DL

PROPERTY FILE

016797

~~94D/15E~~
~~Kemess Creek~~
94E/2W
Thutade Lake
94E 13,14,15

SUPERINTENDENT OF BROKERS
AND
VANCOUVER STOCK EXCHANGE

STATEMENT OF MATERIAL FACTS

EFFECTIVE DATE: AUGUST 17, 1989

(NO.33/89)

ECOS RESOURCES LTD.
(formerly PACIFIC RIDGE RESOURCES CORP.)
2118 Kirkstone Place, North Vancouver, British Columbia (604) 984-8105
NAME OF ISSUER, ADDRESS OF HEAD OFFICE AND TELEPHONE NUMBER

1600 - 1100 Melville Street, Vancouver, British Columbia, V6E 4B4
ADDRESS OF REGISTERED AND RECORDS OFFICES OF ISSUER

Central Guaranty Trust Company
800 West Pender Street, Vancouver, British Columbia, V6C 2V7

NAME AND ADDRESS OF REGISTRAR & TRANSFER AGENT FOR ISSUER'S SECURITIES IN BRITISH COLUMBIA

OFFERING: 800,000 COMMON SHARES

	Estimated Price to Public	Estimated Agents' Commission	Estimated Proceeds to be received by Issuer
Per Share:	$0.35	$0.02625	$0.32375
Total:	$280,000	$21,000	$259,000

The Shares will be offered for sale to the public through the facilities of the Vancouver Stock Exchange at a price to be determined by the Issuer and the Agents in accordance with the rules of the Vancouver Stock Exchange.

ADDITIONAL OFFERING: 400,000 SHARES

The Agents will receive Agents' Warrants entitling them to purchase up to a total of 400,000 Common shares of the Issuer in return for guaranteeing the sale of the Shares hereby. This Statement of Material Facts also qualifies the issuance of the Agents' Warrants and the sale at the market price at the time of sale of any shares acquired by the Agents pursuant to their guarantee. See "Additional Offering" for further information concerning the sale of these Shares.

AGENTS

CANARIM INVESTMENT CORPORATION LTD.
2200 - 609 Granville Street
Vancouver, British Columbia
V7Y 1H2

WOLVERTON SECURITIES LTD.
1750 - 701 West Georgia Street
Vancouver, British Columbia
V7Y 1J5

Neither the British Columbia Securities Commission nor the Vancouver Stock Exchange has in any way passed upon the merits of the securities offered hereunder and any representation to the contrary is an offence.

The securities offered hereunder are speculative in nature. Information concerning the risks involved may be obtained by reference to this document; further clarification, if required, may be sought from a broker.

Rcvd 08/29/89

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ITEM 1 PLAN OF DISTRIBUTION

A. Offering

Ecos Resources Ltd. (the "Issuer") by its Agents, hereby offers (the "Offering") to the public through the facilities of the Vancouver Stock Exchange (the "Exchange") 800,000 Common shares (the "Shares") of its capital stock. The Offering will take place on a day (the "Offering Day") within the period of 180 calendar days following the effective date of the Statement of Material Facts, being the date of acceptance of the Statement of Material Facts by the Exchange and the Superintendent of Brokers (the "Superintendent") as noted on the cover page at a fixed price.

The Shares will be sold at a fixed price (the "Offering Price") to be agreed upon by the Issuer and the Agents, provided that such offering price shall not be fixed at a discount of more than 10% below the average market price determined by the Exchange in accordance with its Rules.

The purchaser of any Shares will be required to pay regular commission rates as specified in the Rules and By-laws of the Exchange.

B. Appointment of Agents

The Issuer, by an agreement dated for reference April 4, 1989, and Amendments thereto (the "Agency Agreement"), appointed the following as its agents (the "Agents") to offer the Shares to the public as follows:

Name of Agent	No. of Shares
Canarim Investment Corporation Ltd.	400,000
Wolverton Securities Ltd.	400,000

The Issuer will pay to the Agents a commission of 7.5% of the selling price of the Shares.

The Agents reserve the right to offer selling group participation in the normal course of the brokerage business to selling groups of other licensed dealers, brokers and investment dealers who may or may not be offered part of the commissions or bonuses derived from this Offering.

The obligations of the Agents under the Agency Agreement may be terminated at any time prior to the opening of the market on the Offering Day at the Agents' discretion, on the basis of their assessment of the state of the financial markets and upon the occurrence of certain stated events.

The Issuer has granted the Agents a right of first refusal to provide future public equity financing to the Issuer for a period of twelve months from the Effective Date.

C. **Agents' Warrants**

The Agents have agreed to purchase from their respective portions of the Offering any Shares not sold at the conclusion of the Offering. In consideration therefor, the Issuer has agreed to issue to the Agents immediately following the conclusion of the Offering, non-transferable share purchase warrants (the "Agents' Warrants") entitling them to purchase up to a total of 400,000 Common shares of the Issuer, in proportion to their participation in the offering. The right to purchase shares under the Agents' Warrants may be exercised at any time up to the close of business two years from the Offering Day at the Offering Price during the year and at an exercise price set in accordance with the Rules of the Vancouver Stock Exchange during the second year of the term of the Agents' Warrants.

The Agents' Warrants will contain, among other things, anti-dilution provisions for appropriate adjustment of the class, number and price of shares issuable pursuant to any exercise thereof upon the occurrence of certain events including any subdivision, consolidation or reclassification of the Shares or the payment of stock dividends.

D. **Additional Offering**

This Statement of Material Facts also qualifies the issuance of the Agents' Warrants and the sale at the market price at the time of sale of any shares acquired by the Agents pursuant to their guarantee. The Agents may sell any shares acquired on the exercise of the Agents' Warrants but will not receive any proceeds from the sale of any such shares by the Agents, all of which proceeds will accrue to the Agents.

E. **General**

The Agents do not beneficially own, directly or indirectly, any Common shares in the capital stock of the Issuer. The directors, officers and other insiders of the Issuer may purchase Shares from this offering.

There are no payments in cash, securities or other consideration being made, or to be made, to a promoter, finder or any other person in connection with this offering.

The directors, officers and other insiders of the Issuer may purchase shares from the Offering.

The Agents may make purchases and sales of the Shares for the purpose of maintaining an orderly market for the Shares and assisting in the distribution of the offered Shares.

ITEM 2 HOW THE NET PROCEEDS OF THE ISSUE ARE TO BE SPENT

Although is is not possible to determine the actual net proceeds which the Issuer will receive from this Offering, assuming that all of the Shares are sold at the price of $0.35 per Share, the net proceeds to the Issuer will be $259,000. The estimated net proceeds of $259,000 together with cash on hand as at February 28, 1989 of $2,822 plus private placement proceeds of $42,500 for a total of $304,322 will be used as follows:

1.	To pay the costs of the Issue (estimated)	$ 30,000
2.	To pay accounts payable as at February 28, 1989	$ 94,057
3.	To provide funds for the development of the Ecos Gold Recovery System	$130,337
4.	To provide working capital	$ 49,928
		$304,322

Any funds received from the exercise, in whole or in part, of the Agents' Warrants will be added to working capital. Working capital will be used to defray normal administration costs, for joint venture property investigations, for the purpose of the acquisition of mineral property interests and for further work on gold recovery applications in which the Issuer has an interest as the directors may determine.

There are no provisions or any arrangement for holding any part of the net proceeds in trust or subject to the fulfillment of any conditions whatsoever.

ITEM 3 PARTICULARS OF NATURAL RESOURCE ASSETS

A. Summary of Material Mining Properties

GROUP I Properties for which regulatory approval has been obtained under this Statement of Material Facts.

None.

GROUP II Presently held properties which are currently producing or being explored, or upon which exploration is planned within the next year:

Property Name	Issuer's Acquisition and Exploration Costs to December 31, 1988	Shares Issued to Date	Planned Expenditure from Funds Available Upon Completion of the Offering
Kemess Creek and Thutade Lake Properties	$304,167 on both properties	220,588 (escrowed) for both properties	None

GROUP III Other presently held properties upon which the Issuer's acquisition and exploration costs to date exceed $100,000.

None.

B. Narrative Information - Material Mining Properties

GROUP II

Kemess Creek and Thutade Lake Property, Omineca Mining Division British Columbia.

By Agreement dated March 15, 1981 between the Issuer and Ronald Wong and Harry Williams, both then directors of the Issuer, the Issuer acquired a 100% interest in the Ron 1 - 7 (inclusive) and Ron 9 mineral claims for a total consideration of 220,588 escrowed shares of the Issuer. The Ron 3, 5, 6, 7 and 9 were subsequently abandoned.

The Issuer acquired the Lake 1 - 4 (inclusive) and the Du mineral claims by staking.

After conducting initial exploration work at an aggregate cost of $304,167 the Issuer entered into farm-out agreements described hereafter.

Thutade Lake Property, Omineca Mining Division, British Columbia

The Thutade Lake Property is located in the Omenica Mining Division British Columbia, particulars of which are as follows:

Claim Name	Record No.	Units	Expiry Date
Lake #1	5842	16	October 5, 1990
Lake #2	5843	18	October 5, 1990
Lake #3	5844	15	October 5, 1990
Lake #4	5845	20	October 5, 1989
Ron #1	3627	15	March 3, 1991
Ron #2	3628	9	March 3, 1992

The property consists of six contiguous staked claims with 93 total units.

Four crown granted mineral claims, not part of the total group, lie within the outside boundary of the Lake #2 and Lake #3 claims.

By an option agreement dated August 20, 1987, the Issuer granted an option to acquire an undivided seventy-five (75%) percent interest in the Thutade Lake Property to Hermes Ventures Ltd., a public company whose shares are listed for trading on the Vancouver Stock Exchange.

Pursuant to the terms of the Option Agreement Hermes Ventures Ltd. expended an aggregate of $227,345 during 1987 and 1988 and earned a 50% interest in the Thutade Lake Property.

No joint venture agreement between the Issuer and Hermes Ventures Ltd. has been entered into at this time.

E. Livgard, P. Eng. of Livgard Consultants Ltd., reviewed the property in a report dated January 4, 1988 prepared for Hermes Ventures Ltd. The following information regarding location and access and history of the property was extracted therefrom.

Location and Access

The property is located west and east of the Thutade Lake in northern, B.C. 260 kilometres north of Smithers, B.C. It lies on map sheet 94E/2W, at longitude 126 Degrees 50' W to 126 Degrees 55' W and 57 Degrees 05' N to 57 Degrees 10" N latitude, and is in the Omineca Mining Division.

The Property can be reached by float plane from Smithers to Thutade Lake. Helicopter service is also available in Smithers. Road access to the Toodoggone area is being built this summer. It will go across the property. The road is supposed to be useable by August.

History

Placer mining for gold is the earliest known mining activity in the area (1899). Lead-zinc skarn mineralization was located in the Lawyer's Pass area in the 1930's. The McConnell Creek geology map 962A (G.S.C., Lord 1949) published locations for a number of copper-gold and silver properties along Moose Valley.

The Thutade Lake claims were first staked in 1970 by Quebec Cartier to cover a ring-shaped magnetic anomaly outlined by an airborne EM-magnetometer survey. During 1970 a program of linecutting, geological mapping, geochemical soil and stream sediment sampling, magnetic and induced polarization surveys, trenching and sampling was conducted. Four copper-silver and copper-lead-zinc-silver showings were located and sampled. Several geochemical (soil) and geophysical (magnetic and induced polarization) anomalies were identified but no further work was carried out.

The Thutade Lake claims were allowed to expire and were restaked in 1981 as the Ron 1 and 2 claims. A program of re-mapping, prospecting and sampling, primarily directed at determining the potential for precious metals similar to the Chappelle and Lawyer's deposits to the northwest, was conducted in 1981. Anomalous gold-silver values in sheared, silcified volcanics were located south of the previous sampled mineral occurrences.

In 1982, limited geochemical sampling and trenching were conducted. Emphasis was on evaluating the anomalous gold-silver "vein" (Priority Trench) within silicified volcanics and on extending the known skarn mineralization along strike.

In 1984 further geological mapping, trenching and sampling was carried out. This was followed by diamond drilling. Eight holes were drilled for a total of 379.6 meters. The core remains at the drill locations. The drilling tested several of the known showings.

Thirty-one kilometres of soil surveying and 52 kilometres of VLF-EM and magnetic surveying was carried out during the Fall of 1987 by Hermes Ventures Ltd. at an approximate cost of $80,000. Soil anomalies and conductive trends were indicated by these surveys.

1988 Program Results

During 1988 an exploration program including geochemical, VLF-EM, magnetometer, IP surveys and trenching was conducted by Hermes Ventures Ltd. at a cost of $147,070. In a report prepared by Egil Livgard, P.Eng., and Nigel Hume, B.Sc., dated December 28, 1988 it is reported that six targets were investigated of which three showed promise of further mineralization. However, the conclusion was that any further mineralization was of limited extent and most likely sub-economic. No further work was recommended.

The property is primarily a gold-copper prospect.

There is no underground plant or equipment.

The property is without a known body of commercial ore and the exploration programs conducted by Hermes Ventures Ltd. were an exploratory search for ore.

Kemess Creek Property, Omineca Mining Division, British Columbia

The Kemess Creek Property is located in the Omineca Mining Division, British Columbia, particulars of which are as follows:

Claim Name	Record No.	Units	Expiry Date
Ron #4	3630	20	March 3, 1994
Du	6396	20	July 16, 1994

The property consists of two contiguous staked claims with a total of 40 units.

By an option agreement dated September 1, 1987 the Issuer granted an option to acquire up to an undivided seventy-five (75%) percent interest in the Kemess Creek Property to St. Philips Resources Inc., a public company whose shares are listed for trading on the Vancouver Stock Exchange.

Pursuant to the terms of the Option Agreement St. Philips Resources Inc. expended an aggregate of $393,650 during 1987 and 1988 and earned a 75% interest in the Kemess Creek Property.

No joint venture agreement between the issuer and St. Philips Resources Inc. has been entered into at this time.

E. Livgard, P.Eng., of Livgard Consultants Ltd. reviewed the property in a report dated January 4, 1988 prepared for St. Philips Resources Inc. The following information regarding location and access and history of the property was extracted therefrom.

Location and Access

The property is located 260 kilometres north of Smithers, B.C., 6-8 kilometres east of Thutade Lake. It lies on map sheets 94E/2E and W; 94D/15E and W; at longitude 126 45'W and latitude 56 00'N, and is the Omineca Mining Division.

The property can be reached by float plan from Smithers to Thutade Lake or Duncan Lake, a distance of 260 kilometres. These lakes are from 5 to 8 kilometres from the property. Helicopter service is also available in Smithers. Road access to the Toodoggone area has now been built. It passes with 5 kilometres of the property.

History

Placer mining for gold is the earliest known mining activity in the area (1899). Lead-zinc skarn mineralization was located in the Lawyer's Pass area in the 1930's. The McConnell Creek geology map 962A (G.S.C., Lord 1949) published locations for a number of copper-gold and silver properties along Moose Valley.

From 1968 to 1972, regional porphyry copper geochemistry programs in the Toodoggone River area resulted in the discovery of the prospect which became the Baker or Chappelle Mine. During 1981-82 this mine produced 53,540 tons averaging 0.48 oz/T Au and 9.68 oz. Ag/T. Geological reserves are listed as 100,000 tons grading 0.82 oz. Au/T and 16.35 oz. Ag/T (September 1983). This property is now being put back into production.

A large number of other significant mineral prospects were also discovered. These were skarn-type mineralization, high grade quartz - gold - silver veins, copper-silver gold breccia, or porphyry copper-gold deposits.

A deposit of the latter type has been located 4 kilometres north of the claims (New Kemess Property), where diamond drilling cut values of about 0.20% copper, 3 grammes silver and 0.4 grammes gold over widths from 100 to 300 metres, in fractured andesite intruded by granodiorite.

The property was staked in 1981 to cover generally favourable geology holding promise of mineralization similar to that at the New Kemess property, 4 km. to the north. The gold-copper discovery on the claim ground was a new find by the Issuer, which resulted from a soil geochemical survey in 1982 and 1983. A detailed grid (still serviceable in 1987) was completed in 1984, together with 13.0 km of magnetometer and I.P. surveys. Three hundred and twenty-two (322) meters of BQ (1 1/8" diameter core) diamond drilling was done in six holes. Significant values in gold and copper were intersected over widths between 50 to 100 m.

During late 1987 about 28 kilometres of soil lines with sample spacing of 25 meters, and about 31 kilometres of VLF-Electromagentic surveying was done at an approximate costs of $78,631.

1988 Program Results

During 1988 a reverse circulation drill program and 1P survey was conducted by St. Philips Resources Inc. at a cost of $315,019. In a report prepared by Egil Livgard, P.Eng., and Nigel Hume, B.Sc., dated December 22, 1988 these programs indicated a gold-copper porphyry deposit which appears to extend at least 500 m east-west (open to the east) and 750 m north-south. The drilling returned values as high as 0.035 oz/ton gold and .57% copper over 10 feet (3.05 m). Further work was recommended.

The property is primarily a gold-copper prospect.

There is no underground plant or equipment.

The property is without a known body of commercial ore and the exploration program conducted by St. Philips Resources Inc. was an exploratory search for ore.

Risk Factors

Exploration for economic deposits of minerals is subject to a number of risk factors. While the rewards to an investor can be substantial if an economically viable discovery is made, few of the properties which are explored are ultimately developed into producing mines. If the Issuer's exploration programmes are not

successful, a purchaser of shares may lose his entire investment.

The Issuer's property is in the exploration and development stage only and is without a known body of commercial ore. There is no assurance that expenditures to be made by either the Issuer or its joint venture partners will result in any discoveries of minerals in commercial quantities.

The Issuer's ability to continue exploration and development of its property will be dependent upon its ability to raise significant additional financing hereafter. Should the Issuer be unable to obtain such financing, its property may be lost entirely.

The Issuer's mineral operations will be subject to government legislation, policies and controls relating to prospecting, development, production, environmental protection, mining taxes and labour standards. In addition, the profitability of a particular mining prospect will be affected by the market for precious and base metals, which entails the assessment of many factors, some of which include changing production costs, the supply and demand for precious metals, the rate of inflation, the inventory of precious metal producing corporations, the political environment and changes in international investment patterns.

The mining industry has been subject to increasing government controls and regulation in recent years. The industry is highly competitive and the Issuer will be required to compete in the future directly with the other corporations that may have greater resources.

The Issuer may become subject to liability for hazards against which it cannot insure or against which it may elect not to insure because of high premium costs or other reasons. Payment of such liabilities would reduce funds available for acquisition of mineral prospects or exploration and development.

No survey has been made of the located mineral claim held under option by the Issuer and, in accordance with the mining laws of the jurisdiction in which the claim is situate, its precise location and area may be in doubt.

Although title opinions are obtained by management , such opinions are restricted in scope and do not constitute any guarantee of the validity of the claims in question.

ITEM 4. PARTICULARS OF NON-RESOURCE ASSETS

(A) Acquisition of Ecos Gold Systems Inc.

