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REDFERN RESOURCES LTD.

SUMMARY REPORT

on the

TULSEQUAH CHIEF

MASSIVE SULPHIDE PROPERTY

January 6, 1989

TULSEQUAH CHIEF PROPERTY

SUMMARY

Reserves at the Tulsequah Chief base metal-precious metal property increased in 1988 by a factor of 3 times to 2.4 million tons in all categories. The average grade is 2.03% copper, 1.25% lead, 6.28% zinc, 0.075 oz/ton gold and 2.68 oz/ton silver. At current Canadian producer prices these reserves have a gross value in the range of \$240 to \$250 per ton.

Based on assumed capital costs of \$80 million and on combined operating, smelting and refining costs of \$90 per ton, a mining operation with a proven reserve of 2.4 million tons at the above grades and metal prices would be economically viable.

A \$1,500,000 underground program of drifting and diamond drilling is planned for 1989. Redfern will spend the first \$300,000 to complete its 40% earn-in and the remaining \$1.2 million of expenditures will be shared 60% by Cominco and 40% by Redfern.

The 1989 program could result in a doubling of the reserves to approximately 5,000,000 tons. An ultimate potential of 10-20 million tons is possible based on the size of the mineral system and other geological considerations.

The property is located in the Tulsequah River Valley at approximately 500 feet elevation, 35 miles northeast of Juneau, Alaska. Access is excellent with a gravel airstrip located close to the property. Metal concentrates from a producing operation can be barged 42 miles by water to the deep water port of Juneau, Alaska as was done in the 1950's when the property was previously in production.

Redfern is debt free and has approximately \$700,000 of unallocated working capital as at December 31, 1988. The Company's directors and officers include professionals with many years of experience in the geological, accounting 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 latitude 58°43', longitude 133°35', approximately 60 miles south of Atlin, B.C. and 35 miles northeast of Juneau, Alaska. A gravel airstrip capable of handling DC3 aircraft is located 6 miles south of the mine and provides good access. Concentrates from a mining operation can be easily 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). An ideal location for townsite, mill and tailings disposal exists about 4 miles south of the mine. A road will have to be constructed for the 4 miles between the mine and mill.

REDFERN - COMINCO JOINT VENTURE

Redfern has the option to earn a 40% participating interest through the expenditure of \$3 million by December 31, 1990. As at December 31, 1988 Redfern has spent \$2.7 million leaving \$300,000 to be expended to complete the earn-in. After earn-in, the property will be developed on a 60% Cominco - 40% Redfern joint venture basis.

HISTORY

Cominco Ltd. operated the Tulsequah Chief mine in the period 1951 - 1957. The mine closed in 1957 due to low metal prices. Much of the mine revenue was 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 total 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, 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 lay dormant from 1957 until the first drilling in 1987 under the Redfern - Cominco option.

GEOLOGY

The Tulsequah Chief mineral deposit is a polymetallic 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 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 reserve calculations can therefore be reliably made with a much wider spaced drill pattern. Another favourable aspect is that the 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 new ore. Today VMS deposits are well understood geologically. Tulsequah ore is now known to be stratigraphically controlled as opposed to structurally controlled, hence exploration can be focussed on the right targets and discovery of new ore is relatively simple.

The Tulsequah Chief deposit consists of several ore lenses ("A" to "G") which are contained within a particular volcanic horizon known as the "mineral horizon". The volcanic strata have been tilted so that the mineral horizon and the ore lenses contained within it all plunge or dip generally to the north at about 60° from the horizontal. The 1987 and 1988 drill programs have shown that the mineral system is strengthening with depth and the quantity of ore, measured as tons per vertical foot, is increasing dramatically with depth.

Underground drilling in 1987 and 1988 focussed on the "B", "E" and "G" ore lenses and was successful in tripling the reserves from 780,000 to 2,380,680 tons. Four drill holes extended the "G" lens to at least 575 feet in strike length and 500 feet down dip; 2 holes extended the "E" lens 700 feet down dip from the lowest mine level and a single hole extended the "B" lens 425 feet down dip.

For a more complete geological picture, the reader is referred to the attached maps and sections including surface geology, geology plan maps of the 5400 and 5200 mine levels, and vertical cross sections and longitudinal sections of the "E" and "G" ore lenses.

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. Based on the scale of the mineral system, the fact that almost none of the deposit has been lost through erosion and the fact that the quantity of ore, measured as tons per vertical foot, is increasing dramatically with depth, it appears that the heart of the mineral system is still down dip from the lowest levels tested to date. For these reasons, geologists familiar with the property, recognize that the potential reserves could be as large as 10-20 million tons.

In addition to the main Tulsequah Chief mineral system and alteration zone, a second alteration zone like that associated with the main deposit, and with even better base metal and precious metal geochemistry, is located to the west. Two drill holes tested this target in 1988 and results encourage the view that this may represent a whole new mineral system.

RESERVES

When 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. The 5200 level is the lowest mine adit and serves as the demarcation level for upper and lower ore reserves. Calculations are based on a tonnage factor of 10 cubic feet per ton, a 20% dilution factor for ore above the 5200 level and 10% dilution for indicated reserves below the 5200 level. No dilution has been calculated for inferred reserves. Measured reserve blocks have four sided development and a 25 foot area of influence. Indicated ore is less than four sided development with a 50 foot area of

influence or a halo of 25 feet around measured ore. Inferred reserves are calculated from diamond drill data with an approximate 165 foot area of assay influence or less if hole perimeters overlap. The table below is a presentation of reserves in all categories.

