COMINCO / RED DOG MINE

Alaska State Legislature

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Senate

Committee on Resources

TO: Senate Resources Committee Members

FROM: Senate Resources Committee Staff

RE: February 9 Cominco Briefing

DATE: February 8, 1983

Tomorrow's briefing by Cominco on potential mineral development in Northwest Alaska will include a proposal for State legislation to create regional transportation authorities. Enclosed for your information is a report, prepared by the NANA Corporation and Cominco, describing this proposal.

The briefing will be held at 3:00 p.m. in the Senate Finance Room. Please bring the attached information packet to the briefing with you.

Cominco Alaska/5660 'B' Street/Anchorage, Alaska 99502/Tel. (907) 274-8566

Cominco Alaska

The Honorable Senator Bettye Fahrenkamp
4016 Evergreen
Fairbanks AK 99701

October 11, 1982

Dear Bettye:

I would like to express my appreciation for the effort you made to visit our Red Dog Mine site on August 27, and the interest you have shown in our project.

In relation to our conversation regarding the regulatory regime, I have presented below a review of those environmental regulations which are adversely effecting the development of mining in the State of Alaska. My comments are subdivided into two major groups; State administered regulations and Federally mandated regulations. This review has been prepared to highlight our appreciation of problems relative to critical environmental regulations. A more detailed review of any specific topic will be prepared at your request. Major topics discussed include the transfer of regulatory responsibility from the Environmental Protection Agency to the Alaska Department of Environmental Conservation, State Water Quality Standards, new EPA rule making and problem areas within provisions outlined in the Alaska National Interest Land Conversation Act.

I. State of Alaska

1. Air Quality Management Program (PSD) of the State of Alaska.

The Alaska Department of Environmental Conservation (DEC) is now in the process of reviewing guidelines which allow the take-over of the Federal mandated PSD program (Potential for Significant Deterioration of Air Quality) from the Environmental Protection Agency (EPA). The PSD program is a Federal program which has caused a significant amount of confusion among industry, and major problems for regulatory agencies. The law has undergone major revisions and the confusion of guideline changes has resulted in significant cost to industry. The transfer of regulatory responsibility from the Federal government to the State of Alaska will be a positive step, in the long term, of reducing the problems associated with this law. However, in

the short term and most likely during the permit acquisition period of the Red Dog Project, this changeover will cause significant problems in obtaining actual permits. During EPA's administration of the program, they have established internal policies which have provided "ground rules" to allow interpretation of vague or incompleted rules and guidelines. This has allowed industry the opportunity to identify clear problem areas and time schedules for individual projects. The transfer of regulatory responsibilities to the State will cause a new review of such "ground rules" which will directly effect project planning. Further, the State is presently inexperienced in the management of the PSD program, and such inexperience can result in a slow review of applications and cautious interpretations of regulations.

We would like to suggest the following areas be monitored by the Legislature:

a. The Department of Environmental Conservation should be closely reviewed as to how the PSD program will be managed.

b. The timetable for the transfer of regulatory responsibility should be clearly defined.

c. The specific role of EPA should be clearly identified. Ill-defined responsibilities between the two agencies will lead to confusion when an individual permit application is being processed.

Specific areas of concern relative to the Red Dog Project include:

a. Identification of where the Red Dog Project will need to meet ambient air quality standards.

   The present EPA guidelines state that ambient air quality standards must be at the edge of the property boundary. The property boundary is defined as that area to which the public does not have access. This definition is quite unclear when dealing with remote mining projects. Meeting ambient air quality standards directly adjacent to the point of discharge is unreasonable and extremely costly. EPA has previously identified the property boundaries as the boundary of the mining claims. Cominco suggests DEC take the same approach.

b. Determination of the timing of when a PSD permit is required.

   In the planning of many fast track projects, there is not sufficient time to obtain all permits before construction of some components begins. Therefore, some permits are staggered and are granted before specific components are constructed. One such example is the granting of the PSD permit and construction of the milling and power generating facilities. The PSD permit

will be granted only for the milling and diesel generating facilities. Under these circumstances, EPA normally requires the permit process to be completed before the foundation for the mill can be started. By taking this approach, other time-dependent components of the project, such as access routes, tailings impoundment areas, etc., can be started. This will allow at least one year to be saved in the development of a project such as Red Dog. Cominco suggests DEC take the same approach.

2. Receiving Water Quality Standards of the Alaska Department of Environmental Conservation.

In the discharge of waste water from any mining operation, EPA has effluent standards which must be met in the discharge pipe. The State of Alaska has added receiving water standards for those waters to which effluent is disposed. Therefore, industry must meet one set of water quality standards in the discharge pipe and another in the waters which accept the effluent. The law states that, for those effluents which induce heavy metals into receiving waters, the effluent must meet or be lower than .001 of ambient water quality standards or 96 hour LC 50 for the most sensitive species of aquatic organism found in the stream.

If the stream does not meet the standard, then ambient water quality must be met. This standard must be met at the edge of a negotiable mixing zone. However, the regulations also state that for those effluents which contain heavy metals, no mixing zone will be allowed. This obviously creates significant problems for industry, because the State of Alaska has designed one of the most restrictive regulations for water quality in the world. The mining industry is being asked to meet extremely stringent water quality regulations at the edge of a mixing zone, when a mixing zone is not presently allowed by law.

The Alaska Department of Environmental Conservation is essentially asking the mining industry to meet regulations which are extremely stringent and ones to which facilities such as the Anchorage Waste Water Treatment Plant do not have to adhere.

Cominco and other major mining companies in Alaska have quietly expressed concern to DEC on this matter, and little progress is being made. The following actions are suggested:

a. The Legislature take a close look at the potential long term cost of such stringent regulations.

b. Water quality regulations be rewritten to allow standards to be equal for all waste water discharges in Alaska. For example: why should the Anchorage waste water treatment not have to meet the same water quality standards as the mining industry?

c. The Legislature should direct DEC to clarify the specific standards to which industry must adhere. The lack of formal standards makes it difficult to plan the feasibility of individual projects.

