEL DISPOSAL SITE REVIEW

R.W. BECK
AND ASSOCIATES

CHAPTER 3: CHANNEL DISPOSAL SITE REVIEW

CHANNEL LANDFILL

BACKGROUND

The Channel Landfill is a privately owned facility located in the Lemon Creek area of Juneau, adjacent to Gastineau Channel. The site is approximately 45 acres, with 30-35 acres having received refuse. The landfill is unlined and located in a wetlands area. Prior to Channel's ownership, the site was owned by Acme Disposal, and was approximately 90 contiguous acres. The size and location of Acme Disposal's waste disposal areas is not known. However, there is evidence that waste was placed on portions of the Acme Disposal site not currently owned by Channel.
Based on ADEC records, Dolly Varden, and coho, chum and pink salmon all occur in Lemon Creek, with coho and chum known to spawn there. Gastineau Channel is an important salmon rearing area. The wetlands bordering Gastineau Channel at the mouths of Lemon and Vanderbilt Creeks are part of the Mendenhall Wetlands State Game Refuge. The tidal wetlands where Lemon and Vanderbilt Creeks enter the estuary are used by high concentrations of bald eagles, shorebirds and waterfowl, including green-winged teal, trumpeter swans, Canadian geese, buffle heads, common and Barrow's goldeneyes, and surf scooters. The waterfowl that use this wetland area are hunted for food.

The ADEC records regarding the Channel site date back to 1972, approximately the same period statewide regulation of solid waste disposal began. Little information concerning the operations at the Channel site exists for the period between 1963 and 1972. However, ADEC records state that for nearly thirty years the solid waste generated in Juneau was buried above and in the ground water that flows into Lemon Creek and Gastineau Channel. Until the early 1970's at the site now owned by Channel, solid waste was dumped into a two acre pond that was about thirty feet deep. Since then, the disposal of inert wastes into the ponds has continued, while putrescible wastes and incinerator ash are landfilled above the ground water table.

Past water quality assessments completed on the bodies of water adjacent to the Channel site have not been comprehensive. The most recent evaluation of the Channel landfill is the "Closure Study Report - Channel Landfill" (Closure Study), recently prepared by Sweet-Edwards/EMCON, Inc. (SE/E), concurrently with this Solid Waste Management Study - Phase I Report. The executive summary from the Closure Study is included in Appendix B. The following section summarizes and discusses our findings in conjunction with the major findings of the Closure Study.

GROUNDWATER AND SURFACE WATER

As a part of their Closure Study, SE/E installed four groundwater monitoring wells at the Channel site. Their sampling program included collection and laboratory analysis of water from these four wells and from four surface water locations. SE/E also compared their results with data from historical, unpublished groundwater and surface water monitoring performed by Channel and by ADEC. SE/E concluded the following:

- The landfill is underlain by a single water table aquifer that is tidally influenced.
- No downgradient use of the aquifer for drinking water was identified near the Channel property.
- Water quality of the aquifer is impacted by landfill operations, but the exact nature and extent of the impacts cannot be determined without additional study.
- Surface water in the east pond (located on the site) is impacted by landfill operations and runoff, but surface water in the tide flat and Lemon Creek does not appear to be affected.

ASH

SE/E reviewed a summary of extraction procedure toxicity (EPTox) results from ash samples from 1986 to 1990. Levels of lead and cadmium sporadically exceed the levels at which the ash would be considered an hazardous waste under 40 CFR Part 261, Characteristics of Hazardous Waste. SE/E points out, however, that the EPTox test is no longer the test used to determine if a waste is hazardous. Since September 1990 the Toxicity Characteristics Leaching Procedure (TCLP) is the EPA approved test for determining if a waste is hazardous. A prediction cannot be made if the ash would be considered hazardous utilizing TCLP.

LANDFILL GAS

Typically, landfill gas from mixed municipal waste landfills is composed of approximately 50% methane and 50% carbon dioxide. Methane is hazardous in explosive concentrations (5 to 15% by volume) in the presence of an ignition source, and when present in accessible confined spaces because it displaces oxygen. ADEC staff reported the presence of high concentrations of methane during construction of the sewer line serving the Channel facility.[1] They also reported that a survey was conducted between 1977 and 1979 that recorded migrating landfill gas at "problematic" levels.[2]

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[1] Based on interviews of ADEC staff conducted in June 1991.

[2] No definition of "problematic" was given by the ADEC staff.

SE/E conducted a landfill gas survey on the site, and found explosive levels of gas in the landfill cover soils. No landfill gas was found in on-site structures at explosive levels. While off-site migration of landfill gas was not evaluated in the closure study, SE/E recommends the construction of a gas control system, and the installation of monitoring probes at the property boundary. This recommendation is based on the potential for off-site gas migration and the fact that concentrations of methane gas will increase with placement of a low-permeability cover.

LANDFILLING PRACTICES

The Channel landfill operates pursuant to a current solid waste disposal permit from ADEC. Neither a detailed environmental assessment nor a comprehensive review of ADEC records has been performed. However, preliminary findings from the Closure Study, an abbreviated review of ADEC records, discussions with ADEC staff and site inspections indicate that past and perhaps current landfilling practices may have created the potential for contamination at the site. For example:

- Since there existed no alternative for the disposal of household hazardous waste[3] or industrial waste, ADEC assumes that the landfill has received these wastes over the years.

- A 1972 ADEC inspection report indicates unacceptable wastes including waste oil were being disposed of at the site. By 1974, the Channel site reportedly was not accepting waste oil.

- Contrary to the permit conditions, waste defined as inert has been deposited below the water line.[4] This inert waste includes appliances that may contain hazardous substances. For example, refrigerator/freezers may contain freon, and older dryers may contain transformers with PCB's.

- Daily cover requirements stipulated in the state Solid Waste Management Act (18 AAC 60) have not been consistently met.

- No system to control or monitor landfill gas currently exists.

- The Closure Study and past practices indicate possible concentrations of volatile organic compounds exceeding federal maximum contaminant levels in the groundwater beyond the property boundary.

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[3] Household hazardous waste collection days are now sponsored by the CBJ in conjunction with ADEC on an annual basis.

[4] Letter from Hansen Engineering to ADEC, dated October 1, 1990.

Since the extent of any past efforts to mitigate these problems is not known, and because of the short environmental monitoring record, final conclusions regarding the extent and significance of these issues, especially with regard to their potential for causing current or future contamination would require further study. This requirement would be met by a detailed environmental assessment consisting of the following:

- A thorough review of agency files and interviews with individuals having knowledge of the history of both the site and adjacent properties.
- Sampling and analysis of on-site soils and soils from adjacent properties.
- Sampling and analysis of sediments in Lemon Creek and the tide flats.
- A comprehensive groundwater study to determine the background water quality and specific flow characteristics.
- Continued monitoring of the four new groundwater wells.
- A comprehensive landfill gas study to characterize on-site and off-site migration patterns, including installation of monitoring probes.

FINAL CLOSURE

The Closure Study examines two cover alternatives once the Channel landfill reaches final grades. The two cover alternatives include covering the waste with either: 1) a geomembrane (high density polyethylene or "HDPE"); or, 2) a low permeability, bentonite-amended soil system. SE/E recommends the geomembrane because of its lower construction and maintenance costs, and lower permeability to precipitation. The cost for this cover system is shown in Table 3-1.

Landfill leachate is the liquid resulting when water (precipitation or groundwater) percolates through solid waste. As the waste decomposes, contaminates from the waste are dissolved or suspended in the leachate. One of the primary purposes of covering solid waste with low permeability materials is to reduce the amount of rainwater contacting the waste, and thereby reduce the volume of leachate produced. Some closure designs for unlined landfills incorporate a leachate collection system consisting of perforated pipes parallel to the toes of landfill slopes and running to collection sumps. This approach to manage leachate from the existing waste is impractical at the Channel landfill because the majority of the waste is below grade.

SE/E recommends that a geomembrane "cover/liner" be placed when the waste reaches ground level (by filling the ponds with inert material), and a leachate collection system (a network of perforated pipes) be installed as a part of the cover/liner system. This system would minimize

the amounts of leachate produced from the waste below grade by reducing the amount of rainwater infiltration, as well as collect the leachate produced from the above-grade waste. The cost for installing this "cover/liner" system is shown in Table 3-2. After final closure, the final cover system will reduce the amount of above-grade leachate produced. Table 3-3 shows SE/E's estimate for post-closure costs.

Table 3-1

Geomembrane Cover
Closure Cost Estimate[1]
($1991)

Closure Cap	Unit Cost	Unit	Quantity	Price
12-inch Foundation Layer	$ 6.00	CY	56,500	$ 339,000
60 ml HDPE Geomembrane	8.50	SY	169,400	1,440,000
12-inch Granular Layer	14.00	CY	56,500	790,000
Geotextile	2.50	SY	169,400	424,000
12-inch vegetative layer	40.00	CY	56,500	2,260,000
Hydroseed	1,500.00	AC	35	53,000
Sediment Basin Excavation (2)	3.25	CY	4,000	13,000
Sediment Basin Outlet Structures	1,000.00	EA	2	2,000
Perimeter and Roadside ditches	15.00	LF	6,600	99,000
Gas Collection	20.00	LF	9,800	196,000
Gas/Flare Trenches and Wells	25,000.00	EA	1	25,000
Subtotal				$5,641,000
Engineering @ 8%				451,000
Services During Construction @ 10%				564,000
Contingency @ 20%				1,128,000
Total				$7,784,000

(1) Source: "Closure Study Report - Channel Landfill," prepared by Sweet-Edwards/EMCON, dated July 1991.

Table 3-2

Liner/Cover Cost Estimate[1][2]
($1991)

Cap/Liner	Unit Cost	Unit	Quantity	Price
24-inch Foundation Layer	$ 6.00	CY	20,000	$ 120,000
Geotextile/Geogrid	2.50	SY	58,100	145,000
60 ml HDPE Geomembrane	8.50	SY	58,100	494,000
12-inch Granular Layer	14.00	CY	20,000	280,000
Geotextile	2.50	SY	58,100	145,000
24-inch Operating Layer	14.00	CY	39,000	546,000
Leachate Collection 200 feet spacing 30,000 gal	20.00	LF	5,900	118,000
Leachate Holding Tank with Pump	75,000.00	EA	1	75,000
Gas Collection Trenches and wells 200 feet spacing	20.00	LF	59,000	118,000
Subtotal				$2,041,000
Engineering @ 10%				204,000
Services During Construction @ 10%				204,000
Contingency @ 20%				408,000
Total				$2,857,000

(1) Source: "Closure Study Report - Channel Landfill," prepared by Sweet-Edwards/EMCON, dated July 1991.
(2) Estimate is for 12 acres. The cost to line 35 acres of the site was estimated at $8,333,000 by SE/E.

Table 3-3

Annual Post-Closure Maintenance Estimate[1]
($1991)

	Unit Cost	Unit	Quantity	Price
Final Cover Maintenance				
Annual mowing, fertilizer, ditch cleaning, and culvert cleaning	$1,000	AC	35	$ 35,000
Cover Repair and sediment pond cleaning	5,000	EA	1	$ 5,000
Monthly Inspection				
16 hours/month	100	HRS	192	19,200
Quarterly Water Sampling and Testing				
Surface Water Sampling	100	HRS	64	
Ground Water Sampling	100	HRS	128	
Water Quality Analysis	1,500	EA	28	
Report Preparation	2,800	EA	4	72,400
LF Gas System Operations and Maintenance				
8 hrs/week @ 100/hr				
$2,500/year parts				44,000
Annual Subtotal Range				$175,600
Contingency @ 20%				35,120
Annual Total Range				$210,720

NOTE: Under the cover/liner alternative for expansion, between 13 million and 35 million gallons of leachate per year will require treatment, at an estimated additional cost of between $650,000 and $1,750,000 annually.[2]

(1) Source: "Closure Study Report - Channel Landfill," prepared by Sweet-Edwards/EMCON, dated July 1991.
(2) SE/E assumed a treatment cost of $0.05/gallon.

REMAINING LIFE

Several important factors affect the remaining service life of the Channel landfill:

- Quantity and composition of waste
- Waste compaction
- Regulatory environment
- Configuration of landfill at closure

The amount of landfilled waste will be affected by population, per capita waste generation (influenced by waste reduction and recycling practices), and the extent of illegal disposal practices.

The composition of the landfilled waste affects the service life because different types of waste have different densities. For example, incinerator ash can be five times as dense as typical mixed municipal solid waste, and therefore, require one-fifth as much volume on a per ton basis. Also, most heavy construction wastes and demolition debris cannot be incinerated, and, if not recyclable or reusable, require direct landfilling. In general, the waste composition will depend on the efficiency and future capacity of the incinerators, the amount of land clearing and construction activity, and residential and commercial waste reduction and recycling practices.

In its Closure Study, SE/E presents a possible final landfill shape, or grading plan, with a remaining capacity of approximately 775,000 cubic yards of solid waste. Based on this grading plan, the landfill's remaining life ranges from 20 to 33 years, depending on population fluctuations, anticipated recycling rates and future incineration capacity.[5]

Table 3-4 summarizes possible CBJ waste streams for the years 1991-2009 under twelve scenarios, and shows the estimated year of landfill closure for each scenario, based on capacity estimates made in the Closure Study. The detailed waste stream projection tables are presented in Appendix G - Waste Stream Projections. For the purpose of estimating the cost per ton associated with purchase of the Channel facilities by the CBJ, a 25-year landfill life was assumed. This is roughly the midpoint of the six "without third incinerator" waste-generation scenarios shown on Table 3-4. The life of the Channel Landfill could be extended approximately 4-6 years with the addition of a third incinerator. However, this would entail additional costs and is not directly tied to the question of whether or not the CBJ should purchase the Channel facilities.

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[5] The landfill life estimates were performed by converting weights to in-place volume, using an average waste density based on the relative proportions of waste type reported in 1990. We used densities of 70 pounds per cubic foot for ash and 1,000 pounds per cubic yard for mixed municipal waste as currently compacted in the landfill. The number of years of landfill life beyond 2009 was predicted by using the annual average waste generation quantities (tons per year) projected for years 2005 to 2009.

Table 3-4

WASTE GENERATION SCENARIO		Cumulative Tons to Landfill (1989-2009)	Estimated L.F. Life (Years)
Without Third Incinerator			
Baseline	Without Recycling	381,900	24
	With Recycling	272,900	31
AJ Mine	Without Recycling	423,400	22
	With Recycling	306,200	28
AJ & Kensington Mine	Without Recycling	524,800	20
	With Recycling	410,500	24
With Third Incinerator			
Baseline	Without Recycling	268,300	28
	With Recycling	214,900	33
AJ Mine	Without Recycling	209,800	26
	With Recycling	226,600	31
AJ & Kensington Mine	Without Recycling	246,700	24
	With Recycling	260,500	30

CHANNEL INCINERATORS

BACKGROUND

As part of this Phase I Report, we evaluated the Channel incinerators for general condition and for compliance with local, state and federal regulations. Our inspections observed the plant during operations, but did not shut down the equipment to inspect the internal workings. A detailed assessment is presented in Appendix A - Assessment of the Channel Incinerator, and summarized in this section.

The facility operates under an air quality permit (included in Appendix H - Existing Permits). The incinerator building facilities are located at the northwest corner of the Channel site, and contain two Consumat CS1600 incinerators, each rated at approximately 1.5 tons per hour or 36 tons per day. Fly-ash and bottom ash are commingled for disposal in the Channel landfill. The incinerator and ash systems appeared in good condition, and appeared to be properly maintained and operated. A major outage for repairs occurred in 1990. Based on our evaluation, we recommend that if the CBJ were to purchase the Channel facilities, an internal inspection of the electrostatic precipitator (ESP) be conducted prior to the purchase. In addition, we would recommend improvements to the duct work, the induced draft fan and the fly ash transfer system from the ESP to the bottom ash quench tank.

REMAINING SERVICE LIFE

The estimated remaining service life is approximately 25-30 years, assuming proper maintenance and adequate renewal/replacement activities are preformed. This life could be extended with periodic replacement of major system components.

EMISSIONS

Channel's air quality permit allows .08 grains per dry standard cubic feet and 20% opacity. In a visual inspection by R.W. Beck staff, the emissions appeared within the permitted requirements. There is currently no emission monitoring system in place. ADEC staff perform periodic visual estimates of opacity, and report that the emissions appear to be within permitted requirements.

While the Channel incinerators are regulated under the federal Clean Air Act, the Act's emissions requirements do not apply because of the small size of the facility. New EPA rules are expected to be implemented by November 1992 and will apply to all municipal waste combusters regardless of size, and are likely to require the Channel incinerators to be modified to meet new standards, including acid gas reduction requirements. This would require installation of expensive new air pollution control equipment.

COSTS ASSOCIATED WITH PURCHASING AND OPERATING THE CHANNEL FACILITIES

The anticipated baseline costs associated with the CBJ owning and operating the Channel facilities are presented in Table 3-5. Anticipated baseline costs include the cost of purchase, the cost of an in-depth environmental assessment, the costs of operating the landfill and incinerators, the costs of recommended first year upgrades to the incinerators and the costs of closure/post-closure for the landfill. Assumptions used in developing these estimates also are listed on Table 3-5.

Tables 3-6 and 3-7 show these costs on a dollar per ton basis, based on a simplified planning-level assessment of cash requirements over time. Table 3-6 was developed using the lower range of costs from Table 3-5. Table 3-7 is based on the higher range. The cash flow assessments in Tables 3-6 and 3-7 include a number of simplifying assumptions:

- A single bond sale is assumed, and cash from the sale is assumed to be reinvested until needed for capital investment.
- The interest rate that would be paid on the bonds is assumed to equal the interest rate that the CBJ could earn by reinvesting the bond proceeds.
- General obligation bonds with a relatively low (7.5%) interest rate were assumed (if revenue bonds were assumed, the interest rate would be higher).
- A 25-year planning period is assumed.

Based on these assumptions, the cost per ton associated with the CBJ purchasing the Channel facilities could run from approximately $130 - $170 in 1994. Again, this is a planning-level assessment for comparison purposes, and should not be viewed as a final financial evaluation.

TABLE 3-5

Estimated Costs for CBJ Purchase, Operation and Closure of Channel Landfill and Incinerator[9]

CAPITAL COSTS ($1991)		
Item	Cost ($Million)	
	Low	High
Purchase[1]	$7.0	$7.0
Environmental Assessment	0.3	0.4
Liner/Cover[2][3]	2.9	2.9
Incinerator Upgrade[4]	0.2	0.2
Final Closure[2][5][10]	7.8	7.8

ANNUAL COSTS ($1991)		
Item	Cost ($Million)	
	Low	High
Landfill Operations[6]	$0.25	0.9
Incinerator Operation[7]	1.0	1.3
Landfill Post-Closure[8]	0.1	0.2

(1) Based on initial Channel offer.
(2) As recommended by Sweet-Edwards/EMCON, "Closure Study Report - Channel Landfill," July 1991.
(3) See Table 3-2.
(4) See Appendix A, Table A-4. Does not include modification of air pollution control system.
(5) Geomembrane Cover, see Table 3-1.
(6) Low estimate based on $25.00/ton of waste directly landfilled. High estimate assumes SE/E low estimate for leachate treatment plus $25.00/ton.
(7) See Appendix A, Table A-3.
(8) The higher cost range results from institution of more stringent federal post-closure requirements and a 30-year post-closure care period. SE/E estimated post-closure care costs at approximately $210,000 per year in 1991 dollars (see Table 3-3).
(9) Other potential costs include costs associated with air quality upgrades. These could be up to $4.5 million in 1991 dollars.
(10) Landfill closure is assumed to occur in 2017.

TABLE 3 - 6

CITY AND BOROUGH OF JUNEAU, ALASKA

COST ANALYSIS SUMMARY
SCENARIO: Buy Channel Facilities
ALTERNATIVE: Low Cost Estimate

Line No.		1994	1998	2003	2008	2013
	REVENUE REQUIREMENTS:					
1	Operation & Maintenance Expense	$1,488,800	$1,879,700	$2,515,600	$3,366,400	$4,504,900
2	Debt Service Requirements	1,177,100	1,177,100	1,177,100	1,177,100	0
3	Closure & Post Closure Account Requirements	1,252,900	1,252,900	1,252,900	1,252,900	1,252,900
4	TOTAL REVENUE REQUIREMENTS	$3,918,800	$4,309,700	$4,945,600	$5,796,400	$5,757,800
5	**ESTIMATED TONNAGE PER YEAR:**	30,000	30,000	30,000	30,000	30,000
6	**CALCULATED COST PER TON:**	$131.00	$144.00	$165.00	$193.00	$192.00

MAJOR ASSUMPTIONS:

7	Inflation Rate:	6.00%
8	Interest Rate on Investments:	7.50%
	Financing:	
	General Obligation Bond Issue -	
9	Interest Cost:	7.50%
10	Term:	20 years
11	Issuance Expense:	3.00%
12	Debt Service Reserve Fund:	1 yr. Princ. & Int.
13	Reserve and Working Capital:	1.00%

TABLE 3 - 7

CITY AND BOROUGH OF JUNEAU, ALASKA

COST ANALYSIS SUMMARY
SCENARIO: Buy Channel Facilities
ALTERNATIVE: High Cost Estimate

Line No.		1994	1998	2003	2008	2013
	REVENUE REQUIREMENTS:					
1	Operation & Maintenance Expense	$2,620,200	$3,308,000	$4,426,900	$5,924,400	$7,928,100
2	Debt Service Requirements	1,191,800	1,191,800	1,191,800	1,191,800	0
3	Closure & Post Closure Account Requirements	1,352,900	1,352,900	1,352,900	1,352,900	1,352,900
4	TOTAL REVENUE REQUIREMENTS	$5,164,900	$5,852,700	$6,971,600	$8,469,100	$9,281,000
5	**ESTIMATED TONNAGE PER YEAR:**	30,000	30,000	30,000	30,000	30,000
6	**CALCULATED COST PER TON:**	$172.00	$195.00	$232.00	$282.00	$309.00

MAJOR ASSUMPTIONS:

7	Inflation Rate:	6.00%
8	Interest Rate on Investments:	7.50%
	Financing:	
	General Obligation Bond Issue -	
9	Interest Cost:	7.50%
10	Term:	20 years
11	Issuance Expense:	3.00%
12	Debt Service Reserve Fund:	1 yr. Princ. & Int.
13	Reserve and Working Capital:	1.00%

CHAPTER 4:
OPTIONS AVAILABLE TO THE CBJ TO CONTROL THE SOLID WASTE MANAGEMENT SYSTEM

R.W. BECK
AND ASSOCIATES

CHAPTER 4: OPTIONS AVAILABLE TO THE CBJ TO CONTROL THE SOLID WASTE MANAGEMENT SYSTEM

CONSTITUENTS OF A SOLID WASTE MANAGEMENT SYSTEM

A solid waste management system consists of generation, collection, processing and disposal. Processing is often incorporated into disposal. This Phase I Report examines **how** the CBJ could control the collection and disposal portions of the solid waste management system. CBJ control of collection and/or disposal could allow the CBJ to influence the entire system and implement a community-wide integrated waste management program. The collection and disposal portions of the solid waste management system contain a variety of elements and operate under different regulatory constraints.

COLLECTION

Collection involves the pick-up of solid waste and/or recyclable material at a residence, drop-off site, or commercial, industrial or public building, and the transportation of that solid waste and/or recyclable material to a processing and/or final disposal destination.

Solid waste collection may be regulated in the following ways:

- Under the laws of Alaska, an APUC certificate must be obtained to operate a solid waste collection service, and the APUC regulates the rates that may be charged for solid waste collection. However, an exception to APUC regulation exists for municipally owned solid waste collection services operating without competition.

- ADEC also has the power to adopt regulations that affect the collection of solid waste.[1]

The authority to regulate the collection of recyclable material is not clearly assigned under the laws of Alaska. If "garbage, refuse, trash, or other waste material" is interpreted to include recyclable material, then the collection of recyclable material would be subject to APUC and, possibly, ADEC regulation. However, it is arguable that "garbage, refuse, trash, or other waste

[1] Although ADEC has the authority to adopt regulations that affect the collection of solid waste, ADEC has not exercised this authority.

material" is not so broadly defined, and that the collection of recyclable material is not subject to APUC regulation, only municipal control.[2]

DISPOSAL

Solid waste disposal involves processing and separating different types of solid waste and recyclable material for final disposal or marketing. Processing could include incineration, sorting and/or compaction.

Under the laws of Alaska, a solid waste disposal facility must be operated in accordance with a waste disposal permit issued by ADEC. It also may be subject to other permitting requirements, such as an air quality permit issued by ADEC, depending on the type of disposal facilities in place. The operation of a solid waste disposal site is not subject to APUC regulation unless the companies providing collection and disposal services are affiliated companies.[3] If the collection and disposal companies are affiliated, the APUC will examine the disposal services and disposal fees to assure fair and reasonable disposal fees are charged to the collection company and included in the collection rates. However, generally the rates charged for solid waste collection service include the cost of disposal, which typically is treated as a cost of doing business to the collection company and not subject to APUC regulation.

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[2] Recently adopted into law, HB140 requires the APUC when establishing solid waste management rates to permit the recovery of reasonable net capital and operating costs related to solid waste recovery and recycling services and to promote cost-effective solid waste recovery and recycling services. It is not clear whether this legislation is meant to imply that all recycling collection services are subject to APUC regulation. Legal counsel concerning the effect of this legislation on the CBJ's ability to implement recycling programs should be sought.

[3] "Affiliated companies" are companies that share common ownership.

OPTIONS AVAILABLE TO THE CBJ TO CONTROL THE COLLECTION OF SOLID WASTE WITHIN JUNEAU

Generally under Alaska law, the CBJ may by ordinance provide for the establishment, maintenance and operation of a solid waste collection system.[4] The CBJ's available options to control the collection of solid waste within Juneau include the following:

- **Status Quo**

  The CBJ could opt to leave the solid waste collection services as they are, and let competition between the current and/or future APUC certificate holders define the service provided the community. Currently, Channel Sanitation and Juneau Sanitation hold APUC certificates authorizing the provision of solid waste collection within pre-defined service areas. (See Figure 4-1.) While Channel Sanitation has been providing collection services for many years, Juneau Sanitation has not begun to provide service. The APUC's policy is to allow for competition. Therefore, another private collection company could step in and purchase an existing APUC certificate, or obtain their own APUC certificate and compete with the existing collection companies. Regardless of the scenario, pursuing the status quo envisions the CBJ not becoming involved in the collection of solid waste, and allowing the private sector, under the regulation of APUC, to control solid waste collection.

- **Purchase of the APUC Certificates, Collection Equipment and Facilities**

  Alaska law expressly prohibits municipalities from competing with private APUC certificated solid waste collection companies. If the CBJ desired to provide solid waste collection services in areas currently included in Channel Sanitation's or Juneau Sanitation's respective APUC certificates, the CBJ would have to purchase the companies' respective APUC certificates and collection equipment and facilities at fair market value. APUC approval is required prior to any transfer or sale of an APUC certificate.

  The CBJ also could obtain its own APUC certificate for areas not currently served by Channel Sanitation and Juneau Sanitation. However, as a practical matter, the service areas for the two existing APUC certificate holders encompasses the entire Juneau road system. Therefore, it is unlikely that the CBJ would seek an APUC certificate for the areas not currently served by the existing APUC certificate holders. Figure 4-1 shows

[4] AS 29.35.050(1).

the service areas as defined in the respective APUC certificates for Channel Sanitation and Juneau Sanitation.

If the CBJ purchased both APUC certificates, then the CBJ would not be subject to APUC regulation since no competition would exist. The CBJ could then establish the standards for service for solid waste collection and the rates to be charged for that service. However, since the CBJ would be operating under an APUC certificate, the APUC would still define the authorized service area and have control over the scope of operations.

