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# VALUATION OF THE BLUE ICE PROPERTY

# Mineral Tenure Numbers 220079,220080,220081,220082

North Thompson River Area Kamloops Mining Division British Columbia

Latitude: 52<sup>0</sup>42' North Longitude: 119<sup>0</sup>55' West NTS Map Area: 083D/12W

**Prepared for:** 

Mr. Sean Morriss

By:

N.C. Carter, Ph.D. P.Eng. November 14, 2005

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#### SUMMARY

The author of this report has been requested by Mr. Robert D. Gibbens of Laxton & Company to provide an opinion of value for the Blue Ice mineral property which is situated in Wells Gray Provincial Park. The property is owned by Mr. Sean Morriss on whose behalf this valuation report has been prepared. The report is intended to provide supporting documentation to assist in determining a fair market value for the property which is the subject of an application for compensation before the Supreme Court of British Columbia.

The Valuation Date is March 21, 1989, the date of the formal expropriation of the four mineral claims by the Province of British Columbia.

The Blue Ice property consists of four 2-post mineral claims situated in the northern part of Wells Gray Provincial Park 1.5 kilometres south of its northeastern boundary. The end of a logging road along the valley of the headwaters of North Thompson River is 25 kilometres from the mineral claims.

Initial exploratory work in the area of the property was undertaken prior to 1920. Work completed through 1939 included hand trenching, bedrock sampling, geological mapping and 454.5 metres of diamond drilling in ten shallow inclined holes.

The property area is underlain by late Precambrian olastic sedimentary recks which locally contain limestone lenses. Two styles of gold mineralization, similar to those present in the Cariboo gold camp, have been identified by previous work, These include auriferous quartz-pyrite veins hosted by clastic sedimentary rocks and sulphide replacement deposits in limestone. Three mineral zones have been explored to date and two of these include both quartz-pyrite veins and sulphide replacements in limestone. Appreciable gold values are associated with quartz-pyrite veins in three areas of the property; character samples have returned values of between trace and 100 grams/tonne gold. A pyrite replacement lens in limestone, the target of 1939 diamond drilling, yielded gold grades of between 6.2 and 53.1 grams/tonne over hole lengths of between 1.5 and 4.6 metres. An Inferred Mineral Resource, within the area ef closely-spaced drilling, amounts to 21,220 tonnes grading 17.0 grams/tonne gold. There is good potential for the discovery of additional sulphide replacement zones and the numerous quartz-pyrite veins remain relatively unexplored.

The Blue Ice is an early stage exploration property and Market (Comparable Transaction Analysis) and Cost (appraised value method) approaches to mineral property valuation have been used to determine a range of values for the property. Comparable Transaction Analysis is considered to be the preferred method for valuation of the Blue Ice property in view of the vibrant mineral exploration industry in existence in British Columbia in the late 1980s.

The writer Is of the opinion that a Fair market value for the Blue Ice property was \$900,000 as of the Valuation Date of March 21, 1989.

#### INTRODUCTION AND TERMS OF REFERENCE

The writer has been requested by Mr. Robert D. Gibbens, of Laxton & Company, to prepare an opinion of value for the Blue Ice mineral property which consists of four mineral claims owned by Mr. Sean Morriss. Mr. Morriss will be responsible for reimbursing the writer for professional services and expenses incurred in preparing this valuation report. The writer is independent of Mr. Morriss and holds no interest in the Blue Ice mineral claims.

The purpose of the report is to provide an opinion of fair market value for the Blue Ice property which is the subject of an application for compensation before the Supreme Court of British Columbia. A definition of fair market value contained in the Province of British Columbia Mining Rights Compensation Regulation (Section 5.1) states:

"The value of an exprepriated minoral titlo must be determined by estimating the value that would have been paid to the holder of the expropriated mineral title if the title had been sold on the date of expropriation, in an open and unrestricted market between informed and prudent parties acting at arm's length."

The Valuation Date is March 21, 1989, the formal date of expropriation of the four claims by the Province of British Columbia.

This report summarizes the geological setting, style of mineralization and exploration history of the Blue Ice mineral claims and reviews the valuation methods used to determine a fair market value for the property. Information used in the preparation of the report includes various documents readily available in public records and background material provided to the writer by Mr. Robert D. Gibbens. These sources of information are listed in the References section of this report. Five diagrams, prepared by the writer to illustrate property location, physical setting and distribution of known mineral zones, are appended to the report.

The writer has not undertaken a personal inspection of the Blue Ice property. A property visit was briefly cansidered but abandoned in view of the fact that securing the necessary Park Use Permit for such an undertaking could take the better part of a year to process.

The writer, an independent consulting geologist for the past 25 years, has 45 years experience as a professional geologist in both the public and private sectors and has been registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966. The period between 1964 and 1980 was spent with what is now the Geological Survey branch of the BC Ministry of Energy Mines and Petroleum Resources. Among other responsibilities, time was spent working with Parks Branch staff in the mid to late 1970s in an attempt to resolve the issue of several hundred mineral claims that had been impacted by the reclassification of a number of Provincial Parks. Various methods of assessing mineral claims values were proposed for purposes of negotiating quit claim prices.

In more recent years the writer has prepared a number of mineral property valuations and mineral potential assessments for both public sector and industry clients. Valuations of several mineral properties have been prepared on behalf of property owners to assist in deliberations pursuant to the BC Mining Rights Compensation Regulation and the writer is a principal of a consulting group that is included on the Roster of Evaluators of Mineral Tenure established by way of the same Regulation.