<u>Category</u>	<u>Tons</u>	<u>% Cu</u>	<u>% Pb</u>	<u>% Zn</u>	<u>Au oz/ton</u>	<u>Ag oz/ton</u>
Measured	156,980	1.75	1.27	7.30	0.08	3.67
Indicated	621,700	1.20	1.60	8.20	0.07	2.70
Inferred	1,602,000	2.39	1.09	5.45	0.078	2.58
	2,380,680	2.03	1.25	6.28	0.075	2.68

Almost all of the reserves are contained within the "B", "E" and "G" ore lenses which are wide open to depth. Additionally the "G" lens remains open above the 5200 level, possibly for as much as 1,000 feet. The "A" and "C" ore lenses have not as yet been explored to depth.

METALLURGY

When the Tulsequah Chief mine was in production in the period 1951 to 1957 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) was originally constructed for the treatment of arsenical gold ores. It is reasonable to expect that a mill specifically designed for the treatment of the polymetallic ores of the Tulsequah Chief will achieve much better recoveries. A 90% recovery 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.

1989 PROGRAM

A \$1,500,000 underground program is planned and will include 500 to 700 feet of drifting to establish drill stations for continued deeper drilling of the "B", "E" and "G" ore lenses. Drilling may also test the upward extension of the "G" lens as well as the depth extensions of the "A" and "C" ore lenses. It is also likely that new ore lenses will be found within the ore hosting mineral horizon.

POTENTIAL

Reserves were tripled from 780,000 to 2,380,680 tons in 1988 and it is considered likely that the 1989 program could double the reserves again to approximately 5,000,000 tons.

An ultimate potential of 10-20 million tons appears very realistic based on the substantial increase in the dimensions of the ore zones with depth and on other geological considerations. VMS deposits generally occur in clusters and therefore other deposits may be discovered on the extensive Cominco - Redfern property.

ECONOMICS

The table on page 6 presents an economic analysis for various deposit sizes ranging from 2.5 to 20 million tons. The capital costs are estimates in as much as they cannot be determined with any accuracy until a detailed feasibility study is done. Based on the parameters as given, it would appear that a deposit with the present reserves and grade of the Tulsequah Chief would be commercially viable with a substantial profit margin (the example of 2.5 million tons compares with the present reserves of approximately 2.4 million tons which when diluted by 10% would increase to 2.6 million tons). Assuming 10,000,000 shares outstanding and a price to earnings ratio of 8:1 the Case I scenario would yield a potential price per share of \$6.00. At 5 million tons the corresponding potential share price would be about \$12.00.

CONCLUSION

The Tulsequah Chief Property is western Canada's best undeveloped base metal-precious metal deposit.

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

This property has an excellent chance of realizing production and we anticipate that the forthcoming exploration programs will substantially advance the property toward this goal.

**TULSEQUAH CHIEF
ECONOMIC ESTIMATE**

	Case I 2,500,000 ton reserve	Case II 5,000,000 ton reserve	Case III 10,000,000 ton reserve	Case IV 20,000,000 ton reserve
Production Rate - tons/day	1,000	1,500	3,000	4,000
Production - tons/year based on 350 days production/year	350,000	525,000	1,050,000	1,400,000
Mine Life - years	7.14	9.5	9.5	14.3
Capital Costs - estimated	80,000,000	100,000,000	140,000,000	160,000,000
*Gross Value of Ore - per ton based on current reserve grades and metal prices	250.00	250.00	250.00	250.00
Net Value of Ore - per ton after 10% average mining dilution	225.00	225.00	225.00	225.00
Net Value of Ore - per ton based on 90% average milling recovery	203.00	203.00	203.00	203.00
**Less Mine Operating Costs - per ton (mining, milling & overheads, etc.)	55.00	50.00	45.00	40.00
**Less Smelting, Refining & Transportation Costs - per ton	40.00	40.00	40.00	40.00
Pre-tax Profit - per ton of ore	108.00	113.00	118.00	123.00
Pre-tax Mine Profit - per year	37,800,000	59,325,000	123,900,000	172,200,000
Capital Payback Period - in years at 10% interest rate, quarterly payments (assumes 100% of initial cash flow to amortize capital costs)	2.4	1.9	1.3	1.0
Pre-tax Income to Redfern after capital payback - (40% Redfern) - per year	15,120,000 for 4.75 years	23,730,000 for 7.6 years	49,560,000 for 8.2 years	68,880,000 for 13.3 years
After-tax earnings to Redfern (combined federal & provincial taxes = 50%)	7,560,000	11,865,000	24,780,000	34,440,000
After-tax earnings per share of Redfern - assuming 10,000,000 shares issued	.76	1.19	2.48	3.44
Price/Earnings Ratio	8:1	10:1	10:1	12:1
POTENTIAL REDFERN SHARE PRICE \$	6.08	11.90	24.80	41.28

*Based on Canadian Producer Prices, December 5, 1988

**Based on Industry Average Costs for this type of operation.
(All monetary figures herein are in \$ Canadian)

CORPORATE INFORMATION

Redfern Resources Ltd. has traded on the Vancouver Stock Exchange (RFR) since December, 1979. The Company's directors and officers include professionals with extensive experience in the geological, accounting and legal fields.

