

Houston Metals Corporation

Houston Metals Corporation

#### **Corporate Directory**

#### **Corporate Offices**

#910 – 800 West Pender Street Vancouver, B.C. V6C 2V6 Phone (604) 683-4245 Fax (604) 683-8366

#### **Transfer Agent**

Guaranty Trust Company of Canada 800 West Pender Street Vancouver, B.C. V6C 2V7

Guaranty Trust Company of Canada 88 University Avenue Toronto, Ontario M5J 1T8

#### **Shares Listed**

Vancouver Stock Exchange Trading Symbol "HML.V" O.T.C. – U.S.A.

**Cover Photograph:** Thin section of mineral sample from the Camp Vein, Silver Queen Mine, B.C. This mineral is pyrargyrite, also known as ruby silver, [Ag<sub>3</sub> Sb S<sub>3</sub>]

**Observations:** Silver is concentrated in the rhodochrosite-rich and carbonaceous zones of the Camp Vein. There it occurs in acanthite, pyrargyrite, Ag-rich tetrahedrite (as much as 20% Ag), and tennantite (0.1% Ag). These silver-rich zones appear to be fairly late in the paragenetic sequence. Acanthite and particularly pyrargyrite (ruby silver) generally indicate moderate to low temperature conditions (175 – 225°C) in epithermal deposits.

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FOR IMMEDIATE RELEASE

February 3, 1988

#### Continued Progress

#### Camp Vein System

An extensive drill program is being carried on to delineate the Camp Vein System which consists of perhaps 5 veins striking north-west south-east under heavy overburden in the area immediately west of the camp buildings. This system was discovered last fall and most of the tonnage derived from this system is not included in any previous calculation.

To date probable (drill indicated) tonnage may be 155,000 tons grading (weighted average):

Au(oz/ton)	Ag(oz/ton)	<u>Cu(%)</u>	<u>Pb(%)</u>	<u>Zn(%)</u>
0.04	13.91	0.07	1.23	5.16

Attached is a plan view and a section (101) indicating the extent and position of the Camp Vein system. Drilling is continuing.

#### Cole Lake Crosscut

The Cole Lake Crosscut intersected the "Jack Vein", the first of an anticipated series of veins at 3,500 ft. from the portal, grades over 3 ft. are as follows:

Au(oz/ton)	Ag(oz/ton)	<u>Cu(%)</u>	<u>Pb(%)</u>	<u>Zn(%)</u>	Ge(ppm)
0.042	3.91	1.55	0.66	0.32	25

The intersect is about 600 ft. below the surface.

Drifting on three headings, the 15% decline, the Cole Lake crosscut, drift toward the No. 1, and diamond drilling is continuing.

HOUSTON METALS CORPORATION

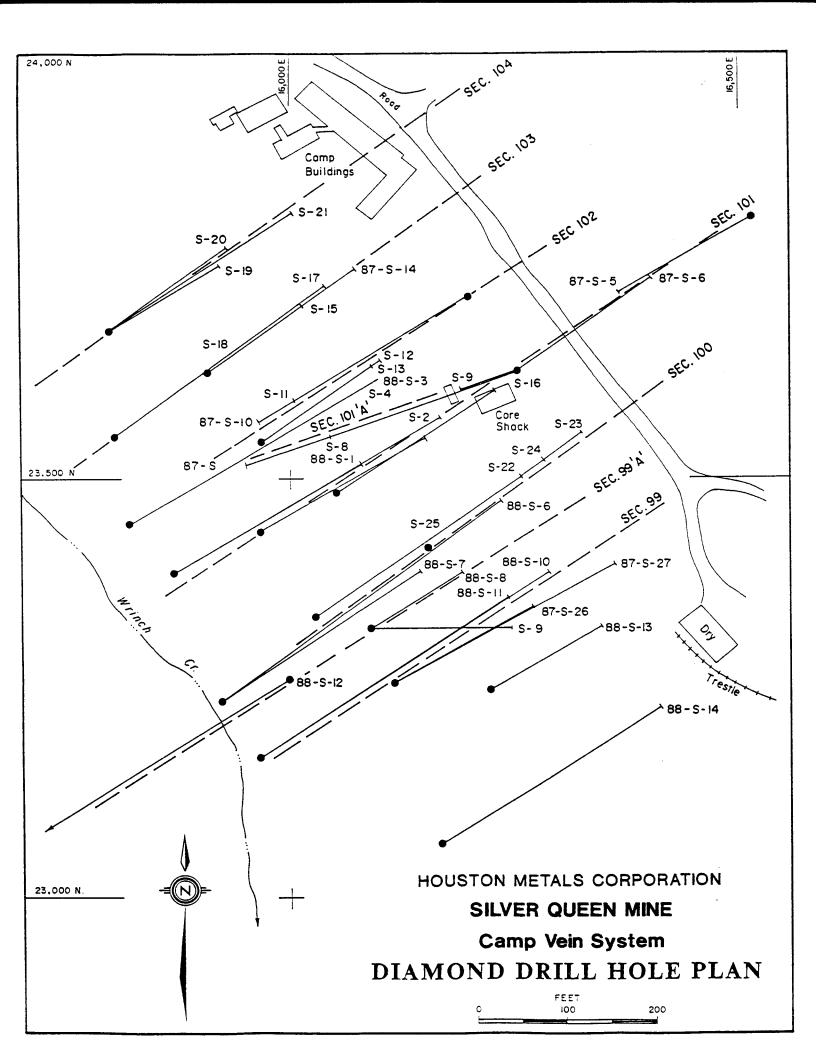
Per:

