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#### GEOLOGICAL REPORT

#### ON THE

IAN 6 and 8 MINERAL CLAIMS

Iskut River Area Liard Mining Division British Columbia

FOR

VANSTATES RESOURCES LTD.

ΒY

N.C. CARTER, PH.D. P.ENG. May 20, 1987

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#### SUMMARY

Vanstates Resources Ltd. holds 2 Modified Grid mineral claims comprising 40 units in the western Iskut River area of northwestern British Columbia. The property is accessible by fixed wing aircraft and helicopter.

The western Iskut River area has long been noted as an area of good mineral potential but only sporadic mineral exploration took place prior to the early 1980's. Recognition of the significance of Skyline Explorations Ltd.'s Reg gold property has renewed interest in the area.

Most known mineral deposits and occurrences in the Iskut River area are hosted by early Mesozoic volcanic-sedimentary sequences and are fracture controlled. Most are spatially related to distinctive feldspar porphyry intrusions.

The IAN 6 and 8 mineral claims are underlain by volcanic and lesser sedimentary rocks of probable Mesozoic age north of Iskut River. Limited previous work west of the present claims yielded anomalous gold values in stream sediment and soil samples and disclosed the presence of a pyritized zone in bedrock. Drainage patterns on the claims indicate northeast trending fractures, the preferred orientation of gold-bearing zones known southwest of the property.

Based on information available, the IAN 6 and 8 claims warrant a preliminary exploration program consisting of geological mapping, prospecting, geochemical and geophysical surveys. Estimated cost of the recommended program is \$60,000.00.

#### INTRODUCTION

Vanstates Resources Ltd. holds 2 Modified Grid mineral claims in the Iskut River area, Liard Mining Division, British Columbia.

This report, prepared at the request of Vanstates Resources Ltd., is based on a review of available public and private reports and on a reconnaissance of the Iskut River area January 20,1987.

The writer also has a good working knowledge of the geology and mineral deposits of northwestern British Columbia, derived from numerous mineral property investigations throughout the area between Terrace and Atlin.

#### LOCATION AND ACCESS

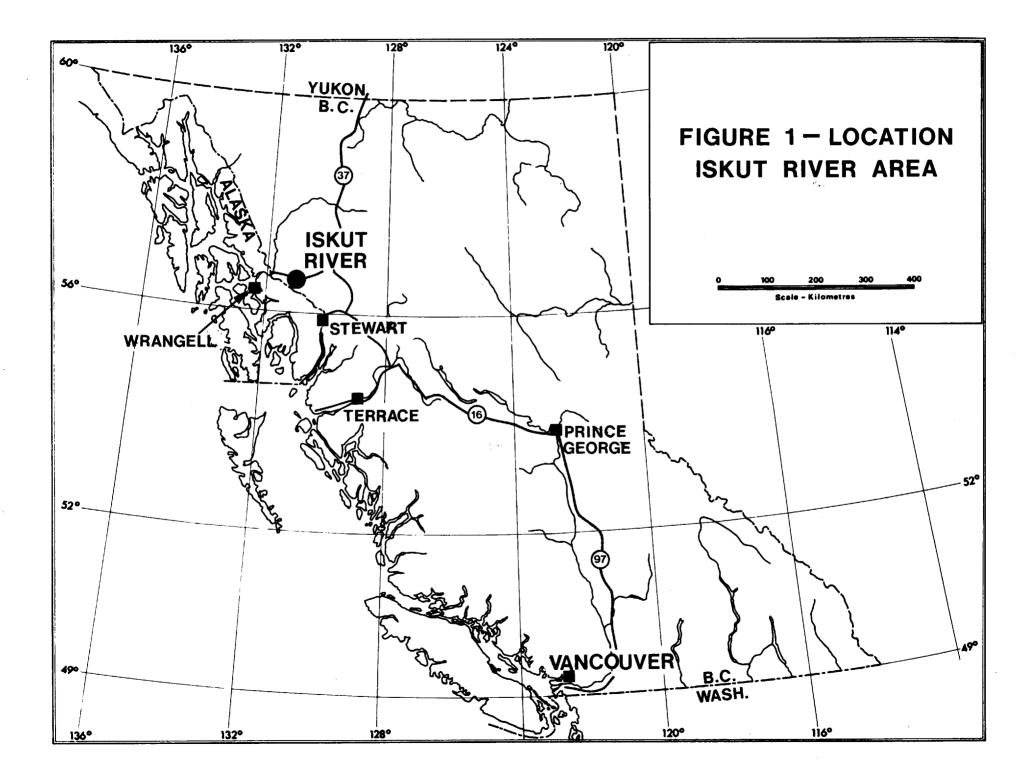
The IAN 6 and 8 mineral claims are situated in the western Iskut River area of northwestern British Columbia (Figure 1), close to the Alaska panhandle boundary. The property, at 56°43' North latitude and 130°53' West longitude in NTS map-area 104B/10W, is 70 air miles northwest of Stewart and 50 air miles east of Wrangell, Alaska.