This report follows the general outline and definitions of various valuation methods contained in the February 2003 Standards and Guidelines for Valuation of Mineral Properties as proposed by a Special Committee of the Canadian Institute of Mining, Metallurgy and Petroleum on Valuation of Mineral Properties (CIMVAL). Units of measure in this report are metric and monetary amounts are stated in Canadian dollars unless otherwise noted.

# **PROPERTY LOCATION, ACCESS AND INFRASTRUCTURE**

The Blue Ice property is situated in east-central British Columbia 220 kilometres north of Kamloops and 230 kilometres southeast of Prince George (Figure 1). The mineral claims comprising the property are in the northern part of Wells Gray Provincial Park within 1.5 kilometres of its northeastern boundary (Figures 1 and 2).

The property is in the Cariboo Mountains at the eastern margin of the Interior Plateau; topography is locally rugged and elevatiens in the area of the claims range from 1980 to 2400 metres above sea level (Figures 3 and 4). Icefieids cap the higher peaks immediately north of the claims. Tree line extends to 1800 metres above sea level above which vegetation is sparse and bedrock is nearly continuously exposed except where obscured by glacial debris.

Wells Gray Provincial Park is west of Provincial highway 5 which links the communities of Clearwater, Blue River and Valemount (Figure 2). Access into the northern part of the park in the 1920s and 1930s was by way of three routes including one up the Raush River valley to its headwaters from the Jasper-Prince Rupert CN line, a distance of 80 kilometres, A second route from the west was by way Quesnel and Hobson Lakes and up Hobson Creek to its headwaters, a trail distance of 25 kilometres. The third route of some 70 kilometres length was from the CN railway siding at Gosnell up the headwaters tributary of the North Thompson River and through a pass to the headwaters of Azure River and Hobson Creek. Part of this route is partly accessible by way of a logging road from highway 5 up the North Thompson River (Figure 2). The end of this road is within 25 kilometres of the Blue Ice mineral claims and a potential access route would include the aforementioned pass which attains elevations slightly above 1600 metres (Figure 3). Total distance between the Blue Ice claims and the end of the logging road is approximately 30 kilometres,

Other than the remains of old mining cabins and workings, there is no infrastructure in the immediate area of the Blue Ice property. Most supplies and services, including charter helicopter firms, are available in the communities of Clearwater, Blue River and Valemount.

#### MINERAL PROPERTY

The Blue Ice property, as of the Valuation Date of March 21, 1989, consisted of four 2post mineral claims located in the Kamloops Mining Division. Two of the claims are contiguous while the other two are situated within 500 metres northwest and southeast of the contiguous claims (Figure 4). Details of the claims are as follows:

| Tenure Number | Area (hectares)                                       | Record Date   |
|---------------|---|---|
| 220079        | 25  | September 8, 1953   |
| 220080        | 25  | September 8, 1953   |
| 220081        | 25  | September 8, 1953   |
| 220082        | 25  | September 8, 1953   |
|               | Tenure Number<br>220079<br>220080<br>220081<br>220082 | Tenure Number Area (hectares)   220079 25   220080 25   220081 25   220082 25 |

As noted, the mineral claims were recorded in September of 1953 in the name of R.W. Wilson. Current records indicate that each of the four claims covers an area of 25 hectares, conforming to the size of 2-post legacy claims staked since the mid 1970s. 2-post claims staked prior to this, such as the Blue Ice claims, measured 1,500 feet by 1,500 feet (457 x 457 metres) and cover an area of slightly less than 21 hectares.

The claims were part of a syndicate in which Silver Standard Mines Ltd. acquired a 65% interest in 1957. Full ownership of the claims was transferred to Silver Standard in 1970 and the successor company, Silver Standard Resources Inc., sold the property to Sean Morriss, the current recorded owner, in 2001.

Of interest is the fact that Silver Standard maintained the claims in good standing between 1954 and 1974 when they were protected from forfeiture by an Order in Council. These cash payments had amounted to \$8,000 by 1974 or approximately \$34,000 in 1989 dollars.

### **EXPLORATION HISTORY**

The earliest documented exploration activity in the area of the Blue Ice property took place in 1919 and 1920 (BC Minister of Mines Annual Reports) when reference was made to mineralization on the War Colt prospect which is situated adjacent to Azure River some six kilometres southeast of what was to become the Blue Ice property. Accounts of initial underground exploration on the War Colt and the neighbouring Summit property in the BC Minister of Mines Annual Report for 1923 also made mention of the staking by Fred Wells (of later Cariboo fame) of gold-bearing quartz veins on the Glacier group, situated in the same general area of the current Blue Ice claims.

The Minister of Mines Annual Report for 1929 reported the re-staking of the original Weils claims as the Blue Ice and Blue Lead on behalf of J.E. Errington who held an option on the neighbouring War Colt and Summit properties. Much of the exploratory work in 1929 was directed to the Blue Ice and Blue Lead claims and was successful in identifying three areas of gold mineralization. These included quartz veins immediately below the glacier in the northwestern property area, gold in quartz veins marginal to a limestone unit and quartz-sulphide veins 1.2 kilometres south which were explored by blasted open cuts over a strike length of more than 200 metres.

A private company, Albreda Holding Company Ltd., is reported as owning the War Colt and Blue Ice properties in the 1933 Minister of Mines Annual Report. With respect to the Blue Ice property, the company reported many large bodies of quartz which were insufficiently exposed to permit systematic sampling.

