

CERRO CORPORATION
and Subsidiaries

840824

P R O P O S A L

for an

EXPLORATION JOINT VENTURE

Submitted by:
Cerro Mineral Exploration Company,
Division of Cerro Corporation

November, 1971

CERRO CORPORATION AND SUBSIDIARIES
PROPOSAL FOR AN EXPLORATION JOINT VENTURE

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A PROPOSAL FOR AN EXPLORATION JOINT VENTURE

I N T R O D U C T I O N

Cerro Corporation invites the participation of a joint venture partner, or partners, in the continuation of its mineral exploration program (ex-South America) under the management of its exploration units, Cerro Mineral Exploration Company (a division) and Cerro Mining Company of Canada Limited (a subsidiary). In addition to the active management of the proposed exploration joint venture, Cerro is willing to include in the joint venture eight mineral prospects of varying potential, described in this prospectus (on which Cerro has expended funds as indicated in a tabulation which appears at the end of this Introduction).

Also described in this prospectus are three advanced projects which are in the stage of intensive exploration or at the point of reaching an exploitation decision. Participation in these advance projects may also be arranged separately from the proposed exploration joint venture.

Background: Developments Prompting This Joint Venture Proposal

Cerro, engaged since 1902 in the production of base and precious metals in the Republic of Peru, sought in the 1950's and 1960's to diversify its product base and geographical sources of earnings. Substantial progress was achieved, e.g., in areas of nonferrous metal fabrication and cement production in the United States, and in the development of the Rio Blanco copper mine in Chile.

For the most part, however, only modest expenditures for mineral exploration were made outside of Peru (where six mineral properties were discovered by Cerro since 1950 with a total of over a 1,000 million tons of probable ore containing 11 million tons of copper) and Chile (where Cerro explored and devised a practical plan for exploiting the Rio Blanco copper property near Santiago, containing over 120 million tons of 1.6% copper ore).

Thereupon, in 1968, the outlook for mining in Peru was dimmed by the expropriation without compensation of the oil-producing properties of International Petroleum Corporation Ltd. In the years 1969-71, Cerro accelerated its mineral exploration outside South America, concentrating its efforts primarily in North America. The program was funded at the annual rate of about \$3.0-3.5 million.

Now, with substantially reduced income from operations in Peru because of depressed metal prices and increased operating costs, and with the loss of prospective operating income from the new Rio Blanco copper mine in Chile (in which Cerro had a 70% interest), expropriated in July 1971, Cerro does not see its way clear to self fund its

exploration program at the current level.

Successful Exploration: Continuous and Significant Funding a Necessity

Exploration must be funded and sustained at a level high enough to afford a reasonable chance of success. Equally important is continuity of effort without which the chain of events leading to a commercial discovery, or to an opportunity which can be turned to account, is broken and the chances of success are materially diminished. Abruptly varying the levels of exploration activity results not only in demoralizing exploration personnel but in inefficient exploration, and frequently works to the advantage of competitors.

It will be realized that exploration is a high reward/infrequent discovery activity. When successful, it is usually exploited by the establishment of a capital-intensive enterprise whose payoff may be several years in the future. Nevertheless, given the proper economics, the results can be extremely profitable. This is illustrated by Cerro's investment in Southern Peru Copper Corporation which has been returned in full many times over.

It is, therefore, Cerro's objective to arrange the funding of an overall exploration joint venture program with continuity, and on a scale large enough to afford a realistic chance of success.

Cerro is confident of the ability of the personnel in its mineral exploration organization and believes that the proposed joint venture offers an exceptional opportunity for seriously interested parties to participate in mineral exploration at a high level of professional competence.

Cerro's Mineral Exploration Activity Since 1968 (ex-South America)

As indicated above, increasingly intensive exploration outside of South America has been conducted by Cerro, for its own account, since 1968. During this period, Cerro has been involved in thirteen (13) exploration projects in the United States on each of which more than \$50,000 has been expended. Three of these projects are continuing, namely: (i) a fluorspar project in Kentucky, (ii) a copper-molybdenum project in Colorado, and (iii) a zinc project in Tennessee.

In Canada, several hundred submissions have been screened. Expenditures of \$50,000 or more have been made on fifteen (15) projects, of which five are continuing. The mineral targets of these five are copper and/or molybdenum.

Cerro is also involved in exploration for base metals in Ireland, and has done preliminary work on one of two copper prospects in Mexico.

Late in 1969, Cerro undertook to determine the feasibility of placing into production an asbestos property in northern Greece on which a reserve of at least 50,000,000 tons of material, containing more than 4% asbestos, had been indicated. Cerro is completing the feasibility study which should be available by mid-November 1971.

For a number of years, beginning in about 1964, Cerro participated in exploration joint ventures or syndicates with others in search for commercial mineral deposits in Australia. These did not prove to be fruitful, and Cerro is currently not active in that country.

Following this Introduction, is (i) an outline map of North America showing the locations of the seven district exploration offices of the Cerro Mineral Exploration Organization and of the active exploration projects; (ii) a tabulation summarizing all the mineral exploration expenditures made by Cerro (ex-South America) in the period 1964-70 and in the first half of 1971; and (iii) a tabulation of the expenditures made, the interests held and additional interests which may be required, on ten active projects.

A description of all the active exploration projects and prospects is provided in the pages which follow, under index Tab 2 through 12.

The Cerro Mineral Exploration Organization

A chart showing the current composition of Cerro Mineral Exploration Organization appears under Tab 13. The curricula vitae of the professional personnel follow the chart. It is significant to note that the principal members of the staff have at least ten years of field experience with most having fifteen years or more, and that, in addition, five of the key personnel also hold doctoral degrees.

The work of the Organization includes all those activities associated with the following:

- (1) Locating mineralized areas of interest via its seven district offices in the United States and Canada. These offices are points of contact for property owners, prospectors and promoters, as well as serving as centers for regional survey activity;
- (2) Protecting rights to properties obtained by staking of claims, grant of concessions, or through options and leases;
- (3) Setting size and grade goals for the deposit and determining the method or methods for testing the property;
- (4) Conducting the testing, including drilling, and interpreting the test results in terms of geology, probable ore reserves and grade;

(5) Making preliminary determinations of economic feasibility of a particular mineralized body, taking into account deposit size/projected metal prices and estimated operating costs (this may be done from time to time during the exploration phase)*;

(6) Retargeting and adjustment of the test program accordingly; and

(7) Recommending a final course of action as to whether the property appears a likely one for commercial development, or whether such development should be deferred or the property should be abandoned.

* Such preliminary determinations of economic feasibility are frequently beyond the scope of competence or experience of the mineral exploration organization. In an integrated company such as Cerro, the mining-metallurgical-engineering and metal-sales staffs of the Mining Group work in close harmony with the exploration staff to make, or to assist in the making of, such preliminary determinations. Such staff back-up also includes the functional areas of finance and accounting, law and taxes as may be necessary. In connection with this footnote, the readers attention is called to a related commentary appearing under Tab 13 below the subheading: "Consultation with Mining-Metallurgy-Engineering and Metal-Sales Staffs of Cerro's Mining Group."

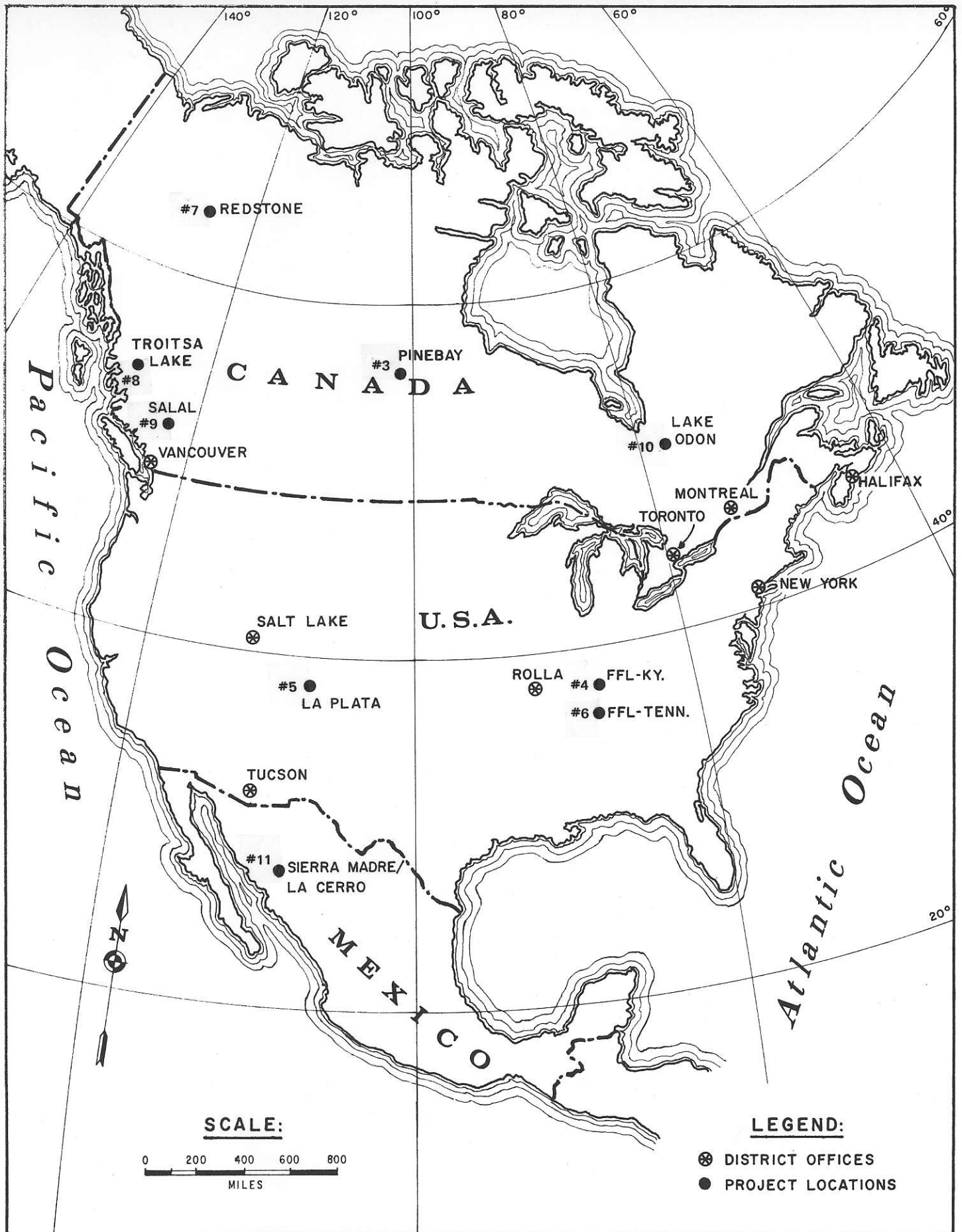
Proposed Exploration Joint Venture Arrangement

The proposed exploration joint venture program for 1972, the first year of a projected four-to-five year joint venture arrangement, is outlined under Tab 14. As indicated, the remarks made there are not intended as a detailed exposition of the proposed 1972 budget (which amounts to approximately \$2.5 million) but as a basis for discussion with the joint venture partner.

It will be realized that an understanding will have to be reached as to how the respective projects, viz., those described under Tabs 5 through 12 on which various sums have been expended by Cerro, are to be fitted in to the joint venture arrangement.

Upon indication of genuine interest by a prospective joint venture partner, Cerro's representatives will be prepared to present separately proposed terms for a joint venture agreement.

Cerro Corporation
New York, N. Y.,
November, 1971



CERRO CORPORATION AND SUBSIDIARIES

Drawn By: I.SIMON

**NORTH AMERICAN EXPLORATION OFFICES
PRINCIPAL PROJECT LOCATIONS**

Scale:

Date: 10/29/71

Dwg. No.: 1

CERRO CORPORATION AND SUBSIDIARIES

SUMMARY - MINERAL EXPLORATION EXPENDITURES
(Exclusive of Peru and Chile)
FOR THE YEARS 1964-1970 AND FIRST HALF OF 1971
(Figures in Thousands of Dollars)

	1964	1965	1966	1967	1968	1969	1970	1st Half 1971	Total
A. As Participant in Joint Ventures or Syndicates									
1. Africa/Europe/Asia ...	35.4	83.0	138.6	113.3	26.8	-	-	-	397.1
2. Australia	64.6	106.2	301.8	337.2	184.5	308.0	168.0	94.0	1,564.3
3. Cent. Amer./Mexico ...	-	4.6	63.3	26.0	-	-	-	-	93.9
4. Canada	69.9	69.5	95.7	191.3	216.6	72.0	-	-	715.0
5. U.S.A.	-	23.4	32.0	26.3	12.3	6.0	-	-	100.0
6. Guggenheim Fees*	75.3	184.4	200.0	343.0	50.0	200.0	-	-	1,052.7
Sub-totals	245.2	471.1	831.4	1,037.1	490.2	586.0	168.0	94.0	3,923.0
B. As Operator or Joint Venture Manager									
1. Africa/Europe/Asia ...	-	-	-	-	-	-	16.0 ⁺	56.1 ⁺	72.1 ⁺
2. Australia	-	-	-	-	-	-	-	69.3	69.3
3. Cent. Amer./Mexico ...	-	-	-	-	-	100.0	313.6	129.1	542.7
4. Canada	-	-	-	-	0.1	748.3	1,696.3	558.5	3,003.2
5. U.S.A.	-	25.3	69.8	81.5	404.0**	795.0	1,452.5	690.5	3,518.5
Sub-totals	-	25.3	69.8	81.5	404.1	1,643.3	3,478.4 ⁺	1,503.5 ⁺	7,205.8 ⁺
Totals (A+B)	245.2	496.4	901.2	1,118.6	894.3	2,229.3	3,646.4 ⁺	1,597.5 ⁺	11,128.8 ⁺

* Guggenheim Exploration Co. was manager of the Guggenheim-Cerro Exploration Joint Venture.

** Excludes loan of \$356,000 to Big Mike Corporation (Nevada).

+ Excludes \$697,600 expended in 1970, and \$37,600 expended in the first half of 1971, on the Zidani Asbestos Project (Greece) which, for all practical purposes, was a "Stage II" project from the beginning of Cerro's involvement therewith.

Cerro Corporation and Subsidiaries
 STATUS OF ACTIVE MINERAL EXPLORATION PROJECTS
 As At September 30, 1971

Ref. Tab	Project/Prospect Name	Funds Spent Thru 9/30/71	Cerro Work Started (Date)	% Interest Presently Held	Funds for an Additional Interest*			Remarks
					% Interest	Funds to Be Spent	End Date For Expenditures	
<u>ADVANCED PROJECTS</u>								
Exclude 2.	Zidani Asbestos (Greece)	\$828,000	9/70	None	90.0	**	5/12/75	Exploitation commitment required by 5/12/72.
Exclude 3.	Pinebay Copper (Manitoba)	991,000	1965	50.0	None			Property 100%-owned by a Joint Venture; being held for improved copper price.
△ 4.	Kentucky Fluorspar	364,000	7/70	50.5	19.5	\$ 450,000	9/30/73	FFL Group is participating; it will hold a 30% interest.
<u>EXPLORATION PROJECTS (Prospects)</u>								
Exclude 5.	La Plata Copper-Moly (Colorado). . . .	33,800	5/71	None	50.0	454,628	5/18/74	Humble may elect 2% net smelter return instead of advancing funds to maintain 50% interest.
△ 6.	FFL-Cerro Zinc (Tennessee)	300,000	3/70	33.5	None			FFL and Cerro to decide jointly on terms for third party participation.
△ 7.	Redstone Copper (Canada)	500,000	3/71	None	80.0	4,010,000	12/31/81	Next Commitment (by 12/31/71) for firm \$1,000,000 by 12/31/74 for 45% interest.
8.	Troitsa Copper-Moly (Canada)	36,000	6/71	None	80.0	744,000	12/31/76	Cerro may purchase additional 10% interest to 12/31/81 for \$2,000,000.
9.	Salal Molybdenite (Canada)	75,000	8/70	None	90.0	175,000	8/1/76	Cerro may purchase an additional 5% interest at any time for \$1,000,000.
10.	Lake Odon Copper (Canada)	5,700	6/70	100%				Claims staked by Cerro-Canada; commitment to prospector outstanding.
11.	Sierra Madre-La Cerro (Mexico)	30,900	1/71	None	+	4,000,000	12/20/80	Two properties: \$3,000,000 on one and \$1,000,000 on other to acquire full interest.
12.	Denison Joint Venture (Ireland). . . .	130,000	9/70	None	50.0	593,000	2/1/76	As expenditures matched prior to 2/1/76 on individual prospects or prospect groups, Cerro-Canada becomes 50% owner.
		<u>\$3,294,400</u>				<u>\$10,426,628</u>		

* These are funds needed to be spent to obtain the additional interest indicated under existing agreements. The figures do not represent the funds which may have to be expended to find a commercial orebody.
 ** Equity investment (amount to be determined) of an overall investment now estimated to be \$34,000,000.
 + A 100% interest may be acquired in the property which would be held by a Mexican company in which Cerro could hold up to a 49% interest.
 △ Projects of particular interest.

ZIDANI ASBESTOS PROJECT
(Greece)

Nature of Project

Cerro is actively engaged in determining the economic viability of developing a property in northern Greece for production of asbestos (Chrysotile) fibers at an annual production rate of 75,000 metric tons of fiber. Prospective markets for such fibers, which, on the basis of Canadian classifications, are in Groups 4, 5 and 6, are various countries in Europe and the Middle East.

The property also contains material which, when milled, would be classified as Group 7 asbestos fiber, but this material, which may not be readily marketable, has not been taken into account in the ore reserve estimate.

The Zidani project investigation is in an advanced stage, and under arrangements made with the Government of Greece and other entities, which are considered favorable, a decision whether or not to proceed with commercial development of the property will have to be made before May 1972.

Based on work done to date, it is estimated that a capital investment of about \$34 million will be required. It is expected that a good portion of this would be provided by the Greek Government in the form of equity funds and loans.

Zidani Property: Option and Lease

Cerro and its 90%-owned Greek subsidiary, Asbestos Mines of Northern Greece Mining Society Anonyme ("Mabem") are parties to an Option and Lease Agreement with Hellenic Asbestos Mining & Industrial Co. S.A., ("Hellenic Asbestos"), the Lessor, covering the Zidani asbestos property (2,760 hectares) located, at an altitude of 600 meters, in Macedonia, near Kozani, Greece.

(Formal ratification of the Option and Lease Agreement by the Ministry of Industry was published in the Greek Government Gazette on June 25, 1971.)

Hellenic Asbestos is 95% owned by Hellenic Industrial Development Bank ("Development Bank"), a specially chartered Greek bank owned by the Greek Government. Development Bank owns 10% of Mabem.

Under the Agreement, Mabem obtained a two-year option, commencing May 12, 1970 (the date of publication in the Government Gazette of related Ministerial Decisions), exclusively (i) to explore further and to check drill the Zidani property, (ii) to modify and expand a pilot mill existing thereon, (iii) to mine and mill

sufficient ore to obtain bulk samples for market testing, (iv) to conduct marketing surveys, and (v) to accomplish such preliminary engineering, feasibility studies and related work as necessary to determine the economic viability of the property. Such work did not commence until September 1970 because of a delay in obtaining approval for the establishment of Mabem (formally organized October 19, 1970).

The Agreement provides for a lease to follow the option period, such lease to continue for a term of 30 years and to be extendable for a further 20 years provided stipulated production levels are met. During the lease term, Mabem would be obligated to pay Hellenic Asbestos a royalty of 2% on the sales value of the mineral product extracted from the property.

Prior Work on Property: Ore Reserve Indicated

Various work on the Zidani property was done by others during the period 1954-69 (e.g., Kennecott Copper Corporation and the Greek Government). This included exploratory drilling, trenching, underground workings and the operation of a small pilot mill.

A deposit of at least 50,000,000 metric tons of material, containing more than 4% asbestos, was indicated.