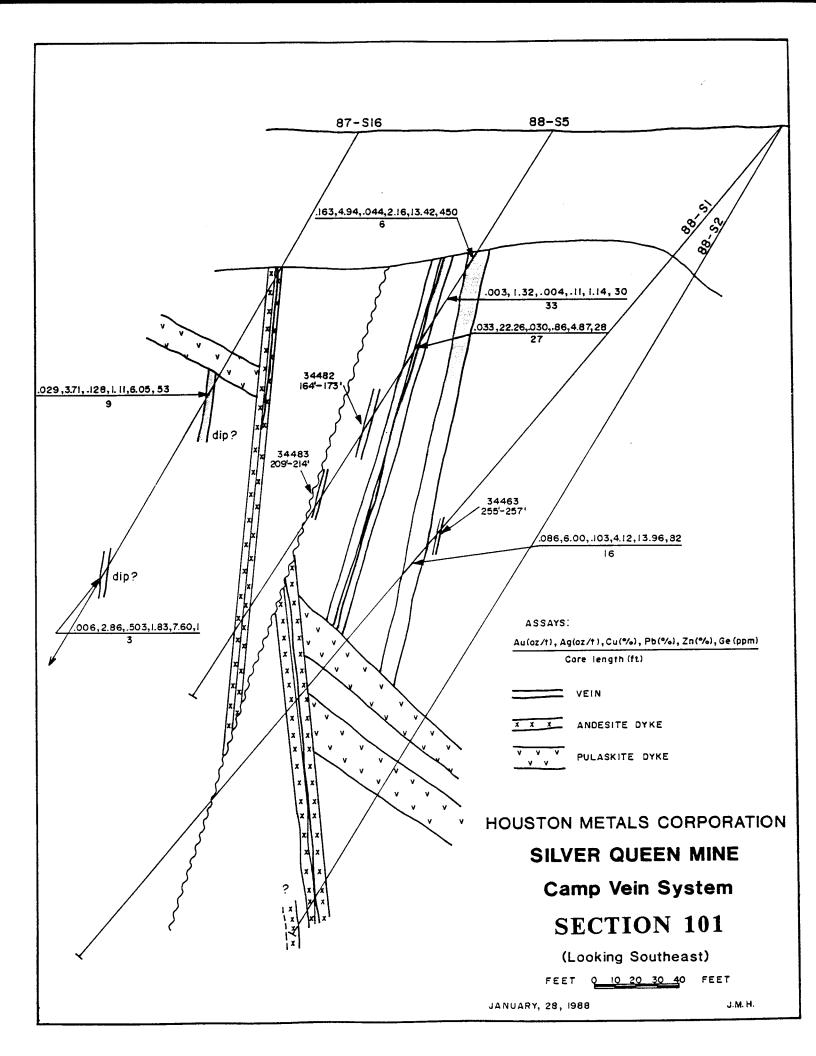
Adolf A. Petancic

President

This news release has been prepared and approved by the board of directors of Houston Metals Corporation, who accept full responsibilities of its contents.

The Vancouver Stock Exchange has neither approved nor disapproved of the information contained herein.





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FOR IMMEDIATE RELEASES

February 3, 1988

#### Further Flow-Through Financing Arranged

Houston Metals Corporation (Houston) announces the signing of a letter of intent with Excan Mining Management Ltd. on behalf of IMEX (1988) Mineral Exploration and Company, Limited Partnership (IMEX) to subscribe for a maximum of 1,844,828 flow-through shares to be issued by Houston at \$1.16 per share for a maximum aggregate consideration of \$2,140,000, subject to the availability of funds.

The approval of the Vancouver Stock Exchange and the acceptance of Houston as a reporting security issuer in the Province of Quebec by the Quebec Securities Commission and the listing of Houston's shares on the Montreal Stock Exchange is required for this transaction to be completed.

Upon completion of the transaction a finder's fee pursuant to rule 6/83 of the Vancouver Stock Exchange is payable to First Century Capital Inc.

HOUSTON METALS CORPORATION

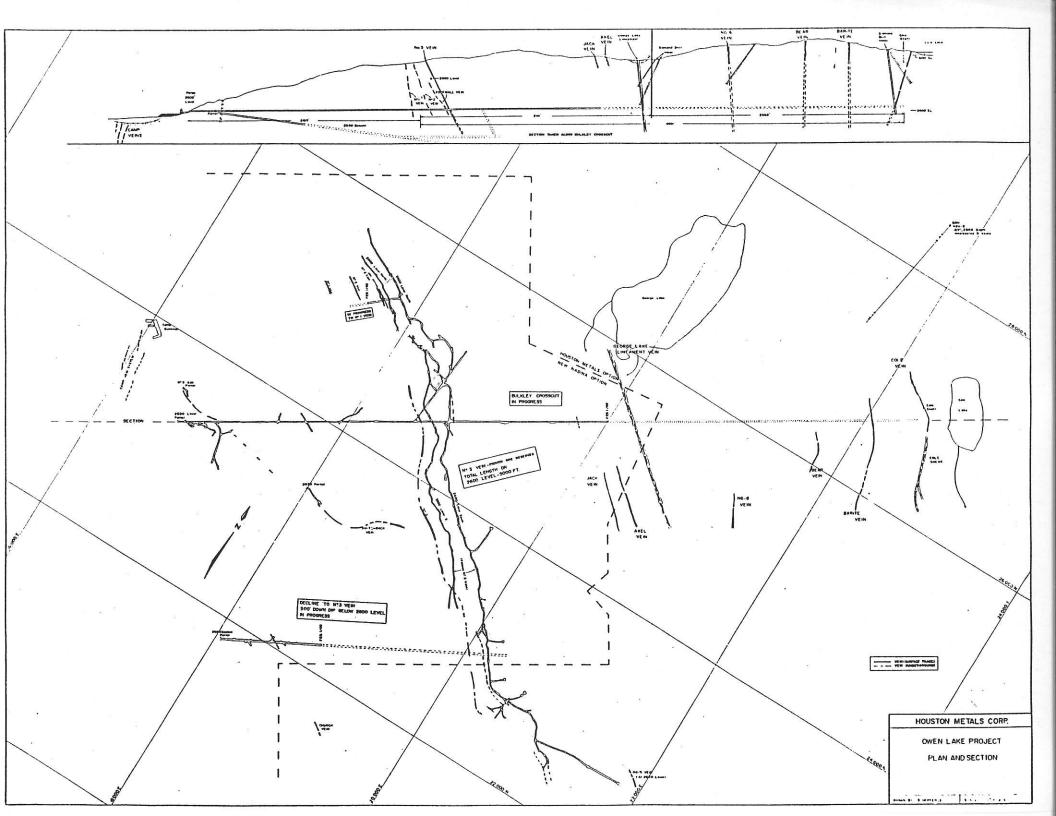
Per:

Adolf M. Retaine

President

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February 2, 1988

Dear Sir/Madam:

Re: Silver Queen Mine, B.C.

The enclosed material provides a brief summary of the progress made by Houston Metals Corporation (Houston) at the Silver Queen Mine over the last 18 months.

Currently an active exploration program is being carried out which should expand the proven and probable reserves and improve the gold and silver grades over the figures shown in the attached material.

The attached material consists of:

- A) Corporate fact sheet and property map;
- B) Synopsis of base production case - as developed by James Wade Engineering Ltd. and Houston's staff;
- **C**) Complete analyses of Cu-Pb-Zn concentrates as developed by Lakefield Research and letter from Dowa indicating saleability of copper concentrate.
- D) Abstract - Lakefield Research Progress Report No.1;
- E) Mill flow-sheet - base production case;
- F) Circuit and comparative analysis of pyrite scavenging (being tested);
- A breakdown of proven and probable ore by vein structures; G)
- H) Graph depicting difference in recovery at current prices;

I) Recent news releases.