Board of Directors

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

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

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

F. William Woodward
Director, Assistant Secretary

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, 1988, 8,245,678 shares are issued and outstanding of an authorized 10,000,000 shares. There are 300,000 warrants exercisable at \$1.60 which expire June 29, 1989 and directors, officers and employees have approximately 500,000 shares under option which expire in 1992.

Financial

The Company is debt free and has approximately \$700,000 of unallocated working capital as at December 31, 1988. During 1987 and 1988, financings for the Tulsequah project were provided by NIM, Mutual Trust Company and C.M. Oliver, all of which were flow through financings, and by Yorkton Securities, Canarim Investment Corporation and Midland Doherty Ltd. which were non-flow through financings.

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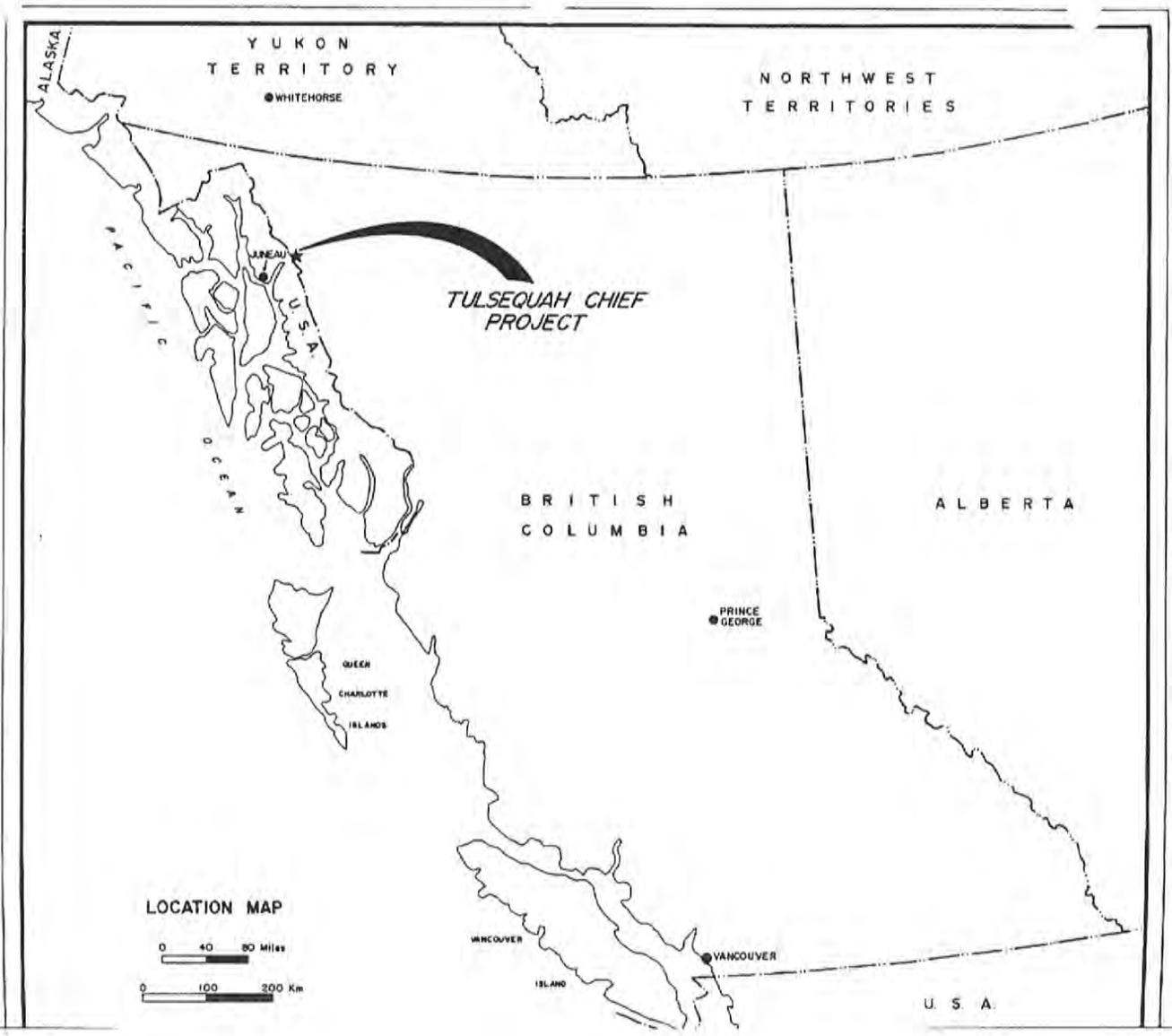
Angus, McClellan, Rubenstein & Haslam
World Trade Centre
Vancouver, British Columbia
V6C 3C8

