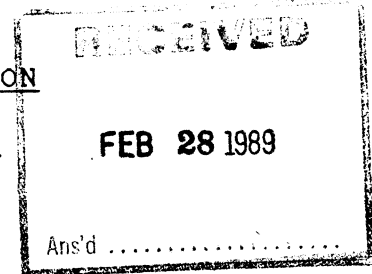


PROPOSAL TO JOINT VENTURE EXPLORATION
AND DEVELOPMENT OF THE DUTHIE MINE



- (1) Duthie Holdings Ltd. ("Duthie") has a lease to explore and develop the Duthie Mine ("the mine"), which is situated on a group of 29 claims on Hudson Bay Mountain near Smithers, B. C.
- (2) Since acquiring the lease, Duthie has expended approximately \$1,200,000 in exploration, purchase of the 50 ton per day mill on site, reopening and rehabilitation of parts of the mine and a limited bulk test of the ore.
- (3) The consulting geologist, R. T. Henneberry, has recommended an exploration program of \$950,000, comprising surface and underground drilling, with the objective of proving up in excess of 100,000 tons of ore. It is believed that this program would qualify for flow-thru shares.
- (4) Duthie is prepared to enter into a Joint Venture Program on the following terms;
 - (a) Joint Venture partner would spend, prior to December 31st, 1989, the sum of \$950,000 on the exploration program outlined by R. T. Henneberry.
 - (b) Joint Venture partner would pay carrying costs of the lease through December 31st, 1989. This includes payment for taxes, minimum annual royalty (\$30,000) and watchman's wages, insurance, etc. (approximate total \$50,000).
 - (c) After meeting obligations in (a) and (b) the Joint Venture partner would have earned 60% interest in the joint venture with Duthie retaining 40%.
 - (d) At the conclusion of the expenditure of \$950,000 the joint venture will decide the future course of action, i.e. whether (1) a production decision can be made, or (2) additional exploration is required before reaching a production decision.

- (e) If a production decision is made, Duthie can elect either (1) to provide its 40% share of the costs of going into production or (2) to be carried through the production stage, whereupon its interest would be reduced to 25% after the Joint Venture partner had recovered all of its expenditures for placing the mine on production out of 85% of cash flow of the joint venture.

- (f) If a decision is made to continue exploration before making a production decision, Duthie can elect (1) to provide its 40% share of the costs of the exploration program or (2) to have the Joint Venture partner put up all of the funds for exploration, whereupon Duthie's interest will be reduced by 1% per each \$50,000 spent on exploration until Duthie retains a minimum of 25% interest in the joint venture. It would require an additional exploration expenditure of \$750,000 prior to a production decision to reach this level.

- (g) In the event the Joint Venture partner elects not to spend further funds after the initial exploration program of \$950,000, the interests will revert to 49% for the partner and 51% for Duthie, with Duthie taking over as operators of the venture. A formula will be included in the joint venture agreement for reduction in interest for non-participation in future expenditures based on relative expenditures to the date of the non-participation.

The Duthie Mine:
a proposal to joint venture

The Duthie Mine is a gold-silver-lead-zinc past producer located in central British Columbia. It has produced recently and can be readily placed into operation once more.

W. J. Cummer
December, 1988

SUMMARY

The Duthie Mine, located near Smithers, British Columbia, has produced gold, silver, lead and zinc intermittently since 1922. Over 80,000 tons of ore have been milled, at an average grade of \$310/ton, at today's prices, for a total value of \$25 million. More than 12,000 feet of main horizontal development have been completed from adits on three levels over a vertical interval of 1000 feet. A mill capable of producing flotation concentrates was in operation from 1984 to 1986 and briefly in early 1988. It has a capability of processing ore at 50 tons per day and could readily be expanded to 100 tons per day or more.

A recent campaign to re-start the mine was halted in May 1988 due to metallurgical problems arising from the present mill design and due to a shortage of working capital. Two shipments of concentrate were made to the Cominco smelter at Trail before the shut-down. Before re-starting the mine, the mill will require some modifications aimed at improving recoveries and increasing through-put capacity.

Most of the underground development is in good condition and is fully equipped. Mining on several faces could commence almost immediately.

The exploration program completed in early 1988 resulted in an excellent compilation of the vast amount of historical data (a job which had never been completed before). Reserves grading \$334/ton sufficient for 1.5 years production (at 50 tpd) were outlined in the proven and probable categories and a program was outlined to greatly expand the reserves base.

In addition to the 27,000 tons of proven and probable reserves, a further 80,000 to 100,000 tons can be inferred from the existing data. The property has the potential for three to four times that amount and two adjacent properties on which underground exploration has been carried out also have considerable potential. In total, the project has the potential to host over \$100 million of ore.