Examination by Cerro's geologists of the previous exploration work established that of the total deposit, at least 13,000,000 metric tons (4.4% asbestos fiber) could be mined in the early stages of a commercial operation.

Geology

Geologically, the property is a basic periodotite intrusive, with olivene rich dunite apophases which has been subjected to high compressive stresses subsequent to its emplacement. These stresses have converted a portion of the formation to serpentine. The known asbestos fiber mineralization within the serpentine body appears to be confined to a fault block.

Work on Property Done by Cerro

Since September 1970, Cerro has put down 16 surface diamond drill holes (for a total of 1,375 meters) and 18 underground holes (for a total of 144 meters) to check the drilling done previously on the property by others. This has confirmed that the deposit contains reserves of at least 50,000,000 tons (4% asbestos). Underground, 641 meters of horizontal advance and 74 meters of raises were completed, producing about 10,000 metric tons of ore, of which about 3,000 metric tons were milled.

In the rehabilitated mill, over 100 metric tons of fiber of various grades were produced of which 59 tons were shipped to various potential consumers for testing.

Samples of the Zidani asbestos fiber have been shipped to Turner & Newall in England, to Eternit in Belgium and Greece and to other plants in Germany and France. The test results on all these commercial samples are expected to be in Cerro's hands by mid-November 1971.

Zidani Asbestos Fiber: Type - "Slip" (Quality Indications)

Most chrysotile asbestos deposits consist of (i) "cross fibers," i.e., irregular individual fibers oriented at right angles to the walls of the enclosing veinlets or fractures in massive serpentine, or (ii) "slip fibers," i.e., shear planes in the rock filled with fiber matted together parallel to the seam. The asbestos at Zidani is of the slip fiber type.

Most slip fibers are weaker than cross fibers. Strength tests performed by independent laboratories in Canada, England and Europe indicate that Zidani fibers can be expected to have strength properties of about 85-90% of the typical cross fibers from the Province of Quebec, Canada, where the largest asbestos deposits in the free world are located.

Unlike many other minerals, the commercial acceptability of asbestos fiber cannot be determined except by consumer testing. While fiber strength is of great importance, the filtration rates is another important factor in the use of asbestos fibers in the manufacture of asbestos-cement products (e.g., roofing shingles, flat and corrugated siding, magnesia block and pipe insulation). Laboratory tests indicate that Zidani fibers have superior (on the order of 50-100% better) filtering rates than most chrysotile asbestos fibers, either slip or cross fiber. The filtration rate affects cement-asbestos product production rates; even end-product quality is affected if filtration is inadequate.

Other properties of the Zidani fibers, including thermic, color, magnetite content, chemical analysis, etc., are in the normal range for chrysotile asbestos fibers.

Proposed Project As Initially Conceived

The basic agreement relating to the proposed project was made among Cerro, the Development Bank and Hellenic Asbestos in January 1970. This covered the organization of Mabem, the Option and Lease Agreement, previously mentioned, and the initial concept of the project, viz., the development of the property for commercial production at an annual rate of 40,000 metric tons of asbestos fiber of all grades.

During the two-year option period, a sum of \$550,000 was to have been spent by Cerro-Mabem, to be provided 90% by Cerro, and 10% by the Development Bank.

In point of fact, a total of \$850,000 is now projected to be expended by the end of December 1971, and another \$350,000 in the period January-April 1972 (thus, a total of \$1,200,000).

If the investigation during the option period demonstrated the economic viability of the project, it was assumed -- for purposes of obtaining approval for the importation of capital under Legislative Decree 2687/1953 relating to investment in Greece and protection of foreign capital -- that the following funds would be required:

Equity Capital:		
Cerro Corporation	\$5,805,000	
Development Bank	<u>645,000</u>	\$ 6,450,000
Debt Capital:		
Development Bank	\$5,850,000	
Equipment Suppliers' Loans	<u>3,000,000</u>	8,850,000
		<u>\$ 15,300,000</u>

In other words, the initial concept was that Cerro would invest about 38% of the capital required for the project and obtain a 90% equity interest in the commercial operation.

Ministerial Decisions of the Greek Government - Investment Terms

By publication of the Ministerial Decisions of the Ministers of Coordination, Finance and Industry in the Government Gazette on May 12, 1970, the Greek Government approved the importation of foreign capital into Greece by Cerro, or by its affiliates, in the sum of \$8,805,000 for the establishment, in cooperation with Development Bank, of a Greek company (later organized as Mabem) having as its object:

- (a) First Stage: Further exploration, preliminary development, market analyses and feasibility studies; and
- (b) Second Stage: If economically viable, the placing into production and operation of the Zidani asbestos mining property and related facilities for a total investment estimated at \$15,300,000.

The Ministerial Decisions recognized that the Development Bank would loan \$5,850,000 of the capital required, and provided that any amount needed for the project in excess of \$15,300,000 would have to be obtained from abroad.

The Decisions, on the other hand, gave Cerro the basic benefits available

under L.D. 2687/1953, including:

- (1) the right to repatriate imported capital at the rate of up to 10% a year;
- (2) the right to pay dividends on equity capital from profits of the enterprise up to 12% a year. (Another law, L.D. 4256/1962, not involved in the Decisions, provides that up to 70% of the foreign exchange realized from export sales from the operation may be applied to the payment of dividends. Rights under this law are available to Mabem.) Dividends are cumulative, if not paid in one year, they may be paid later;
- (3) the right to pay interest on capital imported in the form of loans, at the maximum rate of 10% a year;
- (4) the right to reinvest profits in the enterprise and have such re-investment treated as imported capital;
- (5) the right to have the Bank of Greece provide the necessary foreign currency to cover the repatriation of capital and the payment of dividends;
- (6) the right to be relieved of customs duties and certain other taxes on importation of equipment (up to a value of \$5,805,000) during the stipulated investment period (i.e., five years from the date of the Decisions);
- (7) the right to have the prevailing income tax rate (i.e., 38.24%) remain unaltered during the 10-year period from the start of commercial production;
- (8) the right to bring in the necessary foreign personnel needed for the project (the maximum numbers being specified); and
- (9) the right to have Mabem maintain its books of account in the currency which is imported.

In addition, the Government indicated that it would grant an interest subsidy on the \$5,850,000 loan to be made by the Development Bank.

An application for investment benefits under Legislative Decree 4171/1961 has been prepared but not yet filed with the Greek Government.

U.S. Government Insurance of Proposed Equity Investment

Preliminary steps have been taken to have Cerro's projected equity investment in Greece insured by the United States Overseas Private Investment Corporation ("O.P.I.C.").

Economic Feasibility of Zidani Asbestos Project (Preliminary)

Cerro's marketing and feasibility studies of the proposed Zidani asbestos project are expected to be completed during the month of November 1971.

However, based on Cerro's work done through October 1971, it has been concluded that a commercial operation at an annual production rate of 40,000 metric tons of asbestos fiber, as originally conceived (at the estimated capital cost of \$15,300,000), would not be economically viable.

On the other hand, preliminary indications are that an operation with a greater annual output, e.g., 75,000 metric tons of asbestos fiber, would be economically attractive. In such an operation approximately 2,000,000 metric tons of raw ore would be fed to the mill in the course of a year. Although the mill would otherwise be sized to produce 60,000 metric tons of asbestos fiber, the ore lends itself to rock rejection. Thus, with the addition of crushing, screening and airlift equipment to accomplish such rock rejection, at relatively modest additional capital cost, the output of the mill can be increased to 75,000 metric tons of asbestos fiber per annum.

Preliminary indications are that the capital cost at this capacity would be \$34,000,000, instead of the \$15,300,000 initially estimated for the smaller-capacity operation. Assuming the capital would be provided as 40% equity and 60% borrowed moneys, preliminary analyses indicate a discounted rate of return on equity of 20%. Such analyses were based on assumed sales realizations as follows:

<u>Portion of Total Production</u>	<u>Asbestos Grade Numbers*</u>	<u>Assumed Realization Per M.T. **</u>
5%	4D	\$290
15%	4T	230
40%	5R	160
40%	6B	132

* Canadian classifications

** F.O.B. mine (in Greece)

The Zidani property also includes material which, when milled, would be classified as Group 7 asbestos fiber. However, this material was not taken into account in the ore reserve estimate or in the preliminary economic evaluation referred to above. A market for this fiber in Europe has not yet been explored. If it can be turned profitably to account, this would be a presently unexpected "bonus."

It should be emphasized that the assumed realizations may not be wholly realistic and also that other assumed data, used in the preliminary analyses, may have to be adjusted when a more definitive evaluation of the projected economic outcome of the proposed commercial operation is made.

Project Partner Desired: Recasting of Arrangements in Greece Required

For a number of reasons, including the increased capital requirements, Cerro is prepared to have another company join it in undertaking the commercial development of the Zidani asbestos property.

In light of the revision of the estimated capital investment required to undertake the Zidani project in its proposed revised form (viz., the sum of \$34,000,000 instead of \$15,300,000), it is necessary to approach the Development Bank and the Ministries of the Greek Government for a recasting of investment and protection of foreign capital commitments. It is believed that the Development Bank may be willing to increase its capital contribution to the project, both equity and debt (although, possibly, at some step-up in its equity share). It is further possible that with a much larger project in view, the Development Bank and the Government Ministries might be prepared to extend the option period beyond the existing May 12, 1972 termination date. This remains to be determined.

Present indications are that a market for the increased annual production, i.e., 75,000 instead of 40,000 metric tons of asbestos fiber, would be available.

An increase in the O.P.I.C. insurance coverage would also have to be sought.

World Production of Asbestos Fiber

In order to provide a perspective as to the relative position, the proposed Zidani asbestos operation (at 75,000 metric tons a year, or 82,500 short tons a year) would have in the world production picture, the following data from the Mining Annual Review, dated June 1971, is provided:

(Continued: Table next page.)

PRODUCTION OF ASBESTOS FIBER
(Thousand (000) Short Tons)

	<u>1968</u>	<u>1969</u>	<u>1970</u>
Australia	0.8	0.8*	0.8*
Brazil	4.4	8.0	8.0*
Canada	1,596.0	1,596.5	1,654.0
China	165.0*	170.0*	175.0*
Cyprus	18.9	21.4	20.0*
Finland	13.0*	13.0*	13.0*
Greece	4.8	8.8	9.0*
Italy	113.8	100.0	100.0*
Japan	17.0	17.0	17.0*
Rhodesia	n.a.	n.a.	n.a.
South Africa	260.5	284.6	310.0*
Swaziland	39.9	40.0*	40.0*
United States	121.0	127.0	130.0*
U.S.S.R.	2,000.0*	2,000.0*	2,100.0*
Others	<u>169.9</u>	<u>192.2</u>	<u>203.2</u>
	<u>4,525.0*</u>	<u>4,580.0*</u>	<u>4,780.0*</u>

* Estimated

Note: Figures on Canadian production were furnished by Dominion Bureau of Statistics.

World production reached an all-time high in 1970. Canada's share was up 4% by weight to account for about 35% of the world's total. Of Canada's total, Quebec produced 81%. All production was consumed by industry. Canada is the world's greatest exporter, using less than 5% of its production internally (1969). The United States received 41% of Canadian exports in 1969.

Canada exports asbestos to 80 countries. For the year 1969, exports totalled 1,564,762 short tons of which 41% went to the U.S., 31% to Western Europe, 15% to Asia, 6% to South and Central America and Antilles, 3.5% to Oceania, 2% to East Europe, 1% to Africa. Of the tonnage exported, 50% was Groups 6-8 and 47% was Groups 4 and 5; the remaining 3% was mostly Group 3 fiber.

Asbestos Fiber: Usage and Outlook

The uses of asbestos fibers of all varieties are numerous and range from floor tile to rockets. The longer fibers -- Canadian Groups 1, 2, and 3 and their equivalents from other countries -- are used for making textile products such as cloth, yarn, tape and rovings. Asbestos fabrics are used extensively for lagging

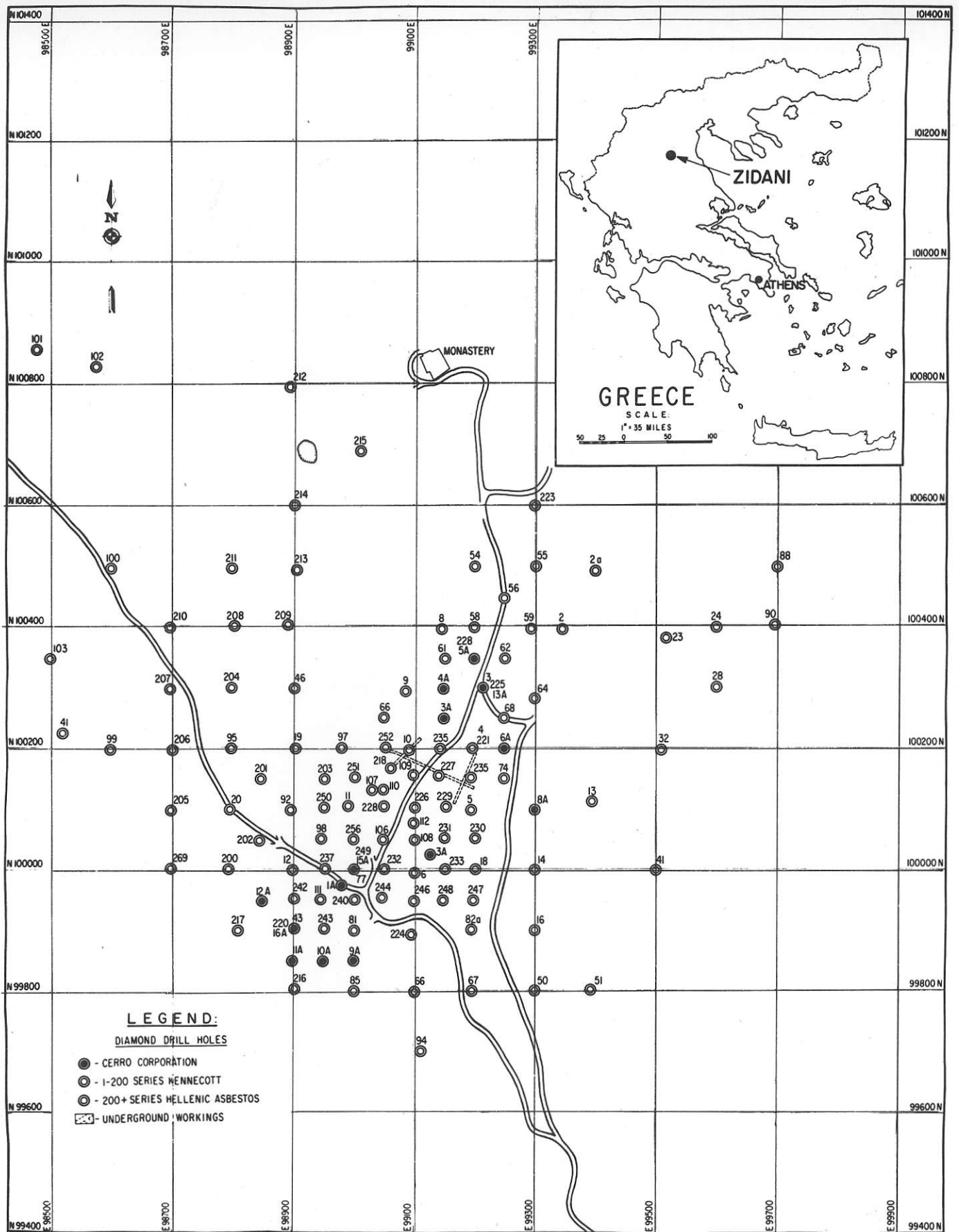
cloth, brakeband linings, clutch facings, safety clothing, packings, gaskets and various other appliances. Low-iron fiber is used in cable insulation.

Shorter fibers such as Canadian Group 4, and to some extent 5 and 6, are used widely for asbestos-cement products such as roofing shingles and flat and corrugated siding. These products consist of about 80% portland cement and 20% asbestos. Canadian Groups 4 and 5 and African amosite are used extensively for making 85% magnesia block and pipe insulation. They consist of about 85% basic magnesium carbonate and 15% asbestos. Canadian Group 5 is suitable for asbestos paper and millboard manufacture. An important use of asbestos paper is for making the so-called air-cell pipe covering. The shortest fibers are used for boiler and roofing cements and as filler in asphalt floor tile and various other products.

World demand for asbestos fiber is projected to rise about 5% a year. Prices (in constant money terms) are expected to remain relatively stable for an extended period of time.

Political Considerations

No attempt has been made in this writing to evaluate the political risks of making a significant investment in an asbestos producing venture in Greece. Assuming that Greek entities invest a substantial portion of the required funds, as suggested above, and that O.P.I.C., in fact, insures the equity investment of Cerro and its partner, the political risk factors are substantially reduced.



CERRO CORPORATION-CERRO MINERAL EXPLORATION COMPANY, DIV.		
Drawn By: B.A.E./I.S.	LOCATION AND DRILL HOLE MAP ZIDANI ASBESTOS PROJECT GREECE	Scale: 1:8,000
Date: 10-15-1971		Dwg. No.: 2

PINEBAY COPPER PROJECT
(Manitoba)
A Joint Venture of Cerro and Guggenheim Exploration Co.

Background

The Pinebay copper project is a joint venture exploration endeavor which resulted in the discovery of a copper-bearing massive sulfide deposit, underlying Sourdough Bay, at the northern lobe of Lake Athapapuskow, about 11 miles east of Flin Flon, Manitoba, (see index map).

Cerro Corporation and Guggenheim Exploration Company have each expended approximately \$1,000,000 to develop the property to its present state, and each has a 50% equity interest therein.

The original claims were acquired in 1965. Electro-magnetic and ground-magnetic surveys, along with diamond drilling, led to the deposit's discovery in 1967. The sinking of a 700-foot shaft, and the driving of two levels followed by underground diamond drilling, delineated (by 1969) the massive sulphide zones as they are presently known.

Reserve calculations, mining, milling and economic feasibility studies have comprised most of the work since 1969. This work was done by Wright Engineering of Vancouver, B.C., and subsequently reviewed by Cerro.

Geology of the Deposit

The Pinebay copper deposit consists of three massive sulfide bodies generally conformable to a pre-Cambria metamorphic host (Drawing #4). They appear to be controlled by a large, isoclinal fold with steeply dipping limbs, and are generally lens-shaped with irregular dimensions. The maximum strike length approaches 600 feet, and widths vary from 3 to over 100 feet. Potentially economic mineralization extends at least 1,200 feet below the lake surface.

Ore Reserves

The presently known ore reserves have been developed by a total of 35,988 feet of diamond drilling from the surface and from the 200-foot and 600-foot levels, underground. A crosscut east on the 600-foot level intersected the sulfide zone and was driven farther east to provide stations for the deeper drilling. The following table summarizes the total reserves which are divided into drill-indicated and possible ore categories:

	<u>1% Cutoff</u>		<u>1.5% Cutoff</u>		<u>2% Cutoff</u>		<u>Total Sulfide</u>	
	<u>Tons</u>	<u>% Cu</u>	<u>Tons</u>	<u>% Cu</u>	<u>Tons</u>	<u>% Cu</u>	<u>Tons</u>	<u>% Cu</u>
Drill-indicated..	1,113,200	2.81	781,000	3.54	667,900	3.90	1,850,000	1.96
Possible	187,800	2.17	183,200	2.20	97,300	3.11	357,600	1.45
Total	1,301,000	2.72	964,900	3.28	765,200	3.80	2,207,600	1.88

If a 50 foot thick crown pillar* is left between the 200 level and the lake bottom, as a safety measure, the available reserves are as follows:

	<u>1% Cutoff</u>		<u>1.5% Cutoff</u>		<u>2% Cutoff</u>		<u>Total Sulfide</u>	
	<u>Tons</u>	<u>% Cu</u>	<u>Tons</u>	<u>% Cu</u>	<u>Tons</u>	<u>% Cu</u>	<u>Tons</u>	<u>% Cu</u>
Drill-indicated..	882,600	2.50	620,700	3.17	503,000	3.51	1,585,000	1.70
Possible	151,100	2.14	147,400	2.16	72,900	3.23	320,400	1.34
Total.....	1,033,700	2.45	768,100	2.98	575,000	2.47	1,905,400	1.64

* At least a portion of this pillar will probably be recoverable.