II. Federal Regulations

1. Proposed Water Quality Regulations for the Ore Mining and Processing Industry (EPA proposed rules).

The Environmental Protection Agency is presently reviewing proposed rules related to water quality management from the mining industry. The rules are described in the June 14, 1982 Federal Register (40 CFR Part 440). Of major concern to the mining industry in Alaska is paragraph (b) (1) of 440.124 which essentially requires a zero discharge of process water from mill tailings ponds. If the EPA were to implement these new regulations, it would effect many of the mining projects now under environmental review.

In summary, the EPA rules would require that no treatment process water coming from flotation mills be allowed to be discharged. The only treated water which could be released would be that amount which drained into the pond from rainfall. The need to recycle process water creates difficult problems in terms of metallurgy. These problems would require tailing ponds to be sized larger. This will add a significant cost burden to any new mining project in Alaska which uses a flotation milling process.

2. Clarification of Provisions Outlined in the Alaska National Interest Land Conservation Act (ANILCA).

There are a number of specific provisions dealing with mining projects and access to conservation units in the Alaska National Interest Lands Conservation Act (ANILCA) which are very ambiguous in description. One of the major points of language which is a concern to Cominco are those sections in the bill which refer to project planning and the identification of feasibility of project alternatives. The interpretation of feasibility, specifically economic feasibility by the resource agencies, looms as a major stumbling block in permit acquisition for mining projects. When mining projects are located in major conservation units, or wish to gain access through such units, the lead agency

must evalute potential alternative methods for developing the project (as outlined in the National Environmental Protection Act of 1970). This alternative analysis is based on the concept that any alternative listed in an EIS must be feasible to be included in the document. However, the interpretation of feasibility is presently somewhat unclear, particularly in regards to economic feasibility. When the question of economic feasibility arises during the EIS process, the lack of clear guidelines to allow decisions to be made has caused great confusion among the resource agencies. Without clear guidelines as to how economic feasibility should be measured, the agencies have taken the most conservative approach and view only those alternatives which do not make the entire project infeasible as acceptable from an economic viewpoint. However, their intent should be to allow the companies to maximize economic return while protecting environmental concerns to a reasonable extent.

Cominco would like to suggest that the State take an active role in the Federal process of defining the extent of the word "feasible" as outlined in ANILCA. A clear definition of this term will ease many of the problems associated with permit acquisition in conservations units in the State.

The regulatory problems discussed in this letter are somewhat specific in nature. However, the major problems related to government regulations which face industrial development in Alaska are rooted in how the "NEPA" process (environmental review) is administered by State agencies. Large or controversial projects are subject to long review by numerous single-purpose State agencies. The potential for legal action by environmental groups has led these agencies into requiring an excessive level of detail in the data gathering and analysis of impacts by industry. This attention to detail requires large sums of money to be expended and long lead time in the development of new projects.

Alaska needs to consider a method by which resource agencies can be coordinated in their input on projects and how differing agency views can be mediated. The present State clearinghouse system ineffective and industry is forced to negotiate with each agency as to the terms upon which individual projects will be developed. In general, a well-conceived permit structure, with specific time frames and methods to mediate concerns presented by individual resource agencies, would be a helpful addition to land use planning in Alaska.

I hope this review has been helpful. Please feel free to request any additional information which you may require.

Sincerely,

H.M. Giegerich
President & General Manager

HMG/jmr

GCO Minerals Company
HOUSTON, TEXAS 77210

W. H. TONKING
EXECUTIVE VICE PRESIDENT

P O BOX 4258
713/651-9261

January 5, 1983

Mr. H. M. Giegerich
President and General Manager
Cominco Alaska
5660 "B" Street
Anchorage, AK 99502

Dear Hank:

This refers to my letter of 27 October 1982 and to the telephone conversations, one with Marc and several I have had with Mike LaFleur since then.

As you know, Mike suggested that GCO might wish to submit an additional letter that would either accompany or explain our initially proposed draft agreement to you. He indicated that you would not object to a common approach by us to the BLM or the State of Alaska for a non-exclusive transportation corridor and port facility application which would facilitate the developmental and operational needs of our respective programs in, and NANA's objectives for, the DeLong Mining District.

As a means of clarifying GCO's position in this matter, for your needs as well as those of other affected parties, you may be assured of GCO's interest in joining with Cominco and NANA to file a joint application for such a non-exclusive transportation right of way and port facility. In our view the urgent need to obtain early approval of a transportation corridor and port facility that can be planned, built, and operated to meet our respective corporate objectives is of equal importance to the specific route selection.

Our strong preference is to join with NANA and Cominco in a joint effort to encourage the State of Alaska to develop and finance a publicly owned transportation corridor and port facility that would not only serve our needs but would serve other public or private entities seeking to develop the natural resources of the area. We would assume that you agree that it is in the best interest for all parties to make certain that a publicly owned and operated facility is planned and developed to meet all requirements, known or anticipated, and we are of course willing to work with you to assure that those interests are clearly presented to the appropriate governmental offices as they go forward with such a plan.

Although we greatly prefer the foregoing course of action, as we said in our 27 October letter, we would consider working with you and NANA to develop an application for a non-exclusive corridor and port facility which might be planned by us independently of governmental assistance and which might require private financing to insure its development. As we have said, however, we would have to have some assurance that GCO's objectives, where they might differ from those of Cominco, will be taken into consideration both in the planning and the development stages. As you can appreciate we are not ready to agree to commit to such a program until we have a better concept of the magnitude of the engineering required, the financial commitment involved, or the operational restrictions which might be imposed on one or both of us.

