ALASKA LEGISLATURE COMMITTEE FILES, 1989-1990 8672
6450 SENATE RESOURCES

854

keep its hand in cooky jar.

Recognizing that the income and proceeds are part of the trust until surplus to the needs of the Mental Health Plan are met, it follows that there can be no conflict with the prohibition against dedicated funds. Only in this manner can the trustee's functions, responsibilities and duties be carried out and discharged, and only when a surplus is declared on a fair basis within the intent of the trustor can such surplus become a part of the general funds, subject to appropriations for other public purposes, and, as such, subject to the prohibition against dedicated funds.

The fact is that there has never been any investment or management of the corpus as intended, and as instructed, at any time past, and Chapter 48 does not contemplate any at any time in the future. As it has always done, the legislature skips over the mandate that the land AS WELL AS income and proceeds be administered as a trust.

(d) Sec. 1 (a) (20)-(21) aver that the state has the authority to remove land from the trust IF THE TRUST IS COMPENSATED for the fair market value of the land, but that the state is not financially able to provide such cash compensation and will not be so able in the foreseeable future. So what? There are other ways to take care of that kind of problem. There could be exchanges, and it or they would not necessarily have to be of the same kind, i.e. land for land. Such is provided for in the Enabling Act. Or, the state as "buyer" could do that which most purchasers of real property do, namely become a mortgagor to the trust to the extent of the value of part of the trust lands. That, too, is specifically provided for by the Enabling Act. And since the mortgage payments are part of the corpus and are administered as a trust together with the land, there can be no constitutional conflict. State revenues contain many Federal source funds that, because they are dedicated federal funds, remain dedicated as an exception to the prohibition. There is nothing novel about the concept, and it well established and accepted.

(e) Sec. 1 (a) (25) commits the same error that has been committed through the years and discussed above, by providing that the rental value of the trust lands be identified as an account in the general fund. In order to have the income and proceeds managed together with the land as a trust, and in ordr to permit investment, mortgage, exchanges and other trust management tools, these funds should not be fungibble and co-mingled with general funds any more than a lawyer's trust account or any fiduciary's accounts should be co-mingled with his own.

This subsection suffers from another infirmity. Rent is to be a stated percentage of the appraised value of the land, but nothing is said about compensating the trust for any depletion in value due to removal of oil gas, minerals, other assets such as standing timber, or changes in topography by acts of the state-lessee, or with its consent. Thus, the state-trustee-owner-landlord-tenant-manager could excavate, deplete the land of value, keep all benefits and royalties, and then pay less rent for the devalued land. That would obviously not be management by the trustee in the best interest of the beneficiary. But Chapter 48 fails to address the problem.

(f) Most of the problems with Sec. 1 (a) (27) have been covered above, except for the fact that the Mental Health Board's function is described as to assist and advise the legislative and executive branches. In other words, the Board is not shown as having any real jurisdiction or authority. The extent to which the legislative and executive branches are guided by the Board's recommendations is painfully evident from the appropriations made since 1987.

(g) reference to portions of Chapter 48 beginning with Sec.2 are by AS numbers.

AS 37.14.011 (a) - (c) these issues have been discussed in detail hereinabove, except for the valuation to be by DNR, without active participation by the Board or anyone on behalf of the trust or the beneficiaries. The conflict is self evident.

AS 37.14.021. This section fails to give the legislature any guideline, control or restriction as to appropriations "to meet the necessary expenses of the mental health program of the state." The lessons of the past teach us that this approach amounts to putting B'rer Rabbit in the briar patch. The temptation to create surpluses "for other public purposes" has been covered above. Furthermore, the format is contrary to the management and investment as a trust together with the land, and promotes dissipation of trust assets consisting of income and proceeds. The only recourse apparently left to frustrated beneficiaries is to return to the courts, assuming that beneficiaries can keep on marshalling their forces against the strength, wealth, and litigiousness of the state.

AS 47.30.661 et seq. It should be obvious that the Board has very limited powers and jurisdiction. Although designated as the advocate of the beneficiaries before the executive and legislative branches, it has no power to sue or be sued, its recommendations are just that, recommendations that need not be followed and that can be deviated from with or without stated basis in facts, and without any ability to carry

out its program or see to it that it is carried out as intended.

RECOMMENDATIONS:

1. The conflicts of interests of the state-trustee-owner-landlord-tenant-manger-and alleged beneficiary of self-serving declared surpluses, coupled with the political process, the expected reduction in state revenues coupled with inflation-fanned future state budgets, together with competing interests of DHSS, Revenue, DNR et al, and past interpretations of the Enabling Act and other breaches of the trustee's fiduciary duties by both the legislative and executive branches give more than ample evidence of the fact that just as a bank establishes a separate Trust Department, the State of Alaska needs to take the trustee's functions out of the political process.

2. Just as the Permanent Fund has been effectively removed from the reach of both the legislative and executive branches, and other activities have been entrusted to public corporations such as AHFC, ASHA, the Alaska Railroad and others, it seems that the best way to have the trust managed in the interest of the beneficiaries is to create an independent trustee, preferably by way of a public corporation, with the power and duty to administer the trust, its corpus, income and proceeds, subject to proper oversight and reporting. There is adequate precedent for the creation of such a Mental Health Trust Corporation or Authority (hereinafter referred to as MHTC).

3. The MHTC should have its own counsel, not connected with the AG's office.

4. MHTC should be empowered to manage, invest, re-invest, lease, mortgage, exchange assets other than designated lands leased by the state, and do and perform all things that a prudent trustee may do and perform.

5. MHTC should participate with DNR in periodic re-appraisals of land values for purposes of establishing fair market values as the basis of rental. In the event of disagreement between these agencies, a method of resolving conflicts should be provided.

6. The Mental Health Board, within MHTC, should prepare the Mental Health Plan, with its budget, on a 5 year plan with annual increments, including capital improvements, facilities, and services, and, where necessary, in conjunction with other agencies such as DHSS, Corrections, and possibly others.

7. The Board should be given the power and duty to carry out the Plan, and to this end, the Divison of Mental Health in DHSS should be shifted to the jurisdiction of the Baord.

8. The statute should spell out the interpretation of the Mental Health Enabling Act as including land, other assets, including income and proceeds as part of the trust to be administered, with declared surplusses, if any, to be accessible to the state for incorporation into the general fund and use for other public purposes at stated interval of 3 or 5 years.

9. The Alaska Mental Health Plan and proposed budget therefor, prepared by the Board, reviewed by MHTC, DHSS, and possible other distributees, should be submitted to the legislature. The legislature, in turn, could (a) approve it as submitted, or (b) amend it in whole or in part, together with specific findings supporting substantive and/or budgetary changes, thus preserving the legislative prerogative of final oversight and disposition.

10. The statute should specifically provide that it is intended as a settlement and final resolution of the litigation, to be concurred in by the litigants, and to be approved by the court and incorporated into the final judgment, with leave for future amendment by the legislature with concurrence of MHTC as representative of the beneficiaries, and that failing such concurrence by the parties and approval by the court, within a given time frame with possible agreed continuance, the said statute shall be null and void and deemed repealed, and the litigating parties returned to their prior status in court.

The previous proviso is for the reason that it is not possible for the state to end the litigation unilaterally. I am well aware of the fact that you, Mr. Chairman, have stated that it was the specific intent of the legislature that the statute be a settlement, but the mechanics of cocncurrence by the parties, approval by the court and incorporation of the settlement into a final judgment were not made part of Chapter 48, as I believe is necessary to achieve a settlement that would have some binding efect on future legislatures and administrations.

Surely, other minds than mine will come up with other wrinkles, criticism, and refinements, but I believe that the foregoing represents a fair analysis of the past and present, as well as a feasible and sound approach for the future.

Respectfully submitted,

Nissel A. Rose

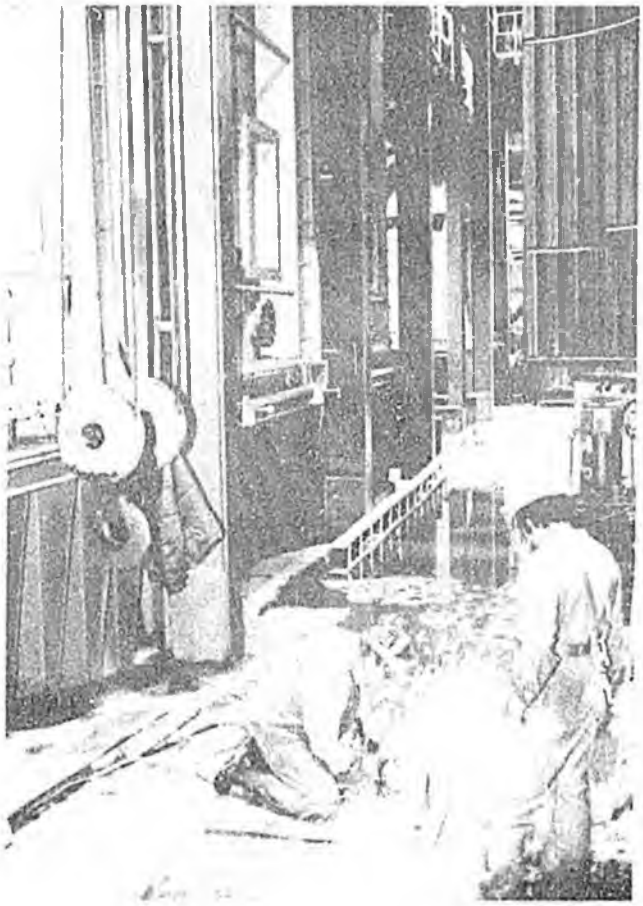
cc: Alaska Mental Health Board
Alliance for the Mentally Ill
Alaska Mental Health Association

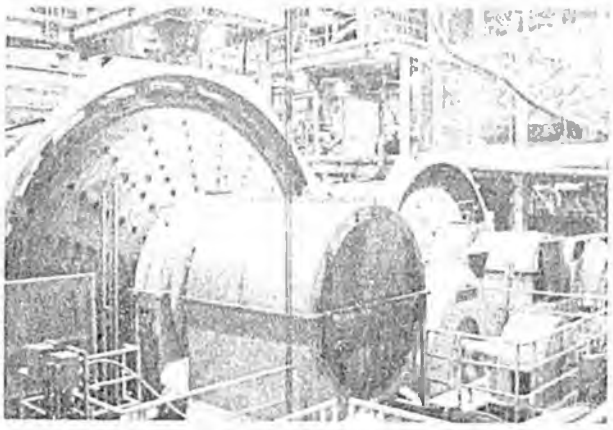
Mental Health Consumers of Alaska
Advocacy Services of Alaska
James Gottstein, Esq.
David Walker, Esq.

Alaska Minerals Commission

Report of the

Alaska Minerals Commission





JANUARY 1990

Report of the

ALASKA MINERALS COMMISSION

to

Governor Steve Cowper

and the

Alaska Legislature

January 1990

FOREWORD

The Alaska Minerals Commission was created by the 14th Legislature and signed into law on June 6, 1986, through the enactment of Chapter 98 of the 1986 Session Laws of Alaska.

The enabling legislation instructs the Commission to make recommendations to the Governor and Legislature on ways to mitigate the constraints, including governmental constraints, on the development of minerals, including coal, in the state. The Commission's Statement of Purpose can be found in Appendix A.

The Commission presented its initial report to the Governor and the Legislature in January 1987, presented its interim report in January 1988, and was charged with making a final report to the first session of the 16th Legislature in January 1989 after which the Commission was to expire. However, during the second session of the 15th Legislature, House Bill 561 was enacted. The bill amended the enabling legislation by extending the Commission's charter through January 1994 and by providing that one member reside in a rural community (Appendix B).

Commission members are appointed by the Governor, the President of the Senate, and the Speaker of the House. The current members include representatives of the placer, hard rock and coal mining industries and come from diverse areas of the state. Administrative and staff support to the Commission is provided by the Division of Business Development, Department of Commerce and Economic Development.

On behalf of the members of the Commission and its staff from the Department of Commerce and Economic Development, I express our appreciation to those members of the public, to Tim Bradner, of Alaska Economic Report, the Alaska Miners Association and State Agencies who have provided their comments and worked on committees for their contributions in preparing this report. The Commission members thank Governor Cowper and the Alaska Legislature for the support they have provided the Commission and for their positive action that has been taken on some recommendations previously made.

The Commission members are hopeful that the recommendations made in this January 1990 report will be implemented by the Governor and/or Legislature as appropriate for the benefit of Alaska, its people and the state's mining industry. Please do not hesitate to contact the Commission if you have any questions or if you desire additional specific detail.

Earl H. Beistline
Chairman

ALASKA MINERALS COMMISSION

December 1989

Chairman
Earl Beistline
Mining Consultant
P.O. Box 80148
Fairbanks, AK 99708
Phone: (907) 479-6240
Fax: 474-2629

Vice Chairman
Joseph Usibelli, Chairman
Usibelli Coal Mine, Inc.
P.O. Box 1000
Healy, AK 99743
Phone: (907) 683-2226

Del Ackels, Owner-Operator
Goldust Mines
P.O. Box 2151
Fairbanks, AK 99707
Phone: (907) 474-0971

Irene Anderson, Land Planner
Sitnasuak Native Corporation
Box 905
Nome, AK 99762
Phone: (907) 443-5296/2632
Fax: 443-3063

G.G. (Jerry) Booth, Manager
Cominco Alaska Exploration, Inc.
139 51st Street
Anchorage, AK 99503
Phone: (907) 563-7111
Fax: 563-4244

Tom Crafford, Senior Exploration Geologist
Greens Creek Mining Company
3000 Vintage Park Avenue, Suite 200
Juneau, AK 99803
Phone: (907) 789-4171
Fax: 789-7112

Don Finney, Ketchikan Manager
U.S. Borax ad Chemical Corporation
P.O. Box 5320
Ketchikan, AK 99901
Phone: (907) 225-9811
Fax: 225-5920

Karl Hanneman, President
Alaska Placer Development, Inc.
P.O. Box 10664
Fairbanks, AK 99710
Phone: (907) 452-6700

Harold Noyes, Chief Geologist
Doyon Limited
201 1st Avenue
Fairbanks, AK 99701
Phone: (907) 452-4755
Fax: 456-6785

Ron Sheardown, President
Greatland Exploration, Ltd.
3512 Campbell Airstrip Road
Anchorage, AK 99504
Phone: (907) 333-1400
Fax: 333-1800

Ernest Wolff
Mining Consultant
P.O. Box 10705
Fairbanks, AK 99710
Phone: (907) 457-7640

STAFF

Jim Deagen
Development Sepcialist
Mining and Minerals
Division of Business Development
P.O. Box D
Juneau, AK 99811
Phone: (907) 465-2023
Fax: 586-8366

Dick Swainbank
Development Specialist
Mining and Minerals
Division of Business Development
1001 Noble St., Suite 360
Fairbanks, AK 99701
Phone: (907) 452-7464
Fax: 456-8179

Alaska Minerals Commission

1990 Report to the Governor and Alaska State Legislature

Contents

Executive Summary

Mining is undergoing a healthy renaissance in Alaska, after years of prolonged slump. Many small to medium-sized mines are working, and two major new mines, Greens Creek and Red Dog, went into production in 1989, adding hundreds of new jobs, and several other projects are in advanced stages of exploration and development planning. What's propelling the industry's growth is not only improved world markets for precious and base metals, but also new technology and innovative approaches to mining that lower high costs in Alaska. Mining has more near-term potential for expansion than any other Alaska resource industry. New mining projects today result from earlier public policies that made land available for exploration. But now, vast parts of Alaska are closed to new exploration.

Significant progress has been made on some public policy issues affecting mining, including the legislature's action last year in resolving the complex "6i," (of the Statehood act) litigation and reactivation of a state offshore mineral leasing program.

But there are other problems: Restrictive new wetlands policies, uncertainties over possible new land reclamation and bonding requirements, potential new local taxes on mines, and inflexible labor requirements imposed on remote site development.

The Alaska Minerals Commission's recommendations to the Governor and State Legislature could help insure a strong, growing mineral industry. In 1990, the Commission has concerns in three major areas:

Land availability: Over half of Alaska's lands, or 210 million acres, are closed to exploration, much of it by ANILCA in 1980, and mostly without prior mineral assessment. Many state lands remain closed by administrative order, contrary to the original intent of multiple use management.

Stability of state policy: Alaska should approach new reclamation and bonding requirements with caution, and should discourage municipalities from enacting special taxes on new mining projects. State agency permitting procedures are still lengthy and complex despite years of effort toward "regulatory reform." Lack of predictability in state policy is an impediment to new investment.

Education and research: New technology is the major driving force behind Alaska's mining renaissance; institutions like the University of Alaska's School of Mineral Engineering and Mineral Industry Research Laboratory need support for ongoing applied research; State resource agencies need support for basic mapping and mineral reconnaissance studies; mining education and training programs need support if Alaskans are to fully participate in the rebirth of this industry.

INTRODUCTION

The effective development of a healthy mining industry requires three basic components;

A) Availability of as much land as possible for exploration, and a guarantee of access to any mineral deposits found. Detailed geological and geophysical maps provide a data base for the state for mineral development, and enhance the chance of success of exploration programs.

B) Stability of state policy toward developing and enhancing the mining industry in all facets of projects from exploration through production and transportation, including regulations, taxation and working conditions.

C) Ongoing education, research and development to provide for a qualified workforce, monitored by educated agencies, directed by a knowledgeable administration and Legislature. To compensate for climatic and geographic location handicaps, the Alaskan mining industry must be on the cutting edge of technological innovation to remain competitive.

Dealing with each of these three broad areas in turn, the Alaska Minerals Commission finds it necessary to make specific recommendations to enhance the health and competitiveness on a world market of the mineral industry in Alaska.

RECOMMENDATIONS OF THE ALASKA MINERALS COMMISSION

A) IN ORDER TO MAXIMIZE THE AVAILABILITY OF LAND FOR MINERAL EXPLORATION AND DEVELOPMENT, THE ALASKA MINERALS COMMISSION MAKES THE FOLLOWING COMMENTS AND RECOMMENDATIONS:

Considerable land in Alaska has been withdrawn from mineral entry as depicted in Figure 1. Of the 254 significant mineral occurrences identified by a Northwest Mining Association study in 1978, 208 were encompassed by Conservation System Units (CSU's) by ANILCA in 1980, and on the vast majority of these lands no assessments of the mineral potential were made prior to the withdrawals.

Wilderness studies continue on many of the CSU's, and de facto withdrawals of land from mineral entry continue by use of management policies such as Areas of Critical Environmental Concern (ACEC's). These withdrawals are seldom preceded by mineral assessments sufficiently detailed to make informed decisions.

1 **In conformity with sections 101d and 1326b of the Alaska National Interest Lands Conservation Act (ANILCA), no more federal land in Alaska should be withdrawn from mineral entry either by wilderness designation or by de facto withdrawals such as the Areas of Critical Environmental Concern without prior and thorough mineral assessments.**

2 **The Governor should make clear to the U.S. Congress and Federal Administration that further restrictions or withdrawals of federal land from multiple-use designation are not acceptable and assure that regulations be enacted to implement the provisions of the Alaska National Interest Lands Conservation Act to protect the "prior existing rights and exemptions" allowed in that act;**

In addition to the mineral closures in National Parks, Refuges and Forests, development of all kinds in the remaining lowland areas is now threatened by a proposed National policy of "No net loss of wetlands." These "wetlands" in Alaska occupy about 75 percent of the lowland areas of the state, or about 170 million acres, and are often caused by the underlying permafrost. Assessment of the mineral potential of such areas is difficult and requires sophisticated surveys.

3 **Alaska should be exempted from a strict application of the proposed nationwide policy of "no net loss of wetlands" until a suitable policy can be formulated specifically for the state, which recognizes that Alaskan wetlands are unique in kind, size and cause.**

Options for overland access to mineralized areas in Alaska must be maintained, especially in light of the relatively unexplored status of much of the state. Revised Statute 2477, (RS2477), is an 1867 congressional grant of rights-of-way across unreserved federal lands for public highways. RS2477 corridors may be the only feasible access into more remote areas of the state.

4 **The State of Alaska should expedite the ongoing program of inventorying the possible RS2477 access routes, and aggressively assert the state's rights to these corridors of commerce, especially across otherwise inaccessible areas.**

The mining law of 1872 has served the nation well on federal lands, but is under attack. Proposed changes would severely inhibit mineral exploration, development and production on federal land.

5 **The state should transmit opposition to proposed changes in the 1872 Mining Law which would be damaging to the mining industry.**

Ongoing regional land plans on state lands, and local expansion of coastal zone management plans to encompass areas remote from the coastline restrict development and generally omit assessments of subsurface resources such as minerals, coal and industrial minerals in the process. Because development of natural resources is so often precluded in the planning process, the availability of state land to mineral entry is diminished.

6 **The Governor should establish that mineral development is a priority in the best interest of the state, consistent with Section 1 of Article 8 of the State Constitution, that must be recognized in most state land management actions.**

7 **The Legislature and Governor should support Senate Bill 34, (an act relating to state land withdrawn from mineral location and mining), and Senate Bill 35, (an act relating to multiple use of state land and water), submitted in the first session of the 16th Legislature. (See Appendix D.)**

Less that 5% of Alaska has been geologically mapped at a scale suitable for mineral exploration. As a comparison, many of the third-world nations have more complete geophysical data than Alaska. A continued lack of funding for such surveys perpetuates the problem of developing a data base.

8 **Detailed geologic and geophysical mapping of the state must be continued at an increased pace to provide a data base for the state to inventory its coal, metalliferous and industrial mineral resources as a basis for informed land planning, and to advertise the state's interest in mining as a valued component of the economic base. An annual $5 million supplemental appropriation for this purpose would be comparable to the advertising budgets of other sectors of the state's economy.**

9 **Mineral assessments should be required in conjunction with surveys of competing values before any mineral closures are instituted.**

10 **The Governor and Legislature should support the conclusions and recommendations of the Land Use Council's Nonrenewable Resource Report dated November 6, 1989, and transmit their support via the congressional delegation to Secretary of the Interior, Manuel Lujan. This report is available from the Division of Business Development.**

B) IN ORDER TO PROVIDE A STABLE ENVIRONMENT FOR MINERAL DEVELOPMENT THE ALASKA MINERALS COMMISSION MAKES THE FOLLOWING COMMENTS AND RECOMMENDATIONS:

After continued availability of land for a mineral development base, the Alaska Minerals Commission considers that the second most important issue facing the industry is stability of State Policy in the areas of regulation, taxation and working conditions.