The bottom of mineralization has not been defined due to the high cost of drilling from the surface, or from the 600 level. Testing at depth will have to take place from deeper levels as mining progresses.

Mining Plan

Present plans are to mine by cut-and-fill stoping in the upper levels to assure close ground control near the lake bottom. Shrinkage stoping will be employed in the lower levels, followed by hydraulic-sand filling to stabilize the ground. Wright Engineering contemplated the use of an inclined ramp from the surface for access with the use of the existing shaft for hoisting ore. Use of the present installations only would, however, reduce the initial capital cost.

As a precaution against accidental flooding, mining would commence on the lower levels and progress upward.

Metallurgy

Metallurgical testing was carried out by Lakefield Research of Lakefield, Ontario. The ore presents no unusual problems. Grinding to -200 mesh gives the highest recovery in the rougher concentrate which must be reground to liberate the chalcopyrite. The

testing shows that 93% of the copper can be recovered in a 26-27% copper concentrate.

Tailings disposal areas and sufficient, suitable, and ample water is available.

Power must be diesel generated at the mine site. Two 330 kw generators are on the property and would be suitable for standby power in the main plant.

Economic Analysis

Wright Engineers based their economic feasibility study on the following data:

Operating Statistics:

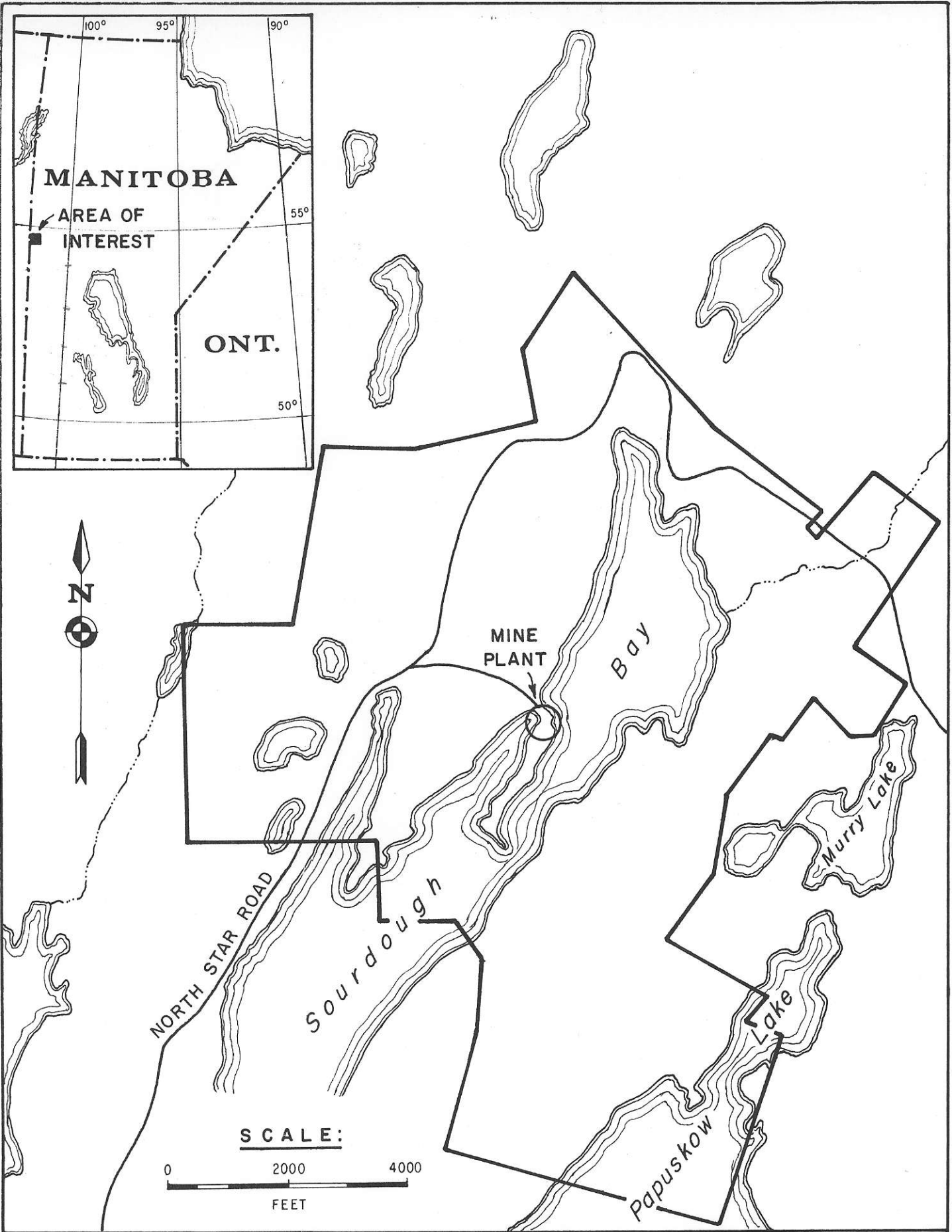
Tonnage (DST)	662,400
Grade (% Cu)	3.00
Milling Rate (TPD)	550
Life years (presently known reserves)	3.44
Copper price (per pound)	\$ 0.55
Net smelter return (per short ton of ore)	\$23.83
Operating costs (per short ton of ore)	\$ 9.51
Income before taxes, depreciation, and depletion*	\$ 14.32

Capital Costs (Estimated):

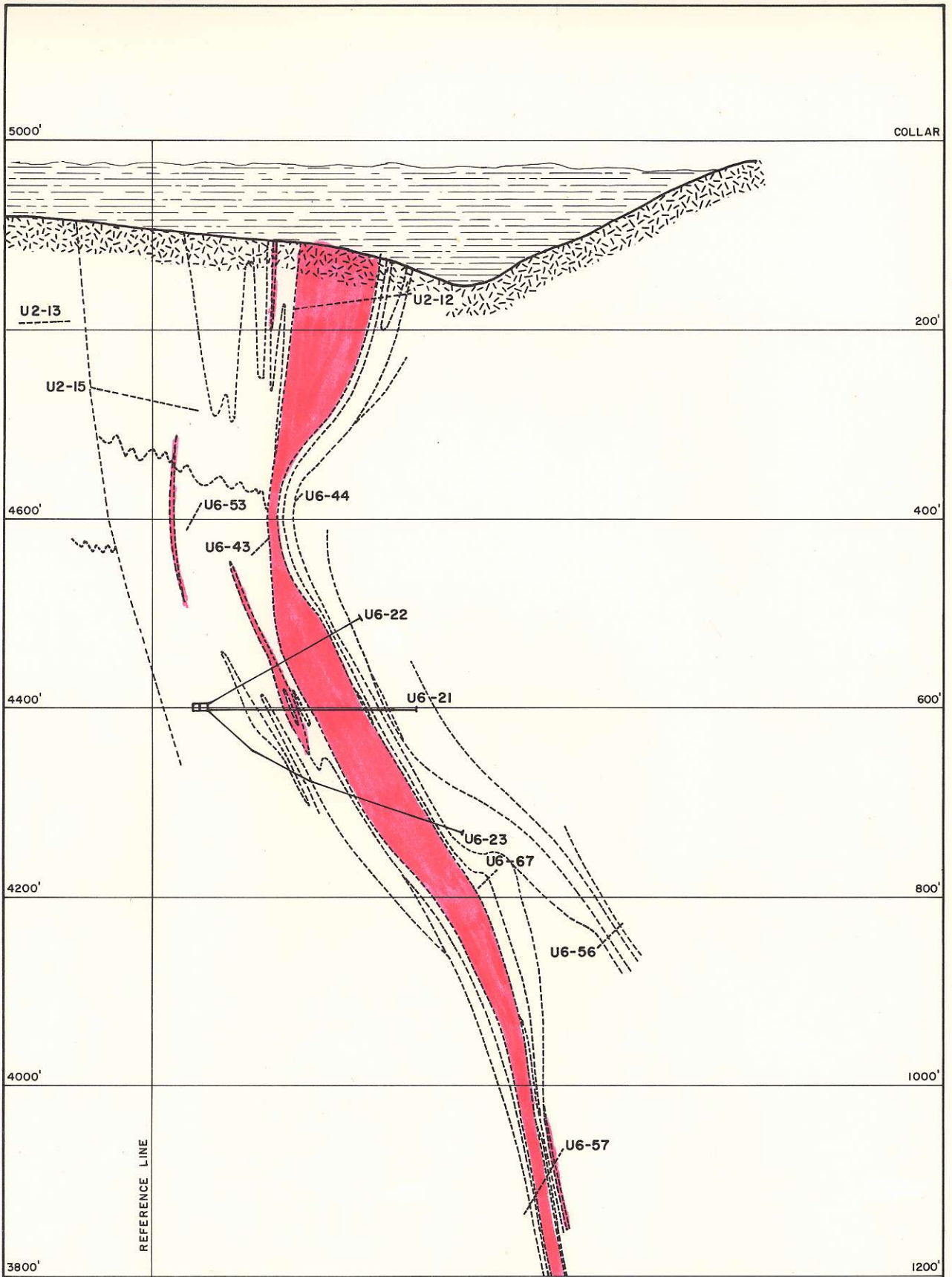
Total mining plant	\$2,192,295
Total concentrator	1,362,087
Total mine and plant services	1,069,730
Engineering, interest, inventory, working capital, site supervision, and contingency	<u>1,167,588</u>
Total Capital Cost	<u><u>\$5,791,700</u></u>

Using the foregoing figures (55¢/# Cu), the equalizing rate of interest on the unleveraged investment is 19.3% for the investment of \$5.8 million. If the costs of \$2,000,000 incurred to date are also included, the equalizing rate of interest is reduced to 5.4%.





* Per short ton of ore.



CERRO MINING COMPANY OF CANADA LIMITED		
Drawn By: I. SIMON	PINEBAY COPPER PROJECT	Scale:
Date: 10/29/71	FLIN FLON, MANITOBA	Dwg. No.: 3



LEGEND:

-  DRIFT
-  DIAMOND DRILL HOLE
-  DIAMOND DRILL INTERSECTION OFF SECTION
-  MASSIVE SULFIDE ZONE

CERRO MINING COMPANY OF CANADA LIMITED
 PINEBAY MINE
 VERTICAL CROSS SECTION LOOKING NORTH
 SCALE: 1" = 100'

Drawn By: I.SIMON

DWG.No.: 4

ILLINOIS-KENTUCKY FLUORSPAR PROJECT

Growing Demand for Fluorspar

With rapidly increasing demand for fluorspar (CaF_2) from the fluorine chemical, steel and aluminum industries, world consumption of all grades of this non-metallic mineral reached approximately 4.0 million short tons in 1970 and industry specialists project a rise to about 6.8 million short tons by 1975.

Prices for fluorspar have advanced dramatically since 1965 (see data below). Recognizing that world supply-demand relationships for fluorspar are likely to continue to be favorable well beyond the mid-decade with accompanying firmness in its sales value, Cerro in 1970 took initial steps directed toward its entry into the business of mining and milling fluorspar ore and the marketing of the milled product.

In this era of rising economic nationalism throughout the world, it is pertinent to observe that the United States is a substantial net importer of fluorspar, consuming almost a third of world output. However, domestic production satisfies only about one quarter of U.S. consumption.

Illinois-Kentucky Fluorspar District - Principal U.S. Source

Over the years since 1880, the so-called Illinois-Kentucky district has been the principal area of fluorspar production in the United States. In 1970, over 50% of U.S.-produced fluorspar originated from this area.

The district encompasses an area of some 1,000 square miles and is located near the intersection of the Ohio and Cumberland Rivers, predominantly in Hardin and Pope Counties of Illinois and Livingston, Crittenden, Lyon and Caldwell Counties of Kentucky.

Commercial quantities of fluorspar are generally found (i) in vein deposits formed by the filling of fissures along faults, or (ii) in bedded replacement deposits. Occasionally, a single deposit will be of both types. Mining is principally conducted underground. Reserves of individual deposits of the vein type will range from hundreds of thousands to over a million tons; of the bedded type, up to several million tons.

Cerro-FFL Group: Long and Short Range Fluorspar Reserve Targets

Cerro in July 1970 joined a group, referred to as the "FFL Group" (see below), that had been acquiring mining rights to land on structures believed to be favorable to fluorspar mineralization in western Kentucky and southern Illinois. Since then,

the land acquisition program has been accelerated and the Cerro-FFL Group now has lease holdings on some 13,000 acres of land in Kentucky and 3,500 in Illinois, plus an option to purchase over 2,600 acres in Kentucky (see property map).

Cerro's long-term target is to assemble fluorspar reserves of the order of 8-10 million tons. For the near term, current exploration would suggest at least 2 million tons of fluorspar ore (average grade of 40% CaF_2) and 1 million tons of zinc sulfide mineralization, 15-18% Zn content, probably can be delineated on lands now under control of the Cerro-FFL Group.

Possible Initial Exploitation Program

Preliminary analyses indicate that if such reserves (i.e., 2 million tons of fluorspar ore and 1 million tons of zinc ore, with grades as above stated) are found, exploitation could be undertaken on an economically attractive basis (production commencing in 18-24 months) with a capital investment of the order of \$6 million (Cerro's investment plus FFL's share in developing the mines for production). Under such a program, the annual rate of production would be about 46,000 short tons of fluorspar concentrate (97% CaF_2) and about 47,000 short tons of zinc concentrate (61% Zn). The later would have to be shipped to a custom smelter/ refiner for conversion into zinc metal.

Such a commercial operation would provide a cash throw-off which in part could be applied to exploration for addition of fluorspar reserves.

Fluorspar-Zinc Mineralization Discovered To Date (By Cerro-FFL Group)

a. Robinson Property. This property, consisting of 1,303 acres, is located about 25 miles northeast of Paducah, Kentucky. Drilling to date has indicated a vein-type structure of high-grade zinc sulphides with local concentrations of fluorspar, some 5,000' long, 150' to 200' high and 4' to 20' wide, situated about 500' below the surface. Drill-indicated tonnage to date is 400,000 to 500,000 short tons of zinc sulfide mineralization (15-18% Zn). Additional drilling is required and, eventually, a shaft will be needed for detailed underground exploration and removal of bulk samples for metallurgical testing. The ore potential of this property is now considered to be about 1,000,000 short tons of zinc sulphide (15-18% Zn) and 100,000 short tons of fluorspar mineralization (averaging 40% CaF_2).

b. Belcher Property. This property, consisting of 500 acres, is also located about 17 miles northeast of Paducah and about 5 miles northeast of Smithland, the county seat of Livingston County. About 100,000 short tons of fluorspar mineralization (40-50% CaF_2) has been indicated by drilling, but all the structures have not yet been explored.

c. Sommerlath Properties. In July 1971, the Cerro optioned a group of properties

in Crittenden County, Kentucky, which are referred to as the Sommerlath properties (contracted total purchase price is \$464,000, payable over a period of 2-1/2 years). Some mining and drilling had been previously done by others on the properties. As of October 1, 1971, Cerro-FFL had drilled 22 holes (totalling 10,000 linear feet) over a strike length of 5,000 feet. Fluorspar intercepts (averaging 40% CaF₂), with an average width of six feet, have been obtained over the entire length of the structure. Four diamond drills are currently working on the property.

An initial target of 500,000 tons of drill-indicated fluorspar mineralization is expected to be reached by the end of 1971 (sufficient to justify proceeding with option payments) and it is anticipated that over 1,000,000 tons of commercial fluorspar ore may eventually be found on the Sommerlath properties.

Cerro's Agreements with FFL Group (As Amended)

The FFL Group is a joint venture composed of three parties, i.e. :

	<u>Interest</u>
1. Five Resources Inc. (a Texas-based investor organization)	37-1/2%
2. Frontier Resources Inc. (a Denver-based exploration drilling firm)	37-1/2%
3. J. Fred Landers (a Tennessee businessman).....	25%

The FFL parties are also affiliated through stock ownership and otherwise.

On July 17, 1970, Cerro entered into a joint venture and purchase agreements with the FFL Group for the purposes of land acquisition, exploration and, if successful, eventually for development and operation of properties containing commercial reserves.

These agreements, as since amended, provide that Cerro may acquire interests in the properties held by the FFL Group in three option steps by making certain cash payments to the FFL Group and by making certain exploration expenditures.

So far, Cerro has acquired a 50.5% interest in the properties by payments to the FFL Group totalling \$50,000, by making expenditures on exploration totalling \$167,000 (through July 15, 1971), and by becoming committed to expend an additional \$175,000 by September 30, 1972. Cerro has a remaining option to increase its interest in the properties to 70% by making a payment to the FFL Group of \$150,000 on September 30, 1972 and agreeing to make another like payment on September 30, 1973. The amendment to the original agreements provides that 30% of all Cerro's expenditures on exploration and mine development after July 15, 1971 will be credited against the two \$150,000 cash payments.

Said amendment also transferred operating control of the exploration and development activities to Cerro on October 15, 1971. As operator, Cerro is entitled to

receive certain management fees during the exploration and mine development period. A management fee is also payable during the exploitation period.

Prior to October 15, 1971, Frontier Resources was in charge of exploration and it relied heavily on Boyce Moodie III, its geological consultant and manager in the field. Moodie has an extensive background of dealing in fluorspar properties in the Illinois-Kentucky district. Mr. Moodie continues on the job along with Cerro personnel.

The Cerro-FFL agreements provide that Caldwell, Crittenden, Livingston, Lyon and Union Counties in Kentucky and Gallatin, Hardin, Massac, Pope and Saline Counties, in Illinois, constitute a mutual area of interest between Cerro and the FFL Group for possible mineral land acquisition and exploration. All of the counties within the mutual area of interest are contiguous. Each member of the Cerro-FFL joint venture is required to offer the other members an opportunity to participate in the acquisition of any properties acquired within the mutual area of interest.

The FFL Group has first refusal rights to Cerro's interest in the properties subject to the Cerro-FFL agreements in the event Cerro elects to assign its rights to another party (not a controlled subsidiary).