By 1938, the Blue Ice property, consisting of 22 claims and owned by W.R. Johnson, was optioned to Anglo-Huronian, Limited (Hedley, 1939). Some 25 kilometres of trail was constructed from the north end of Hobson Lake to the property, surface trenching and sampling was undertaken and a diamond drill was stored at Hobson Lake for use the following year. The 1939 program consisted of ten inclined holes for a total of 454.5 metres; hole lengths ranged from 26 to 73 metres. Upon completion of the program, Anglo-Huronian elected not to maintain the option agreement in view of the impending World War II.

With the advent of World War II and the creation of Wells Gray Provincial Park in the fall of 1939, there is no record of any work on the subject property until 1953 when mineral claims covering the three Blue Ice mineral zones were relocated on behalf of a syndicate headed up by R.W. Wilson. Notwithstanding the fact that there was little interest in gold properties at this time, Fearnley (1953) recommended the acquisition of additional claims. In late 1967, Silver Standard Mines Ltd., who by this time had assumed control of the original syndicate, prepared a letter to BC Forest Service regarding possible improvements in access to the area by way of recent logging activity. A subsequent report on the property by Hachey (1968) also recommended the acquisition of additional claims.

In 1972, Hudson's Bay Oil and Gas Company Ltd. conducted a regional rock sampling program in the area of the Blue Ice claims which yielded generally negative results. An

application to record an additional 24 mineral claims was rejected by the Mining Recorder in Kamloops in April of 1973 on the basis that prior permission to locate mineral claims in certain Provincial Parks was required from Parks Branch. A June, 1973 letter from Silver Standard to Parks Branch requested a permit to carry out exploratory work on the claims. This was turned down and accompanied by an advisory to the effect that policy statement of November, 1965 was rescinded and that no prospecting activity or olaim staking was to be permitted in any Provincial Park. This new policy was formalized in late 1973 and in 1974 the company was advised that the Blue Ice claims were protected from forfeiture.

In late 1987, Silver Standard received a letter from Parks branch advising that revised governmant policy might allow exploratory work on mineral claims in Provincial Parks. This new policy did not materialize and the Blue Ice mineral claims were formally expropriated March 21, 1989.

# **GEOLOGY AND MINERALIZATION**

The area of the Blue Ice mineral claims is underlain by Cariboo terrane Late Precambrian metasedimentary rocks (Struik, 1986) which are intruded by a 10 kilometre diameter Jurassic granitic stock several kilometres south of the claims area. The metasedimentary sequences include quartzites, phyllites, limestones, slates, sericite schists and conglomerates of the Kaza Group and overlying Isaac Formation which is in thrust fault contact south of the claims area. The sequences are intensely deformed and occupy the northeast limb of a westerly plunging anticlinal structure (Hedley, 1939).

Gold and lesser silver values are associated with pyrite and other sulphide minerals both in quartz veins and in replacement deposits in limestone. Quartz veins are widespread and range in width from several centimeters to ten metres or more while the limestone horizon exposed on the Blue Ice property is 6 metres thick. Three orincipal rnineral zones have been identified by previous work on the Blue Ice property. The disposition of these is shown on Figure 5 and details are as follows.

No. 1 Zone, on the Caribou No. 1 claim (Figure 5), is associated with a northerly-trending quartz vein exposed in open cuts and natural outcrop over a strike length of several hundred metres and a vertical interval of 100 metres. Exposed widths range from 1.5 to 4.5 metres. Better concentrations of pyrite and lesser chalcopyrite, galena and sphalerite were noted over a 60 metres interval near the northern limits of the structure and near the southern limits of exposure (Hedley, 1939). Results of grab or character samples collected from this zone as reported by Hedley (1939) and the Minister of Mines Annual Report for 1929 range from trace gold and 1.7 grams/tonne silver to 100 grams/tonne gold and 24 grams/tonne silver. Chip samples across widths of between 0.5 and 1.2 metres ranged from 0.7 to 5.5 grams/tonne gold.

No. 2 Zone, exposed on the Blue Ice No. 1 claim (Figure 5) consists of a 120 x 40 metres area of quartz veining in quartzite surrounded by moraine causing Hedley (1938) to comment that the full extent of this quartz veining was not known. Individual veins are up to 6 metres wide, are steeply dipping and have three principal orientations. A northwesterly set, parallel to the enclosing host rocks, is essentially barren with pyrite (and associated gold values) associated with north-northeast striking veins and to a lesser degree, a north-northwest trending set. Six grab or character semples collected by Hedley (1938) contained gold values of between 2.0 and 96.6 grams/tonne; silver values ranged from 6.8 to 60.0 grams/tonne. This zone of quartz veining is bounded on the south by the northwest extension of the 6 metres wide limestone horizon which reportedly contains no pyrite mineralization although angular limestone float in moraine material was reported as containing significant pyrite concentrations.