Yours truly,

HOUSTON METALS CORPORATION

Per:

Adold Managellu

President

AAP/de encls.

## HOUSTON METALS CORPORATION CORPORATE FACT SHEET

#### Shares Listed

Vancouver Stock Exchange Trading Symbol "HML.V" OTC - USA

#### Capitalization

Authorized capitalization - 50,000,000 common shares

<u>Issued and outstanding</u> - 8,987,339 common shares 315,565 shares of the company are escrowed subject to release pursuant to the regulations of the Vancouver Stock Exchange.

Approximately 3,000,000 shares have been issued to First Exploration Fund 1986/87, National Exploration Fund 1987 and Vanguard Mining Exploration Limited Partnership, for flow-through funds provided. An additional 1,486,710 flow-through shares will be issued for monies committed by the Funds and to be expended by Houston before month end February 1988.

#### **Directors**

Adolf A. Petancic - President/Director J. Michael Mackey - Secretary/Director Hugh G. Farris - Director John Petancic - Director George O. M. Stewart - Director

#### **Financial Information**

Approximately \$7,200,000 (Cdn.) has been raised by Houston for exploration and development of the Silver Queen Mine since Houston's shares were listed on the Vancouver Stock Exchange in late October 1986. The majority of the funds have been provided by flow-through financings from First Exploration Fund (sponsored by Merrill Lynch/Dominion Securities Inc.), National Exploration Fund and Vanguard Mining Exploration Fund; the balance of the funds were raised by a public financing on the Vancouver Stock Exchange and private placements, \$1,300,000 is currently on hand.

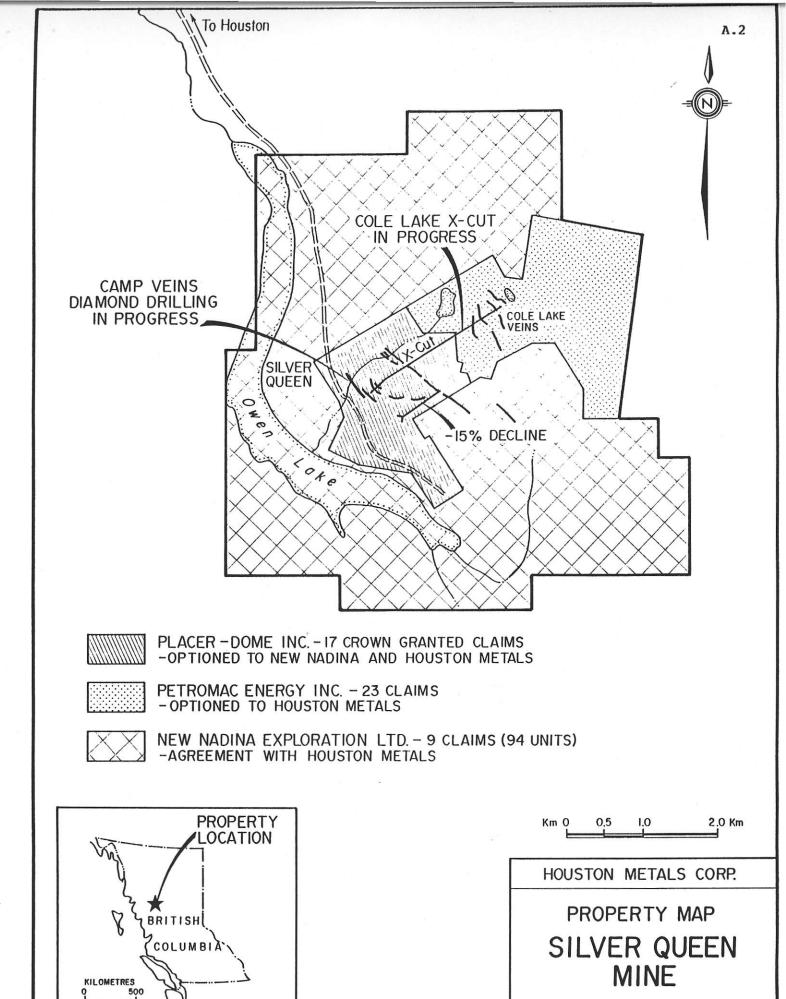
#### Silver Queen Mine

Houston is the operator of the Silver Queen Mine and has a 60% interest. Upon completion of the feasibility study (expected by June, 1988) New Nadina will have to contribute 40% of the development costs to retain its 40% interest. If New Nadina participate, Houston will receive 80% of all production until 2.5 times of Houston's exploration expenditures are repaid.

If New Nadina does not participate in the development, its interest will be reduced to a 10% or 20% net profit interest depending on the location of production.

#### Registrar and Transfer Agent

Guaranty Trust Company of Canada 800 West Pender Street Vancouver, B.C. V6C 2V7 Guaranty Trust Company of Canada 88 University Avenue Toronto, Ontario M5J 1T8



Scale. 1:50,000

Date. Jan. 1988

Suite 910 - 800 West Pender Street Vancouver, B.C., Canada V6C 2V6 Telephone: (604) 683-4245

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#### SILVER QUEEN MINE B.C.

#### SYNOPSIS OF BASE PRODUCTION CASE

All monetary amounts are stated in Canadian Dollars unless otherwise indicated.

#### Reserves

Diluted proven & probable Possible

765,165 tons 833,075 tons

Total:

1,598,240 tons

#### Grade

<u>Au</u> (	Ag oz/ton	<u>In</u> )	<u>Cu %</u>	<u>Pb %</u>	<u>Zn %</u>	Ge ppm
0.093	9.920	0.5	.625	1.410	6.490	50

#### Mining

Rate: 700 tons/day, 5 days/week, 250 days/yr.

Method: cut and fill, recycle tailings plus crushed rock and gravel into mine.

Production: 175,000 tons/year.

#### Milling

Rate:

500 tons/day, 7 days/week, 350 days/year

Production:

Concentrate	Copper	Lead	Zine
Weight tons/yr	4,100	3,800	18,000

#### Metals

Base	Cu lb/yr	Pb, lb/yr	Zn lb/yr	Au oz/yr	Ag oz/yr	Ge kg/yr	In oz/yr
Case	2,132,000	3,952,000	21,600,000	9,800	1,093,000	1,800	78,000
	scavenging p			9,800	137,000		
	d by cyanidat			<u>19,600</u>	1,230,000		

<sup>\*</sup>Addition of pyrite scavenging circuit will require further capital costs and entails more operating costs than shown in the base case but will recover more gold and silver in addition to the base case. This process is working at the Equity Silver Mine and will be tested at the Silver Queen Mine.

