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V. Schroeter
Feb. 25/91

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→ Tulsequah
Chief

REDFERN RESOURCES LTD.

**The Tulsequah Chief Massive Sulphide Project,
Northwestern British Columbia**

**Summary Report
January, 1990**

SUMMARY

Geological reserves at the Tulsequah Chief more than doubled in 1989 to 5.8 million tons. The average grade is 1.60% copper, 1.31% lead, 7.02% zinc, 0.08 oz/ton gold and 2.94 oz/ton silver. At current (November 20, 1989) Canadian Producer prices these reserves have a gross value of approximately \$240 per ton, or \$1.39 billion.

A preliminary economic analysis suggests that a mining operation based on a 6,000,000 ton reserve with a production rate of 2,000 tons per day at the above grades and metal prices would be economically viable.

A \$1.6 million underground program of drifting and diamond drilling is planned for the first phase of work in 1990. A Phase II program of in-fill drilling estimated to cost \$1.5 million will be necessary to allow a more accurate reserve determination prior to commencing underground development. Costs are shared on a 60% Cominco - 40% Redfern basis.

The 1990 deep drilling could add a further 3 million tons thereby increasing reserves to a total of 9,000,000 tons. An ultimate potential of up to 20 million tons is reasonable based on the size of the mineral system and other geological considerations.

The Tulsequah Chief operations site is located 35 air miles northeast of Juneau, Alaska in the Tulsequah river valley at an elevation of about 400 feet. An airstrip located close to the property provides good access. Metal concentrates from a producing operation can be barged 42 miles to the deep water port of Juneau, as was done in the 1950's when the property was in production.

Redfern is debt free and has approximately \$700,000 of unallocated working capital as at December 31, 1989. The Company's directors and officers are professionals with many years of experience in the geological, financial and legal fields.

LOCATION AND ACCESS

The Tulsequah Chief property is located in northwestern B.C. on the east side of the Tulsequah River valley at Lat. 58° 43' Long. 133° 35', approximately 60 miles south of Atlin, B.C. and 35 air miles northwest of Juneau, Alaska. A 4,000 foot long gravel airstrip capable of handling large aircraft is located near the mine. Concentrates from a mining operation can be transported by barge along the Taku inlet to the deep water port of Juneau, a distance of 42 miles, as was done when the property was in production in the 1950's (see location map), or alternatively a road can be built to the head of the Taku Inlet, a distance of 20 miles, where deep water ships may anchor. There are suitable locations for accommodation, mill and tailings disposal in the immediate area.