Prior to obtaining control over the provision of solid waste collection services, the CBJ would need to plan for how that service would be provided. The CBJ could either use municipal employees or contract with a private company. Contracting with a private company would necessitate the CBJ going through a competitive procurement process.

- **Contract for Collection with a Private APUC Certificate Holder**

  The CBJ could enter into a contract with a private APUC certificate holder to provide solid waste collection services in accordance with the terms of the contract negotiated. The CBJ could select the private collection company based on a competitive procurement process similar to that required if the CBJ held the APUC certificate but contracted with a private company to provide service. The CBJ could use the establishment of mandatory collection to entice companies to compete for selection since the establishment of mandatory collection would guarantee participation by all the residents and businesses in the CBJ, potentially increasing the waste stream and revenues to the private APUC certificate holder.

  Since the APUC has a policy to allow competition between private APUC certificate holders, the selection by the CBJ to contract with a sole private APUC certificate holder would not prevent other APUC certificate holders from competing for the delivery of service outside the terms of the contract. However, the contract could set the standards to which the other companies would have to comply to effectively compete. Furthermore, the APUC, at the CBJ's request, might determine that competition in Juneau is not in the public interest, and take actions appropriate to eliminate the competition and any duplication of facilities.

  If collection was being provided by a private certificate holder, then the CBJ could require the company to obtain a permit to use the public streets. The CBJ could also work with the APUC to establish the standard of service and facilities with which the private certificate holder must comply.

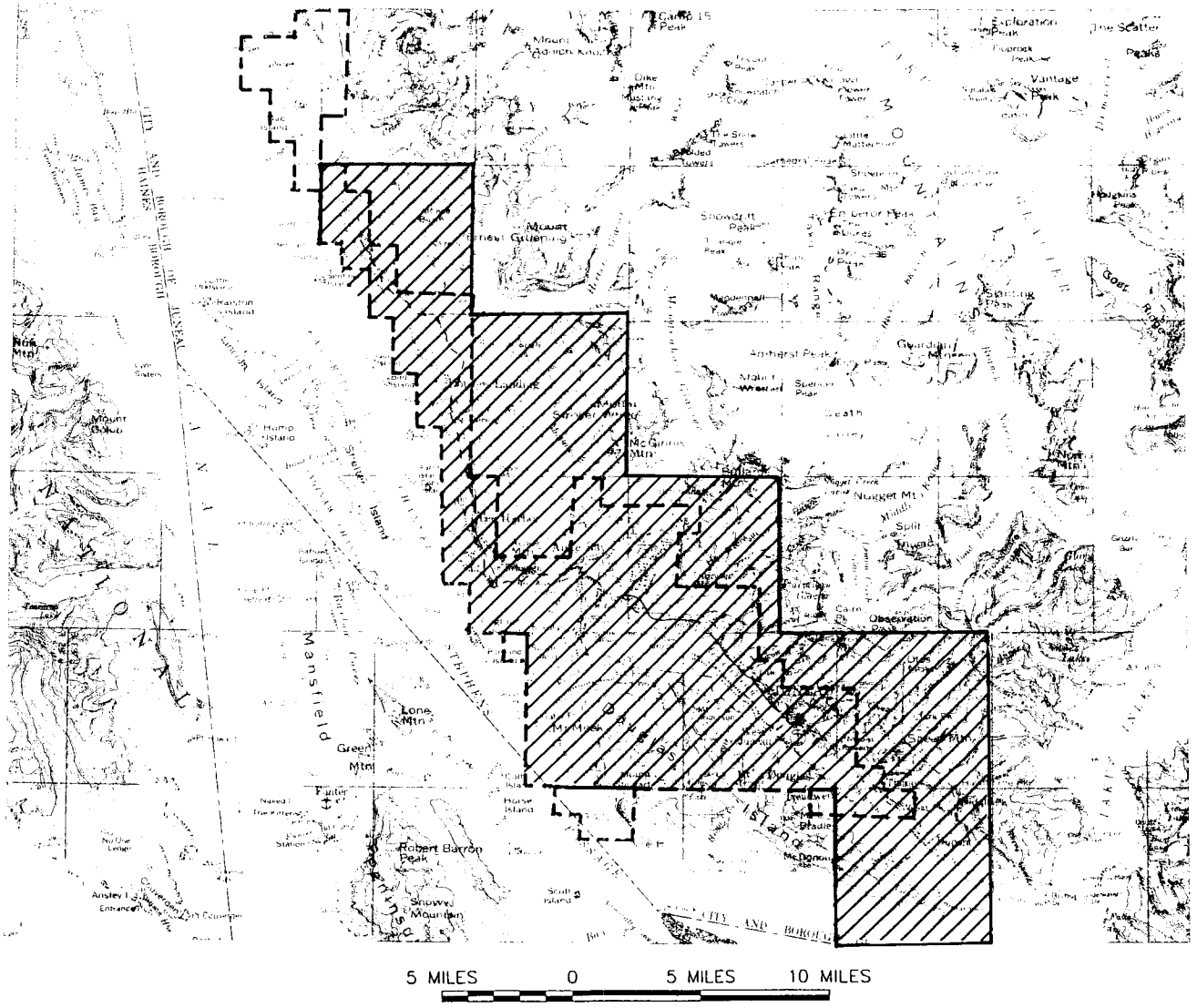

Figure 4-1

CURRENT APUC CERTIFICATE AREAS

R.W. BECK AND ASSOCIATES

OPTIONS AVAILABLE TO THE CBJ TO CONTROL THE DISPOSAL OF SOLID WASTE WITHIN JUNEAU

The CBJ may, by ordinance, provide for the establishment, maintenance and operation of a system of solid waste disposal.[5] The CBJ's available options to control the disposal of solid waste within Juneau[6] include the following:

- **Status Quo**

  The CBJ could opt to leave the solid waste disposal services privately owned. Currently, Channel Landfill owns and operates the only legally permitted disposal facilities in the Juneau area. Another private disposal company could step in and purchase the existing disposal facilities, or develop its own facilities, obtain a waste disposal permit from ADEC, and compete with Channel. Selection of the status quo option for disposal means that the CBJ would not become involved in the disposal of solid waste, and the private sector, under the regulation of ADEC, would control the disposal of solid waste in the Juneau area.

- **Purchase of the Channel Facilities**

  The CBJ could purchase the current solid waste disposal site owned by Channel Landfill. Prior to the purchase, the CBJ would need to conduct an in-depth environmental assessment of the Channel disposal site, and establish the fair market value for the facilities. Based on the environmental assessment and the fair market value determination, the CBJ would negotiate the terms of the purchase contract with Channel. The CBJ also would need to establish how it would operate the disposal site. As with collection, the CBJ could use municipal employees or contract with a private company to operate the site. A competitive selection process would be required to choose a private operator. As the owner of the site, the CBJ could assure that future environmental standards were complied with and establish the appropriate tipping fee for disposal.

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[5] AS 29.35.050(1).

[6] Regardless of the option selected, the CBJ could institute mandatory collection and, possibly, flow control to assure that waste is collected and directed to a proper disposal site. The CBJ could also work with ADEC to establish the general requirements for solid waste disposal facilities located within Juneau, including landfills. The agreed on requirements could be incorporated into the conditions of any waste disposal permits held by private companies within Juneau.

- **Contract for Disposal with Private Owner**

The laws of Alaska authorize the CBJ to award contracts for the disposal of solid waste. This option envisions that the CBJ does not own the disposal site, but contracts with a private company to provide solid waste disposal in accordance with the terms of the contract negotiated.[7] The CBJ could select the private disposal company based on a competitive procurement process similar to that required if the CBJ owned the site but contracted out the development and/or operation of the facilities to a private company. The CBJ could use the establishment of mandatory collection and/or, if possible, flow control (i.e., all solid waste collected within Juneau would be directed to the designated site for disposal) to entice companies to compete for selection. Flow control would serve as an enticement since it would guarantee that all solid waste collected in the CBJ would be disposed at the selected disposal site.[8] The CBJ could also entice private disposal companies to complete by offering a site to build on and/or, if possible, cost-sharing

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[7] The following elements are usually contained in an agreement between a municipality and a private disposal firm for the provision of disposal services:

a. Scope of services to be provided.
b. Location of disposal and/or transfer site(s).
c. Minimum hours of operation.
d. Scope and conditions of operation.
e. Scope and conditions of maintenance.
f. Staffing, equipment, safety and utilities requirements.
g. Fee and rate schedules.
h. Compliance with any and all applicable federal, state and local law requirements.
i. Flow control.
j. Passage of ownership of waste received.
k. Right to salvage.
l. Tonnage requirements (if applicable).
m. Insurance requirements.
n. Indemnity.
o. Term of agreement and right to renew.
p. Default provisions and penalties.
q. Bankruptcy and insolvency provisions.
r. Closure/post-closure requirements.
s. Closure financial assurance fund establishment.
t. Host fees and/or surcharges.
u. Amendments.
v. Arbitration.
w. Reporting and audit requirements.

[8] "Alaska statutes do not specifically confer authority upon municipal governments to designate a site or a class of sites as the sole places for disposal of municipal solid waste. Nor do they specifically authorize a municipality to prohibit exportation of waste. Any statutory authority to legislate flow control must be found in the general provisions quoted ... that permit a municipality to provide for the establishment of a system of solid waste collection and disposal, and to require all person[s] to use the system and to dispose of solid waste as provided by ordinance. AS 29.35.050(1) and (2)."

"To our knowledge, no Alaska municipality has adopted flow control. We have not researched the law of other states with similar statutes. The APUC staff with whom we spoke stated that the APUC has never considered the lawfulness of a flow control ordinance. Given the potential ambiguity in the statute and the lack of Alaska precedent, we feel that further research is needed on the question of statutory authority to legislate flow control.""

Letter to the CBJ from Preston Thorgrimson Shidler Gates & Ellis, pages 5-6, dated June 4, 1990.

arrangements and municipal rate borrowing.[9] Through contract negotiations, the CBJ could assure that environmental standards would be complied with and exercise control over the establishment of the tipping fee for disposal.

- **Develop Disposal Facilities**

  Finally, the CBJ could select a disposal site, obtain a waste disposal permit and develop its own disposal facilities. The CBJ could either go through the entire process by itself and operate the disposal facilities, or it could select a private company to develop and operate the CBJ owned disposal facilities. Regardless of the path selected, the CBJ would need to select a site, and design, permit and construct the facilities, all of which would take a minimum of two years, and most likely longer, to accomplish. Due to this potentially, long-term period, development of a new landfill by the CBJ is not an alternative that would address the immediate needs of the solid waste management system. It provides only a long-term backup to continued use of the existing facilities. If the CBJ owned its own disposal facilities, the CBJ could better assure compliance with environmental standards and could establish the appropriate tipping fee for disposal.

  For a more detailed discussion of what would be involved if the CBJ chose to develop its own disposal facilities, see Appendix F - New Landfill Assessment.

[9] The ability of the CBJ to provide financial incentives to a private disposal company is unclear and the opinion of legal counsel should be sought prior to this type of enticement being used under this option.

CHAPTER 5:
ANALYSIS OF OPTIONS AVAILABLE TO THE CBJ

R.W. BECK
AND ASSOCIATES

CHAPTER 5: ANALYSIS OF OPTIONS AVAILABLE TO THE CBJ

EVALUATION CRITERIA

Based on discussions with CBJ staff and the members of the Citizens' Advisory Committee on Waste Management and citizen input from the two public forums, R.W. Beck and Associates selected the following criteria to evaluate the options available to the CBJ to control the solid waste management system:

- **Protection of Human Health and the Environment**

The minimization of present and future threats to human health and the environment is of great importance to the Assembly and the citizens of Juneau. Therefore, the recommended approach to controlling the solid waste management must take the degree to which human health and the environment is protected into account.

- **Costs**

The costs to pursue each option include both expected costs (such as capital costs, operating costs or routine maintenance costs) and potential costs (such as those resulting from future, more stringent environmental regulations).

- **Risks**

The full range of legal risks involved with the selection of an option cannot be thoroughly explored in this Phase I Report; however, the potential legal risks arising under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) are considered in the following assessment.

- **Standard of Service**

The CBJ's failure to exercise control over the type of solid waste management service provided in Juneau has often been raised as an issue. Thus, this criterion considers whether an option provides opportunity for the CBJ to establish standards of service.

- **Rate Control**

The CBJ's failure to exercise control rates also has been an issue of significant concern to the citizens of Juneau. Rate control deals with more than just the ability to set the rates charged for collection of solid waste or the tipping fees charged for disposal. Rate control also includes the ability to decide whether variable can rates will be instituted and what rates, if any, will be charged for recycling. Therefore, the degree to which rates may be controlled by the CBJ under each of the options is examined.

- **Reliability**

Each part of the solid waste management system relies on the other parts for smooth operation and delivery of service. If one of the parts stops operation, then the entire system suffers and continuity of service is disrupted. Whether an option contributes to or detracts from the reliability of the solid waste management system to operate as a whole is considered in the analysis.

- **Time to Implement**

The time it takes to implement an option is an important consideration when evaluating each option. An option may appear to be the best selection; however, if it takes too long to implement, it may not be a feasible alternative.

- **Uncertainties**

Each option available to the CBJ has uncertainties attached to it. The degree to which uncertainties may be identified for each of the options influences the evaluation.

ANALYSIS OF OPTIONS

The following sections summarize R. W. Beck and Associates' analysis of the options based on these eight criteria.

DISPOSAL

Status Quo

- **Protection of Human Health and the Environment**

If the CBJ does not purchase the Channel facilities, the CBJ would have less of a direct say in how the facilities are operated, and would have to rely on ADEC to assure compliance with regulatory requirements. There also would be no guarantee that an environmental assessment would be conducted. Thus, the CBJ would not have a thorough understanding of the current environmental health of the Channel facilities and the nature and extent of any contamination.

If a private disposal company were to purchase the Channel facilities, that party would probably perform an environmental assessment prior to proceeding with the purchase. ADEC, at the request of the CBJ, could make public release of the environmental assessment a condition of the waste disposal and air quality permits.

- **Costs**

If the CBJ did not buy the Channel facilities, the costs set forth in Appendix F, Table F-1, would not have to be incurred by the CBJ. However, a number of those costs would have to be incurred regardless of who owned the facilities, and the costs would ultimately be passed through to the rate-payers. Channel's current weighted average tipping fee is $101 per ton, assuming $120 per ton for mixed municipal waste and $40 per ton for construction and demolition debris. For comparison purposed, if we assume Channel's tipping fees will escalate with inflation (6% per year), the weighted average tipping fee in 1991 dollars would be $120 per ton. This assumes no major capital improvements at the landfill.

- **Risks**

The legal risks that CBJ would potentially be exposed to would not necessarily increase if the CBJ chose not to purchase the Channel facilities and remain uninvolved in how solid waste was disposed. By not purchasing the Channel landfill, the CBJ would avoid owner/operator liability under both RCRA and CERCLA. However, the extent to which

this would reduce financial liability to the citizens of Juneau will depend on the legal determination of liability costs of remediation (if any) and the financial capability of liable parties.

- **Standard of Service**

If Channel or another private company continued to own and operate the Channel facilities, the standard of service provided by the facilities would continue to be established by the private owner, subject to ADEC oversight. The CBJ could influence the standards of service only through working cooperatively with ADEC to establish acceptable standards and assuring the standards are incorporated into the waste disposal and air quality permits.

- **Rate Control**

If Channel or another private company continued to own and operate the Channel facilities, it is unlikely that the current disposal tipping fees (i.e., $120 per ton for mixed municipal waste and $40 per ton for mud, stumps and demolition waste) would be reduced. The CBJ would have no say over the establishment of the tipping fees, and APUC would continue to have a say only to the extent that the disposal company was affiliated with the collection company.

- **Reliability**

If the Channel facilities continued under the same manner of private ownership and operation, the CBJ would continue to have no control over unexpected closures of the facilities. In the past, the Channel facilities were closed down without warning, and the CBJ had to quickly attempt to develop a contingency plan since it is virtually powerless to force the reopening of the facilities.

- **Time to Implement**

Not applicable.

- **Uncertainties**

Numerous uncertainties exist with the status quo, such as the current environmental health of the Channel facilities, the legal risk to the CBJ associated with the current and past practices at the facilities and the rate of future increases in the tipping fees.

Purchase of the Channel Facilities

- **Protection of Human Health and the Environment**

Currently, the Channel landfill has some potential for affecting human health and the environment. This potential is due to a number of factors. For example, the Landfill Closure Study concludes that the aquifer under the landfill is impacted by operations, but the exact nature and extent of the impacts cannot be determined without additional study. Potential impacts may be somewhat ameliorated by the fact that the downgraded aquifer is not used for drinking water. Similarly, explosive levels of landfill gas are suspected to have migrated off site, but the distance and patterns of migration are not known. The incinerator appears to be in compliance with its permit and with current regulations. However, improvements may be required if the revised regulations adopt anticipated emission standards.

If the CBJ purchased the Channel facilities, it could directly assure that environmental requirements were met. However, since the CBJ could work closely with ADEC to establish stricter conditions on the solid waste and air quality permits obtained by private operators, ownership is not a prerequisite to protection. It does, however, provide an extra degree of control and assurance, and allows the CBJ to directly control activities to assure a high degree of environmental compliance in its solid waste disposal activities.

- Costs

The anticipated costs associated with the CBJ owning and operating the Channel facilities are presented in Chapter 3: Channel Disposal Site Review. Based on the assumptions set forth in Chapter 3, the cost per ton associated with the CBJ purchasing the Channel facilities could run from approximately $130 to $170 in 1994. In addition to the anticipated costs discussed in Chapter 3, purchase of the Channel facilities would entail the risk of costs associated with more stringent environmental regulations and enforcement. For example, upgrading the incinerators with better air pollution control equipment could cost up to $4.5 million in 1991 dollars.

If the CBJ purchases the Channel facilities, these costs would have to be incurred by CBJ directly and, potentially, passed on to the rate payers. In addition, the CBJ would have to incur the costs to conduct an environmental assessment, and negotiate a purchase contract for the purchase the facilities.

- **Risks**

In addition to the regulatory requirements previously discussed in this Phase I Report, a solid waste disposal facility may be subject to liability for the release of hazardous substances pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). RCRA governs the clean-up of releases of hazardous substances at operating facilities, while CERCLA governs the clean-up of hazardous substances at uncontrolled or abandoned hazardous waste sites. In addition, common law liability may be incurred by a facility for personal injury and property damage to third parties resulting from the release of hazardous substances from the facility. Facilities also may be subject to civil and criminal penalties for any violations of RCRA, the federal Clean Water Act, the federal Clean Air Act and their Alaska statutory counterparts.

Any analysis that considers purchasing the Channel facilities cannot ignore the real risks associated with potential financial liability under RCRA, other environmental laws and particularly the clean-up costs associated with CERCLA liability. Municipalities currently are not completely excluded from coverage as a potentially responsible party under Superfund (except for "acts of God" and the "innocent landowner" defense) despite efforts in Congress to obtain an exclusion.[1] Thus, if the CBJ proceeds forward with a purchase, the merits of drafting and negotiating an enforceable indemnity agreement from Channel should be explored with local counsel.[2]

The legal risks associated with the Channel site and CBJ's purchase of the facilities are discussed in greater detail in Appendix C - Legal Risks.

- **Standard of Service**

Ownership of the Channel landfill and incinerators would allow the CBJ to control and provide the option to expand services at the facilities. Expanded services might include enhanced waste sorting for recycling and collection facilities recyclable materials and household hazardous waste.

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[1] Recent legislation was introduced into the United States House of Representatives that, if adopted, would severely restrict a municipality's liability under CERCLA. A copy is included in Appendix C - Legal Risks.

[2] An enforceable indemnity agreement from Channel would not prevent the EPA from seeking clean-up costs from the CBJ, it would simply prohibit Channel from seeking contribution from the CBJ if the EPA sought clean-up costs solely from Channel and not the CBJ.

- **Rate Control**

Ownership of the Channel facilities would allow the CBJ to control the tipping fees charged for disposal. However, fees would still have to cover the costs of providing service, which would be tied somewhat to the level of environmental monitoring and mitigation that the CBJ would choose (or be required) to institute at the site. CBJ ownership of the Channel facilities would not necessarily result in lower tipping fees, it would just assure the CBJ a say in the establishment of the fees.

- **Reliability**

CBJ ownership of the Channel facilities ensure uninterrupted services, except those instances when equipment breaks down or natural disaster occurs. The CBJ, as an active participant in the disposal of solid waste, also would be in a better position to provide back-up disposal services to assure continuity of service.

- **Time to Implement**

Additional evaluations should be completed before the CBJ proceeds with the purchase of the Channel facilities. These include an in-depth environmental assessment of the site and a formal appraisal of the facilities and the site. For planning purposes, at least six months should be allowed for the period between the decision to go forward with these evaluations and the actual purchase. This time could be shorter or longer depending on the findings of the environmental assessment and the appraisal. Also, obtaining financing for the purchase could require an additional three to six months. Thus, the time to implement the purchase of the Channel facilities varies between six months and a year.

- **Uncertainties**

There is a great deal of uncertainty connected with the purchase of the Channel facilities due primarily to the environmental assessment of the site that still remains to be completed. Other areas of uncertainty include the fair market value of the Channel facilities, the future regulatory requirements and the willingness of the electorate to approve the issuance of bonds.

Contract for Disposal with Private Owner

- **Protection of Human Health and the Environment**

If the CBJ contracted for disposal services, a contract obligation could be that the waste disposal practices ensure adequate human health and environmental protection. Thus, the CBJ would be able to control through the contract, subject to ADEC regulation, any human health and environmental impacts that disposal of CBJ waste may have.

- **Costs**

Depending on the process involved to select the private disposal company, the CBJ would likely incur consulting and legal fees. However, beyond the costs involved with procuring the private disposal company, the CBJ's direct costs if it pursued this option should be minimal. If the CBJ entered into a contract for disposal with a private owner, the CBJ could fix future costs that it would incur in the contract.

- **Risks**

The legal risks connected with past practices at the Channel site that CBJ would potentially be exposed to would not disappear or necessarily decrease if the CBJ chose to contract with another private disposal company. However, by becoming actively involved in determining how and where the solid waste generated in Juneau would be disposed, the CBJ would have more control over potential legal risks connected with future disposal practices. In addition, by not owning and/or operating the disposal facilities, the CBJ would avoid owner/operator liability under both RCRA and CERCLA.

- **Standard of Service**

While ADEC would have input, the standards of service would be incorporated into the contract negotiated with the private disposal company. The CBJ could assure flexibility for expanded services by incorporating such flexibility into the contract.

- **Rate Control**

The tipping fees and the basis for changing those fees would be established by the CBJ and private disposal company during negotiations and included in the contract.

- **Reliability**

The CBJ could prohibit any unexpected closure of the facilities, except those due to equipment breakdown or natural disaster, in the contract, and set a financial penalty for failure to comply. Shutdowns for equipment breakdown also could be limited under the contract.

- **Time to Implement**

The time to implement a disposal services contract would depend on the nature of the contracting process (i.e., competitive bid or sole source), the negotiations and the contract terms, especially the schedule established in the contract. Many disposal contracts are for 20-30 years, and take longer to negotiate than a contract of shorter duration. If CBJ chose to contract under a competitive process, it should allow approximately three months for a consultant to prepare the request for proposals, and another three months for the vendors to respond. At least six months should be allowed for vendor selection and contract negotiation. In addition, if the CBJ selects a disposal company that plans to develop a disposal site, time would need to be allocated for development of the disposal site. This could take a minimum of two years. Thus, this option would take approximately one to three years to implement.

- **Uncertainties**

Uncertainties involved with contracting with a private disposal company include the cost the CBJ would be expected to incur and what the CBJ would do if no companies responded to the request for proposal (if that was the course the CBJ pursued).

Develop New Disposal Facilities

- **Protection of Human Health and the Environment**

If the CBJ chose to develop its own disposal facilities, the new landfill design would incorporate features to protect human health and the environment. Developing the landfill at a site without any history of industrial use would eliminate concerns regarding past practices and their affect on human health and the environment. The hydrogeologic report that would be a part of the preliminary design would document the condition of the groundwater before development.

- **Costs**

The costs associated with designing, permitting, constructing, operating and closing a new landfill are presented in detail in Appendix F - New Landfill Assessment. Based on that preliminary assessment, developing and operating a new landfill would cost between $70 and $100/ton in 1991 dollars. The development of an incinerator to handle marine waste and/or medical waste and possible additional transportation and other system costs were not included in this analysis since a direct comparison of the costs of a new landfill with the cost of the existing facilities cannot be made at this time.

- **Risks**

As with the previous option, the legal risks connected with the Channel site that CBJ would potentially be exposed to would not disappear or necessarily decrease if the CBJ chose to develop its own disposal site. However, by becoming actively involved in determining how and where the solid waste generated in Juneau would be disposed, the CBJ would have more control over potential legal risks connected with future disposal practices. Selection of this option would potentially increase the CBJ's future risks since it would be the owner and, possibly, operator of the new disposal facilities, and, therefore, subject to owner/operator liability under both RCRA and CERCLA.

- **Standard of Service**

The CBJ would have control over the services provided at the new disposal facilities whether it operated the facilities or contracted with a private company for operation (provided that the contract stipulates service standards).

- **Rate Control**

The CBJ would have control over the establishment of the tipping fees if it developed its own disposal facilities.

- **Reliability**

By developing a new facility, the CBJ would eliminate any unexpected closure of the facilities, except those due to equipment breakdown or natural disaster. This would be true whether the CBJ operated the landfill or contracted for the operation.

- **Time to Implement**

As discussed in detail in Appendix F - New Landfill Assessment, the time to develop a new landfill is a minimum of two years. Figure F-3, included in Appendix F, presents two possible schedules for implementation of this option. Implementation could be delayed if permitting and design complications arose.

- **Uncertainties**

The most uncertain aspects of the CBJ developing its own disposal facilities are the possible costs due to uncertainties regarding site suitability and possible permit requirements. These issues also lend some uncertainty to the amount of time to implement this option.

COLLECTION

Status Quo

- **Protection of Human Health and the Environment**

The CBJ's ability to protect human health and the environment would not change.

- **Costs**

No direct costs would be incurred by the CBJ.

- **Risks**

Allowing for the status quo would not increase nor decrease the CBJ's potential legal risks.

- **Standard of Service**

The CBJ would continue to have no control over the standard of service, unless it chose to work with the APUC to establish the standard of service in the APUC certificate.

- **Rate Control**

The CBJ would have no control over the collection rates; the collection rates would continue to be subject to APUC regulation and the CBJ would only have influence over rates to the extent that it could influence the APUC during the rate setting process.

- **Reliability**

The CBJ would continue to be subject to unexpected interruptions in service, and would not be able to guarantee continuity of service.

- **Time to Implement**

Not Applicable.

- **Uncertainties**

The primary uncertainties involve the reliability of service and future rate increases.

Purchase of the APUC Certificates, Collection Equipment and Facilities

- **Protection of Human Health and the Environment**

The protection of human health and the environment could possibly be increased due to the control the CBJ would exercise over the standards of service if the CBJ controlled the solid waste collection services.

- **Costs**

The purchase price for the Channel collection equipment would be between $300,000 to $450,000. Juneau Sanitation currently does not own any collection equipment or facilities. The APUC certificates themselves have no value, except in their possible future earning potential. Additional costs might be incurred for consultant and legal advice in connection with negotiating the purchase contracts and establishing collection service.

- **Risks**

If the CBJ owned the solid waste collection services, it would potentially be considered an "arranger" and/or a "transporter" under CERCLA, and subject to an increased risk of liability for future disposal practices.

- **Standard of Service**

Purchasing the privately-held APUC certificates and collection equipment and facilities would allow the CBJ to control the standard of collection services provided.

- **Rate Control**

Purchasing the privately-held APUC certificates and collection equipment and facilities would allow the CBJ to control the establishment of the collection rates. Collection rates established by the CBJ would not be subject to APUC regulation.