Access into the area is by air from Wrangell, Stewart or Terrace to gravel airstrips at Mt. Johnny and Snippaker Creek. The latter, at an elevation of 1,800 feet, has scheduled service during the summer months and is capable of accomodating Caribou aircraft with larger loads.

The nearest road is highway 37 at Bob Quinn Lake, 40 miles to the northeast (Figure 1).

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#### MINERAL PROPERTY

Vanstates Resources Ltd. holds 2 Modified Grid mineral claims comprising approximately 40 units in the Liard Mining Division of northwestern British Columbia. These mineral claims are shown on Figure 2 and details are as follows:

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These two claims were located by a common Legal Corner Post situated approximately 1 mile northeast of the confluence of Snippaker Creek with Iskut River (Figure 2). No claim posts were examined by the writer during a visit to the area January 20, 1987.

#### PHYSICAL SETTING

Iskut River, some 100 miles in length, heads at Kinaskan Lake and flows southwesterly for its first 60 miles before turning abruptly westward, joining the Stikine River 10 miles north of the International Boundary. Over the last 30 miles of its length, the Iskut occupies a 1 to 2 mile wide gravel flat over which numerous channels are continually shifting. Above this section, between Snippaker and Forrest Kerr Creeks, the river has cut a 100 to 200 ft. wide channel through Recent basaltic lavas along whic are near vertical walls some 100 ft. high.

The western Iskut River is within the Coast Mountains and

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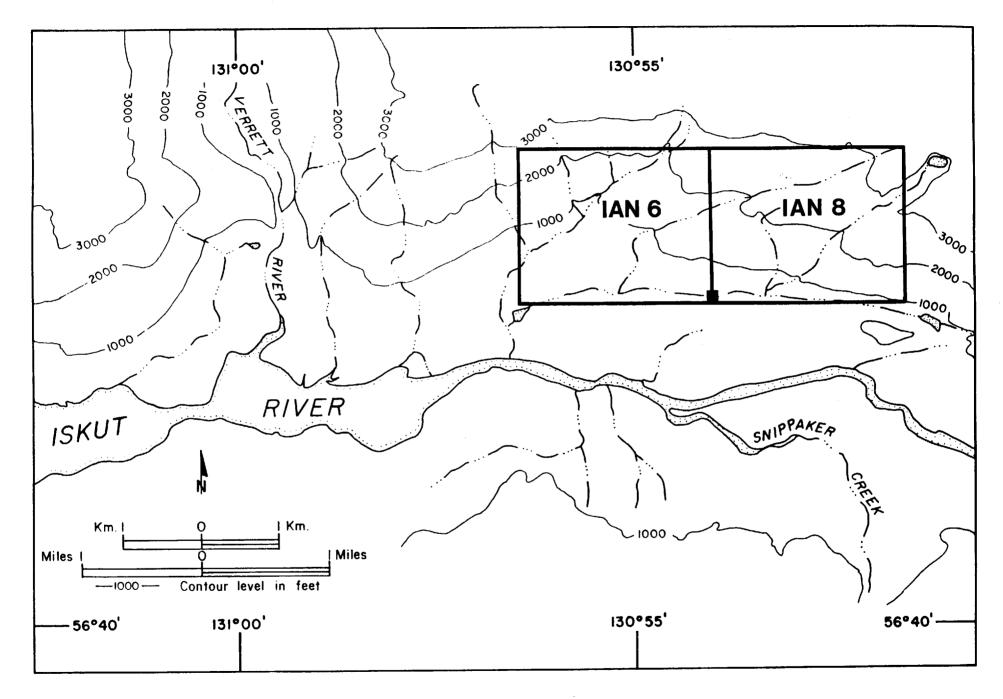


FIGURE 2 - IAN 6 & 8 CLAIMS

elevations rise abruptly from river levels of 200 to 500 feet to more than 6,000 feet. South of Iskut River, Snippaker Creek and Jekill and Craig Rivers have incised deep valleys while to the north, most tributary streams have steep gradients, heading in glaciers which mark the southern extremity of a 200 square mile icefield. Most peaks in the area south of the river are capped by permanent ice and snowfields.