With the above understanding, we are ready to discuss the next step to be taken to insure early decisions either on a publicly financed and operated facility or one that we might jointly wish to undertake on our own or in conjunction with other private or public participants. Should Cominco be interested in this, we will arrange our schedule to be available to meet with you on a date you select. Once basic agreements have been reached, GCO would approach the several agencies with whom we are now working to propose such modifications of our current applications to conform to new plans to which we may have mutually agreed at that time.

Wishing you a happy and prosperous 1983.

Best regards,

W. H. Tonking

WHT:VL

cc: M. F. LaFleur, Cominco American

b/cc: J. M. Britton
L. V. Clark
J. A. Moore
A. D. Wood
M. F. Wray - information only

Cominco Alaska · 60 "B" Street/Anchorage, Alaska 99502/Tel. ') 274-8566

Cominco Alaska

W.H. Tonking
Executive Vice President
GCO Minerals Company
P.O. Box 4258
Houston TX 77210

January 14, 1983

Dear Bill:

I wish to acknowledge with thanks your letter of January 5 in regard to our application for a transportation route from the Red Dog/Lik area to the Chukchi Sea.

Unfortunately, there appears to be a misunderstanding on the part of GCO in regard to Cominco's position on this application, and our proposal that GCO support the application. I would, therefore, like to clarify Cominco's position.

The key points of our proposal to GCO are as follows:

1. GCO will withdraw its application for the northern route access to the Chukchi Sea.

2. GCO will officially support Cominco's application for a transportation route from Red Dog to the Chukchi Sea along the southern corridor.

3. Cominco will be the sole applicant for the transportation route.

4. Cominco will in good faith negotiate with GCO for use of the transportation corridor if the system is constructed at Cominco's expense.

5. Cominco will use its best efforts to obtain agreement of third parties for GCO's use of the transportation route, if this agreement is required.

6. If public ownership and operation of the transportation system becomes a fact, we recognize that the system will be open to any company to use, for the purpose for which it was constructed, under an appropriate tariff structure.

I trust this will clear up any misunderstanding on GCO's part. If it appears that it is not possible for you to work with us under these conditions, then I see no useful purpose in continuing our discussions, and Cominco will carry on with the application and permitting for the southern route, without your support or assistance.

Yours truly,

H.M. Giegerich
President & General Manager

HMG/jmb

cc: MFLaFleur
LFBeaudoin

Alaska State Legislature

Senate

Official Business

Pouch V
State Capitol
Juneau, Alaska 99811

Memo

To: Bettye

From: Pat

Subject: Cominco Briefing, Feb. 9, 1983--Participants

The following folks will be either presenting or accompanying the Cominco people:

1) HANK GIEGERICH, President and General Manager, Cominco Alaska

2) JOHN SCHAEFFER, President,NANA

3) JOHN SHIVELY, Senior Vice President, NANA Development Corp.

4) Don Argetsinger, Vice President, NANA Development Corp.

5) Eric Wolforth, Wolfworth and Flint, attorneys

Don and Eric will probably be introduced by others and may or may not participate in presentation.

Alaska State Legislature

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Juneau, Alaska 99811

Memo

To: Bettye

From: Pat

Subject: Cominco Briefing/Red Dog Mine, Feb. 9, 1983

Although most points will probably be covered in the briefing we should probably make sure the following questions are brought out or clarified:

1) What are the constraints now preventing mine development (e.g. economic factors, more exploration, infrastructure, etc .)

2) When might the mine be operational assuming the above could be overcome?

3) If infrastructure problems are key, what are the minimum facilities necessary for initial mine production?

4) If a regional transportation authority were not established are there other possible alternatives for infrastructure development?

5) Although a regional transportation authority contemplates the use of revenues from users to pay back revenue bonds, can user fees fully cover infrastructure costs or will state funds and appropriations be necessary? How much? Federal appropriations?

6) Are there other industrial/mining users anticipated for these facilities? (GCO Minerals--Lik deposit; Su deposit nearby)

7) What public benefits/users would be anticipated from port, road development

8) Is any part of this project in the North Slope Borough? If so, how would this relate to a regional transportation authority? (I think part of the claims are in the Borough)

9) Would any state lands be involved in the project or related infrastructure?

10) Are there any potential land trades involving state lands in the infrastructure development? (I think there is possibility)

11) What types of wastes/pollution would be generated by the milling/mining operations?

Mining can give fisheries a helping hand

Discovery and development of a world-class copper, lead and zinc deposit near Kotzebue could have an interesting positive impact on subsistence fisheries nearby.

In the early 1970s, pilot Bob Baker suggested to the U.S. Geological Survey that it investigate a reddish seep in an area 30 miles north of Kotzebue. Baker was owner of the Red Dog Air Service, and the mineral deposit discovered because of his tip has come to be known as the Red Dog mine.

USGS did investigate the seep and discovered a massive sulfide deposit rich in copper, lead and zinc. In 1978 NANA Corp. selected the area under the Alaska Native Claims Settlement Act. In 1982 Cominco, currently operating the Polaris mine in the Northwest Territories, and NANA reached final agreement on the development of this massive deposit. Plans call for an open pit mine with a life expectancy of 50 years.

Red Dog Mine is scheduled to start construction in mid-1984 with production to begin in 1986. However, this is contingent upon the world economic situation, as the market has been depressed for the past few years, according to a Cominco spokesman.

The Red Dog is one of two world-class ore bodies discovered in Alaska by government geologists. Red Dog creek is located in a lightly timbered area on the west end of the Brooks Range. It flows into Ikalukrok Creek which, in turn, flows into the Wulik River. For years the Wulik has been, and still is, used for subsistence fishing for the village of Kivilina. However, since the 1970s there have been a large number of natural fish kills documented in the area.

When NANA Corp. and the Cominco Co. made their first agreement to develop the mine, the first order of business was to prepare an environmental impact statement. Several consulting firms were hired to collect data. In 1981 35 sampling stations were set up, and in 1982 36 sampling stations were used. The data led to the discovery that the cadmium, lead and zinc levels in the water far exceeded the allowable levels set by the Environmental Protection Agency.