- **Reliability**

A high degree of reliability could be guaranteed by the CBJ if it purchased the APUC certificates and collection equipment and facilities.

- **Time to Implement**

Assuming that the two collection companies were willing participants in the sale of their APUC certificates and collection equipment and facilities (i.e., no legal action had to be brought to force the sale), it would take approximately three months to negotiate the purchase contracts, and approximately one to three months to implement the new collection service. Legal action to condemn the certificates could substantially delay implementation.

- **Uncertainties**

The price for which the CBJ could obtain the APUC certificates and the collection equipment and facilities, the costs for a consultant and legal counsel, and the time for implementation are all uncertainties.

Contract for Collection with a Private APUC Certificate Holder

- **Protection of Human Health and the Environment**

The protection of human health and the environment could possibly be increased due to the control the CBJ could exercise in the contract with the private APUC certificate holder over the standards of service.

- **Costs**

The primary costs that the CBJ would incur would be the costs to award, negotiate and administer the contract (which the CBJ might incur in the form of outside consultant or legal advice). The CBJ also might incur the cost of a legal opinion concerning their authority to pursue this option.

- **Risks**

If the CBJ contracted with a private APUC certificate holder for solid waste collection services, it would potentially be considered an "arranger" and/or a "transporter" under CERCLA, and subject to an increased risk of liability for future disposal practices. It is not clear under Alaska law that the CBJ could contract with one private collection company and direct all waste to that company, at the exclusion of another private APUC certificate holder, without APUC assistance in creating a monopoly.

- **Standard of Service**

Contracting for collection with a private APUC certificate holder would allow the CBJ to control the standard of service, subject only to APUC review and consent.

- **Rate Control**

Rates would continue to be controlled by the APUC under this option. However, the lowest rates at the time of contract award would be assured by the CBJ through competitive bidding.

- **Reliability**

The CBJ could minimize unexpected interruptions in service by including stiff penalty provisions in the contract.

- **Time to Implement**

The procurement process would take approximately three months, and implementation of service could take between one to three months. A legal opinion concerning the CBJ's authority to pursue this option could take an additional month.

- **Uncertainties**

The potential for a legal challenge to the CBJ's authority to pursue this option and the costs to implement creates uncertainty. Also, whether private APUC certificate holders would respond to a request for proposal creates uncertainty.

CHAPTER 6:
CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

DISPOSAL

Based on our review of the costs, risks and control issues surrounding the purchase of the Channel landfill and incinerator, the following conclusions may be drawn:

- There is a significant need for the CBJ to gain greater control over the disposal of solid waste within Juneau.

- With respect to the disposal of solid waste at the Channel facilities, greater control can be accomplished in two ways, by:[1] a) purchasing the disposal facilities; or b) contracting for service with the owner of the disposal facilities.

- The greatest amount of control can be gained through the purchase of the Channel disposal facilities.

- Control can also be gained through contracting for disposal services with the owner of the Channel facilities. The acceptability of this approach will depend on the ability of the CBJ and Channel to agree to contract terms and conditions that achieve the objective of the CBJ.

- Evaluation of the Channel facilities indicates that the issue of liability for past practices is a concern only with the landfill and not the incineration facility. The incineration facility was designed to meet applicable environmental standards and, if necessary, can be modified to meet more stringent future standards.

- The CBJ's current position (i.e., Channel ownership) reduces the risk to the CBJ for liability associated with past practices of the landfill. For the CBJ to be held liable for past practices and incur costs associated with that liability, three things would have to occur:

  a) There would have to be documented damage to public health, private property or the environment.

[1] Though greater control over solid waste disposal also can be gained by the CBJ through the development of new disposal facilities or the contracting with an outside private disposal company, these options are viewed as fall backs, and are recommended as such.

b) Action to recover damages would have to be taken.
c) The CBJ would have to be found liable for the damages.

The CBJ has placed government-generated waste at the Channel Landfill. Therefore, if operation of the facility was found to have resulted in damages, it is reasonable to assume that the CBJ would be assigned some of the costs. How much of the cost would be assigned to the CBJ is more uncertain. For the Channel Landfill responsible parties could potentially include the Channel Corporations, businesses using the facilities, the CBJ, and the State of Alaska. However, since CERCLA holds responsible parties to be jointly and severally liable, if none of the other responsible parties has the means to pay, the CBJ could be held liable for the full cost of damages.

Thus, while it is possible that the CBJ would ultimately be responsible for payment of all remediation costs regardless of who owns the facility, it is also possible that the magnitude of the costs incurred by the CBJ could be affected if the CBJ elects to purchase the Channel facility.

We cannot provide a precise estimate of what the difference in costs would be; it might be helpful to provide an example of one possible scenario to illustrate the factors involved. In this scenario, let us assume the following:

a) Continued groundwater monitoring indicates that contamination exists at the site, and is continuing to impact the area.
b) ADEC requires immediate remediation at the site.
c) The approved remediation method is to fully close and cap the facility immediately using a geomembrane cap as identified in the SE/E report.
d) There are no other claims for damages.

Under this scenario, the estimated cost of remediation would be as follows:

Soil to Bring Landfill to Grade	$ 1,200,000
Geomembrane Cover	7,784,000
Post-Closure	3,156,000[1]
Total	$12,140,000

(1) Assumes 20-year post-closure period, $193,000 annual cost and 2% "real" discount rate.

The cost to the CBJ under this scenario could range from $12,140,000 if it incurred total liability, to some portion of that amount.

As mentioned earlier, the other factor involved would be the probability that remediation would be required. In other words, even if there was contamination at the site, there would be no cost to the CBJ if remediation was not required and no damages were assessed.

Some conclusions that may be derived from our analysis include the following:

- If remediation is required, even a relatively small increase in the CBJ liability would result in significant cost to CBJ. For example, if the CBJ liability were increased by 25% it would result in additional costs of $3,035,000 which would equate to approximately $300,000 per year, assuming the cost was financed over 20 years.

- If the CBJ decides to purchase the Channel facilities, the value of the landfill (as opposed to the incineration facilities) should be substantially discounted until more information is available to determine if remediation will be required at the site. Due to unknowns regarding potential liability, the landfill appears to have no (or potentially negative) value at this time. An environmental assessment of the landfill site and discussions with ADEC regarding potential remediation should provide a more definitive answer regarding the value of the landfill.

- The actual risk of liability to the CBJ will never be known unless some remediation action is required and liability is established through the complex legal procedures required under CERCLA and RCRA. A fundamental policy issue facing the CBJ is whether or not to accept some degree of increased risk at this time in order to achieve greater control over solid waste management, thereby allowing the CBJ to accomplish other desired goals and objectives.

- Through analysis of ongoing groundwater data, an environmental site assessment and negotiations with ADEC, it should be possible to more precisely estimate potential liability to the CBJ should it purchase the landfill facility.

Assuming that the CBJ wishes to gain additional control over the disposal of solid waste within Juneau, we recommend that the CBJ simultaneously pursue the following options related to solid waste disposal:

- **Work with Channel to determine if a mutually advantageous contract for solid waste disposal services can be achieved.** Issues that should be discussed include level and standards of service, environmental controls, tipping fees, flow control and mandatory collection. During the course of such negotiations it would be important for the CBJ to consult with legal counsel. The CBJ should also make a full environmental assessment a condition to entering into any contract for disposal at the site currently owned by Channel.

- **Take the steps necessary to purchase the Channel facilities.** If the CBJ elects to purchase the Channel facilities, legal review of indemnification clauses in the purchase contract and a full environmental assessment should be conducted to define limitations on CBJ's potential liability for past disposal practices at the site.

There are potential problems with each of these options that may not become apparent for some time, and it is probably necessary for the CBJ to pursue both options at this time in order to avoid heading down a dead end. In our opinion, pursuing both of these options at this time will not delay the process nor significantly add to the CBJ's costs since most of the steps involved with either option would be necessary regardless of which option is chosen.

We also recommended that the CBJ proceed with identifying available options for a new landfill which could be developed at some time in the future if both of the preferred options prove to be unacceptable in the long term. We are <u>not</u> recommending that the CBJ develop a new landfill at this time, but only provide a potential backup system that is consistent with prudent planning practice. The CBJ should conduct a feasibility study to confirm the availability of potential landfill sites for solid waste disposal. Such a study should include investigations to determine groundwater and soil conditions to identify suitable construction materials and to identify land use and other factors affecting development of a landfill in Juneau. Preliminary discussions with ADEC regarding permitting issues should also be part of the feasibility study. If a site were confirmed to be suitable for landfill development, the CBJ could then take the necessary land use actions to reserve the site for future use.

The implementation actions recommended are set forth in Table 6-1.

COLLECTION

To achieve direct control over rates and standards of service for collection of solid waste within Juneau, the CBJ would have to acquire the APUC certificates and collection equipment and facilities from both Channel Sanitation and Juneau Sanitation. Control over solid waste collection services could be achieved through contracting with a private collection company.

The level of collection services (e.g., implementing variable can rates, providing curbside recycling) will in part depend on future decisions that the CBJ makes during Phase II of the Solid Waste Management Plan concerning the types of recycling programs it wishes to implement. Potential negotiations with a private disposal company for disposal services also may affect the type of collection services that the CBJ requires. Therefore, we recommend that **the decision regarding the purchase of APUC certificates and collection equipment and facilities be made subsequent to completion of Phase II of the Solid Waste Management Plan and subsequent to resolution of issues related to contracting for disposal.**

Table 6-1
Implementation Actions

Purchase of Channel Facilities		
Task	Estimated Duration	Description
*1. Initial discussions with Channel	1 month	•Identify principal, technical, environmental, legal and financial issues. •Set objectives and schedule for negotiations.
*2. Continue environmental monitoring and evaluation of data at landfill.		•Analyze quarterly samples. •Develop database of environmental data for use in site assessment.
*3. Discussions/negotiations with ADEC.		•Establish regulatory issues. •Establish agency position regarding remediation. •Establish agency position regarding future environmental control measures.
4. Policy determination on level of acceptable risk.	2 months	•Review regulatory financial issues. •Assembly decision on level of acceptable risk.
5. Conduct environmental assessment.	6 months	•Site history/file review. •Field investigations of surface soils, sedimentary surface water and landfill gas. •Additional borings. •More detailed analysis of environmental data.
6. Conduct appraisal of incinerator and other on-site facilities to determine reasonable purchase price.	3 months	•Confirm future improvements for regulatory compliance. •Based on facility audit conducted in Phase I, prepare appraisal based on equivalent replacement value or other appropriate valuation procedure.

*Tasks common to both purchase of facilities and development of contract for disposal services.

7. Prepare valuation of landfill.	3 months	•Prepare valuation based on income, cost and market value approaches. •Discount value based on liability/risk issues.
*8. Evaluate backup disposal system.	2 months	•Evaluate availability of suitable sites. •Establish site selection process. •Identify permitting, land use issues, site development requirements and schedule.
9. Negotiate purchase contract with Channel.	3 months	•Establish purchase price. •Finalize terms and conditions. •Execute contract.

Develop Contract for Disposal		
Task	Estimated Duration	Description
*1. Initial discussions with Channel.	1 month	•Identify principal, technical, environmental, legal and financial issues. •Set objectives and schedule for negotiations.
2. Legal review of flow control and mandatory collection.	2 months	•Determine legislative/legal authority to implement flow control and mandatory collection.
3. Review procurement requirements.	1 month	•Determine requirements for competitive bidding and other procurement procedures required by state and local codes and regulations.
*4. Discussions/negotiations with ADEC.		•Establish regulatory issues. •Establish agency position regarding remediation. •Establish agency position regarding future environmental control measures.

*Tasks common to both purchase of facilities and development of contract for disposal services.

5. Review availability of financing.	2 months	•Determine ability of private firm to finance future improvements. •Develop financing options.
6. Develop contract terms and conditions.	6 months	•Negotiate draft contract including provisions for the following: a. Scope of services to be provided b. Location of disposal and/or transfer site(s) c. Minimum hours of operation d. Scope and conditions of operation e. Scope and conditions of maintenance f. Staffing, equipment, safety and utilities requirements g. Fee and rate schedules h. Compliance with any and all applicable federal, state and local law requirements i. Flow control j. Passage of ownership of waste received k. Right to salvage l. Tonnage requirement (if applicable) m. Insurance requirements n. Indemnity o. Term of agreement and right to renew p. Default provisions and penalties q. Bankruptcy and insolvency provisions r. Closure/post-closure requirements s. Closure financial assurance fund establishment t. Host fees and/or surcharges u. Amendments v. Arbitration w. Reporting and audit requirements
7. Determine payment (rates).	2 months	•Establish disposal tip fee and escalation rates.
8. Negotiate contract for disposal services.	3 months	•Execute contract.
*9. Evaluate backup disposal system.	2 months	•Evaluate availability of suitable sites. •Establish site selection process. •Identify permitting, land use issues, site development requirements and schedule.

*Tasks common to both purchase of facilities and development of contract for disposal services.

APPENDIX A:
ASSESSMENT OF THE CHANNEL INCINERATORS

R.W. BECK
AND ASSOCIATES

APPENDIX A

ASSESSMENT OF THE CHANNEL INCINERATORS

BACKGROUND

This evaluation was performed to provide the planning-level technical, environmental and cost data necessary to assess the ability of the Channel incinerators to meet the CBJ's long-term disposal needs. A reconnaissance evaluation of the existing physical condition of the facilities was performed by reviewing plant documents, interviewing plant operators, and observing equipment in normal operational modes. Planning-level costs estimates for anticipated facility improvements were arrived at by assessing the general condition of major items of equipment.

FACILITIES DESCRIPTION

The Channel incinerators are located at the northwest corner of Channel's disposal site. It consists of a refuse incinerator building, an office area with scale house, a parking area and an unattached maintenance shop. The refuse incinerator building includes the tipping floor, two incinerators, ancillary equipment and the ash removal systems. Adjacent to the rear of the building is the air pollution control equipment, the induced draft fan and the stack.

Approximate building dimensions are 120 feet by 80 feet with an additional 20 foot by 30 foot ash removal bay. The tipping floor makes up approximately half the building area, with approximate dimensions of 80 feet by 60 feet.

The facility is a nominally rated 72-ton per day facility, which incorporates two Consumat CS1600's mass-burn incinerators, which are each nominally rated at approximately 1.5 tons per hour, or 36 tons per day each. There is no heat recovery, and the flue gas is routed to a common duct through an ID fan into the electrostatic precipitator and out the stack. Two dump stacks exist for emergency operation. There are no emission monitoring systems associated with the facilities, and the incinerators are operating under an air quality permit that allows .08 grains per dry standard cubic feet and 20% opacity.

Each incinerator is provided with loading hopper system, two transfer rams and one ash removal ram. The incinerators include underfire and overfire air systems, temperature monitoring systems, and control systems to set the cycle time of the ram systems.

The incinerators are provided with a close-cycle cooling water loop that circulates water through the ash rams and the underfire air tubes to improve component life time. The closed cycle system includes evaporative coolers that maintain the cooling water temperature.

Ash is removed from the incinerators via a quench basin dragflight conveyor that cycles on and off, depending on the sequence of the ash removal rams. The ash is discharged directly into a dump truck for disposal.

Because the Channel incinerators have no heat recovery systems, high exit gas temperatures result. The flue gas that is generated in the incinerators combines in a common duct, and is routed to the air pollution control equipment by use of the induced draft fan. In the flue gas duct, water is injected to attemperate the flue gas prior to entering the air pollution control equipment.

The common header also includes two dump stack systems, one for each incinerator which provides a safety feature in the event of abnormal or emergency conditions. The ID fan pulls the flue gas through the duct and forces it into the electrostatic precipitator (ESP). A single ESP, sized to accommodate the flue gas from both incinerators, is provided. Ash is removed from the ESP via two screw augers that are intended to route the fly ash back to the quench basin for removal with the bottom ash. The upper chambers of each incinerator are provided with auxiliary burners that use diesel fuel, and assist in the start-up and shut-down of the incinerator.

Other systems included in the incinerator building are as follows:

- Air compressor systems, which include a dedicated air receiver for the pneumatically controlled dump stacks in the event of power failure.
- Hydraulic skids for operation of the incinerator refuse rams.
- Water supply and transfer equipment for the injection and closed cycle systems.

The attached office space includes a two-story building, which houses the weigh-scale equipment, office space, lunch room facility and restrooms.

THE CLEAN AIR ACT AND THE EPA'S PROPOSED RULES

In 1990, both the United States Congress and the Environmental Protection Agency (EPA) directed its efforts toward more strict regulation of airborne pollutants. All sources of air emissions were targeted, including waste-to-energy plants. By year end, Congress had passed amendments to the Clean Air Act dictating the goals to be met and directing EPA to prescribe specific guidelines for meeting them. Ironically, well before the congressional action, EPA had proposed its own rules governing emissions from solid waste combustors, and those rules were published in January 1991. Because the EPA's proposed regulations preceded the Clean Air Act amendments, differences between the two sets of rules, such as the categories of new and existing facilities affected, complicate compliance, and how the EPA will incorporate the legislative mandate into its own proposed rules won't be known for a while. Nonetheless, these changes have the potential to result in requirements for significant upgrades in air pollution equipment at existing MSW incinerators.

CLEAN AIR ACT

The 1990 Clean Air Act amendments impose tough new restrictions on air emissions from power generation facilities - including waste-to-energy plants. Title III, Hazardous Air Pollutants, regulates all solid waste combustors.[1] Title IV, Acid Deposition control, addresses waste-to-energy facilities that burn 20% or more fossil fuels.

New and existing solid waste incinerators (including those burning refuse-derived fuel) must limit emissions of hazardous air pollutants. The legislation requires EPA to establish standards reflecting the Best Demonstrated Technology (BDT), which is the maximum reduction achievable, considering cost, energy requirements, and health and environmental impacts not directly related to air quality. Before issuing new standards, the EPA will investigate whether waste-to-energy facilities can effectively use acid gas scrubbers to achieve air quality standards.

Three subclasses of pollutants are regulated:

- Organics (including dioxins and furans)
- Metals (including trace metals that may condense on particulates)
- Acid Gases (sulfur dioxide and hydrogen chloride)

Table A-1 lists specific pollutants.

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[1] Cofired combustors that burn fuel composed of 30% or less municipal solid waste or refuse-derived fuel are not subject to the standards.

Table A-1

Clean Air Act - Title III
REGULATED POLLUTANTS

Particulates (total and fine)

Sulfur dioxide

Hydrogen chloride

Nitrogen oxides

Carbon monoxide

Lead

Cadmium

Mercury

Dioxins

Dibenzofurans

EPA will also limit opacity and will include other pollutants as necessary.

After EPA finalizes its standards, each state must develop an emissions control plan meeting the minimum standards. Each state plan must be approved by the EPA.

New units must comply within six months after the EPA standards become effective. Existing units have up to three years to comply after their states' emissions control plans are approved by EPA, but no longer than five years after the EPA issues its standards.

Until November 15, 1992, ash from incineration units burning municipal solid waste will not be regulated. The EPA has not announced whether it will regulate ash after the limit expires.

PROPOSED EPA REGULATIONS

The EPA's proposed regulations, issued in January 1991, were actually published in late December 1989. Consequently, they differ from the late-1990 clean air legislation. The Clean Air Act directs EPA to bring its rules into conformance within two years. In the meantime, the EPA's existing rules apply.

Existing Facility Guidelines

The EPA currently classifies existing facilities by size:

- Small (less than 250 tons per day)
- Large (units larger than 250 tons per day in municipal waste combustion facilities with a total capacity ranging from 250 to 1,100 tons per day)
- Very large (units larger than 250 tons per day in municipal waste combustion facilities capable of burning more than 1,100 tons per day)

The EPA will finalize emission limits for small facilities by November 15, 1992. The proposed limits for small facilities and the current standards for large and very large facilities are shown in Table A-2. By November 15, 1991, these standards will be revised to include numeric limits for mercury, cadmium, and lead. The Channel incinerators will fall under the small category.

Table A-2

PROPOSED EPA REGULATIONS
Existing Municipal Waste Combustion Units

TYPE OF FACILITY	POLLUTANTS	LIMITS*
	Dioxin, furan	500 nanograms per dry standard cubic meter (dscm) (RDF: 1000 ng/dscm)
SMALL FACILITY**	Particulates	0.03 grains/dry standard cubic foot (dscf)
	Hydrogen chloride	None
	Sulfur dioxide	None
	Opacity	10%
	Dioxin, furan	125 ng/dscm (RDF: 250 ng/dscm)
	Particulates	0.03 gr/dscf
LARGE FACILITY	Hydrogen chloride	50% reduction or 25 ppmv (parts per million by volume)
	Sulfur dioxide	50% reduction or 30 ppmv
	Opacity	10%
	Dioxin, furan	60 ng/dscm
	Particulates	0.015 gr/dscf
VERY LARGE FACILITY	Hydrogen chloride	90% reduction or 25 ppmv
	Sulfur dioxide	70% reduction or 30 ppmv
	Opacity	10%
Carbon Monoxide Limits		50 ppmv for modular municipal waste combustion units 100 ppmv for mass burn waterwall municipal waste combustion units 100 ppmv for mass burn refractory municipal waste combustion units 150 ppmv coal/RDF mixed-fuel fired municipal waste combustion units 200 ppmv for RDF stoker municipal waste combustion units 250 ppmv for rotary waterwall municipal waste combustion units

* All Limits are corrected to 7% oxygen on a dry basis.
** Limits for small facilities are proposed limits to be finalized by 11/15/92.

For very large facilities, the emission limits are based on the best demonstrated technology of:

good combustion practice for organic control (dioxins, furans); and,

spray dryer followed by an electrostatic precipitator for additional control of organics and for control of metals and acid gases.

For large facilities, the limits are based on the BDT of good combustion practice for organics control and dry sorbent injection followed by electrostatic precipitation for additional control of organics and control of metals and acid gases.

These are structured as performance guidelines; therefore, any technology may be used to comply.

FACILITIES REVIEW

Based on our planning-level review, the physical condition of the Channel incinerators and their systems generally appear to be in good shape, with the notable exception of the duct work and the fly ash removal system. As reviewed, the facility itself was in clean condition, the systems were operating satisfactorily, and emissions appeared to be within the permitted requirements.

A major outage occurred between October 15 and November 4, 1990. The primary activities during this time were the replacement of sections of the tipping floor that eroded due to the loading cycles from the rolling stock. Hopper floors were refurbished in both incinerators, which included replacement of steel sections in the feed hopper and fabrication of new track assemblies.

Also, during the outage, the water supply lines for the evaporative coolers were changed out to copper material, and the closed water system was supplied with new circulating hoses and provided with one-inch fill valves on the systems. Additionally, refractory was removed from the ash ejector area, to assist with the addition of wear resistent material in the lower chamber, and new refractory and water jacket repairs to the ash injector section were completed. Other minor refractory work was also performed, and certain damper and limit switch work was completed.

During the outage, the stack was replaced in less than one day, which required a crane and operator. The ash conveyor wear strip was replaced during the outage, which consists of approximately ten foot sections on both sides, top and bottom, of the conveyor. The material had been replaced after one year of operation with a wear resistance steel which provided considerably better lifetime.

The bulk of these activities performed during the 1990 outage could be considered periodic outage items, with the exception of the concrete work and the stack replacement.

The general condition of the incinerator equipment is adequate to perform the function of volume reduction of solid waste to the landfill. The primary components that will require capital expense in the foreseeable future are the duct work and fly ash removal systems.

Modification to the existing units to bring them up to current state of the art technology in terms of control systems, monitoring systems and air pollution control systems, would require considerable capital expenditure.

EXPECTED ROUTINE OPERATION COSTS

Table A-3 shows the current expected operating costs of the system. This table is based on information received from the operator, on professional judgment and on assumptions that we believe are reasonable for projecting costs.

Operation costs include administration, maintenance and operator's salaries, insurance payments, supplies and consumables, and other business-related costs, as well as those costs associated with maintaining the facilities. The facilities have been in operation since December 1985. The original facility did not contain the ESP, which was subsequently added in 1986. A renewal and replacement program exists for the facility and consists of a 2, 4, 6, 8-year program, as recommended by Consumat.

The components replaced on a two-year schedule include the water cooled underfire air tubes, ash shrouds, conveyor flights and conveyor chain. The components on the four-year schedule include the No. 1 and No. 2 transfer rams, the electrostatic precipitator, and hopper ram refurbishment. Reportedly the ash rams are on a six-year replacement schedule, as are the tap-ins for the water-cooled systems. Conveyor replacement and refractory replacement is on a eight-year cycle.

In addition to the annual outage related issues, there are weekly, monthly and annual activities, which occur as need arises. Each week during the shutdown, the ESP's and incinerators are cleaned if necessary, systems are lubricated and general cleanup takes place. Periodic refractory and thermocouple replacement is done monthly on an as-needed basis. In addition to the items listed above, future incinerator operation costs will entail unexpected extraordinary maintenance items that are not planned on an annual basis. These items are included in an annual budget item in Table A-3. Ongoing costs that were not mentioned above also include maintenance of the bobcats and front-end loaders associated with the project. This includes tires, periodic maintenance, corrective maintenance efforts and work on the ash removal truck.

INITIAL CAPITAL IMPROVEMENTS

The short-term projections are currently not expected in the 2, 4, 6, 8-year replacement program previously described. Based on review of the Channel incinerators, the next significant cost associated with maintaining incinerator throughput will be flue gas duct work replacement and refurbishment, possibly including the ID fan. The duct work was the only area observed during the visit that appeared to require immediate attention. The costs for these anticipated expenditures are included in the Table A-4.

Other areas in need of some maintenance include the fly ash transfer system from the ESP to the bottom ash quench tank. The conveyor is an auger screw, and damage was noted on the covers and on the system in general which should be repaired in the foreseeable future.

POTENTIAL AIR QUALITY IMPROVEMENTS

The need for improvements to the facility's air pollution control system will depend on two principal factors:

1) The specific requirements of EPA and state air quality regulations.
2) The degree to which the community may wish to implement "state-of-the-art" air quality equipment in order to provide a greater level of control than is required by the regulations.

Table A-5 provides a summary of capital costs for replacement of the existing air pollution control system with equipment designed to meet proposed EPA regulations for small facilities. It may be possible to utilize some of the existing equipment, thereby reducing capital costs. However, a more detailed analysis of the facility would be required to assess the feasibility of this alternative.

Table A-6 provides a summary of capital costs for replacement of the existing air pollution control system with equipment designed to achieve the maximum level of control currently available. This option also includes a continuous emission monitoring system for monitoring stack emissions. The level of control provided by this system is greater than would be required under proposed regulations and results in very high costs.

REMAINING LIFE OF THE FACILITY AND EQUIPMENT

Remaining useful life analyses of waste incineration facilities is an issue that is wholly dependent on proper operation and maintenance and adequate renewal replacement activities, as performed by the operator. Generally speaking, waste reduction facilities have been historically provided an estimated useful life of approximately 35 years from the date of commercial operations. This, of course, does not mean that systems will not require major replacement during that time and, in fact, the 35-year useful life could be extended significantly by proper renewal and replacement of major components in a timely fashion. Nearly all of the equipment and operating components of the facility would be refurbished or replaced during the life of the facility.

Our inspection of the Channel incinerators indicated the incinerator systems and ash system appeared in good condition and properly maintained and operated. The areas requiring attention, as previously noted, include the duct work, ID fan, and ESP fly ash removal systems. The estimated useful life of these systems, as they currently exist, would be down to the one to two year range. Consequently, we would expect to see significant effort refurbishing duct work, repairing the fly ash removal systems, and inspection of the ID fan system within the next twelve months. After this refurbishment, it would be expected the useful life of the refurbished equipment would be in the range of six to eight years, at which time another refurbishment would be in order.

