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## City turns to Barrack for help with Cinola <sup>103F34</sup>

by Vivian Danielson

VANCOUVER — As gold projects go, the Cinola deposit on Graham Island in the Queen Charlotte Islands of British Columbia is clearly the largest being developed for production in the province.

Owned 100% by City Resources (Canada) (TSE), the mine is expected to produce 185,000 oz of gold in its first full year, 167,000 oz in its second, and about 146,000 oz thereafter for a further 10 years. But the company has to overcome some difficult hurdles before production can begin; environmental objections to the open pit operation and initial capital costs which are now estimated at \$119.9 million.

82M003

## Initial drill results from J&L

VANCOUVER — Assays were released from the first eight holes of a 10,000-ft drill program continuing on the J&L project located near Revelstoke, B.C. Equinox Resources (TSE) holds an option to a 50% direct interest in the polymetallic massive sulphide arsenical gold project, and a 40% equity interest in Pan American Minerals (VSE) which holds the remaining interest.

the project (as outlined by a previous operator) stood at 11,438,000 tons of 0.20 oz gold, 2.01 oz silver, 2.56% lead and 4.48% zinc.

The over-all deposit contains zones of significantly higher grade in certain metals, including extensive areas with values over 0.25 oz gold per ton, and others with combined lead-zinc values exceeding 10% per cent. Recent drill results are:

The eight holes were drilled as fill-in holes to develop a proven reserve for purposes of a bankable feasibility study.

At last report, reserve figures for

Hole	Feet	Gold oz	Silver oz	Lead %	Zinc %
1	6.8	0.445	3.40	4.0	6.0
2	18.7	0.467	1.70	2.6	3.7
3	1.1	0.519	3.35	4.9	8.8
4	6.1	0.766	4.60	5.9	6.9
5	5.4	0.570	2.45	3.0	4.4
6	18.3	0.342	1.45	2.4	3.5
incl.	8.6	0.647	2.50	4.5	5.8
7	2.2	0.430	3.24	5.5	11.1
8	7.4	0.214	2.64	3.6	6.4

The deposit also contains an average of five arsenic. Previous operators were reported to have shied away from problems in the extractive metallurgy of the deposit and from more expensive mine development costs. Equinox said extensive pilot scale metallurgical test work will follow the drilling program.

## Toronto Stock Exchange

Despite the marginal loss, several issues remained firm. Cassiar Mining closed at its recent high of \$6.13. The company operates a very profitable copper mine in British Columbia. Another B.C. copper producer, Gibraltar Mines, was also active, trading at \$12.25. Earlier in the week, the issue reached a new high of \$13.



Similkamen

# Equinox advances J&L to feasibility

VANCOUVER — After completing an extensive metallurgical and underground evaluation program, Equinox Resources (TSE) has advanced the J&L project near Revelstoke, B.C., to the feasibility stage.

Equinox and partner Pan American Minerals (VSE) are aiming to prove up and develop a polymetallic mining operation, with the main challenge being the complex metallurgy of the gold, silver, lead and zinc deposit found on the property.

Since taking on the project last fall to earn a 70% interest, Equinox completed a 32-hole underground drill program in addition to extensive flotation, sink/float, and pressure leaching tests on drill core.

Ross Beaty, president, said the average grade of mineralization intersected in all 32 holes was 0.32 oz gold, 2.4 oz silver, 3.3% lead and 6.0% zinc over an average true width of 6.4 ft.

Updated reserves for the Main zone on the J&L property are now reported as 721,000 tonnes proven and probable grading 6.8 g (0.199 oz) gold and 69.0 g (2.0 oz) silver per tonne, 2.6% lead and 5.4% zinc, using an 0.2 oz gold equivalent cut-off grade and assuming a 5.2 ft mining width. Proven, probable and possible reserves in the zone are reported as 7,950,000 tonnes.

The Main zone was developed

## Corona sues to halt bid by Goldcorp

A lawsuit has been launched by Corona Corp. (TSE) in the Supreme Court of Ontario dealing with the takeover battle for associated companies Dickenson Mines (TSE) and Kam-Kotia Mines (TSE).