The project now requires a cash injection of \$950,000 in order to conduct an exploratory program to prove up in excess of 100,000 tons of inferred reserves. Following the exploration program a capital expenditure program of approximately \$650,000 would be required to modify the mill and increase its capacity and carry the mine into production. An additional \$550,000 would be required to provide working capital.

The existing owners are now offering a share of their ownership in the mine in return for the funding required to achieve production. At least a portion of that investment will qualify for flow through treatment.

THE PROPERTY

LOCATION AND ACCESS

The Duthie Mine is located on the south-west slope of Hudson's Bay Mountain, approximately eight miles west of Smithers, British Columbia. The elevation of the property ranges from 3200 feet to 4500 feet. The property is accessible by gravel road from Smithers. Road distance is approximately 14 miles. The property is generally accessible by two wheel drive vehicle, except during periods of winter snow when four wheel drive may be required for the last three miles.

The road is public and is well maintained (including snow removal) to within three miles of the millsite by the provincial highways department.

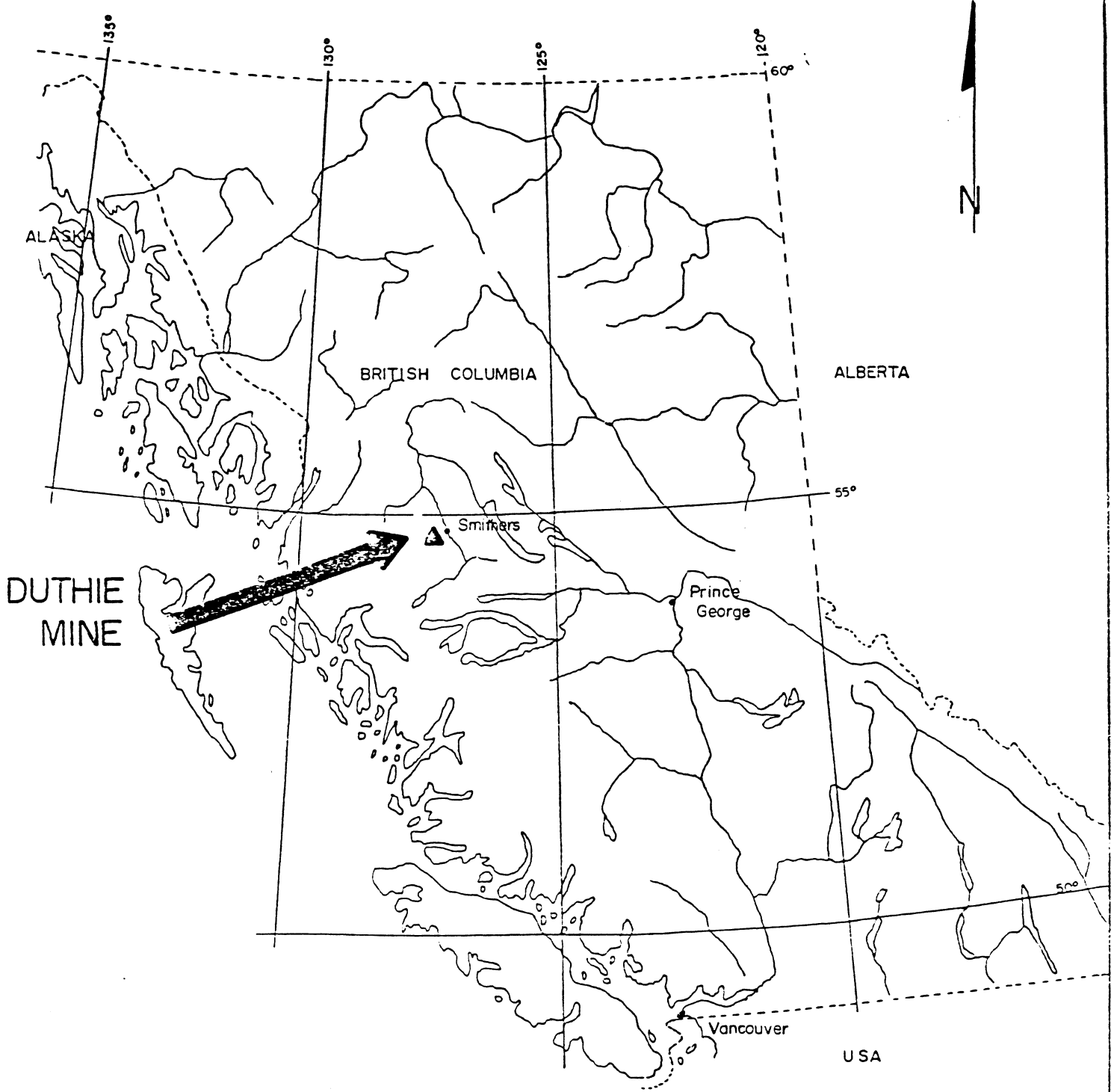
OWNERSHIP

The property is owned by Consolidated Silver Standard Mines Limited and is leased to Duthie Holdings Ltd., a private company. Duthie Holdings is currently owned $37\frac{1}{2}\%$ by Bishop Resources Development Ltd. (a public company listed on the VSE) and $62\frac{1}{2}\%$ by Two Pine Holdings Ltd. (a private company). Each of Two Pine and Bishop has expended about \$0.6 million on the property to date, almost all of which has been for development and exploration.

HISTORY

The history of the mine can be divided into two main periods. The first stage, from 1922 to 1930, involved the initial discovery of the mine and mining from the Front End. The second stage, from 1946 to 1954, involved the mining of the Back End or Breccia Zone by Sil-Van Consolidated Mining and Milling Company. Sil-Van operated a 150 tpd mill and shipped lead and zinc concentrates to Trail.

In addition to these two periods of major production, several small scale operations were carried out. The last of these occurred from 1979 to 1986 when the mine was operated by a local resident. Failing health forced him to sell the project to Bishop in late 1986.



LOCATION MAP

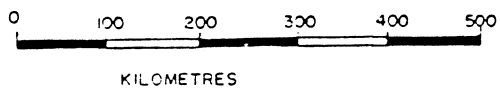


FIGURE : I

GEOLOGY

The mineral deposits of the Duthie Mine occupy at least six main parallel fault zones known as the Ashman, Henderson, Fault Plane, Dome, Breccia and Hanging Wall which strike northeasterly and have dips that vary from 50° southeast to 70° northwest. The mineralization ranges in thickness from a few inches to over 8 feet and from 700 feet to more than 3500 feet in length. The vein lodes are sliced, sheared and brecciated zones along which sulphide veins and replacement deposits occur, the latter associated with some vein quartz and carbonate.