The limestone horizon adjacent to No.2 Zone was tested by five inclined diamond drill holes by Anglo-Huronian, Limited in 1939. As shown on Figure 5, holes 6,7,8 and 9 were collared at 15 metres intervals and drilled on a southwesterly azimuth while hole 10 was drilled on a northwesterly azimuth 53 metres northwest of hole 9. Drill hole details and summary results are contained in the following table.

| Drill Ho | ole Dip (º) | Azimuth(0) | Hole Length (m) | Interval (m) | Length (m) | Gold (grams/tonne) |
|----------|-------------|------------|-----------------|--------------|------------|--------------------|
| 6        | -50         | 205        | 25.9            | 21.3-23.8    | 2.5        | 9.3 (8.7-Sludge)   |
| 7        | -50         | 205        | 30.5            | 9.8-10.7     | 0.9        | 18.3               |
|          |             |            |                 | 16.2-18.6    | 2.4        | 3.4                |
| 8        | -55         | 205        | 42.7            | 25.9-27.7    | 1.8        | 1.4                |
| 9        | -43         | 205        | 28.7            | 12.8-14.8    | 2.0        | 5.5                |
|          |             |            |                 | 17.0-18.5    | 1.5        | 3.8                |
| 10       | -35         | 025        | 56.1            | 45.1-46.9    | 1.8        | 4.1                |
|          |             |            |                 | 51.1-52.3    | 1.2        | 3.1                |

The foregoing results indicate some pyrite replacement of the limestone horizon in this area that is apparently not evident on surface. Original drill logs contained some discrepancies between hole intervals and corresponding sample lengths which was undoubtedly due to lost core. The intervals contained in the foregoing table have been adjusted to conform with the originally reported sample lengths. Gold values reported are from core samples; sludge samples were also collected and where both core and sludge sample results were available for the same sample interval, they were in generally good agreement.

No. 3 Zone, exposed on the Future Price No. 1 and 2 claims (Figure 5), consists of two styles of mineralization including a 200 x 200 metres area of quartz veining with orientations similar to those noted in No. 2 Zone. Individual veins are exposed over strike lengths of up to 100 metres and enhanced concentrations of pyrite were again seen to be associated with north-northeast striking veins. Grab samples contained values of between 5.5 and 22.6 grams/tonne gold and 48.0 and 154.2 grams/tonne silver while ship samples over widths of between 0.25 and 0.60 metres returned values of between 11.7 and 27.4 grams/tonne gold.

The limestone horizon marginal to the area of quartz veining contains a well developed zone of pyrite replacement over a strike length of 33 metres and a width of slightly less than 5 metres. Similar, less well developed pyrite replacement extends in both directions within the limestone horizon over distances of about 12 metres. The results of channel sampling of fresh, unoxidized material within a strike length of 12 metres as reported by Hedley (1938) include 11.0 grams/tonne gold over a width of 5.5 metres, 9.6 grams/tonne over 1.5 metres and 67.2 grams/tonne over 0.6 metre.

The zone of sulphide (pyrite) replacement within No. 3 Zone was tested by five inclined diamond drill holes in 1939. Locations of these holes are shown on Figure 5; holes 1, 2 and 3, 4 were collared at two locations 15 metres apart while hole 5 was drilled 9.1 metres southeast of holes 1 and 2. Hole details and results are listed in the following table.

| Drill H | <u>ole</u> Dip <u>(</u> 0) | Azimuth(0) | Hole Length (m) | Interval (m) | Length (m) | Gold (grams/tonne) |
|---------|----------------------------|------------|-----------------|--------------|------------|--------------------|
| 1       | -42                        | 040        | 39.6            | 33.5-39.0    | 5.5        | 1.0                |
| 2       | -60                        | 040        | 73.2            | 56.4-61.0    | 4.6        | 12.0 (Sludge)      |
| 3       | -45                        | 040        | 44.5            | 38.3-42.8    | 4.5        | 53.1 (40.1-Sludge) |
| 4       | -60                        | 040        | 59.4            | 50.3-51.8    | 1.5        | 6.2 (Sludge)       |
| 5       | -55                        | 040        | 53.9            | 39.6-51.5    | 11.9       | 1.7                |

As with No. 2 Zone, there were some discrepancies between reported hole intervals and corresponding sample lengths and intervals reported in the foregoing table have been adjusted to conform with the originally reported sample lengths. Gold values from both core and sludge samples are generally in good agreement.

#### **EXPLORATION POTENTIAL**

The Blue Ice property is best described as an early stage exploration property from which some significant results were obtained from preliminary work in the late 1930s.

Two styles of gold mineralization have been identified. These include gold associated with quartz-pyrite veins and with pyritic replacements in limestone. The nature and style of the mineralization and the geological setting are similar to that of the Cariboo lode gold district 120 kilometres to the northwest where 1.2 million ounces of gold were derived from two principal underground producers, Carlboo Gold Quartz and Island Mountain, between 1933 and 1967 (Barr, 1980). Host rocks consist of metasedimentary sequences (including limestone) of similar lithology and age as those in the area of the Blue Ice property. Most production was from northeast-striking, steeply-dipping quartz-pyrite velns which extended to depths of close to 1000 metres below surface. A significant amount of Island Mountain production was from pyritic replacement deposits in limestone horizons. These were both tabular and pencil-like; the latter were developed on the hinges of folds and were of limited size in section (generally between 2 and 15 square metres) but were known to extend over lengths of more than 600 metres.

The vertical range of gold mineralization in the Cariboo camp is indicative of a mesothermal or orogenic environment. By analogy, the Blue Ice mineralization could also be expected to have a significant vertical range

Surface sampling of the three mineral zones identified on the Blue Ice property returned a wide range of gold values which is not unusual at most gold prospects. What is unusual are the significant gold values obtained frem a limited, first phase of shallow diamond drilling. Three of the five holes completed on No. 3 Zone intersected values of between 6.2 and 53.1 grams/tonne gold over hole lengths of between 1.5 and 4.6 metres. Three of the holes drilled to test part of the No. 2 zone returned values of between 5.5 and 18.3 gram/tonne gold but over shorter hole lengths of 0.9 to 2.5 metres.