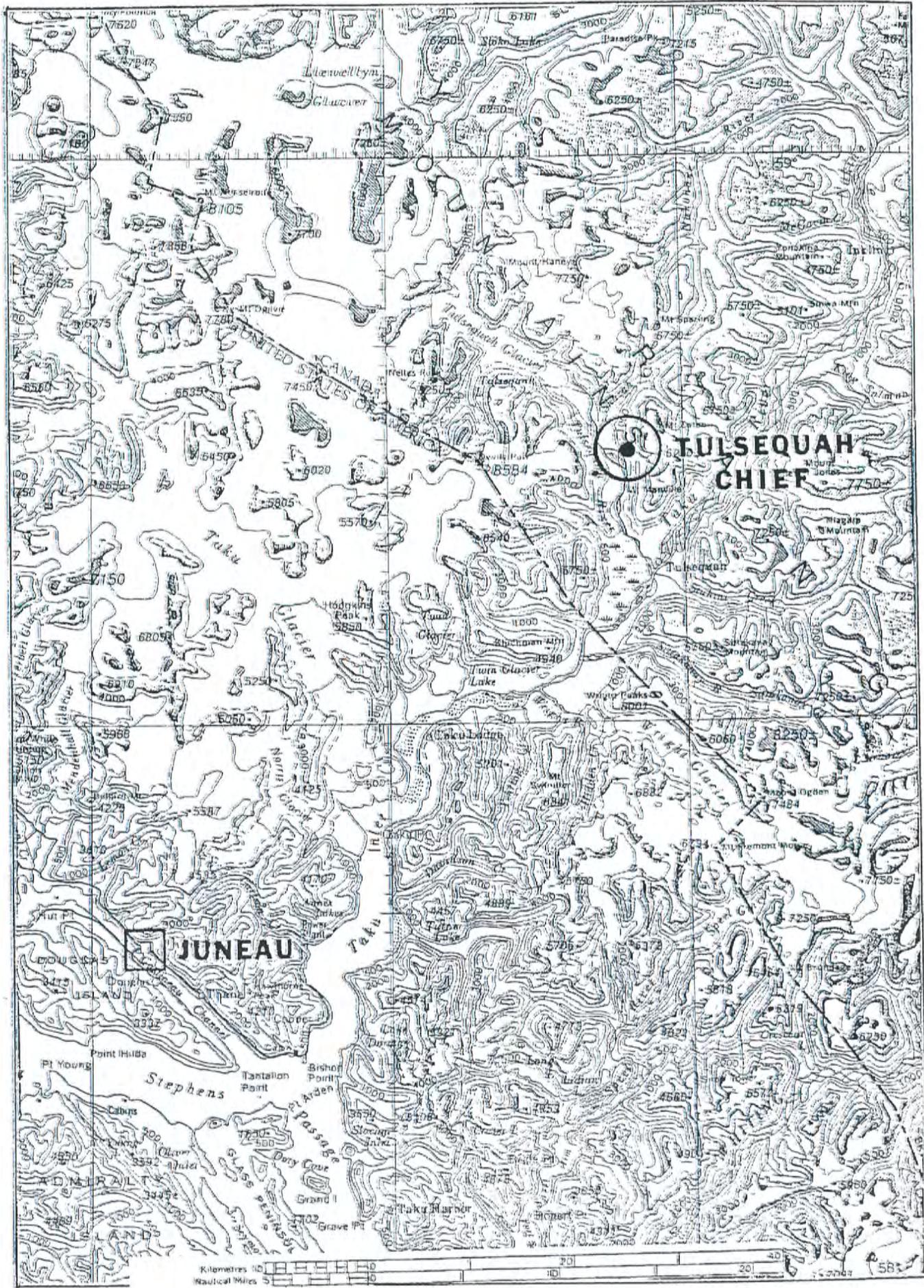
Registrar and Transfer Agent

Montreal Trust Company
510 Burrard Street
Vancouver, British Columbia

Auditors

KPMG Peat Marwick
Richmond, British Columbia

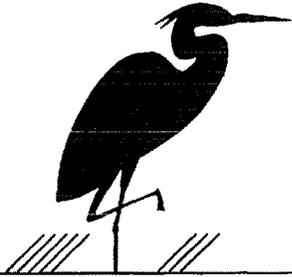




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TULSEQUAH CHIEF

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MEMBERS' BULLETIN

778 → Tulsequah Chief

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B.C. ENVIRONMENTAL INFORMATION INSTITUTE

An Organization Dedicated to Common Sense and Responsible
Natural Resource Management.