Pursuant to a share exchange agreement dated September 23, 1988 the Issuer acquired all of the outstanding shares of Ecos Gold

Systems Inc. ("Ecos") a company incorporated on April 28, 1988 for the purpose of holding the Ecos Gold Recovery Technical System.

The consideration was a total of 3,000,000 common shares of the Issuer, subject to earn-out conditions. The shares are to be issued to the following persons in the amounts indicated:

Name of Vendor	Number of Shares
Aris Morfopoulos	300,000
Ted Gamauf	405,000
Brian Tipler	472,500
Nicholas Eckleberry	772,500
Kathy Morfopoulos	150,000
Anastasios Morfopoulos	780,000
Christos N. Morfopoulos	120,000
	3,000,000

The Vendors have entered in an escrow agreement which provides for the release of shares from escrow on the basis of cash flow, particulars of which formula are described in Item 8 hereof.

A technical report dated October, 1988 was commissioned by the Issuer and prepared by Carob Management Ltd. The technical report assesses the Issuer's business and technology and forms a part of this Statement of Material Facts. The following is a summary prepared by management of that technical report.

ALL INTERESTED INVESTORS ARE URGED TO READ AND CONSIDER THE ENTIRE REPORT.

(B) Introduction to the Business

The acquisition of Ecos is a departure from the Issuer's historical business of mineral exploration. The Ecos technology is a conceptual product technology which may facilitate the economic recovery of gold from properties where gold deposits are of insufficient size or grade to justify full mill development and are not suitable for traditional gravity concentration or extraction through a heap leaching process.

The immediate business objective is to bring its gold recovery technology from the concept design stage to a fully operational pilot plant.

The ultimate business objective is to market to the mining industry an efficient, safe service for the recovery of gold from low grade cyanide leachable placer by-products and certain hard rock ores.

(C) Management Team

The management team is as follows:

Anastasios Morfopoulos - President / CEO / Director

Mr. Morfopoulos is the developer of the ECOS technology concept and the key individual behind its development to date. He has operations and management experience in the offshore petroleum exploration and sulphur processing industries. He has been involved in the management of public companies in Canada and the United States since 1986.

Aris Morfopoulos - Director

Mr. Morfopoulos is a graduate of the University of Manitoba with a Bachelor of Commerce degree. He is presently involved in the management of International Hard Suits Inc., a manufacturing company listed on the Vancouver Stock Exchange. He has worked in management capacities in the oceanography/diving industries for the past twelve years.

Dr. George Poling - Director

Dr. Poling is a graduate of the University of Alberta with a Bachelor of Science degree in Mining and Metallurgical Engineering, and a Ph. D. degree in Mineral Process Engineering. He is a registered Professional Engineer of B.C. Since 1968, he has been a Professor of Mineral Process Engineering at the University of British Columbia, and he headed the department from 1978 to 1986. Among his memberships in numerous committees he is the Chairman of the Vancouver Branch Canadian Institute of Mining and Metallurgy, and a member of the B.C. Mining Regulation Steering Committee. He is the author of more than 50 scientific and technical publications.

Terry Neild - Director

Mr. Neild is a Registered Industrial Accountant with several years of management accounting experience with such companies as MacMillan Bloedel and Northwoood Mills. He also has obtained his real estate license, has been a self-employed real estate developer and has held senior management positions with real estate sales and development companies including Crest Realty and North American Contractors. From 1984 - 1986 he was President of BDC Industries Ltd., involved in the exploration and development of mineral, oil and gas properties, and real estate development. Since 1986, he has been the Chairman and Chief Executive Officer of The Jolt Beverage Company Ltd. (now called The International Beverage Company), a public company listed on the Vancouver Stock Exchange.

The Issuer has adequate management to implement the project with a reasonable chance of success.

(D) Definition of the Project

ECOS has conceived of a gold recovery process based upon cyanide

leaching which is suited to lower grade gold ores which may not exist in large volumes. It combines some of the steps required for gold cyanidation into one component, reducing space and capital requirements. With its compact size, the Issuer hopes to skid mount the system, thereby making it possible to exploit deposits which were previously considered too small to warrant investment in a conventional dedicated plant. The ECOS product technology is untested and unproven but it constitutes a combination of specific recovery processes each of which is established and used widely in the industry.

The ECOS process will not be applicable to all low grade gold deposits. Certain placer deposits or byproducts may not have sufficient gold value to warrant processing, and certain ores have characteristics which make carbon-in-leach processing (like the ECOS technology) inapplicable. Carbon-in-leach systems are best suited to rapid leaching ores.

The key component of the ECOS technology is a rotating drum in which cyanide leaching and adsorption of gold onto activated carbon are performed simultaneously. While the technology employs two proven gold recovery processes-cyanide leaching and activated carbon adsorption - the ECOS concept is believed by Proton Systems Ltd., an independent engineering consultant to the Issuer, to be proprietary. All other unit processes in the proposed system are also standard mineral processing techniques.

The competitive alternatives to the Ecos system are heap leaching and other forms of vat leaching such as the Kamyr or Thitec systems which are currently under development.

The Issuer is implementing a two phase development program:

Phase 1: Laboratory scoping tests.

Phase 2: Pilot scale evaluation

(E) Evaluation of the Technology

The Issuer has completed conceptual design, flow sheet preparation and definition of the process requirements at a cost of $11,815 exclusive of management time. Phases 1 and 2 (above) will be funded by cash on hand and the proceeds of this Offering.

Project work to date has been documented and patent applications have been filed. No engineering or process design has been conducted nor has any testwork yet been conducted.

The concept is proprietary and its conceived application has limited proven competition.

(F) Evaluation of Market Plan

The initial market is the British Columbia placer mining

industry. While the ECOS system will not be applicable to all placer operations there is a significant potential market if the Ecos System can be successfully developed.

There is direct competition from Thitec Recovery Systems Ltd., a V.S.E. company. However, to our best knowledge Thitec is also still in the development stages with its proprietary recovery system. There may also be other competitors not now known to the Issuer. Ultimate market acceptance is believed to be a function of first establishing a commercial operation to demonstrat the plan to the mining industry.

(G) Evaluation of Financial Plan

The anticipated costs of research and development inclusive of technical supervision are $130,337.

The Issuers underlying assumptions and anticipated budget appears reasonable. The proposed financing arrangements would be adequate.

(H) Key Strengths of the Project

The key strengths of the project are:

(i) The location and number of placer operations in B.C. are readily identifiable and quantifiable, and it would appear that the placer mining industry has a need for a cost-efficient, environmentally safe process for the recovery of gold from medium to low grade ores (middlings). Furthermore, based upon recent changes in B.C. government legislation with respect to the placer industry, this market has a good probability of expanding in the near future. In light of the above analysis, while the potential dollar value corresponding to the exploitation of the ECOS technology is difficult to quantify, there exists a clearly definable target market for the technology with good growth prospects.

(ii) The management team of the company and its consulting engineers have considerable experience and expertise that is relevant to the implementation of this project. The management and engineering team that has been assembled should be able to oversee the project adequately and give it a reasonable chance of success.

(iii) ECOS owns a proprietary gold recovery process concept and has filed a patent application pertaining to same. With the patent application filed, the Company has in place some degree of protection from the replication of its proprietary concept by competitors.

(iv) By commissioning the pilot scale evaluation of the ECOS technology at a local facility in a controlled environment, the Company is in a strong position to

control its research and development costs and optimize the efficiency of its program. The Company's approach will also facilitate experimentation with a number of types of ores which its engineers have on stock at one location.

(v) If the proposed research program is successfully completed, the Company would own a fully operational one ton per day pilot plant utilizing its proprietary technology. It would then be in a strong position to apply this plant in the field and demonstrate the technology first hand to the mining industry.

(I) Key Project Risks

The key potential risk factors are:

(i) The ECOS product technology is in its concept stages. No testwork has been performed and the metallurgical parameters of the system are essentially unknown. Consequently, it is uncertain how effectively the concept will function both at the pilot plant scale, and more importantly at the full commercial scale. It is possible that the concept will not progress to a commercially viable product, due either to technical or economic factors which may surface during its development. However, if the pilot plant program proves successful, the Company's engineers anticipate no significant problems with scaleup to full commercial operating sizes.

(ii) As a cyanide based recovery system there are certain safety and environmental risks associated with its development and application. While the ECOS concept constitutes in theory a closed circuit system, process modifications may be necessary for certain ore types. The probable requirement to establish a zero discharge circuit may in some applications lead to increased costs related to reagent losses, and effluent neutralization. Environmental concerns of the government bodies could cause difficulties or delays in obtaining the necessary approvals and permits to operate the plant.

(iii) As a research and development company, ECOS has no history of sales or earnings, and no prospects for sales or earnings for at least the duration of this project, which is to span five months. No degree of market acceptance has yet been generated.

(iv) While development costs in the project proposal have been estimated to a reasonable degree of detail based upon the stage of development of the product technology, there exists risk that there could be required changes to the scope of work and correspondingly cost overruns over the course of this research program. This could create a need for further working capital to realize the

objectives of the project.

(v) The Company has not provided any details with respect to sources of the required funds to implement the project. The funding requirements identified in the technical report must be met for the project to have a reasonable chance of successful implementation.

(vi) There does exist a direct competitor to ECOS involved in the development of a system to target the Issuer's primary target market, the B.C. placer industry. While this company is developing a distinctly different technology, it has approximately a six month lead time on ECOS which could be exploited if it is the first to enter the market.

(vii) Even if the ECOS technology is developed to a economically viable recovery system, there will be limitations to the application of the technology to the processing of certain types and grades of gold ores. This will restrict to some degree the market potential of the technology. Until testing and feasibility analysis is complete, its range of possible applications will remain uncertain.

(viii) While a patent application has been filed it is unknown at this time whether a patent will be granted, and if it is granted, it is uncertain what scope of patent protection will be obtained for the ECOS technology. Therefore, the degree of ability of the Company to deter possible future competition from marketing a similar product and service is at this time unknown.

ITEM 5 CORPORATE INFORMATION

The Issuer was incorporated on December 17, 1980 as Pacific Ridge Resources Corp., by filing a Memorandum and Articles with the Registrar of Companies under the British Columbia Company Act. The Issuer consolidated its capital by a ratio of 1 for 3.4 shares and changed its name to Ecos Resources Ltd. on October 3, 1988.

The Issuer's authorized capital consists of 10,000,000 shares without par value of which 1,088,274 shares were issued to February 28, 1989.

No shares have been issued by the Issuer subsequent to the February 28, 1989 financial statements included in this Statement of Material Facts except as follows:

(a) 200,000 Units at $0.225 per unit were issued pursuant to a brokered private placement, and

(b) 3,000,000 earn-out shares which will be issued in consideration of the acquisition of Ecos Gold Systems

Inc. concurrently with the approval of this Statement of Material Facts.

ITEM 6 DIRECTORS, OFFICERS, PROMOTERS AND PERSONS HOLDING MORE THAN 10% OF THE ISSUED EQUITY SHARES

6.1 The following table sets forth the names, addresses and principal occupations for the past five years of the directors, officers and promoters of the Issuer and the number of shares held beneficially by each:

Name, Address and Position with Issuer	Chief Occupation For Past Five Years	Number of Shares Beneficially Owned
Anastasios Morfopoulos* #2 - 246 West 4th St. North Vancouver, B.C. V7M 1H7 President/Director	President, North American Sulphur Co. and TDK Sulphur Refining Co.; Formerly President of Lake Village Merchandising, Inc., importers	782,000 earn-out
Aris Paul Morfopoulos 2118 Kirkstone Place North Vancouver, B.C. V7J 3R1 Vice-President/Director	General Manager, International Hardsuits Inc.; Formerly Division Manager, Candive Services Inc.	300,000 earn-out
Terry Neild* 302 - 1299 W. 7th Ave. Vancouver, B.C. V6H 1B7 Director	Corporate public relations, The International Beverage Corp., Chairman, Camfrey Resources Ltd.; Chairman and C.E.O., Baywest Capital Equities Corp.	Nil
George Poling* 4050 W. 36th Ave. Vancouver, B.C. V6N 2S9 Director	Professor, University of British Columbia; Co-ordinator of Applied Research, Mining Association of British Columbia; Director, Diamet Minerals Ltd.	Nil
Evangelos Catevatis 765 E. 41st. Ave. Vancouver, B.C. Secretary	Corporate Administrator, self employed	66,166

*Indicates members of the Audit Committee.

6.2(a) The following table sets forth the names of the directors, officers and promoters of the Issuer and the number of other public companies in which they are

currently or have been in the past three years directors, officers or promoter:

Name	Number of Reporting Companies
Anastasios Morfopoulos	3
Aris Morfopoulos	1
George Poling	NIL
Terry Neild	7
Evangelos Catevatis	3

A list of the names of such companies may be inspected during business hours at the offices of Boughton Peterson Yang Anderson, Barristers & Solicitors, at 1600 - 1100 Melville Street, Vancouver, British Columbia, during the period of primary distribution of the securities offered hereby and for 30 days after completion of the primary distribution.

6.2(b) Statement regarding other companies subject to previous regulatory sanction:

During the period that Messrs. Morfopoulos, Morfopoulos, Neild and Catevatis are or have been directors/officers/promoters of such companies, none of such companies was struck off the Register of Companies by the British Columbia Registrar of Companies, or similar authority, nor were the securities of any of these companies the subject of a cease trade or suspension order for a period of more than thirty consecutive days.

6.3 Certain directors, officers, promoters, or other insiders have received direct or indirect remuneration from the Issuer, as follows:

(i) Management Fees: During the preceding year Ionian Ventures Ltd. a company controlled by Evangelos Catevatis, formerly a director and currently secretary and vice-president, was paid the sum of $2,250.00 and an additional $13,500.00 was accrued for rent and office services.

By Agreement dated November 1, 1989 the Issuer engaged Falcon Management Company, a company owned by Anastasios Morfopoulos and Aris Morfopoulos, both directors of the Issuer, to provide administrative and office services and rent at a fee of $3,000 per month. To date $18,000 has been paid.

(ii) Consulting Engagement: Dr. George Poling, a director of the Issuer, has been engaged to oversee the proposed pilot testing program of the gold recovery project and to provide supervisory and technical expertise. The agreed compensation is up to $10,000 depending upon the amount of work performed.

(ii) Current Stock Options: Directors and key employees will receive the benefit of directors or employee incentive stock options. Readers are referred to Item 7 hereof for particulars.

(iii) Prior Stock Options: Pursuant to a directors and key employees incentive stock option agreement dated November 27, 1987 prior directors and employees received stock options at a post consolidation price of $0.68 per share, some of which were exercised as indicated hereafter:

Directors	No. of Options	No. Exercised
Evangelos Catevatis	29,970	5,882
Mike McCartney	14,485	nil
Key Employees		
John Edmondson	29,970	nil
Joe Novak	14,485	nil

All unexercised options have now lapsed.

Pursuant to a directors' and key employees' incentive stock option agreement dated December 8, 1988 current directors and employees received stock options at a price of $.22 per share.

Director	No. of Options	No. Exercised
Aris Morfopoulos	49,500	49,500

Employee	No. of Options	No. Exercised
Terry Neild	49,500	49,500

(iv) Pursuant to a directors' and key employees incentive stock option agreement dated March 10, 1989 current directors and employees received stock options at a price of $.29 per share.

Director	No. of Options	No. Exercised
Dr. George Poling	54,000	nil

Employee	No. of Options	No. Exercised
Ming Wong	54,000	nil

(v) Acquisition of Ecos Gold Systems Inc.: Certain directors have received earn-out shares in consideration of an acquisition of the Issuer. Readers are referred to Item 4 hereof for particulars.

Other than as disclosed in this Statement, no director, officer, promoter, or insider has received anything of value from the Issuer within the past year.

6.4 To the best of the knowledge of the Issuer the following table sets forth those shareholders of the Issuer who beneficially own, directly or indirectly, greater than ten (10%) percent of the issued capital of the Issuer after the issuance of the 3,000,000 earn-out shares and the 800,000 shares pursuant to the offering:

Name and Address of Shareholder	Number of Shares Beneficially Owned	Percentage of Issued Capital
Nicholas Eckleberry 3581 Chevy Chase Drive Glendale, California 91206	772,500	15.18%
Anastasios Morfopoulos #2 - 246 West 4th Street North Vancouver, B.C. V7M 1H7	782,000	15.33%

ITEM 7 OPTIONS TO PURCHASE SECURITIES OF THE ISSUER

(a) Private Placement Warrants

Pursuant to a brokered private placement made January 3, 1989 200,000 share purchase warrants exercisable at $0.275 per share are outstanding until March 21, 1990.

(b) Brokers Warrants

Pursuant to the terms of this Offering there are 400,000 brokers warrants exercisable at any time up to the close of business two years from the Offering Day, at prices which will be set in accordance with the Rules of the Vancouver Stock Exchange.

(c) Directors and Employees Stock Options

Pursuant to an option agreement dated March 10, 1989 there are 108,000 directors and employees stock options exercisable at $.29 per share until March 9, 1991.

ITEM 8 SECURITIES OF THE ISSUER HELD IN ESCROW, IN POOL OR SUBJECT TO HOLD RESTRICTIONS

(a) Pooled Shares

There are no shares in the capital of the Issuer held in pool.

(b) Escrow Shares

There are 187,498 shares in the capital of the Issuer held in escrow as follows:

Name	Number of Shares
Ionian Ventures Ltd.	54,166
John Edmondson	54,166
Mike McCartney	54,166
Stanley Reamsbottom	12,500
Douglas Stelling	12,500
	187,498

The escrow agreement, dated May 11, 1987 with Central Guaranty Trust Company, provides that the escrow shares cannot be dealt with without the written consent of the Exchange and that the Exchange may at any time make an order or direction to release all or any of the escrow shares in accordance with applicable policy, it being understood that a portion of the consideration for the issuance of the escrow shares is to encourage the escrow shareholders to act in the best interests of the Issuer and, if the Issuer becomes successful due in part to their efforts, any one or more of them shall be entitled to maintain their ownership of the escrow shares and to a release thereof from time to time in accordance with the general policies of the Exchange. Any of the escrow shares not released within ten years shall be cancelled.

(d) Earn-Out Shares

Pursuant to an Escrow Agreement dated September 23, 1988 there are 3,000,000 "earn-out" shares held by Central Guaranty Trust Company. These shares may not be traded in, dealt with in any manner whatsoever, or released except in the prescribed manner.

The shares will be released on the basis of cumulative cash flow of the Issuer as derived from the Issuer's audited financial statements. Cash flow is defined to mean net profit adjusted for certain addbacks, namely depreciation, depletion, deferred taxes, amortization of goodwill and amortization of research and developments costs, together with such other capitalization charges as may be required by the Regulatory Authorities. The following formula, or such other formula as may be approved by the Superintendent or the Exchange, provides for the release of the escrowed shares:

Cumulative Cash Flow Per Share x 3,000,000 = # released.