The principal ore minerals are galena; sphalerite, tetrahedrite, ruby silver, pyrite, arsenopyrite, gold and chalcopyrite. Ore from the Henderson and Ashman vein lode also contains some pyrrhotite and marcasite. All the ore contains gold but rarely in visible form. Gold is generally associated with arsenopyrite. The ore is also cut in places by younger chalcedony veins up to two inches wide.

There is progressive change in mineralization along the Henderson Vein Lode; in the northeastern direction towards the granitic core of the mountain, galena sphalerite-tetrahedrite-ruby silver gives place to arsenopyrite ore that contains more gold and zinc but less galena and silver.

THE MINE

MAJOR DEVELOPMENT

The Duthie Mine has been developed from three main adits from surface. The lowest adit is at 3330 feet above sea level while the two other main adits are at 3600 feet and 3800 feet above sea level. In addition, there is an underground vertical shaft which gives access to a lower level at about 3230 feet above sea level. In total over 5000 feet of horizontal development on the main access levels allows entry to the mineralized zones. A further 7000 feet of horizontal development is accessed through shafts and raises from the three adit levels. (See the longitudinal section, Figure 2.)

These levels are equipped with 18" gauge rail track on the main levels and with 4" compressed air piping. Both the rail track and piping are in good operating condition.

The rock in the mine is very competent, so that no roof bolts are required and timbering is generally not required.

STOPING

Stoping in the past has been predominantly by the shrinkage method. There is also evidence that in the past a shortage of ore, or finance, had forced draw down of the broken ore from the stopes before all the ore had been broken. It is possible therefore that a substantial quantity of ore may be available for stoping immediately above the existing stopes.

RECENT DEVELOPMENT

During 1987 and 1988 both the Front End and the Back End of the mine were placed into production. Both of these zones are in good condition, fully equipped and ready for an immediate production start. Several areas are developed, so that stoping could commence immediately.

ORE RESERVES

RESERVES AND PROPERTY POTENTIAL

The exploration program undertaken in 1988 involved first collating the enormous data base built up over the life of the mine. This was a very valuable exercise as it provided the first comprehensive understanding of the geology and structure of the Duthie Mine.