State policy regarding mineral development is formulated through the Resource Cabinet. The cabinet is a triumvirate composed of representatives of the Alaska Department of Fish and Game (ADF&G), the Alaska Department of Environmental Conservation (DEC) and the Alaska Department of Natural Resources (DNR). The Division of Governmental Coordination (DGC) assists the Resource Cabinet in reaching a consensus on various resource issues.

DEC and ADF&G have rather narrow legislative mandates that allow them to take strong advocacy positions in defense of their interests. Commonly, the responsibility of ADF&G, particularly the Habitat Division, is generally coincidental with the interests of the DEC, and these agencies tend to view development as a concern, rather than as a potential benefit. On the other hand, because DNR has a very broad mandate, including parks and recreation and all surface management, it is often unable to take a strong advocacy role in favor of development. Consequently, the state policies formulated through the Resource Cabinet are often made without a fair hearing of the issues. A strong advocate for development is needed on the Resource Cabinet.

11 **The Department of Commerce and Economic Development should be a member of the Resource Cabinet.**

The Alaska Minerals Commission is also concerned about stability in the area of taxation. According to the 1989 report, "Impact of State Taxation on the Mining Industry, a study of eighteen states" prepared for the State of Alaska and other clients by Whitney and Whitney Inc., the Alaska tax rate exceeds that of Nevada, where a recent increase in taxation has threatened the viability of some operating mines. Pursuant to recent court decisions regarding section 6(i) of the Statehood Act, an additional 3% production royalty will be required on the net profits of all mines operating on state lands.

12 **The 3% production royalty required by recent interpretation of section 6(i) of the Statehood Act should be administered as a deductible mining expense allowed under sections 120 or 125 of chapter 65, (Mining License Tax), of Title 15 of the Alaska Administrative Code.**

Local municipalities in Alaska presently have the right to tax in-situ ore reserves, though definition of what is a "reserve" versus a "resource" can often not be determined until a mine has closed. Ore reserves are estimates of the mineral resource and their accuracy depends on the quality and density of the data. It is impossible to standardize or rigorously define

classes of reserves that can be readily applied from one deposit to another. Taxation of ore reserves discourages exploration and the delineation of mineral resources ahead of the actual mining process. As such, it is a disincentive to the long range mine planning necessary for the efficient and thorough development of the mineral resource. Such taxation can also discourage development of marginally economic deposits.

13 **The Administration and Legislature should support CSSB 181 and the identical House bill SSHB 159, (See Appendix D), both titled "An Act relating to an exemption from municipal taxation for natural resources in place; and providing for an effective date." The exemption from municipal taxation granted to the oil and gas industry for in-situ reserves should be extended to the mining industry for ore reserves.**

Alaska has enormous resources of clean coal that can provide a virtually limitless source of low-cost energy for Alaska and supply a growing export market for low-sulfur coal while providing jobs and income for Alaskans. The U.S. Department of Energy and the U.S. Department of Commerce have recognized that the enormous resources of low-sulfur Alaska coal, combined with innovative combustion technologies, could make Alaska a leader in the export of clean energy resources and technologies.

14 **The Legislature should repeal the state's unitary tax on coal which has the effect of limiting foreign capital investment in Alaska's resources, and review Alaska's current coal industry tax structure, including rents and royalties, to determine if Alaska's coal tax structure adequately balances the public interest and the competitiveness of Alaska's coal industry.**

15 **The Legislature should initiate a review of coal development issues to establish a state coal policy that will provide direction for the domestic energy supply and for the expansion of international coal exports.**

16 **The Division of Mining should create an advisory board consisting of coal industry representatives, state agency personnel involved in the permitting of coal mining activities and representatives of the Office of Surface Mining to periodically review the Alaska Surface Coal Mining Regulations and make recommendations for changes needed to account for Alaska conditions and changing technologies. The Chairs of both the Senate and House Resource Committees should be ex-officio members of the advisory board.**

17 **It is imperative that the Alaska Railroad (ARR) be responsive to the needs and concerns of its industry clients by providing quality professional service at competitive rates.**

Another area where state policy can affect the viability of mining is in inflexiblity in regulations. Each mine site has a unique blend of physical conditions such as the slope of a stream, narrowness of a valley, amount and kind of overburden and grade or size of the mineral deposit. These factors must be taken into consideration when mining plans and permits are considered, and when reclamation is proposed.

18 **Enough site-specific flexibility should be included in legislation and regulation to allow for local conditions, and the programs should be based on performance standards rather than design standards. Programs should not be retroactive, and bonding should be avoided if possible.**

19 **The Bureau of Land Management (BLM) 3809 regulations should be used as a guide for the state programs, so duplication or conflict with these regulations on federal lands is avoided.**

Passage of legislation addressing both a flexible work week and extending working hours is particularly important for mines in remote locations or where employees must reside in locations distant from the work site. The flexibility that would result from these legislative revisions would allow employers and employees to jointly determine work schedules that would provide for more efficient labor use and more desirable time-off patterns for employees.

20 **Legislation should allow work schedules to be set on the basis of project specific considerations which will permit more efficent use of labor and provide more desirable time off patterns for employees. This will be particularly significant for mines in remote locations with employees who reside in communities distant from the work site.**

21 **Legislation is required to amend current statutes limiting underground shifts from the current maximum of eight hours to a maximum of 12 hours. The antiquated statute presently in effect does not recognize the implementation of modern safety programs and penalizes mine efficiency and employee time-off schedules on remote mining projects.**

C) IN ORDER TO CONTINUE AND TO EXPAND EDUCATION, RESEARCH AND DEVELOPMENT PROGRAMS, THE ALASKA MINERALS COMMISSION MAKES THE FOLLOWING COMMENTS AND RECOMMENDATIONS.

By all measures the Alaskan mineral industry is entering a new and exciting phase of growth, (Fig. 2), and by the end of 1990 the gross value of minerals mined in the state should exceed the value of tourism, timber and fish, second only, (by an order of magnitude), to oil and gas. This production phase follows decades of exploration, evaluation and development, and if some of the newly-discovered gold deposits prove to be economically feasible, they could double the historic production of the state.

At this critical juncture it is essential that Alaskans be trained to take full advantage of the employment opportunities that these developments can offer. From the Alaska Minerals and Energy Resource Education Fund (AMEREF) program in K-12, through the Mining and Petroleum Training Service (MAPTS) and University degree programs there must be continuing emphasis on training Alaskans.

22 **The Department of Education should be granted additional funding to evenly match the contribution by industry in funding the AMEREF program.**

23 **At least $250,000 funding should be allocated to MAPTS to provide for the rapidly increasing number of jobs expected underground in Southeast Alaska in the near future.**

24 **Basic support should be continued for other education programs such as the Mine Safety and Health Administration (MSHA) training required for all mine workers.**

25 **Funding should be continued or increased for the School of Mineral Engineering at the University of Alaska Fairbanks so that new methods of ore processing can be adapted to the unique circumstances of Alaska.**

Concurrent with training there must be continuing research into innovative methods of extraction and refining of mineral products, in new or existing transportation, and in new uses or technology to beneficiate Alaska products to the point where they are competitive in world markets.

Only about one-tenth of one percent of the nearly $2 billion annual revenue from oil and mineral development activities is dedicated to the funding of mineral research. This situation must change substantially to foster increasing mineral development.

26 The Governor and the Legislature should support state organizations that are working to advance the development of new coal burning and processing technologies, including the research programs of the Alaska Science Foundation, the University of Alaska Mineral Industry Research Laboratory, and the development activities and projects of the Department of Commerce and Economic Development.

On December 21, 1989, the Healy Cogeneration Project (HCP) was selected by the U.S. Department of Energy under its Clean Coal Technology program to receive a matching grant of $92.3 million for the design, construction and operation of a 50 megawatt coal-fired power plant at Healy. The Clean Coal Technology program was created by the U.S. Congress in 1985 to provide matching financial grants to stimulate accelerated research and development of coal utilization and clean coal burning technologies.

The HCP project will utilize state-of-the-art design; will produce electricity at an estimated cost of $0.045 per kilowatt hour to satisfy increasing railbelt demand; will demonstrate innovative coal burning technologies; and will be designed to allow for future use of process heat for the drying of high-moisture Alaska coals. The combination of new combustion technology and low-sulfur Alaska coal is expected to result in HCP being the cleanest coal-burning plant in the world.

The estimated total cost of the project is $192 million. Under the Clean Coal Technology Program, the Department of Energy may fund up to 50 percent of the costs, and has assigned $92.3 million for the project. The balance of the project cost must be financed by the project's owner, the Alaska Industrial Development and Export Authority, (AIDEA).

In 1989, the Alaska Legislature made a reserve appropriation of $30 million from the Railbelt Energy Fund for HCP contingent upon selection of the project by the Department of Energy, the preparation of a draft power sales agreement, and the preparation of an acceptable financial plan by AIDEA. The commitment of these funds will reduce the amount of the project costs that must be financed through revenue bonds and, therefore, reduce the ultimate cost of power to Alaska railbelt consumers.

27 The Legislature should appropriate to AIDEA the $30 million reserved in the Railbelt energy fund for the Healy Cogeneration Project to secure the federal match, and the Governor should encourage such action.

ALASKA'S MINING INDUSTRY

AN OVERVIEW

INTRODUCTION

Hundreds of new permanent jobs were added to Alaska's workforce in 1989 as two world class mines, representing several hundred millions of dollars in new investment, went into production. Startup of the new Greens Creek Mine in Southeast Alaska and Red Dog Mine in the Northwest puts Alaska clearly on the way to re-establishing a pre-World War II reputation as a major world minerals province. Today, Red Dog is the world's largest zinc and lead mine and the second largest such deposit ever discovered. Greens Creek is the first new Alaska underground mine developed in half a century, and it is now the nation's largest silver producer. Red Dog and Greens Creek have captured most of the public attention, but there's been an encouraging upswing in mining activity all across Alaska. At Nome, the world's largest offshore bucket-line dredge has completed its third season working on offshore gold placer deposits. It is the nation's first large-scale offshore mining project. Onshore near Nome, gold dredging has been expanded. In Fairbanks, mining operators have restarted underground and surface mining of lode gold ore, as distinct from placer gold, the first such mining in years. In Juneau, several mines, that were once substantial gold producers, are in advanced stages of development study, that may lead to their reopening.

Today mining has the capability for more near-term expansion than any other Alaska resource industry. But to realize that potential, the growth of smaller and medium-sized mining projects should be encouraged to diversify the industry beyond a handful of larger mines. Without this secondary growth, Alaska could be, in a few years, a land of parks and a few major projects.

Alaska mining: A perspective of history

Why did mining cease to be a major industry in Alaska? From 1900 to the outbreak of World War II, Alaska was internationally famous for its large, highly efficient gold and copper mines. The Treadwell and AJ Mines in Juneau pioneered the technology of high-volume, lower-grade gold ore production, techniques that were later used in many other parts of the world. Much of downtown Juneau is built on a rock foundation of waste rock from mining operations. Interestingly, the sandy beaches, now popular recreation areas, at Douglas and Thane, near Juneau, were the fine tailings left from mining.

The Kennecott Mine in the Wrangell Mountains was one of the richest copper mines in the world; profits from Kennecott financed exploration and development of the large, open-pit copper mines of the U.S. Southwest. Large-scale gold dredging in Fairbanks and Nome established Alaska as one of the primary producers of placer gold in the world.

Mining provided the foundation of many of Alaska's present cities, including Fairbanks, Juneau, and Nome, as well as smaller communities scattered across the state. It also led to the creation of much of our present transportation infrastructure: The Richardson, Elliot, Steese, Taylor and other highways were all originally built to serve mining communities. The Alaska Railroad itself was authorized by Congress to reach Fairbanks, and by way of Nenana, communities along the navigable rivers of the Yukon and its tributaries. The railroad was possible because of substantial coalfields known in the Matanuska Valley and at Healy. But high post-war labor costs and low gold prices made the reopening of many of Alaska's larger gold mines uneconomic. The war had shifted Alaska's labor costs to a high level, with wages largely set by a well-paying construction industry. Alaska's smaller seasonal placer mines, most of them family operations, were able to continue, as well as, for a period of time, larger-scale dredging in the Nome and Fairbanks areas. But the first chapter of mining's history in Alaska had been concluded. Thanks now to improving prices and new technology, another chapter is opening.

Better markets; improved technology; the benefits of earlier public policy

What's propelling the renaissance of Alaska mining are higher metals and commodity prices on world markets and improved technology and innovative approaches to mining, which make previously uneconomic mining projects more viable. But today's successes in mining are also the result of much hard work, intense lobbying and exceptionally large and rich properties. Greens Creek and Red Dog, for example, were discovered in the early 1970s and have been 15 years in costly exploration, planning and environmental studies, and development. These discoveries resulted directly from federal and state policies that encouraged exploration on public lands. These projects, and the huge Quartz Hill molybdenum deposit, required special congressional action to prevent their inclusion into federal parks and wilderness areas. Today vast parts of Alaska are still unexplored, but most federal public lands are now closed to exploration. If policies today had been in effect 20 years ago, Greens Creek, Red Dog and Quartz Hill would never have been discovered, or if discovered, not developed.

This is unfortunate, because Alaska has tremendous potential for development of a variety of mineral commodities, including precious and base metals, coal, strategic and rare earth minerals, and industrial minerals.

Good potential, but politics creates pessimism

Many mining companies feel that from a geologic perspective, Alaska is the most attractive area of North America for major new discoveries. For example, many exploration firms have been pleasantly surprised at how quickly 'grass roots' or long-range exploration programs are converted to specific drill targets in mineralized areas, using only superficial exploration methods.

But there are those who are also pessimistic, mainly because of Alaska's political climate. Despite the geologic potential, there are many that doubt that very much of Alaska, other than private lands, will ultimately be available for exploration.

Even if discoveries are made on available lands, many in the industry are skeptical that Alaska's state government can effectively resolve internal inter-agency conflicts over permits. Such agency stalemates often result in the imposition of costly environmental stipulations.

The skeptics also doubt that political constituencies in Alaska who are unsupportive of mining will change their positions, despite the urgent need with oil revenues declining, to diversify the state's economy.

One bright spot, however, is the millions of acres of Alaska lands now privately owned by Alaska Native corporations. Exploration is proceeding on many of these lands with the active support of landowners who not only have a stake in the success of exploration, but who are equally concerned with the protection of wildlife and care of the land.

Thousands of new jobs, permanent tax base

Modern-day mining will be no on-again, off-again industry for Alaska. Mining has the promise of creating thousands of virtually permanent, year-around new jobs in many parts of the state. Long-term economic potential is difficult to gauge, but one estimate developed in 1982 by the Alaska Miners Association using a scenario of ten world-scale precious or base-metals mines and not including potential coal projects, forecast 6,000 new jobs, mostly year-around, $3 billion annually added to the state's economy in wages, goods and services, and $450 million yearly in new state and federal tax revenues.

More recently, Juneau's economic planners forecast some 900 direct new jobs and a $40 million annual payroll for that Southeast community, based on three projects in the immediate vicinity. Total direct and indirect new jobs would be 1,800. Mining will help stabilize Juneau's employment. It has already helped restore local confidence in the community's economic future.

Mining can be long-term

Mining can be stable and long-term. Many of the new jobs now being added are long-term, because of the size of ore reserves in the mines involved and the efficiencies of new techologies. Significantly, many of Alaska's new mines are large enough, and are using sophisticated new mining techniques, so that they have become low-cost producers able to ride out the inevitable swings in world minerals prices.

Previously, mines with high operating costs -- those in the Yukon Territory are an example -- would suffer temporary closures, and layoffs, when minerals prices dipped below fixed operating costs.

The Red Dog Mine in Northwest Alaska, for example, has at least 50 years of proven reserves. Exploration of adjacent known ore deposits may extend the operating life of this mine. At Nome, offshore gold dredging is seasonal but there are reserves sufficient for decades of operations, as is also the case with long-established onshore gold dredging. At Healy, where Alaska's only producing coal mine is located, there are reserves sufficient for 100 years at current producing rates.

Juneau's Greens Creek Mine has an expected mine life of ten years based on current reserves, but geologists are confident that new exploration in the existing Greens Creek mining claims will increase those reserves.

Other substantial new mining projects in advanced stages of exploration and development, such as the AJ and Kensington mines near Juneau, the new Fort Knox prospect near Fairbanks, and what could be a major gold lode discovery north of Nome, could operate for decades, once they get into production. The Quartz Hill molybdenum discovery near Ketchikan is one of the world's largest deposits of this important mineral. Once market conditions improve and the mine is developed, this mine could produce for 55 or more years, employing hundreds of Alaskans in the Ketchikan area.

Given support by Alaskans, mining will create stable new employment for many communities across the state. Mining can't replace oil in its contribution of revenue to the state treasury, but its direct contribution in taxes and royalties to state and local governments in Alaska will not be insignificant, nor will the indirect public revenues created by new jobs and businesses.

This potential may remain just that. Despite recent progress with many state policies affecting mining, problems do remain.

Progress on mining policy problems

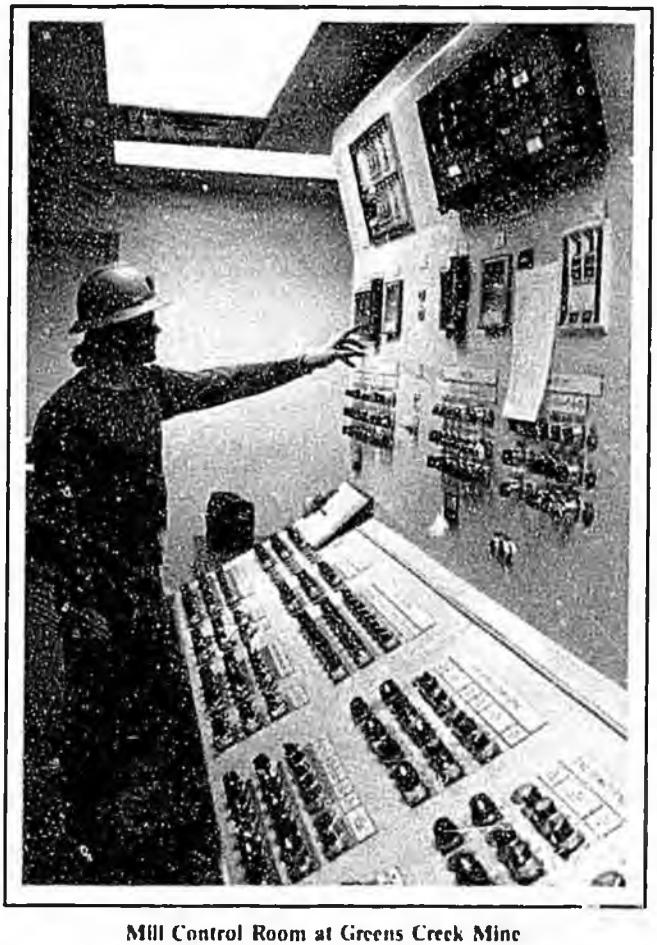
There has been significant progress in resolving Alaska public policy issues affecting mining over the last two or three years.

Resolution of '6i' litigation

The most important accomplishment was the state legislature's resolution of the complex '6i' litigation over mining claims on state lands, and the establishment of a legally-sound Alaska mineral leasing and royalty law.

New state offshore mineral leasing

Secondly, the State of Alaska has reactivated a long-dormant offshore mineral leasing program. The State Department of Natural Resources successfully held Alaska's first minerals lease sale in state waters offshore the Seward Peninsula, offering submerged lands with potential for offshore gold placer



Mill Control Room at Greens Creek Mine

discoveries. A second state offshore lease sale is also planned near Goodnews Bay, where there is potential for offshore placer deposits of platinum, a high-value strategic mineral.

Minerals Policy Act

There have been other accomplishments: The State of Alaska adopted a Minerals Policy Act in 1988, explicitly stating Alaska's support for mining development; the process of administrative closures of state lands to exploration was significantly slowed, although large amounts of state land remain closed by administrative order.

Innovative infrastructure financing

Finally, the benefits of innovative strategies in financing basic mining-related infrastructure, steps taken in 1985 with the Seward coal terminal and the Red Dog road and port, are now being realized. Alaska will enjoy a handsome return for a modest investment in both projects.

Problems remain:

Land restrictions

Yet problems remain: The new Alaska Minerals Policy Act, for example, will be meaningless without action by state officials to carry out its intent. Land closures still threaten large amounts of federal acreage, particularly in highly-mineralized Southeast Alaska.

Federal actions on tailings disposal, wetlands

Federal environmental agencies have adopted policies that will inhibit development of new mines. Examples of these are restrictions on marine disposal of tailings in Southeast Alaska, and new federal 'no net loss' wetlands policies, which threaten development of any lowland onshore discoveries, as well as much non-mining Alaska development, by requiring costly off-site mitigation.

Many in the industry feel the State of Alaska has not taken a sufficiently active position on many of these federal policies. The state's 'low-profile' on many federal issues may even have been interpreted by federal officials as implicit encouragement.

Geologists Mapping in Tok District

Recently, however, Governor Cowper has been active in opposing the restrictive new wetlands policy.

State land closures

Also on the state level, while there have been no large new closures of state lands, little has been done to review the status or to release large amounts of acreage that are closed. State lands should be closed only where clear and documented incompatible use is proven, and only when preceded by a mineral assessment. The Commissioner of Natural Resources, under AS 38.05.300, has authority to reclassify lands.