The legal action was commenced by subsidiary Corona Minerals, which is bidding for ownership of the two companies on behalf of its parent, against Dickenson, Kam-Kotia, Wharf Resources (TSE), CSA Management Ltd., Goldcorp Investments Ltd., their respective directors and RBC Dominion Securities, financial adviser to Dickenson and Kam-Kotia.

Goldcorp, a Toronto-based gold fund managed by CSA, is also bidding to take over Dickenson and Kam-Kotia.

Corona alleges in its lawsuit, among other matters, that:

— The offers made by Goldcorp for Dickenson and Kam-Kotia contravene the investment restrictions

by Equinox and previous operators by 116 drill holes, 3,320 ft of drifts and 328 ft of raising. The zone has been traced on surface over a strike length of 10,958 ft.

With potential reserves of 5,160,000 tonnes in the North zone, the J&L project has total reserves in all categories of 13,110,000 tonnes. Although insufficient data exists to provide an over-all grade estimate, the J&L deposit on average contains 5% arsenic.

Based on results from metallurgical test work done by Lakefield Research, the company is planning to upgrade ore material by a sink/float plant so that a 250-tonne-per-day mill could be used with a 500-tonne-per-day mining rate.

John Wright, manager of operations, said the plant will lower capital and operating costs for the milling of the massive sulphides which are found in lenses separated by sheets of phyllites and quartzites.

“By taking advantage of the substantial differences in specific gravity of the heavier massive sulphides and the lighter quartzites and phyllites we can use the sink/float plant to reject waste material with a lighter specific gravity than three,” he said.

The company said flotation tests “indicate that saleable lead and zinc concentrates could be produced,” and bench scale pressure leaching tests “confirm the economic extractability” of gold from arsenopyrite using an autoclave with a 100-tonne-per-day capacity.

The process leaves the insoluble compound ferric arsenate as a tailings product which Wright said was generally acceptable to environmental agencies.

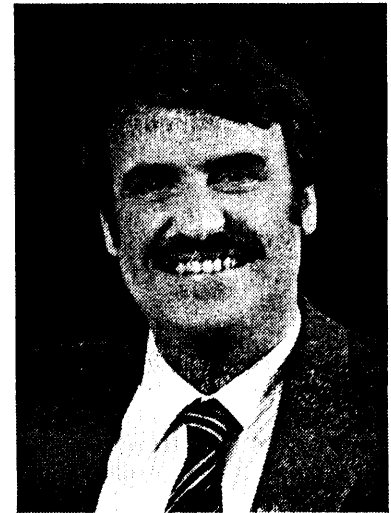
In early May Lakefield Research will operate a pilot plant for four weeks on a previously mined 300 tonne bulk sample to confirm the viability of the metallurgical process and refine capital and operating costs. More underground work is planned for May.

“We think we have about a four

year mine life in proven and probable reserves now,” said Wright. “But our objective is to bring this up to a minimum 7-year mine life.”

Equinox also holds a 24% interest in the producing Buckhorn gold-silver mine in Nevada, is developing the 100%-owned Zenda gold mine in California for production, and recently took over as operator at a small, recently-acquired gold mining operation in Costa Rica.

### MINNOVA INC.



David H. Watkins

Minnova Inc. is pleased to announce the appointment of David H. Watkins as a Senior Vice-President. Mr. Watkins joined Minnova in 1977 and had been Vice-President—Exploration prior to this appointment. He has 22 years of experience in minerals exploration throughout Canada, the United States, Latin America, and Australia. Minnova Inc. is an exploration, development, and mining company producing copper, zinc, gold and silver from its operations in Canada.

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# Placer Dome to finance<sup>82M 003</sup> J&L metallurgical tests

VANCOUVER — The J&L property near Revelstoke, B.C., contains a gold, silver, lead and zinc deposit with potential to be a polymetallic mine.