Metals by value are distributed in the ore as follows, assuming enhanced recovery but no values given for Ge and In:

		Copper	Lead	Zine	Gold	Silver			
% of	Total	9.13	4.68	30.83	29.46	25.89			
Dire	et Mining & Mil	ling Cost Es	<u>timates</u>						
a)	Mining Exploration co Deferred deve Stope preparat Stope producti Total direct m	lopment cost ion cost/ton on cost/ton			\$ 5.87 \$ 4.80 \$10.32 \$36.40 \$57.39				
b)	Milling cost/to	· ·			\$21.35				
	Total direct Mining and Milling cost per ton					78.74			
						Base Case	Pyrite Scavenging		
milli	s metal value a ng cycle per tor ges, penalties ar	of ore, befo			\$194.61 \$23 <b>6.2</b> 0				
Tota	l/yr 175 <b>,</b> 000 x				\$34,05	53,715	<u>\$41,334,508</u>		
Capi	tal Cost Estima	<u>te</u>							
	Mill & Building Mining Equipm B.C. Hydro Po- Upgrading of T Contingency	ent wer Line					\$15,514,000 4,000,000 1,000,000 2,000,000 2,486,000		
	Total Capital	Cost					25,000,000		

#### CAPITAL CONTRIBUTION

Case A - New Nadina contributes to capital cost.

Houston receives cash flow from 80% of all production until approximately \$15,000,000 is repaid and then its interest is reduced to 60%

Case B - New Nadina does not contribute to capital cost.

Houston receives between 70% - 91.5% of all production during the life of the mine.

HOUSTON METALS CORPORATION

Schedule of Copper, Zinc and Lead Concentrate Analyses,
(dry basis)

January 20, 1988

		Copper	Zinc	Lead
		Concentrate	Concentrate	Concentrate
		(unroasted)		
ANNUAL QUANTIT	Y - approx.	4,100 dst	18,000 dst	3,800 dst
ELEMENT				
Copper	C u %	26.0000	0.5000	0.9000
Lead	P b %	1.9000	0.5000	52.0000
Zinc	Zn %	6.0000	60.0000	7.3000
Iron	Fe %	17.8000	2.4000	6.0500
Nickel	N i %	< 0 . 0 0 2 0	< 0 . 0 0 2 0	< 0 . 0 0 2 0
Bismuth	Bi %	0.2000	0.0080	1.0600
Cadmium	Ca %	0.0600	0.3400	0.0430
Indium	In ppm	40.0000	140.0000	< 20.0000
Manganese	Mn %	0.5400	0.7000	0.8800
Mercury	Hg %	0.0017	0.0050	0.0015
Arsenic	As %	5.6500	0.1300	0.3300
Antimony	Sb %	3.0200	0.0650	0.2800
Tin	Sn %	< 0 . 0 0 2 0	0.0000	< 0 . 0 0 2 0
Selenium	Se %	0.0020	< 0 . 0 0 3 0	0.0030
Tellurium	Te %	0.0008	< 0 . 0 0 0 3	0.0030
Fluorine	F %	0.0630	0.0400	0.0190
Chlorine	C 1 %	. 0.0040	0.0090	0.0100
Sulphur	S %	32.3000	31.7000	19.2000
Carbon	C %	0.0460	0.0240	0.0050
Phosphorus	P2 05 %	0.4000	0.4800	0.5400
Silica	Si 02 %	2.4300	3.1900	2.3100
Alumina	A12 03 %	0.1200	0.0680	0.1600
Lime	Ca O %	0.0830	0.0680	0.1600
Magnesia	Mg 0 %	0.0600	0.0800	0.0600
Sodium	Na2 0 %	< 0 . 0 0 2 0	< 0 . 0 0 2 0	< 0 . 0 0 2 0
Platinum	Pt %	< 0 . 1 0 0 0	< 0 . 1 0 0 0	< 0 . 1 0 0 0
Palladium	P1 %	< 0.0500	< 0 . 0 5 0 0	< 0 . 0 5 0 0
Gold	Au oz/ton	0.6800	0.0800	1.4800
Silver	Ag az/ton	166.7000	6.0000	79.5000
Germanium	Ge ppm	80.0000	92.0000	
Gallium	Ga ppm	2.0000	19.0000	



## DOWA MINING COMPANY LTD. VANCOUVER OFFICE

SUITE 1470, 1176 WEST GEORGIA STREET VANCOUVER, B.C., CANADA V6E 4A2 TELEPHONE: (604) 688-8228 FACSIMILE: (604) 688-8368 TELEX: 04-507886

January 8, 1988

Mr. A. W. Easton Suite 308 251 Queen's Quay West Toronto, Ontario M5J 2N6

Dear Mr. Easton,

Thank you for your letter dated December 23, 1987. The new data were forwarded to our head office for their review. Followings are our comments.

1. Penalty caused by fluorine in copper concentrate

We found in your schedule of concentrates analysis that fluorine content in the copper concentrate exceeded a certain level and submit herewith an additional term concerning penalties for the concentrate, as below:

Fluorine

Up to 0.01 PCT/DMT no penalty. If over 0.01 PCT/DMT, the excess shall be penalized US¢20 per each 0.01 PCT/DMT.

2. Acceptable arsenic level in copper concentrate

It would be difficult to specify the upper limit of acceptable arsenic percentage on respective concentrates, since the limit depends on the total arsenic content in whole copper concentrates supplied to our smelter. We, however, advise you that our smelter could treat your whole product, i.e., 5000T/year of copper concentrates containing approximately 10 PCT of arsenic.

..../2

Mr. A. W. Easton Toronto, Ontario January 8, 1988

#### 3. Crude ore purchase

Although we are generally interested in purchasing crude ore, so far as Owen Lake ores are concerned the grade does not seem high enough to discuss crude ore purchase. We, therefore, would like to proceed further discussion only on concentrates purchasing.

4. Correction of our letter dated December 11, 1987.

Please delete words "Accumulative basis" in the article, "Price Participation", on page 2.

At the beginning of the year, we hope to keep friendly relations with you through 1988 and thereafter.

Very truly yours,

H. Inoue Chief Representative

in Canada and N.A.

HI/sh

A Laboratory Investigation of

## THE RECOVERY OF COPPER, LEAD, ZINC. GOLD AND SILVER

from Silver Queen Mine Ore Samples

submitted by

#### **HOUSTON METALS CORPORATION**

Progress Report No. 1

Project No. L.R. 3373

NOTE:

This report refers to the samples as received.

The practice of this Company in issuing reports of this nature is to require the recipient not to publish the report or any part thereof without the written consent of Lakefield Research.