This process of renewing and replacing equipment or components as required should extend the useful life of the facility to the 30-35 year range. Considering the time the facility has already been in operation, the remaining useful life would then be about 25-30 years. This opinion assumes that the activities outlined above are undertaken as required and proper replacement and maintenance activities continue. Additionally, we would expect refurbishment activities similar to those performed in the 1990 outage, which included concrete, structural steel and stack replacements, to be required approximately every ten years.

Table A-3

OPERATION & MAINTENANCE COST ESTIMATE
Channel Incinerators

ITEM	COST (1991 $)	COMMENT
Personnel (per year)	$ 265,000 - 475,000	11 - 17 people total, 6-dpw 24 hpd operations 6-dpw, 16 hpd scale open 15% benefits, 15% OT
Maintenance and Repair	78,800	$3.50/TPY MSW (22,500 TPY MSW - Est.)
Freight	15,800	Assumed 20% of maint./repair
Rolling Stock	25,000	Based on historical data
Contingency: Extraordinary Maintenance	45,000	$2/Ton (in-house data)
Contract Services	12,000	Assumed $1,000/month
Supplies/Consumables	67,500	$3/Ton (in-house data)
Insurance	400,000	.005* Assumed replacement cost
Aux. Fuel	13,500	1% AGHI @ $6/mm Btu
Utilities	95,000	$6,000 elec./month $1,500 water-sewer/month $ 350 phone/month
Replacement Fund	45,000	$2/ton @ 22,500 TPY
TOTAL	$1,018,000 - 1,270,000	

TABLE A-4

INITIAL IMPROVEMENTS
Replace Existing Ductwork/ID Fan/Screw Cover
Planning-Level Estimate

ITEM	DESCRIPTION	QTY	UNIT	<---1991 UNIT COST---> MAT'L	LABOR	TOTAL	<---1991 TOTAL COST---> MAT'L	LABOR	TOTAL
1	Remove Existing Duct (assume 150lf 30" x 48")	200	E.F.	Incl'd	6	6	0	1,200	1,200
2	Remove Existing ID Fan	2	TON	Incl'd	700	700	0	1,400	1,400
3	Replace with High Temp Ductwork	200	E.F.	36	Incl'd	36	7,200	0	7,200
4	Replace ID Fan	1	L.S.	15,200	Incl'd	15,200	15,200	0	15,200
5	Misc. Mechanical Work	1	L.S.	3,000	2,000	5,000	3,000	2,000	5,000
6	Misc. Electrical Work	1	L.S.	3,000	2,000	5,000	3,000	2,000	5,000
7	Misc. Insulation Work - Weatherproof	8,000	S.F.	10	Incl'd	10	83,200	0	83,200
8	Ductwork Tie-Ins	1	L.S.	Incl'd	5,800	5,800	0	5,800	5,800
9	Remove Screw Conveyor Cover	1	L.S.	Incl'd	1,000	1,000	0	1,000	1,000
10	Replace Screw Conveyor Cover	1	L.S.	3,900	1,000	4,900	3,900	1,000	4,900
11	Clean Up & Haul Off	1	L.S.	2,000	2,900	4,900	2,000	2,900	4,900
SUBTOTAL		20%					118,000	17,000	130,000
PRICING & CONSTRUCTION ALLOWANCE		15%							30,000
SUBTOTAL - INDIRECTS (includes Engineering, spare parts, Project Management, Legal, Taxes, etc.)									20,000
TOTAL									180,000

Assumptions:

1. Our Estimate assumes that the work will be performed in the summer season.
2. Our Estimate assumes that the plan can and will be shut down during the work.
3. Our Estimate assumes that no Asbestos or other hazardous material is present in existing work.
4. Our Estimate is based on the verbal information provided and is intended as an "Order of Magnitude" figure ONLY. Detailed Engineering analysis will be required to obtain a definitive estimate.
5. Our Estimate assumes that an All Dry Scrubber/Baghouse System would be acceptable.
6. Our Estimate assumes that no major electrical or instrumentation modifications would be required.
7. Our Estimate assumes that existing plan services systems will be able to handle additions.
8. Our Estimate assumes that no civil structural modifications will be required other those noted.

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Table A-5
Potential Air Quality Improvements
Remove and Replace Existing ESP
Planning-Level Cost Estimate

ITEM	DESCRIPTION	QTY.	UNIT	1991 UNIT COST MAT'L	1991 UNIT COST LABOR	1991 UNIT COST TOTAL	1991 TOTAL COST MAT'L	1991 TOTAL COST LABOR	1991 TOTAL COST TOTAL
1.	Remove Existing ESP/ Foundations/ & Ducts	1	L.S.	$5,000	$6,000	$11,000	$5,000	$6,000	$11,000
2.	Install New ESP with Double Current Capacity	1	L.S.	374,000	Incl'd	374,000	374,000	0	374,000
3.	Install Foundations for New ESP	1	L.S.	89,000	Incl'd	89,000	89,000	0	89,000
4.	Install New Duct	180	E.F.	100	Incl'd	100	18,000	0	18,000
5.	Install New ID Fans	1	L.S.	6,600	Incl'd	6,600	6,600	0	6,600
6.	Misc. Mech/ Elect/ Instrumentation Work	1	L.S.	206,000	Incl'd	206,000	206,000	0	206,000
7.	Mis. Tie-In Allowance	1	L.S.	10,000	10,000	20,000	10,000	10,000	20,000
8.	CEM System (not required)	0	L.S.	0	Incl'd	0	0	0	0
SUBTOTAL - INSTALLATION OF ESP SYSTEM							$709,000	$16,000	$725,000
Contingency		20%							$145,000
Indirect Costs (includes engineering, administration, legal)		10%							$130,000
TOTAL - INSTALLATION OF ESP SYSTEM									$1,000,000

Assumptions:

1. Estimate assumes that the work will be performed in the summer season
2. Estimate assumes that the plant can and will be shut down as required during the work.
3. Estimate assumes that no asbestos or other hazardous material is present in existing work.
4. Estimate is based on the limited information provided and is intended as an "Order of Magnitude" estimate ONLY. Detailed engineering analysis will be required to obtain a definitive estimate.
5. Estimate assumes that existing plant services systems will be able to handle additional loads.
6. Estimate assumes that adequate working space is available.
7. Estimate assumes that work will be performed using a single straight time shift.
8. Estimate assumes that no major electrical or instrumentation modifications will be required.

Table A-6
Potential Air Quality Improvements
Remove ESP and Install Scrubber/Beghouse System
Planning-Level Cost Estimate

ITEM	DESCRIPTION	QTY	UNIT	1991 UNIT COST MAT'L	1991 UNIT COST LABOR	1991 UNIT COST TOTAL	1991 TOTAL COST MAT'L	1991 TOTAL COST LABOR	1991 TOTAL COST TOTAL
1.	Misc. Mechanical Work	1	L.S.	$37,000	$10,000	$47,000	$37,000	$10,000	$47,000
2.	Misc. Electrical Work	1	L.S.	17,000	10,000	27,000	17,000	10,000	27,000
3.	Ductwork Tie-Ins	1	L.S.	Incl'd	6,200	6,200	0	6,200	6,200
4.	Demolish ESP & Foundations	1	L.S.	5,000	6,000	11,000	5,000	6,000	11,000
5.	Install Scrubber/Beghouse Foundations	1	L.S.	53,000	Incl'd	53,000	53,000	0	53,000
6.	Install Dry Scrubber/ Beghouse System	1	L.S.	2,100,000	338,000	2,438,000	2,100,000	338,000	2,438,000
7.	Clean Up & Haul Off	1	L.S.	20,000	7,000	27,000	20,000	7,000	27,000
8.	C.E.M. System	1	L.S.	760,000	Incl'd	760,000	760,000	0	760,000
	SUBTOTAL	20%					$2,992,000	$377,200	$3,370,000
	Contingency	15%							670,000
	Indirect Costs (includes engineering, administration, legal, etc.)								510,000
	TOTAL								$4,550,000

Assumptions

1. Estimate assumes that the work will be performed in the summer season.
2. Estimate assumes that the plant can and will be shut down during the work.
3. Estimate assumes that no asbestos or other hazardous material is present in existing work.
4. Estimate is based on the verbal information provided and is intended as an "Order of Magnitude" figure ONLY. Detailed engineering analysis will be required to obtain a definitive estimate.
5. Estimate assumes that an All Dry Scrubber/Beghouse System will be acceptable.
6. Estimate assumes that no major electrical or instrumentation modifications would be required.
7. Estimate assumes that existing plan services systems will be able to handle additions.
8. Estimate assumes that no civil structural modifications will be required other than those noted.

APPENDIX B:
CLOSURE STUDY REPORT - CHANNEL LANDFILL
EXECUTIVE SUMMARY
BY SWEET-EDWARDS/EMCON

R.W. BECK
AND ASSOCIATES

APPENDIX B

CLOSURE STUDY REPORT - CHANNEL LANDFILL EXECUTIVE SUMMARY

prepared by
Sweet-Edwards/EMCON

EXECUTIVE SUMMARY

Channel Landfill, a privately owned facility in Juneau, Alaska, is the City and Borough of Juneau's primary solid waste handling and disposal facility. The landfill has been in operation since approximately 1963. In 1985 two Consummate Incinerators were placed in operation to reduce the volume of waste being landfilled. The landfill has received a wide variety of waste, including ash from the incinerators. The landfill is unlined and located in a wetlands area. The City and Borough of Juneau is currently considering purchase of this facility.

Scope of Work

Sweet-Edwards/EMCON, Inc. was retained to prepare this closure study to provide the City and Borough of Juneau with information regarding capacity and service life, environmental and financial liability, and long-term operating considerations needed to evaluate the possible purchase of the facility, and provide Channel Landfill, Inc., with information needed to establish a landfill closure fund. Sweet-Edwards/EMCON was assisted by American North, Inc., of Anchorage, Columbia Analytical Services of Kelso, Washington, Hansen Engineering of Juneau, and Wink International Geotechnical, Inc., of Juneau.

Regulatory Requirements

The following regulations affect to landfill operation and closure:

Water Quality Standard Regulations 18AAC70. These regulations set water quality standards for fresh water and marine water. These regulations and proposed regulations may impact the operations of the Channel Landfill and the final closure design by imposing more stringent operating conditions on the landfill and by imposing more stringent design criteria on the final closure.

Solid Waste Management 18AAC60. These regulations set standards for solid waste management including landfill permitting, operation, monitoring,

and closure. Certain aspects of landfill operation and landfill monitoring may need to be modified or a variance obtained to comply with these regulations.

Air Quality Control Regulations 18AAC50. These regulations focus on emission sources, such as incinerators. The incinerators appear to be in compliance with the air quality permit (R.W. Beck). Landfill gas emissions are not regulated at this time.

Drinking Water Standards 18AAC80. These regulations set standards for drinking water and are significant, as drinking water standards must be met in the aquifer adjacent to the Channel Landfill. Analytical results of samples taken from the ground water under the landfill indicate that the only national drinking water standard exceeded is benzene in a sample from a downgradient well (MW-4).

Alaska Coastal Management Program AS 46.40. Construction of major landfill improvements or modification of Channel Landfill's permit triggers the coastal consistency review process under this program.

Alaska Historic Preservation Act 41.35. Since the Channel Landfill site has been so extensively disturbed, it is doubtful any artifacts of historical value remain. The Juneau Community Development Department indicates that no historical structures are documented on the site.

Criteria for Classification of Solid Waste Disposal Facilities and Practices, 40 CFR 257 and 258. The proposed revisions to these regulations have the potential to significantly impact the operation, monitoring, and closure of the landfill. Channel Landfill may be required to implement a program to exclude regulated hazardous waste, install a gas collection control system, install a leachate control system, and upgrade the environmental monitoring program.

National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 40 CFR 122, 123, and 124. These regulations require Channel Landfill to submit a permit application for a storm water NPDES permit. Channel Landfill has not yet submitted an application.

Permit Requirements. Permit 8511 BA016 issued by the Department of Environmental Conservation identifies several constraints on operations, in addition to the other regulations discussed.

Hydrologic Conditions

A single water table aquifer composed primarily of alluvial sands and gravels lies beneath the landfill. The aquifer is tidally influenced and water quality of the aquifer is impacted by landfill operations and marine waters. Surface water in the East Pond is impacted by landfill operations and runoff. Dissolved metals and volatile organic compounds appear to increase between the sample taken upgradient and samples taken downgradient. Surface waters in the tideflat and Lemon Creek do not appear to be impacted by landfill operations or runoff.

Landfill Expansion Alternatives

The three basic expansion approaches include: (1) continuing to fill the site in the current manner, (2) filling the site until minimum base grades can be achieved across the site and then covering with a cover/liner and continuing to fill on the liner, or (3) excavating and burning refuse that is now in place.

Phased installation of a cover/liner is recommended because of its value in reducing future landfill impacts to ground water and surface water and the control of landfill gas. The phased installation allows for time to establish a fund to support capital costs. The first phase consists of a cover/liner over 12 acres at a cost of approximately $2.8 million. A cover/liner over the entire landfill will cost approximately $8.3 million.

Site Capacity and Service Life

The remaining capacity at the Channel Landfill is approximately 775,000 cubic yards of solid waste. This represents approximately 23 years of service life continuing current operations.

Final Closure Considerations

Two basic closure approaches were examined: (1) utilizing a geomembrane cover section, or (2) utilizing a low-permeability soil cover section. The geomembrane cover section is recommended because of its low permeability to precipitation and landfill gas, its flexibility, and lower maintenance requirements.

Landfill Gas

Although no landfill gas was found in on-site structures at explosive levels, landfill gas is present at the Channel Landfill and the potential for migration exists. A landfill gas control system to control odors and migration is recommended as part of any major construction at the landfill, including final closure.

Surface Water Management

The Juneau region receives between 55 and 80 inches of precipitation annually. In addition, the Channel Landfill is located in a tidally influenced area within the 100-year flood plain of Lemon Creek. The final grading plan presents surface water control measures including vegetation, culverts, ditches, and reinforced berms.

Ground Water and Leachate Management

Landfill leachate is generated by infiltration of precipitation through the landfill and ground water movement through the landfill. The landfill operations are impacting the ground water beneath the landfill and the East Pit adjacent to the landfill. Leachate impacts will continue and increase unless covers/liners are used to prevent precipitation infiltration. The type and methods for installation of landfill covers will determine the quality of leachate reduction, up to a maximum of 90 percent at final closure.

Closure and Post-Closure Cost Estimates

The cost to close the landfill with the geomembrane approach is estimated to be $7.8 million. The annual post-closure maintenance costs are expected to be $210,000 annually. With the cover/liner expansion alternative, leachate treatment is estimated to cost an additional $650,000 annually, for a total of $860,000 annually.

APPENDIX C:
LEGAL RISKS

R.W. BECK
AND ASSOCIATES

APPENDIX C

LEGAL RISKS INVOLVED WITH THE CHANNEL SITE

(The following appendix is provided for informational purposes only, and is not to be interpreted as legal advice.)

Numerous legal memoranda have been written covering the legal risks involved with the Channel site. A summary of the two most relevant federal statutes and what is contained in the previously prepared memoranda is the focus of this appendix. No attempt is made to predict quantitatively or qualitatively the risks that may be incurred by the CBJ. For a more in-depth analysis of the potential legal risks that the CBJ might confront, it is recommended that advice of legal counsel be sought.

In addition to the regulatory requirements discussed throughout this Phase I Report, a solid waste disposal facility may be subject to liability[1] for the release of hazardous substances[2] pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).[3] RCRA governs the clean-up of releases of hazardous substances at operating RCRA facilities, while CERCLA governs the clean-up of hazardous substances at uncontrolled or abandoned hazardous waste sites. In addition to RCRA corrective action liability and CERCLA liability for clean-up costs and natural resource damages, common law liability may be incurred by a facility for personal injury and property damage to third parties resulting from the release of hazardous substances from the facility. Facilities also may be subject to civil and criminal penalties for any violations of RCRA, the Federal Clean Water Act, the Federal Clean Air Act and their Alaska statutory counterparts.[4]

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[1] The term "liability" is used in this section to indicate a legal obligation either to take or omit from taking an action, or to incur an expense.

[2] For a definition of "hazardous substances," see the discussion concerning CERCLA below in this appendix.

[3] The Federal Water Pollution Control Act also could be a source of liability, imposing strict liability for the clean-up costs of any discharge of oil or hazardous substance.

[4] Letter to the Channel Corporations from Adler & Blount, page 5, dated September 28, 1988.

Resource Conservation and Recovery Act (RCRA)[5]

RCRA represents an attempt by Congress to deal with problems posed by the general disposal of wastes in this country, as well as the particular problems associated with the disposal of hazardous waste. It provides a "cradle-to-grave" regulatory regime governing the management of solid and hazardous waste by prohibiting the release of a reportable quantity of certain listed substances. RCRA regulates the management of active solid and hazardous waste generation, treatment, storage and disposal facilities. Solid waste disposal facilities must meet specific statutory and regulatory requirements, including the Environmental Protection Agency's (EPA) Guidelines for Land Disposal of Solid Wastes and EPA's Criteria for Classification of Solid Waste Disposal Facilities and Practices.

The EPA is empowered under RCRA to bring legal actions to correct or abate imminent hazards when "the past or present handling, storage, treatment, transportation or disposal of any solid or hazardous waste may present an imminent and substantial endangerment to health or the environment."[6] Suit may be brought against "any person ... who has contributed or who is contributing to such handling, storage, treatment, transportation or disposal to restrain such person [or] to order such person to take such other action as may be necessary, or both."[7] RCRA imposes strict liability.[8]

RCRA is a remedial statute that is liberally construed.[9] To establish a case for liability under RCRA, a plaintiff must show the following:

1) Conditions that present or may present an imminent and substantial endangerment.
2) The endangerment stems from the handling, storage, treatment, transportation or disposal of a solid or hazardous waste.
3) Defendants have contributed to or are contributing to such handling, storage, treatment, transportation or disposal.

Under RCRA, the EPA has broad discretion to deal with contamination from waste, and may require corrective action for all releases of hazardous waste or constituents from any solid waste

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[5] 42 U.S.C. 6901 et seq.

[6] 42 U.S.C. 6973.

[7] 42 U.S.C. 6973(a).

[8] "Strict" liability has been generally interpreted to mean "no fault" or absolute liability. R. Steinzor, "Local Governments and Superfund," Vol. 22, No. 1, The Urban Lawyer (Winter 1990), 80. Alaska law contains similar strict liability provisions. See AS 46.03.822, AS 46.09.020, and 18 AAC 75.

[9] "Liberally construed," when applied to a law means, that the law would be loosely interpreted by a court.

management facility, regardless of the time at which the waste was placed at the facility.[10] The EPA also may require owners and operators of solid waste management facilities to investigate and clean-up contamination from virtually all historical waste management areas.[11] The law applies to releases to air, soils, groundwater and surface water.[12] All harmful releases from solid waste and hazardous waste management units must be cleaned up, regardless of when the waste was placed in the unit.[13] Alaska statutes contain similar corrective action requirements in 18 AAC 60.315.

The corrective action requirements found under RCRA are in addition to the liability provisions of CERCLA. Generally, the RCRA corrective action requirements are applied to operating facilities, while CERCLA requirements are applied to abandoned facilities. EPA, however, has retained the authority to apply either RCRA or CERCLA to operating facilities.[14]

In addition to the corrective action that the EPA may pursue, violations of the substantive provisions contained in RCRA may give rise to a cause of action brought under the citizen suit provision found in 42 U.S.C. 6972.[15] Thus, a citizen of the CBJ potentially could initiate a legal action under RCRA to seek compliance with the provisions of RCRA.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)[16]

CERCLA was intended by Congress to impose liability on those who arrange for the disposal of hazardous substances. Superfund was created under CERCLA to cover clean-up costs for hazardous sites. CERCLA imposes strict, joint and several liability,[17] and has generally been broadly interpreted by the courts.

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[10] 42 U.S.C. 6924(u).

[11] Id.

[12] Id.

[13] Letter to the Channel Corporations from Adler & Blount, page 13, dated September 28, 1988.

[14] Id.

[15] Id. at page 8.

[16] For a more in-depth discussion on CERCLA, see CHAPTER 2: EXISTING CONDITIONS - Regulatory Environment - RCRA/CERCLA.

[17] "Strict" liability has been generally interpreted to mean "no fault" or absolute liability, while "joint and several" liability means that the federal government has the discretion to sue a small subset of those potentially liable, putting the burden on those chosen and unlucky few to chase their joint tortfeasors for contribution. R. Steinzor, "Local Governments and Superfund," Vol. 22, No. 1, The Urban Lawyer (Winter 1990), 80. Alaska law contains similar strict liability provisions. See AS 46.03.822, AS 46.09.020, and 18 AAC 75.

In relevant part, CERCLA provides the following:

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances,

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities ... from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance, shall be liable for -

(A) all costs of removal or remedial action incurred by the United States Government or a State ... not inconsistent with the national contingency plan.[18]

To establish a case of liability under CERCLA, a plaintiff must show the following:[19]

(1) The site involved is a facility.

(2) A release or threatened release of a hazardous substance from the site has occurred.

(3) The release or threatened release has caused the United States to incur response costs.

(4) The defendants fall within at least one of the following classes of potentially responsible persons (PRP's):[20]
   (a) the past or present owners and operators of a facility at which there is a release or threatened release of hazardous substances
   (b) any person who arranged for the treatment or disposal of a hazardous substance at the facility
   (c) the persons who transported hazardous substances to the facility

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[18] 42 U.S.C. 9607(a).

[19] U.S. v. Aceto Agricultural Chemical Corp., 29 ERC 1529 (8th Cir. 1989).

[20] 42 U.S.C. 9607(a).

"Arranged for" is not defined by the statute; however, this class is generally known as the "generators" in the lexicon of the program.[21] "Disposal" includes "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters ... ."[22] Municipalities are "persons" liable in the same manner as private parties or federal and state governments.[23] Therefore, municipalities may be liable for waste generated by the municipality and disposes of at a subject site, and, arguably, for waste generated by residents of the municipality, the disposal of which the municipality arranged for at the subject site.

CERCLA "hazardous substances" include those substances listed under RCRA, the Federal Clean Water Act, the Federal Toxic Substances Control Act, the Federal Clean Air Act and other substances listed by EPA in 40 CFR 302.4.[24]

Defenses under CERCLA

A local government that acquires ownership or control of a site involuntarily through bankruptcy, tax delinquency, abandonment or other circumstances in which the government involuntarily acquires title by virtue of its function as sovereign is not an "owner" under CERCLA.[25] However, this exclusion does not apply to a local government that caused or contributed to the release.

Another affirmative defense to CERCLA liability is available for any PRP showing that the problem arises solely because of an act or omission of a third party.[26] The PRP asserting this defense must demonstrate that it did not have a "contractual relationship" with the third party. "Contractual relationship" may include "land contracts, deeds or other instruments transferring title or possession unless the real property on which the facility concerned is located was acquired by the defendant after the disposal ... of the hazardous substance ... and ... the defendant is a government entity which acquired the facility by escheat, or through any other

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[21] R. Steinzor, "Local Governments and Superfund," Vol. 22, No. 1, The Urban Lawyer (Winter 1990), 80 - 81.

[22] 42 U.S.C. 9601(29) (Supp. V 1988), incorporating the definition contained in section 1004 of the Solid Waste Disposal Act, 42 U.S.C. 6903 (Supp. V 1988).

[23] R. Steinzor, "Local Governments and Superfund," Vol. 22, No. 1, The Urban Lawyer (Winter 1990), 80 - 81.

[24] Letter to the Channel Corporations from Adler & Blount, page 14, dated September 28, 1988.

[25] 42 U.S.C. 9601(20)(D)(Supp. V 1988).

[26] 42 U.S.C. 9607(b)(3) (Supp. V 1988).

involuntary transfer or acquisition, or through the exercise of eminent domain authority by purchase or condemnation."[27] (Emphasis added.) In addition to proving that it took the facility involuntarily or through the exercise of eminent domain, in order to prevail on the "innocent landowner" defense, the municipality must show that it undertook all appropriate inquiry into the previous ownership and uses of the property and did not know or have reason to know that a release or threatened release was present.

A person who owned or operated a facility at the time of disposal of hazardous substances cannot transfer its CERCLA liability to a government agency.[28] However, the owner or operator may enter into a contractual agreement with another person that prevents the other person from seeking indemnification or contribution from the seller for CERCLA response costs.[29]

Enforcement of CERCLA

The typical first step in a Superfund enforcement action is the mailing of a "104(e)" information request letter to the PRP's that the EPA has identified from a cursory examination of the evidence available. The obligation to pay for clean-up activities does not arise until response costs are incurred.[30] However, an owner/operator may be ordered to perform an abatement action at any time when there may be a substantial endangerment to human health or the environment.[31] Defendants who lack sufficient cause to refuse to honor an EPA clean-up order may face treble damages in a subsequent cost recovery action.

The EPA issued its "Interim CERCLA Municipal Settlement Policy"[32] for public comment in 1989. Under the policy, both local governments and private parties that sent or transported "municipal solid waste" to a Superfund site will receive information requests concerning the nature and scope of the materials they generated. "Municipal solid waste" is defined to include solid waste generated primarily by households, but may include some contribution of wastes from commercial, institutional, and industrial sources. However, such entities will not receive notifications that they are PRP's at a site unless two conditions are met: first, the EPA obtains "site-specific" information that the municipal solid waste contains a hazardous substance and,

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[27] 42 U.S.C. 9601(35)(A)(ii) (Supp. V 1988).

[28] 42 U.S.C. 9607(e).

[29] Letter to the Channel Corporations from Adler & Blount, page 16, dated September 28, 1988.

[30] 42 U.S.C. 9604.

[31] 42 U.S.C. 9606.

[32] 54 Fed. Reg. 51,071 (proposed December 12, 1989).

second, the EPA has "reason to believe" that the hazardous substance is derived from a "commercial, institutional, or industrial process or activity." The policy provides that EPA will not generally notify municipalities or private parties which are generators/transporters of only household hazardous wastes, unless it is truly an exceptional situation.[33]

The issues and strategic choices facing a municipality notified of its potential liability as a generator at a Superfund site are shaped to a large extent by the nature of the hazardous substances at issue. There are two basic situations: local governments are notified if they generate traditional industrial hazardous wastes and local governments are notified if they generate ordinary household solid waste.[34]

CERCLA allows local governments to bring affirmative suits in two situations: (1) When they have incurred costs for remediating pollution at a site and sue to recover these costs from PRP's under section 107(a) of the Act;[35] and (2) When they sue under section 107(f) of the Act to recover damages to natural resources within their jurisdiction.[36]

Reauthorization for CERCLA is scheduled to occur in 1991.

EPA's Superfund Report on the Channel Landfill[37]

In 1988, EPA prepared a "CERCLA Superfund Site Inspection Report" on the Channel Landfill. The Report concluded that there appeared to be little risk to human health based on the available information concerning the nature of the wastes disposed in the facility and on the potential for human exposure to these wastes. However, the Report expressed concern about the possibility of toxic or explosive landfill gases such as methane. In addition, the report indicates that environmental contamination from the generation and migration of leachate into the groundwater may pose localized water quality impacts. According to the report, the degree and magnitude of these potential impacts cannot be estimated without routine monitoring.

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[33] R. Steinzor, "Local Governments and Superfund," Vol. 22, No. 1, The Urban Lawyer (Winter 1990), 127. See also HR3026, included at the end of this Appendix, which was recently introduced into the U.S. House of Representatives. If adopted, HR3026 would provide municipalities with a limited exclusion from CERCLA liability.

[34] Id. at 116.

[35] 42 U.S.C. 9607(a) (1982 & Supp. V 1988).

[36] 42 U.S.C. 9607(f) (1982 & Supp. V 1988).

[37] This section is based on a letter to the Channel Corporations from Adler & Blount, dated September 28, 1988.

Several substances identified in the EPA CERCLA Report are listed by EPA in 40 CFR 302.4, including asbestos, selenium, benzene, chlorobenzene, trans-1, 2-dichloroethylene and ethylbenzene.