But because the mineralization at J&L is refractory and contains high arsenic levels, the main challenge facing project operator **Equinox Resources** (TSE) is to confirm that economic recoveries can be achieved.

**Placer Dome Inc.** (TSE), North America's second largest gold producer, recently agreed to invest \$500,000 to advance metallurgical testwork through the purchase of 270,000 Equinox shares at \$1.85 per share. Placer Dome was also granted a priority right to future J&L-related financings.

Equinox has an option to earn a 70% direct and indirect interest in the property. The remaining interest is held by **Pan American Minerals Corp.** (TSE) which is also managed by Equinox.

Considerable work has been done in the past by major mining companies, including Noranda and BP Selco which both estimated inferred reserves at J&L to be 11.0 million tonnes grading 0.2 oz gold and 7% combined lead-zinc.

Earlier this year Equinox completed a \$1.6-million program which generated a diluted proven and probable mineable reserve of 532,400 tonnes grading 0.23 oz gold, 1.8 oz silver, 4.9% zinc and 2.3% lead within one sector of the overall deposit which has a 3.2 km surface strike length.

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N. Miner Sept. 11/89

## Cheni to spend \$7.5 million for feasibility on J&L deposit

VANCOUVER — As part of an effort to acquire new projects, **Cheni Gold Mines (TSE)** announced plans to spend \$7.5 million to bring the **J&L** polymetallic deposit near Revelstoke, B.C., to feasibility in return for a 60% interest from owners **Equinox Resources (TSE)** and **Pan American Minerals (TSE)**.

Although the option agreement to earn this interest is still subject to regulatory approval, Cheni committed to an immediate \$2.7-million underground tunnelling, drilling and metallurgical testing program that is expected to begin later this month. The work will be part of the 2-phase \$7.5-million program designed to result in a bankable feasibility study. More than \$8 million has already been spent on the advanced property in the past decade.

Viewed as one of the more technically challenging mineral projects in the province, the 18,250-acre J&L property contains a major arsenical gold, silver, lead and zinc deposit. Proven and probable reserves currently stand at 808,000 tonnes grading 7.2 grams (0.21 oz.) gold, 65.7 grams (1.9 oz.) silver, 2.5% lead and 5.2% zinc.

Mineralization has been traced on surface for more than 3,280 metres and underground for 990 metres horizontally and 500 metres down dip. The tabular zone averages 2.5 metres wide, extends up to 10 metres wide and is considered amenable to underground mining.

Cheni is aiming to establish a minable reserve base of three million tonnes by extending an existing drift some 400 metres and competing an extensive underground drilling program. The company also plans to examine the exploration potential of the nearby A&E prospect which is reported to host similar massive sulphide mineralization with the same stratigraphic association as J&L.

Equinox' latest program at J&L was focused at resolving the metallurgical complexity of the mineralization. Cheni said the results of this work were "very positive" in

that salable zinc and lead concentrates could be produced, and in excess of 90% of gold could be recovered by oxidation pressure leach. **Placer Dome (TSE)** funded part of this test work; however, the major is reported to have subsequently backed out of the project because of environmental concerns.

Cheni's parent company, **BGRM** of France, will participate in the J&L project by providing metallurgical and technical input. The first phase program should be completed by June of next year.

To earn the full 60% interest Cheni must fund all exploration and property maintenance costs, deliver a bankable feasibility study within three years, make a decision to place the property into production, and fund or arrange financing for 100% of capital costs.

The company is envisioning a 750-tonne-per-day operation with a minimum 10-year mine life.

## Rhodes starts drilling at base metal project

Geophysical anomalies on the **Captain** base metal property 50 miles south of Bathurst, N.B., will be the target of a 1-rig drilling program by earn-in partner **Consolidated Rhodes Resources (VSE)**.

Rhodes can earn a 60% interest in the property from **Stratabound Minerals (ASE)** by making cash payments of \$100,000 and spending \$1 million over a 3-year period.