$0.51

In any event, the number of shares to be released from escrow at any time will be subject to the consent of the Vancouver Stock Exchange or the Superintendent of Brokers of as the case may be.

Any shares not released within five (5) years from the date of receipt of this Statement of Material Facts shall be cancelled.

(e) Shares Subject to Hold Periods

There are no securities which are subject to an unexpired hold period originally imposed by the Superintendent of Brokers or the Vancouver Stock Exchange.

ITEM 9 PARTICULARS OF ANY OTHER MATERIAL FACTS

(a) Legal Proceedings

There are no actual or pending material legal proceedings to which the Issuer is or is likely to be the subject.

(b) Risk Factors (General)

(i) Conflicts of Interest

There are no direct conflicts of interest to which directors and officers of the Issuer are subject in connection with the operations of the Issuer. Some of the directors and officers are engaged and will continue to be engaged in the search for mineral resource properties on their own behalf and on behalf of other corporations, and situations may arise where these directors and officers will be in direct competition with the Issuer. Conflicts, if any, will be dealt with in accordance with the relevant provisions of the Company Act (British Columbia).

Some of the Directors and Officers of the Issuer are or may become directors or officers of other companies engaged in natural resource exploration and development. In order to avoid the possible conflict of interest which may arise between the Directors' duties to the Issuer and their duties to the other companies on whose boards they serve, the Directors and Officers of the Issuer have agreed to the following:

- participation in natural resource prospects offered to the Directors will be allocated between the various companies and on the basis of prudent business judgment and the relative financial abilities and needs of the companies to participate;

- no commissions or other extraordinary consideration will be paid to such Directors and Officers; and

- natural resource prospects formulated by or through the other companies in which the Directors and Officers are involved will not be offered to the Issuer except on the same or better terms than the basis on which they are offered to third party participants.

(ii) Dilution

On completion of this Offering and after accounting for the share issuances referred to herein there will be a total of 5,088,274 shares of the Issuer outstanding with an approximate total net book value, based on the Issuer's financial statements as at February 28, 1989, of $514,448 or approximately $0.1011 per share. This includes $304,168 of intangible resource property costs and deferred exploration expenses.

If the shareholder's equity with respect to the 4,288,274 shares issued prior to this Offering has not changed between February 28, 1989 and the date of this Offering other than the accounting for share issuances referred to herein, the purchasers of the shares offered by this Statement of Material Facts will suffer immediate dilution of approximately $0.2489 in net book value per share, equal to 71.11% of the $0.35 per share Offering Price.

(iii) Shares Owned by Management and Others

Upon completion of this offering, the 800,000 Shares offered hereby will represent 15.72% of the shares of the Issuer then outstanding as compared to 84.28% that will then be owned by management and others who purchased shares of the Issuer prior hereto. Directors and Senior Officers of the Issuer will own, directly or beneficially 1,136,166 shares, or 22.33% of the shares outstanding on completion of this Statement of Material Facts.

(iv) Market Value of Shares

The issue price of the shares to be issued pursuant to this offering was determined by agreement between the Issuer and its Agents in accordance with the rules of the Exchange. The market price of a publicly traded stock is affected by many variables not directly related to the corporate performance of the Issuer, including the market in which it is traded, the strength of the economy generally, the availability and attractiveness of alternative investments, the strength and interest of brokers making a market in the stock, and the breadth of the public market for the stock. The effect of these and other factors on the market price of the shares of the Issuer on the Vancouver Stock Exchange in the future cannot be predicted. Accordingly, there can be no assurances that the shares of the Issuer issued pursuant to this offering will trade at a price equal to or in

excess of the current or future book value of the Issuer or the issue price of the shares.

(c) Other Material Facts

The Issuer has granted to Boughton Peterson Yang Anderson a floating charge debenture to secure outstanding legal fees. The amount presently secured is $54,411. All outstanding legal fees are included in the accounts payable amount in Item 3 hereof and will be paid from the proceeds of this offering.

The sum of $31,187 is owed to Ecos Gold Systems Inc. This amount is not included in the account payable referred to in Item 3 hereof.

There are no material facts not previously disclosed herein.

(d) Inspection of Documents

The following may be inspected during normal business hours at the offices of Boughton Peterson Yang Anderson, Barristers and Solicitors, at 1600 - 1100 Melville Street, Vancouver, British Columbia, during the period of primary distribution of the securities offered hereby and for 30 days after completion of the primary distribution:

(a) all contracts referred to in this Statement of Material Facts;

(b) all technical reports summarized or referred to in Items 3 and 4; and

(c) a list of names of the reporting companies referred to in Item 6.

ITEM 10 STATUTORY RIGHTS OF RESCISSION

The British Columbia Securities Act provides purchasers with the right to rescind a contract for the purchase of securities where the statement of material facts and any existing amendments thereto either contain a misrepresentation or are not delivered to the purchaser before delivery of the written confirmation of sale. For further information concerning these rights, and the time limits within which they must be exercised, refer to Sections 66, 114, 118 and 124 of the Securities Act or consult a lawyer.

JRC/NO36

ECOS RESOURCES LTD.

REPORT AND CONSOLIDATED FINANCIAL STATEMENTS

February 28, 1989

CORCORAN & COMPANY

CORCORAN & COMPANY
CHARTERED ACCOUNTANTS
A LIMITED PARTNERSHIP

AUDITORS' REPORT

To the Shareholders,
Ecos Resources Ltd.

We have examined the consolidated balance sheet of Ecos Resources Ltd. as at December 31, 1988 and the consolidated statements of loss and deficit, deferred exploration expenses and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1988 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Corcoran & Company

Vancouver, B.C.
February 28, 1989
except as to Note 5 which is March 30, 1989

Chartered Accountants

REVIEW ENGAGEMENT REPORT

To the Shareholders,
Ecos Resources Ltd.

We have reviewed the consolidated balance sheet of Ecos Resources Ltd. as at February 28, 1989 and the consolidated statements of loss and deficit, deferred exploration expenses and changes in financial position for the two months then ended. Our review was made in accordance with generally accepted standards for review engagements and accordingly consisted primarily of enquiry, analytical procedures and discussion related to information supplied to us by the company.

A review does not constitute an audit and consequently we do not express an audit opinion on these consolidated financial statements.

Based on our review, nothing has come to our attention that causes us to believe that these consolidated financial statements are not, in all material respects, in accordance with generally accepted accounting principles.

Corcoran & Company

Vancouver, B.C.
March 30, 1989

Chartered Accountants

SUITE 575 - 885 DUNSMUIR STREET, VANCOUVER, B.C. V6C 1N9 TELEPHONE (604) 689-0188

ECOS RESOURCES LTD.
Incorporated under the Company Act of British Columbia
CONSOLIDATED BALANCE SHEET
as at February 28, 1989

	Unaudited 1989	Note 8 1988
ASSETS		
Current		
Cash	$ 2,822	$ 13,876
Resource properties - Note 2	19,850	19,850
Deferred exploration expenses	284,318	284,318
Incorporation	672	672
	$ 307,662	$ 318,716
LIABILITIES		
Current		
Accounts payable	$ 62,870	$ 76,217
Due to Ecos Gold Systems Inc. - Note 3	31,187	31,187
	94,057	107,404
SHAREHOLDERS' EQUITY		
Capital stock - Note 4		
Authorized 10,000,000 common shares without par value		
Issued and fully paid 1,088,274 common shares	885,028	874,138
Deficit	(671,423)	(662,826)
	213,605	211,312
	$ 307,662	$ 318,716

APPROVED BY THE DIRECTORS

_____, Director

_____, Director

SEE ACCOMPANYING NOTES

CORCORAN & COMPANY

ECOS RESOURCES LTD.
CONSOLIDATED STATEMENT OF LOSS AND DEFICIT
for the two months ended February 28, 1989

	Unaudited 1989	Note 8 1988
Expenses		
Administrative		
Advertising	$ -	$ 2,284
Filing fees	1,670	7,074
Management fees	6,000	13,200
Office	57	585
Preparation of technical report	-	5,000
Printing	-	1,169
Professional fees	910	28,979
Rent and administration	-	17,000
Transfer agent fees	66	3,928
Travel and promotion	-	587
	8,703	79,806
Less: interest earned	(106)	(443)
	8,597	79,363
Other		
Write-off of deferred expenses related to abandoned mineral claims	-	2,202
Net loss for the period	8,597	81,565
Deficit, beginning of the period	662,826	581,261
Deficit, end of the period	$ 671,423	$ 662,826

SEE ACCOMPANYING NOTES

ECOS RESOURCES LTD.
CONSOLIDATED STATEMENT OF DEFERRED EXPLORATION EXPENSES
for the two months ended February 28, 1989

	Unaudited 1989	Note 8 1988
Exploration		
Geological survey and report	$ -	$ 3,060
Exploration expenses for the period	-	3,060
Deferred exploration expenses, beginning of the period	284,318	283,460
	284,318	286,520
Less: Write-off of deferred expenses related to abandoned mineral claims	-	(2,202)
Deferred exploration expenses, end of the period	$ 284,318	$ 284,318
Represented by:		
Exploration expense		
Ron mineral claims	$ 282,818	$ 282,818
Lake mineral claims	1,500	1,500
	$ 284,318	$ 284,318

SEE ACCOMPANYING NOTES

CORCORAN & COMPANY

ECOS RESOURCES LTD.
CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION
for the two months ended February 28, 1989

	Unaudited 1989	Note 8 1988
Operations		
Net loss for the period	$(8,597)	$(81,565)
Adjustments resulting from operations		
Accounts receivable	-	1,500
Accounts payable	(13,347)	(36,150)
Exploration expenses for the period	-	(3,060)
Write-off of costs related to abandoned mineral claims	-	2,202
Net change / operations - (outflow)	(21,944)	(117,073)
Financing		
Proceeds of share issue	10,890	128,225
Net change / financing - inflow	10,890	128,225
Net inflow (outflow) of cash during the period	(11,054)	11,152
Cash, beginning of the period	13,876	2,724
Cash, end of the period	$ 2,822	$ 13,876

See Note 6

SEE ACCOMPANYING NOTES

CORCORAN & COMPANY

ECOS RESOURCES LTD.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
December 31, 1988 and February 28, 1989

Note 1 Summary of Significant Accounting Policies

(a) Resource Properties
The acquisition of resource properties are initially recorded at cost. Producing resource properties are depleted over their estimated useful lives based upon a method relating recoverable resource reserves to production. Non-producing resource properties that the company abandons interest in are written off to deficit in the year of abandonment.

(b) Deferred Exploration Expenses
The company capitalizes all exploration expenses that result in the acquisition and retention of resource properties or an interest therein. The accumulated costs including applicable exploration expenses relative to non-producing resource properties that the company abandons interest in are written off. Otherwise, the exploration expenses are depleted over the estimated useful lives of the producing resource properties, based on a method relating recoverable resource reserves to production.

(c) Values
The amounts shown for resource properties and deferred exploration expenses represent costs to date and do not necessarily reflect present or future values.

(d) Foreign Currency
Transactions in foreign currencies are translated at rates in effect on the dates of the transactions. Current assets and liabilities have been translated at the rate of exchange prevailing at February 28, 1989 (1988 - December 31, 1988).

(e) Earnings Per Share
Net earnings per share figures are not provided as management considers this information to be not meaningful given the exploratory nature of the company's operations to date.

(f) Principles of Consolidation
These consolidated financial statements include the accounts of the company and its wholly owned subsidiary, Pacific Ridge Inc., an inactive company which was incorporated in the State of Texas, U.S.A.

			Unaudited 1989	Note 8 1988
Note 2	Resource Properties			
	Ron Mineral Claims			
	The company acquired 8 mineral claims located in the Omineca Mining Division of British Columbia from a company controlled by a director of the company for $2,152, staking costs of $4,422 and the issuance of 750,000 escrow common shares (subsequently consolidated 3.4 to 1) valued at $7,500 to a director of the company. Of these 8 mineral claims, 4 have been abandoned. The company kept the Ron 1,2,4 and Du mineral claims.			
	Cash	$ 6,574		
	Escrow common shares	7,500	$ 14,074	$ 14,074
	Lake Mineral Claims			
	The company acquired 4 mineral claims located in the Omineca Mining Division of British Columbia for staking costs of $5,775.			
	Cash		5,775	5,775
	The company optioned 75% of its interest in the Ron 1 and 2 and the Lake mineral claims to Hermes Ventures Ltd. In order to earn its 75% interest Hermes must expend up to $300,000 on exploration as follows:			
	(i) $75,000 by December 31, 1987 - 25% (which has been done)			
	(ii) $75,000 by December 31, 1988 - 25% (which has been done)			
	(iii) $150,000 by December 31, 1988 - 25% (of which $50,000 has been spent)			
	The company optioned 75% of its interest in the Ron 4 and the Du mineral claims to St. Philips Resources Inc. St. Philips earned the 75% interest by expending $300,000 on exploration of the mineral claims.			

		Unaudited 1989	Note 8 1988
Note 2	Resource Properties - (cont'd)		
	Petroleum and Natural Gas Prospect		
	The company holds a 3.4375% net revenue interest in certain petroleum and natural gas leases located in Webb, La Salle, Frio and Duvall Counties, Texas. Production has been insignificant with the result that the prospects have been written down to a nominal value.	1	1
	Total resource properties	$ 19,850	$ 19,850

Note 3 Due to Ecos Gold Systems Inc.

These amounts are due on demand, bear nominal interest and are unsecured. The company has proposed to acquire 100% of the issued and outstanding common shares of Ecos Gold Systems Inc. (formerly 344473 B.C. Ltd.) for the issuance of up to 3,000,000 post-consolidated common shares of the company. Ecos Gold Systems Inc. owns certain proprietary design technology relating to the treatment of gold ore within a closed cylinder system. This acquisition and share issuance is subject to the approvals of the regulatory authorities.

Note 4 Capital Stock

The current period's common share transactions are summarized as follows:

	Number of Shares	Amount
Balance, beginning of the period	1,038,774	$ 874,138
Issuance of shares		
For cash		
By stock option agreement	49,500	10,890
Balance, end of the period	1,088,274	$ 885,028

The company has proposed, subject to regulatory authority approval, to issue 374,500 post-consolidated escrow common shares for net proceeds to the company of $3,745.

Note 4 Capital Stock - (cont'd)

Management and Employee Incentive Stock Options

The company granted a director and an employee of the company options to purchase up to 99,000 post consolidated common shares of the company at $0.22 per share. To December 31, 1988, 49,500 of the options had been exercised and the balance were exercised prior to February 28, 1989.

The company granted directors and employees of the company options to purchase up to 295,500 pre-consolidated common shares of the company at $0.20 per share of which 20,000 have been exercised and the balance terminated.

Subsequent Commitments

The company is proposing to offer up to 800,000 common shares for sale to the public for net proceeds of $259,000 after commissions of $21,000.

The company is negotiating a private placement of 200,000 units at $0.225 per unit. Each unit consists of one common share plus one share purchase warrant exercisable at $0.275 each for one additional common share.

Note 5 Directors' Remuneration and Related Party Transactions

During the period the company has paid $3,000 to directors of the company and $3,000 to a company controlled by a director of the company for management fees (1988 - $13,200 for management fees and $17,000 for rent and administration).

Note 6 Working Capital Deficiency

The ability of the company to continue as a going concern is dependent upon the company arranging adequate financing.

Note 7 Contingency

The company has issued a floating charge debenture for $100,000 to secure a creditor providing professional legal services to the company.

Note 8 Comparative Financial Statement

The comparative financial statements are for the year ended December 31, 1988.

ECOS RESOURCES LTD.

TECHNICAL REPORT TO CONFORM TO LOCAL POLICY 3-04

Carob Management Ltd.

November, 1988

CAROB MANAGEMENT LTD.

MANAGEMENT CONSULTING

BUSINESS PLANS

TECHNICAL REPORTS (S 3-04)

June 20, 1989

Vancouver Stock Exchange
609 Granville Street
Vancouver, B.C.

Gentlemen:

Re: Certification for Technical Report prepared for ECOS Resources Ltd.

Carob Management Ltd. ("Carob") does hereby certify that:

1. Carob, its officers, directors, and employees do not hold nor will they receive any interest, direct or indirect in any property, assets or securities of ECOS Resources Ltd. or any affiliate thereof.

2. The Technical Report was prepared by Carob, a management consulting firm specializing in independent business evaluations, business plans, and market research.

3. Carob's professional personnel who were involved in the preparation of the Technical Report have experience in risk assessment, hands-on operations management, market research and planning, and administrative and financial planning, and these personnel have combined qualifications to prepare a Technical Report as set out in Local Policy 3-04, Section 4.

4. Carob's evaluation and analysis is subject to the limitations that are set out in the Technical Report.

5. Carob has prepared the Technical Report over the period August 25, 1988 to November 30, 1988 and takes no responsibility to update the Technical Report or Certification because of events occurring or disclosed subsequent to the completion date of November 30, 1988.

SUITE 575 - 885 DUNSMUIR STREET, VANCOUVER, B.C. V6C 1N9 TELEPHONE (604) 689-0188

6. Carob gives its consent for the Technical Report to be utilized to meet the regulatory requirements of the B.C. Securities Commission and the Vancouver Stock Exchange. Carob further consents that the Technical Report may be referred to and paraphrased from in the company's Statement of Material Facts subject to the restriction that no individual part be excerpted or paraphrased without reference to the entire document. Any other use of the report from that noted in this item would require the written approval of Carob.

7. Carob has reviewed the excerpts of the Technical Report paraphrased in the ECOS Resources Ltd. Statement of Material Facts, and in Carob's opinion this disclosure represents fairly the corresponding disclosure in the Technical Report.

Yours very truly,
CAROB MANAGEMENT LTD.

Carob Management Ltd.

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LIST OF APPENDICES

1.0 THE REPORT

1.1 Purpose of Report

This technical report has been prepared for ECOS Resources Ltd. (hereafter "the Issuer") by Carob Management Ltd. (hereafter "the Consultants") to comply with the requirements of the British Columbia Securities Commission in accordance with Local Policy Statement 3-04 issued under the authority of Section 45(1) of the Securities Act of British Columbia.

The Issuer proposes to raise funds through a public financing on the Vancouver Stock Exchange to apply to research and development of a proprietary gold recovery technology. It proposes to implement a complete pilot test program for thorough mechanical and metallurgical performance evaluation. The pilot program will provide engineering and cost data through which the company can fully assess the commercial viability and market potential of the technology. The project to be funded is to be implemented over a five month duration.

The technical report represents an overview and independent assessment of the proposed operations and business plan of the Issuer. It will identify the key risk factors which might adversely affect the success of the project, and it will develop conclusions with respect to the reasonableness and appropriateness of the Issuer's business objectives and of the underlying assumptions of its plans.