Multiple use interpretation

Many of those state lands are closed by administrative order through an interpretation of existing law, which prohibits any closure to multiple use of state land over 640 acres, unless authorized by the state legislature. Administrative closures are based on an interpretation of statute that land management is "mutiple use" as long as more than one use is permitted. For example, recreation and wildlife habitat can be designated as uses, and others, such as mineral exploration, can be excluded.

Many believe this is contrary to the intent of the original law. Legislation has been introduced to clarify the statute, (Senate Bill 35) in the 16th State Legislature. Multiple use should be interpreted to allow all land uses, rather than allocating or selectively denying uses. (see discussion section, commission recommendations, Pg. 2).

State reclamation requirements
Uncertainty also remains over new state land reclamation requirements that will be imposed on state lands. As one of the requirements of the '6i' mineral leasing legislation enacted by Alaska's legislature last year, the legislature required a new approach to mining reclamation on state lands.

The 1990 legislature may take up reclamation again this year. Alternatively, if the legislature does not act, state agencies will draft new regulations under existing laws. To be workable, a reclamation program must provide for site-specific flexibility based on 'performance' standards, which would allow an agency field officer and operator to work out the best method to achieve desired results, rather than a rigid 'design' standard that would specify specific measures, ignoring actual field conditions.

Any bonding requirement in a reclamation program should be carefully analyzed. It could have potentially disasterous consequences for small operators. The mining industry supports practical rehabilitation efforts, which can restore land to usable conditions, recognizing the impossibility of restoration to its pristine form.

Remote site labor requirements need flexibility
Another problem Alaskan operators face, with major new underground mines coming into operation, are state labor laws that limit time at the working face underground to eight hours a day. In remote settings, a flexible work schedule might suit workers and management better, with no safety compromise.

Flexible labor practices have been employed for years at remote sites in Canada. At the Lupin Mine, for example, workers have a two-week on, two-week off schedule working 12 hours a day. This schedule provides for continuous mining and milling, reduces commuting time, allows employees more time at home with their families, and has been proven to be a safe and efficient labor practice. (See commission recommendation on page 5.

Water quality regulations
For many years, the Alaskan placer mining industry has been subject to increasingly restrictive and in some cases unattainable regulations. In 1987, a joint industry/ADEC Water Quality Task Force on placer mining identified six areas as having the potential to increase regulatory flexibility while complying with the federal Clean Water Act and protecting downstream users. These included the use of mixing zones and startup variances, the reclassification of drainages, the restructuring of water uses, the revision of water quality criteria and state assumption of administration of the federal EPA NPDES permit program.

In September, 1988, ADEC promulgated new mixing zone regulations. Yet to date, there has been no policy developed for meaningful implementation of those regulations. Although the industry has made very substantial progress toward improving water quality, the lack of progress on the regulatory side means that although user conflicts have been substantially eliminated, and streams such as the Chatanika, Fortymile, Tolovana, Birch Creek and others have seen major improvement, the lack of meaningful progress by state agencies leaves these improved operations still exposed to unrealistic turbidity standards.

Complexity in state permit procedures
Many in the industry feel there is confusion and overlapping authority among state agencies that issue permits for development, and that this problem is getting worse instead of better, despite years of effort at 'regulatory reform.'

Alaska lacks a 'lead agency' with authority to steer permits through many state laws and regulations. The Office of Governmental Coordination, a part of the governor's office that is charged with coordinating permits, has little authority in actually resolving conflicts among state agencies over permit conditions. The result, when conflicts arise, is a stalemate in which the agencies proposing the most restrictive permit conditions usually prevail. Unfortunately, this process particularly affects smaller projects, which cannot support the costly burden of extensive, lengthy permitting procedures. Only large projects can afford the staff to cope with this complex process.

Environmental restrictions: New challenges
Finally, new technologies can lower costs in Alaska, new environmental requirements also impose higher costs and present new challenges. One example is in the project to reopen the AJ, where Echo Bay first proposed a $6 million marine tailings disposal plan for the mine. Federal agencies rejected this, with the alternative a costly $17 million onshore disposal plan that has now become controversial with local community groups.

Healthy growth in the industry

Despite continuing problems, mineral exploration and development has continued a healthy growth in 1989, a trend that began some two years ago following several years of severe slump. The industry's improvement can be attributed mainly to improving prices for precious and base metals on world markets, and to development of new mining technology that has lowered costs in Alaska.

Rebirth of 'hardrock' mining
One encouraging trend is the opening or reopening of lode gold mining operations, either by surface or underground methods. Underground 'hardrock' mines were once the backbone of the state's mining industry, but since the closure of underground mines during World War II, Alaska's mining industry has consisted essentially of small and medium-sized placer gold operations, many of them family-owned and operated.

These new hardrock mines are important for Alaska in a number of ways. Underground or surface lode mines can operate year-around, whereas most placer mines are seasonal because they require water to wash silt and clay to extract gold. But today, even some placer operations are being adapted to working year-around. Innovations at the Valdez Creek Mine on the Denali Highway, for example, allowed this large project to operate through the winter. It closed temporarily in late 1989, due to low gold prices and high costs, but may reopen in mid-1990.

Year-around operations
Most underground mines, for example Greens Creek, can operate year-around, since protected from the weather.

Large open-pit mines, like Red Dog, can also operate year-around, limited only by the ability of people and machinery to operate during extreme weather conditions. Also, underground and larger open-pit hardrock mines usually, but not always, have a longer economic life than most placer mines. Many of Alaska's small and medium-sized placer mines working now are relatively high grade deposits with limited reserves. But there are also exceptions: Larger placer operations, such as those both offshore and onshore at Nome, have many years of reserves. Also, there are substantial reserves left at the Valdez Creek Mine.

Mining's renaissance based on new technologies

New mining technologies, improving markets and economies of scale are propelling the rebirth of mining in Alaska. Continued economic growth and prosperity in the world, particularly among developing nations, auger well in the longer-term for minerals markets. Prices will always be uncertain, subject to cycles in demand and supply. But it is the continued development of new technology that has the most significance, since it can make Alaska projects more efficient and help insulate them from cyclical downturns in prices.

Some examples:

- Near Fairbanks, new advances in adapting heap leaching to northern climates may make it viable to mine ore deposits that were uneconomic by conventional means. At Ester Dome, Citigold has pioneered the use of heap leaching in a northern climate. Used widely in the continental U.S., this process involves treating stacked, crushed ore reserves with a chemical process to extract gold.

- New advances in development of metallurgical refining techniques under development at the University of Alaska's Mineral Industry Research Laboratory, may allow development of customized processes to extract ore at the mine site. These could reduce the need for the tremendous capital investment in transportation facilities to ship concentrates, and would improve the economics of many remote mineral deposits.

As it is now, a deposit must be either near tidewater or an existing road or rail link, or be a world-class deposit, like Red Dog, to support costly new transportation infrastructure.

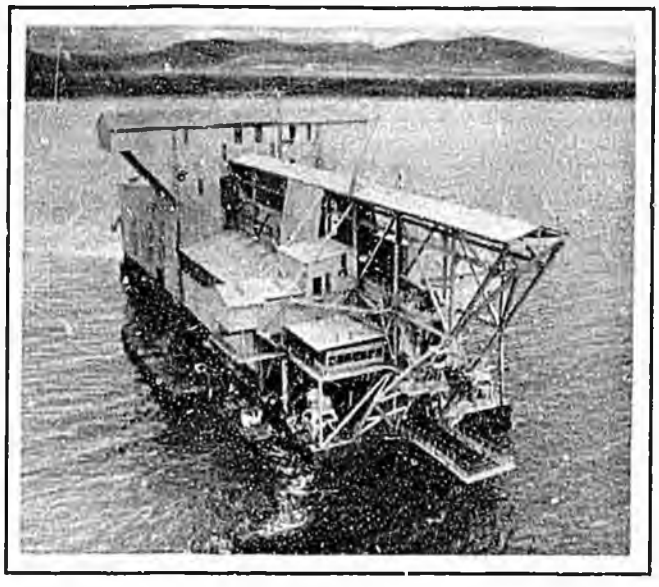
- In another development, experimental work in the underground mining of deep placer gold deposits underway at the university's MIRL and in Canada may find applications in Alaska.

  Many underground placer gold mines existed in Fairbanks in the earlier years, until rising costs made them uneconomic. Even today, most placer gold is concentrated deep, within a few feet of bedrock. The amount of overburden to be removed adversely affects the economics of mining this gold. If mining of these deep Alaska placers can again be economic, large quantities of gold-bearing frozen gravels could be produced.

- There are other advances: New geochemical, geophysical and remote sensing techniques enhance the industry's ability to detect mineralization. New geochemical prospecting methods, for example, led to the discoveries at Greens Creek and Quartz Hill in Southeast Alaska. Geochemical techniques are used where there are outcrops of ore, such as Greens Creek, Quartz Hill and Red Dog, but new geophysical techniques will help discover deeper deposits hidden by overburden. In coal, new processes for removing moisture from Alaska's subbituminous coals will sharply upgrade the quality and value of these coals, significantly widening export market opportunities. The University of Alaska is also active in this research.

- New techniques in drilling, core sampling and computer-aided evaluation of ore bodies have led to the discovery of large new reserves in several historic Alaskan underground mines.

Exploration and development at the old Chichagof and Hirst/Chichagof Mines near Sitka, the Golden Zone Mine near Cantwell and the Big Hurrah Mine near Nome, offer examples of medium-sized older properties where new drilling, sampling and computer-modelling techniques have allowed modern-day explorers to find richer veins and ore bodies missed by the early-day miners.



WestGold's BIMA Offshore Nome

AJ Mine: New methods

The most dramatic example of new technology applied to the reopening of a historic mine is that being developed by Echo Bay Mines for the A-J Mine in Juneau, once the world's largest and most sophisticated underground gold mine.

Echo Bay has developed a mining plan that will produce twice as much ore per day as in its earlier operation, but with a quarter of the workforce.

WestGold: Technical innovation

WestGold's offshore project at Nome offers yet another illustration of how new technology has made a long-known mineral resource economically viable. The presence of placer gold in the prehistoric beach lines in shallow waters off Nome has long been known. Miners have been interested in finding ways to produce it since 1900. Several attempts to dredge offshore deposits were made over the years, with small to medium-sized vessels and even shore-based equipment. Each attempt was defeated. It wasn't until Inspiration Mines (later WestGold) became active in the area that the resources of a larger mining company were committed to solving these technological challenges. In 1986, Inspiration purchased and con-

verted the Bima, an Indonesian tin dredge and the world's largest active bucketline mining vessel. The Bima required several innovative adapations, not only to mine gold in shallow waters but also to the northern climate.

WestGold also achieved several other technological firsts, including application of state-of-the geophysics, sampling and evaluation methods of offshore placer deposits.

Innovations in small-scale placer mining

Alaska's small placer miners have also gone through a period of technological innovation. Under the pressure of new federal and state water quality regulations, miners were challenged to upgrade a technology that has, in its fundamentals, changed little since the gold rush. New systems and equipment were developed to reduce the amount of water used in placer gold recovery, and also to increase the efficiency of gold recovery.

One state government program that assisted small miners was a modest technology grant program related to improved gold recovery and more efficient water processing systems. Several innovations in equipment and mining procedures were developed with these grants.

Mining today: How projects benefit Alaska's economy

Southeast Alaska: Greens Creek, AJ Mine, Kensington, Jualin, Quartz Hill

New mining projects in Southeast have given a powerful boost to the confidence of local people in the regional economy, particularly in Juneau. With Greens Creek now producing, local government planners in Juneau foresee, if reopening of the AJ and the Kensington Mines move ahead, a permanent new mining workforce of 900, creating a total of 1,800 jobs, including indirect and service employment, and a direct and indirect new payroll of $60 million.

Greens Creek:

The Greens Creek Mine on the northern end of Admiralty Island 18 miles from Juneau, started production in February, 1989. Its 210 employees are housed in Juneau, commuting daily to the mine, bringing some $10 million annually in direct new payroll to Juneau's economy. The total employment effect of Green Creek is about 400 new jobs, including direct as well as the support and service jobs created indirectly. Based on current proven reserves, Greens Creek has an anticipated mine life of 10 years, but company geologists are confident that further exploration will extend those reserves.

AJ Mine

If the AJ is reopened, Echo Bay would have a permanent workforce of 450 with another 540 jobs being eventually created in Juneau's support and services sectors, jobs in stores, banks, transportation companies, schools, local and state government. The total contribution will be 990 new jobs. Echo Bay has spent $9 million in rehabilitating old tunnels and passageways in the mine, drilling core samples, mining bulk samples and performing other studies.

Development of the mine will require a $200 million capital investment, including a new access tunnel. In an innovative development plan, most milling equipment would be constructed underground, including ore crushing and grinding, flotation and gravity-separation facilities.

New jobs in the AJ Mine would produce a payroll impact of $21 million annually, and a total contribution of $33.5 million, including both direct as well as indirect support and service employment. AJ Mine operations will also generate substantial new revenue to the City and Borough of Juneau, in the form of both taxes and royalties, since the mine is located on land owned by the local government. The City and Borough of Juneau will earn $4.3 million in new revenue during the year the mine opens, increasing to $6.2 million annually by the fifth year of operations.

Kensington, Jualin Mines

The Kensington Mine, another historic old property near Berner's Bay some 45 miles north of Juneau, is also in an advanced state of exploration. Echo Bay is also involved in Kensington, along with a partner, Coeur D'Alene Mines. This deposit, mined until 1916, lay idle until 1980, when exploration resumed.

If development goes ahead, Kensington would require some $150 million in new capital investment. The mine would produce some 4,000 tons of ore daily and would employ 340 workers. Although Kensington is too far for daily commuting by workers, unlike Greens Creek and AJ, the project would still bring new payroll into the Juneau area, and some $2 million in new tax revenues to the City and Borough of Juneau.

Another new project at the Jualin Mine, by International Curator Resources and Placer Dome, could sustain a production rate of 500 tons of ore daily if development proceeds, employing between 50 and 90.

Mining now offers the promise of growing private-sector employment in Juneau, a healthy diversification of the community's employment base away from dependence on state and federal employment.

Quartz Hill: Major world molybdenum discovery

Development of the Quartz Hill molybdenum deposit 45 miles east of Ketchikan, one of the largest of its kind in the world, awaits improvement of molybdenum prices in world markets. In the meantime, its developer, U.S. Borax, has continued with permit activity. The Final Environmental Impact Statement on the project has been issued, although an appeal of the FEIS is underway.

The deposit was discovered by 1974 by U.S. Borax geologists in an area east of Ketchikan that was, in 1980, included in the Misty Fjords National Monument. A 152,610-acre exclusion to the wilderness designation of Misty Fjords was included in the Alaska National Interest Lands Conservation Act, which will allow Quartz Hill to be developed.

Quartz Hill has an estimated 1.5 billion tons of ore reserves averaging 0.135% molybdenum, which amounts to about 11% of the world's known supply of this mineral. The deposit is large enough to allow large-scale, low cost open-pit mining, with reserves sufficient for 55 years. U.S. Borax has invested over $100 million over eight years of planning and studies in the project, about 25% of which has been spent on environmental studies and other work related to preparation of the federal Environmental Impact Statement.

Quartz Hill would require between 800 and 1,000 workers when in operation. Most would be housed in nearby Ketchikan, commuting to the mine.

Western Alaska: Red Dog

The Red Dog Mine in northwest Alaska is the second largest zinc deposit ever discovered and is now the world's largest producing zinc mine. On average, two hundred workers will be employed year-around, most of them residents of northwest Alaska.

Red Dog will inject about $100 millon yearly into the Alaska economy. Some $20 million will be paid in wages, $15 million spent in services and supplies, $20 million in transportation services, $15 million in state and local government taxes, and $30 million in royalties to the landowner, NANA Regional Corporation, 70% of which maybe paid out to other Native regional corporations under the revenue-sharing requirements of the Alaska Native Claims Settlement Act.

Placer Operation at Livengood

A more indirect economic benefit is the effect of the mine in reducing unemployment and the need for state-financed assistance programs in northwest Alaska, previously an economically depressed region. Reduced human services needs will lessen pressure on a state budget already hard pressed by declines in state oil revenues. Construction of the mine, a 60-mile access road and port facility on the Chukchi Sea was completed in November, 1989. Mine development costs had originally been estimated at $250

million by its developer, Cominco Alaska, Inc., but actually will amount to some $235 million, a result of good project management.

While it was being built, construction manpower at the mine, port and road projects peaked at almost a thousand workers. The project, involving both union and nonunion contractors, was one of the few bright spots for Alaska's depressed construction industry during 1988 and 1989.

Red Dog has been determined to contain proven reserves of 85 million tons of ore containing 17% zinc, 5% lead, with approximately 2.4 ounces of silver per ton, sufficient for 50 years of production at an annual rate of about two million tons. There are probable additional reserves, unexplored at this point, near the main body of Red Dog's proven resource base. Based on this second ore body, as well as other known zinc/lead deposits in the area, it's quite likely that mining will be underway at Red Dog far longer than 50 years.

Seward Peninsula:
WestGold, Alaska Gold and Placer/Aspen

Nome's economy has been strengthened and diversified by a number of substantial new mining projects in the area. While Alaska Gold Co. has operated seasonally for many years at Nome, and recently expanded its operations, the new WestGold offshore mining project has added a substantial boost to local activity.

There are also new projects that have major potential: Placer Dome and Aspen Exploration are involved in exploration drilling on 17,500 acres in the Rock Creek area about 10 miles north of Nome, where an important gold discovery has been made. This could be the upland source for many of Nome's placer gold deposits, and it could result in major new year-round mining developments.

Also, the state's recent leasing of 97,000 acres of submerged lands near Nome, and a planned federal offshore minerals lease sale, could lead to more discoveries of offshore placer gold and new dredging operations of the WestGold type.

There are other smaller and medium-sized projects in different stages of exploration and development. An example is the Big Hurrah Mine 40 miles east of Nome, which could be soon reopened.

WestGold's offshore mining

WestGold seasonally employs about 100, on average, with more than half of these jobs filled by Seward Peninsula residents, and over 80% hired within the state. The operation contributes about $600,000 a month to the economy of the local region. Some $8.3 million yearly is contributed to the state's economy, $4.6 million of this in wages and salaries, and $3.7 million in various supplies, services, rent and miscelleous expenses. Most of this is spent in the Nome area.

WestGold has now had three successful seasons working with the Bima, producing over 35,000 ounces of fine gold each year. In 1989, the Bima was joined by a smaller dredge vessel in an experimental program to work near-shore waters too shallow for the large Bima. The results of this are still being evaluated. But even with the larger dredge, WestGold has reserves sufficient for many years of operations.

New offshore exploration

Potential economic benefits of expanded offshore placer gold exploration and production, both in the state's recently-issued minerals leases and the pending federal sale area, are hard to assess, but studies conducted as part of the state's impact assessment estimated near-term employment impacts from expanded activity at up to 124 people.

Based on the WestGold experience, this could add some $8 million to the local economy, about half in payroll and half spent for goods and services. Studies have shown placer mining to have an indirect 'multiplier' effect of 1.25, which would result in as additional 155 indirect service and support jobs.

The longer-term potential, based on the assumption of three dredge vessels in operation, could see as many as 700 direct new jobs added in the Nome area. The maximum potential, considering cumulative increased demand for transportation, housing and public services, could see an overall 13% increase in Nome's population, according the state's assessment

of the impact of increasing activity.

Alaska Range: The Valdez Creek Mine

The Valdez Creek placer gold mine, off the Denali Highway 215 miles north of Anchorage and 60 miles east of Cantwell, is the largest open-pit placer gold mine in North America. Valdez Creek achieved a first in becoming the first large-scale placer gold mine to work year-around, with two shifts of workers on a 24-hour operation. Mining was temporarily suspended, as of September 1989, but may resume in 1990. Discovered first in 1903 and mined intermittantly since, present-day large-scale mining started in 1984 when Valdez Creek Mining Co., a partnership of three Canadian firms, took over the property. In all of its earlier phases of production, some 35,000 ounces of gold were produced, but from 1984 through September 1989, Valdez Creek Mining produced 179,417 ounces.

Stripping and mining is carried out at Valdez Creek by truck and shovel methods. A number of technical challenges presented themselves, not the least a very high stripping-ratio, or the amount of overburden that must be removed to get at the gold-bearing ore, and a high water content of both the overburden and the ore, which requires the drilling of costly dewatering wells to drain the gravels ahead of the mining operation. Much of this overburden is frozen and requires blasting to loosen before its removal. Once removed, gold ore is washed and separated in a recovery plant.

One problem the company faces now is that its gold-bearing ore reserves extend under the present channel of Valdez Creek. If mining is to proceed, a $5 million project will be [illegible] ert the creek around the mining project.

Valdez Creek made considerable progress in improving efficiencies at its Denali project, but it still remains a high cost mine, mainly due to the high stripping ratio. In its last twelve months of operations, Valdez Creek paid $8.8 million in wages to some 170 employees and spent about $15 million for services, supplies and materials, much of this purchased in the local Matanuska-Susitna Borough area.

Fairbanks: Tri-Con, Citigold, Fairbanks Gold

Fairbanks, a historic center of gold production, has seen a burst of new activity in recent years. If recently discovered large reserves of low-grade gold ore can be mined economically, Fairbanks could see a significant revival of the mining industry.

In the last two years, the first lode gold mines to operate in many years have been reactivated at Ester Dome, west of Fairbanks. Tri-Con Mining, operator for Silverado Mines, successfully reopened the Grant Mine and other prospects.

Also in the same area, Citigold began surface lode mining operations in the Ryan Lode, a mineralized deposit known for many years.

Both Tri-Con and Citigold are medium-sized seasonal operations employing a limited number of people. But both projects involve modern mining methods to work deposits previously considered uneconomic.

A recent discovery of a large low-grade gold reserve 15 miles northeast of Fairbanks, known as the Fort Knox prospect, may develop into a major new mine that could operate year-around, with potential for employing some 200.

Operating Drag Line at Usibelli Coal Mine

Alaska's Smaller Placer Miners: Troubled times, but some progress

Newly-enforced federal and state water quality regulations, as well as the closure of national park lands to mining, have taken a major toll among Alaska's many small and medium-sized gold placer miners.