REDFERN-COMINCO JOINT VENTURE

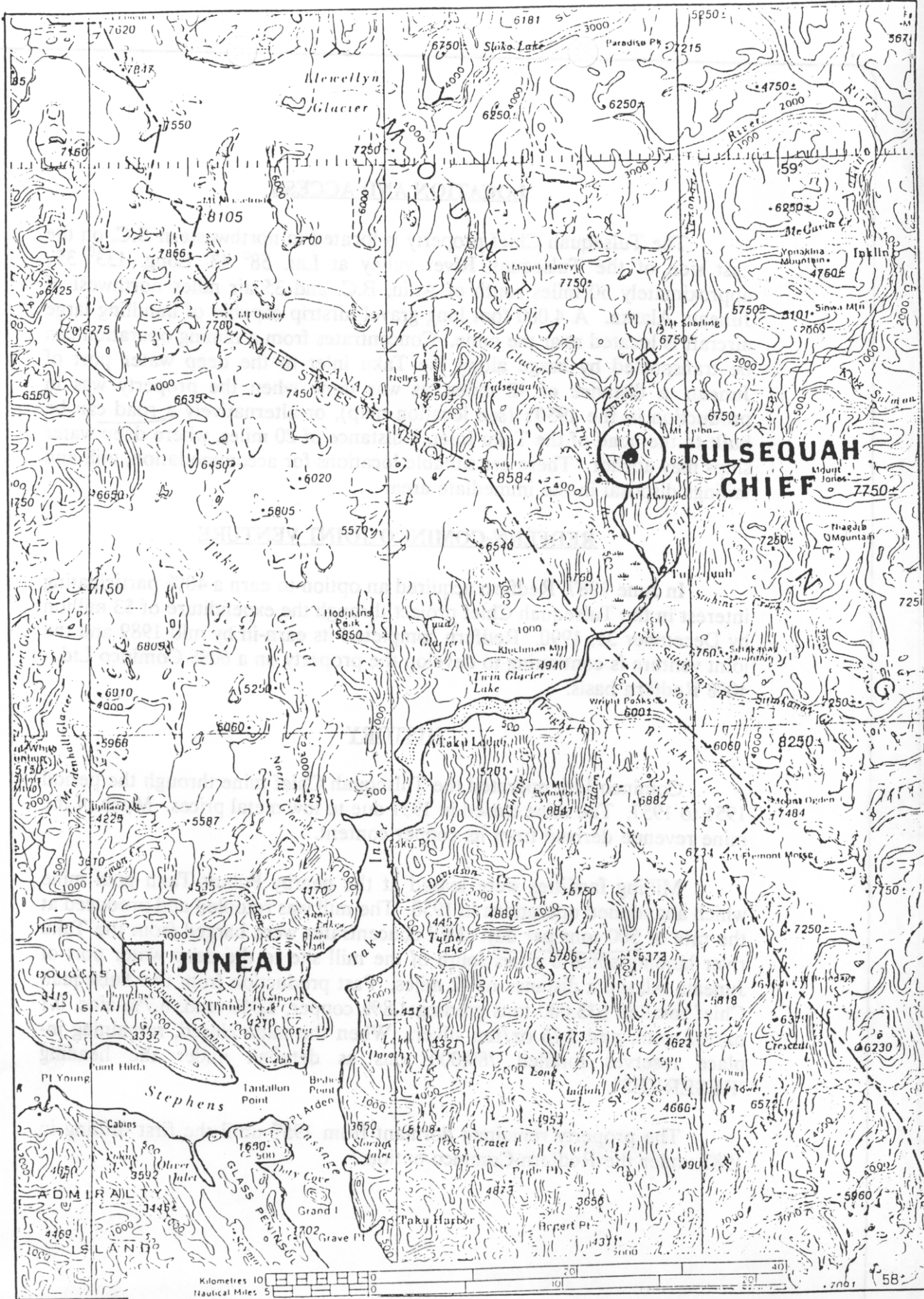
In June 1987, Redfern acquired an option to earn a 40% participating interest in the Tulsequah Chief project through the expenditure of \$3 million by December 31, 1990. Redfern completed its earn-in by mid-1989 and the joint venture is continuing to develop the property on a 60% Cominco Ltd. - 40% Redfern basis.

HISTORY

Cominco Ltd. operated the Tulsequah Chief mine through the period 1951 to 1957. The mine closed in 1957 due to low metal prices. Much of the mine revenue derived from its copper content.

Milling facilities were leased at the nearby Polaris-Taku gold mine which abandoned operations in 1950. The mill was retooled and produced at the rate of 500 tons per day. Mill concentrates were barged from the Taku river landing some 6 miles south of the mill site to the deep water port of Juneau, Alaska a distance of 42 miles. Past production from the Tulsequah Chief totalled 633,000 tons grading 1.8% copper, 1.3% lead, 6.7% zinc, 0.1 oz/ton gold, and 3.16 oz/ton silver. When the mine closed, remaining in-place reserves totalled 780,000 tons as detailed under the heading "RESERVES".

The property remained dormant from 1957 until the first drilling in 1987 under the Redfern-Cominco option.