1.2 Scope of Work

In preparing the Technical Report, the following procedures were applied by the Consultants, and form the basis for the project description and evaluation presented herein:

1. Review and analysis of an independent engineering report prepared for the Issuer by Proton Systems Ltd., dated September 1, 1988;

2. Review of patent application prepared by Featherstonhaugh and Co., Patent and Trademark Agents, dated August 23, 1988;

3. Inspection of the audited financial statements of the Issuer dated June 30, 1988, prepared by Corcoran and Company, and review of the financial plan prepared by management;

4. Review of relevant independent business, industry, and technical literature to assess the uniqueness and market potential of the technology, and test certain underlying assumptions of management with respect to the technology;

5. Interviews with management and directors to review the company's background, business objectives, and project plans;

6. Review of the company's Business Plan, dated September 5, 1988;

7. Discussion of the ECOS gold recovery technology with a number of metallurgical and gold process engineers to assess its technical feasibility.

8. Review of Project Proposal put forward by Coastech Research Inc. for pilot test program;

9. Visit to and inspection of the Coastech research facility in North Vancouver, review of literature on the company, and interview with Mr. Brad Marchant, President.

1.3 Representations and Warranties

In preparing the Technical Report, the Consultants received representations and warranties from management as follows:

1. Management is not aware of any information nor has any knowledge of any material facts not specifically noted in the report which would reasonably be expected to affect the conclusions arrived at herein;

2. There are no contingent liabilities, unusual contractual obligations or substantial commitments or litigations pending or threatened, other than as disclosed in the report, which might materially affect the financial position or prospects of the Issuer.

1.4 Limitations

The material presented in the Technical Report is subject to a number of limitations as follows:

1. The operational, marketing, and financial plans presented in the report have been developed by management. As these plans are based upon assumptions of future events, they cannot be verified, so our comments relate only to their perceived reasonableness and appropriateness;

2. The report was prepared between the dates of August 25, 1988 and November 30, 1988 and comments made in the report must be interpreted in the context of this time frame as they are subject to change.

3. We have relied to a large degree upon the Issuer's independent engineering consultants, Proton Systems Ltd. and Coastech Research Inc., in assessing the uniqueness, potential applications, and technical feasibility of the ECOS gold recovery technology. Based upon the track records and proven expertise of Proton and Coastech in the area of gold process engineering, we believe this reliance to be appropriate.

4. The technical report represents a project risk assessment to provide plain and true disclosure of the prospective business of the Issuer. No comments made in the report should be interpreted to represent guarantees of performance or recommendations for or against investment in the securities of the Issuer.

2.0 INTRODUCTION

2.1 Corporate Background

ECOS Resources Ltd. was incorporated under the B.C. Company Act on December 17, 1980 as Pacific Ridge Resources Inc. It underwent a name change on October 3, 1988 wherein it acquired its present name. It has been listed on the Vancouver Stock Exchange since July 11, 1983.

The Issuer operates out of rented office space located at 670 - 650 West Georgia Street, Vancouver, B.C. It owns an interest in a number of mineral claims located in British Columbia and it has expended in excess of $280,000 in the exploration and development of these claims since its inception.

The project described and assessed in this report represents a change in the strategic direction of the Issuer. The project is to be implemented through an operating subsidiary, ECOS Gold Systems Inc. (hereafter "ECOS" or "the Company"). ECOS was founded by Mr. Tas Morfopoulos to undertake the development of the conceived gold recovery process technology. Pursuant to a share exchange agreement dated September 23, 1988, ECOS Gold Systems Inc. is to become a wholly owned subsidiary of the Issuer, subject to approval by the Vancouver Stock Exchange.

2.2 Overview of Management

Key management of the Company constitutes the following individuals:

Anastasios Morfopoulos	Director and President
Aris Morfopoulos	Director and Vice President
Terry Neild	Director
Dr. George Poling	Director

The Company plans to accept a proposal from Coastech Research Inc. to implement the pilot scale evaluation program for the gold recovery system. Coastech is an experienced metallurgical testing and process development company with a research facility in North Vancouver. A thorough background on Coastech and its key personnel is presented in Appendix C.

Backgrounds of management and the Consultants' assessment of the management team is presented in Section 3 of this report.

2.3 Product Overview

The Company's conceived product technology constitutes a proprietary gold recovery system which the Company believes can facilitate economic recovery of gold from mining properties where gold deposits are of insufficient size or grade to justify full mill development and are not suitable for traditional gravity concentration. The Company also sees the recovery system to be a potential direct alternative to heap leaching and certain special recovery processes (ie. Kamyr, Section 4.3) currently being examined to process

marginal gold reserves. Based upon analysis to date, if the ECOS system is successfully developed, it could have low capital costs and operating costs relative to alternative processing systems, and it would be movable and environmentally safe. Due to its early stage of development, however, there exists limited product information available through which to substantiate the possible benefits of the technology in the areas of capital and operating costs.

The Company has identified placer operations in British Columbia and Yukon Territory as its initial target market, but it ultimately plans to pursue possible markets for the technology throughout North America and internationally. Typical placer operations produce clean high grade gold concentrates through a variety of gravity concentration techniques. Due to the nature of the gravity concentration methods, various lower grade by-products (middlings) are produced for which there is currently no economic, environmentally safe process to recover the gold.
The Company and its engineering consultants believe that the technology has potential applications in the processing of certain hard rock ores in addition to placer deposits. One such application would be the processing of low grade waste dumps at open pit mines.

In British Columbia, there are about 500 registered placer operations of which approximately 70 have reported total production of 10,000 troy ounces of gold per year. In the Yukon territories, there are about 190 placer operations reporting production of approximately 100,000 troy ounces of gold per year [1]. British Columbia placer operations expend approximately $25 million per year [2]. Approximately $6.9 million was spent on equipment purchases in 1986 of which approximately $1 million was spent on proprietary gold separating devices and drum and centrifugal separators [3].

2.4 Business Objectives

The specific objective of the Company as it relates to the proposed public financing is to bring its gold recovery technology from the concept design stage to a fully operational one ton per day pilot plant. With the pilot plant in place the Company will check its operating assumptions, assess the technical and commercial viability of the technology, and commission an independent engineering report documenting the performance of the plant.

The pilot scale has been chosen such that scaleup to a full scale operating unit is not expected to pose any mechanical or metallurgical problems. The pilot plant would be a complete unit that the Company could move to remote sites in the future to evaluate properties and demonstrate its recovery technology in specific applications. This ability to demonstrate the technology to the mining industry would form the platform for future marketing of the technology to the industry.

It is the Company's ultimate objective to market an efficient, safe service for the recovery of gold from low grade cyanide leachable placer by-products and certain hard rock ores to the mining industry. The Company envisions the technology as an opportunity to participate directly in gold production situations through associations with companies with proven gold reserves. In this manner it can avoid implementing the high risk exploration phase which most junior resource companies must survive to attain gold reserves.

The Company would generate revenues as a consultant or operator, or through joint ventures by charging a percentage

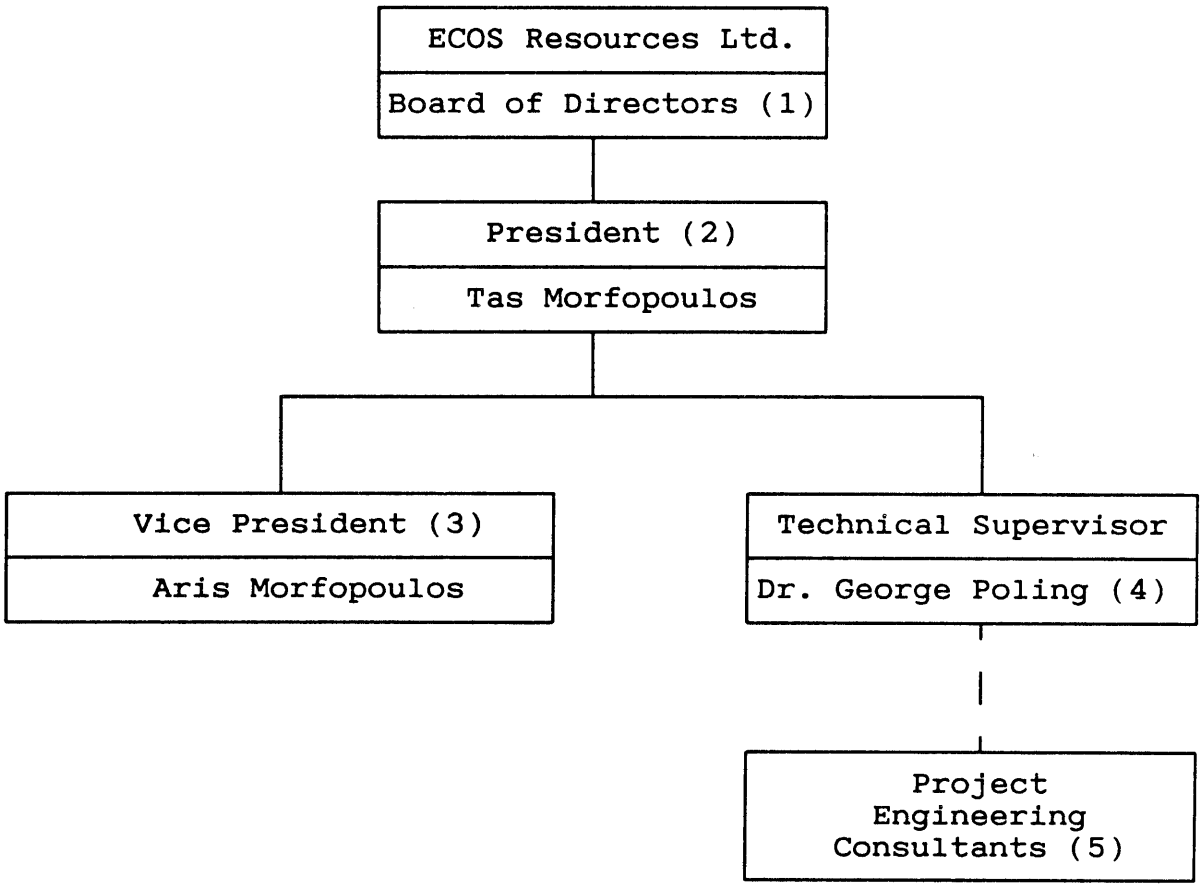
of the recovered gold to the client company as compensation for the service. It is also considering the possibility of licensing the technology.

In the longer term, if a viable recovery process is developed, the Company plans to look beyond British Columbia to market applications in the United States and abroad.

As the project to be financed relates only to the research and development of the ECOS gold recovery technology, this report will not deal in significant detail with the marketing strategies and plans of the Company that are to be implemented if a viable plant technology is developed.

3.0 MANAGEMENT TEAM

3.1 Organization Structure



Notes:

(1) The board of directors is to consist of Mr. Tas Morfopoulos, Mr. Aris Morfopoulos, Mr. Terry Neild, and Dr. George Poling.

(2) The President of the company will be responsible for the overall supervision and coordination of all areas of the project.

(3) The Vice President of the company will be responsible for public company administration, reporting, and public / investor relations. He will report to the President.

(4) The Technical Supervisor will be responsible for monitoring and supervising the progress of the Company's engineering consultants.

(5) No engineering consultants have been officially retained as at the date of this report. However, extensive discussions have been held with Coastech Research Inc. to perform all engineering / technical consulting for the project.

3.2 Backgrounds of Key Management

Following are summaries of the backgrounds of key management as have been presented to the consultants through resumes and meetings:

Anastasios Morfopoulos - President / Director

Mr. Morfopoulos is the developer of the ECOS technology concept and the key individual behind its development to date. He has operations and management experience in the offshore petroleum exploration and sulphur processing industries. He has been involved in the management of public companies in Canada and the United States since 1986.

Aris Morfopoulos - Vice President / Director

Mr. Morfopoulos is a graduate of the University of Manitoba with a Bachelor of Commerce degree. He is presently involved in the management of International Hard Suits Inc., a manufacturing company listed on the Vancouver Stock Exchange. He has worked in management capacities in the oceanography / diving industries for the past twelve years.

Dr. George Poling - Technical Supervisor / Director

Dr. Poling is a graduate of the University of Alberta with a Bachelor of Science degree in Mining and Metallurgical Engineering, and a Ph.D. degree in Mineral Process Engineering. He is a registered Professional Engineer of B.C. Since 1968, he has been a Professor of Mineral Process Engineering at the University of British Columbia, and he headed the department from 1978 - 1986. Among his memberships in numerous committees he is the Chairman of the Vancouver Branch Canadian Institute of Mining and

Metallurgy, and a member of the B.C. Mining Regulation Steering Committee. He is the author of more than 50 scientific and technical publications.

Terry Neild - Director

Mr. Neild is a Registered Industrial Accountant with several years of management accounting experience with such companies as MacMillan Bloedel and Northwood Mills. He also has obtained his real estate license, has been a self-employed real estate developer and has held senior management positions with real estate sales and development companies including Crest Realty and North American Contractors. From 1984 - 1986 he was President of BDC Industries Ltd., involved in the exploration and development of mineral, oil and gas properties, and real estate development. Since 1986, he has been the Chairman and Chief Executive Officer of The Jolt Beverage Company Ltd., a public company listed on the Vancouver Stock Exchange.

3.3 Evaluation of Management

Based upon discussions with management and review of respective resumes, it is the Consultants opinion that adequate management resources have been assembled to oversee the implementation of the proposed project and give it a reasonable chance of success. The involvement of Dr. Poling on the board of directors and in supervising project progress is viewed by the consultants as a key project strength.

Management will however require the support of selected laboratories and consulting engineers to implement the defined project. Management is cognizant of its additional resource requirements and has had extensive discussions with

4.0 DEFINITION OF PROJECT

4.1 Background

Because of its chemical inertness and specific gravity, gold frequently can be separated relatively easily through gravity concentration processes.[4] This is the case in most all placer mining operations through such processes as sluicing and jigging.[5] However, gold often exists in very low concentrations in an ore, or it is physically or chemically locked into the ore such that it can not be readily liberated. These circumstances render gold extraction from certain ore deposits or portions thereof difficult and often uneconomic.[6]

In placer mining, the processing of ore into high grade concentrates through gravity concentration commonly produces as byproducts certain lower grade products which can not be economically treated or marketed. While there are a number of proven technologies for the extraction of some lower grade, fine, and complex gold ores, these technologies often require plants of such size and/or capital cost as to render the development of many gold deposits not economically viable. [7]

One of the most common technologies for the recovery of fine gold from low grade ores is cyanide leaching. Widely recognized disadvantages of cyanide leaching are as follows:

1. Space Requirements
   The process is sequential, treating the ore in a series of steps using heaps or large vats for leaching, ponds for barren and pregnant solutions, carbon column circuits for absorption, electrolysis for stripping the gold, and smelting. The need for numerous process

stages often generates substantial space requirements for plant and equipment.

2. Capital Costs

Costs of cyanide leach facilities can be significant. Plant installations are generally dedicated, in that they are not considered mobile. Accordingly, an adequate proven reserve must be present to justify the capital investment in plant and equipment.

3. Environmental Concerns

Cyanide contaminated tailings and effluent are serious concerns to environmental safety. Environmental implications of a cyanide plant must be fully addressed before it would be possible to obtain a government permit for plant operation.[8]

ECOS has conceived of a process based upon cyanide leaching which is suited to recovery of gold from lower grade gold ores which may or may not exist in large volumes and the secondary recovery of fine gold from placer deposits. It combines some of the steps required for gold cyanidation into one component, reducing space and capital requirements. With its compact size, the Company hopes to skid mount the system, thereby making it possible to exploit deposits which were previously considered too small or low grade to warrant investment in a conventional dedicated plant. The ECOS product technology is untested and unproven but it constitutes a combination of specific recovery processes each of which is established and used widely in the industry.

The ECOS process will not be applicable to all low grade gold deposits. Certain placer deposits or byproducts may not have sufficient gold value to warrant processing, and

certain ores have characteristics which make carbon-in-leach processing (like the ECOS technology) inapplicable. Carbon-in-leach systems are best suited to rapid leaching ores.

The engineers that have reviewed the process concept believe that it has potential applicability to certain of both placer and hard rock ores. The suitability of the system will have to be determined on a site by site basis. The parameters of the system will be better known after construction and operation of the pilot plant.

4.2 Proposed Product

The key component of the ECOS technology is a rotating drum in which cyanide leaching and adsorption of gold onto activated carbon are performed simultaneously. While the technology employs two proven gold recovery processes-cyanide leaching and activated carbon adsorption - the ECOS concept is believed to be proprietary. All other unit processes in the proposed system are also standard mineral processing techniques.

The ore, after appropriate preparation (crushing, grinding) depending upon its nature, would be fed into the treatment drum with a dilute solution of sodium or potassium cyanide producing a slurry. The drum would be fitted with lifters on the shell so that as the drum rotates the mixture would be subjected to gentle agitation. The slurry would be discharged from the drum by buckets which would replace the lifters in the last 0.6 meters of the drum. Changing the feedrate through the drum to suit different ores would be facilitated by adjusting the slope of the drum and / or the rotating speed.

The drum would be fitted with a series of baskets attached to the shell. The baskets made of a heavy wire screen would protect inner canisters made of finer mesh screen which contain activated carbon. Outer hatches in the shell would allow for removal and replacement of the activated carbon canisters.

Lime would be added to the treatment drum to ensure leaching proceeds in an alkaline environment, and air would be injected into the slurry through sparger pipes extending along the shell wall.

The gold would dissolve in the cyanide solution, and when the pregnant cyanide solution contacted the activated carbon the gold would be adsorbed onto the carbon. After a predetermined time the canisters containing the carbon would be removed and replaced by another set of canisters.

The gold would be stripped from the carbon using a caustic soda wash, and the carbon would be regenerated in a furnace. Gold would be removed from solution by electrowinning. When the steel wool cathodes were loaded with gold they would be removed, heated in a furnace and the gold poured off as bullion. The processes of carbon stripping with caustic soda, carbon regeneration, and gold electrowinning are all commercially proven and used worldwide.

The barren solution and solid tailings would discharge from the treatment drum to a vacuum drum filter for dewatering. The filtrate containing most of the cyanide would be recirculated to the ECOS drum. A bleed stream would be required to prevent build up of contaminants and to balance the wash water addition.

The filter "cake" would be deposited in a tailings disposal area. Depending upon the consistency of the "cake" some cyanide may be carried with the cake. A small cyanide destruction unit may be required or natural degradation of the cyanide in a lined pond may be adequate to satisfy environmental requirements.

The product technology is fully described and diagrammed in the Company's patent application, and in the Proton Engineering report, Appendix A. The above discussion has been paraphrased from these sources.

4.3 Competitive Alternatives

The objective of the ECOS technology was to develop a movable, low cost alternative to vat leaching and heap leaching while avoiding the environmental concerns associated with heap leaching.