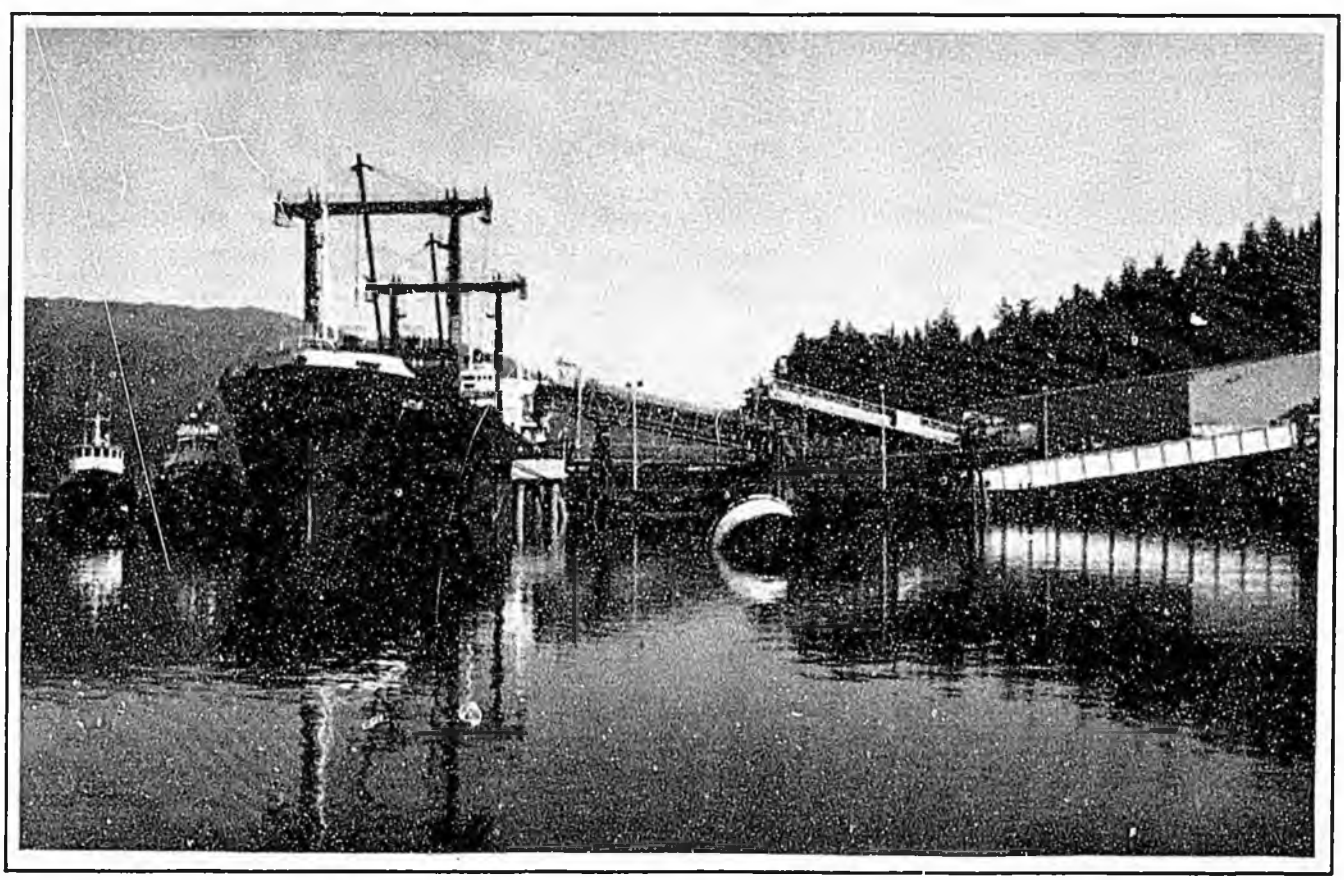
Most placer mines are family operations working seasonally, typically with six to 10 people involved in an operation. Many are economically marginal, and are essentially a way of life for many mining families, allowing them to make an acceptable living in rural parts of Alaska.

Small placer miners have been able to survive because mining these deposits required simpler, less costly technology than is involved in more capital intensive mining of lode, or hardrock, deposits.

Placer gold results from natural erosion of hard rock vein deposits. The gold washes downstream, mixed in prehistoric gravels in stream beds, rivers or other areas that once held substantial flows of water.

Unlike hardrock gold mining, where the metal is trapped in veins in the rock and requires crushing and processing for its removal, placer gold exists in a free state, and can be recovered using fairly simple technology, such as pumps, screens, conveyors, earthmoving equipment and well-designed sluice boxes.

The numbers of small placer mines have flucuated over the years, but a sharp increase in gold prices in the 1970s saw a rapid expansion of activity. Unfortunately, increasing activity also brought complaints from communities, environmental and recreation groups, prompting federal and state agencies to begin enforcing water quality regulations.



Greens Creek Concentrates Being Loaded for Shipment at Hawk Inlet

Complaints about poor mining practices put federal and state agencies under pressure to enforce requirements of the federal Clean Water Act, which had been adopted by Congress in 1972.

Facing these stiff new environmental requirements, as well as the closure of National Park units to mining, the number of placer miners dropped sharply, to around 200 in 1988, or about half the number working two years previously.

The operations that remain are those that are fortunate enough to have site-specific conditions and operating margins sufficient to enable them to absorb the costs of new mining techniques. However, the good faith effort put out by these operators to use the best technology available is not good enough to attain unreasonable turbidity standards. Although the federal Environmental Protection Agency reported that almost all of the 85 placer mines surveyed in 1988 met federal standards, few of these same operations met the state turbidity standard. Thus, even though the water quality of impacted streams has been greatly improved and user conflicts substantially eliminated, many operators are still not legal and must rely on the discretionary enforcement 'grace' of the regulating agencies.

Also, placer miners inside National Park units remain shut down. Although the Park Service has now almost completed the necessary Environmental Impact Statement on mining on park lands, the prior lack of which stimulated litigation from environmental groups, there are new procedural requirements which make it unlikely that very many of the mines formerly operating will be able to resume production.

Small mines make substantial contribution

Even at reduced levels of activity, small and medium-sized placer mines make a substantial contribution to Alaska's economy. The most recent economic assessment of the contribution of small placer mines was in 1985, a year in which there were 410 active placer mines.

That year some 2,226 people were involved in the industry on at least a part-time basis, invelving about 10,000 person-months of employment. With indirect effects added, total employment increases to 20,136 person-months, or the equivilent of 1,678 year-around jobs.

Placer mining is an economic mainstay in some small rural communities, such as McGrath, Manley, Central, Chicken, Ruby and Nome. It also forms a significant base for rural air taxi operators and fuel distributors, and for heavy equipment dealers and other industrial supply firms in Fairbanks and Anchorage.

In 1985, the placer mining industry had $63.4 million in direct statewide expenditures, which included some $33 million in direct wages and salaries, combined with wages paid to an estimated 841 people working in industries supporting placer mining. Of $75 million in total 1985 expenditures, $63.4 million were made within Alaska, about 36% of these in the Fairbanks area, where 31% of employees in the industry also reside.

Significantly, 34% of the industry's workforce comes from smaller rural Alaska communities, and 18% of total expenditues are made in small communities. About 15% of expenditures and 19% of the workforce comes from out-of-state, mostly Washington state.

Small miners face an uncertain future

Many in the mining community are pessimistic about the future of small family placer gold mines in Alaska, mainly because smaller mines have limited financial margins to absorb the costs of new mining methods, to comply with water quality or reclamation regulations, and for the legal costs needed to maintain mining rights

On the brighter side, the unregulated mining practices of the past are now gone. Field experience has shown that placer mining and clean water can coexist. Whether or not there will continue to be a placer mining industry in Alaska depends on whether environmental issues like water quality requirements and land reclamation are implemented in a reasonable manner.

Coal: Alaska the 'Saudi Arabia' of coal?

Alaska has an estimated 5.5 trillion tons of coal, over two thirds of the nation's total coal resource and about one-sixth of the world's resource. Four trillion tons of this is on Alaska's North Slope, where its development may await better prices or breakthroughs in new technology. A small pilot project to develop coal for regional use in Northwest Alaska, sponsored by Arctic Slope Regional Corporation and the North Slope Borough, is underway on Alaska's northwest Chukchi Sea coast.

Interior, Southcentral Alaska

But there are impressive coal resources, some 160 billion tons in estimated reserves, even near tidewater and established transportation facilities in Southcentral and Interior Alaska.

Much of this, particularly in the large Beluga coalfields across Cook Inlet from Anchorage, must await improvements in Pacific coal markets, but important progress is been made by Usibelli Coal Mines, the South Korea shipping company Sun Eel Alaska, and more recently by Idemitsu Alaska, in establishing Alaska as a coal supplier to fast-growing Pacific Rim markets.

Alaska's coal has an advantage in its extremely low sulfur content, much of which is below 0.2%, with the latest three-year average of coals produced by Usibelli Mines at 0.17%. But it also has major disadvantages in its high moisture content and its classification as sub-bituminous coal, reflecting a relatively low heating value.

Korean export contract in fifth year

Despite the disadvantages, Usibelli and Sun Eel, working together, have done well with initiatives to export coal. Despite sharp swings in currency values, the two companies have continued in a coal export contract with Korea Electric Power Co. (KEPCO) that began in 1986.

Since the KEPCO contract was first signed, the appreciation of the dollar against international currencies had has the effect of making Alaska coal more expensive in Pacific rim markets, much more so, in fact, than competing coals from Australia, British Columbia and even South Africa. Despite this, the Korean utility, KEPCO, has stuck with its Alaska contract in annual renewals. In 1988 KEPCO took almost its entire contract entitlement of 800,000 metric tons.

Usibelli and Suneel's export contract has resulted in an estimated $119 million in new money brought into the Alaska economy in the three years since it began, a substantial benefit for the relatively modest $6 million state investment in harbor dredging in Seward and construction of a new dock facility.

This includes new capital investments by Sun Eel at the Seward port, as well as local wages, salaries, goods and services purchased in Seward, new employment and tariffs paid to the Alaska Railroad, coal purchases from Usibelli Mines, and new coal royalties and taxes paid to the State of Alaska.

Coal shipments have also amounted to 30-40% of the Alaska Railroad's freight revenues, and have effectively made the difference between the railroad making a profit in recent years, despite an economic downturn in the Southcentral and Interior Alaska economies.

Improving Alaska's competitiveness in coal

Two things could improve Alaska's competitiveness in Pacific coal markets in the short-term. First, more coal being exported would lower transportation unit costs within Alaska. These now work to Alaska's disadvantage because the relatively small amount of coal now being exported results in high costs for the Alaska Railroad and at the Seward coal-loading terminal, which is now being used at only one-third its capacity. Startup of a proposed new coal mine at Wishbone Hill north of Palmer would help improve transportation economies, particularly at the Seward terminal. In fact, it would more than double Alaska's coal exports.

Secondly, the export value of Alaska's subbituminous coal could be sharply improved if its high moisture content could be reduced. Currently, the 25% moisture content of Alaska coal means, in effect,

that one fourth of the volume of coal shipped is actually water.

Reducing this through some technological process, such as a coal-drying technique Usibelli has proposed, would remove much of this water and upgrade this sub-bituminous coal to a higher quality, near-bituminous standard. This will substantially increase the value of Alaska's coal and widen its market potential in the Pacific.

New technology moisture-removal, power generation projects

Usibelli has an initiative underway with the Alaska Industrial Development and Export Authority to attract federal research funds in building a new technology, fluidized-bed power plant that could provide power to local electric utilities and burn waste coal not now utilitized. It would also generate waste heat to an adjacent coal-drying facility that would reduce the high moisture content of sub-bituminous coal destined for export markets. These projects could allow Usibelli to almost double its current 1.5 million tons/year production rate and to double its present workforce, creating about 150 new jobs.

Wishbone Hill could double Alaska's coal exports

The Wishbone Hill project 10 miles north of Palmer will also substantially boost Alaska's presence in Pacific coal markets if it moves ahead. Permit applications have now been filed for the project by Idemitsu Alaska, a subsidiary of the major Japanese energy company, Idemistu Kosan. While Wishbone Hill would be a small mine by world standards, its significance to Alaska is that it would produce a higher quality bituminous coal, and its one million-ton annual production rate would more than double Alaska's coal exports. This will improve transportation economies of scale for both the Alaska Railroad and the Seward coal terminal.

Most significantly, Wishbone Hill is being developed by a major Japanese company and represents the first entry by Alaska into Japan's coal market.

Beluga: Permitting complete, waiting on markets

Work is also continuing on two other projects proposed in the Beluga coal field near Anchorage, as well as longer-range continuing exploration in the Bering River coalfield near the Gulf of Alaska coast east of Cordova.

Diamond Alaska Coal Co. is continuing marketing efforts for its proposed ten million ton/year mine at Beluga. This $200 million project will require a substantial 'front-end' capital investment, but once operating, would employ some 800 workers, most living in nearby Anchorage and Kenai.

Nearby, Placer Dome is continuing work on what could begin as a smaller-scale project. Placer has the advantage of an existing dock facility and road, which will reduces its initial 'front-end' capital cost. The company has been actively working on marketing, and this smaller project could actually become the first Beluga field mine to be developed, paving the way, as markets develop, for later development of the larger Diamond Alaska project.

Bering River: High quality coal

Chugach Alaska Corp., with a major landholding position in the Bering River coal field, has also planned a 500,000-1 million ton/year mine that would see bituminous coal trucked 27 miles to a port site at Katalla. The project is awaiting improvements in market conditions. Chugach formed a joint-venture with South Korean firms, and is proceeding with engineering and marketing studies.

Arctic Slope: Test project underway

A small-scale pilot project for a coal mine near Cape Beaufort, on the Chukchi Sea coast in Northwest Alaska, could supply coal to communities in the region, including fuel for power generation in Nome and Kotzebue.

Since 1984, Arctic Slope Regional Corp. and the North Slope Borough have been working on the project, with assistance from the State of Alaska. A first phase now planned could begin production of about 30,000 tons/year, expanding to a 50,000 ton/year

phase two. The coal is of higher bituminous quality.

Although North Slope coal has been known since 1826, and small coal mines for local use existed in early years, this would be the first commercial mining of the North Slope's vast coal reserves, an important feasibility demonstration for potential buyers in the Far East, who are interested in the North Slope for long-term energy needs.

The North Slope has vast, good-quality coal beds extending for hundreds of miles along the northern flanks of the Brooks Range.

Red Dog : Case study of government, community, industry cooperation

The Red Dog Mine in Northwest Alaska offers a case study of cooperative work between local residents, in this case shareholders of the NANA Regional Corporation, government agencies and the mining industry local residents, in virtually every phase of exploration, discovery and development of one of the world's largest base metals mines. Red Dog might have never been discovered, or once discovered, not developed, were it not for sheer luck, the assistance of federal and state agencies, participation by NANA, timely action by Congress and Alaska's legislature, and public land policies that at the time encouraged mining.

History of the project

Since the 1950s and 1960s, local residents reported reddish stains on Red Dog Creek, 90 miles north of Kotzebue, to the U.S. Geological Survey. U.S.G.S. geologists investigated the area and issued an open file report in 1970.

The lands around Red Dog were withdrawn from entry as a part of the 1971 Native claims act, but the report lay open to the public until 1975, when the U.S. Bureau of Mines, doing a resource inventory on lands proposed for inclusion in proposed new parks and refuges, issued a press release on the Red Dog mineralized area. Cominco and other companies became interested and sent teams of geologists to the area.

Red Dog might well have wound up in one of the closed national parks or refuges had not the Bureau of Mines been allowed to do its assessment, which led to the reclassification of Red Dog's land status, opening it to mineral exploration and ultimately selection by the NANA Regional Corp. as part of its Native land claims entitlement.

However, Red Dog was still blocked from access by a road link to the sea, which would have to cross the closed Cape (Krusenstern) National Monument. Fortunately, Nana was able to get congressional permission for a special right-of-way corridor across the monument for the Red Dog road.

That Red Dog was discovered almost accidentally makes the point that other major mineral deposits lay undiscovered in the millions of acres of Alaska given only a very preliminary resource assessments before being included in parks, refuges and other conservation units. Geologists suspect that many base metals deposits similar to Red Dog exist in the highly-mineralized region. Had a more thorough exploration program been permitted, many more might have been discovered.

Red Dog also illustrates the critical role of the federal government's resource agencies, the U.S. Geological Survey and the U.S. Bureau of Mines in Alaska minerals exploration. Without them, and particularly the resource assessment work of the U.S. Bureau of Mines, Red Dog would have been included in a federal wilderness area closed to development.

Innovative state infrastructure financing

Red Dog also offers an example of successful financial collaboration between the State of Alaska and a private company, Cominco, in project development that will help open an entire mineral region to development. In 1985, the Alaska legislature authorized the Alaska Industrial Development and Export Authority to create the DeLong Mountains Transportation System, a $150 million port and road facility that, while initially serving Red Dog, could facilitate the development of other projects in the area.

The Western Brooks Range many hold several such deposits like Red Dog. Some have already been identified in the National Petroleum Reserve - Alaska, in areas near Red Dog. Construction of a road and port, eventually to be paid for by the Red Dog Mine, is a critical piece of infrastructure that will help make development of those deposits economic. The State of Alaska will not only receive a handsome return on its limited investment, but an important public policy goal in providing public infrastructure for new development was accomplished.

Market timing: Red Dog may win the gamble

Red Dog also offers an example of unique problems faced by mineral developers in Alaska, even with a mine that is the world's largest for its particular mineral. Red Dog is entering its production phase when the price of zinc is at a high level, 85 cents/lb. as this is written. But in 1985, at the time decisions to proceed with the project were made, zinc prices were much lower. around 32 cents/lb. At those prices, Red Dog was not economically viable as a stand-alone project, also paying for the construction of its own transportation system.

Cominco was, of course, optimistic about the future. An upward swing in zinc and lead prices had been predicted by the company's forecasters. But it was a bold decision for Cominco's board to proceed with a project requiring several hundred million dollars in capital investment based on forecasts of market conditions years in the future. Also, Cominco, like many other major mining companies at the time, had suffered severe losses in depressed prices and was not in the best of financial conditions. Had the State of Alaska not stepped in to help finance the port and road project, Cominco would very likely not have been able to proceed with the project.

Things are better, but not what they could be

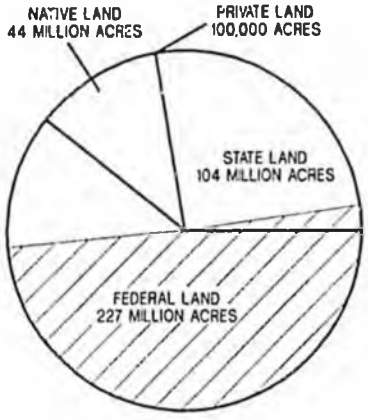
Things are better for Alaska mining, but the industry still pales by comparison with the mature, vigorous mining industries of British Columbia and Yukon Territory, Alaska's neighbors who share similar geology. In theory, there is no reason why the success of mining in British Columbia and Yukon couldn't be duplicated in Alaska.

Mining could easily be once again a major foundation to Alaska's economy, perhaps not the dominant industry, but very significant. But for this to happen, exploration must be allowed to proceed and public policies must be adopted to encourage mining as a healthy diversification of an economy grown too dependent on the spending of short-term public petroleum revenues.

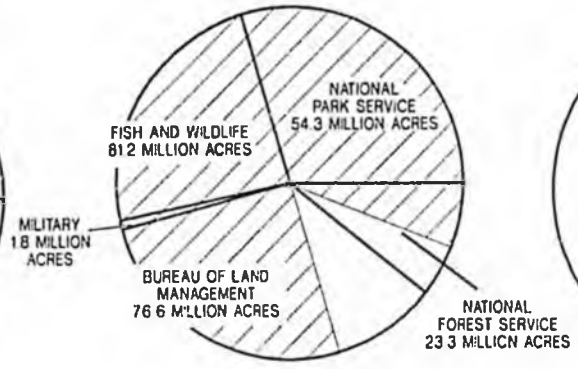
Recommendations of the Alaska Minerals Commission, directed toward action by the governor and the state legislature on state and federal issues, could help insure a strong and dynamic Alaska mining industry, benefiting the state and nation as a whole.