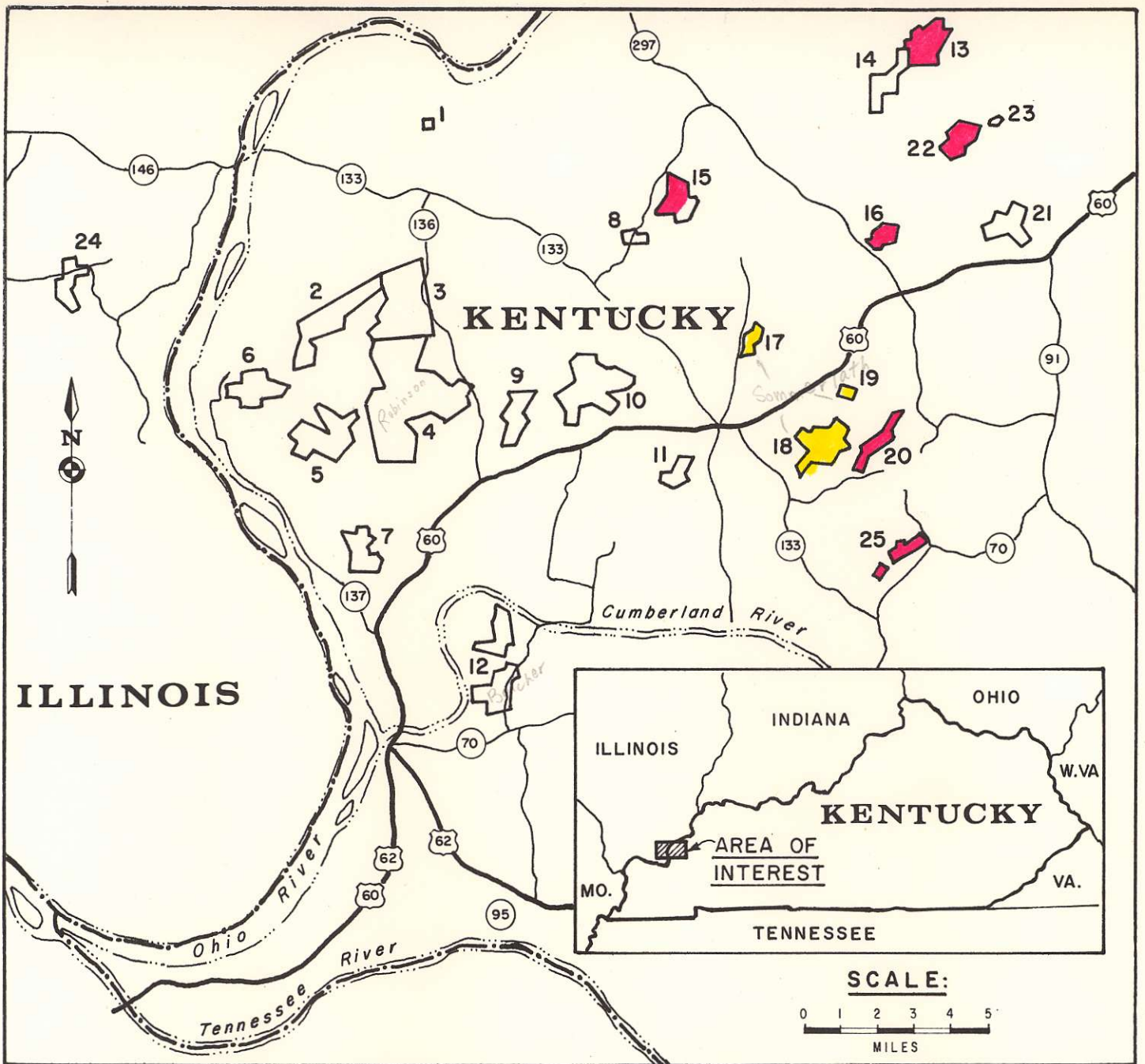
Fluorspar: Description, Uses and Value

Commercial, or potentially commercial, quantities of the mineral fluorite (calcium and fluorine combined as CaF_2) are usually referred to as fluorspar. Practically speaking, the words "fluorspar," "spar" and "fluorite" are used interchangeably.

Steadily increasing quantities of fluorspar are required in steel production, where fluorspar is used as a slag thinner; in aluminum production, where cryolite, another fluorine mineral, is used to dissolve alumina for the electrolytic cells; and in ceramics, where fluorspar is a flux and opacifier. Strong as the demand for fluorine has been in the foregoing uses, it has been even stronger for an important group of fluorocarbon chemicals which are formulated into refrigerants, plastics, solvents, aerosols, lubricants, coolants, surfactants, rocket fuels, medicinals and many other industrial products.

In marketing, three grades of fluorspar products are generally recognized. These, listed from the highest to lowest priced grades, are (1) fluorspar of acid grade, (2) fluorspar of ceramic grade, and (3) fluorspar of metallurgical grade. Prices for all three grades have risen substantially over the past few years, particularly for acid grade (dry basis, 97% CaF_2) which was selling, F.O.B. Illinois-Kentucky mines, at \$78.50 to \$85.00 per bulk short ton as of September 1, 1971. Prices on the same basis for ceramic grade (calcite and silica variable) ranged from \$75.00 per ton (88-90% CaF_2) to \$85.00 per ton (97% CaF_2). Metallurgical-grade fluorspar was quoted at \$68.5 per ton (pellets, 70% effective CaF_2). The price quotations are from E&MJ Engineering and Mining Journal.

The trend in recent years of the prices for acid-grade fluorspar is illustrated by the average prices per short ton since 1965, F.O.B. Illinois-Kentucky: \$45 (1965); \$47 (1966); \$49 (1967); \$53.50 (1968); \$57.50 (1969); \$60-66 (1970); and \$78.50-\$85.00 so far in 1971.



EXPLANATION:

- LEASE BOUNDARY
 - OWNED FFL/CERRO
 - OPTIONED FFL/CERRO
1. CAMPBELL - CROTSON AREA
 2. MAYFIELD GROUP
 3. GOOD HOPE GROUP
 4. ROBINSON GROUP
 5. BUSSY AREA
 6. CHIPPS GROUP
 7. BRADLEY AREA
 8. MANN AREA
 9. BAXTER - LLOYD AREA
 10. NELSON GROUP
 11. LITTLE GROUP
 12. BELCHER GROUP
 13. BEARD GROUP
 14. STALION AREA
 15. GRAY - BUTLER GROUP
 16. FRANKLIN GROUP
 17. SOMMERLATH (BABBS - BARNES)
 18. SOMMERLATH (TYNER)
 19. SOMMERLATH (EAGLE - WATSON)
 20. BEELER GROUP
 21. MARION GROUP
 22. MEMPHIS GROUP
 23. ROBERTSON PROPERTY
 24. POPE COUNTY, ILLINOIS
 25. CROUCH GROUP

CERRO MINERAL EXPLORATION CO. DIV., CERRO CORPORATION		
Drawn By: I. SIMON	KENTUCKY-ILLINOIS FLUORSPAR PROJECT	Scale:
Date: 10/29/71	PROPERTY MAP	Dwg. No.: 5

LA PLATA COPPER-MOLYBDENUM PROSPECT
(Colorado)

Exploration Objective

Humble Oil and Refining Company, according to its calculations, obtained indications of a possible 28,000,000 short tons of mineralization (0.5% copper) as a result of drilling 14 diamond drill holes (total length, 15,200 feet) on the La Plata prospect in Colorado. Such mineralization was situated from the surface to a depth of 800 feet.

Under the contractual arrangements made by Cerro with Humble, described below, Cerro has taken over the exploration of the prospect with a view of finding a large, low-grade orebody containing several hundred million tons of 0.7% copper and some molybdenum values. Such an orebody would require mineralization richer than that found to date and in a much larger block of ground. At present, it appears that the zone with the greatest potential for increased tonnage and grade lies below 700 feet from the surface.

Holder of Claims and Options

Humble Oil and Refining Company (Minerals Exploration Division, Denver).

Location

The prospect is located in La Plata County, Colorado, about 14.5 miles northwest of Durango, on the southwestern side of the San Juan Mountains, in San Juan National Forest (see index map). Elevations range from 9,000 to 13,000 feet above sea level.

Property

The property consists of unpatented lode claims owned by Humble plus a group of claims optioned to Humble. The claim area totals about 3,600 acres and is within a surrounding "redline" area of interest within which any ground acquired by either party, Humble and Cerro, must be shared under the terms of the contract between the parties.

(continued . . .)

Summary Terms of Agreement between Humble and Cerro

Under the agreement Cerro made with Humble in the middle of 1971, Cerro, by expending \$488,428 over a four-year period, for exploration and land expenses, will match Humble's expenditures on the La Plata property and earn a 50% interest in the property. To earn this interest Cerro's expenditures must be at least:

in 1971 --	\$ 50,000
in 1972 --	133,428
in 1973 --	150,000
in 1974 --	<u>155,000</u>
Total --	<u>\$488,428</u>

Without meeting these expenditure requirements, Cerro obtains no interest in the property.

Humble then has the right to decide either (i) to participate, on a 50-50% basis by supplying 50% of any further funds required for exploration, development and construction of exploitation facilities, or (ii) not to contribute and reserve, instead, a 2% net-smelter return royalty on mineral production. In either event, Cerro would be operator and manager of any resulting operation.

Cerro's interest may be assigned to others with the consent of Humble. No consent is required for assignment to a majority-owned Cerro subsidiary.

History of the Prospect

The mineralization in the Humble claim area has been known for a number of years. Previous exploration work includes the driving of a 740-foot adit (the Allard Tunnel). Humble drilled 15,200 feet, in the aggregate, in 14 vertical and inclined diamond drill holes. Previously, Bear Creek Mining Company (Kennecott) also drilled a number of holes, the records of which are only partly available to Cerro at present.

The previous work found an average grade of 0.54% copper over a 300 foot length in the Allard Tunnel. Intercepts assaying from 0.5% to 1.0% copper are frequent in the Humble drill holes from the surface to 2,700 feet, and low-grade copper mineralization can be found over a wide surface area.

Geological Characteristics

Chalcopyrite occurs disseminated and in fractures in, or close to, alkaline

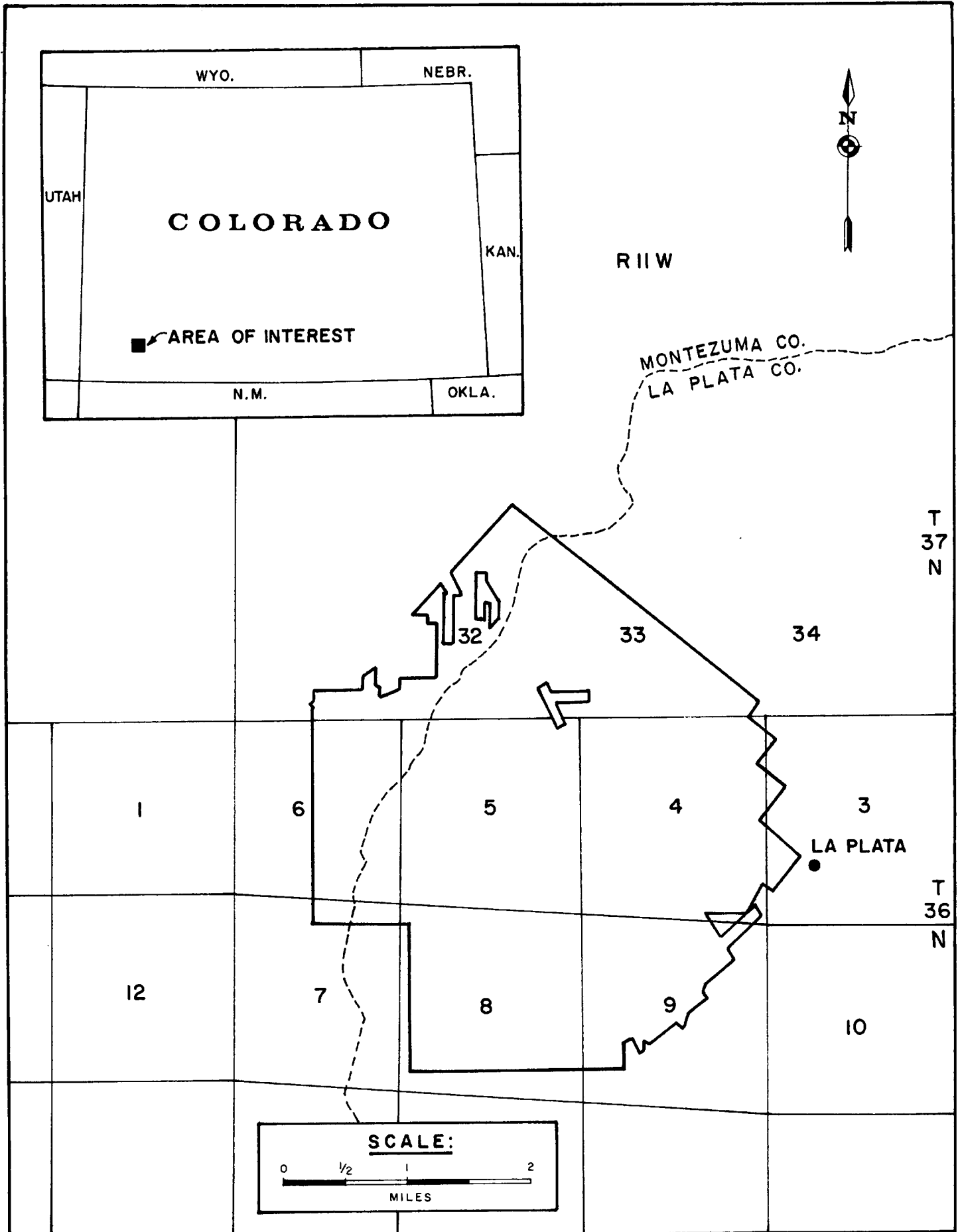
igneous rocks. The igneous rocks intrude a gently folded Paleozoic sedimentary sequence, which has been metamorphosed in the vicinity of the intrusions. Pyrite, bornite, molybdenite, quartz, calcite and fluorite are associated in varying quantities with the chalcopyrite or occur in the same structural setting. The copper mineralization contains some silver (about 0.2 oz. per ton, when copper reaches a grade of 0.5%) and detectable amounts of platinum-group metals. Chalcocite occurs in the first 100 feet below the surface in certain areas.

Exploration Results

Cerro began drilling late in July of 1971 and has completed 3 shallow holes for a total length of 2,525 feet. Intensive geologic mapping of the general area has been carried out and is continuing. Results to date confirm the work carried out by Humble but indicate that substantial ore possibilities within the central block are probably slim.

At the present time, the best chance for a commercial orebody appears to be at depth. The deeper drilling carried out by Humble has three holes in an east-west line over a length of 1,800 feet which show increasing copper grade with depth. The westernmost hole contains very little copper to a depth of 1,400 feet at which point the general copper content increases abruptly and probably averages about 0.3% with sections between 0.5 and 0.75% to the bottom at 2,350 feet. The copper content of the central hole increases at 750 feet and continues higher grade than the upper part of the hole to the bottom at 1,300 feet. The easternmost hole shows a generally low copper content (0.2%) to 1,600 feet where it increases and probably averages 0.4% to the bottom of the hole at 2,800 feet. In this lower 1,200-foot part of the hole, there are numerous sections which run between 0.5 and 0.9% copper. Deep drilling would be necessary to prove or disprove the existence of a commercial orebody, possibly in a breccia pipe, below a depth of 700 feet.

Data is being restudied and recompiled in conjunction with the field mapping, and the final report on Cerro's 1971 operations will be available in November. This will form the basis for a decision as to whether or not to continue the project.



CERRO MINERAL EXPLORATION CO. DIV., CERRO CORPORATION		
Drawn By: I. SIMON	LA PLATA COPPER-MOLY PROSPECT	Scale:
Date: 10/29/71	OUTLINE OF PROPERTIES HELD	Dwg. No.: 6

FFL-CERRO ZINC PROSPECT
(Tennessee)

Exploration Objective

Cerro, in conjunction with the FFL Group (the composition of which is stated below), has been seeking to find a commercial zinc orebody on property leased by FFL in Central Tennessee (see property map) in an area with structural and stratigraphic setting favorable to such a find.

The mineralization encountered to date is similar to that found in the vicinity of the two high-grade intercepts which the New Jersey Zinc Company is developing underground near Carthage. These factors encourage the belief that a commercial zinc orebody exists on the property.

Preliminary economic calculations show that the FFL -Cerro target should be 10,000,000 short tons of +5% zinc ore.

Owner of Lease Interests

Originally:	J. Fred Landers 40%)
	Frontier Resources, Inc. 20%) FFL Group
	Five Resources, Inc. 40%)
Presently:	Cerro Corporation 33.5%
	FFL Group 66.5%

Property

The leased properties are located about 3 or 4 miles east of Hartsville, Tennessee: mainly in Trousdale County, but extending into Macon County (see index map).

Various mineral leases are held within a "red line area." Areas under lease total 17,845 acres, and call for annual rentals of \$38,500 plus a 4% royalty on mineral production.

Contract Terms and Plans to Bring in a Third Party

Cerro has obtained a 33.5% interest in the leased property as a result of an expenditure of \$300,000 thereon. Since Cerro does not have ownership control, an agreement has been reached with the FFL Group to bring a third party into the picture.

A complete report covering work and results to date is under preparation. When it is received FFL and Cerro will settle on the terms for such third-party participation.

Cerro may assign its interest to others with the approval of FFL, or to a plus 51% Cerro-owned corporation without approval.

Main Geologic Characteristics

Sphalerite (ZnS) occurs in brecciated and fractured areas in the flat-lying dolomites of the Ordovician Knoxville Group in the area of interest in Tennessee. The sphalerite contains up to 1% cadmium and varying amounts of barite, fluorite, pyrite and galena occur with it or in the same structural setting.

Zinc mineralization found by surface drilling is being developed underground at a location 13 miles southeast of the FFL-Cerro area, at New Jersey Zinc Company's Elmwood Mine, near Carthage, Tennessee.

Additionally, it is believed that Cominco is obtaining favorable results with its drilling program on land adjoining Cerro's drilling area to the south.

Exploration Results

Cerro has completed 22 vertical surface diamond drill holes to an average depth of 1,800 feet, for a total length of 39,699 feet, in an area of 1,200 acres in the southwest corner of the lease area. Drilling on 1,000-foot centers has been confined to an area of 350 acres within the above mentioned area. Six holes encountered appreciable zinc mineralization and four of the adjacent holes, in the 1,000 foot spacing pattern, encountered thickness and grades approaching commercial ore as follows:

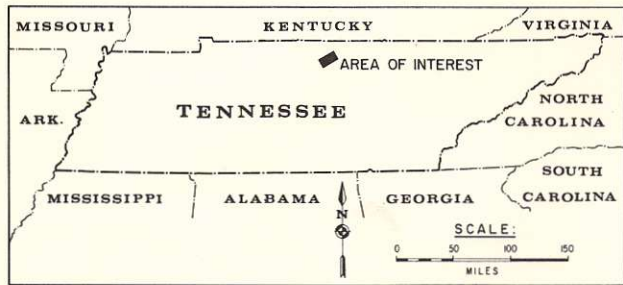
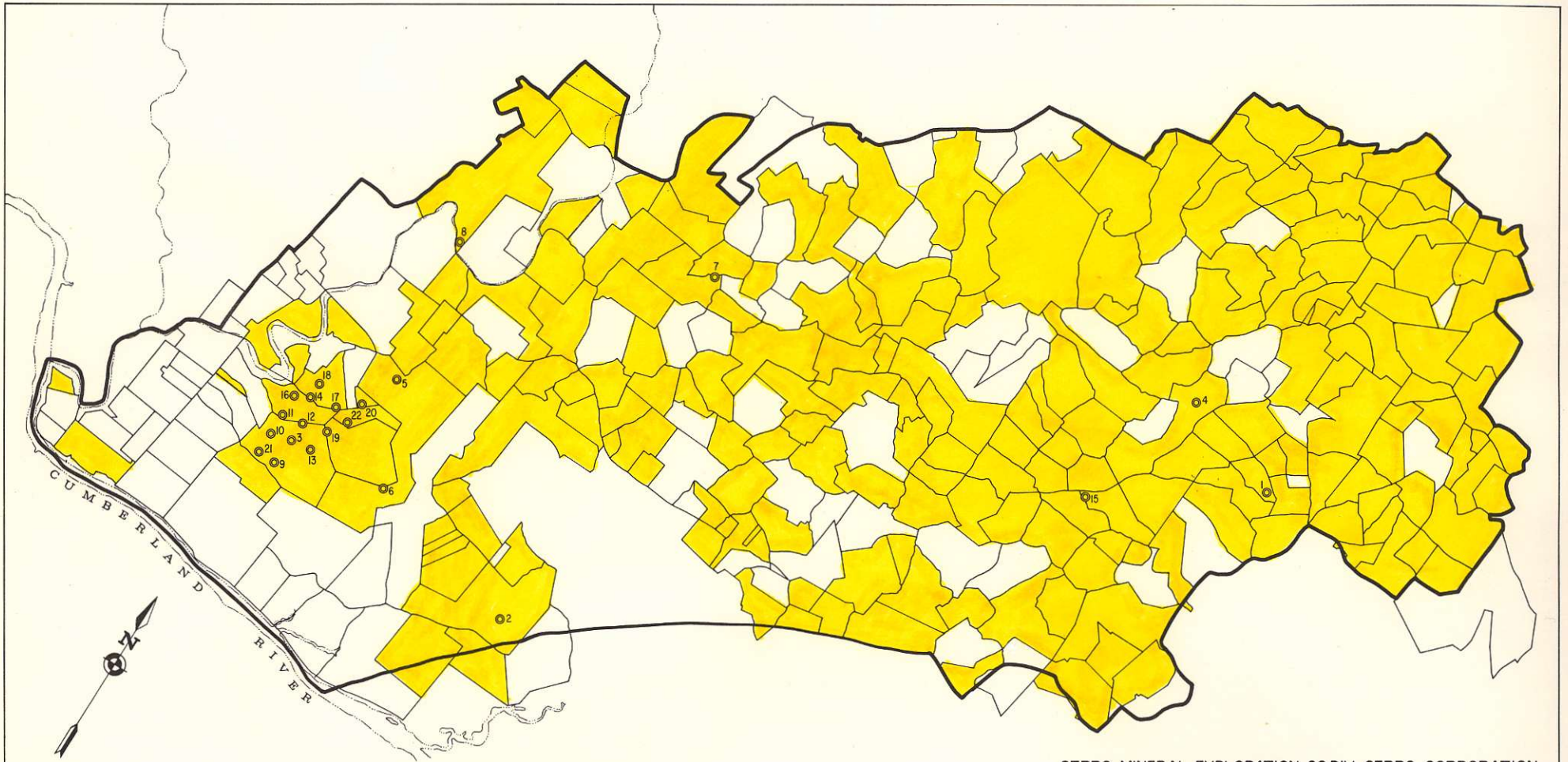
<u>DDH No.</u>	<u>Intercept Thickness (Feet)</u>	<u>Grade % Zn</u>	<u>Depth (Feet)</u>
3	7	5.2	1,282
10	12	3.2	1,404
11	5	5.4	1,431
12	8	6.5	1,566

The intercepts are found over a stratigraphic interval of approximately 200 feet which is normal in this district. The formations are brecciated and dolomitized in the manner known to be a requisite for ore occurrence in central and eastern Tennessee.