The exploration program also involved fill-in sampling, mapping, and the driving of a 190 foot long exploration raise. The result of that program was to delineate 27,000 tons of proven and probable ore with a grade of 0.08 oz. gold/ton, 19.1 oz. silver/ton, 4.4% lead and 5.5% zinc. This ore has a value of C \$334/ton at C \$560 gold, C \$8.77 silver, C \$0.44 lead and C \$0.75 zinc, or a total value of more than \$9 million.

The Duthie Mine has considerable potential for further ore grade mineralization. The Back End contains most of the mineral reserve presently carried. An exploration/development program is required to firm up the present reserves from indicated and probable to proven and proven and to open up the ore blocks prior to mining. A longer term exploration program is required to test dip projections of ore shoots and explore for new or presently unknown ore. The Front End presently carries little reserve due primarily to the poor documentation. An exploration program is required to test the area around the presently stoped blocks for near term reserves and to test dip projections and strike projections of ore zones for presently unknown ore.

From the existing data, 100,000 tons of ore grade material can be inferred within the mine area. At least three other structures are known to exist on the property, but to date have received almost no attention. Furthermore, underground exploration on two adjacent properties has suggested potential ore bodies on those properties as well, and this ore might, in some manner, be incorporated into the Duthie project. In total, the project has an ultimate potential in the order of 500,000 tons of ore with a per ton value of \$250 to \$300 plus.

PROPOSED EXPLORATION PROGRAM

The reserves presently identified as proven and probable are adequate for one and one half years production at 50 tpd. However, in view of the need to commit additional capital costs to the project and the recommendation to increase the throughput rate, further exploration should be carried out.

The report by Tim Henneberry of April 14, 1988 recommends drilling of three areas on the Breccia Vein in the Back End. This program, consisting of surface and underground drilling and estimated to cost \$950,000, could place 100,000 tons into the proven and probable category. With the reserves now in the proven and probable category (27,000 tons) the project would have more than five years production at 75 tpd. This would be enough to commence production. Significant potential exists for continued exploration during the early production period.

THE MILL

CURRENT CONDITION

A flotation mill is located adjacent to the 3300 level portal. The mill circuit comprises jaw crusher, cone crusher, 5' x 5' ball mill, float cells and an 8' disk filter for de-watering float concentrates and tailings. The mill was operated from 1984 to 1986 and again in April and May of 1988. In late 1987 - early 1988, the mill was substantially upgraded. This work included:

- a complete rebuild of the crushing circuit;
- winterizing of the entire mill; and
- generally upgrading and rehabilitating the entire mill.

The major throughput constraint in the mill is the ball mill, nominally rated at 75 tpd, although several minor bottlenecks prevented sustained production above 50 tpd.

A 275 kw generator was leased from Finning to provide sufficient power to run the entire mill at full capacity. However, this unit was recently returned to Finning. Replacing the generator is all that is required to re-start the mill in its current condition.

METALLURGY

Mineral process testing undertaken by Gary W. Hawthorn, consulting mineral processing engineer, and actual operating experience indicates that ore from the Duthie Mine can be processed to produce saleable products. The first product will likely be a complex concentrate containing gold, silver, copper and lead. The second product will be a good quality zinc concentrate.

Optimizing the gold recovery will result in an arsenic level in the lead concentrate of 1.5% to 4%. At these levels this product will not likely be saleable to Cominco's Trail smelter, certainly not in commercial quantities.

Markets do exist for arsenical concentrates. For example, Equity Silver Mines Limited has been profitably selling a high arsenic concentrate from a nearby mine to a Japanese smelter for several years. Two additional mines in the area that are slated for early production starts (Houston Metal's Silver Queen mine and Canadian United/Total Erickson's Dome Mountain mine) also have high arsenic levels in their ores. Therefore, it appears likely that a market can be found for the Duthie concentrates. One approach would be to market the material jointly with another producer. This might be beneficial to the other producer by creating economies of scale in shipping costs.

In summary, results of operations and test work to date indicate that saleable products can be generated from the Duthie ore at reasonable recovery levels. Some effort will be required to sell these concentrates, but similar material is being sold.

PROPOSED MILL MODIFICATIONS

The major modification required in the plant is the addition of more flotation cells. This will allow production of a separate arseno concentrate. At the same time, the circuit should also be modified to allow for the production of a zinc concentrate separate from the lead concentrate. This will substantially increase zinc revenues.

Flotation cells and associated components are readily available in the used equipment market. The existing building has ample room in which to install the additional cells.

The drying of three separate concentrates will reduce the capacity of the disk filter for drying tailings. This will result in the need to construct a wet tailings disposal system. Such a system would be much cheaper to operate than the current dry tailings system and should be implemented even if disk capacity is available.