Summary

Any analysis that considers purchasing the Channel site cannot ignore the real risks associated with potential financial liability under RCRA, other environmental laws and particularly the clean-up costs associated with CERCLA liability. Municipalities currently are not completely excluded from coverage as a PRP under Superfund (except for "acts of God" and the "innocent landowner" defense) despite efforts in Congress to obtain an exclusion. Thus, if the CBJ proceeds forward with a purchase, the merits of drafting and negotiating an enforceable indemnity agreement from the seller of the property should be explored with local counsel.

102D CONGRESS
1ST SESSION

H. R. 3026

To amend the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 to protect citizens, municipalities, and other generators and transporters of municipal solid waste and sewage sludge from lawsuits equating these substances with industrial hazardous wastes.

IN THE HOUSE OF REPRESENTATIVES

JULY 24, 1991

Mr. TORRICELLI (for himself, Mr. DREIER of California, Mr. ATKINS, Mr. GALLO, Mr. HUNTER, Mr. MARTINEZ, Mr. MOORHEAD, Mr. SHAYS, Mr. SKAGGS, Mr. TORRES, and Mr. WELDON) introduced the following bill; which was referred to the Committee on Energy and Commerce

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A BILL

To amend the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 to protect citizens, municipalities, and other generators and transporters of municipal solid waste and sewage sludge from lawsuits equating these substances with industrial hazardous wastes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Toxic Cleanup Equity and Acceleration Act of 1991".

SEC. 2. FINDINGS.

Consistent with the policies under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) (42 U.S.C. 9601 et seq.), the Congress finds that—

(1) there is a need for a reaffirmation of the policies that are the basis for Superfund, the Nation's toxic waste cleanup program, including the principle that the polluter should pay for cleanup;

(2) the Congress did not intend to hold municipalities or individual citizens strictly, jointly and severally liable under Superfund for the generation or transportation of municipal solid waste and sewage sludge;

(3) studies demonstrate that the proportion of hazardous substances found in municipal solid waste from households generally averages less than 0.5 percent;

(4) cities that have received awards from the Environmental Protection Agency for the beneficial reuse of sewage sludge have been sued under Superfund because such sewage sludge was present at Superfund sites;

(5) third-party contribution suits based on the generation or transportation of municipal solid waste

and sewage sludge distort the intent of Superfund and delay cleanup; and

(6) it is imperative that spurious litigation be eliminated so that the cleanup program is not delayed and precious resources are not diverted from remedial actions.

SEC. 3. ADDITIONAL DEFINITIONS.

Section 101 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 is amended by adding the following new paragraphs at the end thereof:

"(39) The term 'municipal solid waste' means all waste materials generated by households, including single and multiple residences, hotels and motels, and office buildings. The term also includes trash generated by commercial, institutional, and industrial sources when the general composition and toxicity of such materials are similar to waste normally generated by households, or when such waste materials, regardless of when generated, would be considered conditionally exempt generator waste under section 3001(d) of the Solid Waste Disposal Act because it was generated in a total quantity of 100 kilograms or less during a calendar month. The term 'municipal solid waste' includes all constituent components

of municipal solid waste, including constituent components that may be deemed hazardous substances under this Act when they exist apart from municipal solid waste. Examples of municipal solid waste include food and yard waste, paper, clothing, appliances, consumer product packaging, disposable diapers, office supplies, cosmetics, glass and metal food containers, and household hazardous waste (such as painting, cleaning, gardening, and automotive supplies). The term 'municipal solid waste' does not include combustion ash generated by resource recovery facilities or municipal incinerators.

"(40) The term 'sewage sludge' refers to any solid, semisolid, or liquid residue removed during the treatment of municipal waste water, domestic sewage, or other waste waters at or by a publicly owned treatment works subject to the limitations of section 113(m).

"(41) The term 'municipality' means any political subdivision of a State and may include cities, counties, towns, townships, boroughs, parishes, school districts, sanitation districts, water districts, and other local governmental entities. The term also includes any natural person acting in his official ca-

pacity as an official, employee, or agent of a municipality.".

SEC. 4. THIRD-PARTY SUITS FOR MUNICIPAL SOLID WASTE OR SEWAGE SLUDGE.

Section 113 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 is amended by adding the following new subsections at the end thereof:

"(l) CONTRIBUTION ACTIONS FOR MUNICIPAL SOLID WASTE AND SEWAGE SLUDGE.—No municipality or other person shall be liable to any person other than the United States for claims of contribution under this section or for other response costs or damages under this Act for acts or omissions related to the generation, transportation, or arrangement for the transportation, treatment, or disposal of municipal solid waste or sewage sludge unless such acts or omissions provide a basis for liability under sections 107(a)(1) or 107(a)(2) of this Act.

"(m) ACTIONS BY THE PRESIDENT FOR MUNICIPAL SOLID WASTE AND SEWAGE SLUDGE.—In the absence of truly exceptional circumstances, the President shall not initiate or maintain an action against any municipality or other person under this Act for acts or omissions related to the generation, transportation, or arrangement for the transportation, treatment, or disposal of municipal solid

waste or sewage sludge unless such acts or omissions provide a basis for liability under sections 107(a)(1) or 107(a)(2) of this Act. For the purpose of this subsection, truly exceptional circumstances shall exist only—

"(1) where the President obtains reliable, site-specific evidence that—

"(A) the release or threatened release of hazardous substances on which liability is based are not those ordinarily found in municipal solid waste or sewage sludge; and

"(B) the hazardous substances were derived from a commercial, institutional, or industrial process or activity; or

"(2)(A) the total contribution to the site of commercial, institutional, and industrial hazardous substances is insignificant in terms of both volume and toxicity when compared to the volume and toxicity of the municipal solid waste and sewage sludge, or

"(B) absent the total contribution to the facility of commercial, institutional, and industrial hazardous substances, the contribution of hazardous substances from municipal solid waste and sewage sludge would be a significant cause of the release or

threatened release of hazardous substances that results or will result in the response action.

When the release or threatened release involves trash from commercial, institutional, or industrial sources, the President may require that persons who generated, transported, or arranged for the transportation, treatment, or disposal of such materials provide reliable, site-specific evidence that the general composition and toxicity of the trash are similar to those of waste normally generated by households. When municipal solid waste or sewage sludge has been combined or mixed with hazardous substances at a waste transfer station, such combination or mixing shall not constitute truly exceptional circumstances under this subsection warranting action against the municipality or other person that generated, transported, or arranged for the transportation, treatment, or disposal of such municipal solid waste or sewage sludge, unless the municipality or other person also owned or operated the waste transfer station. When sewage sludge has been approved by the President for beneficial reuse or other equivalent use, or would have qualified for beneficial reuse or other equivalent use at the time of disposal, the release or threatened release of such sewage sludge shall not constitute truly exceptional circumstances under this subsection.

"(n) PUBLIC RIGHT-OF-WAY.—In no event shall a municipality incur liability under this Act for the act of owning or maintaining a public right-of-way over which hazardous substances are transported.

For the purposes of this subsection, 'public right-of-way' shall include roads, streets, or other public transportation routes, and pipelines used as a conduit for sewage or other liquid or semiliquid discharges.".

SEC. 5. SETTLEMENTS.

Section 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 is amended by adding the following new subsection at the end thereof:

"(n) SETTLEMENTS FOR MUNICIPAL GENERATORS AND TRANSPORTERS OF MUNICIPAL SOLID WASTE OR SEWAGE SLUDGE.—

"(1) APPLICABLE ACTIONS.—This subsection applies whenever an administrative or judicial action is brought, or notice is given by any person that an action may be brought, against a municipality under this Act for acts or omissions related to the generation, transportation, or arrangement for the transportation, treatment, or disposal of municipal solid waste or sewage sludge unless such acts or omissions

provide a basis for liability under section 107(a)(1) or 107(a)(2) of this Act.

"(2) TIMING OF SETTLEMENTS.—For applicable actions under this subsection, a municipality may request that the President enter into a settlement under this section. The request may seek to settle a municipality's potential liability for all or part of the response costs or damages to natural resources. Notwithstanding any other deadlines under this Act, the President shall make every effort to reach a final settlement with the municipality within 120 days after receiving such request.

"(3) FAILURE TO REACH SETTLEMENT; MORATORIUM.—If the President does not reach a settlement with the municipality within the 120-day period defined in paragraph (2) of this subsection, the period shall be extended for negotiations to continue until a settlement is reached, or until the President has published in the Federal Register an explanation of why a settlement cannot be reached. During the moratorium which commences when a municipality requests a settlement under this subsection and terminates when a settlement has been reached or when the President has published notice explaining why a settlement cannot be reached, no administrative or

judicial action may be commenced or pursued against the municipality in any applicable action as defined by this subsection. Permissible reasons for failing to reach a settlement under this subsection shall be limited to one or more of the following:

"(A) The settlement offer from the municipality does not meet the cost allocation criteria specified in this subsection.

"(B) The municipality refuses to agree to settlement terms routinely required in consent decrees under subsection (g) of this section.

"(C) Insufficient information exists to permit a cost allocation.

If the President invokes subparagraph (C) as the reason why a settlement cannot be reached, the moratorium on initiating or pursuing action in applicable actions under this subsection shall be extended until sufficient information is acquired. The completion of a remedial investigation/feasibility study for the portion of the response action or the completion of an assessment of damages that is the subject of the municipality's request for settlement shall be deemed to provide sufficient information to reach a settlement for such portion or damages under this subsection. If the President has completed a settle-

ment with a party other than the municipality requesting a settlement, such settlement creates a rebuttable presumption that the President cannot invoke subparagraph (C) as a reason for failing to reach a settlement with the municipality concerning matters addressed in the other party's settlement, unless the other settlement was reached pursuant to subsection (g) of this section.

"(4) EXPEDITED FINAL SETTLEMENT.—Settlements under this subsection shall—

"(A) require the municipality to pay for costs based on the quantity of hazardous constituents within municipal solid waste and sewage sludge, not the overall quantity of municipal solid waste and sewage sludge, but municipal solid waste and sewage sludge shall not be deemed to contain more than one-half of one percent (0.5%) constituent hazardous substances unless the President obtains reliable site-specific evidence to the contrary during the moratorium period defined above in paragraph (3);

"(B) limit a municipality's payments if such payments would force a municipality to

dissolve, to declare bankruptcy, or to default on its debt obligations; and

"(C) be reached even in the event that a municipality may be liable for response costs or damages in actions other than applicable actions under this subsection, although the President may elect to exclude liability, costs, or damages not covered by this subsection from settlements under this subsection.

"(5) COVENANT NOT TO SUE.—The President shall provide a covenant not to sue with respect to the facility concerned to any municipality which has entered into a settlement under this subsection unless such a covenant would be inconsistent with the public interest as determined under subsection (f) of this section.

"(6) CONSENT DECREE OR ADMINISTRATIVE ORDER.—A settlement under this subsection shall be entered as a consent decree or embodied in an administrative order as described in subsection (g)(4) of this section.

"(7) EFFECT OF AGREEMENT.—A municipality that has resolved its liability to the United States under this subsection shall not be liable for claims of contribution or for other response costs or dam-

ages under this Act regarding matters addressed in the settlement. Such settlement does not discharge any of the other potentially responsible parties unless its terms so provide, but it reduces the potential liability of the others by the amount of the settlement.

"(8) SETTLEMENT PROVISIONS.—When reaching settlements under this subsection, the President—

"(A) shall not reserve any rights to seek further relief from a settling municipality which the President does not routinely reserve in other settlements under subsection (g);

"(B) shall not seek to have a municipality provide indemnification to the United States;

"(C) shall not require a municipality to act or fail to act in contravention of legal requirements that are of general applicability and were adopted by formal means concerning the assumption and maintenance of municipal fiscal obligations; and

"(D) shall encourage municipalities to enter into settlements that allow them to contribute services in lieu of money, to make delayed payments, or to make payments over

time, through an annuity or other financing device.

"(9) JUDICIAL REVIEW.—Review of the President's action in denying a municipality's request for settlement under this subsection may be had by any interested municipality in the United States district courts in accordance with section 113(b) of this Act. Any such application for review shall be made within 90 days from the date the President publishes an explanation of why a settlement cannot be reached.".

SEC. 6. PRELIMINARY ALLOCATION OF RESPONSIBILITY.

(a) MUNICIPAL SOLID WASTE AND SEWAGE SLUDGE.—Section 122(e)(3)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 is amended by inserting the following sentence between the second and third sentences: "Under these guidelines, the volume of municipal solid waste and sewage sludge shall refer to the quantity of hazardous constituents within municipal solid waste and sewage sludge, not the overall quantity of municipal solid waste and sewage sludge.".

(b) REQUEST BY MUNICIPALITIES.—Section 122(e)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 is amended by adding the following new subparagraph at the end thereof:

"(F) REQUEST BY MUNICIPALITIES.—If a municipality requests the President to prepare a nonbinding preliminary allocation of responsibility, the President shall provide such an allocation unless he provides a written explanation of why such an allocation would be contrary to the public interest.".

SEC. 7. RETROACTIVITY.

The amendments made by this Act shall apply to each municipality and other person against whom administrative or judicial action has been commenced before the effective date of this Act, unless a final court judgment has been rendered against such municipality or other person or final court approval of a settlement agreement including such municipality or other person as a party has been granted. If a final court judgment has been rendered or court-approved settlement agreement has been reached that does not resolve all contested issues, such amendments shall apply to all contested issues not expressly resolved by such court judgment or settlement agreement.

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APPENDIX D:
ASSESSMENT OF THE CHANNEL COLLECTION SYSTEM

R.W. BECK
AND ASSOCIATES

Appendix D

ASSESSMENT OF THE CHANNEL COLLECTION SYSTEM

Channel Sanitation Corporation (CSC) provides curbside solid waste collection for approximately 4500 households and 800 businesses in the CBJ. To provide service for their customers Channel Sanitation owns and operates 4 packer trucks, 1 drop box truck, 1 truck used for medical waste pick-up, 1 sanitation truck, and 1 truck used for bulky items.

Table D-1

DESCRIPTION OF CHANNEL SANITATION EQUIPMENT

Year	Vehicle make	Packer make	Estimated Worth	Description
1985	Kenworth	Dempster	$26,000 to $38,000	Rear Loader 20 yard capacity. Truck and Packer recently rebuilt.
1985	Kenworth	Dempster	$26,000 to $38,000	Rear Loader 20 yard capacity. Truck and Packer recently rebuilt.
1990	Kenworth	Dempster	$78,000 to $115,000	Route King 2 packer. Rear Loader. 20 yard capacity. 750 Allison automatic trans.
1990	Kenworth	Dempster	$78,000 to $115,000	Route King 2 packer. Rear Loader. 20 yard capacity. 750 Allison automatic trans.
1990	Kenworth		$71,000 to $105,000	Drop Box truck.
1989	Ford		$11,000 to $16,000	Econoline Van, used for medical waste pick up.
1979	Mack		$11,000 to $16,000	Used for metals/ recycling.
1980	Mack		$11,000 to $16,000	Used as a sanitation truck.

Maintenance records for CSC equipment are not available. It is assumed that because CSC owns and operates a company shop, maintenance on CSC's equipment was performed at adequate intervals.

The approximate value of the current CSC fleet is between $300,000 and $400,000. All CSC equipment is assumed to be in good condition.

The packer trucks currently operate approximately 2,000 hours per year. With proper maintenance these collection vehicles can be expected to give five to seven years of service before any major work or replacement is required.

FUTURE NEEDS

The current CSC fleet is adequate for the current waste stream, but additional waste collection vehicles will need to be purchased if a curbside recycling program is implemented and if there are increases in population.

Estimated future equipment requirements were based on baseline waste stream projections with the implementation of recycling in 1992 and a 20% increase in the amount of waste generated (for contingency planning). Under this scenario, solid waste being landfilled would peak in 1994 and recycling would peak in 2002.

Recycling projections assumed a 2% annual increase in recycling leveling up to 25% in 2003. Recycling vehicles are capable of serving approximately 1,000 homes per day. Depending on the type of recycling program and the amount of initial participation, as many as two collection vehicles would be needed initially to collect on a weekly basis.

Recycling vehicles come in three basic forms: trailers, open top trucks, and closed top trucks. Trailers have rated capacities from 7 cubic yards (cy) to 24 cy, and prices range from $10,000 to $16,000. Open top trucks have rated capacities from 12 cy to 28 cy, and prices ranging from $35,000 to $60,000. Closed top trucks come in two styles, manually and hydraulically loaded trucks. Manually loaded trucks have capacities from 22 cy to 33 cy, and prices range from $54,000 to $60,000. Rated capacities for hydraulically loaded trucks are the same as those for manually loaded trucks, however, the prices range from $55,000 to $75,000. It should be noted that vendors and recyclers that have used closed body trucks claim the usable capacity is 25 to 50% less than the rated capacity, due to the roof restricting the loading of materials through the top of the vehicle.

To estimate when major work or replacement would be needed on collection equipment, packers and recycling vehicles were assumed to have an average useful life of six years, and tilt frame and medical waste vehicles were assumed to have an average useful life of eight years.

The vehicle replacement/purchase schedule shown in Table D-2 assumes that packers, tilt frames, and recycling vehicles would be run for their useful life and then they would be rebuilt for a second useful life. After their second useful life they would be replaced. Packers that are replaced with new equipment would be converted to replace sanitation equipment, or would be used as vehicles to pick up bulky items. The medical waste collection vehicle would be replaced after its first life.

Each packer is capable of serving approximately 1,800 households per week. Under this waste stream generation scenario, as many as 10,000 households would require service in 2003. Approximately five reliable packers would be required to collect this amount of waste.

Larger business and construction projects use drop boxes that are hauled by tilt frame trucks. CSC currently owns and operates one tilt frame truck. Because mandatory collection will not significantly affect the amount of waste being generated by these types of users, one tilt frame truck should be adequate to handle drop box collection through 2009.

Medical waste generation is not expected to rise significantly under this waste generation scenario. Therefore, a single medical waste collection vehicle will be adequate through 2009.

Listed below is an estimated schedule for collection equipment purchases, replacement, and rebuilding. The net present value for these activities is estimated to be between $720,000 and $1.6 million.

Table D-2

Vehicle Replacement/Purchase Schedule

Year	Activity	Estimated Cost Low	Hi
1991	Purchase CSC existing equipment.	$312,000	$459,000
1992	Purchase 1 recycling truck.	$45,000	$66,000
1994	Purchase new Packer.	$86,000	$126,000
1997	Purchase 1 new Packer.	$86,000	$126,000
	Rebuild 2 1990 Packers.	$30,000	$44,000
	Modify 2 1985 Packers	$15,000	$22,000
1998	Rebuild 1992 Recycling truck.	$11,000	$16,000
1999	Rebuild 1990 Tilt Frame truck.	$15,000	$22,000
	Purchase 1 new Med/Waste van.	$15,000	$22,000
	Retire old Med/Waste van.		
2000	Purchase 1 new Packer.	$86,000	$126,000
	Purchase 1 new recycling truck.	$45,000	$66,000
	Rebuild 1994 Packer.	$15,000	$22,000
2003	Purchase 1 new Packer.	$86,000	$126,000
	Rebuild 1997 Packer.	$15,000	$22,000
2004	Purchase 1 new Recycling truck.	$45,000	$66,000
2006	Purchase 1 new Packer.	$86,000	$126,000
	Rebuild 2000 recycle truck.	$11,000	$16,000
	Rebuild 2000 Packer.	$15,000	$22,000
2007	Purchase 1 new Tilt Frame truck.	$78,000	$115,000
	Purchase 1 new Med/Waste van.	$15,000	$22,000
	Retire 1999 Med/Waste van.		
2009	Rebuild 2003 Packer.	$15,000	$22,000

APPENDIX E:
CHANNEL RATES

R.W. BECK
AND ASSOCIATES

APPENDIX E

CHANNEL RATES

RATE SCHEDULE A

FOR THE PROVISION OF: Residential and Commercial Service

Part 1: NORMAL CONTAINER SERVICE - CANS

A. LOCALITY OR AREA WHERE APPLICABLE:
The entire authorized Service Area of the utility.

B. RATE: Monthly Service Charge

TYPE OF LOCATION	PICKUPS PER WEEK	BASIC RATE PER MONTH	ADDITIONAL RATE PER CAN PER MONTH
All Residential (1 to 3 cans or equivalent)	1	$ 24.09	$ 8.60
	2	48.16	17.18
	3	72.24	25.80
	4	96.34	34.38
	5	120.73	43.03
	6	144.48	51.61
	7	192.68	68.80
Senior Citizens (65 years of age or older - 1 can service + 75' carryout)	1	12.03	4.29

NOTE: Where articles of refuse, such as large cans, bottles, boxes and similar materials are not easily or practically suited for placement in a receptacle, in the opinion of the utility, they may be placed adjacent to the receptacle provided they are so placed in a neat and orderly manner and prevented from scattering. Boxes must be tied in bundles weighing not more than 70 pounds. Brush must be in bundles and tied, not exceeding four feet in length, and weigh not more than 70 pounds. The utility may collect such refuse and charge the customer in accordance with Rate Schedule B, Part 2, in addition to its regular recurring charges, or a service fee equivalent to the customer's regular service fee prorated by the volume of refuse handled.

RATE SCHEDULE A

FOR THE PROVISION OF: Residential and Commercial Service

Part 2: SPECIAL CONTAINER SERVICE

A. LOCALITY OR AREA WHERE APPLICABLE:
The entire authorized Service Area of the utility.

B. RATE: Monthly Service Charge

CONTAINER SIZE	1 TIME PER WEEK	2 TIMES PER WEEK	3 TIMES PER WEEK	4 TIMES PER WEEK
1 cubic yard	$ 82.61	$ 165.13	$ 247.72	$ 330.27
1.5 cubic yards	89.42	178.90	268.34	357.80
2 cubic yards	96.34	192.68	288.99	385.30
3 cubic yards	110.11	220.19	330.27	440.34
10 cubic yards	720.55	1296.99	1837.40	2301.83
15 cubic yards	825.35	1485.64	2104.63	2641.11
20 cubic yards	930.28	1674.52	2372.22	2976.91
30 cubic yards	1140.14	2052.25	2907.36	3648.45
49 cubic yards	1549.14	2786.82	3950.27	4957.20

CONTAINER SIZE	5 TIMES PER WEEK	6 TIMES PER WEEK	7 TIMES PER WEEK	MINIMUM MONTHLY CHARGE
1 cubic yard	$ 412.84	$ 495.40	$ 660.57	$ 82.61
1.5 cubic yards	447.25	536.69	715.62	89.42
2 cubic yards	481.66	577.98	770.63	96.34
3 cubic yards	550.44	660.51	880.70	110.11
10 cubic yards	2702.05	3242.45	3782.87	720.55
15 cubic yards	3095.05	3714.05	4333.08	825.35
20 cubic yards	3488.57	4186.27	4884.00	930.28
30 cubic yards	4275.53	5130.61	5985.73	1140.14
40 cubic yards	5809.22	6971.07	8132.91	1549.14

RATE SCHEDULE A

FOR THE PROVISION OF: Residential and Commercial Service

Part 3: Special Pickup Charges

A. Locality or area where applicable: The entire authorized service area of the utility.

B. One time charge per item.

CONTAINER SIZE	CHARGE PER ITEM
Small Box	$ .49
Medium Box	.98
Large Box	1.95
Plastic Bag	.98
Can	1.95
1 Cubic Yard	20.11
1.5 Cubic Yards	21.77
2 Cubic Yards	23.45
3 Cubic Yards	26.81
10 Cubic Yards	175.39
15 Cubic Yards	200.89
20 Cubic Yards	226.43
30 Cubic Yards	277.52
40 Cubic Yards	377.07

RATE SCHEDULE B

FOR THE PROVISION OF: Special Services

MOVEMENT SERVICES IN CONNECTION WITH SERVICES PROVIDED

Part 1: IN RATE SCHEDULE A

A. LOCALITY OR AREA WHERE APPLICABLE:
The entire authorized Service Area of the utility.

B. RATE: Monthly Service Charge

TYPE OF MOVEMENT SERVICE	DISTANCE REQUIRED	MONTHLY CHARGE PER CAN OR RECEPTACLE PER PICKUP
Packout Service	Less than 31 feet, but more than 5 feet	$3.50
	More than 30 feet, an additional charge for each 30 foot increase or fraction thereof an added charge of	6.99
Drive In Service	Less than 31 feet	3.50
	Less than 61 feet, but more than 30 feet	6.99
	More than 60 feet, an added charge of	5.24 per quarter mile

NOTE: These rates are in addition to normal rates as provided in Rate Schedule A.

RATE SCHEDULE B

FOR THE PROVISION OF: Special Services

Part 2: LABOR CHARGES

A. LOCALITY OR AREA WHERE APPLICABLE:
The entire authorized area of the utility.

B. RATE: Per Hour

SERVICE PROVIDED BY THE UTILITY	STRAIGHT TIME		OVERTIME	
	$ PER HOUR	MINIMUM CHARGE	$ PER HOUR	MINIMUM CHARGE
Utility vehicle with one (1) man (1/2 ton to 1 ton)	$ 53.68	$26.84	$ 80.51	$ 80.51
Each additional man	33.55	16.78	50.33	50.33
Compactor - Container trucks with one (1) man	107.35	53.68	161.03	161.03
Each additional man	33.55	16.78	50.33	50.33

NOTE: Charges are based on one-half hour increments or fraction thereof.

In computing the time upon which all charges will be assessed, all time commencing when the utility's vehicle is dispatched from its terminal to perform the service, until it returns to the terminal after having performed the service, will be included and charged for in accordance with the rate structure outlined above.

APPENDIX F:
NEW LANDFILL ASSESSMENT

R.W. BECK
AND ASSOCIATES

APPENDIX F

NEW LANDFILL ASSESSMENT

BACKGROUND

The CBJ's 1983 Solid Waste Management Study evaluated five potential sites for a new landfill.[1] All of the sites are on city-owned property. The study eliminated two of the sites and evaluated three remaining sites. One site is located in the Eagle Creek area on Douglas Island, and two are located in the Lemon Creek area: one near the current CBJ gravel pit, and the other above the State Correctional Center. Engineering Sciences recommended the site above the correctional center as the best site based on criteria which included location, geological and environmental characteristics.

As part of the study for this Phase I Report, R. W. Beck and Associates (R. W. Beck) reviewed the previous work conducted by Engineering Sciences and conducted limited site visits to determine if at least one acceptable site exists for development as a new landfill, considering current landfill design standards and regulatory requirements. R. W. Beck staff visited the three sites evaluated by Engineering Sciences, as well as an additional CBJ-owned site north of the correctional facility site. Geological boring logs drilled as part of a materials resource assessment for locating sand, gravel and rock borrow areas for the CBJ were also reviewed.[2]

Based on this limited review, the site in the vicinity north of the correctional facility (site C in the Material Resource Assessment report, included here as Figure F-1) appears to be potentially suitable for new landfill development meeting current regulatory requirements. Before the permitting and design process could begin for that site, a site feasibility study should be performed to confirm the suitability of the site. The feasibility study would include a subsurface exploration program (including deep and shallow borings and test pits), to assess the geotechnical, geological and hydrogeological site characteristics. It also may be necessary to perform a limited material resource assessment to augment the findings of the 1985 study. In addition, preliminary discussions with ADEC personnel regarding the location and the design features of the new landfill would be part of the feasibility study. Developing a landfill also may require a variance for location in a flood plain. A wetlands determination would also have to be performed. If the site is in a designated wetlands area, another variance may be required.

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[1] "Solid Waste Management Study," Engineering Sciences, November 1983.

[2] "West Lemon Creek Material Resource Assessment," prepared by R & M Consultants, Inc., May 22, 1985.