LAKEFIELD RESEARCH A DIVISION OF FALCONBRIDGE LIMITED January 18, 1988

#### **ABSTRACT**

In this report, the results of the laboratory testwork on Silver Queen Mine ore samples are presented. The major development work was carried out on two composite samples (i.e. Composite 1 and Composite 3), assaying 1.2% - 1.56% Cu, 7.75% - 10.6% Zn, 0.96% - 1.28% Pb, 576 g/t to 428 g/t Ag and 2.16 g/t to 1.89 g/t Au, respectively. Composite samples were prepared from individual vein samples submitted by Houston Metals Corporation. The developed laboratory procedure was incorporated into locked cycle tests yielding the following results:

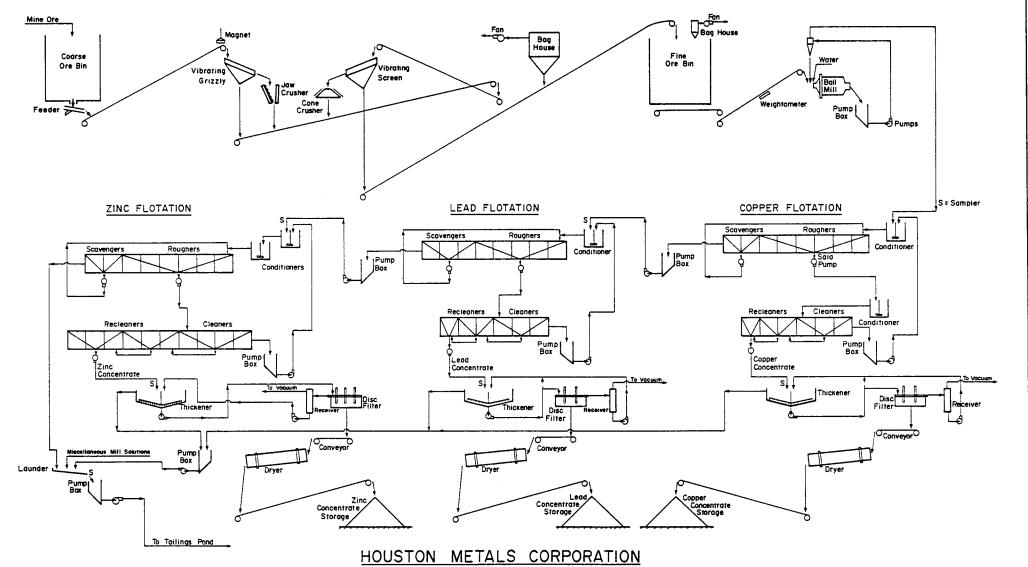
Table No. 1 - Comparison of Locked Cycle Test Results

Test	Comp	Product	Wgt		Ass	ays,%	,g/t			% D	istrib	ution	
No.			%	Cu	Pb	Zn	Au	Ag	Cu	Pb	Zn	Au	Ag
		Cu Cl Conc	6.3	21.8	3.30	6.97	9.60	6277	83.4	21.9	5.3	25.8	70.0
		Pb Cl Conc	1.0	1.58	46.1	8.31	14.4	2000	1.0	48.8	1.0	6.2	3.6
47	1	Zn Cl Conc	12.0	0.56	0.49	61.6	1.65	333	4.1	6.2	90.3	8.5	7.1
		Au Ag Cl Conc	3.2	3.03	1.61	4.23	8.50	1369	5.9	5.5	1.7	11.7	7.8
		Pyrite Conc	38.8	0.20	0.25	0.18	2.71	157	4.7	10.3	0.9	45.1	10.8
		Pyrite Tail	38.7	0.037	0.18	_0.18	0.16	10.6	0.9	7.4	0.8	2.7	0.7
		Head(calc)	100.0	1.64	0.95	8.21	2.33	563	100.0	100.0	100.0	100.0	100.0
		Cu Cl Conc	3.5	27.7	1.91	5.93	7.58	6271	82.8	5.7	2.0	15.5	52.1
		Pb Cl Conc	1.7	0.94	51.7	7.31	33.1	5675	1.4	73.6	1.2	32.5	22.7
51	3	Zn Cl Conc	16.1	0.46	0.44	60.2	0.89	232	6.3	5.9	93,1	8.3	8.8
		Au Ag Cl Conc	1.8	2.67	2.32	5.12	8.32	1186	4.2	3.6	0.9	8.9	5.2
<b>i</b> i		Pyrite Conc	21.9	0.22	0.36	0.67	2.37	169	4.1	6.6	1.4	30.1	8.8
]		Pyrite Tail	55.0	0.028	0.10	0.26	0.15	18.7	1.3	4.6	1.4	4.8	2.4
[		Head(calc)	100.0	1.18	1.19	10.4	1.72	423	100.0	100.0	100.0	100.0	100.0

The results obtained on Composite No. 3, "the average orebody composite", were excellent and high grade concentrates with satisfactory recovery were obtained. The lower copper and lead concentrate grades obtained from Composite No. 1 were a result of heavy oxidation of the pyrite in several veins (i.e. V-5, FW 2750L) which were part of Composite 1.

For treatment of the ore, a sequential Cu-Pb and zinc flowsheet was developed with an effective reagent scheme. This flowsheet incorporated a gold recovery stage from the pyrite concentrate. Note that a portion of the precious metals are disseminated in the pyrite and therefore a regrind of pyrite is required to liberate that portion of the gold and silver.

In this report, the development work and problems associated with processing of the ore are described.



MILL FLOWSHEET (BASE CASE)

500 TONS/DAY POLYMETALLIC ORE CONCENTRATOR (AU, AG, ZN, PB AND CU) SEQUENTIAL SEPARATION INTO COPPER, LEAD AND ZINC CONCENTRATES DESIGNED BY LAKEFIELD RESEARCH AND JAMES WADE ENGINEERING LTD.