Tissues from char and grayling were sampled. The gills from these fish showed dissolved metals, which is probably a leading factor in their mortality. Adult grayling caught in the Ikalukrok above the mouth of Red Dog Creek were caged and placed in the waters of Red Dog Creek. These fish didn't survive more than 24 to 36 hours and often succumbed after only eight hours of exposure to the waters directly below the ore deposit. When the fish died they exhibited several traumatic effects—their eyes became cloudy which was attributed to dissolved metals deposited on them. They became discolored and exhibited erratic behavior before they expired. One fish had a cancer-like growth on the liver.

It was discovered that the iron and zinc oxide precipitates caused a natural turbidity of the creek that was way above the accepted standards. When there is a weathered surface on a sulfide deposit, natural leaching takes place, changing or oxidizing the sulfide ore into a sulfate. Sulfates will leach or weather from the exposed surface of the sulfide rock. Thus, once the cycle is started, it is practically impossible to stop. Bacteria will occasionally colonize on the surface of sulfide ore and use it as a source of energy thereby accelerating the leaching process.

Will the Red Dog Mine, when it finally comes on line, actually help to preserve the life of the Arctic char, grayling and salmon in that area? The experts are now working on that very question—but all indications are that it is possible.

At the present time, the waters of Red Dog Creek are in violation of most of the water quality standards of Alaska. According to the Department of Environmental Conservation's handbook, the Red Dog and every other fresh water stream in Alaska is classified as good for drinking; culinary and food processing; water recreation; agriculture, which includes irrigation and stock watering; contact recreation and growth and propagation of fish and other aquatic life. Clearly the classification is not in the best interest of the public.

It is possible that mining in this area will improve the quality of the receiving waters for Red Dog Creek as well as other waters downstream. This points to the importance of studying each area and each specific creek for existing conditions prior to issuing a blanket classification, as was done when the present water quality regulations were implemented. This water has proven high quantities of natural heavy metal content and should never have been classified as fit for human use. Is it possible that other areas in historic mining districts already in production would have shown the same data prior to mining activities? Heavy concentrations of metals in water now being blamed on the effects of ongoing mining are often caused by natural leaching and erosion in highly mineralized areas.

Modern prospecting techniques and the experience at Red Dog indicate that high concentrations of heavy metals in water are the same to the prospector as tracks are to a hunter.

* * *

Rybachek welcomes questions and comments. Readers may write to her care of Fairbanks Daily News-Miner, P.O. Box 710, Fairbanks, AK 99707.

ROSE RYBACHEK
Resources columnist

Columnist named

Today we introduce a new columnist whose views will be published here every other week.

Long-time Fairbanksan Rose Rybachek will be telling our readers about natural resource development, with an emphasis on mining.

Rybachek, a member of the Alaska Miners Association, Alaska Women in Mining and president of the Tolovana Mining District, with her husband, Stanley, has been operating a placer hydraulic mine in the Livengood area since 1961. She has lived in Alaska since 1958.

Mining is not her only interest. She has served on the boards of the state and national PTA, was 20th District Republican Party secretary, hosted a television talk show, "Rose's Window," for two years, and worked in television advertising sales.

TRANSPORTING ALASKA'S NATURAL RESOURCES —

A PROPOSAL TO CREATE
REGIONAL TRANSPORTATION AUTHORITIES
IN ALASKA

AN EXECUTIVE SUMMARY

TRANSPORTING ALASKA'S NATURAL RESOURCES — A PROPOSAL TO CREATE REGIONAL TRANSPORTATION AUTHORITIES IN ALASKA

EXECUTIVE SUMMARY

The purpose of this briefing paper is to illustrate the need for a wider variety of options for developing needed transportation facilities in unincorporated regions of the state to allow development of the state's natural resources. The benefits of such resource development and improved rural transportation in one such region - northwest Alaska - are discussed, using the Red Dog zinc/lead deposit as an example. A regional transportation authority could provide maximum flexibility in the financing, construction and operation of needed transportation facilities.

I. Alaska's Mineral Potential

There is growing interest in the mineral potential of Alaska, much of which remains relatively little-explored. Northwestern Alaska contains a number of highly mineralized areas with future development potential. The DeLong Mountain District, in particular, contains some major deposits, among them the world class Red Dog zinc/lead deposit. These deposits are relatively close to tidewater; however, there is currently no surface transportation system in the region. A developing mining sector could provide jobs and income for local residents, expand economic activity in the region, lower the high costs of goods, reduce rural areas' high dependence on government spending by strengthening the private sector, and produce revenues for federal, state and local governments.

II. The Need for an Improved Transportation System

Many rural areas of the state lack even the rudiments of a transportation system, frustrating resource development, especially mining. Lack of transportation can keep a mineral deposit from being developed even when market conditions would otherwise allow, and the front-end expense of privately constructing a system for an individual project, sometimes years before full production is achieved, can make the project infeasible. In Alaska, where much of the state lies outside the jurisdiction of any local

or regional government, state assistance in the only alternative. Given the competition for limited state funds and the benefits which would be realized from responsible mineral development, a wider range of options for financing and operating regional transportation systems is critically needed.

Authorizing the creation of regional transportation authorities in unorganized areas of the state would allow greater flexibility in combining public and private funding and also provide rural residents with greater control over the future development of their region. The authority would be created by the region's voters, and operated by a locally-elected board with state representation. Using its revenue-bonding ability in conjunction with industry and state funds, it could develop the basics of a regional transportation network to encourage resource development. State funds would thus be targeted to public facilities of regional or statewide importance. An authority would not only provide a variety of options in transportation financing, but also in construction and operation. Such a mechanism would produce the greatest benefits to the region, the state and industry at the least social, environmental and financial cost to all involved.