NEW LANDFILL DESCRIPTION

For initial planning purposes, it was assumed that a 20-acre landfill could accommodate Juneau's waste for 20 years based on waste generation of 30,000 tons per year. The specific geometry of the landfill would be developed based on site topography and geology, as well as design and operating considerations. The landfill would be developed in phases of approximately five acres, with each phase providing approximately five years of operations. In addition to spreading out construction and closure costs, phased development minimizes the amount of exposed liner and waste.

Figure F-2 shows a conceptual cross-section of a landfill consistent with current standards of environmental protection. Features of the landfill include a composite geomembrane (or plastic) and clay liner, a geomembrane cover, and control systems for landfill gas and leachate. This design would meet RCRA D requirements.

Landfill gas (approximately 50% methane and 50% carbon dioxide) is produced when solid waste decomposes. Leachate is a liquid that forms as precipitation or groundwater percolates through the waste and picks up a variety of biological and chemical contaminants. Landfill gas would be controlled by drawing it into a perforated piping system that would be constructed as the landfill is filled. Leachate would be controlled and collected by draining it into a system of perforated pipes placed within the drainage layer on top of the liner. The liner would control both gas and leachate by stopping their migration downward. The final cover would inhibit the upward migration of gas and reduce the amount of leachate produced by blocking precipitation.

PRELIMINARY COST ESTIMATE/COST PER TON SUMMARY

Table F-1 is a preliminary cost estimate summary based on the typical design cross section shown in Figure F-2. This preliminary cost estimate assumes a twenty-year landfill developed in five year phases. (A conceptual level estimate for a landfill on a specific site would be part of the site feasibility study described above. A range of costs is provided to reflect uncertainties regarding site-specific conditions, permitting requirements and construction. Actual cost estimates would be developed as part of the design process.)

The costs associated with a new landfill are capital costs for construction and closure of each phase of the landfill, and annual costs for debt service, operations and post closure. Post-closure activities consist of maintenance for the drainage system, cover and leachate and gas collection systems, as well as costs for long-term monitoring of landfill gas, and surface water and groundwater quality.

Based on the estimated costs for development, operation and closure, a range of costs per ton ($70 to $100, 1991 dollars) has been calculated assuming a waste disposal quantity of 30,000

tons per year. This cost per ton is intended for planning purposes only and is not intended to accurately reflect an actual tipping fee at the landfill.

PERMIT PROCESS

The permitting process for a new landfill would begin with completion of an ADEC Solid Waste Permit Application. A copy of the application is included in Appendix I. Conceptual level information regarding landfill design, operations and closure, including a geologic/hydrogeologic report would be included in the application.

The permit application would trigger the 54-day long Alaska Coastal Management Program review process. Based on our discussions, the ADEC also would schedule their own hearing within the 54 days. The permit process could exceed 54 days if it is delayed for additional information, or if the decision is elevated to the court system at request of any state agency. After it is issued by ADEC, the permit would be subject to appeal for a 30-day period.

SCHEDULE TO IMPLEMENT

The minimum time necessary to permit, design and construct the first 5-acre phase of a new landfill in Juneau is approximately two years. Possible variance requests for location in the 100-year floodplain and in a wetland area, as well as other permitting issues, may delay the project substantially. Figure F-3 shows two variations of a possible schedule showing the minimum time that would be necessary. If the preliminary field work were to begin in the summer or fall of 1991, construction would take place in the summer of 1993, but there would be a greater risk of escalating costs since permitting and final design would be conducted simultaneously, and changes during final design are more expensive to implement than changes during the preliminary design phase. If the field work is delayed until the spring of 1992, construction could still take place in the summer of 1993. The earlier start of the field work would not accelerate the date for project completion because construction would have to take place in the dryer seasons.

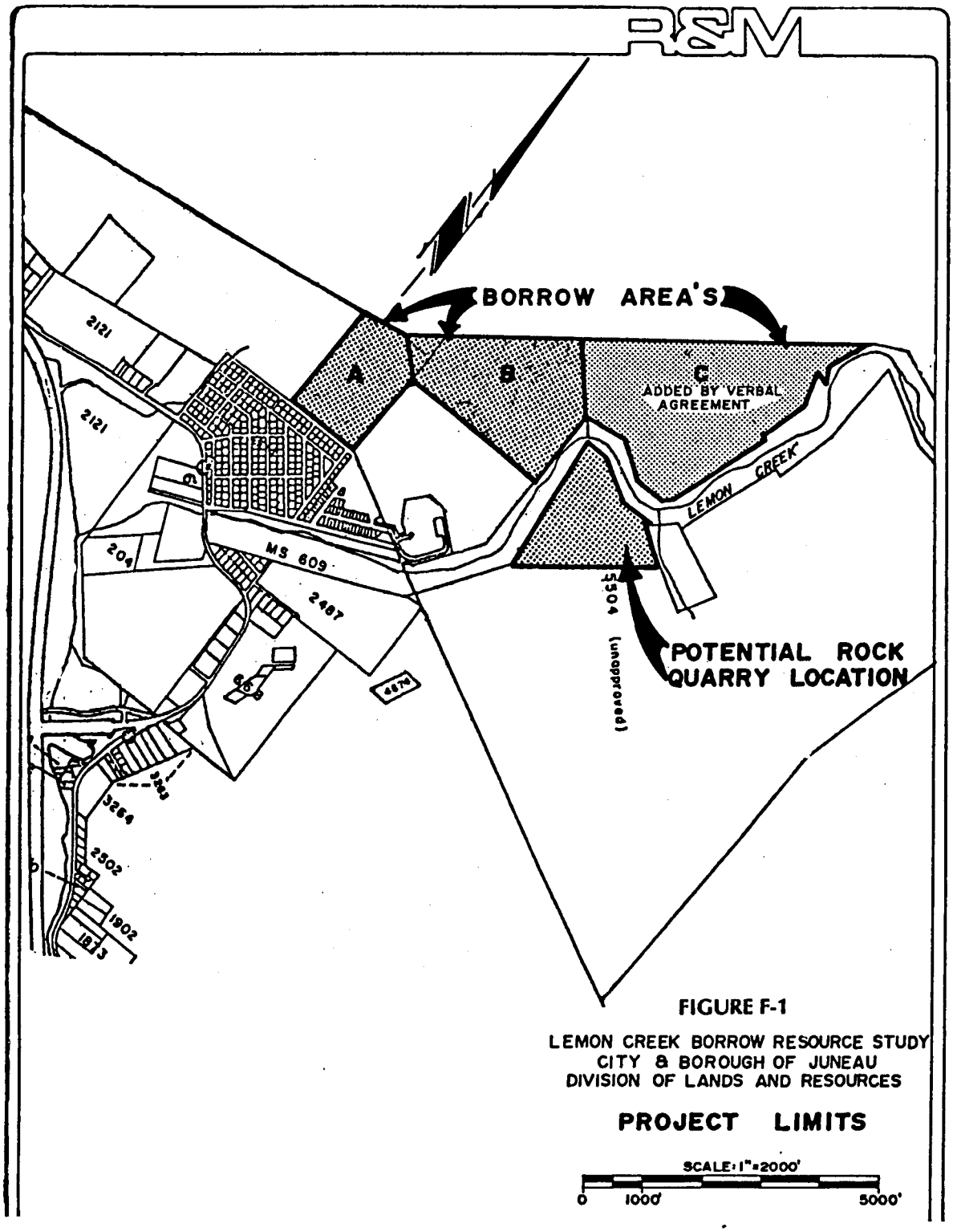
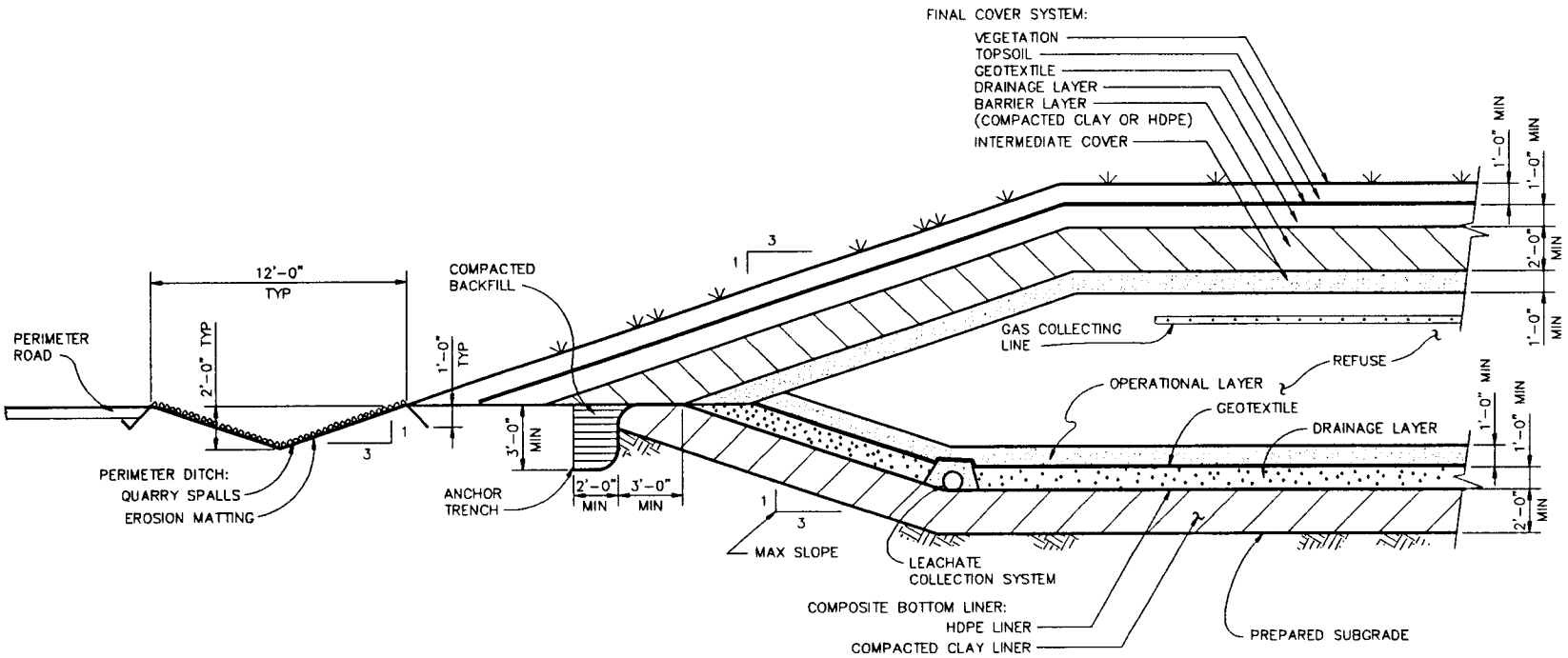


FIGURE F-1

LEMON CREEK BORROW RESOURCE STUDY
CITY & BOROUGH OF JUNEAU
DIVISION OF LANDS AND RESOURCES

Source: "West Lemon Creek Material Resource Assessment," prepared by R & M Consultants, Inc., May 1985.

VAA01450



NEW LANDFILL

(TYPICAL CROSS SECTION)

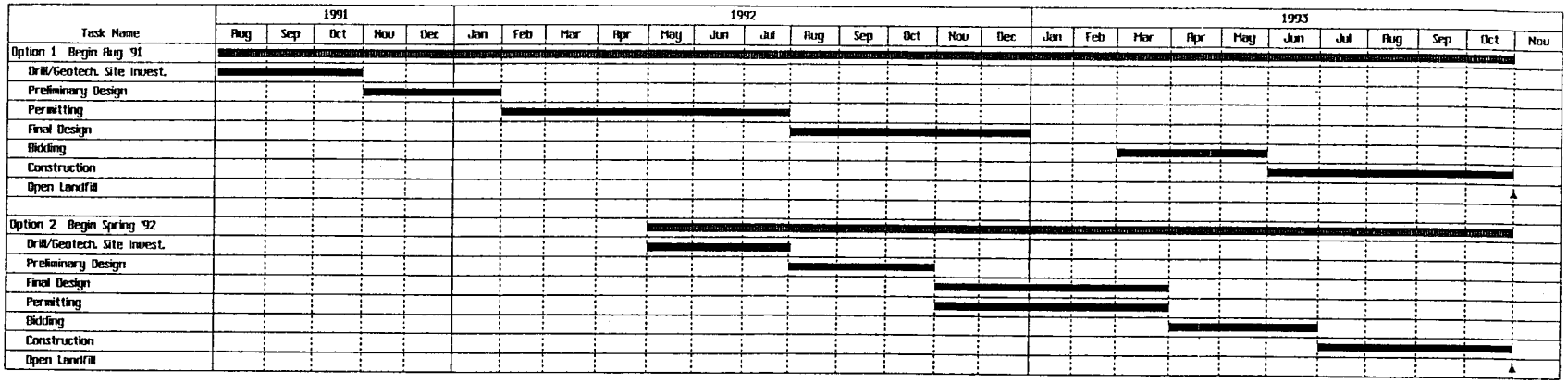
Figure F-2

R.W. BECK AND ASSOCIATES

Figure F-3

NEW LANDFILL DEVELOPMENT SCHEDULE

City and Borough of Juneau



R. W. BECK AND ASSOCIATES

Solid Waste Management Plan

Phase I Report

TABLE F-1

New Landfill Development Cost[1] ($1991)		
Item	Capital Costs	
	Low	High
1. Initial Construction		
a. Mobilization/Demobilization	$100,000	$150,000
b. Site Improvements		
c. (Roads, Utilities, Buildings)	380,000	690,000
d. Leachate Control System	535,000	640,000
e. Monitoring Systems	210,000	250,000
f. Initial Cell and Leak Detection	1,010,000	1,430,000
Subtotal	$2,235,000	$3,160,000
Engr. (15% permitting design, 10% construction management)	$559,000	$790,000
Contingency[2]	$559,000	$790,000
TOTAL INITIAL CONSTRUCTION	$3,353,000	$4,740,000
2. Phase Development[3]		
5-Acre Construction (includes mobilization)	$1,645,000	$2,300,000
5-Acre Closure (includes mobilization)	1,400,000	2,000,000
TOTAL PHASED CONSTRUCTION	$9,135,000	$12,900,000
3. Final Closure[4]	$1,400,000	$2,000,000
TOTAL CONSTRUCTION COST	$13,890,000	$19,600,000
4. Annual Cost		
Debt Service[5]	$1,360,000	$1,920,000
Operation[5]	600,000	900,000
Post-Closure Fund[6]	120,000	150,000
TOTAL ANNUAL COST	$2,080,000	$2,970,000

(1) Assumes 20-year disposal capacity and 30,000 tons per year of waste. Incineration for volume reduction is not assumed. Landfill would be constructed in 5-year phases.
(2) 25% contingency for initial planning-level estimate to account for uncertainty in site requirements, permitting and construction.
(3) Phase development costs occur at years 5, 10 and 15 of site life.
(4) Final closure costs occur at year 20.
(5) Debt service calculated based on total construction costs annualized at 7.5% interest for 20 years.
(6) Operation cost based on $20.00-$30.00/ton.
(7) Post-closure costs are $4.00-$5.00/ton. The $5.00/ton estimate reflects future post-closure requirements that are more stringent than current requirements.

APPENDIX G:
WASTE STREAM PROJECTIONS

R.W. BECK
AND ASSOCIATES

APPENDIX G

WASTE STREAM PROJECTIONS

To bracket the variations in future CBJ waste quantities, two sets of six projections were performed, for a total of twelve waste quantity scenarios. Projections for these three scenarios (baseline (no major mines coming into operation), reopening of the Alaska-Juneau (AJ) Mine, and opening of both the AJ and Kensington mines) were performed assuming both no recycling and a 2% increase in recycling per year beginning in 1991, leveling out at 25% recycling in 2003. These six scenarios were then repeated, assuming addition of a third 36 ton per day incinerator at the Channel facility.

All of the projections assumed constant per capita waste generation, and were based on figures from 1990.

The waste stream projections are broken down into four components:

- Mixed municipal waste hauled directly to the landfill
- Mixed municipal waste hauled directly to the incinerator
- Mud, stumps, asbestos and concrete ("other") hauled directly to the landfill
- Incinerator ash

Population data for the baseline scenarios were based on figures from the "Draft Socioeconomic Impact Assessment, Alaska-Juneau Mine Project Summary Report" (January 1991). The population increase estimates due to opening of the AJ and Kensington mines were provided by the CBJ staff. These increases in population due to the mines were added for a 20-year period beginning in 1994. This period is conservatively long for solid waste planning purposes, and to account for construction, operations and closure. The period chosen does not correspond to the reserves projected for the mine operations.

The projections include an estimate of 880 tons of solid waste from the AJ Mine going to disposal facilities in Juneau during the years 1994 - 2014. The AJ Mine waste stream estimate is from the "AJ Mine Project Draft Environmental Impact Statement" (January 1991). Solid waste generation projections for the Kensington Mine are unavailable at this time. An on-site incinerator is planned, and the incinerator ash may or may not be taken to the CBJ for disposal. These projections do not account for any additional ash from the Kensington Mine, but do account for increases in waste generation due to increased population that would result from the Kensington Mine.

Table G – 1
City and Borough of Juneau
Waste Stream Projections
– Baseline –

Without Recycling

YEAR	Population (1)	Total Waste Generated (tons)	To Incinerator: Direct (tons)	To Landfill: Incinerator Overflow (tons)	To Landfill: Other (3) (tons)	To Landfill: Ash (tons)	To Landfill: Total (tons)	To Landfill: Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	31,400	18,700	9,200	3,500	4680	17,400	41,400
1992	30,378	31,300	18,700	9,100	3,500	4680	17,300	58,700
1993	31,141	32,100	18,700	9,800	3,600	4680	18,100	76,800
1994	31,732	32,700	18,700	10,300	3,700	4680	18,700	95,500
1995	32,113	33,100	18,700	10,700	3,700	4680	19,100	114,600
1996	32,423	33,400	18,700	11,000	3,700	4680	19,400	134,000
1997	32,548	33,500	18,700	11,000	3,800	4680	19,500	153,500
1998	32,665	33,700	18,700	11,200	3,800	4680	19,700	173,200
1999	32,574	33,600	18,700	11,100	3,800	4680	19,600	192,800
2000	32,535	33,500	18,700	11,000	3,800	4680	19,500	212,300
2001	32,346	33,300	18,700	10,900	3,700	4680	19,300	231,600
2002	32,251	33,200	18,700	10,800	3,700	4680	19,200	250,800
2003	32,122	33,100	18,700	10,700	3,700	4680	19,100	269,900
2004	32,049	33,000	18,700	10,600	3,700	4680	19,000	288,900
2005	31,973	32,900	18,700	10,500	3,700	4680	18,900	307,800
2006	31,844	32,800	18,700	10,400	3,700	4680	18,800	326,600
2007	31,653	32,600	18,700	10,200	3,700	4680	18,600	345,200
2008	31,481	32,400	18,700	10,100	3,600	4680	18,400	363,600
2009	31,381	32,300	18,700	10,000	3,600	4680	18,300	381,900

With Recycling (2)

YEAR	Population (1)	Total Waste Generated (tons)	To Incinerator: Direct (tons)	To Landfill: Incinerator Overflow (tons)	To Landfill: Other (3) (tons)	To Landfill: Ash (tons)	To Landfill: Total (tons)	To Landfill: Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	30,800	18,700	8,700	3,400	4680	16,800	40,800
1992	30,378	30,000	18,700	7,900	3,400	4680	16,000	56,800
1993	31,141	30,200	18,700	8,100	3,400	4680	16,200	73,000
1994	31,732	30,100	18,700	8,000	3,400	4680	16,100	89,100
1995	32,113	29,800	18,700	7,800	3,300	4680	15,800	104,900
1996	32,423	29,400	18,700	7,400	3,300	4680	15,400	120,300
1997	32,548	28,800	18,700	6,800	3,300	4680	14,800	135,100
1998	32,665	28,300	18,700	6,400	3,200	4680	14,300	149,400
1999	32,574	27,600	18,700	5,800	3,100	4680	13,600	163,000
2000	32,535	26,800	18,700	5,100	3,000	4680	12,800	175,800
2001	32,346	26,000	18,700	4,400	2,900	4680	12,000	187,800
2002	32,251	25,200	18,700	3,700	2,800	4680	11,200	199,000
2003	32,122	24,800	18,700	3,300	2,800	4680	10,800	209,800
2004	32,049	24,800	18,700	3,300	2,800	4680	10,800	220,600
2005	31,973	24,700	18,700	3,200	2,800	4680	10,700	231,300
2006	31,844	24,600	18,700	3,100	2,800	4680	10,600	241,900
2007	31,653	24,500	18,700	3,000	2,800	4680	10,500	252,400
2008	31,481	24,300	18,700	2,900	2,700	4680	10,300	262,700
2009	40,000	24,200	18,700	2,800	2,700	4680	10,200	272,900

(1) Population data based on figures from CBJ staff and from "Draft Socioeconomic Impact Assessment, Alaska–Juneau Mine Project Summary Report (January 1991)."

(2) Recycling scenarios assume a 2% annual increase in recycling, leveling out to 25% in 2003.

(3) "Other," includes mud, stumps and asbestos.

Table G – 2
City and Borough of Juneau
Waste Stream Projections
– With AJ Mine –

Without Recycling

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator: Direct (tons)	To Landfill: Incinerator Overflow (tons)	To Landfill: Other (4) (tons)	To Landfill: Ash (tons)	To Landfill: Total (tons)	Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	31,400	18,700	9,200	3,500	4680	17,400	41,400
1992	30,378	31,300	18,700	9,100	3,500	4680	17,300	58,700
1993	32,700	33,700	18,700	11,200	3,800	4680	19,700	78,400
1994	33,291	35,200	18,700	12,700	3,800	4680	21,200	99,600
1995	33,672	35,600	18,700	13,000	3,900	4680	21,600	121,200
1996	33,982	35,900	18,700	13,300	3,900	4680	21,900	143,100
1997	34,107	36,000	18,700	13,400	3,900	4680	22,000	165,100
1998	34,224	36,100	18,700	13,400	4,000	4680	22,100	187,200
1999	34,133	36,100	18,700	13,500	3,900	4680	22,100	209,300
2000	34,094	36,000	18,700	13,400	3,900	4680	22,000	231,300
2001	33,905	35,800	18,700	13,200	3,900	4680	21,800	253,100
2002	33,810	35,700	18,700	13,100	3,900	4680	21,700	274,800
2003	33,681	35,600	18,700	13,000	3,900	4680	21,600	296,400
2004	33,608	35,500	18,700	12,900	3,900	4680	21,500	317,900
2005	33,532	35,400	18,700	12,800	3,900	4680	21,400	339,300
2006	33,403	35,300	18,700	12,700	3,900	4680	21,300	360,600
2007	33,212	35,100	18,700	12,600	3,800	4680	21,100	381,700
2008	33,040	34,900	18,700	12,400	3,800	4680	20,900	402,600
2009	32,940	34,800	18,700	12,300	3,800	4680	20,800	423,400

With Recycling (2)

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator: Direct (tons)	To Landfill: Incinerator Overflow (tons)	To Landfill: Other (4) (tons)	To Landfill: Ash (tons)	To Landfill: Total (tons)	Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	30,800	18,700	8,700	3,400	4680	16,800	40,800
1992	30,378	30,000	18,700	7,900	3,400	4680	16,000	56,800
1993	32,700	31,700	18,700	9,400	3,600	4680	17,700	74,500
1994	33,291	32,400	18,700	10,200	3,500	4680	18,400	92,900
1995	33,672	32,000	18,700	9,800	3,500	4680	18,000	110,900
1996	33,982	31,600	18,700	9,500	3,400	4680	17,600	128,500
1997	34,107	31,000	18,700	8,900	3,400	4680	17,000	145,500
1998	34,224	30,300	18,700	8,200	3,400	4680	16,300	161,800
1999	34,133	29,600	18,700	7,700	3,200	4680	15,600	177,400
2000	34,094	28,800	18,700	7,000	3,100	4680	14,800	192,200
2001	33,905	27,900	18,700	6,200	3,000	4680	13,900	206,100
2002	33,810	27,100	18,700	5,400	3,000	4680	13,100	219,200
2003	33,681	26,700	18,700	5,100	2,900	4680	12,700	231,900
2004	33,608	26,600	18,700	5,000	2,900	4680	12,600	244,500
2005	33,532	26,600	18,700	5,000	2,900	4680	12,600	257,100
2006	33,403	26,500	18,700	4,900	2,900	4680	12,500	269,600
2007	33,212	26,300	18,700	4,700	2,900	4680	12,300	281,900
2008	33,040	26,200	18,700	4,600	2,900	4680	12,200	294,100
2009	32,940	26,100	18,700	4,500	2,900	4680	12,100	306,200

(1) Population data based on figures from CBJ staff and from "Draft Socioeconomic Impact Assessment, Alaska – Juneau Mine Project Summary Report (January 1991)."

(2) Recycling scenarios assume a 2% annual increase in recycling, leveling out to 25% in 2003.

(3) Includes an estimate of 880 tons for AJ Mine between 1994 and 2009. Estimates obtained from "AJ Mine Project Draft Environmental Impact Statement (January 1991)."

(4) "Other," includes mud, stumps and asbestos.

Table G – 3
City and Borough of Juneau
Waste Stream Projections
– With AJ Mine & With Kensington Mine (3,4) –

Without Recycling

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator: Direct (tons)	To Landfill: Incinerator Overflow (tons)	To Landfill: Other (4) (tons)	To Landfill: Ash (tons)	To Landfill: Total (tons)	Cumm. (tons)
1989	28408	24,268	20,366	3,900	1,222	6169	11,291	11,291
1990	28881	29,759	21,025	8,700	3,338	5233	17,271	28,562
1991	30426	31,400	18,700	12,700	3,500	4675	20,900	49,500
1992	30378	31,300	18,700	12,600	3,500	4675	20,800	70,300
1993	33913	34,900	18,700	16,200	3,900	4675	24,800	95,100
1994	34504	36,400	18,700	17,700	4,000	4675	26,400	121,500
1995	34885	36,800	18,700	18,100	4,000	4675	26,800	148,300
1996	35195	37,100	18,700	18,400	4,100	4675	27,200	175,500
1997	35320	37,300	18,700	18,600	4,100	4675	27,400	202,900
1998	35437	37,400	18,700	18,700	4,100	4675	27,500	230,400
1999	35346	37,300	18,700	18,600	4,100	4675	27,400	257,800
2000	35307	37,300	18,700	18,600	4,100	4675	27,400	285,200
2001	35118	37,100	18,700	18,400	4,100	4675	27,200	312,400
2002	35023	37,000	18,700	18,300	4,000	4675	27,000	339,400
2003	34894	36,800	18,700	18,100	4,000	4675	26,800	366,200
2004	34821	36,800	18,700	18,100	4,000	4675	26,800	393,000
2005	34745	36,700	18,700	18,000	4,000	4675	26,700	419,700
2006	34616	36,500	18,700	17,800	4,000	4675	26,500	446,200
2007	34425	36,400	18,700	17,700	4,000	4675	26,400	472,600
2008	34253	36,200	18,700	17,500	4,000	4675	26,200	498,800
2009	34153	36,100	18,700	17,400	3,900	4675	26,000	524,800

With Recycling (2)

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator: Direct (tons)	To Landfill: Incinerator Overflow (tons)	To Landfill: Other (5) (tons)	To Landfill: Ash (tons)	To Landfill: Total (tons)	Cumm. (tons)
1989	28408	24,268	20,366	3,900	1,222	6169	11,291	11,291
1990	28881	29,759	21,025	8,700	3,338	5233	17,271	28,562
1991	30426	30,800	18,200	12,600	3,500	4550	20,700	49,300
1992	30378	30,000	18,200	11,800	3,500	4550	19,900	69,200
1993	33913	32,800	18,200	14,600	3,900	4550	23,100	92,300
1994	34504	33,500	18,200	15,300	4,000	4550	23,900	116,200
1995	34885	33,100	18,200	14,900	4,000	4550	23,500	139,700
1996	35195	32,600	18,200	14,400	4,000	4550	23,000	162,700
1997	35320	32,100	18,200	13,900	4,000	4550	22,500	185,200
1998	35437	31,400	18,200	13,200	4,000	4550	21,800	207,000
1999	35346	30,600	18,200	12,400	4,000	4550	21,000	228,000
2000	35307	29,800	18,200	11,600	4,000	4550	20,200	248,200
2001	35118	28,900	18,200	10,700	4,000	4550	19,300	267,500
2002	35023	28,100	18,200	9,900	4,000	4550	18,500	286,000
2003	34894	27,600	18,200	9,400	4,000	4550	18,000	304,000
2004	34821	27,600	18,200	9,400	4,000	4550	18,000	322,000
2005	34745	27,500	18,200	9,300	4,000	4550	17,900	339,900
2006	34616	27,400	18,200	9,200	4,000	4550	17,800	357,700
2007	34425	27,300	18,200	9,100	4,000	4550	17,700	375,400
2008	34253	27,200	18,200	9,000	4,000	4550	17,600	393,000
2009	34153	27,100	18,200	8,900	4,000	4550	17,500	410,500

(1) Population data based on figures from CBJ staff and from "Draft Socioeconomic Impact Assessment, Alaska – Juneau Mine Project Summary Report (January 1991)."