Preliminary calculations show that the tonnages and grades developed by the drilling completed are as follows:

<u>Cutoff Grade</u> <u>% Zinc</u>	<u>Dry Short Tons</u> <u>(30% Dilution)</u>	<u>Grade</u> <u>% Zinc</u>
3.0	1,950,000	3.93
2.25	4,350,000	3.15

The FFL-Cerro Group's success in finding mineralization to date has been above average for the district. The New Jersey Zinc Company drilled over 100 holes before hitting their first ore-grade intercepts and sank the Elmwood shaft on the basis of good intercepts and structure in two holes.



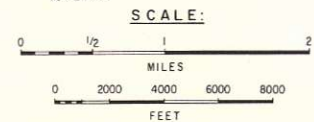
LEGEND:

- LEASED AREAS
- DIAMOND DRILL HOLES

CERRO MINERAL EXPLORATION CO. DIV, CERRO CORPORATION
 CERRO - FFL ZINC PROSPECT
 Trousdale and Macon Counties
 TENNESSEE

LEASE HOLDINGS AND DRILL LOCATIONS

Drawn By: I.SIMON DWG. No.: 7
 10/29/71



REDSTONE COPPER PROSPECT
(Northwest Territories)

Exploration Objective - Potential

One of the more interesting, and possibly the most valuable (ultimately), of the properties which Cerro has been exploring, is the Redstone copper prospect in the Northwest Territories of Canada. This is true despite the fact that the exploitation of the potential -- assuming that an orebody of the richness and size, indicated below, is found -- presents a major problem of "shipping the metal to market."

In the Redstone area, copper mineralization in sedimentary rocks of pre-cambrian age crops out on the east side of a synclinal basin over a length of five (5) miles. Previous drilling by the owner of the claims, Redstone Mines, Ltd., near the east edge of the basin, intersected substantial thicknesses of sulfide copper mineralization grading from 1% to over 4% Cu. The size and configuration of the synclinal basin led to the conclusion that it would be reasonable to set an exploration target of an orebody, or orebodies, containing of the order of 200 million tons of 2 to 4% Cu, and that, given proper continuity of mineralization underground, a minimum operation of 20,000 short tons a day of ore production could be sustained.

Owner of Property

Redstone Mines, Ltd.
25 Adelaide Street, E. (Suite 915)
Toronto, Ontario

Location of the Property

The property is located in a large open valley in the McKenzie Mountains at an elevation of about 4,000 feet, Northwest Territories (62° 52' N. - 126° 40' W.).

Contract Terms (Summary)

Cerro-Canada entered into an agreement with Redstone Mines, Ltd., on August 7, 1970, and became committed thereunder to expend \$500,000 on the Redstone property by the end of 1971. Such expenditure requirement, which has already been met, does not earn Cerro-Canada any interest in the property.

On or before January 31, 1972, Cerro-Canada must undertake to expend, before December 31, 1974, at least \$1,000,000 on the property (a firm commitment). If this

commitment is met, Cerro-Canada will earn a 45% interest in the property (if not, nothing).

If a decision to place the property into production is reached by December 31, 1974, another 4% interest will be earned, bringing the total interest earned to 49%.

At the commencement of commercial production, and upon a further payment to Redstone of \$10,000, the interest earned will be increased to 60%.

Thereupon, Cerro-Canada will have an option to increase the interest to 80% upon payment to Redstone of \$3,000,000. In such event, Redstone will retain a carried interest of 20%.

Geological Characteristics

Stratabound copper mineralization in Upper Proterozoic sedimentary rocks overlies a red-bed sequence. Mineralization crops out on the east side of a synclinal structure, over a length of five miles. The setting is similar to that of the Rhodesian Copper Belt and White Pine, Michigan.

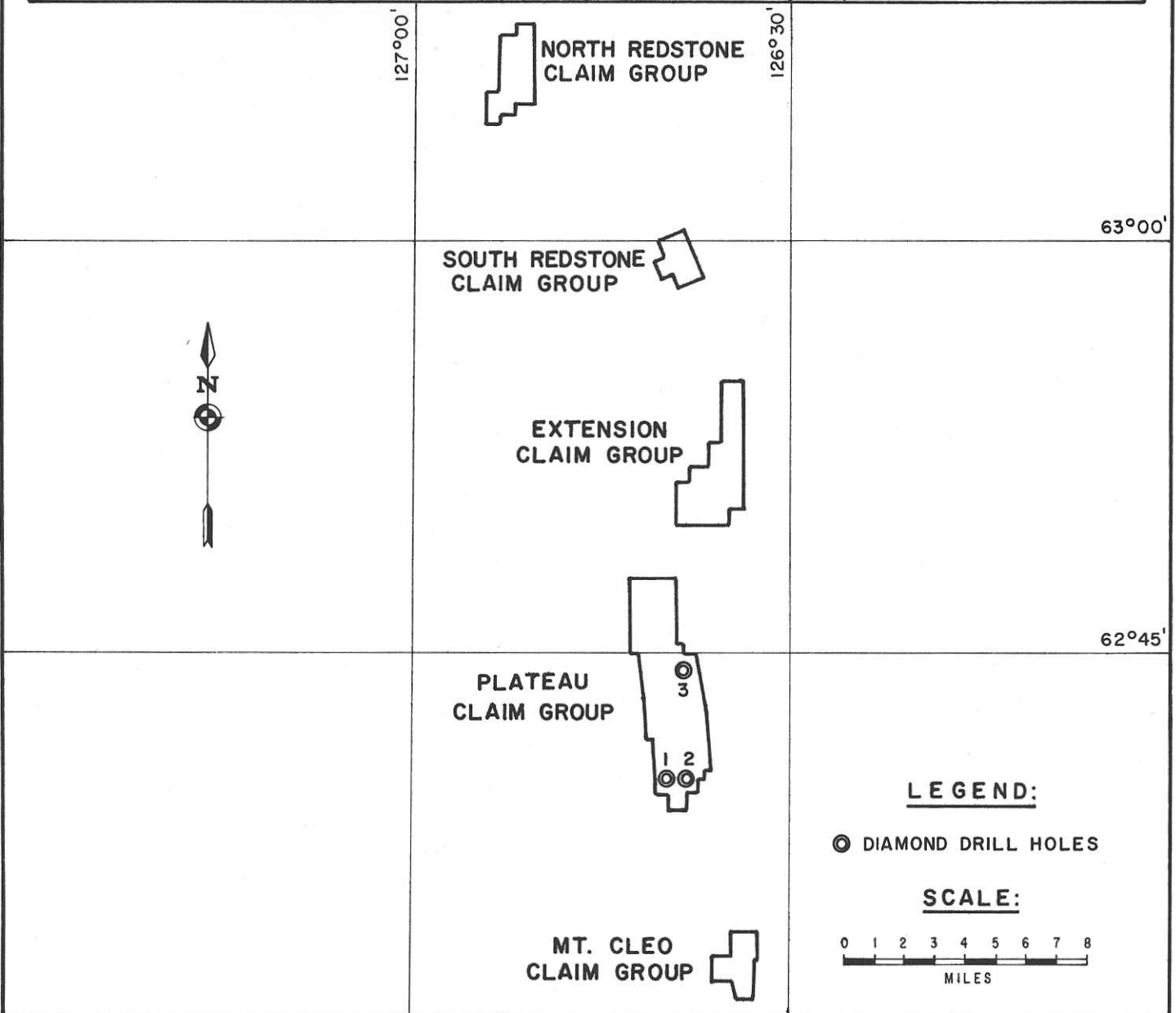
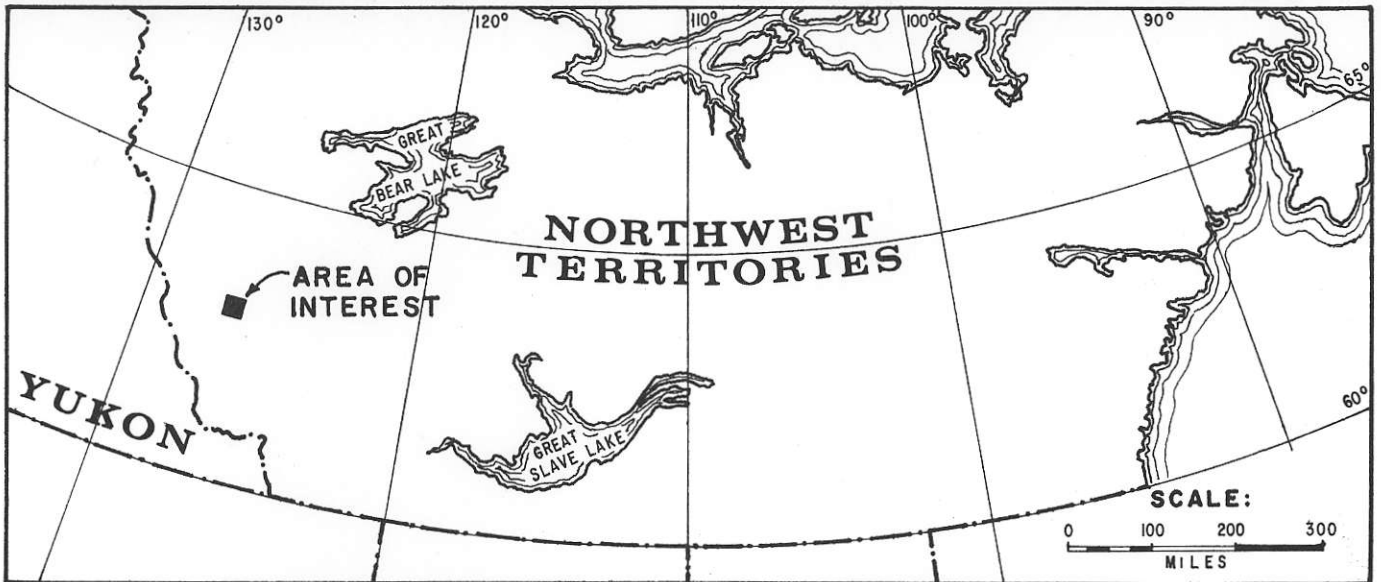
Previous shallow drilling on the east edge of the syncline (24 holes) shows significant intersections averaging 11 feet in thickness and 1.95% Cu. The best intersections, all sulfide copper, were 52' of 1.67%, 45' of 2.10%, 32.4' of 3.18%, and 20' of 2.58%.

Exploration Results

Two diamond-drill holes, for a total of 3,640 linear feet, were started 1,000 and 2,000 feet west of the best mineralization found by previous drilling on the southern part of the property. Both holes encountered thrust faulting at over 1,400 feet and had to be abandoned due to difficult drilling and a projected depth to mineralization of over 4,000 feet. The drill was moved 3.5 miles, NNE, to a location 1,000 feet west of three holes drilled, by others, in 1963 which encountered about five feet of over 2% copper. Drill hole #3 cut the mineralized zone between 700 and 800 feet, and the best intersection was four feet of 3.96% of oxide copper. This correlated well with the previous drilling, giving a dip of 38°. The fourth hole was collared at 2,000 feet, west and downdip from hole #3. This hole was terminated at 124 feet, still in overburden, due to budgetary limitations.

Additional geologic mapping and geochemical work was carried out by Cerro-Canada during the summer season. The final report covering the work is now in preparation and will be available during November, 1971.

Drill hole #3 proves the continuation of mineralization into the synclinal basin at a reasonable grade and indicates that further drilling is warranted.



CERRO MINING COMPANY OF CANADA LIMITED		
Drawn By: I.SIMON	REDSTONE COPPER PROSPECT CLAIM GROUPS	Scale:
Date: 10/29/71		Dwg. No.: 8

TROITSA LAKE COPPER-MOLYBDENUM PROSPECT
(British Columbia)

Exploration Objective

The geologic setting together with exposed copper mineralization in a quartz vein stockwork and in altered rhyolite porphyry dikes leads to the conclusion that the property under option, in the Troitsa Lake area of British Columbia, could contain a large, low-grade, open pit copper-molybdenum deposit.

Owner of Property

Aston Resources, Ltd.
534-789 West Pender Street
Vancouver, B. C.
Canada

Property (Location)

South of the west end of Troitsa Lake, 90 miles south of Smithers, British Columbia, at an altitude of 4,000 feet. The property held consist of fifty-five, 40-acre, claims.

Geological Characteristics

The property covers a large tear drop shaped mass of quartz monzonite-granodiorite that is intrusive into a series of Mesozic Hazelton Group volcanic rocks. Pyritiferous rhyolites occupy a re-entrant on the west side of the granodiorite. A north-northwesterly trending dike swarm, with a strike length exceeding four miles, cuts all previously mentioned rocks on the property. This dike swarm exhibits a subradial pattern, the focus of which is located southeast of the "main showing."

Chalcopyrite-pyrite (very minor molybdenite) is found in significant amounts in a quartz vein stockworks in granodiorite and altered volcanic rocks immediately south of Troitsa Lake. At two locations (i) 1-3/4 miles south of the lake main showing and (ii) 2-1/2 miles south of the lake "cirque showing," altered rhyolite porphyry dikes cutting the granodiorite contain finely disseminated chalcopyrite. At the main showing, assays of up to 1.49% copper were obtained over a true width of 40 feet. The best altered rhyolite dike diamond-drill-hole intersection, at this locality, was 80 feet of 0.94% Cu. Within the granodiorite, lesser amounts of chalcopyrite and pyrite (very minor molybdenite) occur extensively in medium to

coarse grained quartz veins and as scales and plates on fracture planes.

At the margins of the granodiorite, prominent gossans occur in Hazelton Group rocks and pyritiferous rhyolites. Mineralized rhyolite porphyry dykes are intensely sericitized. A few galena phalerite-quartz veins occur within the Hazelton Group rocks on the east margin of the stock.

Exploration Results

Previous work, done by others, consisted of drilling five holes for a total of 2,402 linear feet, and also trenching in the main-showing area. This work partially tested an altered rhyolite porphyry dyke that averages 1.40% Cu across a true width of 40 feet in a creek canyon. Thirty feet of altered granodiorite on the east side of the dyke averages 0.40% Cu. The mineralization comprises finely disseminated pyrite and chalcopyrite. Lesser amounts of mineralization occur along the creek, both east and west of the main showing, associated with a sheeting of veins and mineralized fractures trending N30°W and dipping steeply west. The veins, reportedly, vary in width up to five inches and consist of medium to coarse grained quartz, chalcopyrite, pyrite, and minor amounts of molybdenite. Scales and plates of pyrite and chalcopyrite are present in variable amounts on fracture planes.

Cerro-Canada's work, for the 1971 field season, has consisted of geological mapping of an area of nine square miles of the property which was completed on a scale of 1" to 500', and detailed mapping of the main showings on a scale of 1" to 100'. A geochemical survey of the property on a 500' grid was completed, and detailed follow-up on a 100' grid was carried out in the main showing area.

Geochemical results received towards the end of August 1971, indicated an area 6,000' x 2,000' in the steep cirque in the southeast part of the property where talus fines gave anomalous copper values (+ 500 ppm Cu). The anomaly was confirmed in the field as being due to widely spread fracture fill chalcopyrite in the main monzonite mass. Well mineralized float, similar to the dyke of the main showing area, was found in the talus at the base of the steep cliff. A final report on the 1971 field work is presently under preparation.

Summary of Contract Terms with Aston Resources, Ltd.

In the option agreement made by Cerro-Canada with Aston Resources, Ltd., on May 31, 1971, the following key provisions are contained:

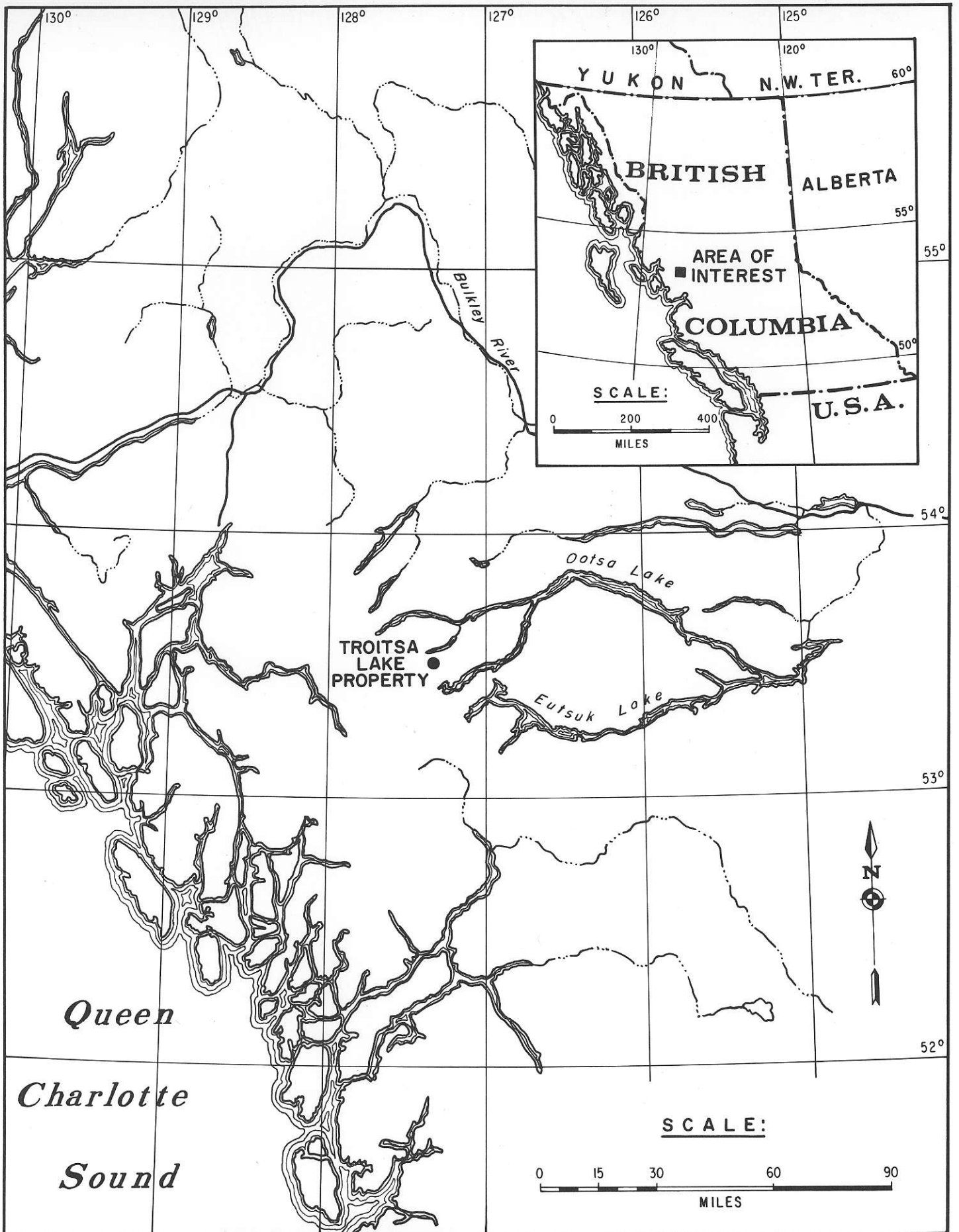
(Continued . . .)