July 3, 1997

TULSEQUAH CHIEF

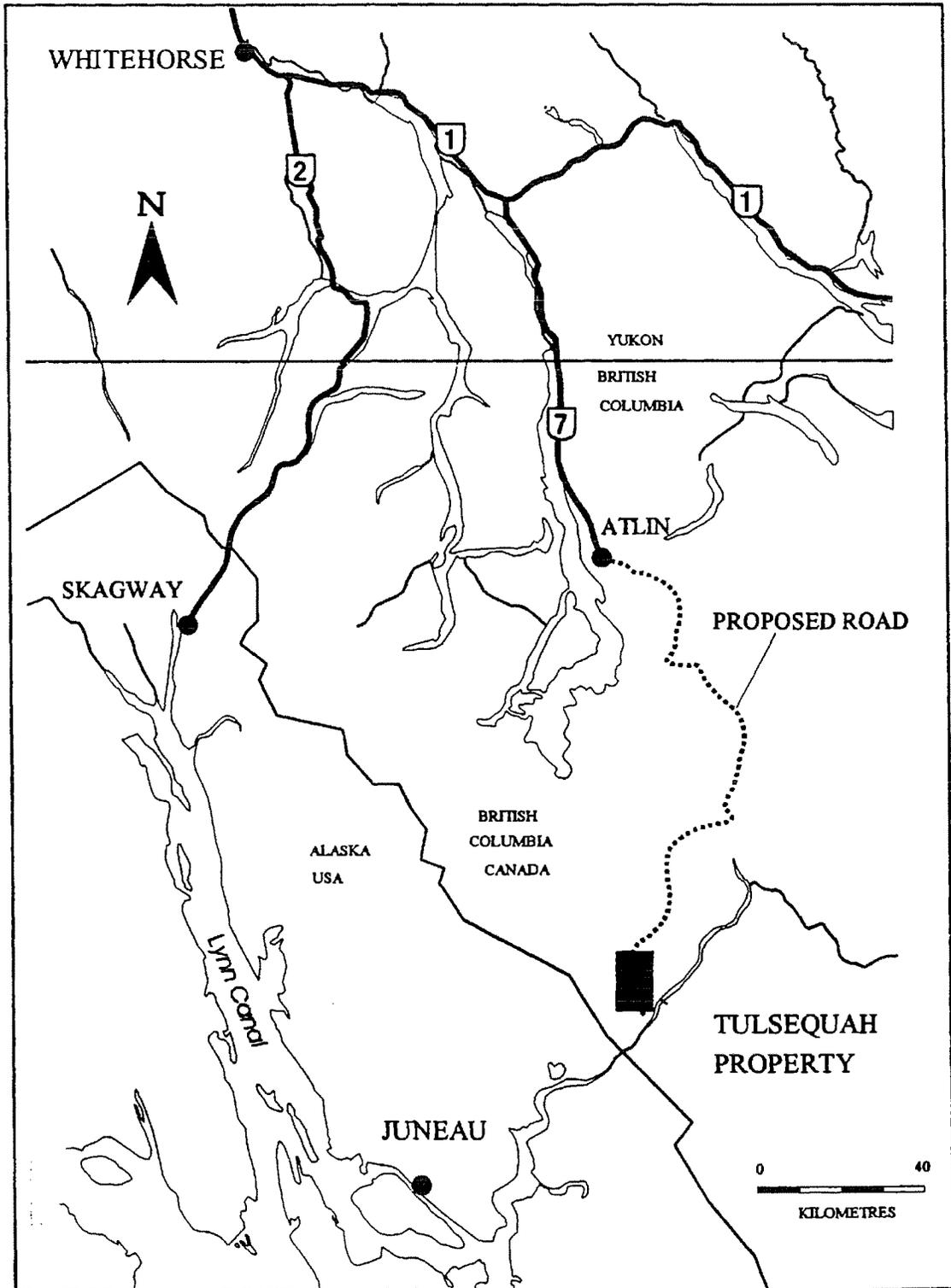
Another Promising New Mine!

The Tulsequah Chief is an underground mine located 100 km south of Atlin and is 100% owned by Redfern Resources Ltd. It was originally discovered in 1929 and was operated by Cominco Ltd. as a producing mine in the 1950's. The property was acquired in the mid 1980's by Redfern who have since undertaken extensive studies and conducted exploration work leading up to the Application for Project Approval Certificate under the Environmental Assessment Process in 1994. The company believes there are sufficient reserves of mineral on the property to warrant re-opening the mine. The mine contains five economic minerals; zinc, copper, lead, gold and silver. This feature provides a measure of stability in periods of fluctuating metal prices as they seldom all experience low prices simultaneously. This mine proposal is under attack by a consortium of preservationist organizations attempting to stop development.

History

Significant mineralization was first discovered in the area in the early 1900's. The Tulsequah Chief was discovered in 1929. It is located on the Tulsequah River, 14 km up from the junction of the Taku River and 100 Km south of Atlin. The initial mineral discovery was followed shortly after by the discovery of the Polaris Taku claims across the river from the Tulsequah Chief deposit.

Polaris Taku was developed as a mine in 1938 and was initially operated until 1942. It was re-opened in 1946 and was operated until 1951 when it was closed down due to fixed low gold prices and high costs. The town of Tulsequah was established at the junction of the Tulsequah and Taku Rivers in 1938 and served the Polaris Taku mine from 1938 to 1951 and the Tulsequah Chief mine, operated by Cominco Ltd., from 1951 to 1957 when this mine was also closed down for economic reasons. The actual Polaris townsite, located approximately 10 km up the Tulsequah River and directly across the river from the Tulsequah Chief mine, included housing, a hospital, a school and recreational facilities.



General Site Location Map - Tulsequah Chief Project

These early mining ventures depended on the Taku River to barge ore concentrates out and supplies into the town and mine sites. Both mines closed because of increasing labour costs, the difficulty of access to the remote site and depressed metal prices at the time. Both mines closed leaving substantial reserves of minerals in the ground. It is significant to note that while the Tulsequah Chief contains 5 minerals the Polaris Taku contains primarily gold.

Canarc Resources Ltd., the owners of Polaris Taku, have plans to re-open this mine also but their plans seem to depend on the outcome of road access being provided to the Tulsequah River valley.

For the past several years Redfern Resources Ltd. has been working its way through the rather tedious mine permitting process. They entered the Mine Development Assessment Process in the fall of 1994. This led up to the Environmental Assessment Process in July of 1995. Redfern expected to be able to file the Project Report in support of the Project Approval Certificate application by late 1996 but the process appears to have been impeded by additional requirements and procedural delays.

Values Involved

The Tulsequah Chief mine has significant proven reserves of minerals. As of December 1996 there were 7.9 million tonnes of mineable ore reserves with the following metal grades:

6.35%	Zinc	
1.27%	Copper	
1.18%	Lead	
2.42 g/t	Gold	(Grams per tonne) or (0.074 oz/t)
100.91 g/t	Silver	(Grams per tonne) or (2.940 oz/t)

At full production the mine will produce 900,000 tonnes of ore per annum for a 9 year life, based on the 1996 reserves. This will be concentrated and they will ship approximately 151,000 tonnes per year of concentrates. The mine will require approximately 35,000 tonnes per year of inbound supplies including fuel, lime, cement etc.