Kilometres 10 0 0
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GEOLOGY

The Tulsequah Chief mineral deposit is a volcanogenic massive sulphide (VMS) containing zinc, copper, lead, gold and silver. More specifically the deposit belongs to a class of massive sulphides known as Kuroko type which are relatively rich in gold and silver. One particularly favourable aspect of VMS deposits, as compared to other deposit types, is that they display good continuity and reserves can be reliably determined based upon much wider spaced drill patterns. Another favourable aspect is that these deposits are polymetallic and therefore not strongly affected by negative price changes of a single metal.

When the mine was in production in the 1950's, a lack of understanding of the geological controls of VMS deposits hampered the search for ore. Today, VMS deposits are well understood geologically. The Tulsequah Chief ore is now known to be stratigraphically controlled, as opposed to structurally controlled, hence exploration can be focused on the right targets and discovery of new ore is relatively simple.

The Tulsequah Chief mineralization is contained in a particular stratigraphic unit known as the "mineral horizon". The volcanic strata have been tilted so that the mineral horizon, and the ore contained within it, dips generally to the north at 70° - 75° from the horizontal. In the upper mine levels, the ore occurs in several discrete lenses which merge with depth into a single large and continuous deposit. Also the grade and thickness of the mineralization increases with depth.

Underground drilling in 1989 explored the mineral horizon to a depth of 1,600 feet below the 5200 level (lowest mine level), and more than doubled the reserves from 2,381,000 tons to 5,822,000 tons. Nine of the ten holes drilled intersected massive sulphides and the one hole which did not, intersected a narrow post mineral dyke.

Dimensions of the deposit are approximately 1,400 feet horizontally, 1,800 feet vertically and an average of 20 feet in thickness. Mineralization is open to depth, upwards and on strike in both directions.


The mineral system at the Tulsequah Chief, considering the dimensions of the alteration zone and of the mineral horizon which contains the ore deposits, is one of the largest examples of the Kuroko type and geologists familiar with the property recognize that the potential could be as large as 20 million tons.

A second alteration zone like that associated with the main deposit, and with even better base and precious metal geochemistry, is located to the west of the Tulsequah Chief mineral system. This new system remains relatively unexplored.

RESERVES

At the time the mine closed in 1957 Cominco Ltd. calculated a measured and indicated ore reserve of 780,000 tons grading 1.3% copper, 1.6% lead, 8.0% zinc, 0.07 oz/ton gold and 2.9 oz/ton silver. Reserves have increased dramatically as a result of the 1987, 1988 and 1989 drill programs. Current geological reserves including the 780,000 tons are 5,822,000 tons grading 1.60% copper, 1.31% lead, 7.02 zinc, 0.08 oz/ton gold, 2.94 oz/ton silver. This reserve contains 186,310,000 pounds of copper, 152,540,000 pounds of lead, 817,435,000 pounds of zinc, 465,775 ozs. of gold and 17,117,230 ozs. of silver.

METALLURGY

When the property was in production average metallurgical recoveries were as follows: 

<u>Metal</u>	<u>Recovery</u>
copper	84.4%
lead	85.0%
zinc	87.3%
gold	76.5%
silver	89.9%

These recoveries are remarkably high considering that the mill (Polaris-Taku) used to process the ore was originally designed for a different type of ore (vein type gold ore). It is expected that a mill, specifically designed for the treatment of polymetallic ores will achieve much better recoveries. Recoveries of close to 90% as an average for all metals is a

reasonable expectation. Importantly, concentrates are clean and contain no deleterious components that would compromise milling, smelting or cause environmental concern.

1990 PROGRAM

A \$1.6 million underground program is planned for Phase I and will include an extension of the 5400 level drift a further 600 feet to the north where new drill stations can be established for continued deep drilling. The deep drilling (approx. 12,000 feet) will test the mineral horizon 1,000 feet deeper than the lowest levels tested to date. A Phase II program of in-fill drilling expected to cost in the order of \$1,500,000 will be necessary to allow a more accurate reserve determination.