III. Potential Benefits of Mineral Development: A Case Study of the Red Dog Deposit in Northwestern Alaska

The Red Dog Deposit. Owned by NANA Regional Corporation and leased to Cominco Alaska, the Red Dog deposit ranks among the best and largest known zinc/lead deposits in the world. Reserves are estimated at 85 million tons, running 17.1% zinc and 5.0% lead. It also contains 2.4 oz/ton silver and an undetermined amount of barite.

If it is decided to proceed with development, Red Dog will be an open pit mine from which ultimately 2 million tons of ore will be mined annually. Production is expected to start in 1987 and expand in 1993. After expansion, the mill will produce 700,000 tons of zinc and lead concentrate annually which will be transported by road or railroad to a port on the coast.

Cominco has agreed to a number of special measures designed to safeguard environmental and cultural values, particularly subsistence, and to ensure the region benefits from the mine's development. These measures include a local hire preference, an extensive training program, strict environmental controls and use of a rotating work force.

Potential Benefits of the Red Dog Deposit.† The NANA Region is characterized by historically high unemployment rates, low average annual per capita incomes, a small private sector and heavy dependence on government spending, leaving the region vulnerable to federal and state funding cutbacks. The most critical economic priority in the NANA Region is expanding private sector employment.

The Red Dog Project will create up to 430 new, permanent, year round jobs plus 30 seasonal jobs in the region and an additional ten in Anchorage. Hiring policies will give preference to 1) residents of the NANA region, 2) other residents of the northwest region, and 3) other Alaskans. Local hire is expected to range from 50-85% in the first five years; ultimately, it is planned that local hire will reach 100%.

The annual payroll will be approximately $13 million, most of which will be paid to NANA region residents and other Alaskans. The NANA Region will also see approximately $700,000 for air charters, up to $100,000 for supplies, repair services, etc. and up to $1 million for loading concentrates onto ships at the port. A portion of the $24 million allocated annually for operating supplies will flow into the Alaskan economy. In addition, Anchorage will benefit from annual expenditures of $1 million for an accounting and purchasing office, up to $1 million for repair supplies and part of the $1.3 million earmarked for commercial airlines. These expenditures will in turn stimulate the regional and state economies, causing additional jobs and income to be generated.

State, federal and local governments will benefit from additional tax revenues. In the tenth year of production, it is estimated that state taxes (corporate income and mineral license taxes) could amount to roughly $20-30 million. The federal government would receive revenues from both corporate and personal income taxes. Local taxes would be derived from local property and sales taxes.

Additional potential benefits may include reductions in the cost of importing and distributing goods, additional mineral exploration and development, preparation of the local work force for future development projects, reductions in seasonal fluctuations in employment and income and jobs which allow employees the needed flexibility for continued participation in local subsistence activities.

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† Note: All employment, expenditure and tax revenue estimates are based on projections for the tenth year and given in 1983 dollars.

TRANSPORTING ALASKA'S NATURAL RESOURCES —

A PROPOSAL TO CREATE

REGIONAL TRANSPORTATION AUTHORITIES

IN ALASKA

TRANSPORTING ALASKA'S NATURAL RESOURCES — A PROPOSAL TO CREATE REGIONAL TRANSPORTATION AUTHORITIES IN ALASKA

TRANSPORTING ALASKA'S NATURAL RESOURCES — A PROPOSAL TO CREATE REGIONAL TRANSPORTATION AUTHORITIES IN ALASKA

SUMMARY

Although relatively little-explored, Alaska contains many richly mineralized areas, and it is likely that mineral development will play an increasingly important role in the state's economy in the future.

Much of this mineral potential lies in rural areas of the state with little or no modern surface transportation system. This not only frustrates resource development, but contributes to the high cost of living and handicaps economic growth generally, including the expansion of job opportunities. The front-end costs of privately constructing a system, perhaps years before full production, can make the project infeasible.

There is no municipal government in much of rural Alaska, so state assistance is often the only alternative. A wider range of options for financing, constructing and operating transportation facilities in rural Alaska is critical if this tremendous resource potential is ever to be realized.

A regional transportation authority with revenue bonding ability would provide the greatest range of options to accomplish this. It would allow the most appropriate mix of public and private investment in each case, while at the same time allowing each region greater responsibility for regional economic development.

As this paper shows in its analysis of the Red Dog Project, the social and economic benefits of mineral development in rural Alaska are considerable: jobs and income, regional economic growth, and tax revenues to state, federal and local governments. But resource development is closely tied to transportation systems, and more flexible and creative approaches are necessary. The option of creating regional transportation authorities seems to best meet the transportation needs of resource development in rural Alaska.

I. ALASKA'S MINERAL POTENTIAL

The mining industry is showing great interest in Alaska as a relatively little-explored area with high mineral potential, and it is likely that mineral development will play an increasingly important role in the state's economy in the future. Many richly mineralized areas have been identified and active exploration efforts are continuing. As more of the state is thoroughly explored, there is a strong likelihood additional high quality deposits will be discovered.

Northwestern Alaska is a good example of a rural region which comprises a number of highly mineralized areas with future development potential. The DeLong Mountain District in particular, located in the western Brooks Range, contains a rich mineralized zone with significant occurrences of zinc, lead, silver, gold, barite, copper, chromite, nickel and other minerals. The Ambler District to the east contains occurrences of jade, copper, cobalt, gold, silver, barite and zinc.

This area has been undergoing exploration for a number of years, and the mining industry is currently showing great interest in its mineral potential. Industry and government efforts have turned up some promising deposits. Some, like the Red Dog zinc/lead deposit, are considered world class and can be counted among the major deposits of their type in the world. Exploratory work continues on a number of other deposits, including the nearby Lik and Su deposits, and it is likely that continuing exploration efforts will identify additional deposits which will be economic in the foreseeable future. The DeLong Mountain District has the advantage of being relatively close to tidewater; the Red Dog, Lik and Su deposits are within 55 miles of the coast.