Heap Leaching

The treatment of low grade gold ores has become increasingly viable by the use of heap leaching technology.[9] In a typical heap leaching operation, ore is crushed and deposited in large quantities in a heap on an impermeable foundation. The heap is sprayed with cyanide solution from a barren solution pond. The sprayed cyanide solution percolates through the heaped ore, becoming "pregnant" with precious metals. It then drains from the heap into lined ditches which channel the draining solution to a pregnant solution pond. The solution is then processed through a Merrill-Crowe or carbon adsorption process plant (carbon in pulp) for metal recovery. [10]

Heap leaching offers a number of advantages over vat leaching operations. Capital investment for a heap leaching operation is lower, lead time to production is shorter and operating costs are lower. These advantages are offset to some extent however by the following factors: lower gold recoveries and longer leach times due often to channelling of the cyanide solution through the heap; the possibility of seasonal operation in cold climates because of decreased gold solubility at low temperatures;[11] and greater environmental concerns based on the possibility of cyanide leakage from the system and the potential generation of toxic hydrogen cyanide gas. The use of heap leaching for ore extraction is currently before the courts in the state of California due to environmental safety concerns.[12]

The use of agglomeration techniques to reduce channelling, increase gold recoveries, and decrease leach times is being researched, as is the use of air and oxygen injection into the heap to improve recoveries.[13] Also, the use of solution heating techniques is being researched to solve the problems associated with the failure of heap leaching in cold environments.[14] However, environmental safety concerns and correspondingly, the difficulty in obtaining operations permits is a significant disadvantage of the technology which has limited its application in the industry.

Vat Leaching

There have been a number of innovations in vat leaching technology which have resulted in the development of potentially competitive processes to the proposed ECOS process.

1. In 1982, Kamyr Inc. initiated a project [15] to develop an improved technology for the recovery of gold and silver. The process involves the simultaneous leaching and solid-liquid separation in a tower with continuous downflow of ore and upflow of solution. The ore is stabilized by the addition of fiber and flocculant. Testing has indicated comparable metal recoveries to conventional agitation leaching while allowing the entire leaching and solid-liquid separation step to be carried out in one tower as opposed to numerous tanks.

   As compared to heap leaching, the Kamyr process permits higher metal recovery, allows treatment of ore of finer sizes, is better suited to rugged terrain, and permits year-round operation in cold climates. As compared to the proposed ECOS system, the Kamyr process requires more ore preparation as ore must be of a uniform fine grind for the mechanics of the Kamyr system to effectively work. The need for special grinding circuits would likely render the Kamyr process more expensive in most applications. It would appear that the Kamyr process could be applied at similar scales as planned by ECOS. A 5 meter diameter by 30 meter high Kamyr demonstration plant was constructed recently with a theoretical throughput of 200 tons per day. Proton Systems calculated that an ECOS plant with a 3.65 meter diameter and 9.15 meter length would have a theoretical throughput of 110 tons per day.

   It must be noted that the Kamyr process also requires a separate system, either carbon adsorption or zinc precipitation, for metal recovery. Therefore, the entire recovery system would be less compact at a given scale. Testing of the addition of oxygen to the Kamyr

process has indicated that the potential throughput of the system can be increased by approximately 5 times, or tower size can be proportionally reduced while maintaining the same throughput. It is possible that the application of oxygen could have a similar effect with the proposed ECOS system.

2. Carbon-in-leach (CIL) systems are based upon established technology that combines the carbon adsorption and leaching steps in the gold recovery process. Engineers in the industry have observed that these systems are relatively new and not yet widely utilized. While providing for more compact process systems, the CIL plants described in the industry literature reviewed by the consultants still were made up of a series of tanks and were likely not portable. The ECOS concept is differentiated from such CIL plants by its compact, portable scale, and its theoretical closed loop design. Engineers interviewed have observed that CIL systems typically do no recycle cyanide solution in a closed loop design.

   Laboratory work at Hazen Research Inc. [16] led to the development of a new process for cyanidation of gold ores in 1985. The process, named Carbon-in-Leach with Oxygen (CILO) combines the cyanide leaching and carbon adsorption stages simultaneously in an oxygen-saturated slurry. Because the oxygen can increase the leach rate by up to 5 times, the two processes in a plant can now be performed in a much more compact series of tanks than would be required in a typical Carbon-in-Leach (CIL) circuit (without the injection of oxygen).

   The key expected advantages of the CIL and CILO plants versus a typical cyanidation / carbon adsorption

(carbon-in-pulp) vat leach plant are elimination of the entire separate leach system, and for CILO plants, lower cyanide consumption due to lower treatment time. The key disadvantages of the CILO plants are increased complexity and cost, and the requirement of a source of oxygen. As has been mentioned, there would also appear to be limitations on the applicability of CIL plants to certain more rapid leaching ores.

3. The toxicity of cyanide and the associated environmental problems have prompted many attempts to search for alternative non-toxic gold lixiviants. Thiourea has been known for some time to give faster gold dissolution kinetics but the high cost of thiourea and high consumption rates have prevented wide spread use to date. Among numerous potential advantages of thiourea usage, the faster reaction kinetics makes it possible to use shorter leach times, and correspondingly design a more compact plant. [17] However, while being applied for its apparent safety, the application of thiourea could also pose certain environmental problems which are not yet widely recognized.

A local development company, Thitec Recovery Systems Limited, is currently in the process of developing a portable thiourea leaching plant to serve the British Columbia placer industry. As such, this company would directly compete with ECOS, if ECOS were to develop a commercially viable technology and commence marketing to the placer industry. The application of thiourea in a cost effective system is subject to considerable technical risk. While technical risk also exists with the ECOS system, the basic recovery processes to be employed are all proven and widely used. This is not

the case with thiourea.

It should be noted that the ECOS technology only represents an alternative leaching/carbon adsorption process to competition and all other components of the gold recovery system are conventional. Therefore, potential cost savings can only be realized in this one area. The downstream processes of carbon stripping and regeneration etc. are also expensive and no technological advantages can be offered in these areas. However, by offering a complete gold recovery system to the mining industry, ECOS can save its customers the investment of resources and time in establishing the recovery system. The concept of using a fixed central site for subsequent gold recovery from the carbon and reactivation of carbon from remote leaching operations has been proposed and considered as a further means of reducing the Company's processing costs.

4.4 Project Description and Schedule

The Company plans to retain Coastech Research Inc. to perform the project engineering work related to the pilot scale evaluation of the ECOS gold recovery system. An implementation schedule for the project has been prepared for ECOS by Coastech Research Inc. and is presented on the following page. The schedule forms part of a formal project proposal which has been put forward by Coastech to ECOS, presented in full in Appendix B.

ECOS RESOURCES LTD.

Implementation Schedule

D Done *** Task - Slack time (**----), or
C Critical +++ Started task Resource delay (---**)
R Resource conflict M Milestone > Conflict
p Partial dependency
Scale: Each character equals 1 day

While the Coastech schedule projects the start date for the program at January 3, 1989, the actual date of commencement of the five month program will depend upon the ability of the Company to secure adequate funding. The Company has indicated that with funding in place it would plan to start the program immediately. This is discussed further in Section 7 of the report.

As defined in the schedule, the proposed Coastech program is comprised of two phases:

Phase 1 - Laboratory scoping tests
Phase 2 - Pilot scale evaluation

The following descriptions of the two phases of the program have been excerpted from the Coastech proposal.

Phase 1

The laboratory phase is necessary to provide process scoping to detail the pilot phase objectives and scope of work. The actual scope of pilot testing is therefore subject to minor modification pending the results of laboratory scoping testwork. Laboratory scoping would allow definition of both chemical and mechanical variables for testing and evaluation during piloting. A brief report, including pilot design details, would be included in Phase 1 for review prior to commencing Phase 2.

Phase 2

Phase 2 is a pilot scale test program to provide more meaningful operating data and engineering design criteria for proper evaluation of the gold recovery drum.

The pilot testing would be conducted in North Vancouver at Coastech's pilot facility in the interest of utilizing a common infrastructure for pilot testing and laboratory support. The scale selected by Coastech for the pilot test is 1 ton per day based on a 24 hour per day operation. This scale is selected to provide reasonable mechanical scaleup data for correlation with laboratory data. The critical operating units of the gold drum are common to many processing industries and do not require large scale piloting for confident evaluation and scaleup criteria, in the opinion of Coastech. The essence of the pilot test is to prove the concept of the gold drum for gold recovery and to define the critical variables of operation and control. Coastech plans to test the gold recovery system on at least two different types of ore which it stored on site at its facility in North Vancouver.

A final pilot report will be prepared by Coastech to provide a complete summary of the test data derived including interpretation of the data for application to commercial scaleup of the unit. The engineering report will present the important operating parameter scaleup criteria, correlated with laboratory data for future testing purposes. A description of the process control strategy for commercial operation will be included. A brief analysis of the feasibility of the process will also be included.

If the pilot program is successfully completed, and the ECOS concept proves valid from both technical and economic standpoints, the Company would then be in a position to take the pilot plant from the laboratory to the field to evaluate mineral properties and demonstrate the recovery technology first hand to the mining industry. The Company would own a fully functional one ton per day demonstration plant.

5.0 EVALUATION OF PRODUCT TECHNOLOGY

5.1 Progress and Costs of Project Development to Date

The Company has completed the conceptual design of the unit, preparation of flowsheets, and definition of process requirements. Based upon financial records of management, the Company has expended $11,815 directly on the project, in the forms of engineering, consulting, and legal services. This figure does not include the time invested by management through the project's formative stages, nor contributions to office overhead which have been avoided to date.

It should be noted that no engineering or process design has been conducted to date. Engineers that have reviewed the system have identified the following as the most significant technical risks: 1) the ability to design the baskets in the treatment drum to effectively and reliably move the slurry through the drum; 2) the ability to achieve a reasonable recovery with a short enough retention time that theoretical throughputs can be achieved; and 3) the necessity to use more system bleeds than is presently contemplated could increase effluent treatment requirements, increasing costs and rendering permits more difficult to obtain.

5.2 Documentation and Testing

The project work that has been completed to date is thoroughly documented in the patent application, and the engineering report prepared by Proton. The incapacitation or loss of any key members of management would not threaten the stage of development of the project.

No testwork has been conducted to date. However, the actual processes involved are commercially proven and extensively

documented. Proton believes that some predictions can be made based upon plants using carbon-in-pulp and carbon-in-leach processes. However, testing will be required to determine the throughput of the system and its metallurgical parameters in comparison to carbon-in-pulp in general and for specific ores.

5.3 Uniqueness of Product Technology

Based upon the Consultants research and discussions with experienced gold process engineers including Proton Systems Ltd. and Coastech Research, ECOS has a proprietary product design concept. As has been discussed, the component processes making up the ECOS technology are not unique, and in fact are conventional gold recovery processes. It is the manner in which these processes have been combined that comprise the proprietary features of the system. This combination could yield the range of benefits that have been identified in this report relative to gold recovery systems utilized in the mining industry today.

No present closed system recovery technologies are being successfully applied in the commercial recovery of gold from low to medium grade placer byproducts as well as low grade hard rock applications such as open pit waste dumps. There are other closed system technologies under development such as Kamyr and Thitec that could potentially provide some of the benefits of ECOS, but, to the consultants knowledge, they have not been introduced to industry beyond the pilot project stage. Therefore, there exists the potential for the ECOS technology to service a unique market niche that has not yet found a viable solution to gold recovery.

5.4 Proprietary Protection

The Company has filed for a process patent for the ECOS treatment system in Canada through its patent attorneys, Fetherstonhaugh and Co. The application has made 13 distinct claims for exclusive property. No response to the application has been received as at the date of this report.

Patent applications in the United States and abroad are expected to be filed within the one year grace period.

5.5 Expectation of Project Completion

The Coastech Research Inc. proposal is thorough and has been costed to a high degree of precision. The firm price estimate reflects that Coastech is confident that it can implement the defined project within the time and cost constraints presented.

Management has not entered into any contracts with the Company. However, the key members of management will own performance earn-out shares and options which should provide the necessary incentive and generate reasonable commitments to this project.

A consulting contract has not yet been entered into by the Company with Coastech, do to a lack of project funding. However, discussions with the Company indicate that it plans to formalize a commitment with Coastech as soon as it is in a financial position to commence the project.

6.0 EVALUATION OF MARKETING PLAN

6.1 Target Market

The Company's primary target market in the short term will be the British Columbia placer mining industry, before looking beyond to the broader North American market place. A survey of the B.C. placer industry was conducted by the Department of Energy, Mines, and Petroleum Resources in 1986. Of 850 questionnaires, the following response was received.

Table 6.1
Known Placer Mining Operations [18]

Mining Division	Mining Region	Returns
Atlin	Atlin	21
Cariboo	Cariboo	190
Clinton Kamloops Lillooet Revelstoke Vernon	Kamloops	24
Liard	Liard	19
Greenwood Nelson Similkameen	Nelson	22
Omineca Skeena	Omineca	36
Fort Steele	Southeast	22
New Westminster Vancouver Island	Southwest	9
TOTAL		343

The level of mine development indicated by the respondents to the survey is presented hereunder:

Table 6.2
Level of Mine Development [19]

	STATUS OR SIZE							
MINING REGION	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Atlin	4.6	3.6	3.3	3.0	20.0	57.1	16.7	
Cariboo	70.4	55.5	52.7	45.6	64.0	28.6	33.3	
Kamloops	4.5	6.6	5.5	9.1	8.0	0.0	16.7	
Liard	2.3	3.6	8.8	12.1	4.0	0.0	0.0	
Nelson	4.5	10.9	4.4	3.0	4.0	14.3	0.0	
Omineca	13.7	6.6	14.3	21.2	0.0	0.0	16.7	
Southeast	0.0	9.5	7.7	3.0	0.0	0.0	16.6	
Southwest	0.0	3.7	3.3	3.0	0.0	0.0	0.0	
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	TOTAL
Provincial (%)	12.8	40.0	26.5	9.6	7.3	2.0	1.8	100.0

Legend:
(1) - Inactive
(2) - Hand operation
(3) - Testing
(4) - Less than 40 cubic m./day
(5) - 40 to 199 cubic m./day
(6) - 200 to 450 cubic m./day
(7) - Greater than 450 cubic m./day

The survey indicates that the large scale placer operations represent only a small percentage of the number of placer sites. There is presently approximately 500 registered placer sites in B.C. The 70 largest operators produce in excess of 10,000 troy ounces of gold per year.[20] Total B.C. gold revenues reached $117 million in 1986, a 50 per cent increase from the previous year.[21] This indicates that placer mining represents a relatively small percentage of total B.C. gold production. The majority of the gold mined in British Columbia is currently derived from the province's large scale open pit mining operations.

Based upon extrapolations from survey results, the provincial government has estimated that B.C. placer operations spent $27.4 million in 1986, [22] and have averaged approximately $25 million in expenditures over the period 1980 - 1986. The 1986 expenditures by the industry break down as follows:

Table 6.3
B.C. Placer Expenditures - 1986 [23]

Cost Centre	Expenditure
Labour (including consulting)	$ 7.152 million
Fuel	3.854
Supplies	2.734
Fees (free miners certificate)	0.419
Equipment	6.913
Equipment maintenance	2.705
Professional services (consulting)	1.805
Other	1.804
TOTAL	$27.386 million

Further detail on the nature of equipment expenditures by the industry was assembled by the province in 1985. Total equipment expenditures in 1985 of $6.54 million broke down as follows:

Table 6.4
B.C. Placer Equipment Expenditures - 1985 [24]

Equipment Type	Per Cent
Vibrating screens	23.9 %
Trommels	22.2
Mechanical feeders	12.0
Vibrating grizzlies	11.4
Proprietary gold separating devices	10.2
Misc. classifiers	7.2
Drum and centrifugal separators	4.2
Misc.	4.1
Jigs	3.0
Spirals	1.8
TOTAL	100.0 %

New rules governing placer mining in B.C. took effect August 15, 1988 with the proclamation of the Mineral Tenure Act which consolidates the Mineral Act and the Mining (Placer) Act. The new act simplifies placer claims and streamlines the earlier process for gaining placer rights. It has also opened up 20 per cent of the provinces land for staking from the previous 5 per cent. [25] These changes should have the effect of expanding the placer mining industry in B.C. in future years and should therefore generate growth in the target market of the Company.

It should be noted that not all placer gold ores are cyanide leachable. Therefore, the market potential for the ECOS technology does not include each and every placer operation in B.C. and beyond. The suitability of the process will have to be determined on a site by site basis depending upon the specific characteristics of each ore.

6.2 Competition

The direct competition to ECOS that has been identified is Thitec Recovery Systems Ltd., a Vancouver Stock Exchange listed company currently developing a thiourea based gold recovery system to service the B.C. placer industry. Thitec is still in the development stages however and it has not commenced marketing its service to the industry.

There is a significant amount of research ongoing in the area of gold recovery technology. Aside from Thitec, the Company views heap leaching and the Kamyr process as the closest competitive recovery technologies, and there is considerable research proceeding in process enhancement with both of these technologies. Therefore there is a reasonable possibility of significant competitive developments or new

competition to ECOS that would impact upon its prospects in the future. The Company has filed a patent application, which if successful would protect its concept and deter to some degree competition from marketing a similar product. (however at this time it is uncertain what scope of patent protection will be obtained). Also, if the development program is successful ECOS could have the advantage of being the first or one of the first to enter the market. This could also deter direct competition to some extent.

6.3 Market Acceptance

As the ECOS technology is still in its developmental stages, there has been no acceptance by the market place to date. However, it is clear that there is an unserved market in that most active placer mines in B.C. and beyond are producing low grade products that can not at this time be economically processed.

Preliminary discussions between the Company and local resource companies with placer gold properties under development has generated interest in the proposed ECOS plant. One such company has invited ECOS to submit a proposal for the utilization of ECOS's services and technology.

Based upon the above points, the Consultants believe that there is a good potential for market acceptance of the ECOS system if the Company can develop a viable product.

6.4 Proposed Marketing Strategy

The first goal of the Company's marketing strategy is to demonstrate the technology to the placer industry through the operation of its pilot plant at the Coastech facility.

The pilot plant will provide the technical and cost data necessary to fully assess the technology. Market acceptance will likely not be generated however until the ECOS pilot plant can demonstrate the benefits of the system in real applications in the field. The focus of initial marketing efforts would therefore be to find situations where the plant can be tested on site.

The Company plans to market the ECOS system to the mining industry by offering a recovery service, or possibly by licensing the technology. In offering a recovery service, it would generate revenues through consulting fees, and direct participation joint ventures with placer operators wherein it would take a percentage of gold or cash flow from operations.

The Company does not believe that there will be any restrictions to the marketing of the recovery service in B.C. As the conceived ECOS technology is in theory a closed loop system with no discharge into the environment (this will ultimately depend upon the characteristics of the ore), it is not believed that governmental regulation will be a significant factor. However, it will be necessary to obtain permits to operate the plant, likely on a site by site basis. The difficulties and delays in obtaining these permits are uncertain.

6.5 Assessment of Marketing Plan

The marketing plan of the Company has not been developed to a great degree of detail, consistent with the stage of development of the Company. The Company has indicated that further resources will be applied to marketing at such time as a commercially viable technology is developed.

At this time, the Company has identified a market opportunity and has developed an approach to penetrate the market. It is the Consultants' opinion that the planned approach is reasonable.