Results obtained from No. 3 Zone drilling, coupled with results of detailed surface sampling (Paul Billingsley January 29, 1940 letter to Kelowna Exploration Ltd. referring to a 30.5 metres exposed length of replacement sulphides averaging 13.0 grams/tonne gold over a true width of 4.6 metres) permit a preliminary estimata of an inferred Mineral Resource as follows:

|                       | Tonnes | Gold (grams/tonne) |
|-----------------------|--------|--------------------|
| Section 1 – Holes 1,2 | 9545   | 7.54               |
| Section 2 – Holes 3,4 | 11675  | 24.7               |
|                       | 21220  | 17.0 g/t           |

An Inferred Mineral Resource of 21220 tonnes grading 17.0 g/t Au is contained within a zone 27 metres in length, having a true width of 3.7 metres and extending from surface to a vertical depth of 70 metres. (Assumed specific gravity or density of 3.2).

The potential for additional replacement sulphide zones within the limestorie unit is considered to be good. The understated potential for significant mineralization hosted by quartz veins remains unknown although the numerous references in previous reports to the difficulties of assessing these zones by way of surface sampling are worthy of note.

While bedrock is reasonably well exposed within the claims area, potentially significant areas for mineralization were obscured by glacial debris and ice cover in the late 1930s. As indicated on Figure 5, the margin of the glacier in the northern claims area has retreated several hundred metres since the last work was done on the property.

#### VALUATION OF THE BLUE ICE PROPERTY

As noted in the preceding section of this report, the Blue Ice is considered to be an early stage exploration property. The value of the property is directly related to its potential for the discovery and development of a viable mineral deposit.

The three generally acceptable approaches to mineral property valuation are Income, Market and Cost. The Income approach, which involves discounted cash flow analysis to determine a net present value for a mineral property, is most appropriate for properties in production or at the development stage. This excludes the Blue ice property although this approach was used in the past (Glanville, 1989) to provide an opinion of value for the property.

The Market (Comparable Transaction Analysis) and Cost (Appraised Value Method) approaches have been used to determine a range of fair market values for the Blue Ice property as of the Valuation Date of March 21, 1989.

The Appraised Value Method (Roscoe, 2002) incorporates meaningful past exploration expenditures plus future warranted costs to arrive at an estimate of mineral property value. Only those previous property expenditures that are deemed to be productive are retained as value; productive means that exploration results obtained from property expenditures are sufficiently encouraging to warrant additional exploration work. Accordingly, previous expenditures that yield negative exploration results are only retained at partial value. Warranted future costs are those intended to further assess the property potential identified by previous exploration expenditures.

There is no documentation of previous exploration expenditures on the Blue Ice property and records of previous work up to and including 1939 are by no means complete. An estimate of the cost to duplicate documented 1930s exploratory work (1929, 1933, 1938, and 1939) in 1989 has been undertaken and is detailed in the following table. Costs reflect those in 1989; note that helicopter access is assumed in place of lengthy (and costly) trail construction and maintenance involved in accessing the property in the 1930s. This assumption probably injects a degree of efficiency into the project not previously available.

Estimated Costs for Exploratory Work to Date (1989 Bollars)

| Prospecting, trenching, sampling - 240 person days @ | \$200/day | \$48,000.00  |
|--|-----------|--------------|
| Geological mapping - 50 person days @ \$450/day      | -         | \$22,500.00  |
| Camp costs - 600 person days @ \$150/day             |           | \$90,000.00  |
| Diamond drilling – 454.5 metres @ \$150/metre        |           | \$68,175.00  |
| Sample analyses - 300 @ \$20/semple                  |           | \$6,000.00   |
| Helicopter support – 150 hours @ \$700/hour          |           | \$105,000.00 |
| Equipment rentals, consumables                       |           | \$10,000.00  |
| Supervision, reporting                               |           | \$25,000.00  |
|  | Total     | \$374,675.00 |
|  | Say       | \$375,000.00 |

As noted in the previous section of this report, the writer considers the results of previous exploratory work (particularly those from 1939) to be significant and are deemed to have added value to the property. Consequently, all of the costs are retained as value.

These results would have generated serious interest in 1989 and the writer is of the opinion that a follow-up exploratory program would have been warranted. Estimated costs for this program are as follows:

Estimated Costs for Warranted Exploratory Program (1989 Dollars)

|  | Say   | \$447,000.00 |
|--|-------|--------------|
|  | Total | \$446,500.00 |
| Supervision, reporting                       |       | \$25,000.00  |
| Equipment rentals, consumables               |       | \$10,000.00  |
| Helicopter support – 100 hours @ \$700/hour  |       | \$70,000.00  |
| Camp costs – 210 person days @ \$150/day     |       | \$31,500.00  |
| Sample analyses – 500 @ \$20/sample          |       | \$10,000.00  |
| Diamond Drilling – 2000 metres @ \$150/metre |       | \$300,000.00 |

The Appraised Value of the Blue ice property is the sum of estimated costs to duplicate exploratory work to date (\$375,000) plus the estimated costs of a warranted exploratory program (\$447,000) for a total of \$822,000.00.