The DeLong Mountain District is within the bounds of the NANA Region, a sparsely populated area of approximately 38,000 square miles encompassing ten villages and the regional center of Kotzebue, a city of about 2,500. The economy of the region is heavily dependent upon subsistence, but also depends upon an inflow of cash, largely from outside the region, and much of it a result of government spending. Therefore, there is great interest in strengthening and expanding private sector activities and increasing job opportunities within the region.

Resource development is, of course, Alaska's primary source of economic activity. The NANA Region already has small but important fishing and reindeer herding industries, but its mining industry remains largely undeveloped. A developing mining sector could provide jobs and income for local residents, lead to economic growth in the region, lower the costs of goods and services, reduce the region's high dependence on government spending and produce revenues for federal, state and local governments.

II. THE NEED FOR AN IMPROVED TRANSPORTATION SYSTEM

Many rural areas of the state lack even the rudiments of a modern transportation system. This is true in the NANA Region. The absence of transportation can frustrate resource development, make it difficult for residents to obtain goods and supplies at a reasonable price, and generally handicap economic growth, including the expansion of job opportunities.

Lack of transportation can keep a mineral deposit from being developed even when market conditions would otherwise allow development. Bringing a mine into production requires a large amount of capital even when transportation facilities exist. The additional high front-end costs of privately constructing a transportation system for an individual project, perhaps years before full production is achieved, can make the project infeasible. In many parts of the world, including Canada and the U.S., government has often assisted in developing basic transportation facilities where potential social and economic benefits warrant such involvement. In Alaska, where much of the state lies outside the jurisdiction of any local or regional government, state assistance is the only alternative.

Given the competition for limited state funds, the benefits which could be realized from responsible mineral development, and the lack of local or regional government in much of Alaska, additional options for financing, constructing and operating rural regional transportation systems are needed.

Creation of a regional transportation authority would allow the judicious use of both public and private financing and allow flexibility in all phases of developmen and operation of transportation systems in rural Alaska. An authority could be created by

the voters of a region in the unorganized borough. It would be a public entity outside the normal structure of state government operating according to legislated goals and purposes. It would be operated by a locally-elected board with state representation and would have the authority to issue tax-exempt revenue bonds to finance a transportation system within that region for the purpose of resource development.

A transportation authority would provide for an optimum mix between public and private financing and control for each project. Normally, state funding would still be used where a facility, such as a regional port, has a broad public purpose. However, the authority could work with industry to devise an optimum financing package for other facilities needed primarily for resource development. Ultimately, the user would pay for these facilities, since the authority would repay the bonds out of operating revenues. It would also provide a wide range of options with regard to construction, operation and maintenance: an authority in one region might construct and operate all or part of a system; in another region the system might be constructed and/or operated under lease to industry.

Allowing the creation of transportation authorities in rural Alaska would not only lead to the expansion of the state's transportation system and increased resource development, but would provide the flexibility needed to respond to the particular circumstances in each region and ensure that development was responsive to local needs and desires. It would allow the state to make a case-by-case judgment on the amount of assistance necessary and proper. It would provide a centralized regional entity which could plan and develop transportation facilities to promote orderly resource development in the region. An authority would also allow rural Alaskans the opportunity to assume greater responsibility for the region's development. The resource development made feasible by the construction of transportation facilities would in turn build up a tax base which could eventually allow municipal incorporation.

Thus it appears that allowing the creation of a regional transportation authority by local voters would take advantage of the relative strengths of both the public and private sectors, and would produce the most benefits to the particular region, the state and industry at the least social, environmental and financial costs to all involved.

III. POTENTIAL BENEFITS OF MINERAL DEVELOPMENT: A Case Study of the Red Dog Deposit in Northwestern Alaska

The Red Dog Deposit

The Red Dog deposit is located in northwestern Alaska away from existing transportation networks. Since prospects for its development are good, it is a useful case study of the potential benefits of mineral development.

Red Dog is a zinc, lead, silver and barite deposit located approximately 90 miles north of Kotzebue and 55 miles from the Chukchi Sea. It is owned by NANA Regional Corporation and leased to Cominco Alaska, a subsidiary of Cominco Ltd, one of the world's largest producers of zinc and lead. Red Dog ranks among the best and largest known zinc/lead deposits in the world. The reserves are estimated at 85 million tons of mineralization. Grade estimates are 17.1% zinc, 5.0% lead and 2.4 oz/ton silver (Red Dog's barite content is still undetermined). This compares favorably with other zinc/lead mines around the world, including many now in operation.

Red Dog will be an open pit mine developed in phases with production beginning in 1987 and expanding in 1993, when annual production will rise to 2 million tons of ore to produce 580,000 tons of zinc concentrate, 120,000 tons of lead concentrate, 50,000 tons of barite concentrate and 3.3 million ounces of contained silver. Because of the size of the orebody, the mine will operate over a long period - at least 50 years, with an extension if additional ore is found.

The infrastructure requirements for the mine include two major facilities -- the mill, or concentrator, near the mine site and a port on the coast -- plus a method of transport between the two. The alternatives which have been investigated include a road, railroad and slurry pipeline.

In developing the Red Dog deposit, Cominco has agreed to a number of special measures designed to protect environmental and cultural values in the region. Safeguarding subsistence is a top priority. Critical areas will be avoided in the siting of facilities. Strict air and water pollution controls will be instituted. A local advisory committee

has been formed to advise Cominco and NANA on matters relating to subsistence and, if considered necessary, overland traffic by rail or road may be halted during caribou migrations. Similarly, ocean shipping during whaling and sealing seasons may be temporarily suspended if it is deemed a problem.