7.0 EVALUATION OF FINANCIAL PLAN

7.1 Cash Budget

The Company has prepared a budget of its anticipated expenditures in order to implement the project defined in the technical report and cover its administrative overheads for the next year. It is presented following:

Liabilities and Financing Costs	$ 90,000
Research and Development Program	120,337
Technical Supervision	10,000
Management Fees	36,000
Corporate Overhead	24,000
	$280,337

The liabilities and financing costs represent the Company's best estimate of the liabilities that will accrue up to the time of the proposed public offering, and the direct costs associated with the public offering which would include legal, audit, and printing costs.

The research and development budget is based directly upon the firm quote obtained from Coastech for the pilot scale evaluation of the ECOS technology. The supporting assumptions and schedules to this budget are presented in the Coastech proposal in Appendix B.

The budget for technical supervision relates to the costs of retaining Dr. George Poling, a director of the Company, to supervise the research program over its five month duration. Dr. Poling has agreed to perform this function for the Company for a fee of $2,000 per month for the five month duration, totalling $10,000.

The management fees relate to payment of salaries of $1,500 per month to the President, Mr. Tas Morfopoulos and the Vice

President, Mr. Aris Morfopoulos. At a total of $3,000 per month the budget is adequate to support management's salaries for one year.

Corporate overhead relates to the general ongoing costs of administering the company. These costs include contributions to rent, office supplies, telephone costs, rental of office equipment and furniture, professional fees, postage and courier charges and other miscellaneous corporate operating costs. The Company has allocated a total of $2,000 per month for corporate overhead and has budgeted to provide for one year of overhead. The Company anticipates that it will have very few head office requirements over the course of the research and development program. Accordingly, it proposes to share office accomodations and expects only nominal costs associated with operation of its head office.

The Consultants have reviewed the underlying assumptions to the budget with management as have been summarized above. Based upon these discussions it is our opinion that the underlying assumptions to the budget are for the most part reasonable.

With the timing of the proposed financing uncertain, it is difficult for the Company to precisely estimate its liabilities and direct financing costs to be paid out of funds raised. However, the funds allocated in this regard would appear to be adequate, contemplating a financing in the next few months.

The key planned expenditure of the Company is towards research and development of its gold recovery system. The Company's budget is based upon a firm quote, which would imply that there should be no deviation from this budget unless the scope of work changes during the course of the

program. This is always possible if unforeseen difficulties arise. It would likely be appropriate that the Company have some unallocated working capital reserve on hand in this event.

The Consultants suspect that the Company may have difficulty maintaining its administrative overheads at or below the $2,000 per month budgeted, and accordingly overheads may require further contributions from working capital.

Based upon the current stage of development of the project it is likely that there will be deviations from the budget as the project proceeds. These deviations may be material, and may affect the financial position of the Company in either a positive or negative way.

7.2 Adequacy of Proposed Funding

Discussions with the Company have indicated that the Company intends to raise net funds of approximately $360,000 to allocate to the project defined in this report. It proposes to raise these funds through a combination of a secondary public offering, a private placement, and the exercise of certain options. No firm details with respect to the Company's financing plan have been supplied to the Consultants.

The Consultant's believe that $360,000 should constitute adequate funding for the project based upon the budgets put forward by management and its engineering consultants and based upon the potential requirements for unallocated working capital to complete the project.

As has been discussed, the Consultants believe that there may be significant variations from the current budget as the

project progresses, due to its very early stage of development and it is likely that adjustments to the budget will be made by management over time. However, based upon our assessment at this time, if capital is raised as planned, the project should be adequately funded.

8.0 CONCLUSIONS

8.1 Key Strengths of the Project

The Consultants have identified the following strengths of the project through their analysis and research:

1. The location and number of placer operations in B.C. are readily identifiable and quantifiable, and it would appear that the placer mining industry has a need for a cost-efficient, environmentally safe process for the recovery of gold from medium to low grade ores (middlings). Furthermore, based upon recent changes in B.C. government legislation with respect to the placer industry, this market has a good probability of expanding in the near future. In light of the above analysis, while the potential dollar value corresponding to the exploitation of the ECOS technology is difficult to quantify, there exists a clearly definable target market for the technology with good growth prospects.

2. The management team of the Company and its consulting engineers have considerable experience and expertise that is relevant to the implementation of this project. The management and engineering team that has been assembled should be able to oversee the project adequately and give it a reasonable chance of success.

3. ECOS owns a proprietary gold recovery process concept and has filed a patent application pertaining to same. With the patent application filed, the Company has in place some degree of protection from the replication of its proprietary concept by competitors.

4. By commissioning the pilot scale evaluation of the ECOS technology at a local facility in a controlled environment, the Company is in a strong position to control its research and development costs and optimize the efficiency of its program. The Company's approach will also facilitate experimentation with a number of types of ores which its engineers have on stock at one location.

5. If the proposed research program is successfully completed, the Company would own a fully operational one ton per day pilot plant utilizing its proprietary technology. It would then be in a strong position to apply this plant in the field and demonstrate the technology first hand to the mining industry.

8.2 Key Project Risks

The Consultants have identified the following potential risk factors through their analysis and research:

1. The ECOS product technology is in its concept stages. No testwork has been performed and the metallurgical parameters of the system are essentially unknown. Consequently, it is uncertain how effectively the concept will function both at the pilot plant scale, and more importantly at the full commercial scale. It is possible that the concept will not progress to a commercially viable product, due either to technical or economic factors which may surface during its development. However, if the pilot plant program proves successful, the Company's engineers anticipate no significant problems with scaleup to full commercial operating sizes.

2. As a cyanide based recovery system there are certain safety and environmental risks associated with its development and application. While the ECOS concept constitutes in theory a closed circuit system, process modifications may be necessary for certain ore types. The probable requirement to establish a zero discharge circuit may in some applications lead to increased costs related to reagent losses, and effluent neutralization. Environmental concerns of the government bodies could cause difficulties or delays in obtaining the necessary approvals and permits to operate the plant.

3. As a research and development company, ECOS has no history of sales or earnings, and no prospects for sales or earnings for at least the duration of this project, which is to span five months. No degree of market acceptance has yet been generated.

4. While development costs in the project proposal have been estimated to a reasonable degree of detail based upon the stage of development of the product technology, there exists risk that there could be required changes to the scope of work and correspondingly cost overruns over the course of the research program. This could create a need for further working capital to realize the objectives of the project.

5. The Company has not provided any details with respect to sources of the required funds to implement the project. The funding requirements identified in this report must be met for the project to have a reasonable chance of successful implementation.

6. There does exist a direct competitor to ECOS involved in the development of a system to target the Company's primary target market, the B.C. placer industry. While this company is developing a distinctly different technology, it has approximately a six month lead time on ECOS which could be exploited if it is the first to enter the market.

7. Even if the ECOS technology is developed to a economically viable recovery system, there will be limitations to the application of the technology to the processing of certain types and grades of gold ores. This will restrict to some degree the market potential of the technology. Until testing and feasibility analysis is complete, its range of possible applications will remain uncertain.

8. While a patent application has been filed it is unknown at this time whether a patent will be granted, and if it is granted, it is uncertain what scope of patent protection will be obtained for the ECOS technology. Therefore, the degree of ability of the Company to deter possible future competition from marketing a similar product and service is at this time unknown.

9. Due to the early stage of development of the ECOS technology, there exists limited product information through which to assess or substantiate certain key potential advantages of the technology in the areas of lower capital and operating costs that have been identified by management relative to closest competition. Therefore, should the ECOS technology be successfully developed through the pilot project stage, it is uncertain what cost advantages, if any, it will possess over closest competitive gold recovery systems.

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APPENDICES

APPENDIX A
PROTON SYSTEMS LTD.
INDEPENDENT ENGINEERING REPORT

PROTON SYSTEMS LTD.
3rd Floor, Marine Building, 355 Burrard Street,
Vancouver, B.C. Canada V6C 2G8
Telephone: (604) 669-2606 FAX: (604) 669-6188

September 1st, 1988

File No.: 1094-00

Ecos Resources Ltd.
1840 - 701 West Georgia St.
Vancouver, B.C.

Attention: Mr. Tas Morfopoulos

Dear Sir:

RE: PROPRIETARY GOLD RECOVERY DRUM

1.0 Introduction

Proton Systems Ltd. (Proton) was retained by Mr. Tas Morfopoulos on behalf of Pacific Ridge Resources Corp. and Ecos Corporation (Ecos) to evaluate a new concept for recovery of gold.

Proton has conducted no engineering nor process design on the drum. The following comments are limited to a review of the concepts only. This letter is not intended for general circulation or publication, nor is it, nor any excerpt from it to be produced or used without our written permission in each specific instance. We do not assume any responsibility or liability for losses incurred by the Company, its shareholders or by other parties as a result of the circulation, publication, reproduction or use of this report contrary to the provisions of this paragraph.

We reserve the right, but will be under no obligation, to review all calculations included or referred to in this report and, if we consider it

in the range 1" to 3/8". The equipment would consist of a jaw crusher to reduce the rock to a size of minus 3" -4". A secondary crusher would reduce the jaw crusher product to the required size. Cone crushers are generally used as secondary crushers due to their high capacity and relatively low maintenance costs. Roll crushers, however, offer lower capital costs and lighter weight; features which would be beneficial in a small portable crushing plant.

Generation of fines during crushing should not present a problem in the Ecos treatment drum whereas in heap leaching operations the fines reduce the overall permeability of the heap and can cause excessive channelling. Thus for most operations, a screen and belt conveyors required to make a closed crushing loop probably would not be needed.

Some ores require a finer feed than that achieved with a crusher in order to expose the gold particles. With present technology these ores would be treated by vat leaching. In order to produce suitable feed for the Ecos treatment drum (or vat leaching) a small closed circuit grinding mill would be incorporated into the circuit.

Jaw crusher sizing in low tonnage crushing plants is determined by the feed opening size being sufficient to accept coarse rocks. The throughput is normally several times greater than required. A hopper would provide surge capacity between the crushing circuit and the Ecos treatment drum. (If a grinding mill were used as the final stage of feed preparation the hopper would be installed in the circuit ahead of the mill.)

The capacity of the feed hopper should depend on throughputs in the Ecos treatment drum and shift operating considerations but would typically be 1-2 days storage.

2.3 Gold Extraction

The following section describes the concept of the Ecos treatment drum as outlined by Ecos Corporation. No engineering or process design on the drum has been conducted by Proton.

The treatment drum is the key to the Ecos process. It is inside the drum that the gold dissolves in the cyanide solution and is then adsorbed on activated charcoal.

The principal features of the treatment drum are shown on drawing SK-1094-02.

The gold ore would be fed into the drum with a dilute solution of sodium or potassium cyanide, producing a slurry containing 40 - 50% solids by weight. The mixture would be fed through one end plate using a feed chute which would extend above the drum. The feedrate would be adjusted to maintain a full drum. The drum would be fitted with internal lifters on the shell so that as the drum slowly rotated the mixture would be subjected to gentle agitation. In the last 0.6 metres of shell length the lifters would be replaced by a ring of buckets. The slurry carried to the top of the drum by the buckets would spill into the discharge chute fitted in the other end plate.

The drum would be fitted with a series of baskets attached to the shell. The baskets made of punched plate or heavy wire screen would protect inner canisters made of finer mesh screen containing activated charcoal. Hatches in the shell would allow removal of the activated charcoal canisters.

The canisters would be held in place mechanically so that they remained in the centre of the revolving drum when the drum was operating. The drum would be supported on rollers which are located on a steel frame. When in operation, the drum would be installed at a slight angle. While the drive for the drum could be either through a ring gear and pinion or a drive chain, the greater flexibility in positioning the drive motor relative to the drum inherent in a chain drive, could be an advantage in a portable plant.

Changing the feedrate through the drum to suit different ores would be by means of varying the slope of the drum and/or the speed of the drum. Testwork would be required to determine the optimum combination of these variables.

The gold would dissolve in the cyanide solution. When the pregnant cyanide solution contacted the activated carbon the gold would be adsorbed onto the carbon. After a predetermined time the feed would be turned off and the canisters containing the carbon removed and replaced by another set of canisters. The optimum period between changes would be determined by testing but typically the time would be every 10 days or so.

Cyanide solution would be recovered in a later stage of the process. The solution would be recycled to the feed chute of the drum where it would provide the bulk of the cyanide required for leaching. Due to the formation of chemical cyanide complexes and cyanates a small "bleed" stream would be required. The same volume of fresh water and cyanide would be added to the drum feed chute.

Lime would be added to the drum to ensure leaching proceeded in a condition of high alkalinity. The other key reagent for the process would be air. Air would be injected into the slurry through three sparger pipes which would extend along the shell wall. A rotary valve located outside the end wall would ensure air did not pass into any sparger pipe which was above the level of the slurry surface.

2.4 Gold Recovery

The carbon loaded with gold would be removed from the drum at regular intervals. The optimum time period would depend on a number of factors including ore grade and cyanide solution strength. The presence of contaminants in a particular ore could also have a significant effect on the optimum time interval between carbon changes. Testwork would be required to determine the actual time period.

The gold would be stripped from the carbon using a caustic soda wash.

In most plants using activated carbon the gold loaded carbon is removed intermittently. A similar semi-continuous system is used during the carbon stripping process. Carbon from the Ecos treatment drum would be removed at intervals of several days. Stripping of carbon probably would be a purely batch process by placing the canisters complete with the carbon into a gently agitated bath of caustic soda. Stage feeding into a standard semi-continuous circuit could be provided if preferred.

In the stripping process, sodium ions from the caustic soda are preferentially adsorbed onto the carbon and the gold is redissolved into the solution. The carbon would be physically removed from the caustic bath and heated to 600^{o}C in a furnace. The regenerated carbon would be recycled back to the treatment drum at the next carbon change-out.

cyanide within a small lined pond would often be sufficient to satisfy environmental requirements.

3.0 Process Service Requirements

3.1 Water Supply

The water requirements for the process would be minimal. The consistency of the slurry in the Ecos treatment drum should be as thick as possible compatible with good leaching extractions. Recycled barren cyanide solution would be the main slurrying liquid. In order to maintain an overall plant water balance the volume of water added must equal the volume of liquid removed from the process, which in this case would be essentially the liquid trapped in the filter cake and the barren "bleed". Water would be added to the gland seals of any pumps, with the make-up cyanide solution, and as wash water on the filter.

Typically the expected water requirement for a 100 ton per day plant would be $2m^3/hr.$ (10 USGM).

3.2 Power Supply

The power required for a 110 ton per day plant has been estimated at 255 kW of which the Ecos treatment drum would draw 60 kW. A diesel generator with a continuous running rate of 500 kW would suffice.

3.3 Reagents

The consumption of sodium (or potassium) cyanide would be dependent on the ore being treated. A level of 0.5 - 1.0 kg of cyanide per ton of ore would be typical but the presence in the ore of other cyanogens could raise the level five fold.

Cyanide solution would be prepared on site using cyanide pellets delivered in steel drums.

The quantity of lime for pH control in the leach circuit would also vary with different ore types. Though a typical addition rate would be 1-2 kg of lime per ton of ore the potential variation for different ores may be greater than for cyanide

In most large plants the lime is added as milk of lime. In a small size portable plant the addition of hydrated lime directly onto the conveyor belt feeding

the drum would be practical and would eliminate the need for a slaker and milk of lime storage tank. The agitation inside the treatment drum would provide all the mixing necessary.

Sodium hydroxide would be supplied as dry pellets in steel drums, mixed with water on-site and fed to the carbon stripping circuit as a solution. Typical addition rates would be 5 - 10 kg per ton of carbon.

The activated carbon would be recycled but some carbon loss is inevitable, largely due to physical degradation. Typical make-up rates for carbon would be 0.1-0.2 kg of carbon per ton of ore on a continuous plant. Careful design of the baskets and cannisters will be required during detail engineering of the Ecos treatment drum to ensure carbon degradation will be minimal. Proton have not conducted any design engineering but anticipate the carbon losses should be of the same order as achieved in a continuous plant. A further factor would be the care with which the operators physically handled the canisters.

If a cyanide destruction circuit were required some combination of sodium metabisulphide and copper sulphate or hydrogen peroxide would be required. Minor quantities of other chemicals e.g. ethanol, may be found to improve the process for some ores. However the requirement for all these reagents would be low and so variable that typical addition rates would be meaningless.

4.0 Hypothetical Plant Capacities

4.1 General

No testwork has been conducted with the Ecos treatment drum though the actual processes involved are all commercially proven and extensively documented. Some predictions can be made based on plants using carbon-in-pulp and carbon-in-leach processes. Testing will be required to determine the metallurgical parameters of the Ecos treatment drum in comparison to these processes both in general and in the specifics for a particular ore.

The metallurgical results reported in Section 4.3 are hypothetical and based on the assumptions outlined in Section 4.2.