Equity Silver		F.1 Houston Metals					
Source of Feed Concentrate tailing	gs from Main Zone	Source of Feed Concentrate tailings from sequential Cu-Pb- Zn separation. Au 60%, Ag 20% of head grade					
Process Tailings pre-aerated with lime + Pb(No <sub>3)2</sub> followed by carbon -in-leach cyanidation		Processes - Alternati a) Tailings pre-aerate +Pb(No <sub>3</sub> ) <sub>2</sub> followe in-leach cyanidation b) Bioleach	d with lime d by carbon-				
		(both systems to be t Assume (a)	ested)				
Rate +9000 tpd		Rate 425 tpd; 80.8% at mi	I rate of 500 t	pd			
Head Grade Ore ?		Head Grade Ore 2.33 g Au/t 563 g A	g/t				
Tailings Grade 0.5 g Au/t (0.0161 oz Au/t	? Ag/t ? Ag/t)	Tailings Grade 1.39 g Au/t (0.045 oz Au/t	109 g Ag/t 3.50 oz Ag/t)				
Value \$ (Cdn.)/t		Value \$ (Cdn.)/t					
<b>\$9.95</b> +	\$? =\$ <u>9.95</u>	27.81 +	30.45 =	\$58.26			
		Recovery x 75% +	x 84% =	\$46.44			
Capital Cost \$12,500,000 operating cost/ton	<b>\$.69</b>	Capital Cost \$1,200,000 10% of Equity cost		\$ 1.00			
Operating Cost operating cost/ton	?	Operating Cost \$/t Assume		\$10.00			
		Net: \$/ton		<u>\$35.44</u>			
Profit/Loss	<u>?</u>	Total Additional Reve 425 x 350 x 35.44	enue:	<b>\$5,507,376</b>			

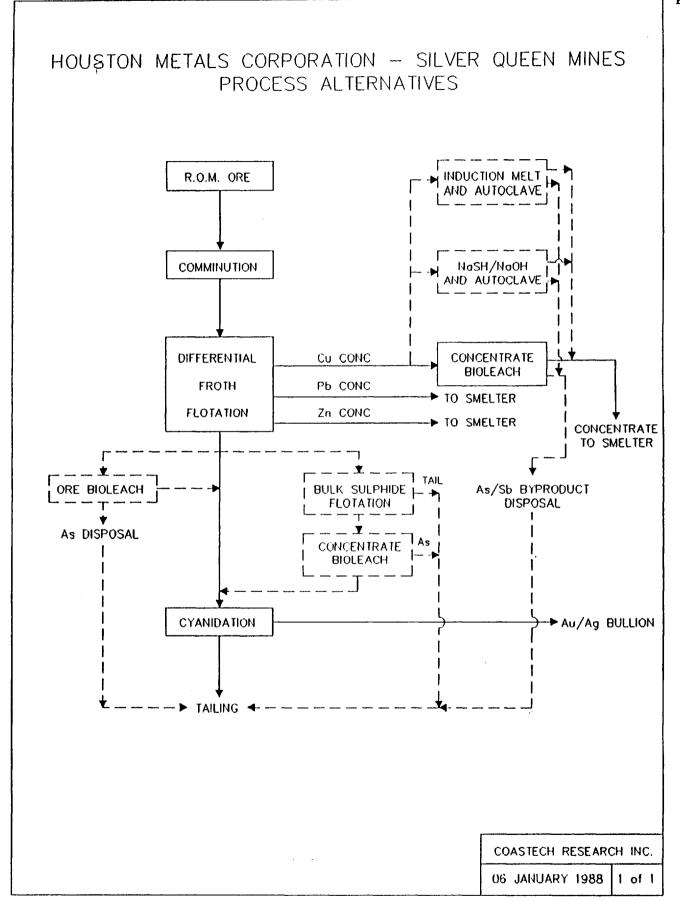
#### <u>NB</u>

Equity Silver breaks even at 0.10 g/tonne; Silver Queen tailings have 10 times higher Au grade.

Compare minerals from Southern Tail, Main Zone, and Silver Queen (see attached sheets).

The most important mineral absence from Main Zone and Silver Queen compared to the Southern Tail is arsenopyrite (Fe As S).

It is therefore possible that the Equity scavenger system could work on the Silver Queen ore.



## No: Arsenopyrit Fo 85 F

Table 1. Summary of minerals observed in samples from the Silver Queen Mine.

	Vein: Sample No.:	M3 1		2	#3 3	Ext	ensi 5		12	#3 8	3	Foot- wall   7	#2 ! 10	! #5 13	
Chalcocite Cu <sub>1</sub> S Chalcopyrite CuFeS <sub>1</sub> Calena PbS Viite FaS <sub>1</sub> phalerite ZnS wurbsite ZnS		XXX	$\frac{X}{X}$	X X	Ж	X X	X X X	X X	X X X	X X X X	X	X	X X	X X	
Alkinite PbCuBiS <sub>3</sub> Saligmannite PbCuAsS <sub>3</sub> √Tannantite (Cu,Zn,Fe,Ag Tecranearite (Cu,Zn,Fe,	) <sub>12</sub> (As,Sb) <sub>4</sub> S <sub>13</sub> Ag) <sub>12</sub> (Sb,As) <sub>4</sub> S <sub>13</sub>	X	Х		X	X	-	X	X	X X X			X X	X X X	As Sb
Hemmasise Fe <sub>2</sub> 0 <sub>3</sub>											X				
Talvite CaCO; Baodouurosise MnCO; Tiderise FeCO;		X	X	X	Х	X X			X	X	X	Х		X X	
Basing Basing	0 ) / 90 ) / 00)		X	X	Х	X	X	X		X	χ		X	X	
Jinadalita (Pb,Sr)Al <sub>3</sub> (P Syanberrine (Sr,Ca)Al <sub>3</sub> (	204)(204)(0H)	X	X X		Х		Х	X.	X				X	X	
llitte K(Al.Mg,Fe)ı(Si, lanımıte AlıSiı0g(OH)q Juartz SiO <sub>l</sub>	10 <sub>μ</sub> θ <sub>10</sub> Ε(0H) <sub>2</sub> , H <sub>2</sub> 0J	X	К	X X X	X X	X X X	X X X	X X X	X X X	Х	Х	X	X	Х	
Carbonaceous matter		X												X	

TABLE 1
Relative mineral abundance at Equity Silver Mines Limited

MINERAL	MAIN ZONE	SOUTHERN TAIL
/ Pyrite	XXXXX	XXXXX
Rutile	×	x
Ilmenite	x	×
Magnetite	xxxx	ххх
Pyrrhotite	XXXX	
Molybdenite		×
√Hematite	XXXX	жж
Arsenopyrite	-XX -	ххххх
√ Sphalerite	xxx	xxx
✓ Chalcopyrite	XXXX	хххх
√ Tetrahedrite	хххх	XXXXX
→ Gold	хx	xx
√Galena	xx	xx
v Sulphosaks	xx	XX
Marcasite	XXX	
∨ Chalcocite	x	×
Covellite	x	×
Wolframite		x
Stibnite	×	
Tourmaline	XXXX	×

xxxx = very abundant xxxx = abundant

xxxx = abundant xxx = moderate

xx = minor

x = trace

Direct cyanidation of flotation tailing revealed:

Ore Type	Flotation Tailing g Au/t g Ag/t	Cyanidation Extraction % Au % Ag
Main Zone	0.50 30-40	50-70 10-30
Southern Tail	0.90 20	10-20 10-20