<u>Cerro-Canada Expenditure to</u>	<u>Work Commitment (Cumulative)</u>	<u>Cumulative % Interest Earnable by Cerro-Canada</u>
12/31/71	\$ 30,000	None
12/31/72	80,000	None
12/31/73	180,000	None
12/31/74	380,000	20%
12/31/75	580,000	40%
12/31/76	780,000	60%

On making production commitment prior to 12/31/78		80%*

* An additional 10%, to make the total interest 90%, can be obtained upon payment to Aston Resources, prior to the end of 1980, of \$2,000,000.

This project may be dropped, without penalty, by Cerro-Canada, at the end of any year.



CERRO MINING COMPANY OF CANADA LIMITED

Drawn By: I.SIMON

**TROITSA COPPER-MOLYBDENUM PROSPECT
 LOCATION MAP**

Scale:

Date: 10/29/71

Dwg. No.: **9**

SALAL CREEK MOLYBDENITE PROSPECT
(British Columbia)

Exploration Objective

In the Salal Creek area, low-grade molybdenite mineralization (e.g., containing about .01% MoS₂) is widespread, e.g., over ten square miles, in a favorable geologic setting. High grade mineralization is present locally and geochemically anomalous areas of molybdenum and copper have been delineated. The exploration objective, in this case, is to find the presence of a very large molybdenum, or copper-molybdenum orebody, suitable for exploitation by block caving.

Owner of Property

Salal Molybdenite Mines, Ltd.
34 Adelaide Street West
Toronto, Ontario, Canada

Location

The property, 88 full claims (40 acres each) and 2 fractional claims, is located at elevations of from 4,500 to over 8,000 feet above sea level, 100 miles north of Vancouver, British Columbia. (Lat. $54^{\circ} 45' N.$ - Long. $123^{\circ} 25' W.$).

Contract Terms

On July 16, 1970, Cerro-Canada entered into an agreement with the owners, Salal Molybdenite Mines, Ltd., on the following terms:

<u>Cerro-Canada Expenditure to</u>	<u>Funds to be Expended</u>	<u>% Interest Earnable by Cerro-Canada (Cumulative)</u>
12/31/71	\$ 75,000*	None
8/31/76	175,000	90%

Payment to Salal	\$1,000,000	95%

* These funds have already been expended.

Geology and Mineralization

Molybdenite at the Salal property occurs in a granitic stock. The stock is oval in plan, covers an area of 35-square miles and consists predominantly of leucogranite. There are two main facies in the body, a coarse-grained granite at the margin, and a fine-grained core. The core covers about ten square miles and is eccentric to the center of the stock. Contacts between the fine-grained core and coarse-grained marginal facies were found to be gradational over a few inches. A third unit, of intermediate grain size, was found between the fine and coarse-grained rocks, and a fine-grained aplitic granite was observed.

All of the rocks have a general chemical and textural similarity, but differ in grain size, presence or absence of phenocrysts, and ratio of phenocrysts to ground mass.

Light, blue-grey aplite dykes form swarms and networks in the coarse-grained facies near the fine-grained core. Thin-porphyry dykes, generally quartz-feldspar-biotite porphyry or quartz-feldspar porphyry, are abundant and two intra-mineral, feldspar-porphyry dykes were recognized near Big Creek. The age of the Salal stock is not known, but is probably Upper Cretaceous or Lower Tertiary.

Varved sediments and till cap the Salal Creek stock and underlie columnar basalts at two localities. Tertiary-Recent lavas, agglomerates and associated dykes and small plugs are common in the area. These are mainly basalt.

The contact of the stock is steep and transgresses the strong regional east-west foliation in the Coast Range Complex. Two main directions of shears were found. The one, north-south, dips steeply, and the other, north-east, has variable dips. These are gangue filled and contain molybdenite. The most prominent fracture system is concentric to, and dips towards, the center of the fine-grained core. Fractures are mineralized and also control the location of many aplite dykes.

No zonal pattern of hydrothermal alteration has been recognized at Salal Creek. Most intense alteration is associated with the main mineralized zone. Alteration varies from weak to moderate and is locally intense. In decreasing order of importance, alteration types are clay, chlorite, sericite, silica and carbonate.

The location of the mineralization has been controlled by:

- (a) the contact between fine and coarse-grained facies of the granite;
- (b) shearing and jointing in the granite; and
- (c) a coarse mineral zoning.

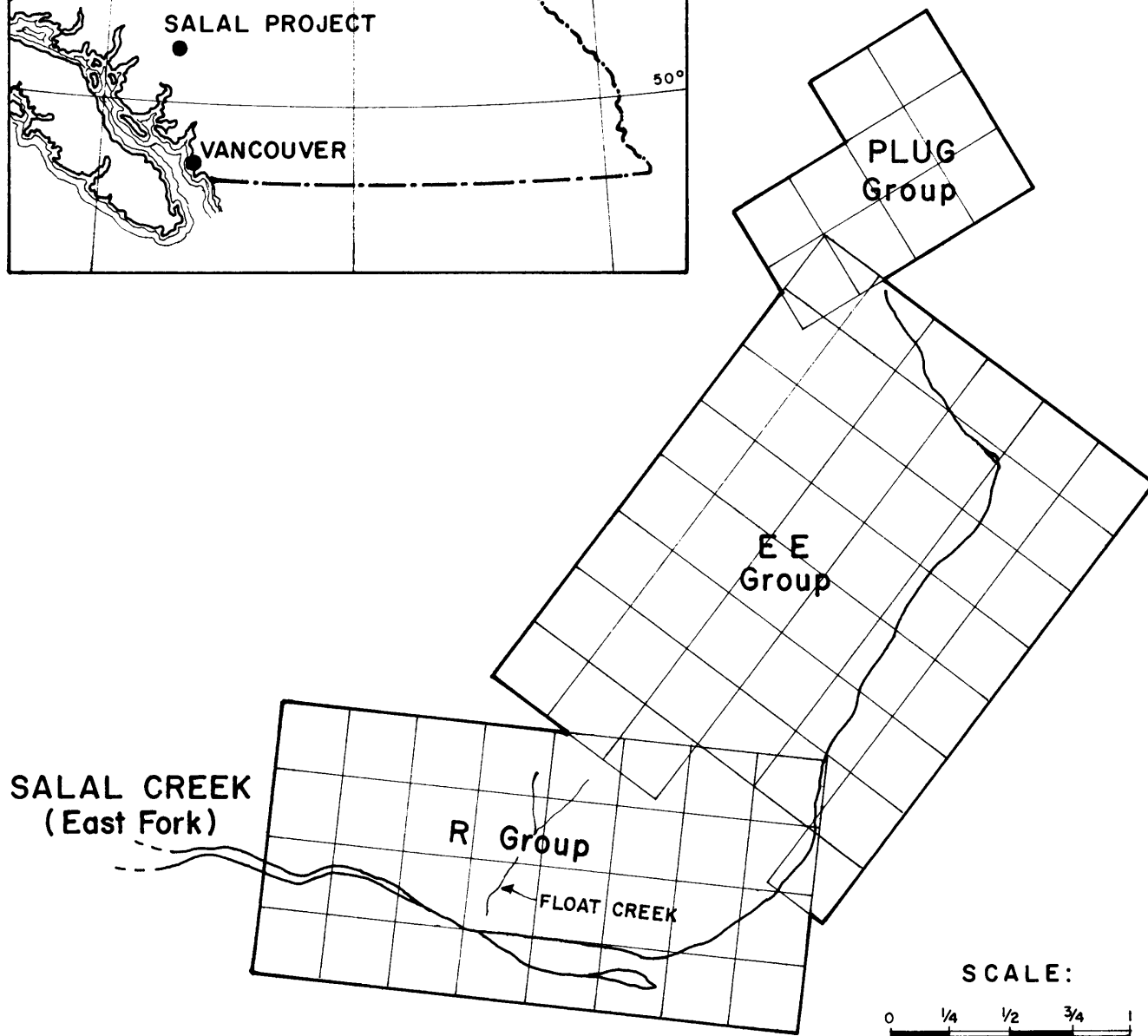
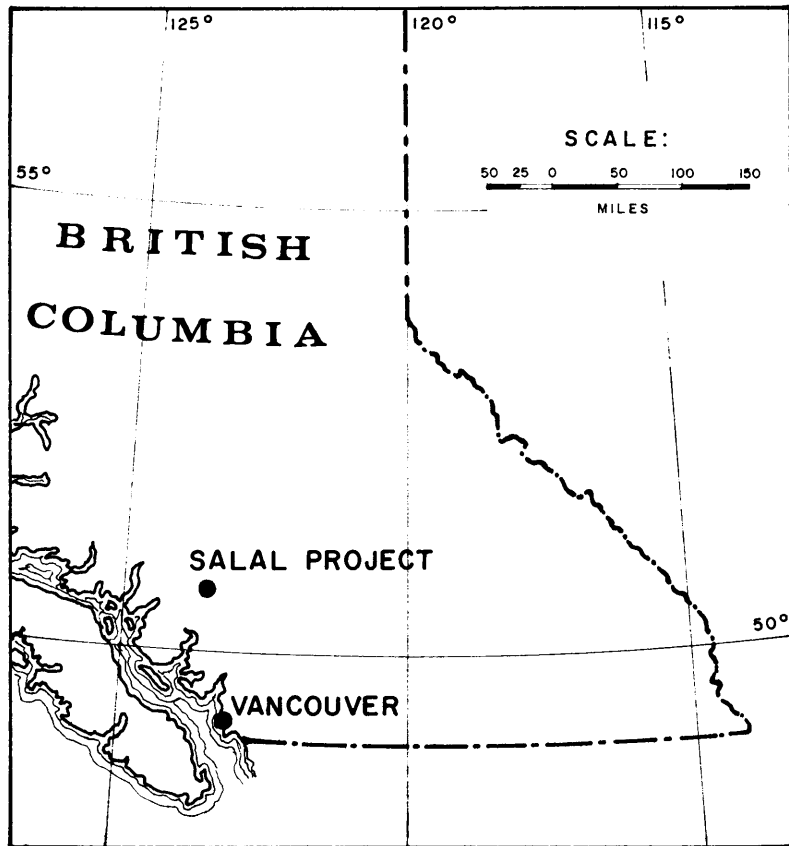
Minerals present are pyrite, magnetite, hematite, manganese minerals and molybdenite, with lesser amounts of chalcopyrite, bornite, sphalerite and galena and traces of fluorite and calcite.

Exploration Results

During 1966, Southwest Potash Corporation of Canada, which worked on the property, found low-grade molybdenite in 7,000 feet of drilling at four widely-spaced locations. Grades, in general, ranged from 0.01 to 0.19 MoS₂.

Cerro-Canada's mapping and geochemical work, during 1970, showed additional molybdenum-copper anomalies on the south and west sides of the stock. During the 1971 field season, mapping and geochemical work is underway in the Float Creek area which is the most highly mineralized, but which has never been checked due to inaccessibility. In the Float Creek area, molybdenite mineralization is known over a vertical range of 1,500 feet.

A final report on the work carried out during the 1971 field season is under preparation.



CERRO MINING COMPANY OF CANADA LIMITED		
Drawn By: I. SIMON	SALAL MOLYBDENITE PROSPECT	Scale:
Date: 10/29/71	CLAIM GROUPS	Dwg. No.: 10

LAKE ODON COPPER PROSPECT (Northwest Quebec)

Prospect - Potential

Possibility of discovery of a massive sulfide copper orebody, of the type being mined by others in the Chibougamau area, has been suggested by preliminary exploration work done by Cerro Mining Company of Canada Limited ("Cerro-Canada") during the 1971 summer season on mining claims staked in Quebec by Cerro-Canada in 1970. Exploration work done so far has been insufficient, however, to be able to assess the potential of this prospect.

For illustration of the type of orebody which reasonably might be expected to be found in the Chibougamau area, please see table below listing ore production through 1968 and published remaining ore reserves of mines being operated there by others.

Property (Location)

Prospect is located on one of 85 claims staked by Cerro-Canada (totaling 3,400 acres) in the Lake Odon area, 50 miles north of the city of Chibougamau, Quebec. (See index map.) An additional 100 claims are being staked in the area.

Geology: Early Exploration Results

Mapping and other exploratory work done to date is insufficient to postulate the overall geology and structure of the prospect area. The area of interest can be characterized as a strong, flat dipping, northeast trending shear zone in gabbro with associated granite intrusives.

Initial trenching and pitting over an aggregate length of 1,000 feet, to a depth ranging from 2 to 4 feet has exposed a fracture zone with locally heavy chalcopyrite mineralization with minor molybdenite. "Discovery" trenches #1 and #2 have yielded samples assaying up to 12% copper over a thickness of 2 to 4 feet. Trenches northeast of the discovery expose the altered fracture zone with 1 to 2% Cu, and 0.5 to 0.75% Mo. Three hundred feet southwest of the discovery an uncompleted shallow pit has exposed a minimum 1-foot section assaying 3.52% Cu and 0.039% Mo.

Six shallow diamond drill holes (20 to 75 feet deep), over a length of 200 feet and a downdip extension of 100 feet, indicate that the fractured and altered zone dips 20 to 30 degrees to the northwest. One hole, 50 feet downdip from the "discovery," assayed 5.61% Cu and 0.129 Mo over a thickness of 4.8', and a second hole, 50 feet farther downdip, assayed 3.27% Cu and 0.002 Mo over a thickness of 3.27'.

A geochemical survey and some geophysical test work will be carried out on the prospect before the start of the winter season in anticipation of work to be continued in 1972.

Existing Commitments

Aside from the customary commitments related to maintaining the staked claims in good standing, Cerro-Canada has an agreement with a prospector, in the usual form for this area of Canada, under which the prospector can earn a maximum, in the aggregate, of \$140,000 (e.g., if an orebody estimated to contain 6,000,000 tons or more of ore is delineated on the claims in the prospect area).

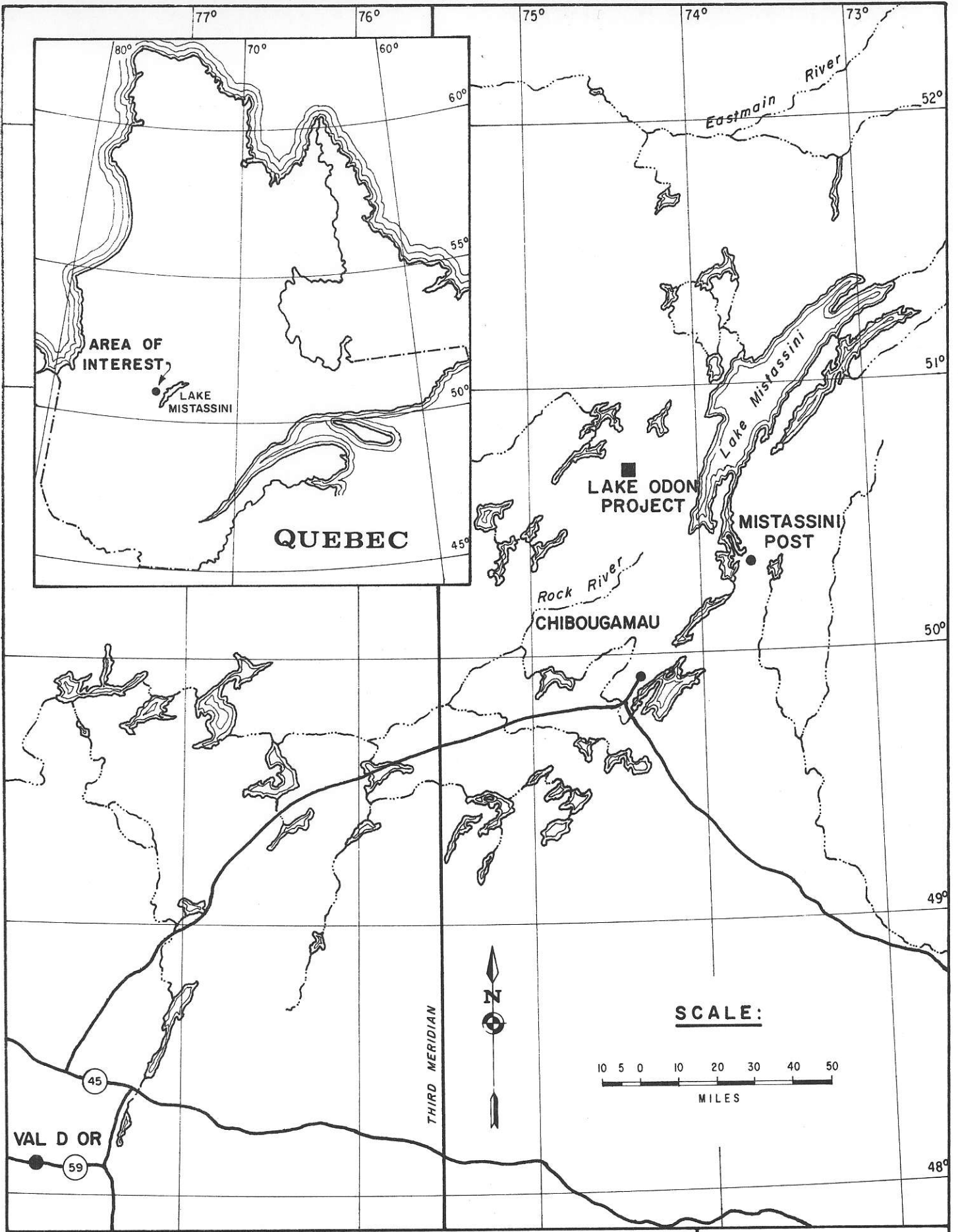
REPRESENTATIVE MINING IN THE CHIBOUGAMAU AREA - 1968
(Source: Quebec Department of Natural Resources Special Paper No. 8)

Name of Mine	Past				Ore			
	Output MM/ST	Grade			Reserves MM/ST	Grade		
		%Cu	Au*	Ag*		%Cu	Au*	Ag*
Opemiska	7.9	3.12	0.03	0.46	7.2	2.9	0.03	0.46
Copper Cliff <u>1/</u>	-	-	-	-	0.3	1.8	-	-
Jaculet <u>1/</u>	0.7	2.06	0.02	0.24	0.68	1.95	0.02	0.24
Cedar Bay <u>2/</u>	2.1	2.07	0.08	0.27	0.68	2.46	0.13	0.27
Kokko Creek <u>2/</u>	0.55	2.46	0.01	1.5	0.15	1.49	0.01	1.50
Main Copper Rand <u>1/</u> ..	2.7	2.37	0.02	0.26	2.4	2.35	0.02	0.26
Bouzan <u>1/</u>	0.25	2.07	0.02	0.26	0.65	3.25	0.02	0.26
Chib-Kayrand	0.07	1.50	0.02	0.57	0.06	2.14	-	0.57
Campbell Chibougamau..	4.6	1.94	0.05	0.38	0.54	1.54	0.02	0.38
Icon Sullivan	0.24	2.89	-	-	0.94	2.90	-	-
Henderson <u>2/</u>	2.8	2.24	0.04	0.22	8.9	2.23	0.05	0.22
Portage <u>1/</u>	1.3	2.41	0.12	0.26	1.1	2.14	0.13	0.26

* Ounces per ton.