The throughput capacity of the mill could be expanded at a small incremental cost at the same time as these other modifications are carried out. The primary crushing circuit can readily handle 150 tpd. The fine ore bin has a capacity of about 400 tons. The ball mill is nominally rated at 75 tpd. Twinning the ball mill will provide 150 tpd of grinding capacity. The cone crusher, with new liners, could produce a finer feed, so that the two mills could readily process 150 tpd. Alternatively, a larger ball mill could be acquired to provide this capacity.

The flotation capacity could readily be adapted to handle 150 tpd when installing the additional cells. With a wet tailings disposal system, there would also be adequate drying capacity in the existing disk filter system to handle the concentrates produced at 150 tpd.

These modifications need not all be carried out at once. In particular, the flotation circuit should first be modified to prepare three separate concentrates. At the same time, the wet tailings system should be implemented. The ball mill expansion could be deferred and funded from revenue from the operation, after adequate ore reserves have been proven.

Formal capital cost estimates have not yet been prepared, but the following estimates will provide a scope for the project:

- install additional flotation capacity	\$150,000
- install wet tailings disposal system	200,000
- modify disk filters; replace cone crusher liners; install water supply system; design; permitting; etc.	<u>150,000</u>
	\$500,000
	=====

The majority of the work could be carried out over 1-2 months. However, several months may be required to obtain permits for the tailings system.

FINANCIAL ANALYSIS

Further exploration, metallurgical testing and engineering are required to get to a feasibility study stage. However, some estimates as to the project economics can be made based on the current information.

CAPITAL COSTS

The estimated capital requirements are as follows:

Exploration	\$ 950,000
Mill Modification	500,000
Administration to start of production	50,000
Site work: road improvements, mine dry, work shop, etc.	100,000
Working capital: 3 months production costs, allow- ing for delays, contingencies, etc.	<u>550,000</u>
Total required capital	\$2,150,000 =====

REVENUE

The recommended program will result in a 75 tpd operation. Based on the average grade of the current proven and probable reserves (\$334/ton), annual production value would be \$334/ton x 75 tpd x 365 days x 92% recovery = \$8.4 million. Revenue, after smelter charges, would be approximately 72% of that amount, or \$6.1 million. A royalty is due to Consolidated Silver Standard Mines Limited, based on 5% with an additional floating net profits interest of 1% to 10% paid for silver prices between U.S. \$10 and U.S. \$20 per ounce, and 10% net profits interest for prices above U.S. \$20 per ounce silver. The royalty in this case would be 5% of \$6.1 million or \$300,000, leaving \$5.8 million of annual net revenue for the project. (This is approximate net revenue of \$210 per ton.)

OPERATING COST

Operating cost for the project is estimated at \$100/ton of ore mined. This figure is based on a total manpower complement of 18, comprised of:

Mining	10
Milling	5
Maintenance	1
Supervision, engineering, geology	<u>2</u>
Total manpower	18

Costs/ton are therefore estimated to be:

Mining	\$ 40
Milling	50
Other Costs	<u>10</u>
Total operating cost	\$100 per ton of ore

These figures are based on operating experience in early 1988, adjusted to reflect the proposed changes. They include all of the cash operating costs; labour, materials, fuel, administration, and equipment leases.

At 75 tpd, operating costs would total \$2.7 million per year.

PROJECT CASH FLOW

As described above, the project would generate cash flow as follows:

	<u>\$/t</u>	<u>\$/year</u>
Revenue	\$210	\$5.8 million
Operating Cost	<u>100</u>	<u>2.7 million</u>
Operating Cash Flow	\$110	\$3.1 million
	====	=====

These figures are before corporate expenses and do not include depreciation or depletion (non-cash income statement charges). In addition, income taxes may have to be paid, depending on the ability of each of the partners to shield income from taxation.

At least a portion of the cash flow will have to be re-invested in the project for further exploration and to increase the throughput capacity. This latter investment, of course, will increase the annual cash flow.

JOINT VENTURE PROPOSAL

The existing partners in the project, Bishop and Two Pine, have decided to bring in another partner at this time rather than committing further funds, for a number of reasons. Bishop is currently experiencing some financial difficulties, so that raising further public money will be difficult for the next several months. Two Pine is a syndicate of private individuals who have already made a large commitment to the project. In addition, neither the project nor either of the partners has the management capability to deal with this project.

Consequently, Bishop and Two Pine are prepared to offer up to 60% of the ownership of the project in return for funding the project to production.

To obtain more information on this project, please contact
W. J. Cummer 809-236-7946 or 403-287-0159
or by mail: P.O. Box FL 356
FLATTS FLBX
Bermuda