Upon a successful completion of the above programs, a pre-production decline would be driven to provide underground access for development drifting and drilling and to provide a platform for drilling to greater depths.

POTENTIAL

Geological reserves more than doubled from 2,381,000 in 1988 to 5,822,000 tons in 1989 and success in the 1990 deep drilling could add as much as a further 3,000,000 tons to geological reserves. Further substantial additions to reserves may be expected on strike to the east and to the west, as well as within the up-dip portion of the G lens.

An ultimate potential in the 10-20,000,000 ton range appears realistic based on results to date and current geological understanding of the deposit.

ECONOMICS

Tables on pages 11, 12 and 13 present a proforma economic analysis for deposit sizes of 6, 10 and 20 million tons with production rates of 2,000, 3,000 and 4,000 tons per day respectively and capital costs of \$89 million, \$129 million and \$154 million respectively. The capital costs are estimates in as much as they cannot be determined with accuracy until a detailed feasibility is completed. Calculations are based on normal operating costs, current smelter costs, and current (November 20, 1989) Canadian Producer prices for base metals. It appears that a reserve of 6,000,000 tons could support a highly profitable mining operation.

CONCLUSION

The Tulsequah Chief is the best undeveloped base-precious metal massive sulphide deposit in Western Canada.

The association with Cominco ensures that the project will have the best geological, engineering and mining expertise.

Based on the current geological reserves and the obvious potential for additional reserves, the property is likely to realize production. We anticipate that the forthcoming exploration programs will substantially advance the property towards this goal.

CORPORATE INFORMATION

Redfern Resources Ltd. has traded on the Vancouver Stock Exchange since 1979 and has recently been accepted for trading on the Toronto Stock Exchange (RFR). The Company's directors and officers are professionals with extensive experience in the geological, financial and legal fields.

Board of Directors

John A. Greig, M.Sc., P.Geol.
President & Chairman, Director

George F. Fink, B.Comm., C.A.
Co-Chairman, Director

J. Michael Kenyon, M.Sc., P.Geol.
Secretary-Treasurer, Director

F. William Woodward
Assistant Secretary, Director

Wayne J. Babcock, B.Sc., P.Geoph.
Director

Murray W. Pyke, M.Sc., P.Geol.
Director

Jonathan A. Rubenstein, LLB.
Director

Carl R. Jonsson, LLB.
Director

Share Capitalization

As at December 31, 1989, 9,228,568 shares are issued and outstanding of an authorized 20,000,000 shares.

Financial

The Company is debt free and has approximately \$700,000 of unallocated working capital as at December 31, 1989. The Company also receives income of approximately \$10,000 per month from oil and natural gas production.

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Registrar and Transfer Agent

Montreal Trust Company
Vancouver, British Columbia
Toronto, Ontario

Auditors

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5811 Cooney Road
Richmond, British Columbia
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TULSEQUAH CHIEF DRILL INTERCEPTS