1/ Operated by The Patino Mining Corporation.

2/ Operated by Campbell Chibougamau Mines Ltd.



CERRO MINING COMPANY OF CANADA LIMITED

Drawn By: I. SIMON

LAKE ODON COPPER PROJECT
LOCATION MAP

Scale:

Date: 10/29/71

Dwg. No.: 11

Lake Odon - Copper moly prospect - Quebec
Cerro Corporation

No. 41

The copper mineralization ranging from 1 to 6%, occurs in a spotty shear zone in gabbro. This mineralization is similar to known ore bodies in the Chibougamau-Chapais area. The zone, 1-16 feet wide, has been traced for 500 feet.

Recommendation

No further interest is warranted.

Reasons

The property has limited potential for appreciable tonnage. The Cerro geologist states that this is the best prospect examined in 6 years, but after two field seasons, the property is still minimal. Geochemistry has been negative despite known scattered boulders of copper mineralization.

SIERRA MADRE-LA CERRO COPPER PROSPECTS
(Mexico)

During the past year, Cerro has been reviewing the mineral exploration and mining investment situation in Mexico. Formation of a Mexican subsidiary company will be necessary before exploration there is actively undertaken.

Negotiations are presently underway with Cia. Minera Santa Rosalia, S.A., concerning exploration and development by Cerro of part of the area held by Santa Rosalia in the Boleo District, in the Territory of Baja, California. Mineralization there is copper sulfides, strata-bound in a flat-lying volcanic and sedimentary sequence.

Cerro also has options on two porphyry copper prospects in the State of Sonora, Mexico. These are described below.

SIERRA MADRE COPPER PROSPECT

Potential

This property covers a large area of disseminated mineralization which could contain a large, low-grade copper ore deposit amenable to open pit mining.

Owner

W. S. Jensen
Cia. Minera Navojoa
Navojoa, Sonora
Mexico

Location

The property consists of five contiguous concessions, totaling approximately 7-1/2 square miles, located 65 miles southeast of the city of Ciudad Obregon, in southern Sonora (Lat. 27° 18' N. - Long. 108° 57' W.).

Contract Terms

On December 20, 1970, a 10-year option agreement was entered into with

Cia. Minera Navojoa on the following terms:

Monthly payments to 6/20/72	\$ 1,250
Monthly payments to 6/20/72 to 12/20/72	2,083
Total payments through second year	34,998
Annual payments beginning 12/20/72:	
First year	62,500
Second year	50,000
Third year	50,000
Fourth through eighth years	100,000
Total payments through tenth year	697,498

The total purchase price of the property is \$3,000,000 from which the above mentioned \$697,498 is deductible.

Geology and Mineralization

Sericitic alteration, disseminated limonite, and copper oxides are exposed in zones a few feet to more than 200-feet wide in low hills surrounding alluvium-covered fields. The zones strike northeast and northwest indicating fracture control of alteration and mineralization.

The best zones of alteration and mineralization are in the southern half of the property (Los Quintos Area). In this area they are exposed over a width of 1,400 feet, and a length of 3,500 feet. The zones strike northwest and are separated from each other to an unknown extent (due to alluvial cover) by unmineralized quartz monzonite and by a crosscutting (northeast-striking) biotite granite dike.

Exploration Results

Five bulldozer trenches dug by Cerro in the area have exposed mineralization running from 0.1% to 0.92% Cu. The best exposures were 0.53% Cu over 53 feet, and 0.70% Cu over 80 feet. The assay data and trends of alteration and mineralization suggest the possibility of an orebody beneath the alluvium, possibly near the intersection of the northeast and northwest trends. The mineralized zones may also be the surface expression of more widespread mineralization at some undetermined depth.

LA CERRO COPPER PROSPECT

Potential

Extensive and locally intense copper mineralization in a contact metamorphic environment, together with widespread limonitic soil, suggests the possibility that a large low-grade copper deposit amenable to open pit mining may exist on this property.

Owner

Willard S. Jensen
Cia. Minera Navojoa, S.A.
Navojoa, Sonora
Mexico

Location

Sixty-five miles southeast of Ciudad Obregon, Sonora, and 2 kilometers south of the Sierra Madre property referred to above.

Property

One 500 hectares (1,250 acre) rectangular exploration concession.

Contract Terms

On December 20, 1970, a 10-year option was signed with Cia. Minera Navojoa on the following terms:

Monthly payment to 6/20/72	\$ 833
Monthly payment 6/20/72 to 12/20/72	1,250
Total payments through second year	22,500
Annual payments beginning 12/20/72:	
First year	32,500
Second year	25,000
Third through fifth years	50,000
Sixth through eighth years	100,000
Total payments through 10th year	\$530,000

The final purchase price of the property is \$1,000,000 from which the \$530,000 is deductible.

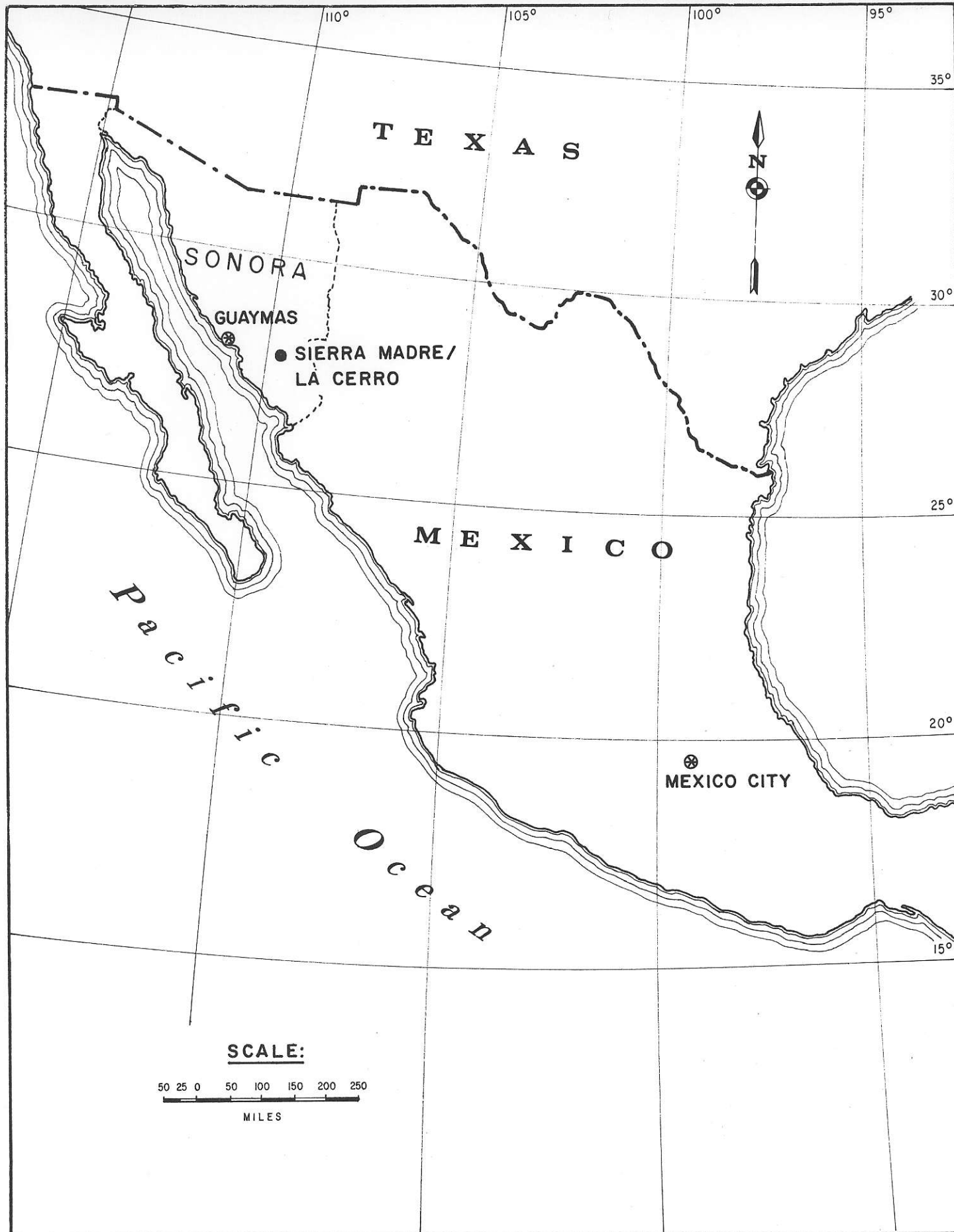
Geology and Mineralization

In general, this property covers one of what appears to be a number of mineralized centers (others held by Cominco and Asarco) along a north-trending zone of faulting (lineament) from one-to-several-kilometers wide. On the La Cerro property, limestone, sandstone and siltstone of unknown age have been intruded by granitic to dioritic rocks.

Near their contact with the granitic intrusive complex, the sediments have been silicified and/ or silicated. The intrusive rocks are locally strongly altered near the contacts. Shallow pits and bulldozer cuts expose secondary copper minerals (chrysocolla, malachite, azurite, and black copper oxides), over a length of 1,500 feet.

Exploration Work

No work has been done on this property by Cerro.



CERRO MINERAL EXPLORATION CO. DIV., CERRO CORPORATION		
Drawn By: I. SIMON	SIERRA MADRE-LA CERRO COPPER PROSPECT LOCATION MAP	Scale:
Date: 10/29/71		Dwg. No.: 12

DENISON - CERRO (CANADA) JOINT VENTURE -- IRELAND
(Lead-Zinc-Copper Prospects)

Exploration Objective

Denison Mines Ltd. and Argosy Mining Corporation, Ltd. (an exploration development affiliate, 30.5% owned by Denison), both companies based in Canada, hold exploration licenses on seven areas (see index map) in central western and southwestern Ireland. Advanced exploration is in progress on two of these areas, and the remaining five are considered primarily base metal prospects. The favorable tax situation in Ireland plus the distinct potential for the discovery of a medium-sized commercial orebody, make exploration in Ireland attractive.

As an inducement for new mine undertakings, Ireland grants a 20-year exemption from income and corporate profit tax from the start of mine production. It does, however, exact a royalty, on an escalating scale up to 10%, on gross operating profits (after depreciation and unit depletion).

Examples of the type of orebodies discovered in Ireland in recent years are given below.

Holder of Prospecting Licenses

Denison Mines Ltd.
4 King Street W.
Toronto, Ontario, Canada

Location of Properties

Central western and southwestern Ireland

Contract Terms Between Denison and Cerro-Canada

Cerro-Canada entered into an agreement with Denison Mines Ltd., in April 1971, whereunder Cerro-Canada obligated itself to expend \$150,000 on the Denison properties in Ireland by February 1, 1972. Cerro-Canada will earn a 50% interest in each property as individual property expenditures, made by Denison/Argosy, are matched by Cerro-Canada, such expenditure to be made by February 1, 1976.

Denison/Argosy expenditures, to the date of April 30, 1971, are given in the table below. Also shown are Cerro-Canada's expenditures through September 30, 1971.

<u>Rights Holder</u>	<u>Property/Project</u>	<u>Denison/ Argosy Expenditures to 4/30/71</u>	<u>Cerro-Canada Expenditures to 9/30/71</u>
Denison	Aherlow	\$431,000	\$53,120
Denison	Lough Corrib) Bird Hill) Hospital)	57,000	17,180
Argosy	Allihies	220,000	16,060
Argosy	Aghilla) Slieve Carron)	15,000	5,500
		<u>\$723,000</u>	<u>\$91,860</u>

Geological Characteristics

Various geological and structural settings which could contain lead-zinc or copper orebodies of the type found in Ireland.

Exploration Results

Previous work by Denison consisted mainly in dewatering the old Mountain Mine at Allihies and drilling on the Aherlow prospect. Drill-indicated reserves, which are marginal, are as follows:

	<u>Short Tons</u>	<u>Metal Content</u>	
		<u>Cu%</u>	<u>Ag oz.</u>
Allihies	1,416,000	2.0	
Aherlow	3,000,000	1.2	1.66

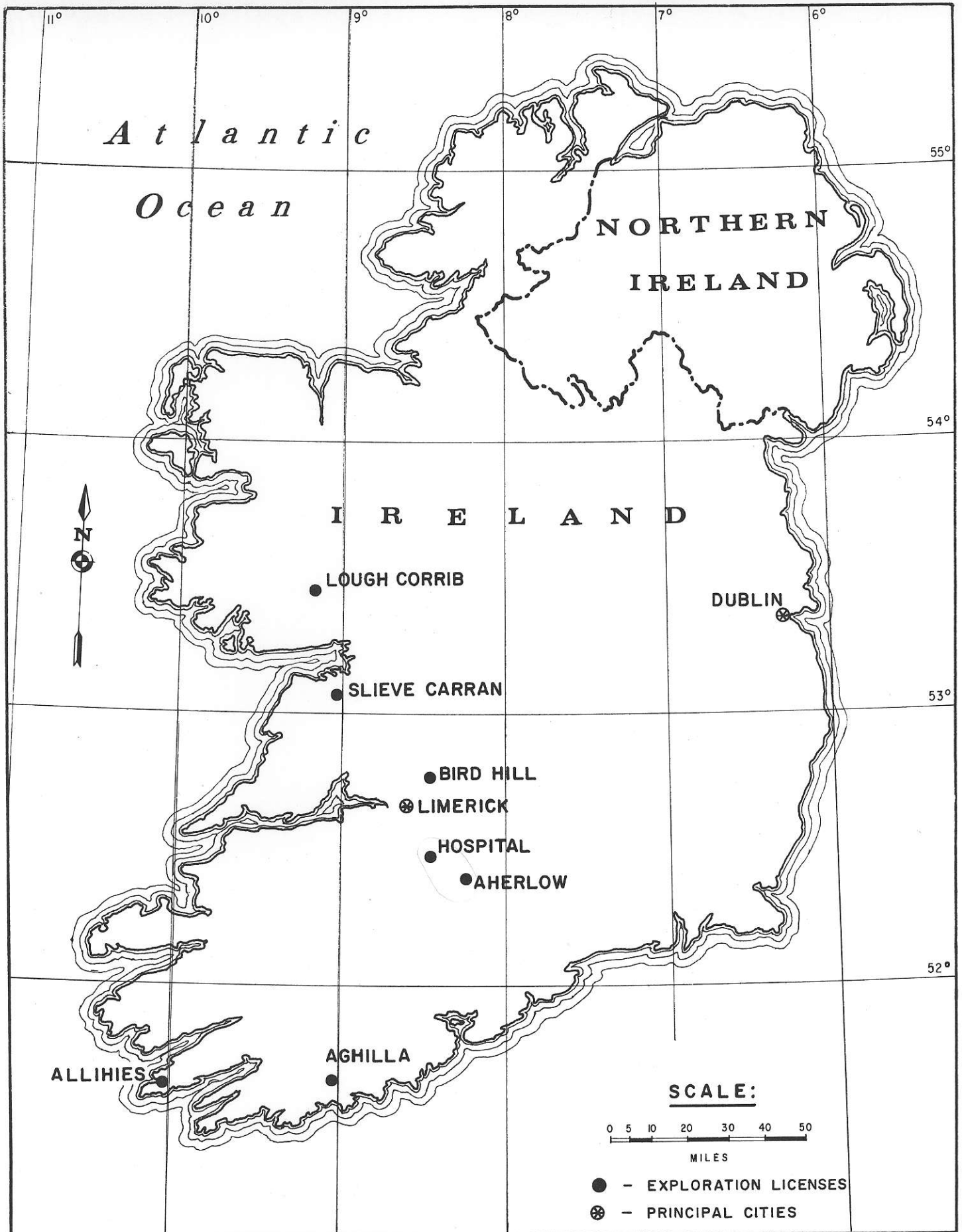
Cerro work to date has exhausted the possibility of another ore shoot in the Allihies area. With the work done by Cerro at Allihies and on the other properties, it now appears that only the Aherlow and Aghilla prospects show promise.

At Aherlow, diamond drilling with encouraging results is continuing in the area originally drilled by Denison. At Aghilla, recent work has found a very encouraging geochemical anomaly, 300 feet long, trending northward and open to the north with copper values as high as 5,700 ppm.

Mining Operations In Ireland

As an example of the type of orebodies which have been found in Ireland by others, the following data are provided.

<u>Company</u>	<u>Original Reserves</u> <u>Short Tons</u>	<u>Metal Content</u>			
		<u>Cu%</u>	<u>Pb%</u>	<u>Zn%</u>	<u>Ag oz.</u>
Northgate)	2, 140,000 (sulfide)	0.3	9.2	7.8	3.2
Tynagh Open Pit)	1,635,000 (oxide)	0.9	8.4	6.3	3.8
Mogul of Ireland Silvermine underground	11,496,000		2.8	8.2	0.8
Gortdrum (open pit)	4, 191,000	1.2			0.75
Tara (open pit) under exploration	+20,000,000	10% combined Pb-Zn			



CERRO MINING COMPANY OF CANADA LIMITED

Drawn By: I.SIMON

**DENISON - CERRO/CANADA JOINT VENTURE
EXPLORATION LICENSE LOCATIONS**

Scale:

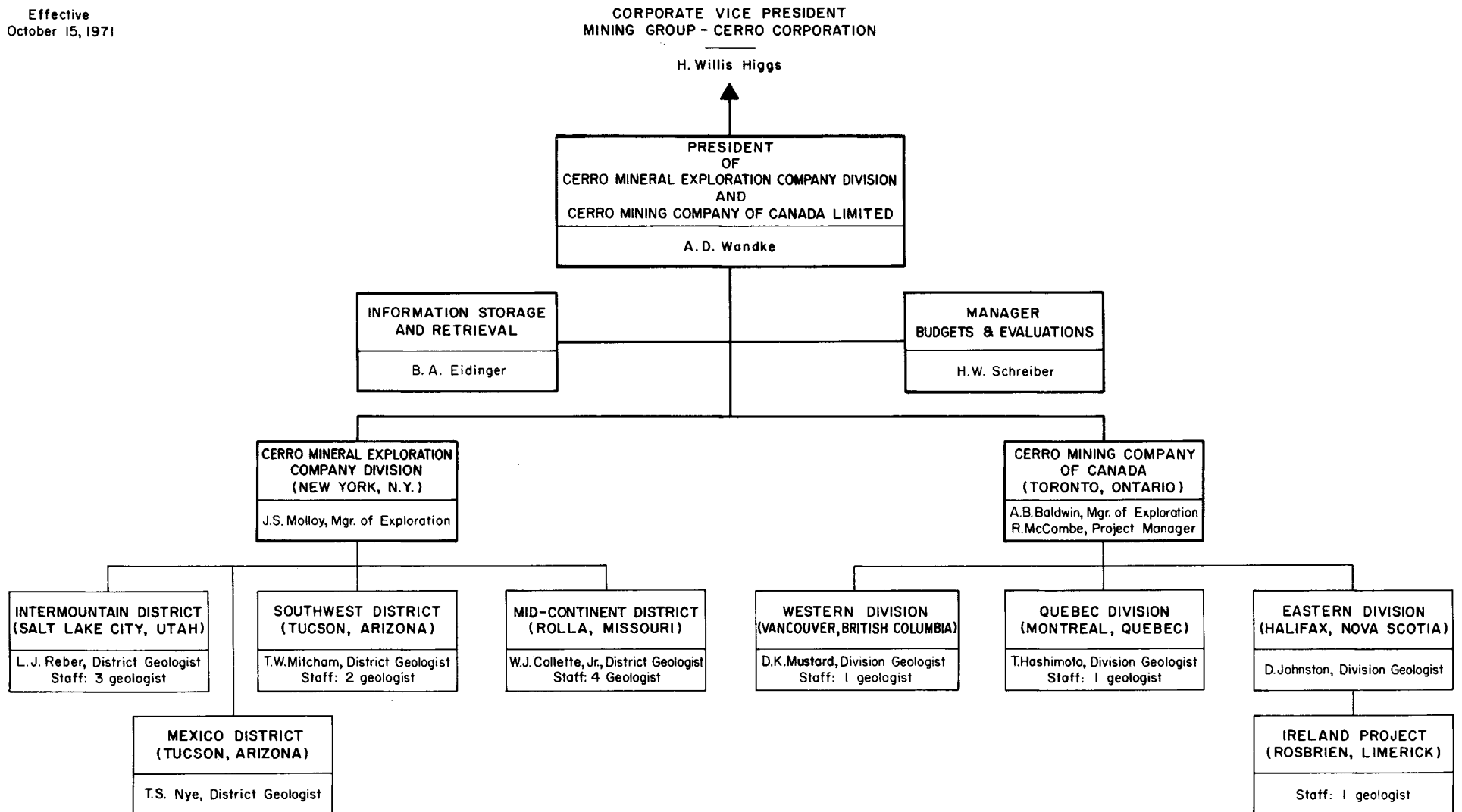
Date: 10/29/71

Dwg. No.: 13

CERRO MINERAL EXPLORATION ORGANIZATION

Professional Personnel - Outside of South America

Effective
October 15, 1971



CERRO MINERAL EXPLORATION ORGANIZATION
(Outside of South America)

The professional personnel comprising the mineral exploration organization of Cerro Corporation and its subsidiaries, outside of South America, are shown in the preceding chart. The organization consists of one division of the parent company and two wholly owned subsidiaries, as follows:

<u>Organizational Unit</u>	<u>Headquarters</u>
1. Cerro Mineral Exploration Company Division, Cerro Corporation ("Cerromin")	New York, N. Y.
2. Cerro Mining Company of Canada Limited ("Cerro-Canada")	Toronto, Ontario
3. Cerro Mining Investment Corporation (Panama) ("Cerro-Panama")	New York, N. Y.