LAND AVAILABILITY

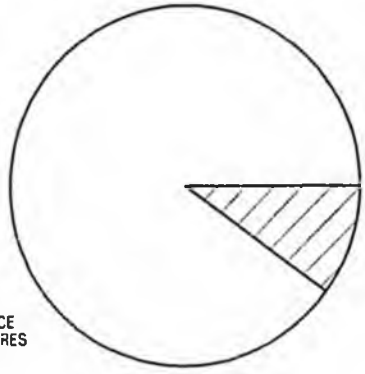
ALL LAND
375 MILLION ACRES



FEDERAL LANDS
227 MILLION ACRES



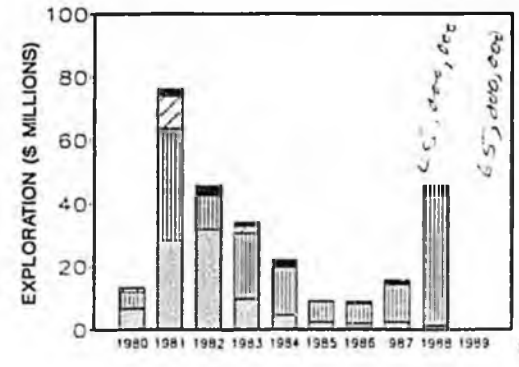
STATE LANDS
104 MILLION ACRES

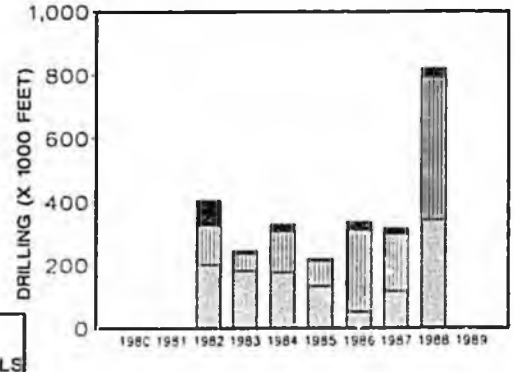


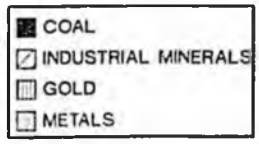
OPEN TO MINERAL ENTRY

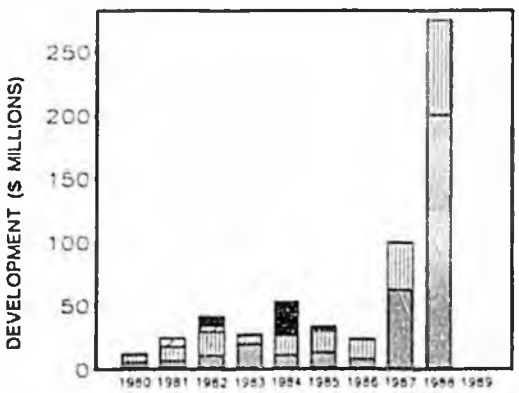
CLOSED OR RESTRICTED TO MINERAL ENTRY

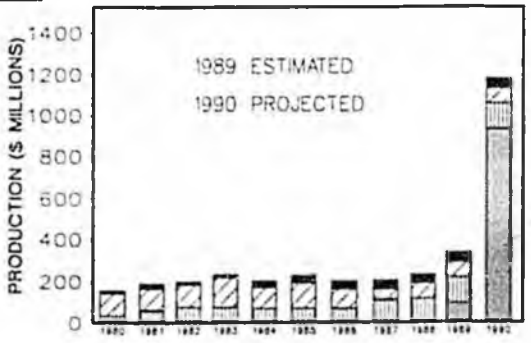
MINERAL INDUSTRY TRENDS











APPENDICES

A. Alaska Minerals Commission Statement of Purpose

B. Statute Authorizing Commission

C. Minerals Policy Act

D. Current Pending Legislation Referenced in This Report

1. SB 34
2. SB 35
3. SB 181 (identical to HB 159)

RDC - 70 million acres wetlands
30,000 acres developed

APPENDIX A

ALASKA MINERALS COMMISSION
STATEMENT OF PURPOSE

The Alaska Minerals Commission was created by the 14th Legislature in Chapter 98 of the Session Laws of 1986 and was established to make recommendations to the Governor and to the Legislature on ways to mitigate constraints on the development of minerals in the State.

The minerals industry offers the greatest potential of any Alaska industry for expanding and diversifying the State's economic base; for increasing Statewide employment; and for generating new wealth to create businesses and provide revenues for State and local governments.

However, Alaska has a complex pattern of land ownership and management; has overlapping and uncertain regulatory requirements; has unique geographic, geologic and climatic conditions; and has an underdeveloped transportation system.

To attract the capital necessary for the exploration and development of new mines; to ensure that mines can be developed feasibly and in timely fashion; and to ensure that producing mines remain viable—constraints on the industry must be mitigated.

The Alaska Minerals Commission will prepare reports for the First and Second Sessions of the 15th Legislature, and the First Session of the 16th Legislature, recommending to the Governor and to the Legislature the adoption of legislation and the implementation of administrative policy that will best accomplish the statement of policy found in Article VIII, of the Constitution of Alaska:

> "It is the policy of the State to encourage the settlement of its land and development of its resources by making them available for maximum use consistent with the public interest."

and the statement of policy found in the President's National Materials and Minerals Report to Congress of April 5, 1982:

> "It is the policy of this Administration to decrease America's mineral vulnerability by taking positive action that will promote our national security, help ensure a healthy and vigorous economy, create American jobs, and protect America's national resources and environment."

The goals of the recommendations of the Alaska Minerals Commission are to assure that the Legislature and the state administration encourage and promote development of a viable mining industry in the state.

APPENDIX B

Chapter 98
Session Laws of Alaska, 1986
As Amended by
Chapter 71
Session Laws of Alaska, 1988

AN ACT

Relating to the Alaska minerals commission; and providing for an effective date.

Section 1. (a) The legislature finds that the minerals industries, including metallic minerals, industrial minerals, and hydrocarbons, have been traditionally and continue to be the major source of wealth and income in the state.

(b) The legislature further finds that there are major constraints on the continued development of a diverse mineral industry in the state, including the Environmental Protection Agency's effluent guidelines, state water quality standards and improperly classified streams and rivers, restrictions on surface access, complex and numerous permitting requirements, and limited access to minerals through mineral closing orders and restrictions on multiple use through state and federal land use plans.

Sec. 2. ALASKA MINERALS COMMISSION ESTABLISHED. (a) The Alaska Minerals Commission is established in the Department of Commerce and Economic Development.

(b) The commission is composed of 11 members. The commission shall be composed of individuals who have at least five years' experience in the various aspects of the minerals industries in the state. The governor shall appoint five members of the commission, one of whom must reside in a rural community. The President of the Senate shall appoint three members of the commission. The speaker of the House of Representatives shall appoint three members of the commission. Each member serves at the pleasure of the appointing authority.

(c) The commission shall make recommendations to the governor and to the legislature on ways to mitigate the constraints, including governmental constraints, on development of minerals, including coal, in the state.

(d) The commission shall report its recommendations each year to the governor and the legislature during the first 10 days of the regular session of the legislature.

Sec. 3. This Act is repealed February 1, 1994.

Sec. 4. This Act takes effect immediately in accordance with AS 01.10.070(c).

APPENDIX C

MINERAL POLICY ACT

Sec. 44.99.110. Declaration of state mineral policy. The legislature, acting under art. VIII, sec. 1 of the Constitution of the State of Alaska, in an effort to further the economic development of the state, to maintain a sound economy and stable employment, and to encourage responsible economic development within the state for the benefit of present and future generations through the proper conservation and development of the abundant mineral resources within the state, including metals, industrial minerals, and coal, declares as the mineral policy of the state that

(1) mineral exploration and development be given fair and equitable consideration with other resource uses in the multiple use management of state land;

(2) mineral development be encouraged through reasonable and consistent nonduplicative regulations and administrative stipulations;

(3) mineral development and the entry into the market place of mineral products be considered in developing a statewide transportation infrastructure system;

(4) mineral development be encouraged through appropriate public information and education, scientific research, technical studies, and University of Alaska pogram involvement;

(5) economic development with respect to the state mineral industry be encouraged with Pacific Rim nations. (§ 1 ch 138 SLA 1988)

APPENDIX D

PENDING LEGISLATION REFERENCED IN REPORT

Introduced: 1/9/89 6-0296A
Referred: Resources and Finance

IN THE SENATE BY COGHILL, PEARCE AND FRANK

SENATE BILL NO. 34

IN THE LEGISLATURE OF THE STATE OF ALASKA

SIXTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to state land withdrawn from mineral location or mining."

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

* Section 1. AS 38.05.185 is amended by adding new subsections to read:

(d) The commissioner shall submit a report to the legislature and to the governor within the first 10 days of the convening of each regular session of the legislature detailing the state land closed to mineral location and mining during the previous calendar year. The report shall include

(1) the known resource values of the area;

(2) the reason for the closure;

(3) the effective date of the closure; and

(4) the legal description of the land involved in the closure.

(e) Each area closed under (a) of this section remains closed to mineral location and mining until the commissioner issues an order altering the status of the land or until the closure is disapproved by act of the legislature. In addition to an act of the legislature disapproving a closure by the commissioner, the legislature may by resolution make recommendations to the commissioner on future management of the area involved.

(f) Each report prepared under (d) of this section that reports on an area of more than 5,120 acres shall include a mineral assessment report for the area.

(g) Every 10 years, the commissioner shall submit a report to the governor and the legislature concerning state land that is at that time withdrawn from mineral location or mining, including state land withdrawn from multiple use by the legislature. The commissioner may make recommendations in each report regarding existing closures of state land.

* Sec. 2. Notwithstanding the 10-year interval required under AS 38.05.185(g), as enacted by sec. 1 of this Act, the first report to the governor and legislature under that subsection shall be delivered to the legislature five years after the effective date of this Act.

Introduced: 1/9/89 6-0295A
Referred: Resources and Finance

IN THE SENATE BY COGHILL, KELLY, PEARCE AND FRANK

SENATE BILL NO. 35

IN THE LEGISLATURE OF THE STATE OF ALASKA

SIXTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to multiple use of state land and water."

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

* Section 1. AS 38.04.910(5) is amended to read:

(5) "multiple use"

(A) means the management of state land and its various resource values so that it is used in the combination that will best meet the present and future needs of the people of Alaska, making the most judicious use of the land for [SOME OR] all of the [THESE] resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions;

(B) [IT] includes

(i) [(A)] the use of the [SOME] land for less than all of the resources but does not exclude compatible competing uses; [,] and

(ii) [(B)] a combination of balanced and diverse resource uses that takes into account the short-term and long-term needs of present and future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historic values;

* Sec. 2. AS 38.05.300(a) is amended to read:

(a) The commissioner shall, where considered necessary and proper, classify land for surface use [CLASSIFY FOR SURFACE USE LAND IN AREAS CONSIDERED NECESSARY AND PROPER]. This section does not prevent reclassification of land where the public interest warrants reclassification, nor does it preclude multiple [PURPOSE] use of land whenever different uses are compatible. An area of state [STATE] land, water, or land and water [AREA] may not, except by act of the state legislature, be closed to multiple [PURPOSE] use if the area involved contains more than 640 acres.

Offered: 3/6/89 6-0725E
Referred: Resources and Finance

Original sponsor: Adams

IN THE SENATE THE COMMUNITY AND REGIONAL AFFAIRS COMMITTEE

CS FOR SENATE BILL NO. 181 (C&RA)

IN THE LEGISLATURE OF THE STATE OF ALASKA

SIXTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to an exemption from municipal property taxation for natural resources in place; and providing for an effective date."

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

* Section 1. TEMPORARY TAX EXEMPTION. Natural resources in place, including proven or unproven mineral and other deposits of valuable materials and timber stumpage, are exempt from property taxation by a municipality.

* Sec. 2. STUDY AND REPORT. (a) The Department of Community and Regional Affairs shall study and compare the potential effects of various natural resource taxation options including

(1) total exemption from municipal property taxation for natural resources in place;

(2) partial exemption from municipal property taxation for natural resources in place;

(3) no exemption from municipal property taxation for natural resources in place;

(4) total or partial exemption from municipal property taxation for natural resources in place at the option of each municipality.

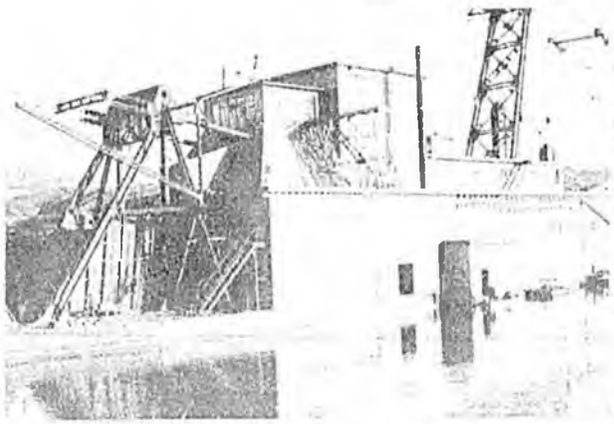
(b) In conducting the study under (a) of this section, the Department of Community and Regional Affairs shall consult with the Department of Revenue and with the Alaska Municipal League. By January 15, 1991, the Department of Community and Regional Affairs shall report to the legislature its findings and recommendations regarding municipal property taxation

of natural resources in place.

* Sec. 3. This Act is repealed July 1, 1991.

* Sec. 4. This Act takes effect immediately under AS 01.10.070(c).

House Bill SSHB 159 is identical to this Bill - CSSB 181 as of January, 1990



ALASKA MINERALS COMMISSION
P.O. Box 80148
Fairbanks, Ak. 99708

Senator Bettye Fahrenkamp
P.O. Box V
Juneau, Ak. 99811

January 26, 1990

Dear Bettye:

On behalf of the Alaska Minerals Commission I thank you and the Senate Resources Committee for the time given on January 17, 1990 for a meeting with Commission members. The resulting discussions were appreciated and stimulating. Comments by the Resources Committee members hit the nail on the head, especially for Commission recommendations #8, 9 and 10 pertaining to the importance and need for a continuing geologic mapping program. Such a program will produce mineral potential areas and thereby stimulate mining companies to become involved in exploration that hopefully will lead to development and then production.

Upon returning to Fairbanks, the Minerals Commission members, Karl Hanneman, Earl Beistline and mining specialist Department of Commerce, Dick Swainbank, met with State Geologist and Director, Dept. Geology and Geophysics (DGGS) Robert B. Forbes and DGGS Geologist Tom Smith, to discuss a state geologic mapping program. Accordingly, the Alaska Minerals Commission requested Dr. Forbes to prepare a work plan that would implement a recommendation (# 8) of the Commission.

The result was that such a plan was prepared and is herewith respectfully sent to you and the Senate Resources Committee along with the letter of transmittal from Dr. Forbes. The enclosure is entitled "Alaska Mineral Assessment Program: A Schedule of Studies". The plan is geared initially to a five year program but geologic mapping should continue until Alaska lands are adequately mapped to allow mineral resources including industrial minerals to be identified for potential development.

The plan developed is concise and is directed toward the following points:

1. Why these studies are needed
2. Proposed program
3. Areas needing both detailed geological mapping and geophysical survey
4. Areas needing detailed geophysical surveying to compliment existing detailed geologic maps

From the Commissions' viewpoint it appears that such a program could be initiated during the coming season if additional supplemental funding can be obtained through appropriate means best known to you and the Resource Committee--perhaps a resource bill or through additions in budget adjustments.

Also enclosed is a draft format of a resolution containing key points showing the availability and status of current geologic mapping and airborne geophysical surveys importance of geological mapping as an asset toward mineral development and the expected benefit to the states economy by a single large discovery such as Cominco's Red Dog discovery. The draft (Therefore be it ...) shows the monetary benefit that would result from such a discovery if a ten year mapping program was in place. The resolution format is given for you to use in an appropriate way for presenting the merits of the program.

Bettye, if you or members of the Commission have questions and/or comments or desire additional information about the proposed mapping program, please do not hesitate to let the Commission know as well as any other assistance that the Commission may offer.

Also, Bettye, the Commission would appreciate any suggestions and action that you and the Senate Resources Committee could take on other recommendations of the Commission for the benefit of the mining industry, communities, Alaska, the Nation and their people.

As we say, the best defense for maintaining a strong economy and good social standards is a fast offense. So we have to go for it!

Best personal regards.

Sincerely,

Earl

Earl H. Beistline, Chairman
ALASKA MINERALS COMMISSION

EHB:ob

Enc: Joint Resolution
Cover letter - Forbes
Alaska Mineral Assessment Program

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

STEVE COWPER, GOVERNOR

☑ 3700 AIRPORT WAY (DNR Building)
FAIRBANKS, ALASKA 99709-4609
PHONE (907) 451-2760, 474-7147

☐ P O BOX 772116
EAGLE RIVER, ALASKA 99577-2116
PHONE (907) 696-0070

☐ 3601 "C" STREET, SUITE 1236
P O BOX 107005
ANCHORAGE, ALASKA 99510-7005
PHONE (907) 762-2356

☐ 400 WILLOUGHBY AVENUE, 3RD FLOOR
JUNEAU, ALASKA 99801
PHONE (907) 465-2520

Dr. Earl H. Beistline
Chairman, Alaska Minerals Commission
P.O. Box 80148
Fairbanks, Alaska 99708

January 25, 1990

Dear Dr. Beistline

Pursuant to your request of January 19, 1990, that the DGGS develop a work plan to implement a recommendation of the Alaska Minerals Commission to the State Legislature and the Governor, we are pleased to transmit the following document entitled "*Alaska Mineral Assessment Program: A Schedule of Studies*"

As we understand your request, the Commission contemplates a five-year commitment by the State in order to make Alaska's geological and geophysical survey database competetive in a global context and to provide data for informed land-planning; the studies outlined in our document are designed to provide that database.

Because of time constraints we have identified only the immediate needs, and could certainly expand and refine the proposed program plan as required in future weeks.

Sincerely,

Robert B. Forbes / BF
Robert B. Forbes
State Geologist and Director DGGS

Joint Resolution re. Supplemental Appropriation for geological mapping and airborne geophysical surveys

WHEREAS: Less than 10 percent of Alaska has been geologically mapped in sufficient detail for use in mineral exploration; and

WHEREAS: There is virtually no detailed airborne geophysical information in Alaska, even though many of the next generation of mineral deposits will probably be discovered by such methods; and

WHEREAS: The availability of detailed geological and geophysical information is vital for informed land planning by government agencies and for the development of mineral exploration programs by private industry; and

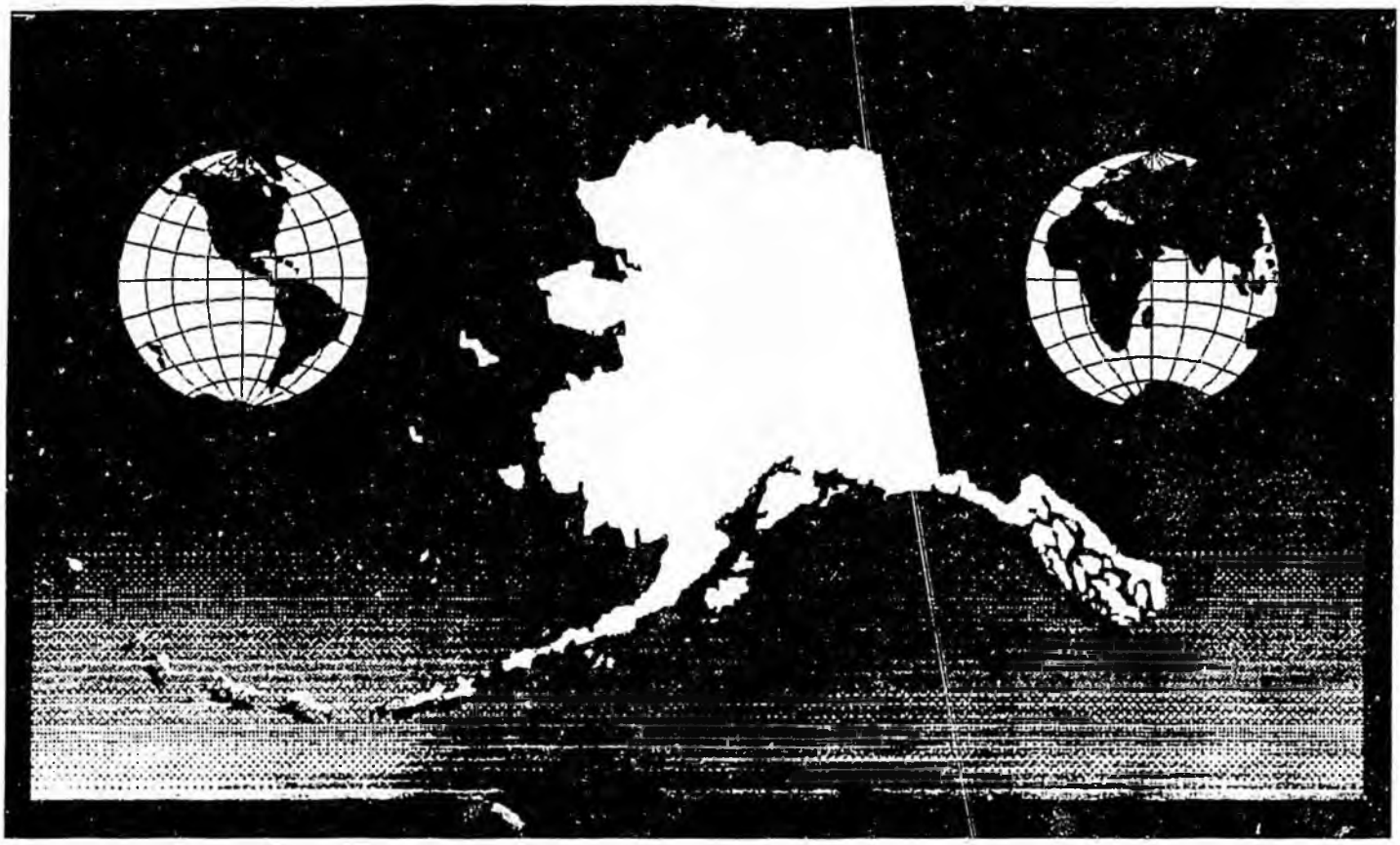
WHEREAS: Mineral exploration funds are invested worldwide on the basis of economic factors including the availability of land, the existence of transportation and infrastructure, the cost of living, public regulatory and fiscal policies and climatic considerations; and

WHEREAS: An adequate database of geological and geophysical maps can counterbalance the many natural economic disadvantages of Alaska, and advertise the state's interest and commitment to mineral resource development; and

WHEREAS: A single new discovery the size of Red Dog would repay a multi-year investment of $50 million a hundred-fold:

THEREFORE BE IT RESOLVED THAT THE STATE OF ALASKA COMMITS TO AN INVESTMENT FOR DETAILED GEOLOGICAL AND GEOPHYSICAL MAPPING DURING THE NEXT DECADE OF $5 MILLION ANNUALLY TO BE ADMINISTERED BY THE STATE DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS IN THE MOST EFFICIENT MANNER POSSIBLE. THIS INVESTMENT WILL SERVE TO INVENTORY THE STATE'S SURFACE AND SUBSURFACE MINERAL RESOURCES, AND ADVERTISE THE STATE'S COMMITMENT TO MINERAL DEVELOPMENT AS A VALUED COMPONENT OF THE ECONOMY CO-EQUAL WITH OTHER SECTORS.