<u>Hole #</u>	<u>Intercept (ft)</u>	<u>Length (ft)</u>	<u>True Width (ft)</u>	<u>% Cu</u>	<u>% Pb</u>	<u>% Zn</u>	<u>Au oz/t</u>	<u>Ag oz/t</u>
87-1	1812.5-1837.5	25.0	18.6	0.52	0.55	2.28	0.03	1.30
	1857-1877.5	20.5	15.2	1.37	2.78	8.00	0.185	6.50
87-5	2102-2115.5	13.5	10.3	1.31	1.08	6.03	0.07	2.48
88-2	701-715	14.0	13.5	0.51	1.55	11.63	0.015	1.76
88-3	566-574	8.0	6.0	2.48	0.13	0.39	0.11	1.55
	582-639.5	57.5	38.0	4.60	0.25	3.09	0.088	1.83
88-4	547-572	25.0	16.1	0.61	0.6	3.36	0.065	1.88
88-5	694.5-704.5	10.0	6.9	0.77	0.77	4.06	0.046	2.70
	719-726.5	7.5	5.2	0.88	0.65	6.13	0.048	0.99
	738.5-743.2	4.7	3.2	1.16	1.05	6.42	0.04	1.62
88-6	361-364	3.0	2.0	0.43	1.00	4.00	0.014	1.146
88-7	477-485	8.0	5.9	0.98	1.85	6.12	0.04	1.29
	495.7-501.4	5.7	4.2	2.39	2.04	14.04	0.17	9.16
	518.5-542	23.5	16.8	0.30	1.00	3.01	0.04	1.91
88-8	763.5-775	11.5	9.1	5.04	3.03	0.18	0.083	1.83
89-12	923.5-935.5	12.0	10.0	2.23	0.48	3.79	0.034	1.33
89-13	1230-1279	49.0	40.0	1.03	1.47	6.24	0.068	2.68
89-14	1109-1110	1.0		0.45	0.98	7.80	0.004	0.16
	1172.5-1174	1.5		2.17	1.08	2.19	0.002	0.32
89-15	1294.5-1299.6	5.1	3.0	1.08	0.67	24.11	0.048	2.72
	1359-1375.6	16.6	12.0	0.98	1.73	10.67	0.060	1.11
89-16	1845.7-1860.6	14.9	9.5	0.8	1.42	10.00	0.098	7.41
89-18	1760-1794.7	34.7	25.0	0.87	2.16	11.87	0.081	5.20
89-19	1231.3-1254.5	23.2	16.0	1.32	1.75	11.84	0.061	3.40
89-20	866.9-871.5	4.6	3.2	0.73	1.06	8.28	0.071	1.90
	880-887.5	7.5	5.3	1.48	0.46	5.03	0.11	1.80
89-21	1647-1716.1	69.1	52.0	1.20	1.16	6.00	0.106	3.44

PRELIMINARY ECONOMIC ANALYSIS

The three tables presented with this report address the potential significance to Redfern of production from the Tulsequah Chief project for deposit sizes of 6, 10 and 20 million tons.

The following table outlines the price and recovery parameters used in the economic estimates:

	<u>Mine Grade</u>	<u>% Recovery Mill - Smelter</u>		<u>Metal Price (\$/lb or \$/oz)</u>
Copper	1.6%	92	75	1.38
Lead	1.3%	93	40	0.48
Zinc	7.02%	90	60	0.90
Gold	0.08 oz/t	90	90	470
Silver	2.93 oz/t	90	90	6.32

Notes to the Economic Analysis

1. Mill recoveries are projected based upon historical production and the uncomplicated metallurgy of the ores.
2. Smelter recoveries are from recent contracts and take into account smelting and refining charges.
3. The 6, 10 and 20 million ton reserve cases include a 10% dilution factor. Mine grades have been diluted 10% for the economic analysis, to represent a mill head grade.
4. Capital costs used for the 6, 10 and 20 million ton cases are \$89, \$129 and \$154 million respectively. These capital costs are estimates based upon industry averages for similar size plants and locations.
5. All tons are short tons and costs, revenues, and metal prices are in Canadian funds. All figures in the tables are for Redfern's 40% share of the project.

6,000,000 TON RESERVE

Redfern Resources Ltd

CASHFLOW PROJECTIONS (\$C 000'S)