Cerro-Panama is a corporate shell set up to "house," if tax advantages warrant, income-producing companies resulting from exploration activities outside the continental United States.

The several exploration offices in the United States and Canada (see chart) are virtually self sufficient operating entities. The district and division geologists are allowed a considerable degree of freedom in their choice of projects as long as they adhere to the established exploration policy. The offices are fully equipped and staffed to enable the geologists to devote the major part of their time to productive work in the field.

The professional staff currently totals 25 people with a backup of 17 persons in administrative and secretarial positions for a total permanent staff of 42 people.

The services of consultants are used from time to time as necessary and during summer field seasons the staff is augmented by the use of geology students.

Curricula Vitae of Professional Staff

The control and performance of exploration activities requires sound academic training as a base combined with extensive experience gained through field work and the supervision of field parties. It is significant that the principal members of our staff have at least 10 years' experience with most having 15 years or more, and that in addition, five of our top professionals also hold doctoral degrees.

The curricula vitae of the professional personnel of Cerromin and Cerro-Canada is provided in the following pages.

* * *

Consultation with Mining-Metallurgy-Engineering and
Metal-Sales Staffs of Cerro's Mining Group

Organizationally, within Cerro Corporation, the Mineral Exploration Organization, described above (and reflected on the preceding chart), has been part of what, within Cerro, is referred to as the "Mining Group." The head of the Mining Group, H. Willis Higgs, a Corporate Vice President, is responsible for all of Cerro's mining, smelting and refining activity, as well as for the marketing of nonferrous metals. He is also responsible for the overview of Cerro's mineral exploration activity.

So long as the mineral exploration activity was "in-house," solely for the account of Cerro, the inter-relationship between the exploration staff, on the one hand, and the mining-metallurgy-engineering and metal-sales staffs of the Mining Group, on the other hand, has been rather informal without need for establishing clear-cut lines of demarcation as to the point where exploration ended, in respect of a particular project, and the mining-metallurgy-engineering staffs took over. Such "take-over," of course, refers to the passage of the project from "Stage I" (exploration) to "Stage II" (mine planning, metallurgical testing and mill planning, marketing surveys and exploitation feasibility studies).

Without seeking to curb the free flow and exchange of ideas on the technical level that has prevailed heretofore, it is to be recognized that the Exploration Joint Venture Program being proposed contemplates the full-time services of the Cerro Mineral Exploration Organization, but not the services of Cerro's mining-metallurgy-engineering staffs. The services of the latter will be available, on call, on a consulting basis. The Cerro Mineral Exploration Organization will be able to consult with the Cerro mining-metallurgy-engineering staffs, in consideration for a fee, or to engage the services of an outside specialist organization, on a job-by-job basis, as appears appropriate and promises to provide the best results to the joint venturers for the cost involved.

It is contemplated that the representatives of the Exploration Joint Venture Partners will consult with each other in such situations, and agree in advance on the consulting services to be employed, the cost of such services to be chargeable to the Exploration Joint Venture Account. Such consultation will be "standard operating procedure" in respect of any consulting assignment estimated to cost above a stipulated amount as agreed by the Partners.

CURRICULA VITAE
Cerro Exploration Personnel - Professional

WANDKE, ALFRED D.

President, Cerro Mineral Exploration Company, Division of Cerro Corporation
President, Cerro Mining Company of Canada Limited

Born: July 29, 1921 (Calumet, Mich.)

Education: B.S. (Geology), University of Arizona, 1942
M.A. (Geology), Harvard University, 1948
Ph.D. (Geology), Harvard University, 1951

Business Experience:

President, Cerro Mineral Exploration Company; and President, Cerro Mining Company of Canada Limited	Since 7-'70
Vice President, Cerro Mining Company of Canada Limited; and Vice President, Cerro Mineral Exploration Company	1969-70
General Manager, Cerro Mining Company of Canada Limited	1968-69
Deputy Manager of Operations, Cerro de Pasco Corporation, La Oroya, Peru	1967-68
General Superintendent of Mines, Cerro de Pasco Corporation, Peru	1963-67
Chief Geologist, Cerro de Pasco Corporation, Peru	1963
Assistant Chief Geologist, Cerro de Pasco Corporation, Peru . . .	1962-63
Consulting Geologist: Consulting work in the United States, the Caribbean area, South America, Cuba, Mexico and the Bahamas for U.S. Steel Corporation, Universal Atlas Cement Company, and Union Carbide Ore Corporation, among others . . .	1951-62

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MOLLOY, JOHN S.

Manager of Exploration, Cerro Mineral Exploration Company

Born: December 9, 1928 (Boston, Mass.)

Education: A.B. (Anthropology), Harvard University, 1951
A.B. (Geology), University of California, 1955
Graduate Study in Mining Geology, University of
California, 1956

MOLLOY, JOHN S. (Continued)

Business Experience:

Manager of Exploration, Cerro Mineral Exploration Company
and Cerro Mining Investment Corporation Since
7-'71

Manager of Exploration, Non-Western Hemisphere;
Cerro Mineral Exploration Company and Cerro Panama
Mining Company 1971

Manager of Exploration, Central America/Caribbean, Cerro
Mineral Exploration Company and Cerro Panama Mining Company . . 1970

Resident Mining Geologist, Cerro Corporation, New York 1967-70

Chief Geologist, Cerro de Pasco Corporation, Peru 1967

Assistant Chief Geologist, Cerro de Pasco Corporation, Peru . . . 1966-67

Senior Geologist, Cerro de Pasco Corporation, Peru 1964-66

Division Geologist, Cerro de Pasco Mine, Cerro de Pasco
Corporation, Peru 1962-64

Geologist, Casapalca Mine, Cerro de Pasco Corporation, Peru . . . 1961-62

Junior Geologist and Geologist, Braden Copper Company,
Rancagua, Chile 1956-60

Temporary Geologic Field Assistant, Bear Creek Mining Company . . 1955

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MITCHAM, THOMAS W.

District Exploration Geologist, Southwestern District, Tucson, Arizona,
Cerro Mineral Exploration Company

Born: July 11, 1918 (San Antonio, Texas)

Education: B.S. (Mining Engineering), Texas College of Mines, 1939
M.A. (Geology), Columbia University, 1950
Ph.D. (Geology), Columbia University, 1951

Business Experience:

District Exploration Geologist, Southwestern District,
Tucson, Cerro Mineral Exploration Company Since
1970

District Exploration Geologist, Intermountain District,
Salt Lake City; Cerro Mineral Exploration Company 1969-70

MITCHAM, THOMAS W. (Continued)

Business Experience:

Chief, Geologic Research Division; Kennecott Copper Corporation 1964-69

Consulting Mining Geologist, and part-time Associate Professor, University of Arizona, Tucson 1956-64

Exploration Manager, International Ranwick, Limited (subsidiary of Ventures Limited) 1955-56

Assistant Chief, Geologic Branch, U.S. Atomic Energy Commission 1953-55

Resident Geologist at Ground Hog Mine, and Exploration Geologist, American Smelting and Refining Co. (1949-1951) Graduate work at Columbia University) 1946-53

Exploration Engineer, Mexican-American Metals Syndicate 1942-43

Junior Engineer, Engineering and Assayer, and Assistant Chief Engineer; Shattuck Denn Mining Corporation 1940-42

Mucker, Phelps Dodge Corporation 1939

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NYE, THOMAS S.

District Exploration Geologist, Mexico, Cerro Mineral Exploration Company

Born: May 19, 1930 (Washington, D.C.)

Education: A.B. (Geology), Harvard University, 1952
M.S. (Econ. Geology), University of California, 1958
Ph.D. (Geology), University of Arizona, 1962

Business Experience:

District Exploration Geologist, Mexico, Cerro Mineral Exploration Company Since 9-'70

District Exploration Geologist, Southwest District, Tucson, Cerro Mineral Exploration Company 1969-70

Geologic Consultant, practicing in Tucson 1967-69

Exploration Manager, Diamond Alkali Company, Tucson 1966-67

Geologic Consultant in Tucson 1965-66

NYE, THOMAS S. (Continued)

Business Experience:

Manager, Tucson Exploration Office, Callaham Mining Company . . . 1964-65
Resident Geologist, Phelps Dodge Corporation,
Bisbee, Arizona 1962-64
Teaching Assistant, University of Arizona 1961-62
Geologist, Bear Creek Mining Company 1960-61
Geologist, Sunrise Mining Company 1958-60
Research Assistant, University of California 1957-58
Geologist, U.S. Government - A.E.C. 1955-56
Field Assistant to Dr. R. Gibson, Consultant to A.E.C. 1952

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COLLETTE, WILLIAM J., JR.

District Exploration Geologist, Mid-Continent District, Rolla, Missouri,
Cerro Mineral Exploration Company

Born: November 16, 1929 (St. Louis, Mo.)

Education: B.S. (Geology), University of Cincinnati, 1956

Business Experience:

District Exploration Geologist, Mid-Continent, Rolla, Missouri, Since
Cerro Mineral Exploration Company 1969
Supervisor of Operations, Senior Geologist, Project Manager
and District Geologist with Monsanto Company 1959-69
Geologist, New Jersey Zinc Company. 1956-59

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REBER, LYLE, JR.

District Exploration Geologist, Intermountain District, Salt Lake City,
Cerro Mineral Exploration Company

Born: July 23, 1925 (Burke, S. Dak.)

REBER, LYLE, JR. (Continued)

Education: B.S. (Geology), Iowa State University, 1960

Business Experience:

District Exploration Geologist, Intermountain District, Salt Lake City, Cerro Mineral Exploration Company	Since 9-'70
Exploration Geologist, Mid-Continent District, Rolla, Missouri, Cerro Mineral Exploration Company	1968-70
Geologist, Reynolds Mining Company, Eagle Pan, Texas	1966-68
Consulting Geologist, Phoenix, Arizona	1961-66
Miner and Geologist, Magma Copper Company	1960-61

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SCHREIBER, HANS W.

Manager of Budgets and Evaluations, Cerro Mineral Exploration Company

Born: February 28, 1932 (Frankfurt/Main, Germany)

Education: B.A., Amherst College, 1954
M.A., Columbia University, 1958

Business Experience:

Manager of Mining Investments, Cerro Mineral Exploration Company, New York, N. Y.	Since 1-'71
District Exploration Geologist, Eastern District, Cerro Mineral Exploration Company, based in New York, N. Y.	1970-71
Geologist-Administration, Cerro Mineral Exploration Company, New York, N. Y.	1968-70
Assistant Vice President, Dewitt Smith and Company (Mining consultants)	1964-67
Mining Geologist, American Zinc Company	1959-64
Assistant to the Chief Geologist, Kali Chemie, A.G., Hannover, Germany	1958-59

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EIDINGER, BARBARA ANNE
Geological Information Assistant, Cerro Mineral Exploration Company

Born: February 26, 1949 (Brooklyn, N. Y.)

Education: B.A. (Geology), Hunter College, New York, 1969
Fortran IV 6 Programming, Hunter College

Business Experience:

Geological Information Assistant, Cerro Mineral Exploration Company, New York, N. Y.	Since 9-'69
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BALDWIN, ANDREW B.
Manager of Exploration, Cerro Mining Company of Canada Limited

Born: August 1, 1930 (Chatham, New Brunswick, Canada)

Education: B.Sc, University of New Brunswick, 1951
M.Sc, University of New Brunswick, 1952
Ph.D., University of Toronto, 1965

Business Experience:

Manager of Exploration, Cerro Mining Company of Canada Limited, Toronto, Ontario	Since 1-'70
Chief Geologist, Cerro Mining Company of Canada Limited	1969-70
Exploration Geologist, M. J. Boylen, Enterprises, Engineering Offices, Toronto	1954-69
Geologist, M. J. Boylen, Engineering Offices	1953*
Geological Trainee, Imperial Oil Company	1952-53
Senior Geological Assistant, Iron Ore Company of Canada	1951*
Junior Geological Assistant, Geological Survey of Canada	1950*
Junior Geologist - Department of Mines, New Brunswick	1949*
Association of Professional Engineers of Ontario (Member)	1969

* During summer period

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McCOMBE, RICHARD
Project Manager, Cerro Mining Company of Canada Limited

Born: July 27, 1927 (Dorval, Quebec)

Education: Diploma, Provincial Institute of Mining-
Haileybury, Ontario, 1949

Business Experience:

Project Manager, Cerro Mining Company of Canada Limited, Toronto	Since 5-'69
Assistant General Superintendent of Mining Properties Cerro de Pasco Corporation, Peru	1969
Superintendent Morococha Division, Cerro de Pasco Corporation; Also responsible for the Morococha "low grade" copper mine exploration project; also in charge of construction of a major new subdivision for City of Cerro de Pasco, Peru (in connection with expansion of mining operations at Cerro de Pasco).	1963-69
Superintendent, San Cristobal Division, Cerro de Pasco Corporation, Peru	1962-63
Assistant Superintendent Morococha Division, Cerro de Pasco Corporation, Peru	1961-62
Assistant General Mine Foreman, General Mine Foreman, Cerro de Pasco Corporation, Peru	1960-61
Mine Captain, Pickle Crow Mines, Pickle Lake, Ontario	1959-60
General Mine Foreman, Morococha Division, Cerro de Pasco Corporation, Peru	1957-59
Mine Foreman, General Mine Foreman, San Cristobal Division, Cerro de Pasco Corporation, Peru	1954-57
Resident Manager, Yukeno Mines, Limited, Yukon	1949-52
Association of Professional Engineers of Ontario (Member)	

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MUSTARD, DONALD K.
Division Geologist, Western Division, Vancouver, Cerro Mining Company of
Canada Limited

Born: September 26, 1924 (Portsoi, Scotland)

MUSTARD, DONALD K. (Continued)

Education: B.Sc, University of Aberdeen, 1952

Business Experience:

Division Geologist, Western Division, Vancouver, Cerro Mining Company of Canada Limited	Since 4-'70
Senior Geologist, Amax Exploration, Incorporated, Vancouver . . .	1965-70
Consulting Geologist	1958-65
Assistant Resident Geologist, East Africa, Anglo American Corporation of South Africa	1955-58
Geologist, Anglo American Corporation of South Africa	1952-55
Association of Professional Engineers of B.C. (Member)	

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HASHIMOTO, TSUTOMU

Division Geologist, Quebec Division, Cerro Mining Company of Canada
Canada Limited

Born: January 12, 1936 (Stevesen, British Columbia)

Education: B.Sc, McGill University, 1957
D.Sc, Laual University, 1964

Business Experience:

Division Geologist, Quebec Division, Cerro Mining Company of Canada Limited	Since 9-'69
Chief Exploration Geologist, Opemiska Copper Mines (Quebec) Limited	1966-69
Geologist in Charge of Field Parties, Exploration Division, Quebec Department of Natural Resources	1964-66
Party Chief, Exploration Division, Quebec Department of Natural Resources	1963-64
Project Geologist, Wabush Iron Mines, Limited	1962*
Party Chief, Quebec Department of Natural Resources	1961*
Field Party Chief, Quebec Department of Mines	1960*

* During summer period

* * *

JOHNSTON, DEREK
Division Geologist, Eastern Division, Cerro Mining Company of
Canada Limited

Born: March 7, 1926 (Halifax, Nova Scotia)

Education: B.Sc, Dalhousie University, 1947
M.Sc, Dalhousie University, 1950

Business Experience:

Division Geologist, Eastern Division, Halifax, Nova Scotia, Cerro Mining Company of Canada Limited	Since 10-'70
Consulting Geologist	1964-70
Manager, Maritime Explorations, Limited	1963-64
Director of Mineral Resources, Newfoundland Department of Mines	1958-63
Project Engineer, Logan Brothers Diamond Drilling Limited	1950
Field Manager, Anthonian Mining Corporation, Limited	1953-58
Junior Section Geologist, Cominco-Sullivan Mine	1950-51

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PROPOSED EXPLORATION JOINT VENTURE PROGRAM - 1972

Note: The remarks below are not intended as a detailed exposition of the proposed 1972 exploration budget (which can be provided later). They are only intended as a basis for discussion with the joint venture partner.

* * *

General Observations

In order to obtain maximum benefits from the efforts of the exploration team, the joint venturers must establish their policy in relation to the following points:

1. Lower limit of yearly net profit expected from a single venture;
2. Expected rate of return on investment in different countries in which exploration activities are to be pursued;
3. The amount of effort to be devoted to seeking out situations which could yield near-term profits (e.g., in 1-5 years) or more distant profits (e.g., over 5 years away);
4. Designation of commodities which are of primary and of secondary interest;
5. The division of activities among: (i) grass roots exploration, (ii) investigation of formerly and presently producing areas, (iii) participation in joint ventures, and (iv) seeking to acquire properties in a relatively advanced stage of exploration; and
6. The areas of the world which are to be eliminated from consideration because of political or other reasons.

Suggested Areas of Activity

At the present time Cerro's exploration organization can operate with maximum efficiency in Canada, the Continental United States and Ireland. With little added expense these activities can be broadened to include Alaska and Mexico.

It is realized that the maximum opportunities for quick returns exist in the underdeveloped countries, but the tide of rising expectations and consequent political opportunism and instability make careful analysis of each individual case

a prerequisite to investment.

It is, therefore, proposed that subject to the collective decision of the joint venturers the initial program be confined to Canada, the United States, Ireland and Mexico. Alaska is not included for the present since its mineral potential is no greater than that of Mexico and the exploration dollar spent in Alaska probably produces 60% less in work.

Proposed Exploration Budget for 1972

The following program includes expenditures on projects already underway with a provision for funds for worthwhile projects which will normally come to our attention during the year.

<u>Item</u>	<u>Estimated Cost</u>
Payroll cost of mineral exploration staff	\$ 720,000
District office rents, supplies, vehicles & misc . .	180,000
La Plata, Colorado, low-grade copper prospect (Humble Option).	133,000
Setting up Mexican company and investigating situations in Mexico	200,000
Salal Creek Molybdenite prospect - (British Columbia)	175,000
Odon Lake copper prospect - (Quebec)	100,000
Investigations in Ireland	100,000
General exploration fund for unspecified projects .	<u>900,000</u>
	<u>\$2,508,000</u>

Projects requiring substantial commitments, i.e., (i) Zidani Asbestos, (ii) Kentucky Fluorspar and (iii) Redstone Copper, have not been included in the joint venture exploration budget since they need to be considered as special situations outside the regular exploration budget.

* * *