(2) Recycling scenarios assume a 2% per year increase in recycling, leveling out to 25% in 2003.

(3) Includes an estimate of 880 tons for AJ Mine between 1994 and 2009. Estimates obtained from "AJ Mine Project Draft Environmental Impact Statement (January 1991)."

(4) Does not include additional waste from Kensington mine.

(5) "Other," includes construction, demolition, and special wastes.

Table G–4
City and Borough of Juneau
Waste Stream Projections
with Third Incinerator(4)
– Baseline –

Without Recycling

YEAR	Population (1)	Total Waste Generated (tons)	To Incinerator	To Landfill				
			Direct (tons)	Incinerator Overflow (tons)	Other (3) (tons)	Ash (tons)	Total (tons)	Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	31,400	18,700	9,200	3,500	4680	17,400	41,400
1992	30,378	31,300	18,700	9,100	3,500	4680	17,300	58,700
1993	31,141	32,100	18,700	9,800	3,600	4680	18,100	76,800
1994	31,732	32,700	28,100	900	3,700	7030	11,600	88,400
1995	32,113	33,100	28,100	1,300	3,700	7030	12,000	100,400
1996	32,423	33,400	28,100	1,600	3,700	7030	12,300	112,700
1997	32,548	33,500	28,100	1,600	3,800	7030	12,400	125,100
1998	32,665	33,700	28,100	1,800	3,800	7030	12,600	137,700
1999	32,574	33,600	28,100	1,700	3,800	7030	12,500	150,200
2000	32,535	33,500	28,100	1,600	3,800	7030	12,400	162,600
2001	32,346	33,300	28,100	1,500	3,700	7030	12,200	174,800
2002	32,251	33,200	28,100	1,400	3,700	7030	12,100	186,900
2003	32,122	33,100	28,100	1,300	3,700	7030	12,000	198,900
2004	32,049	33,000	28,100	1,200	3,700	7030	11,900	210,800
2005	31,973	32,900	28,100	1,100	3,700	7030	11,800	222,600
2006	31,844	32,800	28,100	1,000	3,700	7030	11,700	234,300
2007	31,653	32,600	28,100	800	3,700	7030	11,500	245,800
2008	31,481	32,400	28,100	700	3,600	7030	11,300	257,100
2009	31,381	32,300	28,100	600	3,600	7030	11,200	268,300

With Recycling (2)

YEAR	Population (1)	Total Waste Generated (tons)	To Incinerator	To Landfill				
			Direct (tons)	Incinerator Overflow (tons)	Other (3) (tons)	Ash (tons)	Total (tons)	Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	30,800	18,700	8,700	3,400	4680	16,800	40,800
1992	30,378	30,000	18,700	7,900	3,400	4680	16,000	56,800
1993	31,141	30,200	18,700	8,100	3,400	4680	16,200	73,000
1994	31,732	30,100	26,700	0	3,400	6680	10,100	83,100
1995	32,113	29,800	26,500	0	3,300	6630	9,900	93,000
1996	32,423	29,400	26,100	0	3,300	6530	9,800	102,800
1997	32,548	28,800	25,500	0	3,300	6380	9,700	112,500
1998	32,665	28,300	25,100	0	3,200	6280	9,500	122,000
1999	32,574	27,600	24,500	0	3,100	6130	9,200	131,200
2000	32,535	26,800	23,800	0	3,000	5950	9,000	140,200
2001	32,346	26,000	23,100	0	2,900	5780	8,700	148,900
2002	32,251	25,200	22,400	0	2,800	5600	8,400	157,300
2003	32,122	24,800	22,000	0	2,800	5500	8,300	165,600
2004	32,049	24,800	22,000	0	2,800	5500	8,300	173,900
2005	31,973	24,700	21,900	0	2,800	5480	8,300	182,200
2006	31,844	24,600	21,800	0	2,800	5450	8,300	190,500
2007	31,653	24,500	21,700	0	2,800	5430	8,200	198,700
2008	31,481	24,300	21,600	0	2,700	5400	8,100	206,800
2009	40,000	24,200	21,500	0	2,700	5380	8,100	214,900

(1) Population data based on figures from CBJ staff and from "Draft Socioeconomic Impact Assessment, Alaska–Juneau Mine Project Summary Report (January 1991)."

(2) Recycling scenarios assume a 2% annual increase in recycling, leveling out to 25% in 2003.

(3) "Other," includes mud, stumps and asbestos.

(4) Assumes operation of a third incinerator beginning in 1994

Table G–5
City and Borough of Juneau
Waste Stream Projections
with Third Incinerator(4)
– With AJ Mine –

Without Recycling

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator	To Landfill				
			Direct (tons)	Incinerator Overflow (tons)	Other (4) (tons)	Ash (tons)	Total (tons)	Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	31,400	18,700	9,200	3,500	4680	17,400	41,400
1992	30,378	31,300	18,700	9,100	3,500	4680	17,300	58,700
1993	32,700	33,700	18,700	11,200	3,800	4680	19,700	78,400
1994	33,291	35,200	28,100	3,300	3,800	7030	14,100	92,500
1995	33,672	35,600	28,100	3,600	3,900	7030	14,500	107,000
1996	33,982	35,900	28,100	3,900	3,900	7030	14,800	121,800
1997	34,107	36,000	28,100	4,000	3,900	7030	14,900	136,700
1998	34,224	36,100	28,100	4,000	4,000	7030	15,000	151,700
1999	34,133	36,100	28,100	4,100	3,900	7030	15,000	166,700
2000	34,094	36,000	28,100	4,000	3,900	7030	14,900	181,600
2001	33,905	35,800	28,100	3,800	3,900	7030	14,700	196,300
2002	33,810	35,700	28,100	3,700	3,900	7030	14,600	210,900
2003	33,681	35,600	28,100	3,600	3,900	7030	14,500	225,400
2004	33,608	35,500	28,100	3,500	3,900	7030	14,400	239,800
2005	33,532	35,400	28,100	3,400	3,900	7030	14,300	254,100
2006	33,403	35,300	28,100	3,300	3,900	7030	14,200	268,300
2007	33,212	35,100	28,100	3,200	3,800	7030	14,000	282,300
2008	33,040	34,900	28,100	3,000	3,800	7030	13,800	296,100
2009	32,940	34,800	28,100	2,900	3,800	7030	13,700	309,800

With Recycling (2)

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator	To Landfill				
			Direct (tons)	Incinerator Overflow (tons)	Other (4) (tons)	Ash (tons)	Total (tons)	Cumm. (tons)
1989	28,408	24,268	20,366	2,680	1,222	6169	10,071	10,071
1990	28,881	29,759	21,025	5,400	3,338	5233	13,971	24,042
1991	30,426	30,800	18,700	8,700	3,400	4680	16,800	40,800
1992	30,378	30,000	18,700	7,900	3,400	4680	16,000	56,800
1993	32,700	31,700	18,700	9,400	3,600	4680	17,700	74,500
1994	33,291	32,400	28,100	800	3,500	7030	11,300	85,800
1995	33,672	32,000	28,100	400	3,500	7030	10,900	96,700
1996	33,982	31,600	28,100	100	3,400	7030	10,500	107,200
1997	34,107	31,000	27,600	0	3,400	6900	10,300	117,500
1998	34,224	30,300	26,900	0	3,400	6730	10,100	127,600
1999	34,133	29,600	26,400	0	3,200	6600	9,800	137,400
2000	34,094	28,800	25,700	0	3,100	6430	9,500	146,900
2001	33,905	27,900	24,900	0	3,000	6230	9,200	156,100
2002	33,810	27,100	24,100	0	3,000	6030	9,000	165,100
2003	33,681	26,700	23,800	0	2,900	5950	8,900	174,000
2004	33,608	26,600	23,700	0	2,900	5930	8,800	182,800
2005	33,532	26,600	23,700	0	2,900	5930	8,800	191,600
2006	33,403	26,500	23,600	0	2,900	5900	8,800	200,400
2007	33,212	26,300	23,400	0	2,900	5850	8,800	209,200
2008	33,040	26,200	23,300	0	2,900	5830	8,700	217,900
2009	32,940	26,100	23,200	0	2,900	5800	8,700	226,600

(1) Population data based on figures from CBJ staff and from "Draft Socioeconomic Impact Assessment, Alaska–Juneau Mine Project Summary Report (January 1991)."

(2) Recycling scenarios assume a 2% annual increase in recycling, leveling out to 25% in 2003.

(3) Includes an estimate of 880 tons for AJ Mine between 1994 and 2009. Estimates obtained from "AJ Mine Project Draft Environmental Impact Statement (January 1991)."

(4) Assumes operation of a third incinerator beginning in 1994

Table G–6
City and Borough of Juneau
Waste Stream Projections
with Third Incinerator(4)
– With AJ Mine & With Kensington Mine (3,4) –

Without Recycling

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator	To Landfill				
			Direct (tons)	Incinerator Overflow (tons)	Other (4) (tons)	Ash (tons)	Total (tons)	Cumm. (tons)
1989	28408	24,268	20,366	3,900	1,222	6169	11,291	11,291
1990	28881	29,759	21,025	8,700	3,338	5233	17,271	28,562
1991	30426	31,400	18,700	12,700	3,500	4675	20,900	49,500
1992	30378	31,300	18,700	12,600	3,500	4675	20,800	70,300
1993	33913	34,900	18,700	16,200	3,900	4675	24,800	95,100
1994	34504	36,400	28,100	4,300	4,000	7025	15,300	110,400
1995	34885	36,800	28,100	4,700	4,000	7025	15,700	126,100
1996	35195	37,100	28,100	4,900	4,100	7025	16,000	142,100
1997	35320	37,300	28,100	5,100	4,100	7025	16,200	158,300
1998	35437	37,400	28,100	5,200	4,100	7025	16,300	174,600
1999	35346	37,300	28,100	5,100	4,100	7025	16,200	190,800
2000	35307	37,300	28,100	5,100	4,100	7025	16,200	207,000
2001	35118	37,100	28,100	4,900	4,100	7025	16,000	223,000
2002	35023	37,000	28,100	4,900	4,000	7025	15,900	238,900
2003	34894	36,800	28,100	4,700	4,000	7025	15,700	254,600
2004	34821	36,800	28,100	4,700	4,000	7025	15,700	270,300
2005	34745	36,700	28,100	4,600	4,000	7025	15,600	285,900
2006	34616	36,500	28,100	4,400	4,000	7025	15,400	301,300
2007	34425	36,400	28,100	4,300	4,000	7025	15,300	316,600
2008	34253	36,200	28,100	4,100	4,000	7025	15,100	331,700
2009	34153	36,100	28,100	4,100	3,900	7025	15,000	346,700

With Recycling (2)

YEAR	Population (1)	Total Waste Generated (3) (tons)	To Incinerator	To Landfill				
			Direct (tons)	Incinerator Overflow (tons)	Other (5) (tons)	Ash (tons)	Total (tons)	Cumm. (tons)
1989	28408	24,268	20,366	3,900	1,222	6169	11,291	11,291
1990	28881	29,759	21,025	8,700	3,338	5233	17,271	28,562
1991	30426	30,800	18,200	12,600	3,500	4550	20,700	49,300
1992	30378	30,000	18,200	11,800	3,500	4550	19,900	69,200
1993	33913	32,800	18,200	14,600	3,900	4550	23,100	92,300
1994	34504	33,500	28,100	1,400	4,000	7025	12,400	104,700
1995	34885	33,100	28,100	1,000	4,000	7025	12,000	116,700
1996	35195	32,600	28,100	500	4,000	7025	11,500	128,200
1997	35320	32,100	28,100	0	4,000	7025	11,000	139,200
1998	35437	31,400	27,400	0	4,000	6850	10,900	150,100
1999	35346	30,600	26,600	0	4,000	6650	10,700	160,800
2000	35307	29,800	25,800	0	4,000	6450	10,500	171,300
2001	35118	28,900	24,900	0	4,000	6225	10,200	181,500
2002	35023	28,100	24,100	0	4,000	6025	10,000	191,500
2003	34894	27,600	23,600	0	4,000	5900	9,900	201,400
2004	34821	27,600	23,600	0	4,000	5900	9,900	211,300
2005	34745	27,500	23,500	0	4,000	5875	9,900	221,200
2006	34616	27,400	23,400	0	4,000	5850	9,900	231,100
2007	34425	27,300	23,300	0	4,000	5825	9,800	240,900
2008	34253	27,200	23,200	0	4,000	5800	9,800	250,700
2009	34153	27,100	23,100	0	4,000	5775	9,800	260,500

(1) Population data based on figures from CBJ staff and from "Draft Socioeconomic Impact Assessment, Alaska – Juneau Mine Project Summary Report (January 1991)."

(2) Recycling scenarios assume a 2% per year increase in recycling, leveling out to 25% in 2003.

(3) Includes an estimate of 880 tons for AJ Mine between 1994 and 2009. Estimates obtained from "AJ Mine Project Draft Environmental Impact Statement (January 1991)."

(4) Does not include additional waste from Kensington mine.

(5) "Other," includes construction, demolition, and special wastes.

APPENDIX H:
EXISTING PERMITS
CHANNEL LANDFILL
CHANNEL INCINERATORS

R.W. BECK
AND ASSOCIATES

COPY

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SOUTHEAST REGIONAL OFFICE
P.O. BOX 32420
Juneau, Alaska 99803

SOLID WASTE DISPOSAL PERMIT

PERMIT NO. 8511-BA016 DATE 7 April 1989

This solid waste disposal permit is issued to Channel Landfill, Inc., P.O. Box 1267, Juneau, Alaska 99802, for disposal of incinerated and unincinerated solid waste into a landfill.

This project is located at 5645 Glacier Highway, Juneau, Alaska, T. 41 S., R. 67 E., S 1/2 of Section 34, Copper River Meridian.

This permit is subject to the conditions and stipulations contained in Appendices A, B, and C of this permit.

This permit is issued under provisions of Alaska Statutes 46.03, the Alaska Administrative Code as amended or revised, and other applicable state laws and regulations.

This permit is effective upon issuance and expires 31 December 1992. It may be terminated or modified in accordance with AS 46.03.120.

Dick Stokes

Dick Stokes
Southeast Regional Supervisor

PERMIT CONDITIONS AND STIPULATIONS

APPENDIX A: OPERATION

The permittee shall dispose of solid waste in accordance with the stipulations listed below:

(1) Landfilling of incinerator ash and non-combustible residue shall be restricted to the southwest portion of the property, adjacent to the west pit water pond. Ensure that all landfilling in this area is conducted at elevations at least two feet above the highest level of groundwater. This stipulation prohibits deposition of ash and residue directly into the waters of the State.

(2) Dispose of relatively inert waste like wallboard, demolition debris, washing machines, refrigerators, junked vehicles, junked home trailers, and furniture in a manner to minimize unsightly views from public roads. Restrict landfilling of these materials to the southeast portion of the property, adjacent to the east pit water pond. Ensure that all landfilling in this area is conducted at elevations at least two feet above the highest level of groundwater.

(3) Landfilling of asbestos shall be restricted to those areas specifically approved by the department. Asbestos disposal shall be conducted in accordance with Field Directive 2350.

(4) Within 30 calendar days after an area is filled with incinerator ash and residue, the area shall be covered with a minimum of one foot of clay or other impermeable soil. With prior approval, combinations of permeable and impermeable artificial liners may be substituted as cover material.

(5) Disposal of unincinerated putrescible waste at the site shall be prohibited unless specific approval is given by this department. This stipulation is designed to prohibit the disposal of unincinerated putrescible waste except during emergency situations like a forced shutdown of the incinerators, or when the amount of refuse received exceeds the maximum allowable burn rate of the incinerators. This stipulation does not prohibit the disposal of relatively inert waste like tires, wallboard, demolition debris, washing machines, refrigerators, junked vehicles, junked home trailers and furniture.

(6) Disposal of all junked vehicles which have not been drained of gasoline, antifreeze, and crankcase oil shall be prohibited.

(7) Disposal of waste oil, oily waste, sewage sludge, septage, asbestos waste, fish processing waste, and potentially hazardous materials shall be prohibited unless specific approval for such disposal is obtained from the department or as otherwise approved by this permit.

(8) Elementary neutralization and storage of batteries for recycling shall be restricted to the designated battery collection area adjacent to the incinerator building. The operation shall be conducted in a manner that prevents violation of State Water Quality Standards.

(9) Sampling and monitoring shall be conducted as required by Part B of this permit.

(10) Should cultural or paleontological resources be discovered as a result of this activity, we request that all work which would disturb such resources be stopped, and that the office of History and Archaeology, Division of Parks and Outdoor Recreation, Department of Natural Resources, be notified immediately (762-2622).

APPENDIX B: MONITORING, RECORDS, AND REPORTING

(1) Sampling

(a) The permittee shall submit the results of EP Toxicity Tests of composite samples of bottom ash and precipitator ash on a quarterly basis. Each sample analyzed shall be a well mixed composite of bottom ash and precipitator ash taken on each of five different operating days within 90 days of the submitted date. The EP Toxicity Test reports the concentration of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver in an acidic leachate as milligrams per liter. The department will review the results of the initial tests and make a determination as to whether the sampling frequency can be reduced.

(b) The permittee shall submit the results of quarterly grab samples from the three sampling sites located in North Pond East pit, North Pond West pit and at the North pond discharge culvert into lemon Creek. (The permittee is encouraged to continue sampling the suite of stations that were sampled in 1986 and identified in the 1986 EMPS Engineering report). The results should be submitted on March 1, June 1, September 1 and December 1. These results shall include values for specific conductance, chemical oxygen demand, pH, alkalinity, salinity, arsenic, cadmium, manganese, lead, copper, chromium, mercury, selenium, iron, zinc, and nickel.

(2) Test Procedures

Test procedures for the analyses of pollutants shall conform to methods cited in 18 AAC 70.020(c), or as such regulations may be amended. The permittee may substitute alternative methods of monitoring or analysis upon receipt of prior written approval from the department.

(3) Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed, calibration and maintenance of instruments, and recordings from continuous monitoring instrumentation, shall be retained in Alaska for observation by the department for three years after expiration of permit. Upon request from the department, the permittee shall submit certified copies of such records.

APPENDIX C: GENERAL CONDITIONS

(1) Access and Inspection

The permittee shall allow the commissioner or his representatives access to the permitted facilities at reasonable times to conduct scheduled or unscheduled inspections or tests to determine compliance with this permit and state law.

(2) Information Access

Except for information relating to confidential processes or methods of manufacture, all records and reports submitted in accordance with the terms of this permit shall be available for public inspection at the Department of Environmental Conservation, Southeast Regional Office, P.O. Box 32420, Juneau, Alaska 99803.

DEPT. OF ENVIRONMENTAL CONSERVATION
Southeast Regional Office
P.O. Box 32420, Juneau, Alaska 99803

Fax (907) 789-4877
Phone 789-3151

July 3, 1991

RECEIVED
JUL 10 1991
R.W. BECK & ASSOCIATES
SEATTLE, WA.

ORIGINAL DOCUMENT
File NW 1747 BA1
Code 3104
Copies to: BINGHAM

Ms. Ellen McKay
R.W. Beck, Inc.
Suite 600, 2101 4th Avenue
Seattle, Washington 98121

Dear Ms. McKay:

Enclosed is the information you requested on Channel Sanitation's Air Quality Control Permit to Operate.

Please call if you have any questions or need additional information.

Sincerely,

John M. Stone
Air Program Coordinator

Enclosures: June 12, 1991 Issuance Letter and Amended Air Quality Control Permit to Operate No. 9011-AA001
June 25, 1991 Issuance Letter and Permit Amendments

WALTER J. HICKEL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
Southeast Regional Office
P.O. Box 32420, Juneau, Alaska 99803

Fax (907) 789-4877
Phone 789-3151

June 12, 1991

Mr. Gerald A. Wilson
President
Channel Corporations
P.O. Box 21267
Juneau, Alaska 99802-1267

Certified Mail
Return Receipt
Requested
No.

Dear Mr. Wilson:

The Department has completed its review of your May 14, 1991 request to burn petroleum contaminated soils at your Lemon Creek-Juneau Solid Waste Incineration Facility. Based on our review, the Department finds that;

1. the facility is an exisiting facility which contains two Consumat Model CS1600 solid waste incinerators each with a rated capacity of 36 tons/day and has a PPC Industries electrostatic precipitator emissions control unit;

2. the facility is subject to the emissions standards established in 18 AAC 50.040(a)(1), (b)(2), 18 AAC 50.050(c), (f), and 18 AAC 50.110;

2. the facility is a facility as described in 18 AAC 50.300(a)(4) which has allowable emissions less than 250 tons per year of a regulated air contaminant;

3. each incinerator has a charging rate less than 50 tons per day; therefore is not subject to 40 CFR 60 Subpart E-Standards of Performance for Incinerators;

4. applicant has requested a permit amendment to burn petroleum contaminated soil, which is regulated under 18 AAC 78 and petroleum contaminated soil generated from the clean-up operations of residential fuel oil tanks, at a combined charging rate of 5 tons per hour or less concurrently in both incinerators; and

5. the petroleum contaminated soil is not hazardous waste as defined in 18 AAC 60.087 and the burning of this waste at the applicant's requested charging rate should not increase the emissions of a regulated air contaminant.

Therefore, as provided for by 18 AAC 50.400, Amended Air Quality Control Permit to Operate No. 9011-AA001 is granted and enclosed.

Please note there are 17 conditions of this amended permit. Violations of any one of these conditions may result in the revocation or suspension of this amended permit in accordance with 18 AAC 50.310. The amended permit expires December 31, 1994, and you must request renewal at least thirty days prior to that date for continued operation of the facility. Violation of any condition of this amended permit may subject to the civil or criminal penalties as provided in AS 46.03.760, AS 46.03.765, AS 46.03.780, and AS 46.03.790.

Please note the waste feed composition restriction in Condition 4 which has been amended to allow the incineration of petroleum contaminated soils either regulated under the Leaking Underground Storage Tank Program, 18 AAC 78, or petroleum contaminated soils generated from the clean-up operations of residential fuel oil tanks. Both of these materials are currently not considered hazardous waste as defined in 18 AAC 60.087. The Department strongly recommends you ensure that all contaminated soils to be incinerated at your facility are not classified as hazardous waste.

A contaminated soils feed rate limitation was established in Condition 5 at your request. This limitation allows you to feed no more than 5 tons per hour of petroleum contaminated soils to both incinerators. We expect that soils feed rates below this limit should not degrade the performance of the incinerators or the emissions control device. If compliance problems develop due to burning petroleum contaminated soils, the Department may have to reduce or eliminate the soils burning allowance.

The total polychlorinated dibenzo-p-dioxin and polychlorinated furan emission limit in Exhibit B of this amended permit has been deleted. Deletion of this limit is consistent with the actions taken at other facilities in the State. The dioxin and furan testing requirement has not been deleted. A letter describing the Department's position in this matter will soon follow.

You are required to record and report data in a quarterly Facility Operating Report. Please note the additional reporting requirements for petroleum contaminated soil burned at your facility. The Department is requiring you to report the date, quantity, and type of each shipment of petroleum contaminated soil received, a copy of the Department-approved site clean-up plan for each shipment of contaminated soil regulated under 18 AAC 72 received, and the average and maximum petroleum contaminated feed rates to the incinerator.

The Department has required other facilities treating petroleum contaminating soil to install, maintain, and operate a carbon monoxide continuous emissions monitor. The Department is not requiring you to monitor carbon monoxide emissions but is requiring you to monitor the carbon monoxide concentration of the incinerators' exhaust during the source tests performed as required by Condition 7 of this amended permit. We expect that you will feed petroleum contaminated soils to each incinerator at the maximum allowable feed rate during this source testing period. In addition, the Department is requiring you to monitor and report the secondary voltage and amperage levels of the electrostatic precipitator emissions control device as described in Exhibit E of this amended permit. This will enable us to track the performance of this control unit.

Permit conditions are stipulated pursuant to the Alaska Coastal Management Regulation 6 AAC 50 and Air Quality Regulations 18 AAC 50, and are necessary to ensure the operation of your facility is consistent with the Alaska Coastal Management Program. This permit does not relieve you from the responsibility to apply for or comply with any other permit or approval required by the Department or the U.S. Environmental Protection Agency.

Department regulations provide that if you disagree with this decision, you may request an adjudicatory hearing in accordance with 18 AAC 15.200 - 18 AAC 15.920. The request should be mailed to the Commissioner, Alaska Department of Environmental Conservation, P.O. Box 0, Juneau, Alaska 99811-1800, by Certified Mail, Return Receipt Requested. Failure to submit a request within thirty days service of this letter shall constitute a waiver of your right to an administrative review of this decision. In addition, any other person who disagrees with this decision may request an adjudicatory hearing within thirty days of service of the enclosed permit. Any hearing or administrative review will be limited to issues related to issuance of these permit amendments.

Sincerely,

Steve Haaveg for

Dick Stokes
Regional Environmental Supervisor
Southeast Regional Office

Enclosures: Amended Air Quality Control Permit to Operate No. 9011-AA001

cc: Stan Hungerford, ADEC/Juneau
Al Kegler, ADEC/SDO
Kathy Pazera, EPA/AOO

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AIR QUALITY CONTROL
PERMIT TO OPERATE

Amended Permit No. 9011-AA001
Amends Permit No. 9011-AA001

Date of amendment: June 12, 1991

The Department of Environmental Conservation, under the authority of AS 46.03 and 18 AAC 50.400, issues an Amended Air Quality Control Permit to Operate to:

CHANNEL LANDFILL, INC.
P.O. BOX 21267
JUNEAU, ALASKA 99802-1267

for the operation of the Lemon Creek-Juneau solid waste incineration facility. This permit is valid only for the equipment listed in Exhibit A and as described in the original application and subsequent submittals listed in Exhibit G of this permit. Where the permit is more stringent, the permit requirement applies.

The facility is located on property owned by Channel Landfill, Inc. at 5645 Glacier Highway in Juneau, Alaska.

The following conditions apply:

1. Permittee shall comply with the State Ambient Air Quality Standards and Increments established in the State Air Quality Control Regulation 18 AAC 50.020.

2. Permittee shall comply with the most stringent of applicable emission standards, limits, and specifications set out in State Air Quality Control Regulations 18 AAC 50.040(a)(1), 18 AAC 50.040(b)(2), 18 AAC 50.050(c), 18 AAC 50.050(f), 18 AAC 50.110, and Exhibit B of this permit.

3. Permittee shall install, maintain and operate, in accordance with the manufacturer's procedures, the incinerators, emission control devices, testing equipment and monitoring equipment to provide optimum control of air contaminant emissions during all operating periods including start-up and shutdown.