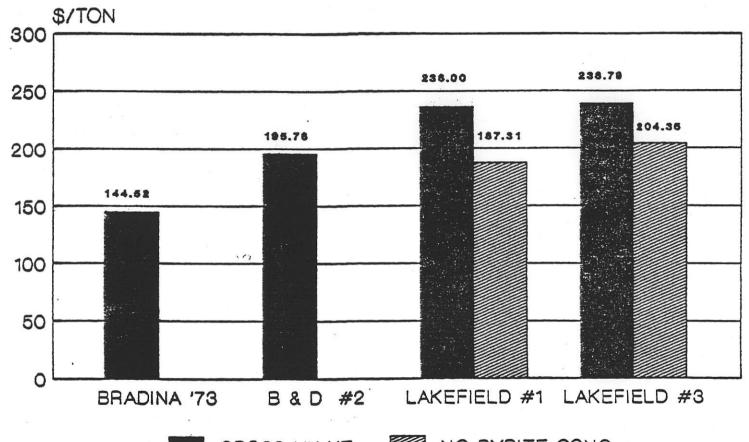
Favourable cyanidation response of Main Zone flotation tailing precipitated a detailed feasibility study (ref 4,5) and consequently a 5,300 tpd carbon-in-leach scavenger cyanidation circuit was constructed and commissioned in 1984 to treat Main Zone flotation tailing. Details of the CIL circuit have been discussed (ref 3).

Southern Tail flotation tailing, presently impounded in the tailing pond, did not respond economically to direct cyanidation due to gold associations with refractory pyritic gangue, notably arsenopyrite. Bulk sulphide flotation from Southern Tail tailing returned 80-85% gold and 50-60% silver recovery in a concentrate grading 5.5-6.0 g Au/t and 75-100 g Ag/t. The concentrate is not readily marketable as produced and various attempts to produce an arsenopyrite rich concentrate were unsuccessful (ref 3).

Direct cyanidation of the bulk sulphide concentrate indicated 10-20% Au and Ag recovery. A number of hydro/pyrometallurgical alternatives to enhance cyanidation response were tested and some, such as roasting and pressure oxidation, were

## METALLURGICAL RECOVERY COMPARISONS \$/TON = VALUE OF CONCENTRATES AT MILL





GROSS VALUE NO PYRITE CONC.

Cu @ 1.77 \$/lb Pb @ 0.49 \$/lb Zn @ 0.59 \$/lb

Au @ 618.00 \$/oz Ag @ 8.70 \$/oz

AS OF JAN 14, 1988.



SILVER QUEEN NINE

ORE RESERVES --- PROVEN AND PROBABLE

VEIN	IPROVEN /or/	: BLOCK :	TONS	; GRADES ;				
	PROBABLE	(SECTION)		IAU oz/ton	IAG oz/ton	Cu Z	PbX	l In X
No. 3	PROVEN	24500-24300	132570	0.084	5.580	0.840	2.400	6.360
	l	! ABOVE 2600' !		1	1	ł	:	:
No. 3	; PROVEN	: 26400-27600 :	114280	1 0.109	6.410	0.290	1.720	6.440
	:	: ABOVE 2600' ;		:	:	!	;	;
No. 3	: PROVEN	: 27800-28700 :	74280	0.096	10.850	1 0.560	1.290	4.880
	1	: ABOVE 2600' :		:	:	;	;	!
No. 3	PROVEN	BELOW 2600	256460	0.122	8.040	: 0.390 :	: 0.970 !	7.380
No. 3 Extension	; ; proven n:diluted to 4'	! 28950-29150 !	8200	: : 0.080	! ! 17.870	: : 0.770 :	: : 0.750 :	: : 1.920 :
	1	1 1		•	•		!	1
No. 3 Extension	PROBABLE	: 28900-29200 : :	12000	0.080	; 7.870 !	! 0.770 !	0.750	1.920
FOOTWALL VEIN	: PROBABLE	27200-27400	47500	! !	6.530	; ;	{ }	: : 6.670
AFIN	i	1 1		i !	i !	i !	i !	i !
FOOTWALL VEIN	PROBABLE	27850-28000 I	13500	0.086	6.190	1.470	0.490	9.790
FOOTWALL	: : PROBABLE	: 28400-28600 :	25875	: 0.037	! ! 15.620	: : 1.680	! ! 0.570	; ; 3.320
VEIN	!	!		!	!	!	!	!
FOOTWALL VEIN	: PROBABLE	:#3 EXTENSION AREA :	7000	0.050	7.480	: ! 2.060	: ! 0.720 !	; ; 5.390
No. 2	PROVEN	! 24550-24700 !	23500	: 0.068	; ; 2.210	; ; 0.130	: : 4.130	: : 10.890
}		SUBDRIFT RAISE		!	!	!	!	1
No. 5	PROBABLE	BO' ADIT	25000	0.030	8.750	1.020	0.360	10.000
CAMP VEIN	: ! PROBABLE !	: !9 DDH CAMP #1 : !DILUTED :	25000	0.030	71.050	: 0.230	: : 1.010 :	: 2.980 :
 		;		1	!	1	ł	!
TONNAGE Total	1	; ;	765165	. 0.093	9.920	0.625	1.410	6.490

NOTE: TONNAGES BASED ON ORIGINAL CALCULATIONS BY W.W. CUMMINGS.

# Northern Miner

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# Houston expects production decision by late spring

VANCOUVER — A production decision is expected by late spring on the Silver Queen polymetallic property near Houston, B.C., owned 60% by Houston Metals Corp. and 40% by New Nadina Exploration.

A feasibility report based on a 500-ton-per-day operation is in the preliminary stages and will be finished early May. Work has also started on the Stage I permitting

Houston spent \$2.25 million in 1987 on 4,418 ft of drifting, 5,700 ft of underground drilling, 94.00. It of surface drilling, metallurgical testing and rehabilitation of old mine workings. An additional \$3

million has been raised in two flow through financing agreements.

A 2,800-ft decline at the south end of the mine is in progress and a 4,300-ft crosscut from west to east will intersect a number of vein structures at the 2,600-ft level. Underground drilling and drifting is also continuing.

The exploration work is expected to increase reserves from the 1.5 million proven, probable and inferred tons. In the proven and probable category are 577,590 tons averaging 0.108 oz gold, 7.51 oz silver, 0.49% copper, 1.49% lead and 6.53% zinc, as well as germanium, indium, cadmium and gallium values.

The mine was put into production with a 500-ton concentrator in 1972 but closed in 1973 because of problems in the mining method, mill design and low metal prices. Extensive metallurgical tests are under way and Houston is negotiating with smelters to take the ore. The complex orebody is similar to Equity Silver Mines and contains some arsenic.