ALASKA MINERAL ASSESSMENT PROGRAM



A Schedule of Studies Prepared At The Request of

THE ALASKA MINERALS COMMISSION

January 1990

ALASKA MINERAL ASSESSMENT PROGRAM:
DETAILED GEOLOGICAL MAPPING AND GEOPHYSICAL SURVEYING

WHY THESE STUDIES ARE NEEDED

The Red Dog mine went into production in 1989, about twenty years after the initial discovery, and it is expected to inject $100 million a year for the next 50 years into the Alaskan economy. This Red Dog ore deposit, and most others under development today, are exposed at the surface. The next generation of mines is likely to come from deposits that are more obscure at the surface or covered by tens or hundreds of feet of unmineralized rock. Most of these discoveries will be made through detailed geological mapping and geophysical surveys. To attract national and international high-risk exploration capital to search for such obscure and "blind" mineral deposits, the state must invest in a long-term project to increase its geological and geophysical survey database. This investment will also advertise Alaska's commitment to development of its mineral resources.

Since statehood mineral exploration firms have invested more than $600 million in exploration and about $550 million in mineral development throughout all regions of Alaska. Levels of expenditures have fluctuated due to complex economic conditions. An individual mineral company exploration budget is commonly in the $1 million range, and represents outside money invested in Alaska. Cost of developing a mine ranges from about $10 million to several hundreds of millions of dollars of outside capital. Compared to many other areas with favorable geology, Alaska is at a disadvantage in terms of the availability of land, infrastructure and transportation. The high cost of living, harsh arctic climate, and strict regulatory conditions must be counterbalanced by some favorable factors to make Alaska's mineral resources competitive.

Although industry generally requires large scale (1:63,360 and larger) geologic maps before it commits exploration dollars, less than 10 percent of Alaska has been geologically mapped at a scale suitable for design of mineral exploration programs (compared to about 80 percent of the Soviet Far East). No detailed airborne geophysical surveys exist. Reconnaissance aeromagnetic surveys conducted in Alaska in the early 1970's did locate some mineral discoveries, but the scale of those surveys is not useful for discovery of relatively small targets offered by huge deposits such as the Red Dog. A multi-year project focussing on geological and geophysical surveys of mineralized districts and zones will allow "fingerprinting" of known deposits and discovery of similar but less obvious or deeply buried deposits. An ongoing investment of $5 million (per year) would be comparable to the amount spent each year advertising tourism and fish products and should properly be viewed in the same way: as an investment. A single new discovery such as Red Dog could inject an additional $5 billion into Alaska's economy.

As well as benefiting Alaska's economy, an increased geological and geophysical survey database will make important information available for engineering and land use decisions by government and the public.

PROPOSED PROGRAM

To provide geological and geophysical survey information to the mineral industry and government, we propose a multi-phased program of detailed, integrated geological mapping and geophysical surveys in mining districts and along mineral trends within Alaska. This program will require $5 million per year for 5 years.

For each mining district and mineral trend investigated, this program will result in the publication of a folio containing:

- Detailed geological map(s) at 1:63,360 scale or greater.
- Detailed geophysical survey maps at close flight-line spacing including at least the following airborne geophysical techniques:
  - Aeromagnetics
  - Airborne electromagnetic (VLF)
  - Resistivity
  - Airborne radiometrics
- Summary of mineral resources.

Folios covering each mining district and mineral trend investigated will be published after conclusion of field work.

Other information, such as prospect examinations and local geochemical orientation surveys, will be provided where warranted.

Geological field work will be initiated during the first year of each phase; each program is estimated to last 2-3 years.

The following outlines an approach for developing exploration folios in 1) areas that do not have either geological mapping or geophysical surveys; and 2) areas that have good detailed geological mapping with no detailed geophysical surveys.

AREAS NEEDING BOTH DETAILED GEOLOGICAL MAPPING AND GEOPHYSICAL SURVEYS

The mining districts and mineral trends shown of figure 1 (next page) have not been geologically mapped or are covered by very incomplete geologic maps at a scale of 1:63,360 (1 inch = 1 mile) or larger. No suitable geophysical surveys exist for detailed mineral exploration in these areas. Geological programs in these and other mining districts and mineral trends will provide detailed geological mapping and geophysical surveys.

Field studies in Phase I areas will take place during the first, second, and (in some cases) third program year. Field studies in Phase II areas will occur during the third, fourth; and (in some cases) fifth program year. Geophysical surveys will normally be completed during the first year of each phase. During the final year, resource assessments and folios will be completed and published.

Phase I

Mining District Or Mineral Trend	Region	Commodities
Rampart - Manley	Interior	Gold, Silver, Copper
Ketchikan mining district	Southeastern	Gold, Silver, Tungsten, Molybdenum, Copper, Zinc, Lead
Nyac mining district	Southwestern	Gold, Silver, Tin
Yentna mining district	Southcentral	Gold, Silver
DeLong Mtns. / Howard Pass	Northwestern	Zinc, Lead, Silver

Mineral Assessment Programs

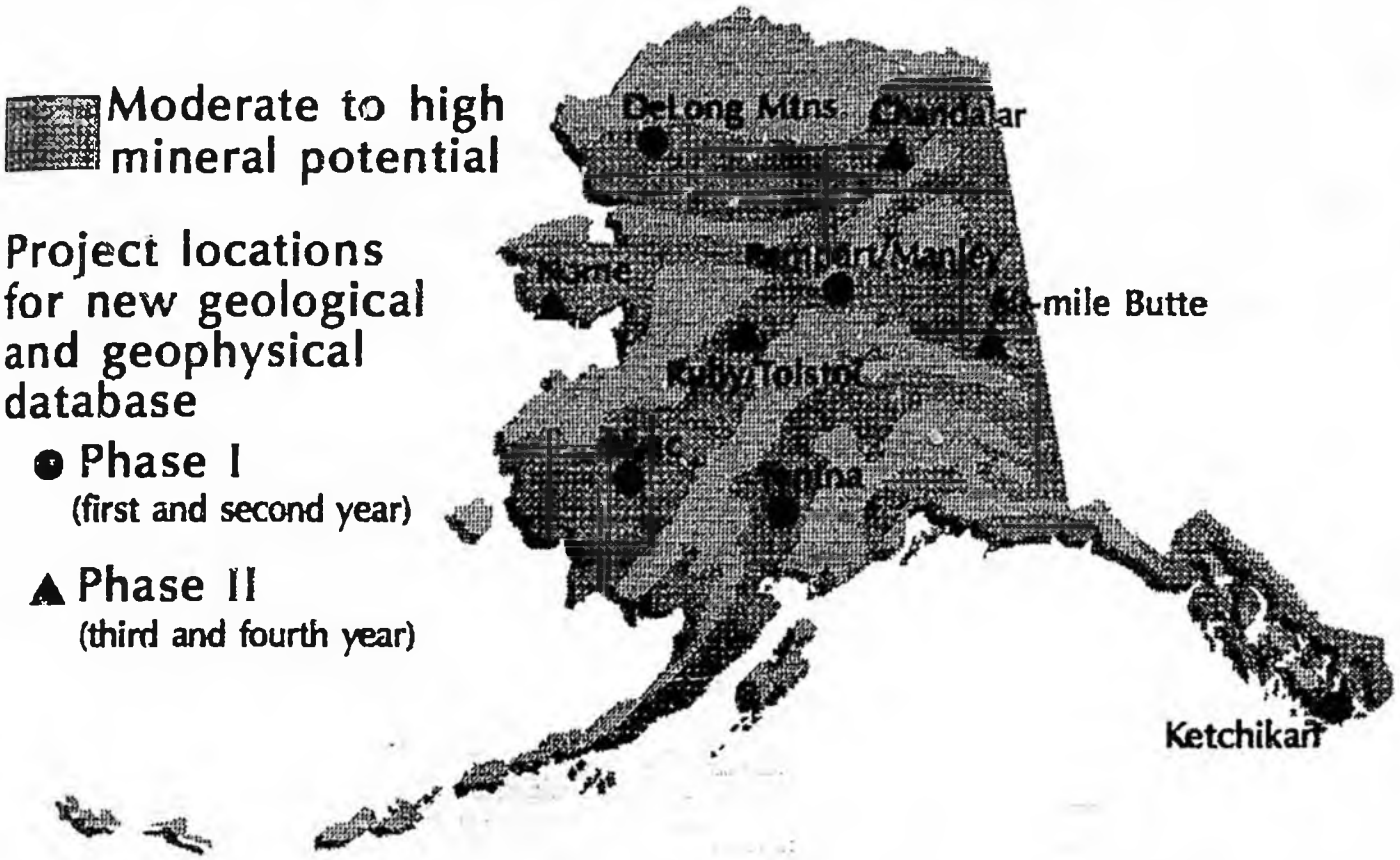


Figure 1. New geological mapping and geophysical surveys

Phase II

Mining District Or Mineral Trend	Region	Commodities
Nome / Seward Peninsula	Western	Gold, Silver, Tungsten, Tin, Zinc, Lead
Ruby - Tolstoi	Westcentral	Gold, Silver
Chandalar	Northern	Gold, Silver, Copper
60 mile Butte	Interior	Gold, Silver

AREAS NEEDING DETAILED GEOPHYSICAL SURVEYING TO COMPLEMENT EXISTING DETAILED GEOLOGIC MAPS

The mining districts and mineral trends shown on figure 2 (last page) are covered by complete or nearly complete geologic maps at a scale of 1:63,360 (1 inch = 1 mile) or larger. No suitable geophysical surveys exist for detailed mineral exploration activities in these areas. Programs in these mining districts and mineral trends will include only geophysical surveys and limited geologic work to complement existing geologic maps.

Phase I

Mining District Or Mineral Trend	Region	Commodities
Fairbanks mining district	Interior	Gold, Silver, Tungsten
Haines - Klukwan	Southeastern	Zinc, Lead, Gold, Silver, Barite
Farewell	Westcentral	Gold, Silver, Tin
Richardson mining district	Interior	Gold, Silver
Sleetmute	Southwestern	Gold, Silver, Tin, Mercury
Iditarod	Southwestern	Gold, Silver, Tin, Mercury

Phase II

Mining District Or Mineral Trend	Region	Mineral Commodities
Chichagof mining district	Southeastern	Gold, Silver
Livengood mining district	Interior	Gold, Silver, Zinc, Lead, Platinum
Upper Chena River	Interior	Zinc, Lead, Gold, Silver, Tungsten
Bonnifield mining district	Central	Gold, Silver, Zinc, Lead
Wiseman mining district	Northern	Gold, Silver
Chugach	Southcentral	Chromium, Nickel, Gold, Silver

Mineral Assessment Programs

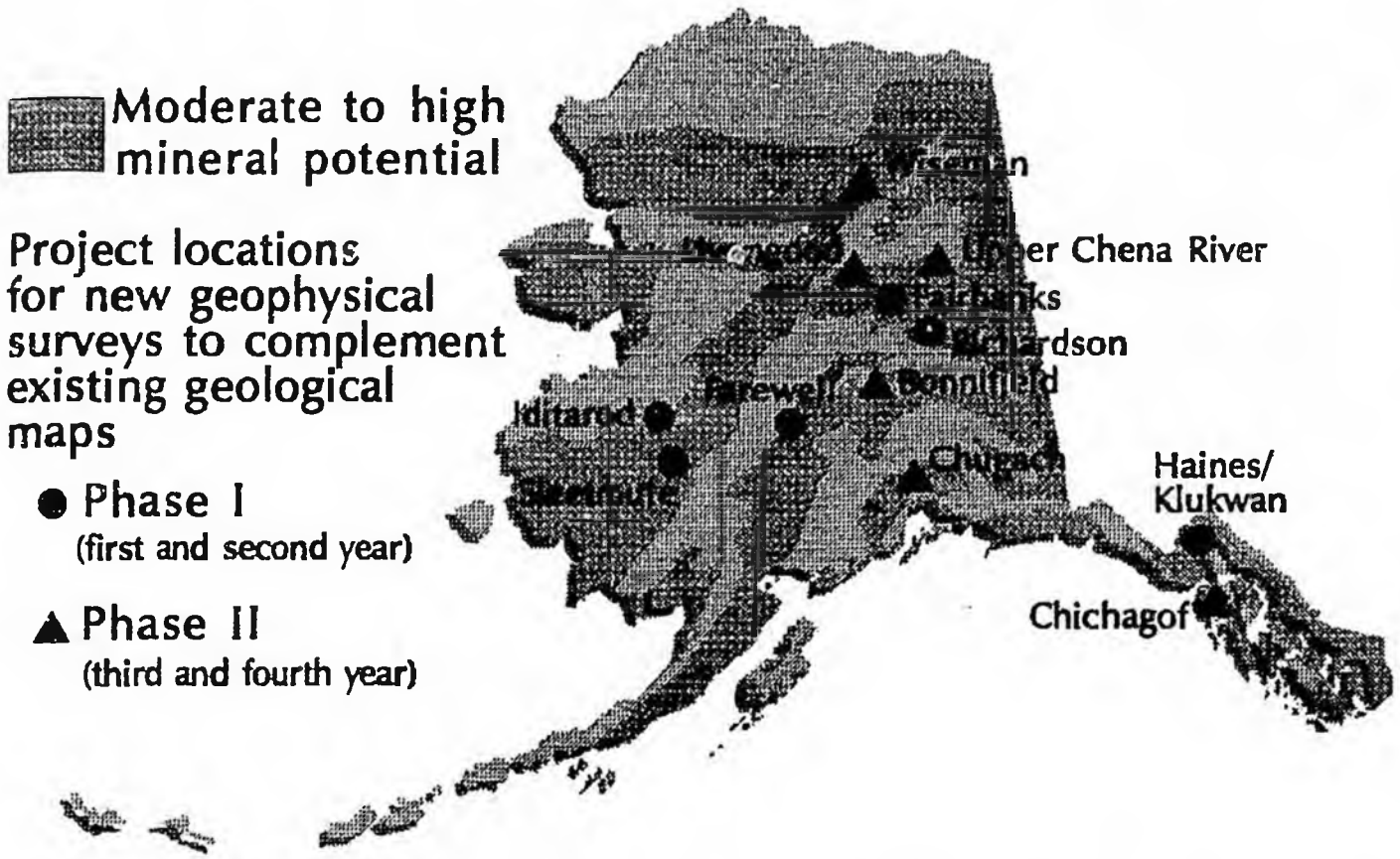


Figure 2. New geophysical surveys

APA Overview

Sent to 43 "urban" legislators
(those w no ACE cetelites in District)

«DATA urban legislators»

December 30, 1988

The Hon. «name»
Alaska State «house»

Dear «salutation»;

As you know, Alaska's Power Cost Equalization program (PCE) serves 98 separate utilities in the state, and benefits consumers in nearly 170 communities. Annual disbursements under the program have been in the range of $17 million from the general fund

The attached statistical report on the program illustrates for the first time several things about PCE that do not agree with the conventional wisdom that many of us have applied as we formed our opinions about the PCE concept. I hope that you will find the time to digest the lessons of the report and maybe (as I have) rethink your view of PCE.

Among other things, the report shows that:

• Even with the PCE subsidy, rural Alaskans are paying almost **twice** as **much per kilowatt hour** for electricity as are those of us who live in urban areas.

• **Consumer electric rates in the villages participating in the PCE program vary 800% or more,** between villages participating in PCE. For example, Arctic Village residents pay $0.495/KWH, and consumers in Nome pay $0.063/KWH. Comparable rates in Anchorage, Fairbanks and Juneau are in the seven to nine cents range.

• The most efficient PCE utilities deliver **three times the kilowatt hours per gallon of fuel** burned than do the least efficient ones. (Fuel costs consume 61% of the state's disbursements under the program.)

I have attached a listing of the PCE-eligible communities in your district, showing the impacts of the program on each utility.

• Generally in the smaller villages (statewide), PCE disbursements (in the form of reduced-cost electricity) represent a very significant proportion of the average per capita income, **in some cases exceeding 50% of other per capita income.**

• Residents of smaller communities tend to consume less electricity per resident than do those living in larger towns, but the subsidy per customer tends to be higher because of higher fuel costs and lower efficiencies in smaller towns.

• The cost of the program has increased over the years **due to an increase in electrical consumption per customer,** which has more than offset the trend toward lower fuel costs and more efficient operations. Even so, **average consumption is still less than half of the statutory cap** of 750 KWH per month, and less than half of the average monthly consumption by all Alaskans.

• The ultimate cost of electricity to the PCE eligible consumer depends greatly, not only upon the local cost of fuel and the efficiency of his utility, **but also upon the utility's sophistication in "working" the system for maximum benefit.**

My personal conclusions are that the PCE program has become an essential component of rural economies in the state, that rural consumers still pay a significant premium for electricity because of where they live, and that the program cannot simply be terminated without causing severe harm to many rural Alaskans.

In addition, however, the report shows that, as presently structured, the PCE program has many built-in inequities, and that individual Alaskans' benefits depend much less upon their prudent consumption behavior than upon externalities they cannot control. In addition, it is clear that a good portion of the annual PCE appropriation is never converted to benefit consumers. Rather, large sums of money are swallowed up by inefficient generators and operations, distribution lines with unacceptably high losses, and other factors that the larger utilities in the program (AVEC, for example) have demonstrated can be significantly improved.

The Power Authority is committed to making the changes necessary to maximize the proportion of each PCE dollar that finds its way into an Alaskan's pocket through reduced electricity costs. This is reflected in several items in the Governor's budget request ... most notably the Rural Technical Assistance and Circuit Rider programs and the request for "PCE Efficiency" capital improvements. We intend to apply these appropriations to the areas with the worst present problems, as illustrated in the report.

I hope this report is useful to you as you consider and debate the PCE program for the future.

Sincerely,

Robert E. LeResche
Executive Director

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

First Annual

Statistical Report

of the

Power Cost Equalization Program

December 15, 1983

ALASKA POWER AUTHORITY
Robert E LeResche
Executive Director

Alaska Power Authority

State of Alaska

Dear Fellow Alaskan;

The Power Cost Equalization (PCE) program provides customers of rural utilities with relief from high electricity costs. Without this program, many families (particularly those in smaller villages that tend to have both higher living costs and lower personal incomes) would have unaffordable electric bills. Some would even have difficulty affording electricity for essential end-uses, such as lighting and refrigeration.

Contrary to common belief, rural Alaskans receiving PCE benefits still pay much more for electricity than do urban residents not qualifying for PCE. In fact, even with PCE assistance, the weighted average residential rate in rural Alaska is more than double residential rates in Anchorage.

One thing our analysis clearly demonstrates is that the effects of any marginal PCE program cuts will be felt most strongly and most immediately by those Alaskans who can least afford it ... residents of the smaller villages. Utilities in these areas tend to be the least efficient in the state, and to be burdened with the highest fuel costs. The Power Authority Rural Technical Assistance programs will therefore continue to focus on these areas.

The PCE program has been in effect for four years. Previously, the Power Cost Assistance (PCA) program was in place for three years and the Power Production Cost Assistance (PPCA) program for one year. Operation of these programs has resulted in a substantial data-base, which the attached report analyses for the first time.

This report represents the Alaska Power Authority's most comprehensive effort to develop vital statistics on these programs. These statistics will be helpful in assessing the effectiveness of these assistance programs, suggesting where efforts can be made to reduce program costs and increase benefits to consumers, and providing information that will assist other rural energy programs. We hope that the information will also be of use to the rural utilities that participate in the PCE program, allowing them the opportunity to review their own track record and to compare it to those of other utilities.

PO Box AM Juneau, Alaska 99811 (907) 465-3575
PO Box 190869 701 East Tudor Road Anchorage, Alaska 99519-0869 (907) 561-7877

Production

George Matz	Author
Cheryl Young	Utility Database Support
Joe Spears	Data Processing Support

The accuracy of the statistics presented is wholly dependent on the accuracy of the data submitted by the utilities. These data are reviewed by APA staff only for obvious mistakes and calculation errors.. Although most of the data are reliable, mistakes do occur. Also, some utilities do not have sufficient metering to provide all of the information requested. The APA is directing some of its efforts to improved metering, to increase the accuracy and reliability of future analyses.

If you would like additional copies of this report or copies of any of the statistical information referred to, please let me know.

Sincerely,

Robert E. LeResche
Executive Director

Alaska Power Authority
State of Alaska

Dear Fellow Alaskan;

The Power Cost Equalization (PCE) program provides customers of rural utilities with relief from high electricity costs. Without this program, many families (particularly those in smaller villages that tend to have both higher living costs and lower personal incomes) would have unaffordable electric bills. Some would even have difficulty affording electricity for essential end-uses, such as lighting and refrigeration.

Contrary to common belief, rural Alaskans receiving PCE benefits still pay much more for electricity than do urban residents not qualifying for PCE. In fact, even with PCE assistance, the weighted average residential rate in rural Alaska is more than double residential rates in Anchorage.

One thing our analysis clearly demonstrates is that the effects of any marginal PCE program cuts will be felt most strongly and most immediately by those Alaskans who can least afford it ... residents of the smaller villages. Utilities in these areas tend to be the least efficient in the state, and to be burdened with the highest fuel costs. The Power Authority Rural Technical Assistance programs will therefore continue to focus on these areas.

The PCE program has been in effect for four years. Previously, the Power Cost Assistance (PCA) program was in place for three years and the Power Production Cost Assistance (PPCA) program for one year. Operation of these programs has resulted in a substantial data-base, which the attached report analyses for the first time.

This report represents the Alaska Power Authority's most comprehensive effort to develop vital statistics on these programs. These statistics will be helpful in assessing the effectiveness of these assistance programs, suggesting where efforts can be made to reduce program costs and increase benefits to consumers, and providing information that will assist other rural energy programs. We hope that the information will also be of use to the rural utilities that participate in the PCE program, allowing them the opportunity to review their own track record and to compare it to those of other utilities.