The **Captain** property is within the **Bathurst** Mining camp, 13 miles south of **Brunswick Mining and Smelting's (TSE)** **Brunswick No. 12** lead-zinc mine. The **Captain** deposit, containing reserves of 197,220 tons grading 2.12% copper, lies within the property boundaries.

Two geophysical (IP) anomalies that lie along strike and to the south of the **Captain** deposit will serve as **Rhodes'** initial drilling targets. **Rhodes** has contracted **Prime Equities** to provide management and contracting services for the project.

## Piedmont considers m

VANCOUVER — Gold producer **Piedmont Mining (NASDAQ)** is evaluating the possibility of building a mill on its **Haile** gold mine property, near Kershaw, S.C.

The company began producing gold at **Haile** in early 1985 by using the heap leaching process for the first time in the southeastern U.S. More recently, the company has been investigating the feasibility of processing mixed oxide and sulphide reserves by incorporating a mill on the property.

The **Haile** project is now reported to contain a total mineral inventory (proven, probable and possible) of 24.5 million tons with an average grade of 0.043 oz. gold per ton. The proven and probable mineral inventory is estimated at 14.4 million tons with an average grade of 0.048 oz. These estimates were made by an independent consulting geologist in conjunction with engineers at **American Mine Services**.

**Piedmont** recently announced the results of a preliminary feasibility study and economic evaluation of the mineral inventory at **Haile** prepared by **American Mine Services**. The company said the study showed that under one scenario, 6.4 million tons of the proven and probable mineral inventory in four zones could be minable from several open pits with an average strip ratio of 3.5-to-1. This tonnage would have an average grade of 0.063 oz. with a cutoff grade of 0.02 oz.

The company said preliminary economic analysis shows that at a milling rate of 3,000 tons per day, gold production could average about 60,000 oz. per year with a mine life of more than six years. Capital costs for a mill are estimated at about US\$15 million.

Additional drilling, metallurgical testing and engineering studies

are planned. In the meantime **Piedmont** is examining alternatives to evaluate and full mineral potential property.

A company spokesman said a number of alternatives investigated, including placement of new equit

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Amex Gold † x				sa	2¢ Aug 31	6¢	6¢
Amer. Barrick	5¢	Dec 17	Nov 30	sa	5¢ June 15	10¢	15¢
Amer. Pacific					12¢ Nov 15		29¢
Battle Mtn. A †					0.5¢ Aug 30	7.5¢	7.5¢

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# The Northern Miner

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## Cheni hits new zone at J&L prospect in first drill hole

by John Kilburn

VANCOUVER — The first hole of a drilling program on the J&L property near Revelstoke, B.C., has intersected what is believed to be a new zone of zinc-lead-silver mineralization.

Hole S90-1 intersected 39.8 metres grading 0.93% lead, 3.45% zinc, and 22.3 grams silver per tonne. The intersection included a 15.9-metre section grading 6.06% zinc, 1.29% lead, and 31.8 grams silver.

The drilling is part of a 2-phase, \$7.5 million program funded by Cheni Gold Mines (TSE) which can earn a 60% interest in the J&L project from owners Equinox Resources (TSE) and Pan American Minerals (TSE).

Hole S90-2, drilled at an azimuth of 290 degrees, is reported to have intersected the new zone of

mineralization over an interval of 20 metres from 32.9 metres to 52.9 metres.

Hole S90-3 was drilled on a section 25 west of hole S90-1 and intersected the mineralized zone from 27.6 metres to 77 metres.

Assays from the holes are pending.

Reserves on the main zone of the J&L were previously reported at a proven-probable 808,000 tonnes grading 7.2 grams gold and 65.7 grams silver plus 2.5% lead and 5.2% zinc.

Of primary importance in the recent results is the relative absence of arsenic in the new zone. Arsenic content was measured at 0.01%.

A problem attributed to the J&L property in the past has been the presence of arsenic in the ore and its associated environmental processing problems.