with Tulsequah Project at 2 000 s.tons/day

Base Case

- all debt financing after 1990
- figures include Redfern's 40% share of JV

CASH FLOW	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Net Revenue	150	150	11 904	23 657	23 657	23 657	23 657	23 657	23 657	23 657	23 657	201 462
Interest Expense		1 526	3 221	2 477								7 225
Taxes:												
Federal Income				786	3 866	3 866	4 106	4 286	4 420	4 521	5 228	31 080
BC Income				1 496	2 596	2 756	2 876	2 966	3 033	3 083	3 550	22 356
BC Mining				1 557	2 364	2 510	2 619	2 701	2 762	2 808	3 302	20 624
Fixed Assets Net		8 000	14 000									22 000
Exploration Exp	4 000	4 800	4 800	400	400	400	400	400	400	400	400	16 800
Resource Propert												
Salvage											5 500	5 500
net cash yearly	(3 850)	(14 176)	(10 118)	16 940	14 430	14 125	13 657	13 305	13 042	12 844	16 677	86 877
net cash cumula	(3 850)	(18 026)	(28 144)	(11 203)	3 227	17 352	31 008	44 314	57 356	70 200	86 877	
Shares issued	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	
Earnings per shar after tax	(.35)	(1.29)	(.92)	1.54	1.31	1.28	1.24	1.21	1.19	1.17	1.52	

<p>IRR (%) = 37.15%</p>	<p>Effective Tax rate (%)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-left: 20px;">Federal</td> <td style="text-align: right;">20.53%</td> </tr> <tr> <td style="padding-left: 20px;">BC Income Tax</td> <td style="text-align: right;">13.89%</td> </tr> <tr> <td style="padding-left: 20px;">BC Mining Tax</td> <td style="text-align: right;">13.75%</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">48.18%</td> </tr> </table>	Federal	20.53%	BC Income Tax	13.89%	BC Mining Tax	13.75%		48.18%
Federal	20.53%								
BC Income Tax	13.89%								
BC Mining Tax	13.75%								
	48.18%								

10,000,000 TON RESERVE

Redfern Resources Ltd

CASHFLOW PROJECTIONS (\$C 000'S)

with Tulsequah Project at 3 000 s.tons/day

• base case

- all debt financing after 1990

- figures include Redfern's 40% share of JV

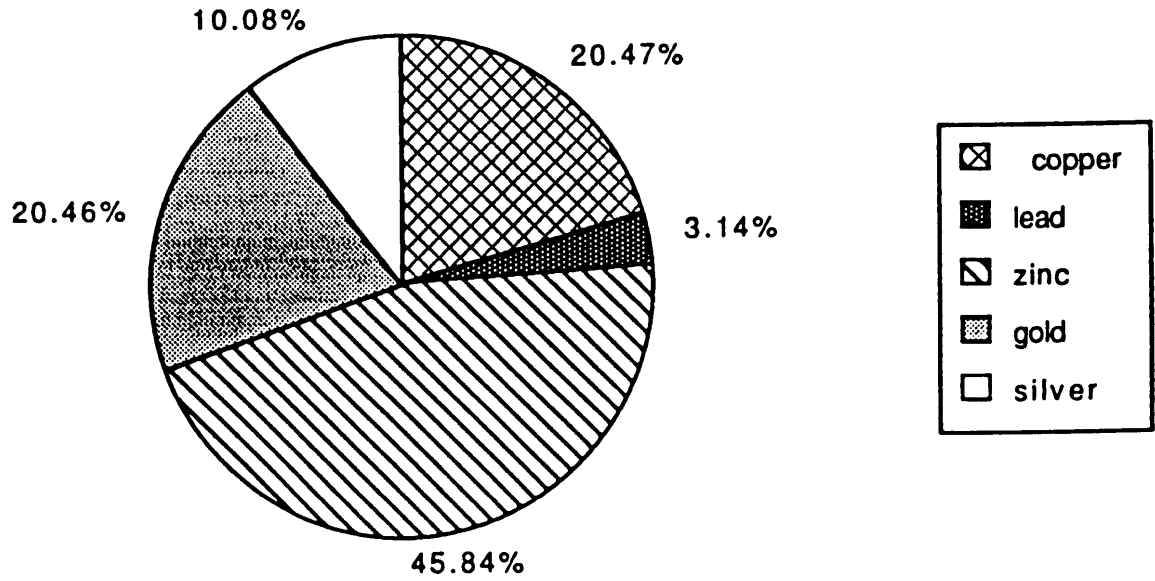
CASH FLOW	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Net Revenue	150	150	150	18 830	37 511	37 511	37 511	37 511	37 511	37 511	37 511	37 511	37 511	356 878
Interest Expense		746	2 426	4 936	3 641									11 749
Taxes:														
Federal Income					538	6 736	6 986	7 173	7 313	7 418	7 497	7 556	9 112	60 329
BC Income					2 064	4 319	4 533	4 693	4 814	4 904	4 971	5 022	5 740	41 059
BC Mining					2 284	3 933	4 128	4 274	4 384	4 466	4 528	4 574	5 336	37 907
Fixed Assets Net			8 800	20 400										29 200
Exploration Exp	4 000	2 400	10 000	8 400	400	400	400	400	400	400	400	400	400	28 400
Resource Property Salvage													7 300	7 300
net cash yearly	(3 850)	(2 996)	(21 076)	(14 906)	28 584	22 123	21 465	20 971	20 601	20 323	20 115	19 959	24 223	155 535
net cash cumula:	(3 850)	(6 846)	(27 922)	(42 828)	(14 243)	7 880	29 344	50 315	70 916	91 239	111 354	131 312	155 535	
Shares Issued	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	
Earnings per share after tax	(.35)	(.27)	(1.92)	(1.36)	2.60	2.01	1.95	1.91	1.87	1.85	1.83	1.81	2.20	