PO Box AM Juneau, Alaska 99811 (907) 465-3575
PO Box 190869 701 East Tudor Road Anchorage Alaska 99519-0869 (907) 561-7877

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

The State of Alaska's Power Cost Equalization (PCE) program and the Power Cost Assistance (PCA) and the Power Production Cost Assistance (PPCA) programs that preceded it, have significantly reduced the price of electricity to rural Alaskans. Although rural utility rates, with PCE assistance, are still about twice as high as urban rates, the differential is not as great as it would be without the program. The differential among rural utilities is also less because of the PCE program.

In FY 88, 102 utilities, serving 170 communities, were eligible to participate in the PCE program. Currently, 98 of these have received disbursements. Although most of the participating utilities have fewer than 100 customers, the five largest utilities serve nearly half of the customers receiving PCE benefits.

The PCE disbursement to a utility is determined by its PCE amount (i.e. the reduction in cents/KWH from its unsubsidized rate) multiplied by the eligible KWH's that it sells. The cost of the PCE program is the summation of the PCE payments to each utility plus administrative costs. FY 88 disbursements to date have been $16,787,586 with the possibility of another $855,309 in payments.

A utility's PCE amount is determined by dividing its eligible costs by its eligible KWH's. The average PCE amount in FY 88 was 14.3 cents/KWH. The smaller utilities tend to have higher costs and PCE amounts.

The principal cost factors that determine the PCE amount are;

1. price of fuel,
2. fuel efficiency (KWH sold/gallons of fuel), and
3. operating costs/KWH.

With the exception of FY 88 operating costs, each of these factors have shown improvement over the past few years; the most significant being lower fuel oil prices. These improvements have reduced the program's cost per KWH.

Two factors affect eligible KWH's sold;

1. number of customers, and
2. eligible KWH's consumed per customer.

The first few years of the PCA program saw rapid growth in the number of participating utilities and the number of customers. This contributed significantly to the eligible KWH's sold and the cost of the program. This growth rate seems to have reached a saturation level in FY 88. Early growth rates are not likely to return unless there are substantial population increases in the service areas of participating utilities.

The one factor that continues to be adding to the cost of the program is an increase in electrical consumption per customer. This increase seems to have more than offset the trend towards lower fuel oil prices and better fuel and operating efficiencies. Although the statistics indicate that smaller utilities have less consumption per customer than larger utilities, they also tend to have greater average annual growth rates.

During the past few years, the APA and many of the larger rural utilities have devoted substantial effort toward lowering the cost of the PCE program by improving the efficiency, reliability, and safety of rural power systems. The projects undertaken include mostly supply-side projects but also some demand-side projects. The statistics indicate that, at the program level, this effort has resulted in some savings. The statistics also indicate specific areas where future effort must be directed to further improve generation, distribution and end-use efficiencies and to reduce program costs even more.

II. INTRODUCTION

This report provides a statistical overview of the Power Cost Equalization (PCE) program from its inception in FY 85 through FY 88, with emphasis on FY 88, and of the two programs which preceded it; the Power Cost Assistance (PCA) program from FY 82 through a portion of FY 85 and the Power Production Cost Assistance (PPCA) program in FY 81.

Each of these programs have required, by statute, that participating utilities submit monthly reports to the Alaska Power Authority (APA) describing their electrical generation and consumption. The primary purpose for these reports is to determine the monthly disbursement that each utility is eligible to receive, on behalf of its customers, from the State. These reports, when compiled, provide the most comprehensive data available concerning the operation and efficiency of participating utilities, a snapshot of overall program statistics, and data that can be used to plot key trends.

Preliminary work for this report was to computerize all of the PPCA, PCA and PCE data to facilitate statistical analysis. This database can be used for management of the PCE program as well as other programs such as the APA's Rural Technical Assistance program. The database is available to the public upon request.

III. THE CURRENT PCE PROGRAM

A. THE PCE PROGRAM'S LEGAL BASIS

In 1984, the Legislature enacted AS 44.83.162-165, replacing the Power Cost Assistance (PCA) program with the Power Cost Equalization (PCE) program. The purpose of the PCE program is to equalize the "power cost per kilowatt-hour statewide at a cost close or equal to the mean of the cost per kilowatt-hour in Anchorage, Fairbanks and Juneau". Appropriations from the general fund pay for the cost of the program. The PCE program became effective on October 20, 1984 (FY 85). The statute has not been amended since then except for a continuing appropriation to the PCE program that was repealed in 1986 and that "costs or kilowatt-hour sales associated with United States Department of Defense facility" are to be excluded in calculating power cost equalization, which was added in 1988.

The key provisions of the PCE program are as follows.

1. To be eligible to participate, an electric utility must;

   a. provide electric service to the public for compensation;

   b. during calendar year 1983, have had less than 7,500 MWH's of residential consumption or less than 15,000 MWH's if two or more communities were served, and

   c. during calendar year 1984, have used diesel-fired generators to produce more than 75% of its electrical consumption.

2. The costs that a utility can apply to the PCE program include all costs that are normally used by the Alaska Public Utilities Commission (APUC) to determine the revenue requirements of a utility with the exception of return on equity and any other assistance that reduces a customers electric rates.

3. The amount of PCE subsidy per kilowatt hour that a utility receives is equivalent to no more than 95% of its eligible costs that are more than 8.5 cents per kilowatt-hour but less than 52.5 cents per kilowatt-hour.

4. Power sales that are eligible for PCE credit can not exceed;

   a. an aggregate of 70 kilowatt-hours per month per resident for community facilities whose operations are not paid for by the state or federal government, or private commercial interests.

The APA and the APUC have been given responsibility for administering the PCE program. Following is a synopsis of how this responsibility is carried out.

The APUC determines whether or not a utility requesting to participate in the program, is eligible. If eligible, the APUC determines the utilities' PCE subsidy amount, in cents per kilowatt-hour, based on its eligible costs. However, according to statute, "a utility may not be denied power cost equalization because complete cost information is not available". If the utility is regulated by the APUC, its PCE amount is reviewed whenever the utility requests a change in tariff. If the utility is not regulated by the APUC, its PCE amount is reviewed annually. In addition, the PCE amount is adjusted whenever there is a change in fuel prices. To receive its PCE payment, the utility must submit a monthly report to the APA providing "records of monthly kilowatt-hour sales or generation, monthly fuel balances, fuel purchases, and monthly utility fuel consumption". The APA reviews these monthly reports, checks the the calculations, determines the appropriate payment, and makes the disbursement. The data from the monthly reports of each participating utility is recorded in the APA's Monthly PCE Statistics Report.

B. PCE PARTICIPANTS

In FY 88, 102 utilities were eligible to participate in the PCE program. These utilities serve 170 communities in rural Alaska. Currently, 98 utilities have received full disbursements and 4 other utilities are expected to receive disbursements once some unresolved issues are settled.

Table I lists all of the utilities that were eligible to participate in the PCE program during FY 88 and the communities they serve. Figure #1 locates each community on a map.

C. STATUS OF THE FY 88 PCE PROGRAM

Table II provides some vital statistics of the PCE program during FY 88. These statistics are compared to FY 87 in order to provide a point of reference. The statistics for this tables are derived from the APA's Monthly PCE Statistics Report series. Appendix B explains how the calculations in Table II were made.

TABLE I

PCE PROGRAM PARTICIPATING UTILTIES

Akiachak Ltd.
Akiak City Council
Akhiok, City of
Akutan Electric Utility, City of
Alaska Power & Telephone:
- Craig
- Hydaburg
- Skagway
- Tok

Alaska Village Electric Cooperative:
- Alakanuk
- Ambler
- Andreafsky
- Anvik
- Chevak
- Eek
- Elim
- Emmonak
- Gambell
- Goodnews Bay
- Grayling
- Holy Cross
- Hooper Bay
- Huslia
- Kaltag
- Kasigluk
- Kiana
- Kivalina
- Koyuk
- Lower Kalskag
- Marshall (Fortuna Ledge)
- Mekoryuk
- Minto
- Mountain Vil.
- New Stuyahok
- Noatak
- Noorvik
- Nulato
- Nunapitchuk
- Old Harbor
- Pilot Station
- Pitkas Point
- Quinhagak
- Russian Mission
- Savoonga
- Scammon Bay
- Selawik
- Shageluk
- Shaktoolik
- Shishmaref
- Shungnak
- St. Mary's
- St. Michael
- Stebbins
- Togiak
- Toksook Bay
- Tununak
- Upper Kalsag
- Wales

Allakaket City Energy System
Alutiiq Power Company (Karluk)
Andreanof Electric Corp. (Atka)
Aniak Light & Power
Arctic Village Electric Company
Atmautlauk Joint Utilities
Beaver Electrical Utilities
Bethel Utilities Corp.
Bettles Light & Power
Birch Creek Village Electric
Brevig Mission Utility
Buckland, City of
Chalkyitsik Energy
Naterkaq Light Plant (Chefornak)
Chenega Bay IRA Village Council
Chignik Electric
Chitina Electric, Inc.
Circle Electric Utility
Clarks Point, City of
Coffman Cove Utilities
Cordova Electric Coop.
Diomede Power, City of
Eagle Power Co.
Eagle Village Energy Systems
Egegik Light & Power
Ekwok Electric
Elfin Cove Electric Utility
False Pass Electric Association
Far North Utilities (Central)
G&K, Inc. (Cold Bay)
Galena, City of
Golovin Power Utility
Gustavus Electric Co.
Gwitchyaa Zhee Native Co. (Ft. Yukon)
Haines Light & Power
Hughes Power & Light
Igiugig Village Council
Iliamna-Newhalen Electric Coop (Iliamna, Newhalen, Nondalton)
Ipnatchiag Electric (Deering)
King Cove, City of
Kobuk Valley Electric
Kokhanok, Village of
Koliganek Village Council
Kotlik Electric Service
Kotzebue Electric Assoc.
Koyukuk, City of
Kwethluk, Inc.
Kwig Power Co. (Kwigillingok)
Larsen Bay Utility Company
Levelock Electric Coop.
Manley Utility Corp.
Manokotak Natives Ltd.
McGrath Light & Power
Middle Kuskokwim:
- Chauthbaluk
- Crooked Creek
- Red Devil
- Sleetmute
- Stony River

Naknek Electric (Naknek)
Napakiak Ircinaq Power Co.
Napaskiak Utility
Nelson Lagoon Electric Coop
Nightmute Power Plant
Nikolai, City of
Nome Joint Utilities
North Slope Borough P & L Co.:
- Anaktuvuk Pass
- Atgasuk
- Kaktovik
- Nuiqsut
- Point Hope
- Point Lay
- Wainwright

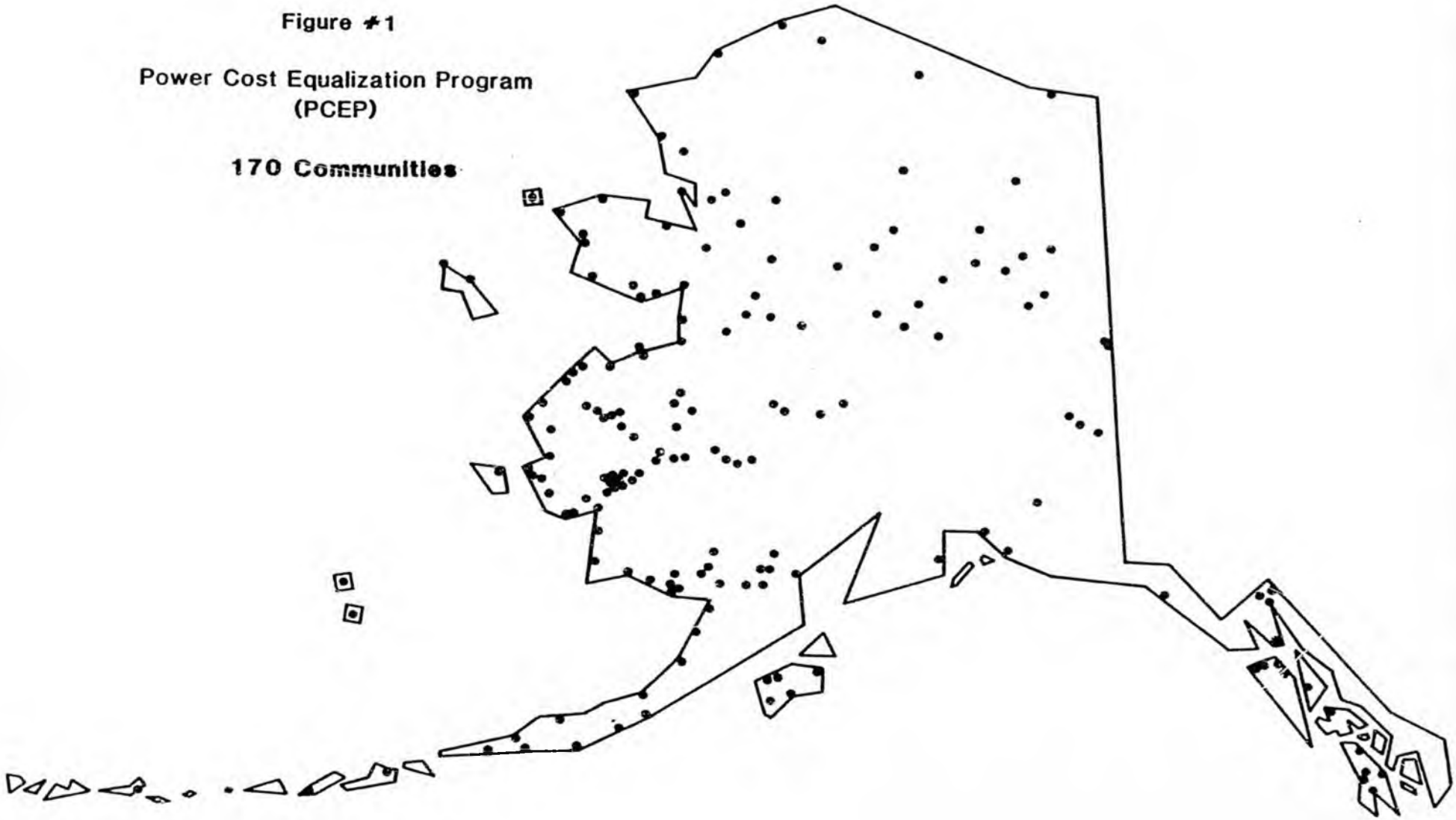
Northway Power & Light, Inc.
Nushagak Electric Coop. (Dillingham, Aleknagik)
Ouzinkie Utilities
Pedro Bay Village Council
Pelican Utility Company - Pelican
Perryville, Village of
Pilot Point Village Council
Port Heiden, City of
Puvurnaq Power Company (Kongiganak)
Rampart, Village of
Ruby, City of
Sand Point Utility
Sheldon Point City Council
St. George Municipal Electric Utility
St. Paul Municipal Electric Utility
Stevens Village Energy Systems
Takotna Community Assoc., Utilities
Tanana Power Co.
Tatitlek Electric Utility
Telida Utilities
Teller Power Company
Tenakee Springs, City of
Tetlin Village Energy System
Thorne Bay Public Utility
Tlingit-Haida Regional Electric Auth.:
- Angoon
- Hoonah
- Kassan
- Kake
- Klawock

Tulkisarmute, Inc.
Tuntutuliak Community Svcs. Assoc.
Umnak Power Company (Nikolski)
Unalakleet Valley Electric Coop
Unalaska Electric Utility
Unqusrag Power Co. (Newtok)
Venetie Village Council
White Mountain Utilities, City of
Yakutat Power, Inc.

Figure #1

Power Cost Equalization Program
(PCEP)

170 Communities



11-21-88

TABLE II

POWER COST EQUALIZATION PROGRAM STATISTICS

	FY 88	FY 87	% CHANGE
FUNDING			
Appropriations	$15,067,900	$ 13,840,299	8.9
Prior Year Carryover	$ 1,719,686	$ 2,931,039	-41.3
Total	$16,787,586	$16,771,338	0.1
DISBURSEMENTS			
Disbursements 10/20/88	$16,787,586	$16,771,338	0.1
Expected Disbursements	$855,309	0	-
Total Disbursements	$17,642,895	$16,771,338	5.2
Disbursements/Customer	$686	$686	0.0
PARTICIPATION			
Eligible Utilities	102	99	3.0
Communities Served	170	167	1.8
Population Served	65,886	63,025	4.5
CUSTOMERS			
Residential	18,823	23,372	** 0.1
Commercial	4,578	*	-
Community Facilities	1,054	1,093	-3.6
Total Customers	24,455	24,465	0.0
CONSUMPTION			
MWH Generated	251,540	227,909	10.4
MWH Sold	256,653	242,621	5.8
Elig. MWH Residential	76,586	97,578	** 3.6
Elig. KWH/Month Residential	382	371	** 5.3
Elig. MWH Commercial	24,509	*	-
Elig. KWH/Month Commercial	474	*	-
Elig. MWH Community Facilities	16,685	17,014	-1.9
Elig. KWH/Month Comm. Facilities	2,366	2,196	7.7
Elig. MWH Total	117,779	114,592	2.8
Elig. KWH/Month Total	445	424	5.0
COSTS			
Average Fuel Price (per gal.)	$0.970	$0.984	-1.4
Fuel Consumed (gallons)	22,860,328	20,155,802	13.4
Fuel Costs	$21,638,546	$18,930,252	14.3
Operating Costs	$32,003,859	$29,053,402	10.2
Average PCE Amount/KWH	$0.143	$0.146	-2.1
EFFICIENCY RATIOS			
KWH Sold/Gallon Of Fuel	11.2	11.0	1.8
Operating Costs/KWH Sold	$0.132	$0.122	8.2

FOOTNOTES

* In FY 87, consumption by commercial customers was reported with residential customers.

** The calculation for percent change added FY 88 commercial customer data to residential customer data.

Significant points illustrated by Table II include:

1. Participation in the program seems to be near its saturation level. After six years of steady growth, the number of utilities, communities and customers that received PCE benefits in FY 88 is nearly the same as FY 87. Population Served is the only participation-related statistic that shows growth from FY 87 to FY 88, but this may be due to outdated demographic data. The slight decline in the number of community facility customers may be due to a closer review by the APA of the qualifications of some of these customers as community facilities.

2. The per customer amount of PCE eligible KWH's consumed per month increased by 5.0% from FY 87 to FY 88. This continues a trend evident since the inception of the PCE program. Although aggregate consumption per customer has increased, as Table X illustrates, there remains considerable variation between individual utilities.

3. The cost of generating electricity, as measured by the average PCE subsidy amount per KWH, was 2.1% less in FY 88 than it was in FY 87. This can be attributed to a reduction in two of the three cost factors that primarily determine the PCE amount per KWH. The average fuel price for participating utilities (weighted by KWH generated) continued the decline that began in FY 84 and fuel efficiency (KWH Sold/Gallon Of Fuel) also continued to improve. However, operating costs per KWH sold has increased, offsetting some of these cost reductions.

4. The reduction in average fuel price is not due entirely to lower crude oil prices. Some of this reduction can be credited to recent efforts by rural utilities to arrange cooperative bulk fuel oil purchases. Those who have participated have realized substantially reduced prices.

5. In FY 88, fuel costs for eligible KWH amounted to approximately $10,200,500 or 60.8% of PCE disbursements. Despite the reduction in per gallon prices, total fuel costs have increased by a greater percentage than the increase in either MWH generated or sold. No explanation is apparent.

6. Fuel efficiency increased by 1.8 % from FY 87 to FY 88. Although that may be a relatively small number, it represents a savings of hundreds of thousands of gallons of oil. These improvements can probably be attributed to increased efforts by the APA and many rural utilities to improve the operating efficiency of diesel generators and to reduce distribution line losses. Similar to fuel prices, the amount of fuel consumed increased by a greater percentage than the increase in MWH generated or sold, despite the improvements in efficiency.

Table III provides a utility by utility account of the program statistics presented by Table II.