Cominco will use a rotating workforce accommodated in hotel-type quarters rather than establishing a residential community at the mine. It is not anticipated that the region's population will increase due to the mine operation, since most workers will be local residents (see p. 8). The project will pay the transportation costs to and from the mine and villages within the region, as well as Kotzebue, Anchorage or Fairbanks. This will minimize the social impacts on the region and also minimize impacts on public services and facilities, precluding the need for new schools and health facilities, increased police and fire protection and other services. There will be a small infirmary at the mine site to provide medical care to mine employees.

Potential Benefits of Developing the Red Dog Deposit

A number of benefits can be expected from mineral development in Alaska. In the case of Red Dog, as many benefits as possible are being purposely targeted into the NANA Region.

Overview of the NANA Region Economy. Traditionally, and like most rural areas of Alaska, this region has had higher than statewide average unemployment rates, although it has been improving relative to statewide averages in the past several years, according to official figures. The Kobuk Census Division's (NANA Region) employment continues to lag behind that of the northern region as a whole (Barrow-North Slope, Nome and Kobuk). However, official figures do not necessarily reflect the actual number of people who would like to work if jobs were available, since they include only those persons actively looking for work. In rural Alaska, residents tend to know whether job opportunities exist and are unlikely to be actively looking for work if none exists. While no figures on actual unemployment rates in the NANA Region are available, it is certain they are substantially higher than the official figure of approximately 10% (1980-82 average). In a study in the Lower Yukon-Kuskokwim Region in 1981, it was found that,

while the official estimated unemployment rate for January 1981 was over 13%, the actual figure (still using the standard definition) was almost 25%. If the definition were broadened to include "discouraged" workers who were not actively job hunting but who wished to work, the unemployment rate rose to almost 50%.

In addition, the region's average annual per capita income of $7,225 is well below the state average of $12,635 (1980 dollars), although the cost of living is considerably higher.

In the NANA Region, one-half of the workers are employed by state and local government, compared to an average of one-quarter to one-fifth for all of Alaska. The federal government employs 13-20%, compared to 10-11% statewide. The service, retail, transportation, communications, utilities and construction sectors employ smaller percentages of the area's workers than statewide.

In addition to this concentration of employment opportunities, the regional economy is highly seasonal. Employment peaks during the construction and fishing season and as school starts and reaches a low after school closes in June. Employment is relatively concentrated in Kotzebue, which contains only 42% of the population but 64% of the jobs, so villagers must often come into Kotzebue to find work.

Perhaps even more important is the degree of regional dependence on the public sector as a source of cash in the area. Sixty percent of personal income is directly earned through the government sector (17.5% from federal sources, 42.5% from state and local sources in 1980). In addition, transfer payments (GI benefits, medicare, food stamps, unemployment benefits, etc.) amounted to $7.5 million, more than one-fifth of the total personal income of the region in 1980.

Earnings in the private sector are relatively small; it is estimated that in 1980 less than one-third of the total personal income was derived from that source, versus slightly over half statewide. As reported by the U.S. Department of Commerce, transportation and public utilities accounted for almost 15% of the income earned in the private sector, services 10%, retail trade 7% and construction 6%.

However, like other rural regions of the state, the full dependence of this region on the public sector is estimated to grow much higher when "hidden" subsidies are included. In

a recent study, Darbyshire and Associates found that nearly 90% of all income in the region is directly or indirectly a result of government spending. Such heavy dependence on public expenditures makes the region especially vulnerable to cutbacks in government programs and spending. Given the character of the NANA Region economy, expanding employment within the region in the private sector is critical to the long-term economic health of the region.

Corporate Benefits. Not only will Cominco and NANA Regional Corporation benefit from corporate profits and growth, but Natives and Native corporations throughout the state will benefit from Red Dog profits. Under a provision of the Alaska Native Claims Settlement Act, 70% of a regional corporation's net revenues derived from the development of subsurface resources is shared with all the regional corporations according to the proportion of total shareholders each represents. In turn, one-half of the 70% is distributed to village corporations and at-large shareholders. So benefits from any mineral development on native land in Alaska can have widespread effects going far beyond the corporations directly involved.

Direct Employment.† The Red Dog Project will provide up to 430 new, permanent jobs in the region. In addition, there will be ten people directly employed in Anchorage and 30 seasonal workers in Kotzebue and at the port.

The total annual payroll of the project in year ten is estimated at approximately $13 million. The job categories, number of people employed and rough estimates of salary ranges are listed below.

Job Category	Approx. Number to be Employed	Avg. Annual Salary (000's)*
Professional/Supervisory	50	NA
Technical/Clerical**	50	$22-25
Heavy Equipment Operator	70	27-30
Mill & Powerhouse Operators	40	30-33
Tradesmen***	90	30-33
Catering/Janitorial	40	18-20
Unskilled/Trainees	90	16-25

NA = not available
* = in 1983 dollars
** = includes Anchorage employees
*** = includes mechanics, welders, electricians, pipefitters, carpenters

† Note: All employment, expenditure and revenue estimates provided in this and following sections are based on projections for the tenth year of Red Dog operation and are in 1983 dollars.

Often when a major project is undertaken in Alaska, especially rural Alaska, workers come from outside to fill the newly created jobs. NANA and Cominco are working to ensure that jobs go to current Alaskans and local residents wherever possible. Cominco's hiring policy will give preference to 1) residents of the NANA region, 2) residents of northwest Alaska, and 3) other Alaskans. An extensive training program will qualify residents for Red Dog jobs. Over the first five years of operation, local resident hire (including categories 1 and 2 above) is expected to range from 50-85%. Most of the remainder are expected to be from Anchorage, Fairbanks or other Alaskan communities. The ultimate goal is 100% local hire. Employees will work on a rotating basis — two to three weeks on and two to three weeks off, allowing for continued subsistence activities.

The addition of over 400 permanent, year round, private sector jobs is significant in a region where unemployment is high and employment is highly seasonal, particularly when strong efforts are being made to train and hire local people. Assuming three-quarters of the employees are local residents, the total personal income added to the region could be more than $9.5 million annually.