4.2 Assumptions

Nominal production rate	110 tonnes/day
Ore specific gravity	2.8
Leach density	50% solids
Leaching time	12 hours
Gold extraction into cyanide solution	93%
Carbon concentration	9 to 26 g/l
Carbon loading	2,000 g Au/ton carbon
Regenerated carbon loading	100 g Au/ton carbon
Carbon "density"	0.80 g/cc
Carbon bulk density	0.45 g/cc
Carbon adsorption efficiency	97%
Carbon losses	0.2 kg/ton of ore
Drum size	3650 mm ø x 9150 mm
Volume of drum	95.8 m^3
Volume of slurry in drum	92.1 m^3
Drum slope	1^o
Operating hours per day	20
Operating days per year	350
Interval between carbon changes	10 days

4.3 Hypothetical Gold Production Rates

Feed grade g/ton		1.5	3.0	4.5
Daily gold production	g	124.7	273.5	422.4
Annual gold production	kg	43.6	95.7	147.8

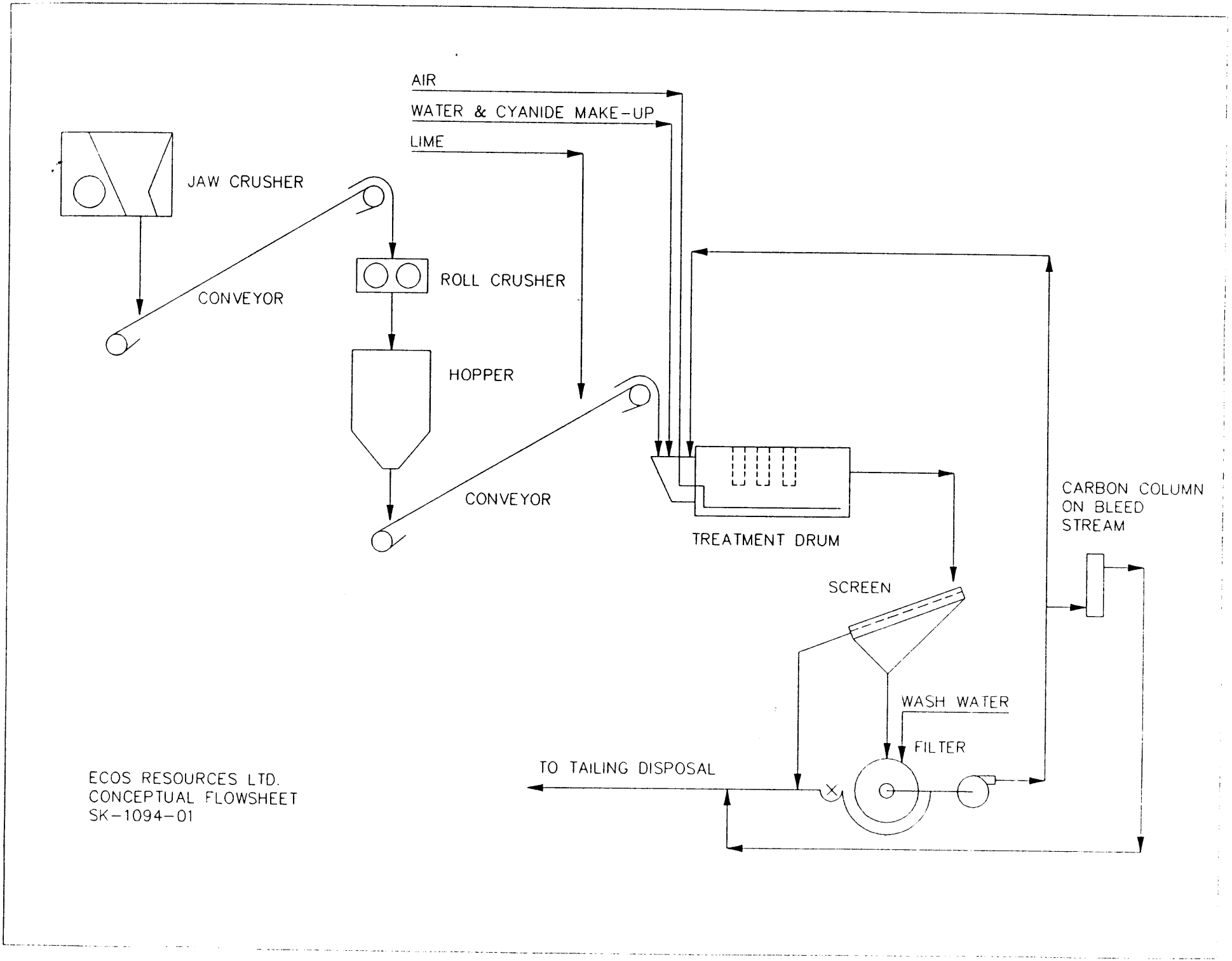
Yours truly,

PROTON SYSTEMS LTD.

R. Newbery, P. Eng.
Metallurgist

RN/jm

cc: L.P. Taggart (Proton)


AIR
WATER & CYANIDE MAKE-UP
LIME
JAW CRUSHER
CONVEYOR
ROLL CRUSHER
HOPPER
CONVEYOR
TREATMENT DRUM
CARBON COLUMN
ON BLEED
STREAM
SCREEN
WASH WATER
FILTER
TO TAILING DISPOSAL
ECOS RESOURCES LTD.
CONCEPTUAL FLOWSHEET
SK-1094-01

APPENDIX B
COASTECH RESEARCH INC.
PROJECT PROPOSAL

Proton Systems Ltd. and Coastech Research Inc., Vancouver based engineering firms, to provide engineering support for the project. While no commitments have been made, the Company has indicated its intent to accept Coastech's proposal to implement the pilot scale plant program.

It is the Consultant's opinion that Coastech has the capabilities to perform the process engineering work for ECOS. Based upon our inspection of the Coastech operation, Coastech has in place the facilities, equipment, and human resources necessary to provide the required engineering support to the project. Coastech has directly related experience in process development and pilot scale testing and has a proven track record in the implementation of similar projects to that of ECOS. A complete background on Coastech is presented in Appendix C.

PROPOSAL

Pilot Scale Evaluation
Of A Proprietary Gold Recovery Drum.

Prepared For
Ecos Resources Ltd.
1840 - 701 West Georgia Street
Vancouver, B.C.

Attention: Mr. Tas Morfopoulos

15 November 1988

PROPOSAL

Pilot Scale Evaluation Of A Proprietary Gold Recovery Drum.

Prepared by

COASTECH RESEARCH INC.
80 Niobe Street
North Vancouver, B.C. V7J 2C9

P.B. Marchant, B.Sc., M.A.Sc.
President

1.0 TERMS OF REFERENCE

Based on a meeting with Mr. T. Morfopoulos of Ecos Resources Ltd. on 08 November, 1988 and a conceptual review prepared by Proton Systems Ltd. (September, 1988), Coastech was requested to prepare a proposal to pilot test and evaluate the metallurgical performance of a proprietary gold drum as described in the Proton report.

The following proposal outlines a complete pilot test programme to provide data for proper mechanical and metallurgical performance evaluation of the Ecos gold drum mechanism and addresses variables important in scaleup and commercial application of the unit. The scale was selected based on critical operating parameters that require investigation and historical pilot scale testing of similar operating variables.

The conceptual proprietary machine proposed is a realistic alternative for heap leaching for gold extraction and will likely result in a net reduction of cyanide requirements for gold recovery.

2.0 PROJECT DESCRIPTION AND OBJECTIVES

The proposed test programme is comprised of two phases:

Phase 1 - Laboratory scoping tests.

Phase 2 - Pilot scale evaluations.

2.1 PHASE 1

The laboratory phase is necessary to provide process scoping to detail the pilot phase objectives and scope of work. The actual scope of pilot testing is therefore subject to minor modification pending the results of laboratory scoping testwork. Laboratory scoping would allow definition of both chemical and mechanical variables for testing and evaluation during piloting. A brief report, including pilot design details, is included in Phase 1 for review prior to commencing Phase 2.

2.2 Phase

Phase 2 is a pilot scale test programme to provide more meaningful operating data and engineering design criteria for proper evaluation of the gold recovery drum.

The pilot testing would be conducted in North Vancouver at Coastech's pilot facility in the interest of common infrastructure for pilot testing and laboratory support. The scale selected for the pilot test is 1 tonne per day based on 24 hour per day operation. This scale is selected to provide reasonable mechanical scaleup data for correlation with laboratory data. The critical operating units of the gold drum are common to many processing industries and do not require large scale piloting for confident evaluation and scaleup criteria. The essence of the pilot test is to prove the concept of the gold drum for gold recovery and to define the critical variables of operation and control.

2.3 CRITICAL VARIABLES

Based on the conceptual discussions to date the following critical operating variables should be addressed:

Chemical Variables

1. Residence time distribution
2. Pulp density
3. Cyanide concentration/recycle
4. Particle size
5. Flocculant addition
6. Solution balancing
7. Carbon loading, concentration, fouling
8. Aeration

Mechanical Variables

1. Drum slope
2. Pulp lifter design
3. Aeration supply
4. Charge classification control
5. Carbon containment/handling
6. Drum rotation speed
7. Length/diameter ratio
8. Materials of construction, wear, corrosion
9. Energy consumption

2.4 SAMPLE

Two sample types should be tested:

(i) Oxide ore
(ii) Oxide - sulphide ore (containing cyanicides)

Coastech maintains considerable store of bulk samples that could by employed for this test programme.

2.5 REPORT

The final pilot report will provide a complete summary of the test data derived including interpretation of the data for application to commercial scaleup of the unit. The engineering report will provide the important operating parameter scaleup criteria, correlated with laboratory data for future testing purposes. A description of a process control strategy for commercial operation will be included. A brief analysis of the process feasibility will be included.

3.0 SCHEDULE AND COST ESTIMATE

A estimate of the programme schedule and costs is included overleaf.

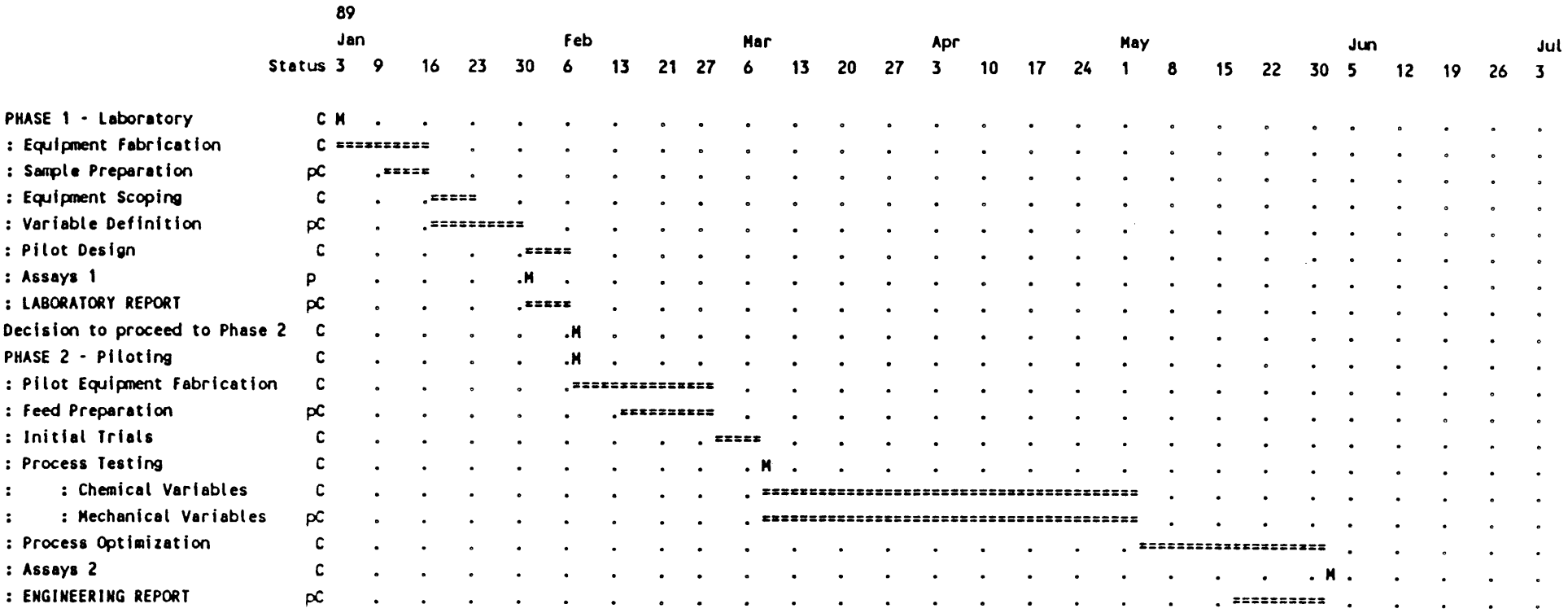
Details of equipment costs:

	$CDN
(i) Laboratory unit (stainless steel)	
Materials and supplies	1200
Labour (40h * $40/h)	1600
Engineering, management (3h * $64/h)	192
Contigency @ 15%	448
	3440
(ii) Pilot unit (mild steel, rubber lined)	
Materials and supplies	
Drum and drive	4250
Feed system	1160
Discharge	800
Power metering	3100
Electrical	1900
Labour (100h @ $40/h)	4000
Engineering, management (32h @ $64/h)	2048
Installation (48h * $46.25/h)	2220
Contingency @ 15%	2997
Total	22975

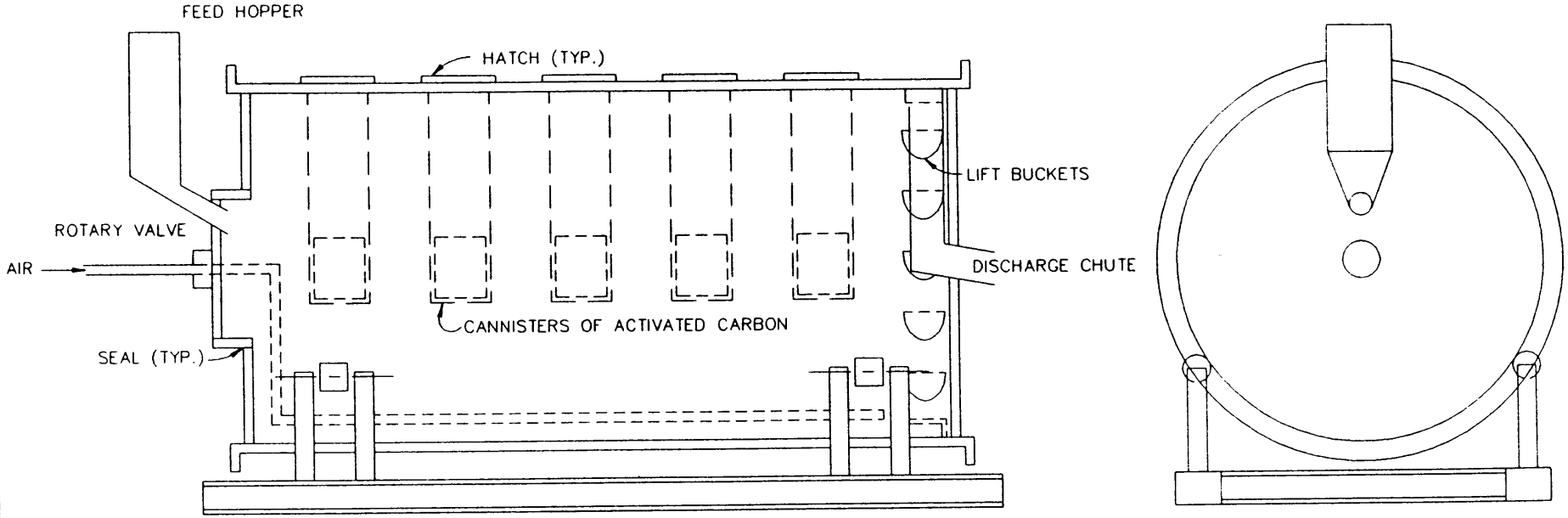
A 15% contingency has been included in all estimates of time and services purchased and is incorporated into task cost estimates.

Schedule Name: ECOS RESOURCES LTD
Project Manager: Coastech Research Inc
As of date: 18-Nov-88 11:26am Schedule File: A:\ECOS1

A laboratory and pilot scale test and evaluation programme to study the critical operating parameters and scaleup criteria for a novel gold drum.



D Done === Task - Slack time (==---), or
C Critical +++ Started task Resource delay (---==)
R Resource conflict M Milestone > Conflict
p Partial dependency
Scale: Each character equals 1 day



ECOS RESOURCES LTD.
TREATMENT DRUM
CONCEPTUAL DESIGN
SK-1094-02

Schedule Name: ECOS RESOURCES LTD
Project Manager: Coastech Research Inc
As of date: 18-Nov-88 11:26am Schedule File: A:\ECOS1

A laboratory and pilot scale test and evaluation programme to study the critical operating parameters and scaleup criteria for a novel gold drum.

Task	How Long	Early Start	Early End
PHASE 1 - Laboratory	0 days	3-Jan-89 8:00am	3-Jan-89 8:00am
: Equipment Fabrication	2 weeks	3-Jan-89 8:00am	16-Jan-89 5:00pm
: Sample Preparation	1 week	10-Jan-89 8:00am	16-Jan-89 5:00pm
: Equipment Scoping	1 week	17-Jan-89 8:00am	23-Jan-89 5:00pm
: Variable Definition	2 weeks	17-Jan-89 8:00am	30-Jan-89 5:00pm
: Pilot Design	1 week	31-Jan-89 8:00am	6-Feb-89 5:00pm
: Assays 1	0 weeks	31-Jan-89 8:00am	31-Jan-89 8:00am
: LABORATORY REPORT	1 week	31-Jan-89 8:00am	6-Feb-89 5:00pm
Decision to proceed to Phase 2	0 weeks	7-Feb-89 8:00am	7-Feb-89 8:00am
PHASE 2 - Piloting	0 weeks	7-Feb-89 8:00am	7-Feb-89 8:00am
: Pilot Equipment Fabrication	3 weeks	7-Feb-89 8:00am	28-Feb-89 5:00pm
: Feed Preparation	2 weeks	14-Feb-89 8:00am	28-Feb-89 5:00pm
: Initial Trials	1 week	1-Mar-89 8:00am	7-Mar-89 5:00pm
: Process Testing	0 weeks	8-Mar-89 8:00am	8-Mar-89 8:00am
: : Chemical Variables	8 weeks	8-Mar-89 8:00am	2-May-89 5:00pm
: : Mechanical Variables	8 weeks	8-Mar-89 8:00am	2-May-89 5:00pm
: Process Optimization	4 weeks	3-May-89 8:00am	31-May-89 5:00pm
: Assays 2	0 weeks	1-Jun-89 8:00am	1-Jun-89 8:00am
: ENGINEERING REPORT	2 weeks	17-May-89 8:00am	31-May-89 5:00pm

Schedule Name: ECOS RESOURCES LTD
Project Manager: Coastech Research Inc
As of date: 18-Nov-88 11:27am Schedule File: A:\ECOS1

A laboratory and pilot scale test and evaluation programme to study the critical operating parameters and scaleup criteria for a novel gold drum.

TASK	3-Jan-89 31-Jan-89	1-Feb-89 28-Feb-89	1-Mar-89 31-Mar-89	3-Apr-89 28-Apr-89	1-May-89 31-May-89	1-Jun-89 30-Jun-89	TOTAL
PHASE 1 - Laboratory	0	0	0	0	0	0	0
: Equipment Fabrication	3,440	0	0	0	0	0	3,440
: Sample Preparation	1,160	0	0	0	0	0	1,160
: Equipment Scoping	1,470	0	0	0	0	0	1,470
: Variable Definition	7,720	0	0	0	0	0	7,720
: Pilot Design	600	2,400	0	0	0	0	3,000
: Assays 1	2,200	0	0	0	0	0	2,200
: LABORATORY REPORT	278	1,113	0	0	0	0	1,391
Decision to proceed to Phase 2	0	0	0	0	0	0	0
PHASE 2 - Piloting	0	0	0	0	0	0	0
: Pilot Equipment Fabrication	0	22,975	0	0	0	0	22,975
: Feed Preparation	0	7,760	0	0	0	0	7,760
: Initial Trials	0	0	1,860	0	0	0	1,860
: Process Testing	0	0	0	0	0	0	0
: : Chemical Variables	0	0	9,468	10,520	1,052	0	21,040
: : Mechanical Variables	0	0	8,568	9,520	952	0	19,040
: Process Optimization	0	0	0	0	10,520	0	10,520
: Assays 2	0	0	0	0	0	9,900	9,900
: ENGINEERING REPORT	0	0	0	0	6,862	0	6,862
TOTALS	16,868	34,248	19,896	20,040	19,386	9,900	120,337

4.0 PERSONNEL

The following key personnel will be assigned to the laboratory/pilot project as required:

P.B. Marchant, M.A.Sc. (UBC) - Project Coordinator

Responsible for overall project coordination and test direction. 12 years experience in plant and pilot operation in gold extraction processing by cyanidation, and effluent treatment processes for cyanidation.