82M003

## Aur says Louvicourt will cost less than \$200 million

by Peter Kennedy

Aur Resources (TSE) Vice-President Howard Stockford says he expects to have a conceptual plan for mining the company's 55% owned Louvicourt Twp. copper-zinc deposit in hand by Christmas.

With 12 drill rigs on site at the joint venture of Aur and Societe Miniere Louvem (TSE), Stockford and Aur President Jim Gill are currently weighing many of the possibilities relating to the Val d'Or, Que., project. Louvem owns 45% of the project.

An analysis by Loewen, Onaaitje, McCutcheon & Co. of Toronto says the physical shape of the Louvicourt deposit should be able to support a production rate of at least 6,000 ton per day.

"Allowing for a 12-15-month construction period, production could commence in late 1993," says analyst John Hainey, who expects the capital cost of the

See AUR, Page 2

## Japanese backers revive plan to open Goldstream

by John Kilburn

VANCOUVER — Production financing for the Goldstream copper-zinc mine near Revelstoke, B.C., is finally within reach of partners Bethlehem Resources (TSE) and Goldnev Resources (VSE).

Two Japanese companies, Nippon Mining and Sumitomo, will provide up to \$7 million to reactivate the mine.

Bethlehem, the operator, expects to begin rehabilitation work at the mine as soon as the financing agreement closes. The company anticipates the mine can be in production within four months of signing a final agreement.

The estimated capital cost to bring the mine back on line is \$4.53 million, the majority of which will be used for mine development. The balance of the funds will be used for working capital purposes as required.

Henry Ewanchuk, president of well-mothballed and will require some reassembly. The only major

work on the mill will be the replacement of a pressure filter: which was sold after the mine shut down.

Bethlehem and Goldnev bought the mine from Noranda (TSE) in the summer of 1989 for \$5.75 million and have been seeking financing since.

In 1984, after spending \$70 million on its development, Noranda operated the mine for short time but was forced to shut it down due to low metal prices and poor zinc recoveries.

Reserves at the time of the closure were 4.3 million tonnes grading 3.69% copper, 2.63% zinc, and 17.5 grams silver per tonne.

A new reserve calculation increased the cutoff grade to 3% copper from 2% resulting in a drop in proven reserves to 1.86 million tonnes grading 4.81% copper and 3.06% zinc.

At a planned production rate of 100 tonnes per day, the mine is projected to produce 36 million kg of copper and 3.2 million kg of zinc.

At a copper price of US\$2.43 per kg (US\$1.10 per lb.), Ewanchuk said the loan would be paid back in a year and a half.

Under the financing agreement, Nippon Mining will purchase all the mine's copper concentrate for a 6-year period. The agreement also makes provisions for advance payment for the concentrate allowing for a reduction in the mine's working capital requirements.

Nippon also has the right to convert up to 25% of Goldnev's portion of the loan on an annual basis into Goldnev stock at a 70% discount to the average market price over the 30-day period prior to conversion. The conversion price is subject to a minimum of 86¢ per share.

Nippon also has a conversion right on Bethlehem stock on the same terms but at a minimum price of 37¢ per share.

82M141

## La Sarre spending \$1 million to probe untested meteor crater

by Geoff Pearce

This month, Exploration Miniere La Sarre (ME) is launching a 10-hole drill program for Sudbury type nickel deposits in the Manicouagan crater, about 310 km north of Baie Comeau, Que.

At the heart of the crater, formed nearly 210 million years ago by a falling meteorite, La Sarre has obtained 216 mineral claims for the purpose of diamond drilling.

"We are the first to invest major resources in mineral exploration in this area, where this type of work was previously forbidden," said Gilles Fiset, president of La Sarre.

"Our objective is to discover de-

posits of nickel similar to those found in the region of Sudbury, Ont.," he said. "The analogy with the Sudbury mining camp is apt; the geological and geophysical data are very similar."

Mineral exploration had been banned in the crater until 1989, when the Quebec government decided to let the southern half of the structure come open for exploration. The northern half remains reserved as a park. The perimeter of the 65-km-wide crater forms the reservoir of the Manic 5 hydroelectric dam.