Indirect Employment & Economic Development. Within the region, and especially in Kotzebue, there will be indirect or spinoff benefits from the project and from the infusion of cash into the region. Anchorage and Fairbanks will realize indirect benefits also, as will any community whose residents are employed by the mine. These benefits will come in the form of direct purchase of goods and services by Cominco and the increased purchases of goods and services by mine employees. These purchases will in turn stimulate the regional economy and cause additional jobs to be created.

Alaska and the NANA Region will see a good proportion of the benefits from Cominco's annual operating expenditures. Assuming 90% of the employees are Alaskans, as much as $11 million of Cominco's $13 million payroll could enter the regional and state economies through the purchase of goods and services (consumer goods, transportation, communication, banking, housing construction, etc.), although some will inevitably leak out of the state through purchases outside Alaska, federal income taxes, etc. A portion of the $24 million allocated for operating supplies will flow into the Alaskan economy. Of $3.5 million in repair supplies, perhaps $1 million would be spent in Anchorage and

a much smaller amount in Kotzebue. It is estimated Cominco's expenditures in Kotzebue, primarily for repair of mobile equipment, emergency supplies, purchase of miscellaneous small equipment (boats, outboards, snowmachines), etc. could amount to $100,000 annually, especially as the service sector expands over time due to regional economic growth.

An additional $7 million will be spent by Cominco in miscellaneous expenditures as follows: approximately $2 million for transporting personnel to and from the mine ($700,000 to local charter services, $1.3 million to commercial airlines serving Kotzebue, Fairbanks and Anchorage); $1 million for insurance; $1 million for the accounting and purchasing office in Anchorage; $1 million for loading the concentrate onto ships at the port (which may be contracted out to a local concern) and $1 million for backhauling supplies.

Federal, State & Local Tax Revenues. Significant tax revenues will accrue to all levels of government from the Red Dog Project. The federal treasury will receive revenues from federal corporate and personal income taxes, the state from the Alaska mining license tax and corporate income tax and local government from local sales taxes and local property taxes. The revenue figures given below are preliminary and should be taken as rough estimates only.

The state mining license tax contains a three and one-half year forgiveness clause for new operations, so no tax would be due until after that period. It is estimated the state would receive approximately $10-15 million in the tenth year of production. The Alaska corporate income tax is also calculated on net income. In the tenth year of production, it is estimated to be roughly $10-15 million.

Local sales taxes are levied by most of the villages in the NANA Region at a rate of 2-3%; the rate is 3% in Kotzebue and 2-5% in Fairbanks. Thus any purchases of goods or services by Cominco directly, by employees with their earnings or by the recirculation of those dollars within the region will net local governments some revenue.

Local property taxes would be levied only where a mine is located within the boundaries of a local municipal government. Local property tax rates vary from year to year and from municipality to municipality. An estimate for Red Dog is not currently available.

Regional Cost of Living. A more indirect benefit to the region of developing Red Dog would be the potential for reducing the costs of goods in the region. The construction of a regional port with the capability of handling larger quantities of goods more cheaply and of storing goods in bulk could directly reduce their costs. Fuel, for instance, could be imported in bulk for the region and the mine at the same time and stored at the port year-round. It could then be transported to a village at the most convenient time of year or when needed. From a regional port, goods could also be shipped directly to the villages, cutting down the current expense of lightering from large ships anchored far offshore into Kotzebue and then shipment to all the villages. In addition, there is the possibility that goods coming into the region could be backhauled on the concentrate carriers along with Cominco's major supplies.

Additional Benefits. Several other benefits to the region and state are likely to result from the proposed project. With a regional port, the beginnings of a transportation system in the region and an institutionalized mechanism through which to expand it as needed, other deposits may become feasible to develop. The existence of a successful "model" in the region may encourage further exploration and development.

In addition to providing new, private sector jobs, the project will help to balance the seasonal fluctuations in employment and income, while allowing employees the needed flexibility for continued participation in local subsistence activities.

Red Dog will operate for at least 50 years, which will maximize many of the benefits to the region and minimize some of the negative impacts, providing greater stability to the region's economy. In addition, Red Dog will prepare local residents, through training and work experience, for participation in other resource development projects which may occur in northwestern Alaska.

IV. CONCLUSIONS

There are substantial benefits to be realized from the development of Alaska's mineral resources. Many regions have good potential for mineral development, but lack the transportation system necessary for such development. The absence of basic transportation not only hinders resource development, but contributes to the high cost of goods and services in rural Alaska.

Currently, most rural economies in Alaska are heavily dependent on state and federal government spending for both jobs and income. This dependence is dangerous in the long run because government expenditures and programs can be cut suddenly and drastically.

This situation is of concern in the NANA Region, and underscores the need for a healthy and expanding private sector and, in particular, the need for increased private sector job opportunities. Development of the Red Dog deposit, for example, will provide a significant number of jobs and bring a new source of cash income into the region. NANA and Cominco are taking steps to ensure the benefits, including jobs, reach those people who already live in the region.

But development of a mining industry in rural Alaska must go hand-in-hand with development of regional transportation systems. This is no small task in Alaska, given the size of the state and the condition of the state's rural transportation network. Currently, large areas of the state lying within the unorganized borough must rely totally on the state for capital improvements, competing with all the other needs for limited public funds. Greater flexibility is needed in the options available for funding and operating the rural transportation facilities needed for resource development.

Creation of a regional transportation authority would allow an unorganized region to take advantage of a much wider range of options. Use of an authority would allow for greater public control, coordination of transportation system development within a region and responsiveness to local needs. It would allow the fiscal burden on the state and industry to be apportioned as appropriate in a particular situation. In short, it would allow the state to expand its limited statewide transportation system into regions with undeveloped resource potential in order to encourage regional economic development and diversification and to expand job opportunities in areas where the need is most critical.