Comparable Transaction Analysis incorporates the transaction price of a comparable mineral property to establish a value for a subject property. Details of mineral property transactions, be they outright purchase arrangements, or more commonly option and/or joint venture agreements, can be found in company news releases within the Canada Stock watch digital database which contains archived material for the past 20 years. The Canadian Mines Handbook, published annually, is another source of this information.

An inherent difficulty with this method is the determination of "comparability" of mineral properties, all of which have somewhat unique geological settings, styles of mineralization, stages of development and location and infrastructure aspects. Nevertheless, a "best fit" strategy (Lawrence, 2000) which involves the assessment of transactions for only a few properties which bear close resemblance to the subject property, has been used for purposes of this valuation.

Nine property transactions were selected for British Columbia mineral properties between March, 1988 and March, 1990 or a period of one year prior to, and following the Blue Ice Valuation Date of March 21, 1989. The transactions pertain to nine mineral properties situated in various parts of British Columbia. All are gold properties and half are mesothermal deposits with styles of mineralization similar to Blue Ice. Significantly, all of the comparable properties, like Blue Ice (BC Minfile No. 083D003), include mineral occurrences, showings, prospects or deposits which are documented in the BC Minfile database maintained by the BC Ministry of Energy Mines and Petroleum Resources.

Some of the comparable properties were at a more advanced exploration stage in 1989 than the Blue ice property. A notable exception is the Elk property which has the highest value; this property included a number of soil geochemical anomalies and a few bedrock trenches when Placer Dome Inc. entered into an agreement to earn a 50% interest in 1988.

The various "best-fit" transactions are more than 15 years old making it possible, in most cases, to determine a fairly precise monetary value for the transactions rather than having to employ estimates of discounted present values and/or probability factors for transactions continuing beyond the first few years.

Details of the "best-fit" comparable transactions and the subject minerel properties are included in Appendix I of this report; summary details are included in the following table:

|              | Property Name     | BC Minfile No. | Value of Transaction | % Interest | Value of 100% Interest |
|--------------|-------------------|----------------|----------------------|------------|------------------------|
| $\checkmark$ | Elk               | 092HNE096      | \$1,750,000          | 50         | \$3,500,000            |
|              | SB                | 104B150        | \$1,227,500          | 50         | \$2,455,000            |
| $\checkmark$ | Dome Mountain     | 093L276        | \$1,176,000          | 50         | \$2,352,000            |
| ~            | Doctors Point     | 092HNW071      | \$600,000            | 51         | \$1,176,470            |
| •            | Smith-Nash        | 093E014        | \$525,000            | 50         | \$1,050,000            |
|              | Lacy-Stokes       | 092F045Z45     | \$323,500            | 50         | \$647,000              |
|              | Surf Inlet        | 103H027        | \$300,000            | 50         | \$600,000              |
| $\checkmark$ | Spectrum          | 104G036        | \$350,000            | 60         | \$583,330              |
|              | North Texada, M21 | 092F511        | \$325,000            | 60         | \$541,670              |

Transaction values (to earn between 50 and 60% interests) range from \$325,000 to \$1,750,000 with an arithmetic average of \$730,777 and a median value of \$525,000. As noted, imputed values for 100% interests in the various mineral properties range from \$541,670 to \$3,500,000 with a median value of \$1,050,000.

## VALUATION CONCLUSIONS

The writer has used two methods to arrive at an estimate of value for the Blue ice property. The Appraised Value Method (Cost Approach) provides a value of slightly more than \$800,000 while the "best-ft" strategy of Comparable Transaction Analysis (Market Approach) provided a range of values (for a 100% property interest) of between \$540,000 and \$3.5 million. The writer is of the opinion that the median value of about \$1 million is appropriate.

The writer is inclined to place slightly more weight on the results of the Comparable Transaction Analysis in light of the levels of British Columbia exploration activity in the late 1980s. Exploration expenditures of \$196 million and \$150 million in 1988 and 1989 were at record highs not seen since and flow-through funding for most projects was readily available. The Blue Ice property, had it been available, would have been an attractive target for a significant exploration program.

The writer is of the opinion that a Fair Market Value for the Blue Ice property was \$900,000 as of the Valuation Date of March 21, 1989.

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# **CERTIFICATE of AUTHOR**

I, NICHOLAS C. CARTER, Ph.D., P.Eng., do hereby certify that:

- 1. I am a Consulting Geologist, with residence and business address at 1410 Wende Road, Victoria, British Columbia.
- 2. I graduated with a B.Sc. degree in geology from the University of New Brunswick in 1960. In addition, I obtained a M.S. degree in geology from Michigan Technological University in 1962 and a Ph.D. degree in geology from the University of British Columbia in 1974.
- 3. I have been registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966. I am a Fellow and Life Member of the Canadian Institute of Mining, Metallurgy and Petroleum, a Fellow of the Geological Association of Canada and am a past director of The Prospectors and Developers Association of Canada and a past president of the British Columbia and Yukon Chamber of Mines.
- 4. I have practiced my profession as a geologist, both within government and the private sector, in eastern and western Canada and in parts of the United States, Mexico and Latin America for more than 40 years. Work has included detailed geological investigations of mineral districts, examination and reporting on a broad spectrum of mineral prospects and producing mines, supervision of mineral exploration projects and comprehensive mineral property evaluations.
- 5. I am responsible for the preparation of all sections of the foregoing valuation report which is based on a review of technical reports and related information pertaining to the Blue Ice mineral property provided by Mr. Robert D. Gibbens supplemented by material available from public sources.
- 7. I have not conducted a personal inspection of the property.
- 8. I am independent of the property owner and hold no interest in the subject mineral property.