Expenditures to December 1996 by Redfern Resources Ltd. on exploration, engineering and the permitting requirements amounted to \$21 million.

The Project Economics of this mine proposal are quite straightforward:

- (1) This mine will require up front capital of \$142.3 million to get started.
- (2) The sustaining capital requirements are \$29 million for shaft and equipment requirements over the life of the mine.
- (3) The average operating costs are estimated at \$56.00 per tonne.
- (4) Estimated returns are \$118.00 per tonne providing an operating profit margin of \$62.00 per tonne.
- (5) The estimated life of the mine, based on current reserves, is 9 years.

- (6) (a) It is estimated that 200 people will be directly employed on the project at an annual average salary, including benefits, of \$74,000.00. The annual payroll is estimated at \$14.8 million.
- (b) It is further estimated that 65 full time contract jobs will be created in contract trucking and transportation.
- (7) Estimated payments to governments in the way of taxes and royalties are \$191 million.
- (8) Payback is estimated at 3.0 years, 24.66% pre-tax Internal Rate of Return or 3.2 years, 17.6% after tax IRR.

Environmental Considerations

The original mine created a relatively minor acid rock drainage problem due to the presence and oxidation of sulphur bearing rock. This has drained into the Tulsequalh River. There is no evidence that the acid rock drainage has been detrimental to the salmon stocks in the Taku River which continue to be very strong. Nevertheless Redfern Resources Ltd. propose, as part of their mine development plan, to clean up the sulphur bearing waste rock and eliminate the source of the acidic drainage.

The company proposes to use sophisticated methods to avoid any future problems as follows:

- The underground development will be concentrated, as far as possible, in non-acid generating rock.
- There will be operational segregation of acid-generating rock for return to vacant stopes.
- Tailings will be treated as follows:
 - Floation and segregation of waste sulphide (pyrite concentrate) for return to mine as backfill.
 - Clean tailings (~1%S) mixed with cement as paste backfill to seal historical mine workings.
 - Tailings will be mixed with the pyrite concentrate and cement to form paste backfill for sub-water table mine backfill.
 - Remaining cleaned tailings (40% of tonnage) mixed with finely ground limestone to ensure acid neutrality and stored in tailings pond.
- Historic waste rock to be incorporated in backfill program for sub-water table in-mine stopes.
- Closed system capture of in-mine water and process water with temporary storage in tailings pond.
- Water treatment plant for effluent discharge - reduces metal loads to government criteria levels. Treated effluent water has passed bio-assay tests with 100% fish survival rate.

First Nations

The project is located entirely within the Taku River Tlingit First Nation (TRTFN) territory. There are no other First Nations overlapping land claims. Redfern have maintained strong communication ties with the TRTFN. It is significant that they have signed a Phase 1 agreement with TRTFN covering protocols for information exchange and environmental assessment assistance. This agreement contemplates negotiation of a future Impacts and Benefits Agreement.

The TRTFN have expressed some concerns with respect to the impacts of the proposed road and Redfern is working with them in a cooperative manner to resolve their concerns.

Transportation - A Key Issue

The original mine depended on the Taku River for barging out concentrates and bringing in supplies. The current proposal has determined that barging is not feasible due to changes in the Taku River and the volume of material involved. It has also been suggested there would be a serious conflict between barges and the commercial fishing fleet during the fishing season.

The only feasible means of transportation is a new road from Atlin to the mine site and trucking through Atlin to Skagway, Alaska. The proposed location of the road to Atlin would necessitate construction of about 135 km of new road and the upgrading of 25 km of existing road. There is concern that a road would open up the Taku watershed to commercial exploitation and negatively impact the environment. The road, as proposed, will be controlled by a manned gate and patrolled to restrict access and prevent use of the road for hunting. The company has also made a commitment to deactivate the road on completion of the project if required. The Ministry of Forests have indicated they have no plans for any new logging operations in the area and that in any event, prior to any logging taking place, a public Land and Resource Management Planning (LRMP) process would be mandatory.

In the longer term a road may provide the necessary access for the Polaris Taku mine if it should ever re-open and for any other economic initiatives the government may wish to licence in the Taku watershed.

The Preservationist Perspective

The various groups in opposition take the position that they do not oppose the mine but rather they oppose developing road access to the mine. Let us examine this position.

When the mine was originally operated by Cominco the concentrates were barged down the Taku River to Taku Inlet and then trans-shipped to Skagway, Alaska, a distance of approximately 235 kilometres. Similarly supplies and equipment were barged into the mine site. This was one of the options considered by Redfern Resources Ltd.

The alternative is to build a 160 km road from Atlin to the mine site and then haul the concentrate north through Atlin to the Alaska Klondike Highway then south to Skagway, a distance of about 480 km.

The barging option would require extensive dredging both in the Taku River and Taku Inlet. This is an important salmon spawning area and the difficulties in getting authorization to conduct extensive dredging operations are problematical. There are also the problems associated with the short barging season, which

would be 4 - 5 months at best, and the stockpiling of concentrates and mine materials required for the 7 - 8 months the river is closed. It has also been indicated that the conflict between barges and the fishing fleet during the fishing season would create a serious problem. All things considered the barge option is not feasible.