As in the Sudbury camp, the crater at Manicouagan generates a

See LA SARRE, Page 2

## Noranda continues to pull gold values at Moss Lake

Drill results from the Moss Lake joint venture west of Thunder Bay, Ont., continue to confirm the presence of a large low-grade mineralized zone on the property.

The latest assay results, derived from a 21-hole program to test the main and QES zones, have extended the mineralized structure for approximately 8,000 ft. along strike.

Central Crude (TSE), 42% owned by Noranda (TSE) subsidiary Hemlo Gold Mines (TSE), is continuing with additional assaying and metallurgical testing under an option to earn a 60% interest in the property from Tandem Resources

(TSE) and Stornin Exploration (ASE).

Although all of the holes intersected the mineralized zone, some of the best results from the QES zone, at the eastern limit of the deposit, include:

Hole	Width (ft.)	Grade (oz./ton)
217	426.5	0.041
219	42.6	0.108
225	298.6	0.031
228	223.1	0.040

And from the main zone:

221	226.4	0.033
222	13.1	0.985
224	128.0	0.060

Noranda Exploration, operator on the property, encountered most of the mineralized intersections above a vertical depth of 600 ft.

## Yukon exploration spending falls to \$11 million

by Patti Flather

WHITEHORSE, Y.T. — Spending on mineral exploration plunged to less than \$11 million in the Yukon this year, a federal government geologist told delegates to the recent 18th annual Yukon Geoscience Forum.

Trevor Bremner said it is the lowest level in many years and was caused by high interest rates, discontinued government incentive programs, uncertainty about new

recovery here in the Yukon," Al Doherty said.

But he called for more clarification and certainty regarding the changing rules governing exploration and mining.

Doherty noted that the lead-zinc mine of Curragh Resources (TSE) at Faro is the only mine operating in the Yukon at present. The company's joint venture Mount Hundere deposit should be in operation in mid-to-late 1991.

The Yukon Bluebird mine of

nies such as Inco Ltd., Phelps Dodge and Placer Dome indicate that the Yukon is holding its own," he said.

Still, Doherty expressed concern about the lack of junior-sector spending.

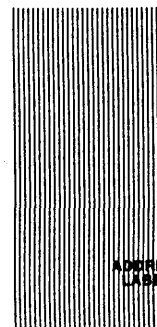
In his presentation, federal geologist Bremner said exploration spending was split evenly between gold and base metals in terms of dollars and numbers of programs.

Claim staking was up slightly from 1990, he said, the least

City, was the exploration highlight, Bremner said. There are about six kilometres of excavated trenching on this large, low-grade oxide gold deposit, which he said is amenable to heap leaching and open pit mining.

Cominco (TSE) spent \$1 million on the Tom lead-zinc-silver property in the MacMillan Pass area, he said, on a 3,600-metre drilling program.

NDU Resources (VSE) spent almost \$1 million on the Moss



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## Investment picks

*EDITOR'S NOTE: Research manager Michael Fowler of Haywood Securities provided the following thumbnail analyses as of the end of February, 1991.*

### FREEWEST RESOURCES (TSE, ME)

The company made a recent gold discovery at its 100%-owned Benoit Twp. property in Quebec. Currently, two drill holes indicate the presence of a potentially large alteration zone with good gold grades over wide intersections. Drilling along strike could substantially increase the deposit size. The company also owns a 40% interest in the Harker-Holloway deposit in northeastern Ontario, which has potential reserves of 8 million tons grading 0.25 oz. gold per ton.

Recent price: \$3.90

RECOMMENDATION: SPECULATIVE BUY

### VSM EXPLORATION (ME)

The junior is about to receive an updated ore reserve calculation on its 50%-owned Grevet deposit, in northern Quebec. Latest preliminary reserves were reported at 11.2 million tons grading 8.27% zinc, 0.44% copper and 31.7 oz. silver per ton. A new discovery, the 97 zone, should sharply increase the reserve figure. The company will be drilling for extensions to the 97 zone and other exploration targets this spring.