J.B. Austin, B.A.Sc. (UBC), P.Eng. - Project Engineer

Responsible for daily projects operation and data generation/interpretation. 5 years experience in various aspects of both plant and pilot mineral processing operations. Extensive experience in process pilot design and operation.

S. Hubbard - Plant Superintendent

Responsible for mechanical design, fabrication, and operation of pilot circuit. 15 years experience in various aspects of mineral processing and cyanidation operations.

APPENDIX C
COASTECH RESUME

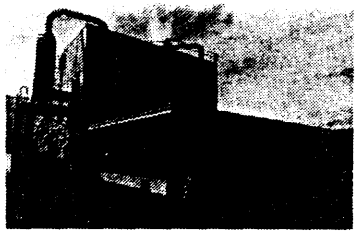
COASTECH RESEARCH INC.

80 Niobe Street
North Vancouver, B.C.
V7J 2C9
Tel. (604) 980-5992

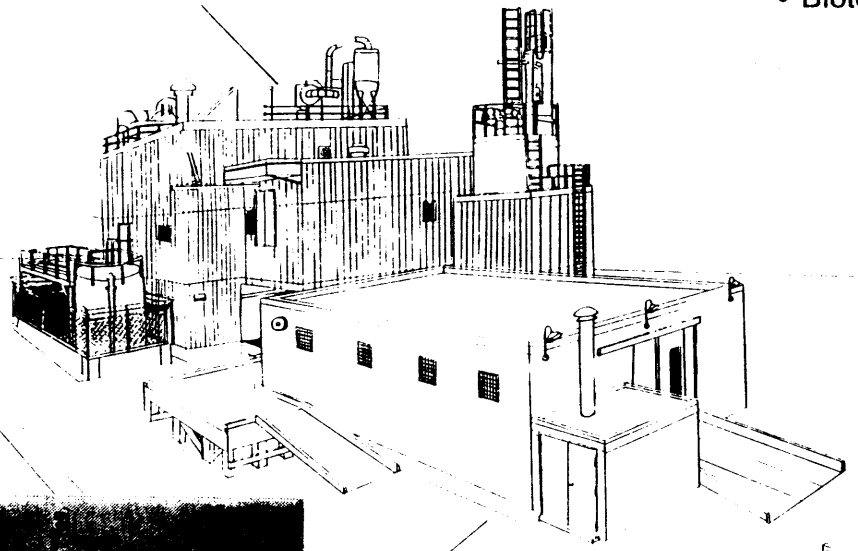
COASTECH RESEARCH INC.

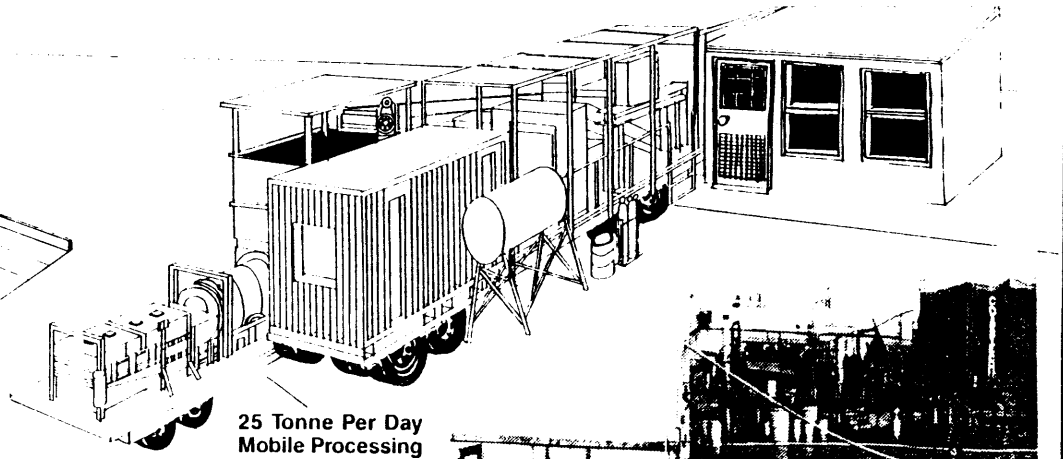
80 NIOBE STREET, NORTH VANCOUVER, B.C. CANADA V7J 2C9
TEL: (604) 980-5992 FAX: (604) 980-2737

- Process Research, Development and Piloting
- Environmental Research and Testing
- Flowsheet Research and Piloting
- Custom Milling and Processing
- Biotechnology

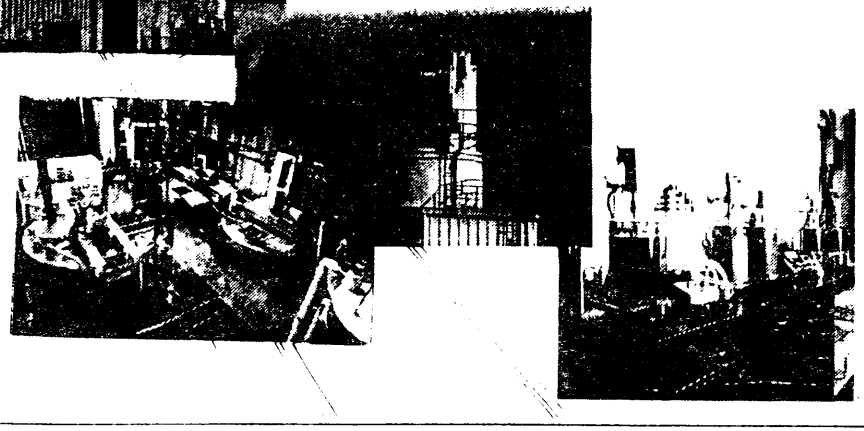


Metallurgical, Biological and Environmental Stationary Pilot Facility

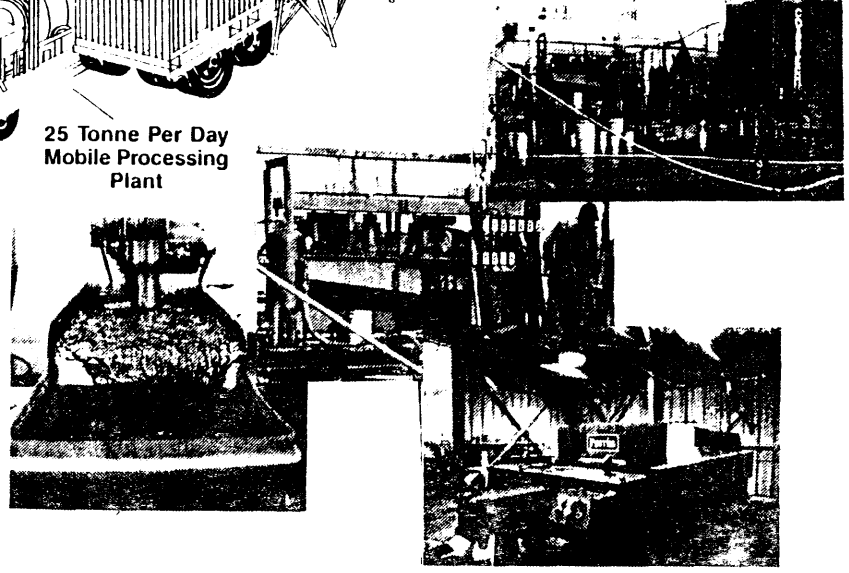




Metallurgical, Biological and Environmental Laboratory and Research Facility



25 Tonne Per Day Mobile Processing Plant



THE COMPANY

Coastech Research Inc. is a service company offering metallurgical research and testing, process development, process engineering and innovative technology development, and process piloting services to the mining industry. The company was incorporated in British Columbia, Canada in 1983 and performs work at its North Vancouver office and modern laboratory/pilot facility.

The principals and operating staff of Coastech possess extensive research, mill/mine design, startup and operating management experience which translates into highly cost effective services for our clients. Current areas of work include mineral beneficiation, extractive metallurgy, gold and silver technology, biohydrometallurgy and waste treatment. Facilities include both conventional mineral processing equipment and highly specialized hydrometallurgical research apparatus. Extensive pilot facilities are also available including mineral beneficiation, hydrometallurgical, bioleaching, and waste treatment pilot plants.

OBJECTIVES

Canada is a base for many diverse mining companies with active exploration and development programs in Canada, the United States and abroad. Only a small number of the Canadian based mining companies have their own laboratory facilities, while others are dependent on services from Eastern Canada and/or the United States. It is the intent of Coastech to provide a Western Canadian based metallurgical testing and process development alternative and to provide new technologies at a reasonable cost to the mining industry.

The operating objectives of Coastech are:

- to work closely with mining companies and their consultants to quickly and economically define the most effective processing alternatives

- to research and employ unique and innovative methods to secure technical and competitive advantage to Coastech's clients

- to maintain a low overhead through the use of state-of-the-art instrumentation, data analysis and interpretation, and CAD methods to produce highly competitive rates for mineral testing, research, design, process development, and piloting.

- to maintain access to an existing pool of senior metallurgical and mining associates with proven records in mine and mill development and operations to ensure efficient and accurate technical services.

LABORATORY/PILOT FACILITIES

The mineral testing facilities include those necessary for basic mineral processing and leaching studies: microscopy, crushing, grinding, classification, flotation, gravity, solid/liquid separation, batch and continuous hydrometallurgical reactors, leach columns, waste treatment and disposal. Support equipment includes an atomic absorption spectrophotometer for process monitoring and control; state-of-the-art laboratory instrumentation for both batch and continuous test control and optimization; desktop computers for data storage, analysis, statistical interpretation and optimization, report generation, and preliminary flow sheet preparation from pilot studies.

Specialized equipment and facilities are also available for an extensive range of biohydrometallurgical studies including biological process development and waste management/acid mine drainage investigations. Equipment and facilities include incubators for bacterial culture maintenance and small scale tests, fermenters and reactors for batch and continuous studies, microscopy, leach columns, and a full range of pilot equipment and support facilities. Highly specialized research apparatus for waste treatment studies, including cyanide destruction, sludge treatment/production, and acid mine drainage, are available with trained personnel.

Laboratory test programmes are designed to effectively meet the client's objectives by the most economical route. Both conventional and nonconventional methods are employed to provide initial metallurgical and property evaluation as well as detailed process flowsheet design. Developmental research is being conducted to solve specific metallurgical problems to improve the return on metals extraction or to provide more responsible environmental control. New processing equipment, instrumentation, and control methods are also evaluated as required to provide more economical, effective, and reliable process alternatives to maintain the competitive advantage of our clients.

LABORATORY/PILOT FACILITIES & SERVICES

Coastech has a fully equipped mineral processing laboratory/pilot facility in which a full range of testwork is conducted. Some specialized services include:

- Bulk/differential flotation, release analysis, column flotation
- Extractive leach metallurgy and process development, including continuous cyanidation, CIP, CIL studies
- Locked cycle testing and development
- Metal recovery and refining techniques
- Column leaching - copper, gold - conventional and biologically assisted
- Dump and heap leach consulting services, specifically for biologically assisted applications
- Biotechnology to enhance base metals and precious metals extraction and improve environmental management
- Byproduct treatment, including cyanide destruction/regeneration
- Acid mine drainage testing and treatment
- Special waste testing and classification
- Flowsheet design parameters and preliminary preparation
- Pilot plant design and construction
- Contract process development and equipment evaluation.

PERSONNEL

P. Brad Marchant - President. Eleven years experience in various aspects of extractive metallurgy and mineral processing. B.Sc. in Biochemistry, U.N.B., and M.A.Sc. in Mineral Processing, U.B.C. Most recently Project Metallurgist at Placer Development Limited and Equity Silver Mines, involved in various stages of metals extraction process design and operations, waste management, and development of biotechnology to enhance precious metals extraction.

Richard W. Lawrence - Vice-President, Director of Research. Twelve years experience in hydrometallugy and biohydrometallurgy. B.Sc. in Mining Engineering and Ph.D. in Extractive Metallurgy, Cardiff, U.K. Most recently Head of Extractive Metallurgy, B.C. Research, Vancouver. Responsible for all process research and development in biohydrometallurgy and environmental testing and research in mining applications.

J.B. Austin - Project Engineer. Five years experience in various aspects of mineral processing research, process development, piloting, and operations. B.A.Sc. in mineral processing, U.B.C. Previous positions included operating engineer with Highland Valley Copper Corporation, Esso Resources as a research engineer, and U.B.C. Mining Engineering Department. Responsible for process testing, piloting and flow sheet preparation.

L.M. Broughton - Project Engineer. B.Sc.Eng. Mining Engineering, Queen's University. Previous work primarily in cyanidation and precious metals recovery at Giant Yellowknife Mines and as a laboratory technician in various aspects of mining and mineral processing. Responsible for project management, process testing and environmental testing.

J. Chapman - Research Engineer. Four years experience in extractive process metallurgy research, piloting, and operations. B.Sc. (Chem. Eng.) and M.Sc. (Chem. Eng.) from University of Cape Town. Primarily concerned with bioleach process development and piloting including detailed studies of process modelling and scale-up of mixing, heat and mass transfer for a variety of bioleach systems. Responsible for biohydrometallurgical project development and research/pilot studies.

S. Basra - Senior Metallurgical Technician. Eight years experience in various aspects of metallurgical operations research analyses and control. Most recently responsible for construction and operation of hydrometallurgical and pyrometallurgical pilot plants with Cominco. Responsible for day-to-day laboratory operations and research apparatus design and supply.

CLIENT LIST

A partial list of companies using the services of Coastech in the past 12 months as follows:

*Kennecott
*Caribou Mining
*Westmin Resources Ltd.
*Kerr Addison Mines Ltd.
*Shamrock Resources Inc.
*Granges Exploration Ltd.
*Phillips, Barratt, Kaiser
*Cominco Engineering Services Ltd.
*Abermin Resources
*Trader Resources Ltd.
*RTZ
*Bukit Young Goldmine, Malaysia
*Davy McKee
*Hughes-Lang Group
*Consolidated Professor Mines
*Archer Cathro Associates
*Minproc (USA) Ltd.
*Kilborn Engineering
*Mascot Gold Mines
*Cassiar Mining Corp.
*U.S. Gold Corporation
*Esso Minerals (Canada)
*Geddes Resources Ltd.
*Eureka Resources
*Teck Corporation
*Norecol Environmental Consultants
*Rea Gold Mines Ltd.
*Placer Dome Inc.
*Wright Engineers Ltd.
*Dept. of Supply & Services, CANMET
*Glamis Gold
*Kidd Creek Mines
*Taywin Resources Ltd.
*Klohn Leonoff
*Pioneer Metals Corp
*Rosario Dominicana
*FMC Corporation
*Houston Metals Corp
*Citigold
*Nerco Con Mines
*Echo Bay Mines Ltd.
*Inco Ltd.

P. Brad Marchant

President..... Metallurgical Engineer

EDUCATION: University of New Brunswick, B.Sc.,Biochemistry, 1977; University of British Columbia, M.A.Sc., Mineral Processing, 1986.

PROFESSIONAL AFFILIATIONS: Member Canadian Institute of Mining and Metallurgy
Member American Institute of Mining Metallurgical and Petroleum Engineers

COMPANY FUNCTION: President and Director, Process Research, Piloting and Project Development

EXPERIENCE:

1985 - Present President & Director, **COASTECH RESEARCH INC.**, North Vancouver, B.C.

1982 - 1985 Project Metallurgist, **EQUITY SILVER MINES LTD**, Houston, B.C.

1980 - 1982 Metallurgist, Project Developments, **PLACER DEVELOPMENT LTD** , Vancouver, B.C.

1979 - 1980 Research Associate, **ROYAL SCHOOL OF MINES**, Imperial College, London, U.K.

1978 - 1979 Research Metallurgist, **WABUSH MINES**, Wabush, Labrador.

1977 - 1978 Chemist/Laboratory Supervisor, **WABUSH MINES, Wabush, Labrador.**

OTHER PROFESSIONAL ACTIVITIES:

1986-1988 Chairman, Canadian Mineral Processors, British Columbia, Alberta Branch

1987 Session Chairman - CIM District Six - Annual General Meeting

PUBLICATIONS: Author of twelve papers on gold milling and the processing of refractory gold ores, environmental aspects of mineral processing.

RICHARD W. LAWRENCE

Vice-President.....Extractive Metallurgist

EDUCATION:

University of Wales, B.Sc. (Hons), Mining Engineering, 1971; Ph.D, Mineral Processing, 1975

PROFESSIONAL AFFILIATIONS:

Member Canadian Institute of Mining and Metallurgy. Member American Institute of Mining, Metallurgical and Petroleum Engineers

COMPANY FUNCTION:

Vice-President and Director, Extractive Metallurgy and Biohydrometallurgy Research and Development

EXPERIENCE:

1986 - Present	Director, **COASTECH RESEARCH INC.,** North Vancouver, B.C.
1984 - Present	Adjunct Professor, Chemical Engineering, **University of British Columbia,** Vancouver
1984 - 1986	Head, Division of Extractive Metallurgy, **B.C. Research,** Vancouver, B.C.
1980 - 1984	Senior Research Engineer, Division of Extractive Metallurgy, **B.C. Research,** Vancouver, B.C.
1979 - 1980	Research Engineer, Syncrude Canada Limited, **University of Alberta, Edmonton,** Alberta
1976 - 1977	Research Metallurgist, **Sherritt Gordon Mines Ltd.,** Fort Saskatchewan, Alberta
1975 - 1976	Research Associate/Sessional Lecturer, Mineral Engineering, **University of Alberta,** Edmonton, Alberta

OTHER PROFESSIONAL ACTIVITIES

1984 - 1986	Member, National Research Council Canada, Advisory Committee on Biotechnology
1985	Chairman, 6th International Symposium on Biohydrometallurgy, Vancouver, August
1987	Workshop Leader, BACTEK Workshop on Bacterial Technologies, Johannesburg, South Africa, September
1987	Program Committee, 7th International Symposium on Biohydrometallurgy, Warwick, U.K., July
1987	Program Committee, Engineering Foundation Conference on In-situ Leaching, Santa Barbara, Ca. August

PUBLICATIONS

Author and co-author of over twenty papers on biohydrometallurgy and the processing of refractory gold ores. Editor of Proceedings of 6th International Symposium on Biohydrometallurgy

CERTIFICATE OF THE DIRECTORS AND PROMOTERS OF THE ISSUER

The foregoing constitutes full, true, and plain disclosure of all material facts relating to the securities offered by this Statement of Material Facts.

Date: June 28, 1989

ANASTASIOS MORFOPOULOS

ARIS PAUL MORFOPOULOS

TERRY NEILD

GEORGE POLING

CERTIFICATE OF THE UNDERWRITERS

To the best of our knowledge, information, and belief, the foregoing constitutes full, true, and plain disclosure of all material facts relating to the securities offered by this Statement of Material Facts.

Date: June 28, 1989

CANARIM INVESTMENT CORPORATION LTD.

WOLVERTON SECURITIES LTD.