The road option entails construction of 135 km of new road and the upgrading of 25 km of existing road, from Atlin to the mine site on the Tulsequah River. The argument put forward against the road is that the wilderness values, over the long term, are more important and more valuable than the relatively short term values from the mine. The negative impact on wildlife has been brought up and the possibility of the road opening up the area for forestry operations has also been an issue. The Ministry of Forests have taken the position that if forest harvesting in the Taku watershed is proposed it will be subject to a formal planning process under the Forest Practices Code and to full public review. The company is proposing that the road be operated as a controlled access road with a full time manned gate to control unauthorized access. The impact on wildlife is expected to be minimal.

In the final analysis the decision that needs to be made is how much of British Columbia is going to be preserved as wilderness and how much is open to development. Under the protected areas strategy government has indicated that 12% of the provincial land base will be protected. In the north west portion of the province we already have the huge Tatshenshini protected area and the very large Atlin Provincial Park. How much more do we need to protect? Provincially we are at about 10.5% protected now and the Protected Areas proposals being seriously considered in the central part of the province threaten to bring the provincial total to over 13%. The percentage currently protected in the northwest region of the province is already at 13.5%

The lead proponent for wilderness protection of the Taku watershed is the Taku Wilderness Association. They are being supported by:

BC Wild, the Sierra Club, the Sierra Legal Defence Fund, the David Suzuki Foundation, the Southeast Alaska Conservation Council and the American Rivers Foundation.

We know from past experience that these groups have an insatiable appetite and an unfinishable agenda for wilderness preservation. They and their supporters are advocating that 40% or more of British Columbia be put out of bounds for development. This year the American Rivers Foundation put the Taku River on their list of endangered rivers. The only danger to the Taku River might be if barging and dredging were undertaken. The road option appears to be located to minimize any danger to the Taku River or watershed.

As a point of interest this area lies just north of the Stikine River. This is another area the preservationists have on their list for total preservation. If they are able to halt development of the Taku watershed and tie it in with their plans for the Stikine they will have tied up another huge mineral rich area of British Columbia.

Conclusion

It is the conclusion of the Institute that this mining proposal and the road option should move forward through the Environmental Assessment Process with no further delay. The local area of Atlin is largely protected by the 2500 square kilometre Atlin Provincial Park. The road can be adequately controlled by manned gates and patrols. The danger to wildlife due to the road is minimal. In the longer term road access may benefit other potential mines, forestry development and wilderness tourism. And, even more importantly, it will give a strong economic boost to our provincial economy - a win-win result for all the people of British Columbia.

It is our opinion that 12% of British Columbia is more than enough area to be dedicated to wilderness and the hard core wilderness adventurers. Most tourists like their wilderness with a goodly share of the comforts of modern living, and they are prepared to pay for it. We need to examine the motives of the preservationists. Once they have it protected how long will it be before they try to ban tourism development? In some areas, such as the national parks, this has already started.

We do not want to see the Tulsequah Chief become another Windy Craggy. It is becoming clear that if the preservationists get their way we will see another huge non-productive wilderness in the Taku. Make your views known to government. Talk to your MLA on this issue.

A Message To Greenpeace!!

The Forest Alliance of B.C. is gathering signatures to send a strong message to Greenpeace and other organizations that are attempting to circumvent the democratic process in British Columbia. These international organizations are spending millions of dollars on alarmist environmental campaigns that are destroying our resource dependant communities, putting honest people out of work and hurting our families.

They have already destroyed thousands of jobs in areas such as South Moresby, the Nitinat, the Walbran, the Carmanah, the Clayoquot and in many other areas of British Columbia. Their appetite is insatiable. However when you consider the huge salaries they are paying to their senior staff in such places as Amsterdam, Holland you begin to understand where they are coming from. Their motivation has little to do with the environment and everything to do with money.

British Columbia, while well known for our hospitality, must tell these people that "enough is enough". We must tell them "Greenpeace go home".

The Forest Alliance of B.C., and a coalition of other concerned organizations, of which our Institute is one, is organizing a "Greenpeace Go Home" campaign.

You can help!

Please collect as many signatures as you can on the attached sheet and sent them into the Forest Alliance by July 31, 1997. If you need more sheets please photo copy the original and get as many signatures as you can. The Forest Alliance will sent the completed sheets to Greenpeace International and to their supporters as a strong message from us. Let us tell them what we think about their blockades and boycotts.

Please make as many copies of this
"Bulletin" as is necessary to distribute to
senior staff, elected representatives,
co-workers and friends.
THANK YOU

J.H. (Jack) Carradice - Executive Director
Phone/Fax - 858-7789

The Opinions Expressed In The Bulletin Are
Not Necessarily Those Of The Directors.

Return to the Forest Alliance of B.C. by July 31, 1997

“If you believe B.C. forest issues are best managed through dialogue and a democratic process, rather than blockades and boycotts, give us your name and home town.”

Please Print	Your Name	&	Home Town
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Taku River Barge Activity Report 2007



February 2008

During the summer and fall of 2007 Redfern barged 10 loads of equipment in two phases to the Tulsequah Project. During each phase, ocean barges were stationed in Taku Inlet and loads were transferred to a river barge and brought from the Taku Inlet to a temporary barge landing, east of the confluence of the Taku and Tulsequah Rivers. The first round of barging, totalling seven trips began in June and continued until mid July. In September, an additional three trips were made before water levels dropped preventing further transportation.