IRR (%)

= 37.14%

Effective Tax rate (%)

Federal	21.69%
BC Income Tax	13.93%
BC Mining Tax	13.53%
	49.14%



20,000,000 TON RESERVE

Redfern Resources Ltd
 CASH FLOW PROJECTION (\$C 000'S)
 with Tulsequah Project @ 4 000 s.tons/day
 • base case
 - all debt financing after 1990
 - figures include Redfern's 40% share of JV

CASH FLOW	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	
Net Revenue	150	150	150	26 457	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	52 765	765 611	
Interest Expense		1 316	3 606	6 412	4 057														15 391	
Taxes:																				
Federal Income					2 378	9 661	9 988	10 233	10 417	10 555	10 658	10 736	10 794	10 838	10 870	10 895	10 913	13 920	142 858	
BC Income					3 760	7 331	7 331	7 331	7 331	7 331	7 331	7 331	7 331	7 331	7 331	7 331	7 331	7 331	8 806	100 538
BC Mining					3 573	5 676	5 926	6 114	6 255	6 360	6 439	6 498	6 543	6 576	6 601	6 620	6 634	8 225	88 042	
Fixed Assets Net			12 200	25 400															37 600	
Exploration Exp	6 000	6 000	10 000	9 200	400	400	400	400	400	400	400	400	400	400	400	400	400	400	36 800	
Resource Proper																				
Salvage																		11 280	11 280	
net cash yearly	(5 850)	(7 166)	(25 656)	(14 554)	38 597	29 696	29 119	28 686	28 362	28 119	27 936	27 799	27 696	27 619	27 562	27 518	27 486	32 694	355 662	
net cash cumula	(5 850)	(13 016)	(38 672)	(53 227)	(14 630)	15 066	44 185	72 871	101 233	129 351	157 287	185 087	212 783	240 402	267 964	295 483	322 968	355 662		
Shares Issued	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000	11 000		
Earnings per sha after taxes	(0.53)	(0.65)	(2.33)	(1.32)	3.51	2.70	2.65	2.61	2.58	2.56	2.54	2.53	2.52	2.51	2.51	2.50	2.50	2.97		

IRR (%)	= 39.18%	Effective tax rate (%)	
		Fed Income Tax	20.79%
		BC Income Tax	14.63%
		BC Mining Tax	12.81%
			<u>48.24%</u>