4. Permittee shall burn as waste only;

   a. solid waste as defined in 18 AAC 60.910(53);

   b. petroleum contaminated soil which is regulated under 18 AAC 78 (promulgated March 20, 1991); or

   c. petroleum contaminated soil which is generated from the clean-up operations of residential fuel oil tanks.

5. Permittee shall burn no more than **five (5) tons per hour** of waste as defined in Permit Condition 5b and 5c, concurrently in both incinerators.

6. Permittee shall control the following sources of fugitive dust to prevent release of particulate matter beyond the facility boundary;

   a. electrostatic precipitator fines handling system;
   b. incinerator ash handling system; and
   c. municipal refuse loading system.

7. Permittee shall conduct source tests of the incinerators' emissions to ascertain the concentrations and mass emission rates of particulate matter, carbon monoxide, polychlorinated dibenzo-p-dioxins, and polychlorinated dibenzofurans using the test methods listed in Exhibit C, not later than **August 15, 1991.**

8. Permittee shall conduct additional tests to determine compliance with the applicable emission standards and emission limits, not later than **ninety (90)** days after receiving a written request from the Department.

9. Permittee shall conduct the source tests required in Conditions 7 and 8 with each incinerator operating at the maximum design rate concurrently.

10. Permittee shall submit a complete plan to the Department's Southeast Regional Office, P.O. Box 32420, Juneau, Alaska 99803, at least thirty days prior to conducting any test required by Conditions 7 and 8 of this permit. The testing plan must be approved by the Department.

11. Permittee shall submit two copies of a complete source test report for any tests required by Conditions 7 and 8 of this permit, with the results expressed in concentration, mass emission rate, and in units of the applicable standard, in the format set out in Volume III, Appendix IV-3 of the State Air Quality Control Plan to the Department's Southeast Regional Office, P.O. Box 32420, Juneau, Alaska 99803, within **30 days** following completion of each individual set of tests.

12. The permittee shall install, calibrate, maintain and operate a continuous opacity monitor in accordance with 40 CFR 60, Appendix B, Performance Specification 1 within 90 days of notification from the Department, if it is determined at the Department's discretion that an opacity monitor is needed to ensure compliance with this permit.

13. Permittee shall notify the Department's Juneau District Office by telephone at (907) 789-3151 promptly, but no later than within 12 hours, of any equipment failure which increases air contaminant emissions beyond normal levels, or any change in operating conditions or any other circumstance which may result in emissions which exceed the limits or standards specified in the permit or regulations. The notification shall include the nature of the occurrence, the expected duration, and a general description of the weather, and if applicable, the steps taken to minimize emissions and avoid recurrence. A written report shall be submitted to the Department's Southeast Regional Office, P. O. Box 32420, Juneau, Alaska 99803, within five working days of the incident following the format in Exhibit F.

14. Permittee shall provide access to the facility promptly, at any reasonable time, to the Department's representative, and any other person authorized or contracted by the Department, in order to conduct an inspection or tests to determine compliance with this permit and State environmental laws and regulations. The Department representative will abide by all health- and safety-related rules or procedures prescribed by the permittee while within the permitted facility.

15. Permittee shall submit a Facility Operating Report, as described in Exhibit E of this permit, to the Department's Southeast Regional Office, P.O. Box 32420, Juneau, Alaska 99801, quarterly, by the 30th day of January, April, July, and October each year.

16. Permittee shall maintain test results and other applicable data necessary to determine compliance with this permit in an active file for not less than one year, and have them accessible to the Department's representative, on request, for not less than three years.

17. Permittee shall clearly display a copy of this permit at the Employee's Lounge Notice Board and keep a copy of the State Air Quality Regulations 18 AAC 50 on file at the permitted facility location.

This permit expires December 31, 1994 and may be suspended or revoked in accordance with 18 AAC 50.310

Steve Haavig for

Dick Stokes
Regional Environmental Supervisor
Southeast Regional Office

EXHIBIT A-SOURCE INVENTORY

The facility contains two Consumat CS-1600 municipal waste incinerators each with a rated capacity of 3000 pounds/hour on a common stack. A PPC Industries electrostatic precipitator installed on a common stack is used as emissions control equipment.

EXHIBIT B-AIR CONTAMINANT EMISSION LIMITS AND STANDARDS

The permittee is subject to the following air contaminant emission limits during operation of the facility.

A. PARTICULATE MATTER

Incinerator 1&2 Common Stack	0.08 gr/dscf corrected to 12% CO_2, never to be exceeded

B. OPACITY

Incinerator 1&2 Common Stack	20% opacity, not to be exceeded for more than 3 minutes in any one hour

C. SULFUR DIOXIDE

Incinerator 1&2 Common Stack	An average of 500 ppmv corrected to 12% CO_2, not to be exceeded for more than 3 consecutive hours

D. PETROLEUM CONTAMINATED SOILS FEED RATE

Incinerator 1&2, concurrently	5 tons/hour, never to be exceeded

EXHIBIT C-EMISSION TESTING REQUIREMENTS

Permittee shall conduct source tests as required by Conditions 7 - 10 of this permit and report the results as required by Condition 11 of this permit, 18 AAC 50.500, and as described in this exhibit. Alternative test methods may be proposed. Testing procedures must be approved by the Department prior to the test date. Results must be presented in the format set out in Volume III, Appendix IV-3 of the State Air Quality Control Plan.

During the source test, record readings of all incinerators' parameters at least once every 30 minutes, and include the recordings as an appendix to the final source test report required by Condition 11 of this permit.

Permittee shall conduct the following source tests at the incinerators common stack:

PARAMETER	UNITS	REFERENCE METHOD
Particulate Matter	gr/dscf @ 12% CO_2	Reference Method 5, as specified in 40 CFR 60, Appendix A
Carbon Monoxide	ppmv @ 12% CO_2	Reference Method 10, as specified in 40 CFR 60, Appendix A
Total Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans	nanograms/dscm @ 8% O_2	Reference Method 23, as specified in 54 FR 52190, December 20,1989

EXHIBIT D-CONTINUOUS EMISSIONS MONITORING REQUIREMENTS

Permittee is not required to install any additional continuous emission monitoring equipment unless required to by Condition 12 of this permit.

EXHIBIT E-FACILITY OPERATING REPORT

Permittee shall submit a facility operating report to the Department, quarterly, by the 30th day of January, April, July, and October each year. The report is to be submitted to the Southeast Regional Office, Attn. Air Program Coordinator, P.O. Box 32420, Juneau, Alaska 99803.

The report must contain the following information:

Name of Facility
Location of Facility
Permit number
Period of report

---

1. OPERATION

Incinerator 1 & 2	For each week of operation during the quarter, report the hours of operation of each unit
	For each week of operation during the quarter, report the tons of municipal solid waste incinerated in each unit
	For each week of operation during the quarter, report the tons of contaminated soil incinerated in each unit
	For each week of operation during the quarter, report the average of the hourly contaminated soil feed rates into each unit
	For each week of operation during the quarter, report the maximum hourly contaminated soil feed rates into each unit

2. PROCESS DATA

Incinerator 1 & 2 ESP	For each week of operation during the quarter, report the minimum 24-hour and the mean 24-hour average secondary voltage and amperage levels

EXHIBIT E-FACILITY OPERATING REPORT (CONTINUED)

3. FUEL CONSUMPTION

Incinerator 1 & 2	report the type of fuel and the quantity burned in the auxiliary burners of each unit during the quarter
	report the average fuel oil sulfur content of the fuel burned during the quarter

4. CONTAMINATED SOIL REPORTS

Attach a summary listing the date and quantity of contaminated soil received during each quarter. For each shipment of contaminated soil regulated under 18 AAC 72 received, attach a copy of the Department-approved site clean-up plan .

5. List the dates that any excess emission reports required by Condition 13 were filed during the quarter.

6. The report shall contain the following certification statement:

Signature of authorized agent preceded by the following statement:

I am familiar with the information contained in the report and, to the best of my knowledge and belief, such information is true, complete, and accurate.

EXHIBIT F-EMISSION EPISODE REPORT

The emission episode report required by Condition 13 of this permit must include:

Incident date
Weather description
Incident duration
Incident description
Equipment failures
Action taken to minimize emissions
Procedures taken to avoid recurrence
Description of emissions and ambient air
Notification date and time of Juneau District Office

The report shall contain the following certification statement:

Signature of authorized agent preceded by the following statement:

I am familiar with the information contained in the report and, to the best of my knowledge and belief, such information is true, complete, and accurate.

EXHIBIT G-PERMIT APPLICATION DOCUMENTATION

Channel Application for Air Quality Control Permit to Operate	January 10, 1985
Channel response to ADEC request for additional information	January 21, 1985
Channel Air Permit to Operate No. 8511-AA001	February 20, 1985
Channel letter with PPC Industries electrostatic precipitator information	May 12, 1986
Latest source test results of incinerators	November 30, 1989
Channel request for Air Quality Control Permit to Operate Renewal	March 15, 1990
Channel request to incinerate petroleum-contaminated soils	May 14, 1991

DEPT. OF ENVIRONMENTAL CONSERVATION
Southeast Regional Office
P.O. Box 32420, Juneau, Alaska 99803

Fax (907) 789-4877
Phone 789-3151

June 25, 1991

Mr. Gerald A. Wilson
President
Channel Corporations
P.O. Box 21267
Juneau, Alaska 99802-1267

Certified Mail
Return Receipt
Requested
P 456 620 184

Dear Mr. Wilson:

The Department noticed an error in the Amended Air Quality Control Permit to Operate No. 9011-AA001 that was issued to you on June 12, 1991. This error concerns the petroleum contaminated soils feed rate limitation listed in Permit Condition 5. We are hereby changing the feed rate limitation to **5 tons per 24-hour period** instead of the 5 tons per hour as was inadvertently specified in Condition 5. This limit is consistent with your May 14, 1991 request to burn petroleum-contaminated soils.

Also, the Department is providing for the delay of the dioxin and furan testing requirement. The Department's decision to delay this requirement was presented in our letter dated June 21, 1991.

Enclosed are the modified page 2 and the modified Exhibit B of Amended Air Quality Control Permit to Operate No. 9011-AA001. Please replace the pages of the June 12, 1991 permit with these amended pages to correct the feed rate limitation and to change the dioxin testing due date.

Permit conditions are stipulated pursuant to the Alaska Coastal Management Regulation 6 AAC 50 and Air Quality Regulations 18 AAC 50, and are necessary to ensure the operation of your facility is consistent with the Alaska Coastal Management Program. This permit does not relieve you from the responsibility to apply for or comply with any other permit or approval required by the Department or the U.S. Environmental Protection Agency.

Department regulations provide that if you disagree with this decision, you may request an adjudicatory hearing in accordance with 18 AAC 15.200 - 18 AAC 15.920. The request should be mailed to the Commissioner, Alaska Department of Environmental Conservation, P.O. Box 0, Juneau, Alaska 99811-1800, by Certified Mail, Return Receipt Requested. Failure to submit a request within thirty days service of this letter shall constitute a waiver of your right to an administrative review of this decision. In addition, any other person who disagrees with this decision may request an adjudicatory hearing within thirty days of service of the enclosed permit. Any hearing or administrative review will be limited to issues related to issuance of these permit amendments.

Sincerely,

Dick Stokes
Regional Environmental Supervisor
Southeast Regional Office

Enclosures: Amended Page 2 of Amended Air Quality Control Permit to Operate No. 9011-AA001
Amended Exhibit B of Amended Air Quality Control Permit to Operate No. 9011-AA001

cc: Stan Hungerford, ADEC/Juneau
Al Kegler, ADEC/SDO
Kathy Pazera, EPA/AOO

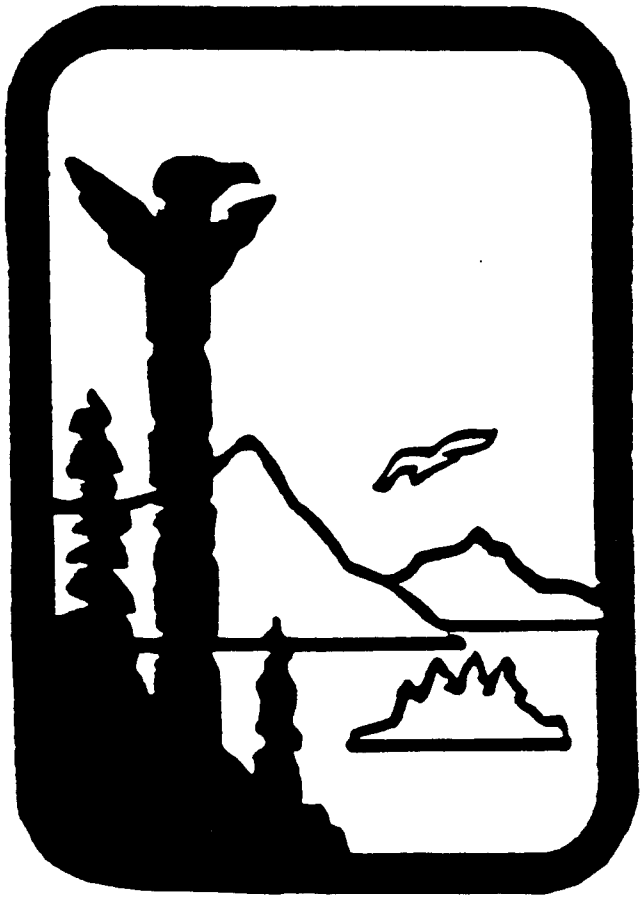
APPENDIX I:
SOLID WASTE FACILITY APPLICATION

R.W. BECK
AND ASSOCIATES

SOLID WASTE PERMIT APPLICATION

FOR

COMMERCIAL LANDFILLS



.8-0335 (Rev 9/87)

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

INFORMATION FOR PREPARING A SOLID WASTE MANAGEMENT PERMIT APPLICATION FOR A DOMESTIC AND COMMERCIAL REFUSE LANDFILL

- Applicant should prepare a cover letter briefly describing the type of facility and operation as outlined in 18 AAC 60.210(b)(1).
- The letter should include a statement that the applicant is aware of all local ordinances, local zoning requirements, and where appropriate, the Alaska Coastal Zone Management Program Requirements of 6 AAC 50.
- Complete and sign the form at page 6, as required by 18 AAC 60.210(b)(2) and attach appropriate certifications, maps, plans, soil bore logs, and data as described in 18 AAC 210(b)(3)-(12) and Part II of this form.
- Applicant should submit two copies of the complete application, one with full-size maps and plans, the other reduced to 8 1/2 X 11 inches, to the Supervisor of the appropriate regional office, Attention: Solid Waste Coordinator. Regions and addresses are indicated on the map attached to this form.

* * * * * * * * * * * * * * * * * * * *

Information submitted on this form may be of sufficient detail to meet some requirements of sections 210(b)(1)-(12), in which case that information need not be repeated in other documents.

* * * * * * * * * * * * * * * * * * * *

The information to be provided with the application is specified in 18 AAC 60.210. This document serves as a checklist and should be used in preparing the application and be submitted with it. You are strongly encouraged to schedule a pre-application meeting with the regional staff to evaluate the suitability of the proposed site and your waste management plan to avoid information gaps and delays once you submit your application. It is suggested that the vicinity map be prepared along with an aerial photo or general site plan for use during the pre-application meeting with department personnel, before preparing a formal application. The level of detail and information required may vary depending on the size of the facility, volume or type of wastes received, or environmental sensitivity or peculiarities of the site. Another purpose of the pre-application meeting is to identify the level of detail needed in the application for your site.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SOLID WASTE MANAGEMENT PERMIT APPLICATION
FOR A DOMESTIC AND COMMERCIAL REFUSE LANDFILL

PART I - COVER LETTER, signed by the applicant

A. Briefly describe the type of facility proposed; types, estimated quantities and sources of wastes to be disposed of, and include:

° Applicant's Name: _____
Mailing Address: _____
City/State/Zip Zode: _____
Phone: _____

° Operator's Name: _____
Mailing Address: _____
City/State/Zip Zode: _____
Phone: _____

° Facility Owner's Name: _____
Mailing Address: _____
City/State/Zip Zode: _____
Phone: _____

° Landowner's Name: _____
Mailing Address: _____
City/State/Zip Zode: _____
Phone: _____

° Facility Location: (Legal description of property; range, township, and section) _____
_____
_____

° Informal Location: (Milepost or other) _____
_____

° Application is for:
( ) A new facility
( ) An unpermitted, existing facility
( ) Renewal of permit no. _____
( ) Transfer of permit no. _____

B. State that the applicant is aware of

	Yes	No
° All applicable local ordinances	( )	( )
° All applicable local zoning requirements	( )	( )
° Requirements of the Alaska Coastal Zone Management Program, 6 AAC 50, if appropriate	( )	( )

C. Use of Facility

° Number of people served by the facility: _____

° Quantity of waste to be received: _____ (tons) (cu. yds) / (day) (week) (month)
(circle appropriate units)

° Size of designated disposal area: _____ acres

° Estimated operational "life" of the facility: _____ years

° Check the type(s) of wastes received and estimate as a percentage of total wastes received:

	Yes	No	
Domestic Refuse	( )	( )	_____%
Commercial Refuse	( )	( )	_____%
Seafood Processing Wastes	( )	( )	_____%
Wood Wastes	( )	( )	_____%
Construction Wastes	( )	( )	_____%
Demolition Wastes (not including asbestos)	( )	( )	_____%
Batteries	( )	( )	_____%
Drums	( )	( )	_____%
Tires	( )	( )	_____%
Scrap Metal	( )	( )	_____%

D. What predisposal processing methods will be employed:

Incineration	( )	Separation/Segregation	( )
Baling	( )	Controlled Burning	( )
Shredding	( )	Other	( )

If Other, describe _____

_____

E. Will any of the following wastes be accepted?

	Yes	No		Yes	No
Septic Tank Pumpings	( )	( )	Incinerator Ash or Wastes	( )	( )
Sewage Sludge	( )	( )			
Honey Bucket Waste	( )	( )	Infectious or Pathological Wastes	( )	( )
Asbestos	( )	( )	Oil & Gas Drilling Wastes	( )	( )
Junk Vehicles	( )	( )			
Animal Carcasses	( )	( )	Oily Wastes	( )	( )

For disposal of industrial waste, wastes listed in E or not listed in C, the Department may require use of a different application form; a wastewater disposal permit or plan review under 18 AAC 72 is required for wastes containing less than ten percent solids.

F. If the applicant is not the owner of the property, attach proof that the owner has received notice which fully describes the proposed facility and

- a copy of a lease agreement which is clearly relevant to the proposed activity; or
- a written statement signed by the landowner, stating that the landowner consents to the proposed activity.

PART II - SITE PLANS AND METHOD OF OPERATION

Attach a copy of the applicable maps, plans and documents as required by 18 AAC 60.210.

A. Map of the area within a two-mile radius of the facility, of a scale at least 1 inch = 1 mile, that clearly shows the following:

1. Geographic location
2. Surface contours (at least 100-foot intervals)
3. Facility boundaries
4. Roads and railroads
5. Buildings
6. Airports
7. Archeological sites
8. Surface water bodies
9. Public drinking water systems
10. Anadromous streams
11. Any residential drinking water wells in use and within 1/2 mile of the facility boundary

Attached: Yes ( ) No ( ); if no, why not? _____

_____

B. Site plan(s) which indicates contours of five-foot intervals and of a scale no less than one inch = fifty feet unless otherwise approved by the department. The plan(s) should be similar in form to a blueprint and include the location of:

1. Facility boundary
2. Physical character of the location (quarry, barrow pit, hillside, gully, wetlands, permafrost, level, strip mine, lake)
3. Access and on-site roads
4. Fences and gates
5. Weighing stations
6. Visual screening
7. Surface drainage controls
8. Buildings and solid waste management equipment (baler, shredder, compactor, incinerator)
9. Designated disposal area
10. Active and closed portions of the facility
11. Disposal trenches or containment structures, and sequence of use
12. Storage site of cover material
13. Salvaging area
14. Monitoring devices
15. Soil borings
16. Permanent markers or survey monuments

Attached: Yes ( ) No ( ); if no, why not? _____

_____

_____

C. Cross-sectional drawings which provide construction details of the operational features of the facility such as disposal cells, drainage control structures, and monitoring devices. The scale should be approximately 1 inch = 20 feet of horizontal distance and 1 inch = 5 feet of vertical distance and include:

1. Soil profiles
2. Seasonal high groundwater
3. Final elevations of deposited wastes
4. Construction specifications for materials and compaction
5. Initial and final grades
6. Elevations of all trenches, lifts, cells
7. Liner installation detail
8. Final cap design, thickness and contours

Attached: Yes ( ) No ( ); if no, why not? _____

_____

_____

D. A narrative description of the facility development plan and operating procedures, including:

1. Public access
2. Operating hours
3. Attendant on duty
4. Method of collecting and bringing waste to the site
5. Visibility of the facility to the general public from offsite roads, recreational areas, and buildings
6. Equipment used on site to manage waste or reduce the volume of waste such as baling, shredding, metal separation and incineration, with appropriate engineering designs/specifications
7. Will scavenging be allowed? Yes ( ) No ( )
8. Frequency and depth of operational and intermediate cover (indicate if it may vary with the seasons)
9. The maximum width and vertical height of the exposed working face
10. Plans to control

    a. Groundwater pollution
    b. Surface water pollution
    c. Surface drainage and runoff
    d. Disease vectors
    e. Wildlife access
    f. Litter
    g. Fires
    h. Odor
    i. Noise
    j. Safety
    k. Nuisances
    l. Decomposition gases

11. Provisions for handling any waste identified in 18 AAC 60.087

Attached: Yes ( ) No ( ); if no, why not? _____

_____

E. An appropriate geologic/hydrologic report including

1. Discussion or graphic representation of the topography, geology, climate, and surface and groundwater hydrology of the site based on existing data.

2. Actual or estimated depth to the following if within 50 feet of the surface:

    a. the seasonal high groundwater table
    b. bedrock
    c. permafrost

3. The soil boring logs and information specified in 18 AAC 60.210(7) if applicable.

4. An evaluation of the potential for generating leachate and polluting waters based on precipitation and evaporation rates, geology and hydrologic data obtained from the bore holes or any other nearby well logs, flooding, depth to groundwater, the quantity and composition of the wastes involved, and other physical conditions.

5. An appropriate monitoring plan meeting applicable requirements of 18 AAC 60.310 including specifications for construction and operation of the groundwater wells or vadose zone monitoring devices.

6. A closure plan which meets the applicable requirements of 18 AAC 60.410 and include a description of the final appearance of the facility, management and use following closure describing:

   a. Permanent markers or survey monuments
   b. Depth of final soil cover
   c. Vegetative cover or other surface treatment
   d. Control of methane gas
   e. Groundwater monitoring system
   f. Leachate management system
   g. Use of the property

Attached: Yes ( ) No ( ); if no, why not? _____

_____

PART III - SIGNATURES

The cover letter and this form must each be signed by the applicant.

I,_____, certify under penalty of perjury, that all of the above information and exhibits are true, correct, and complete.

Applicant's Signature_____Date_____

* * * * * * * * * * * * * * * * * * * *

18 AAC 15.030. SIGNING OF APPLICATIONS: All permits or approval applications must be signed as follows:

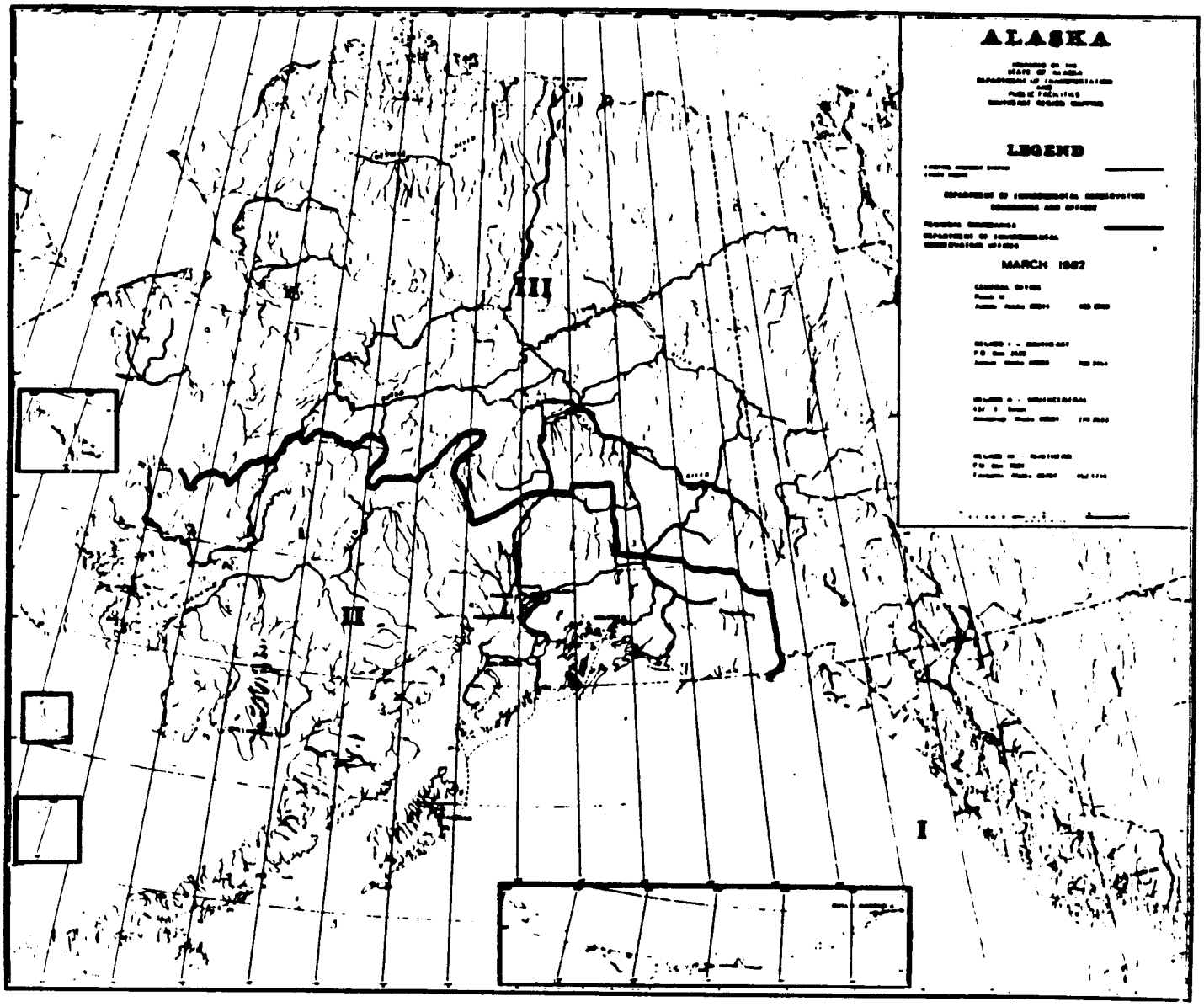
(1) In the case of corporations, by a principal executive officer of at least the level of vice president or his duly authorized representative, if the representative is responsible for the overall management of the project or operation;

(2) In the case of a partnership, by a general partner;

(3) In the case of a sole proprietorship, by the proprietor; and

(4) In the case of a municipal, state, federal or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

* * * * * * * * * * * * * * * * * * * *



STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CENTRAL OFFICE
3220 Hospital Drive
Pouch O
Juneau, AK 99811-1800
(907) 465-2666

SOUTHEAST REGIONAL OFFICE
9000 Old Glacier Highway
P.O. Box 32420
Juneau, AK 99803
(907) 789-3151

SOUTHCENTRAL REGIONAL OFFICE
3601 'C' Street, Suite 1350
Anchorage, AK 99503
(907) 563-6529

NORTHERN REGIONAL OFFICE
1001 Noble Street, Suite 350
P.O. Box 1601
Fairbanks, AK 99707
(907) 452-1714