Recent price: \$1.15

RECOMMENDATION: BUY

### QUEENSTON MINING (TSE)

The company recently intersected 30.9 ft. of 1.45% copper and 0.47% zinc on its 60%-owned Robertson property in northeastern Ontario. Although this is relatively low grade, the assays, together with geophysical indications, suggest potential for a base metal deposit. The company plans to commence a 10,000-ft. exploration drill program this month.

Recent price: \$1.20

RECOMMENDATION: SPECULATIVE BUY

### ST. PHILIPS RESOURCES (VSE) / EL CONDOR RESOURCES (VSE)

*These two companies are exploring their South Kerness property in the Toadogone region of British Columbia. Recent drilling shows a potential reserve of 85 million tons grading 0.26% copper and 0.019 oz. gold. Drilling is due to restart in March/April to increase the reserves.*

Recent price: St. Philips \$0.65, El Condor \$1.65

RECOMMENDATION: SPECULATIVE BUYS

### GLAMIS GOLD (TSE)

The junior gold producer operates three mines in California. In fiscal 1990, the company produced 40,467 oz. gold and by 1993 output is expected to increase to 100,000 oz. with the development of the Randsburg properties. The company earned \$0.32 per share in 1990 and is expected to earn \$0.60 per share in 1993, assuming a gold price of US\$400 per oz. The present trailing P/E of 8 is one of the lowest among gold-mining companies indicating a relatively attractive risk-reward ratio given the company's growth prospects.

Recent price: \$2.40

RECOMMENDATION: BUY

### FRANCO-NEVADA MINING (TSE)

The company owns a 4% net smelter return and a 5% net profit interest in the Goldstrike deposit of American Barrick Resources (TSE) in Nevada. Production at Goldstrike is expected to more than quadruple by 1995, resulting in a greater than 5-fold increase in projected earnings per share. The company's potential growth prospects make it an attractive investment.

Recent price: \$15

RECOMMENDATION: BUY

### LOKI GOLD (VSE)

The company is exploring the Brewery Creek property near Dawson City, Y.T. Current preliminary reserves amount to 11.1 million tons grading 0.052 oz. gold. The company is anticipating starting a further drilling program this spring.

Recent price: \$0.81

RECOMMENDATION: SPECULATIVE BUY

### DAYTON DEVELOPMENTS (VSE)

The company owns 100% of the Andacollo gold deposit in Chile. A recent Bechtel study indicated tax internal rate of return of 43% at US\$380 per oz. The property has excellent potential for further deposits and possible mine expansion.

Recent price: \$2.20

RECOMMENDATION: BUY

## Equinox plans third mine operation

With the Feb. 27, 1991, unofficial start-up of its 100%-owned Van Stone zinc mine in Washington State, Vancouver-based Equinox Resources (TSE) is rapidly evolving into a top-class mine developer.

The mine will be Equinox's second producing mine and the first base-metal mine in the state in over 13 years. The 24%-owned Buckhorn gold mine in Nevada was the company's first, and the 100%-owned Zenda mine in California will be the third, upon completion of mine financing.

The company also has two interesting advanced exploration projects on the go in 1991. These are the J&L polymetallic property in southern B.C. and the 49%-owned Rosebud gold-silver property in Nevada.

As President Ross Beaty explained, "Equinox's long term strategy is to develop gold and base-metal mines and to carry out as much active exploration as possible, through joint ventures and with cash-flow derived from mining operations."

The 1100-ton-per-day Van Stone zinc mine, brought into production for US\$6.35 million, is located in northeastern Washington State about 25 miles south of Cominco's (TSE) smelter at Trail, B.C. The mine will operate as an open pit for two years and then as an underground operation for another six years.

Infrastructure already in place includes a 1,100-ton-per-day mill, power, roads, office and other facilities. A new tailings dam was constructed and the mine will use the Trail smelter.