Table III

POWER COST EQUALIZATION
ANNUAL STATISTICS
FY 88

UTILITY	# OF DATA	COMM POPUL ATION	# OF CUSTOMERS RESID	COMM FACIL	COMM COMRCL	KWH GENERATED	KWH SOLD	ELIGIBLE KWH RESID	COMM FACIL	COMM COMRCL	TOTAL
Akhiok, City of	5	109	20	1	1	86,400	19,684	16,775	160	4,610	21,545
Akiachak Ltd.	12	448	110	2	17	286,478	584,144	277,602	39,312	92,475	409,389
Akiak City Council	12	247	57	2	6	-	227,939	180,780	6,328	23,422	210,530
Alaska Power & Telephone											
Craig	12	1,167	459	13	89	6,828,440	6,384,398	2,112,800	340,445	577,932	3,031,177
Hydaburg	12	475	131	3	32	1,347,700	1,251,011	573,835	25,624	169,538	768,997
Skagway	12	790	340	15	129	6,537,520	6,019,305	1,521,132	351,519	666,793	2,539,444
Tok	12	1,181	418	1	112	8,756,990	7,227,048	1,742,151	20,867	738,867	2,501,885
Alaska Village Elec Co-Op											
Alakanuk	12	555	107	7	14	883,600	739,968	255,990	115,046	96,221	467,257
Ambler	12	275	74	12	15	751,920	726,819	276,240	120,658	81,008	477,906
Anvik	12	114	35	3	10	243,360	221,697	77,605	30,188	49,216	157,009
Chevak	12	548	127	14	13	1,133,280	1,052,347	321,215	126,009	73,986	521,210
Eek	12	259	73	5	8	450,640	403,905	171,169	39,647	40,251	251,067
Elim	12	257	70	5	11	589,680	483,788	234,718	66,905	63,666	365,289
Emmonak	12	641	155	12	26	1,430,560	1,375,278	540,182	343,025	133,100	1,016,307
Gambell	12	500	119	9	20	1,015,040	951,378	348,340	55,955	125,187	529,482
Goodnews Bay	12	247	64	3	9	399,120	367,543	155,478	24,609	38,922	219,009
Grayling	12	211	57	7	12	421,080	352,481	168,316	32,380	64,428	265,124
Holy Cross	12	262	81	8	13	646,800	578,918	285,369	81,703	73,909	440,981
Hooper Bay	12	776	174	12	20	1,430,760	1,295,775	480,586	97,454	115,900	693,940
Huslia	12	258	65	10	10	445,200	384,750	188,667	42,739	49,106	280,512
Kaltag	12	280	66	6	11	522,720	436,100	203,824	69,801	51,333	324,958
Kiana	12	434	90	12	16	962,880	843,369	269,529	146,394	86,616	502,539
Kivalina	12	272	60	8	9	723,840	570,454	192,315	35,905	43,571	271,791
Koyuk	12	216	56	8	10	506,960	496,216	198,606	69,689	34,627	302,922
Lower Kalskag	12	273	70	5	3	639,960	502,091	179,167	38,913	9,952	228,032
Marshall	12	270	64	8	13	556,000	532,304	229,962	89,383	57,553	376,898
Mekoryuk	12	173	52	7	18	559,360	489,127	131,961	37,865	85,415	255,241
Minto	12	152	74	5	8	506,960	473,176	238,572	99,904	41,928	380,404
Mountain Village	12	665	174	12	21	1,832,280	1,753,687	675,135	222,469	112,937	1,010,541
New Stuyahok	12	337	78	7	7	600,040	549,593	294,317	51,016	36,158	381,491
Noatak	12	273	74	4	10	762,880	713,038	250,415	122,255	54,093	426,763
Noorvik	12	517	108	5	16	1,087,200	953,235	383,918	174,065	93,140	651,123
Nulato	12	382	96	12	11	714,400	632,602	264,602	118,742	59,035	442,379
Nunapitchuk	12	778	170	13	25	1,476,576	1,338,352	491,084	89,791	119,656	700,531
Old Harbor	12	380	102	10	13	587,003	530,585	291,909	115,645	59,549	467,103
Pilot Station	12	419	97	11	9	866,000	790,227	344,206	98,882	57,142	500,230
Pitkas Point	12	88	24	2	2	0	107,150	69,798	25,980	16,022	111,800
Quinhagak	12	464	113	6	15	854,160	723,623	274,299	49,949	93,822	418,070
Russian Mission	12	231	52	4	8	453,480	420,452	128,128	9,864	38,514	176,506
Savoonga	12	477	116	10	22	1,185,520	1,099,440	342,965	88,832	122,956	554,753
Scammon Bay	12	303	89	7	12	680,280	650,948	291,027	40,336	64,624	395,987
Selawik	12	589	134	10	19	1,052,640	1,003,618	415,895	141,336	88,533	645,764
Shageluk	12	167	31	5	5	299,920	251,903	88,676	39,048	38,949	166,673

AVR. FUEL $/GAL	FUEL CONSUMED GAL.	FUEL COST ($)	OPERATING COSTS ($)	TOTAL DISBURSE-MENTS ($)	ELIGIBLE KWH/M RESID	COMM FACIL	COMRCL	TOTAL	KWH SOLD/ GAL FUEL	OP COSTS/ KWH	AVR ANN DISBUR/ CUST ($)	AVR PCE AMOUNT C/KWH
1.186	10,241	12,727	1,075	5,714	168	32	922	196	1.9	0.081	260	26.5
1.110	. .69,166	78,851	191,293	115,689	210	1,638	453	264	8.4	0.327	897	28.3
1.033	47,341	48,901	48,812	37,841	264	264	325	270	4.8	0.214	582	18.0
0.692	475,375	330,700	309,200	111,352	384	2,182	541	450	13.4	0.048	198	3.7
0.683	99,526	71,600	86,300	52,535	365	712	442	386	12.6	0.069	316	6.8
0.734	228,840	161,500	288,700	62,058	373	1,953	431	437	26.3	0.048	128	2.4
0.756	637,709	509,200	487,600	125,981	347	1,739	550	393	11.3	0.067	237	5.0
0.965		3,232,799	7,903,071							0.245		25.8
"	83,436	"	"	117,692	199	1,370	573	304	8.9	"	919	"
"	78,021	"	"	123,267	311	838	450	394	9.3	"	1,220	"
"	32,342	"	"	41,121	185	839	410	273	6.9	"	857	"
"	109,755	"	"	135,809	211	750	474	282	9.6	"	882	"
"	98,134	"	"	65,748	195	661	419	243	4.1	"	765	"
"	56,606	"	"	94,934	279	1,115	482	354	8.5	"	1,104	"
"	129,993	"	"	250,104	290	2,382	427	439	10.6	"	1,296	"
"	79,680	"	"	138,207	244	518	522	298	11.9	"	934	"
"	40,071	"	"	57,388	202	684	360	240	9.2	"	755	"
"	43,229	"	"	69,446	246	385	447	291	8.2	"	914	"
"	60,873	"	"	113,246	294	851	474	360	9.5	"	1,110	"
"	115,544	"	"	179,924	230	677	483	281	11.2	"	873	"
"	43,305	"	"	73,458	242	356	409	275	8.9	"	864	"
"	52,272	"	"	83,217	257	969	389	326	8.3	"	1,003	"
"	85,183	"	"	127,924	250	1,017	451	355	9.9	"	1,084	"
"	74,552	"	"	71,180	267	374	403	294	7.7	"	924	"
"	52,319	"	"	79,206	296	726	289	341	9.5	"	1,070	"
"	68,108	"	"	58,834	213	649	276	244	7.4	"	754	"
"	47,287	"	"	98,113	299	931	369	370	11.3	"	1,154	"
"	54,113	"	"	66,830	211	451	395	276	9.0	"	868	"
"	49,570	"	"	97,713	269	1,665	437	364	9.5	"	1,123	"
"	161,745	"	"	258,737	323	1,545	448	407	10.8	"	1,250	"
"	55,411	"	"	99,778	314	607	430	346	9.9	"	1,085	"
"	73,313	"	"	105,983	282	2,547	451	404	9.7	"	1,204	"
"	88,350	"	"	162,233	296	2,901	485	421	10.8	"	1,258	"
"	63,063	"	"	112,927	230	825	447	310	10.0	"	949	"
"	127,096	"	"	182,827	241	576	399	281	10.5	"	879	"
"	50,405	"	"	119,065	238	964	382	311	10.5	"	953	"
"	73,651	"	"	129,586	296	749	529	356	10.7	"	1,108	"
"	0	"	"	26,950	242	1,083	668	333	-	"	1,034	"
"	71,111	"	"	108,658	202	694	521	260	10.2	"	811	"
"	43,989	"	"	46,803	205	206	401	230	9.6	"	731	"
"	87,795	"	"	145,177	246	740	466	312	12.5	"	981	"
"	66,054	"	"	103,718	272	480	449	306	9.9	"	960	"
"	96,747	"	"	164,229	259	1,178	388	330	10.4	"	1,008	"
"	31,120	"	"	43,612	238	651	649	339	8.1	"	1,064	"

UTILITY	# OF MO DATA	COMM POPUL ATION	# OF CUSTOMERS RESID	COMM FACIL	COMM COMRCL	KWH GENERATED	KWH SOLD	ELIGIBLE KWH RESID	ELIGIBLE KWH COMM FACIL	ELIGIBLE KWH COMRCL	ELIGIBLE KWH TOTAL
Shaktoolik	12	166	45	5	9	487,360	450,378	197,320	62,640	50,581	310,541
Shishmaref	12	444	116	8	16	977,400	955,442	395,861	120,451	94,998	611,310
Shungnak	12	245	59	9	14	835,920	768,492	231,799	71,859	68,128	371,786
St. Mary's	12	563	114	11	24	1,924,320	1,568,145	443,689	203,209	148,305	795,203
St. Michael	12	291	64	5	14	625,680	612,531	211,826	77,008	76,819	365,653
Stebbins	12	384	78	11	11	572,080	481,781	184,377	67,407	48,072	299,856
Togiak	12	623	133	9	21	1,201,200	988,866	497,575	93,161	104,456	695,192
Toksook Bay	12	396	82	7	14	768,600	685,505	311,538	43,025	70,362	424,925
Tununak	12	338	74	11	12	621,920	476,801	177,365	74,742	67,371	319,478
Upper Kalskag	12	144	41	1	8	81,440	154,123	130,219	6,365	41,104	177,688
Wales	12	150	40	7	9	285,400	345,090	113,241	53,997	44,989	212,227
Allakaket Energy Systems	11	195	56	7	4	126,468	106,150	71,670	13,743	19,462	104,875
Alutiiq Power Co. (Karluk)	12	86	22	4	2	308,633	127,798	60,374	8,901	18,123	87,398
Andreanof Elec. (Atka)	12	93	30	7	7	195,640	191,853	78,223	43,672	33,803	155,698
Aniak L & P	12	518	139	0	64	1,872,210	1,645,149	574,310	0	358,203	932,521
Arctic Village Elec.	1	150	46	5	9	10,920	8,843	4,539	3,682	572	8,793
Atmautluak Joint Utility	12	238	51	1	5	447,459	296,978	227,754	3,490	29,309	260,553
Beaver Elec.	6	87	37	2	7	82,233	76,918	18,553	8,280	19,315	46,148
Bethel Utility Corp.	12	4,673	1,428	0	259	10,543,800	25,054,970	6,943,987	0	1,659,340	8,603,327
Bettles L & P	12	67	32	0	30	945,600	825,281	120,651	0	159,446	280,097
Birch Creek Village	12	50	16	4	6	122,421	106,487	17,820	25,377	33,660	76,857
Brevig Mission Utility	12	167	40	1	7	0	105,337	63,679	12,126	20,409	96,214
Buckland City Council	6	269	60	5	6	16,953	86,503	73,667	11,621	11,139	96,427
Chefornak Elec. Co.	10	275	61	3	10	257,734	289,684	194,047	12,171	32,313	238,531
Chenega Bay IRA Vil. Coun.	10	80	22	3	1	59,232	125,089	48,134	32,840	7,500	88,474
Chignik Elec.	11	132	63	8	5	300,319	300,319	180,986	22,683	21,322	224,991
Chitina Elec. Inc.	12	42	25	3	12	146,249	146,249	84,701	1,014	34,286	120,001
Circle Elec. Utility	12	70	12	3	7	194,183	180,031	42,978	6,500	50,332	99,810
Clarks Pt., City of	1	88	26	5	2	10,136	10,095	6,897	1,556	868	9,321
Coffman Cove Utility Assoc	12	175	54	3	12	369,117	633,946	346,516	48,172	72,716	467,404
Cordova Elec. Co-Op.	12	2,558	865	49	410	20,842,032	19,773,667	4,684,024	1,828,849	1,800,674	8,313,547
Diomede City Council	12	157	38	1	9	396,167	365,920	119,170	4,264	52,036	175,470
Eagle Power Co.	12	185	78	3	34	488,736	423,186	130,909	5,051	129,679	265,639
Eagle Village	12	54	19	3	0	60,650	57,323	39,239	18,051	0	57,290
Egegik L & P	12	96	48	5	23	-	578,753	160,391	31,455	123,890	315,736
Ekwok, City of	11	108	38	6	0	116,096	93,025	78,495	11,380	0	89,875
Elfin Cove Elec. Utility	12	65	18	3	13	150,990	139,513	53,297	22,925	53,507	129,729
False Pass Elec. Assoc.	12	72	23	3	3	-	150,133	83,030	5,062	17,767	105,859
Far North Utility (Central)	12	42	19	1	24	85,519	277,893	52,088	4,109	136,636	192,833
G & K, Inc. (Cold Bay)	12	250	33	0	40	3,630,120	3,216,441	236,759	0	294,927	531,686
Galena, City of	7	998	241	12	54	1,323,694	1,303,241	479,824	217,808	151,188	848,820
Golovin Power Utility	12	135	42	8	10	247,383	247,383	103,547	49,238	52,470	205,255
Gustavus Elec. Co.	12	151	102	1	56	640,639	533,912	234,351	16,169	204,166	454,686
Gwitchyaa Zhee (Ft Yukon)	12	641	227	9	74	2,681,937	1,939,387	471,037	287,700	319,401	1,078,138
Haines L & P	11	1,079	528	5	170	8,503,200	7,555,509	2,746,552	349,173	1,066,047	4,161,772

ANNUAL STATISTICS FY 88

AVR. FUEL $/GAL	FUEL CONSUMED GAL.	FUEL COST ($)	OPERATING COSTS ($)	TOTAL DISBURSE-MENTS ($)	ELIGIBLE KWH/M RESID	COMM FACIL	COMRCL	TOTAL	KWH SOLD/ GAL FUEL	OP COSTS/ KWH	AVR ANN DISBUR/ CUST ($)	AVR PCE AMOUNT C/KWH
"	46,953	"	"	80,499	365	1,044	468	439	9.6	"	1,364	"
"	93,845	"	"	158,994	284	1,255	495	364	10.2	"	1,136	"
"	74,630	"	"	96,314	327	665	406	378	10.3	"	1,175	"
"	162,408	"	"	201,670	324	1,539	515	445	9.7	"	1,353	"
"	70,687	"	"	94,913	276	1,283	457	367	8.7	"	1,144	"
"	57,751	"	"	78,305	197	511	364	250	8.3	"	783	"
"	119,776	"	"	179,456	312	863	415	355	8.3	"	1,101	"
"	85,598	"	"	111,304	317	512	419	344	8.0	"	1,081	"
"	54,919	"	"	82,546	200	566	468	274	8.7	"	851	"
"	8,666	"	"	46,546	265	530	428	296	8.8	"	931	"
"	26,782	"	"	55,465	236	643	417	316	10.0	"	990	"
1.569	18,718	29,400	14,978	32,369	116	178	442	142	5.7	0.141	483	30.9
1.640	17,720	29,060	33,734	23,670	229	185	755	260	7.2	0.264	845	27.1
1.040	26,818	27,853	12,860	23,449	217	520	402	295	7.2	0.067	533	15.1
1.112	152,538	170,968	360,000	229,117	344	0	466	383	10.8	0.219	1,129	24.6
1.626	1,488	2,419	1,915	1,887	99	736	64	147	5.9	0.217	31	21.5
1.201	48,032	58,061	139,069	64,213	372	291	488	381	6.2	0.468	1,127	24.6
1.077	14,296	15,208	11,176	12,443	84	690	460	167	5.4	0.145	270	27.0
1.163	2,148,840	2,525,272	1,800,000	617,509	405	0	534	425	12.6	0.072	366	7.2
1.153	86,931	103,609	152,891	88,916	314	0	443	376	9.5	0.358	1,434	31.7
1.389	13,833	19,278	13,973	24,021	93	529	468	246	7.7	0.131	924	31.3
-	0	0	26,994	20,857	133	1,011	243	167	-	0.338	435	21.7
1.492	21,599	40,385	8,145	16,393	205	387	309	226	3.2	0.094	231	17.0
0.890	35,646	31,729	44,191	41,897	318	406	323	322	8.1	0.153	566	17.6
1.049	20,345	21,342	5,200	19,651	219	1,095	750	340	6.1	0.042	756	22.2
0.626	37,810	23,638	46,154	30,613	261	258	388	269	7.9	0.154	403	13.6
0.826	22,004	18,593	72,538	28,471	282	28	238	250	6.6	0.496	712	23.7
0.826	27,843	23,031	-	36,050	298	181	599	378	6.5	-	1,639	36.1
0.956	930	889	-	1,462	265	311	434	282	10.9	-	44	15.7
0.975	53,405	52,694	49,540	29,107	535	1,338	505	564	11.9	0.078	422	6.2
0.757	1,577,362	1,194,023	1,720,767	624,870	451	3,110	366	523	12.5	0.087	472	7.5
1.000	36,778	37,648	192,314	21,031	261	355	482	305	9.9	0.526	438	12.0
0.937	41,465	38,462	94,829	72,047	140	140	318	192	10.2	0.224	626	27.1
1.026	15,030	15,374	15,400	23,947	172	501	0	217	3.8	0.269	1,089	41.8
1.074	57,964	62,436	69,856	119,592	278	524	449	346	10.0	0.121	1,574	37.9
1.836	-	5,014	17,517	14,092	188	172	0	186	-	0.238	320	15.7
0.884	16,724	13,005	16,718	19,935	247	637	343	318	8.3	0.120	586	15.4
0.620	26,423	21,946	53,034	15,663	301	141	494	304	5.3	0.353	540	14.8
0.765	30,350	21,723	115,192	53,228	228	342	474	365	9.2	0.415	1,210	27.6
0.913	262,483	223,882	687,336	123,739	598	0	614	607	12.3	0.214	1,695	23.3
0.819	131,157	111,369	292,110	85,984	284	2,593	400	395	9.9	0.224	280	10.1
0.993	41,523	41,169	57,199	59,977	205	513	437	285	6.0	0.231	1,000	29.2
1.093	77,363	84,579	135,981	175,054	191	1,347	304	238	6.9	0.255	1,101	38.5
1.250	184,775	241,722	274,128	202,232	173	2,664	360	290	10.5	0.141	652	18.8
0.978	691,037	539,571	429,010	165,464	473	6,349	570	538	10.9	0.057	235	4.0

ANNUAL STATISTICS FY 88

UTILITY	# OF DATA	COMM POPUL ATION	# OF CUSTOMERS RESID	COMM FACIL	COMM COMRCL	KWH GENERATED	KWH SOLD	ELIGIBLE KWH RESID	COMM FACIL	COMM COMRCL	TOTAL
Hughes P & L	12	97	31	2	6	141,952	141,566	45,756	32,662	33,004	111,422
Igiugig Vil. Council	12	33	15	3	8	90,647	79,932	19,398	19,019	25,837	64,254
Ipnatchiaq Co. (Deering)	12	148	43	4	6	432,114	424,149	207,875	56,710	28,934	293,519
INN Elec. Co-Op (Iliamna)	12	536	168	17	64	1,935,000	1,673,627	561,191	183,050	314,211	1,058,452
King Cove, City of	12	673	147	11	30	1,966,920	1,255,040	785,996	196,772	101,398	1,084,166
Kobuk Valley Elec. Co-Op	11	86	29	11	2	0	119,394	41,072	38,444	16,009	95,525
Kokhanok Vil. Council	4	132	31	3	3	0	31,235	21,003	3,761	3,035	27,799
Koliganek Vil. Council	12	154	50	7	9	0	144,553	101,126	1,468	16,091	118,685
Kotzebue Elec. Assoc.	12	3,594	810	24	146	16,241,234	13,568,321	4,300,258	1,098,166	821,137	6,219,561
Koyukuk, City of	5	131	42	1	6	40,680	53,597	14,875	4,261	10,580	29,716
Kwethluk, Inc.	12	507	128	1	21	629,057	629,057	319,530	1,277	94,484	415,291
Kwig Power Co.	12	354	65	7	10	535,968	397,386	248,714	20,994	41,865	311,573
Larsen Bay Utility	12	215	52	7	6	-	334,049	159,594	55,966	43,741	259,301
Levelock Elec. Co-Op	12	110	58	3	13	-	325,646	154,166	26,008	32,588	212,762
Manley Utility Co.	11	97	70	1	17	257,341	238,605	103,292	3,266	60,588	167,146
Manokotak Natives Ltd.	9	299	87	2	5	519,878	519,878	303,957	30,790	25,476	360,223
McGrath L & P	12	510	179	5	57	3,112,200	2,808,910	728,170	241,099	297,775	1,267,044
Middle Kuskokwim Co-Op											
Chauthbaluk	12	120	33	3	4	180,247	175,488	71,029	17,355	20,929	109,313
Crooked Creek	12	123	39	3	6	164,366	160,874	81,753	18,659	33,822	134,234
Red Devil	12	36	11	0	8	117,329	114,604	29,362	0	27,784	57,146
Sleetmute	12	107	34	2	3	124,225	121,861	57,096	9,576	18,199	84,871
Stony River	12	62	17	2	3	97,907	95,627	37,708	2,689	14,477	54,874
Naknek Elec.	12	1,271	450	4	207	16,959,850	15,132,238	2,395,018	112,974	1,220,478	3,728,470
Napakiak Ircinraq Power	12	353	80	6	18	0	461,544	252,870	13,101	60,523	326,494
Napaskiak Inc.	10	311	72	4	17	-	256,574	138,498	12,720	45,617	196,835
Nelson Lagoon Elec.	12	58	28	2	3	267,023	271,212	152,209	11,053	24,269	187,531
Nikolai L & P	12	119	35	7	7	249,935	249,935	50,162	89,105	33,588	172,855
Nome Joint Utility	12	3,666	1,320	30	281	23,240,326	21,432,459	6,736,732	1,645,427	1,444,417	9,826,576
North Slope Borough											
Anaktuvuk	12	234	67	1	43	1,710,366	1,277,289	297,265	7,210	212,764	517,239
Atqasuk	12	243	43	1	24	1,526,368	994,464	249,188	31,271	165,743	446,202
Kaktovik	12	231	65	1	24	1,946,720	1,381,464	299,352	10,970	144,317	454,639
Nuiqsut	12	282	77	1	39	1,565,722	1,121,945	309,362	15,172	209,880	534,414
Pt. Hope	12	587	140	4	49	2,493,866	2,174,398	743,568	55,849	264,412	1,063,829
Pt. Lay	12	68	37	1	17	887,511	695,359	139,007	14,436	107,375	260,818
Wainwright	12	526	118	4	42	2,233,120	1,865,175	453,925	68,133	262,775	784,833
Northway P & L	12	342	90	3	17	1,522,600	1,324,216	263,794	44,629	136,294	444,717
Nushagak Elec. Co-Op	12	2,153	744	35	311	14,011,300	13,059,534	3,926,704	537,193	1,602,102	6,065,999
Ouzinkie, City of	12	233	68	7	9	-	458,692	200,542	95,054	42,022	337,618
Pedro Bay Vil. Council	12	54	24	2	3	190,400	83,092	60,907	2,639	10,101	73,647
Pelican Utility Co.	12	213	78	11	27	3,129,120	2,780,953	372,815	117,116	193,970	683,901
Perryville, City of	8	110	23	2	5	-	114,852	55,708	141	19,331	75,180
Pilot Point Vil. Council	11	67	22	1	11	-	144,389	89,304	43	43,108	132,455
Port Heiden, City of	11	119	42	4	7	176,720	305,105	173,416	0	51,760	225,176