The average estimated travel time for each upstream and downstream trip was approximately 8 hours and 3 hours respectively. Round trips from Taku Inlet to the barge landing site, including the time required for loading and unloading the barges varied from 24 to 48 hours, and was dependant on weather and water levels.

Record of River discharge at Canyon Island during barging operations:

Trip Date 2007	Actual Discharge (m³/s)	Gauge height at Canyon Island (m)
June 30	1248.77	11.69
July 02	1155.33	11.55
July 03	1078.87	11.43
July 05	1042.06	11.37
July 13	1588.58	12.14
July 15	1523.45	12.06
July 18	1520.61	12.05
Sept 25	574.83	10.49
Sept 26	628.63	10.61
Sept 29	259.38	9.60

Fleet of Vessels

Redfern contracted the barging activity to Wainwright Marine Services Ltd. based out of Prince Rupert, BC. The fleet of vessels included two ocean barges (approx 50 ft x 200 ft) and one river barge (approx 36 x 120) as well as three tugs. Wainwright ferried loads from June 30th, to July 18th.

In addition to the Wainwright barges, Redfern also used its own vessels the Arctic Eagle tug and the Pelagic No. 1 barge which was supported by Tadpole Towing. The Arctic Eagle is currently being retrofitted with larger engines, and an improved hull to allow for further work on the Taku River.



Description of Operations

The purpose of the barging activity was to deliver construction equipment to site in support of developing the Tulsequah Chief Mine Project. Supplies and equipment delivered included construction and earth moving equipment and supplies, crew quarters and fuel. During the barging operations, the barges and tugs were stationed in Taku Inlet. The ocean barges anchored in the inlet while equipment and supplies were moved from the ocean barges to the river barges as deliveries were made. A ramp lowered from the larger ocean barge to the river transport barge was used for ease in moving the equipment and supplies.

The barge and tugs were accompanied by a pilot boat captained by a local river resident. The pilot boat was responsible for guiding the tugs and barges on the river and communicating with other river users.

All materials were off loaded on Redfern's private property at the temporary barge landing site. The shoreline was armoured to prevent erosion by 3 bumper logs ovetop of a layer of geotech material. Additional geotech material was placed on the barge landing area to limit disturbance to the substrate. The bumper logs were removed after the final barge trip of the year. Independent environmental monitors were on site during the offloading of the barges at the temporary barge landing and no incidents were noted. The company consulted with Fisheries and Oceans Canada and received a Letter of Advice in relation to appropriate clearing and preparation of the barge landing area. The company followed this advice under the guidance of a third party environmental monitor.

During the operations in September, natural river erosion activity located several snags in the mouth of the Big Bull Slough; after consultation with Fisheries and Oceans Canada these snags were relocated to the edge of the wetted channel following instructions from that agency in a Letter of Advice. The relocated snags were kept within the wetted width of the channel in order to maintain their function as fish habitat. The relocation activity was overseen by a third party environmental monitor. These snags did not pose a challenge during the June/July activity as river levels were higher.



Challenges

During the June and July trips high water levels and fast current in the west channel around Canyon Island made the trips difficult for the two Wainwright Tugs. Local river operators assisted with the movement of the tugs and barges through the fast waters of Canyon Island.

Further challenges were faced with the vessels used during the September barging activity. The Arctic Eagle was underpowered to push the barge through the fast waters of Canyon Island. As a result, Redfern suspended its operations temporarily while an additional tug was mobilized. Upon the arrival of the second tug three loads were brought up to site. As a result of this experience the Arctic Eagle is being modified to improve performance and allow for it to push the Air Cushion Barge. As well, comments received from local river residents advised Redfern that the noise level of the tug was louder than expected. Redfern is also modifying this in order to try and dampen the sound level of the Arctic Eagle. Redfern is also planning on purchasing a second shallow draft tug to work in conjunction with the Arctic Eagle to ensure appropriate efficiency, mobility and safety of operations is maintained.

Incidents

At the Canyon Island Fish & Game Camp an incident was reported of the barge trying to pass through the Narrows while Fish & Game staff sampled and marked fish. As Redfern's pilot boat approached the Narrows, the pilot informed Fish & Game staff of the approaching barge and asked them to briefly suspend their operation and allow the barge to pass by. Redfern appreciates the importance of the Fish and Game activities as they affect both Alaskan and Canadian fishers. Efforts were made to avoid transit of this area during normal fish sampling periods. Improved communication of company activities to both the Department of Natural Resources (DNR) and Department of Fish and Game (ADFG) was the result of this incident. This lesson of improved communication will be carried forward to any future barging activity.



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Boom logs located at one of the ADFG Canyon Island fish wheels were damaged during a transit through the Narrows. The boom logs are strategically placed to protect the fish counter wheel from floating debris and on one occasion, a barge did damage the logs. At no time was there any damage to the fish wheel caused by the barging activity. Further incidents of this nature are not expected as the Air Cushion Barge will be travelling around the east side of Canyon Island away from the fish wheel. If conventional barging is undertaken then the improved power of the Arctic Eagle tug and accessory tug are expected to minimize this type of occurrence.

Assistance

Several local residents provided assistance during the summer barging activities. Their knowledge of the river, support and assistance was greatly appreciated and Redfern will continue to seek the advice as we move forward.



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REDFERN BARGE ON THE TAKU RIVER 2008



