Mineable reserves are estimated at 2,550,000 tons grading 5.7% zinc and 1.1% lead. Underground ore grade is slightly higher at 6% zinc versus 4.7% zinc in the open pit material. Annual production is estimated at 32,900 tons of zinc concentrate and 5,300 tons of lead concentrate.

Equinox will receive 30% of the net mine revenue after a project loan of US\$2.35 million is retired, and 60% of net mine revenues after the remaining US\$4 million project investment by a European syndicate has been paid back.

In 1990, Equinox's exploration and mine pre-development costs totalled about \$4 million. The company expects about \$12 million will be spent on the Van Stone, J&L and Rosebud properties in 1991, of which the company will contribute a minimum of \$500,000.

At the zinc-lead-silver J&L joint venture near Revelstoke, B.C., Cheni Gold Mines (TSE) is earning a 60% interest from Equinox and Pan-American Minerals (TSE) by completing a \$7.5 million 2-phase exploration program and a bankable feasibility study.

In the \$3.5-million first phase, three drills are currently testing the Main zone and the newly discovered Yellowjacket zone in the hanging wall above the Main zone. The new zone has been intersected in shallow mineralization over a strike length of 500 ft.

Encouraged by the latest results, Cheni expects to upgrade proven and probable reserves of 890,000 tons grading 5.2% zinc, 2.5% lead, 0.21 oz. gold per ton and 1.93 oz. silver per ton soon.

The Rosebud joint venture, a promising Nevada gold-silver property now at the prefeasibility stage, is located about 46 miles west of Winnemucca. Since May, 1989, LAC Minerals (TSE), the operator, has earned a 51% interest in the property by spending US\$700,000 on exploration and 85,000 feet of diamond drilling in 112 drill-holes.

The flat-lying, low-sulphide

gold-silver mineralization, amenable to cyanide leaching, has been traced for about 1,000 feet on strike and varies in width from 50 to 150 feet. If results of the current prefeasibility study are satisfactory, drilling will resume this month.

Using a cut-off grade of 0.02 oz per ton gold, LAC has estimated a probable and possible mineral inventory of 5.2 million tons grading 0.123 oz per ton gold (uncut), which becomes 2.3 million tons grading 0.231 oz per ton gold (uncut) at a cut-off of 0.05 oz per ton. About 55% of this resource is located on the Rosebud joint venture with the remainder on wholly-owned LAC ground.

Documentation and regulatory approval for the US\$4 million debenture financing of the 100%-owned Zenda mine in California have been completed but, at current gold prices, the project is on hold.

As reserves run out, exploration continues at Equinox's 24%-owned Buckhorn gold mine in Nevada; Cominco Resources International (TSE) owns 76%.

The mine continued to suffer operating losses for the first two quarters in 1990 because of high waste stripping costs and low-grade ore. The company states that 1991 will be the mine's last year of operation.

Estimated reserves as of Aug. 1, 1990, were 400,000 tons grading 0.062 oz. per ton gold, compared with 707,000 tons grading 0.05 oz per ton gold at Dec. 31, 1989.

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## PROSPECTORS

TODAY'S MINE FINDERS

### Northwestern Ontario Mines and Minerals Symposium

April 9 & 10, 1991, Thunder Bay  
Airlane Motor Hotel

If you want to learn about mining and mineral exploration, this is the event for you.

Discover Northwestern Ontario's rich mining history and learn about the prospectors who found these mines.

Visit our educational display on mineral exploration and mining.

Learn about mineral exploration and mining activities across Ontario in the "Report of Activities 1990, Resident Geologists" being released for this event.

Share the latest discoveries with prospectors and mining companies.

Details of the symposium are available from any Resident Geologist or Mining Recorder in Northern Ontario.

Registration is free.

**Tuesday, April 9th**

- 3:00 p.m. - Registration, reception and displays
- 8:00 p.m. - Guest Speaker  
Arthur Black, "Northwestern Ontario Mine Finders"

**Wednesday, April 10th**

- 8:00 a.m. - Registration
- Geoscience Presentations,  
8:30 a.m. to 4:30 p.m.