Dated at Victoria, B.C. this 14<sup>th</sup> day of November, 2005

N.C. Carter, Ph.D. P.Eng.

**APPENDIX I** 

Comparable Mineral Property Transactions

#### **MINERAL PROPERTY: Elk**

#### Minfile No: 092HNE096

LOCATION: South-central BC 45 km southeast of Merritt. Road accessible.

- GEOLOGICAL SETTING: Middle Jurassic granitic rocks intrude volcanics and sediments of similar age.
- STYLE OF MINERALIZATION: East-northeast striking, parallel, shallowly-dipping, mesothermal quartz-pyrite veins with average widths of between several and 70 centimetres.
- PAST PRODUCTION: 1992-1995 16,570 tonnes with recovered grades of 91.66 grams/tonne gold and 114.85 grams/tonne silver.
- RESOURCE: 2004 measured and indicated resources 164,000 tonnes @ 33.69 grams/tonne gold; inferred – 195,200 tonnes @ 16.38 grams/tonne gold.

TRANSACTION: March 1998 - Fairfield Minerals Ltd. grants Placer Dome Inc. the right to earn a 50% interest in the Elk property by way of \$500,000 in property payments and \$2 million in property expenditures over a 4 year period. Placer Dome had earned this 50% interest by early 1991. Placer Dome's interest was purchased by Fairfield several months later in exchange for Placer Dome receiving a 10% net proceeds interest of any mineral production to a maximum of \$2.5 million. This NPI could be purchased at any time prior to the end of 1993 for \$1.3 million. Fairfield announced the purchase of this NPI for \$1 million in early 1994. The value of the transaction (for a 50% interest) is the average of the \$2.5 million earn-in and the agreed to \$1 million purchase price of the net proceeds interest

#### VALUE OF TRANSACTION: \$1,750,000

#### **MINERAL PROPERTY: SB**

Minfile No: 104B150

LOCATION: North coast of BC, 15 km north of Stewart. Road accessible.

GEOLOGICAL SETTING: Mesozoic volcanics marginal to granitic rocks of the Coast Plutonic Complex.

STYLE OF MINERALIZATION: Polymetallic gold-silver-base metals quartz veins.

- PAST PRODUCTION: 1991-1992 102,000 tonnes with recovered grades of 8.27 grams/tonne gold and 24.92 grams/tonne silver.
- RESOURCE: Early 1990s 95,998 tonnes grading 10 grams/tonne gold, 66 grams/tonne silver plus lead, zinc and copper values.;
- TRANSACTION: August, 1989 agreement whereby Tenajon Resources Ltd. grants Westmin Resources the right to earn a 50% interest in the property by way of cash payments of \$572,500 and incurring aggregate expenditures of \$2.45 million. A cash payment of \$172,500 and a firm commitment to spend \$1.055 million within four months of the execution of agreement were also due and were documented in a news release in early 1990.

#### VALUE OF TRANSACTION: \$1,227,500

MINERAL PROPERTY: Dome Mountain

2.76 Minfile No: 093L226

LOCATION: West-central BC, 35 km southeast of Smithers. Road accessible.

GEOLOGICAL SETTING: Mesozoic volcanics and sediments.

STYLE OF MINERALIZATION: Mesothermal quartz-sulphide veins containing gold and silver values...

**PAST PRODUCTION:** 1991-1992 – 30,890 tonnes with recovered grade of 11.70 grams/tonne gold plus silver credits.

**RESOURCE:** 1992 – 200,768 tonnes grading 14.94 grams/tonne gold.

**TRANSACTION:** April, 1989 agreement in which Total Energold Corporation agrees to surrender a 50% back-in right to the Dome Mountain property in exchange for shares of the two joint venture partners, Canadian United Minerals Inc. and Teeshin Resources Ltd. At the date of the agreement, these shares have a market value in the order of \$2,889,600; in late 1989, this transaction has a market value of \$1,176,000.

VALUE OF TRANSACTION: \$1,176,000

MINERAL PROPERTY: Doctors Point Minfile No: 092HNW071

LOCATION: Southwestern BC, west shore of Harrison Lake, 100 km northeast of Vancouver. Road accessible.

GEOLOGICAL SETTING: Southern Coast Range – Mesozoic volcanics and sediments cut by small, Tertiary diorite plutons.

STYLE OF MINERALIZATION: Epithermal, vuggy quartz-sulphide veins developed marginal to diorite intrusions.

PAST PRODUCTION: None

RESOURCE: 1988 "indicated" 93,000 tonnes grading 4.42 grams/tonne gold (one of several zones)

**TRANSACTION:** June 1988 agreement between property owner Rhyolite Resources Ltd. and Universal Trident Industries Ltd. giving Universal trident an option to earn a 51% interest in exchange for property payments totaling \$230,000 and property expenditures aggregating \$2.27 million over a four year period. A trenching and drilling program involving expenditures of \$600,000 was completed by January of 1989.

VALUE OF TRANSACTION: \$600,000

MINERAL PROPERTY: Smith-Nash

Minfile No: 093E014

- LOCATION: Central BC coast, 15 km southeast of Kemano. Typical Coast terrain; no conventional access.
- GEOLOGICAL SETTING: Roof pendants of volcanic rocks within Coast Plutonic Complex granitic rocks.
- STYLE OF MINERALIZATION: Northwest-trending, shear hosted, 2 metres wide quartz-pyrite veins discovered in 1952 and traced on surface over strike lengths of up to 100 metres.