Houston is entitled to a 2.5-times return of its exploration money from 80% of cash flow, before New Nadina gets its full 40% interest.

## Consolidated Statement of Changes in Financial Position

	Six Months Ended October 31, 1987
Operating Activities	
Net loss for the period Less: amortization of goodwill	\$ (2,834) 2,834
	0
Change in non-cash working capital items: Accounts receivable	0
Deposit	(4,000)
Subscriptions receivable	(49,074)
Due (from) to related parties	(5,000)
Funds available for exploration	(697,925)
Accounts payable and accrued liabilities	115,820
Subscription payable	180,000
Cash Used in Operating Activities	(460,179)
Investment Activities	
Investment	(482,500)
Expenditures on mineral property – net	(1,074,183)
Purchase of fixed assets – net	(1,220)
Deferred administrative expenses	(331,899)
Cash Used in Investment Activities	(1,889,802)
Financing Activities	
Capital stock issued: Canadian exploration expenditures incurred Private placement – share puchase	1,050,000
warrants exercised	461,340
Capital stock subscribed:	700,000
Cash Provided by Financing Activities	2,211,340
Net Decrease in Cash During the Period	(138,641)
Cash Position, Beginning of Period	157,371
Cash Position, End of Period	\$ 18,730

(Unaudited) (Canadian Dollars) Prepared by Management.

#### **Consolidated Statement of Loss and Deficit**

Six Months Ended October 31, 1987

Amortization of Goodwill	\$	2,834
Net Loss for the Period	-	2,834
Deficit, Beginning of Period		66,893
Deficit, End of Period	\$	69,727

Houston Metals Corporation

#### **Corporate Directory**

#### **Corporate Offices**

#910 – 800 West Pender Street Vancouver, B.C. V6C 2V6 Phone (604) 683-4245 Fax (604) 683-8366

#### **Transfer Agent**

Guaranty Trust Company of Canada 800 West Pender Street Vancouver, B.C. V6C 2V7

Guaranty Trust Company of Canada 88 University Avenue Toronto, Ontario M5J 1T8

#### **Shares Listed**

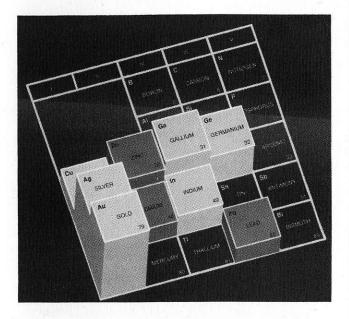
Vancouver Stock Exchange Trading Symbol "HML.V" O.T.C. – U.S.A.

#### Capitalization

Authorized 50,000,000 Issued 7,600,000

Shareholders and others wanting information about Houston Metals Corporation or wishing to receive copies of the Annual Report, Semi-Annual Report and News Releases should call or write.

## HOUSTON METALS CORPORATION



#### **Dear Shareholders**

Good progress is being made at the Silver Queen Mine.

Houston is proceeding with two major headings: a minus 15% 13′ x 9′ declined which has advanced 700′ towards its objective of 3100′, 465′ down-dip a high grade gold-silver-zinc ore shoot, and a 9′ x 9′ cross cut which has advanced 800′ towards its objective of 4300′, the Cole Lake high grade silver vein.

Surface drilling has traced the high grade Camp vein (30 oz per ton of silver or better) for over 400′ and is progressing.

Lakefield Research is completing the metallurgical research on the ore and will present a mill flow-sheet within the next two weeks.

A flow-through financing of \$1,500,000 with First Exploration Fund 1988 (sponsored by Merrill Lynch Canada Inc./Dominion Securities Pitfield Ltd.) and a private placement of \$420,000 have been concluded.

James Wade & Associates, mining engineers, Toronto, Ontario, and Norecol Environmental Consultants Ltd., Vancouver, B.C. are retained and will produce a feasibility study and an environmental impact report by early 1988. Mr. Bert Easton, formerly general sales manager of a major non-ferrous metal producer, has been retained to assist in marketing Houston's concentrates.

At the conclusion of the current exploration program, the Silver Queen's proven, probable, and possible reserves placed at 1,500,000 tons will be increased substantially and major portion of ore will be

reclassified from possible to probable and from probable to proven.

The medium grade of this ore is currently given as: gold .1 oz/ton, silver 10 oz/ton, zinc 7%, lead 3%, copper .75% and germanium .1 kg/ton.

The last half of 1987 was a period of abnormal market activity and no clear trend has yet emerged. Houston, with its mix of precious, base, and high tech metals is ideally placed to cope with this situation, providing both an inflationary and deflationary hedge, and should be considered as a buy and a long term hold at this time.

Thanking you for your continued support.

ON BEHALF OF THE BOARD OF DIRECTORS

"Adolf A. Petancic" President

December 4, 1987

Houston Metals Corporation

#### **Consolidated Balance Sheet**

	As at October 31, 1987			
	October 31, 1987	April 30, 1987	October 27, 1986 (Date of amalgamation. See note)	
ASSETS			See note)	
Current Cash Accounts receivable Deposits Subscriptions receivable Due from related parties	\$ 18,730 8,267 99,074 14,068	\$ 157,371 4,267 50,000 9,068	\$ 667 1,354	
Due from related parties	140,139	220,706	2,021	
Funds Available For Exploration Expenses Investment Mineral Properties Deferred Administration	697,925 827,500 2,597,777	345,000 1,518,058	497,717	
Expenses	748,505	416,605	208,919	
Mining Equipment Fixed Assets Goodwill	31,366 10,284 50,975 \$5,104,471	36,902 9,064 53,810 \$2,600,145	36,902 56,683 \$ 802,242	
LIABILITIES				
Current: Accounts payable and accrued liabilities Due to Putco Due to related parties	\$ 189,827 180,000 - 369,827	\$ 74,007 	\$ 51,738 93,204 144,942	
SHAREHOLDERS' EQUITY				
Share Capital Subscribed Stock	4,054,371 750,000	2,543,031 50,000	719,966	
Deficit	(69,727)			
	4,734,644	2,526,138	657,300	
	\$5,104,471	\$2,600,145	\$ 802,242	

On Behalf of the Board:

"Adolf A. Petancic"
Director

"J. Michael Mackey" Director

Note: The balance sheet has been prepared on a comparative basis with those of October 27, 1986 (date of amalgamation) and April 30, 1987. The statements have not been prepared on a comparative basis as at October 31, 1987, as the fiscal year ends of the two predecessor companies did not coincide with each other, nor with Houston's.

(unaudited) (Canadian Dollars) Prepared by Management