PAST PRODUCTION: None

RESOURCE: 1989 "drill-indicated" (13 drill holes) 20,125 tonnes grading 10.35 grams/tonne gold – average width 2.20 metres.

TRANSACTION: June 1988 agreement between Fleck Resources Ltd. and Consolidated Silver Standard<br/>Mines (vendor) whereby vendor grants Fleck an option to acquire up to a 65% interest by<br/>making property payments totaling \$50,000 over 2 years and incurring aggregate<br/>expenditures on the property of \$750,000 over 3 years. Records indicate that one property<br/>payment of \$25,000 was paid and \$500,000 of exploration expenditures were incurred in<br/>1988 to earn a 50% interest – a further expenditure of \$250,000 would earn an additional<br/>15% interest. This apparently was not done.

VALUE OF TRANSACTION: \$525,000

#### MINERAL PROPERTY: Spectrum

Minfile No: 104G036

LOCATION: Stikine area of northwestern BC; adjacent to Mt. Edziza Provincial Park 90 km southwest of Dease Lake.

GEOLOGICAL SETTING: Late Triassic volcanics and sediments cut by coeval granodiorite dykes.

STYLE OF MINERALIZATION: Porphyry and quartz vein styles of mineralization within and adjacent to granodiorite dykes.

#### PAST PRODUCTION: None

- **RESOURCE:** 1989 2 million tonnes of disseminated (porphyry) mineralization grading 1.26 grams/tonne gold. Early 1990s three vein zones defined including one with 275,000 tonnes grading 15.77 grams/tonne at a 10 grams/tonne cutoff grade.
- TRANSACTION: June 1989 Calnor Resources grants to Cominco Ltd. an option to earn a 60% participating interest by way of a \$50,000 cash payment and incurring aggregate exploration expenditures of \$1/7 million over a 4 year period. First year obligations of \$300,000 plus the cash payment were completed.

VALUE OF TRANSACTION: \$350,000

MINERAL PROPERTY: North Texada, M21 Minfile No: 092F511

LOCATION: South coast of BC, north end of Texada Island, 120 km northwest of Vancouver.

GEOLOGICAL SETTING: Insular Belt - Triassic volcanics and sediments, mainly limestone.

STYLE OF MINERALIZATION: Recrystallized limestone cut by granitic dykes; weak skarn development containing gold values of 11.9 and 7.2 grams/tonne over 0.5 metre widths as encountered by limited drilling.

PAST PRODUCTION: None

**RESOURCE:** None reported

**TRANSACTION:** A July 1988 agreement between Rhyolite Resources Ltd., the property owner, and Echo Bay Mines Ltd. allowed Echo Bay to earn a 60% interest in the property by making annual cash payments totaling \$175,000 and incurring \$3 million of exploration expenditures over a five year period. Available records indicate that a cash payment of \$25,000 was made and property expenditures of \$300,000 were incurred in completing various surface programs.

Minfile No: 092F045

VALUE OF TRANSACTION: \$325,000

**MINERAL PROPERTY:** Lacy-Stokes

LOCATION: Central Vancouver Island, 5 km northeast of Port Alberni. Road accessible.

GEOLOGICAL SETTING: Insular Belt – Paleozoic Sicker Group volcanic and sediments.

STYLE OF MINERALIZATION: Volcanogenic jasperoidal chert lenses with gold values.

**PAST PRODUCTION: None** 

**RESOURCE:** None reported

**TRANSACTION:** March 1989 – Kancana Ventures Limited grants Lode Resources Corp. an option to acquire a 50% interest in the property in exchange for the issuance of 200,000 shares plus exploration expenditures of \$1 million within a 2 year period. Records indicate the implementation of a \$300,000 drilling program and the issuance of 50,000 shares at a deemed price of \$0.47 per share.

VALUE OF TRANSACTION: \$323,500

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Deal Reversed

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MINERAL PROPERTY: Surf Inlet Minfile No: 103H027

- LOCATION: Central coast of BC, on Princess Royal Island 175 km south of Prince Rupert. Site is 13 km from tidewater.
- GEOLOGICAL SETTING: Within Coast Plutonic Complex mainly granitic rocks with screens and pendants of metamorphosed volcanics and sediments.
- STYLE OF MINERALIZATION: Mesothermal quartz-sulphide veins with gold and silver values..
- **PAST PRODUCTION:** 1936-1942 990,000 tonnes with recovered grade of 13.24 grams/tonne gold plus silver and copper credits.
- **RESOURCE:** 1988 50,000 tonnes @ 13.71 grams/tonne gold in underground workings; 400,000 tonnes in rock dumps and mill tailings grading 2-3 gram/tonne.
- **TRANSACTION:** August, 1988 agreement between Surf Inlet Mines Ltd. and Halley Resources Ltd. which grants Halley an option to earn a 50% interest in the Surf Inlet property by incurring exploration expenditures totaling \$2 million over 2 years. Surf Inlet Mines subsequently exercises its back-in rights to this agreement by converting Halley's interest into common shares of Surf Inlet Mines on the basis of one share for every \$0.50 spent by Halley. November, 1988 and Jnly, 1989 news releases report that Surf Inlet has exercised its rights by paying Halley Resources the sum of \$300,000 by way of issuing 2.4 million shares.

## VALUE OF TRANSACTION: \$300,000