The area is in the coastal wet belt and is snow free for a 3 to 4 month period.

Lower areas, mainly in the valleys of the major drainages, feature dense undergrowth between cottonwood stands. The lower slopes support a mature forest cover of spruce, hemlock and fir except for slide areas in which dense alders are prevalent. Tree line extends to between 3,000 and 3,500 feet elevation.

The IAN 6 and 8 claims cover a moderately steep slope north of Iskut River (Figure 2). Elevations range from 400 feet above sea level along the south boundary of IAN 6 to more than 3,200 feet in the northeast corner of IAN 8.

The claims feature well forested, rugged topography in which several drainages tributary to Iskut River have incised steepwalled valleys.

#### HISTORY

The earliest recorded prospecting activity in the Iskut River area took plce in 1905 when F.E. Bronson and associates from

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Wrangell, Alaska explored a prominent gossan zone above the lower reaches of Bronson Creek north of Mt. Johnny. Iskut Mining Company was incorporated around 1910 and claims covering the section along Bronson Creek and a relatively flat area on the north slope of Mt. Johnny were Crown granted in 1914 and 1915. Work done to 1920 included a 30 ft. adit and numerous surface trenches.

Consolidated Mining and Smelting Company staked 48 claims on Mt. Johnny in 1929 but there is no record of further work until the mid-1950's when Hudson's Bay Mining and Smelting prospectors found high grade sulfide float on Mt, Johnny. These showings were briefly investigated by Kennco and Noranda prior to 1965 when the original Crown grants and surrounding claims were explored by a consortium of Cominco, Copper Soo Mining Ltd. and Tuksi Mining and Development Ltd. Some 1,800 feet of diamond drilling in 10 holes was completed. Additional geological work was carried out in 1968 and the porphyry copper potential of the Mt. Johnny area was investigated by Texas Gulf Inc. in 1974.

Work elsewhere in the Iskut River in the 1960's and 1970's included geological and geochemical surveys, trenching and packsack drilling by Iskut Silver Mines Ltd. on a prospect north of Iskut River between Twin and Verrett Rivers. Newmont also carried out considerable work on several prospects near the headwaters of Forrest Kerr Creek and a nickel-copper deposit was discovered near the headwaters of Snippaker Creek by Silver

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Standard Mines Ltd. Sumitomo Metal Mining subsequently optioned the property and by the end of 1971 had completed 1,500 feet of underground work in addition to surface and underground drilling.

Skyline Explorations Ltd. restaked the Mt. Johnny area in 1980 and completed trenching and limited diamond drilling of gold-bearing, sulfide rich zones in an area of relatively gentle topography northwest of the summit of Mt. Johnny in 1981. The property was optioned to Placer Development Ltd. in 1982, which company formed a joint venture with Anaconda Canada Ltd. to carry out various surveys, trenching and diamond drilling in 1983. Anaconda continued exploration work in 1984 after which the property reverted to Skyline.

Work by Skyline in 1985 and 1986 has included diamond drilling and more than 1,500 feet of underground cross-cutting and drifting to further define several known gold-bearing zones. Skyline's work over the past several years has resulted in a number of companies carrying out exploration work elsewhere in the area. These include the Delaware Resources-Cominco joint venture and Western Canadian Mining Corporation.

Previous work in the area of the present IAN 6 and 8 mineral claims includes geochemical sampling by DuPont in an area immediately to the west in 1980.

#### REGIONAL GEOLOGY AND MINERALIZATION

The lower Iskut River area features complex geological

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relationships by virtue of its location at the boundary between the Coast Crystalline and Intermontane tectonic belts. Only generalized geological relationships are available and the following comments are after Kerr (1930,1948), Grove(1986) and Geological Survey of Canada Maps 9-1957, 1418-A and 1505A. A generalized geological setting of the lower Iskut River area is shown on Figure 3.

Oldest rocks recognized in the area and apparently restricted to the Coast Crystalline belt are complexly folded and metamorphosed schists and gneisses of probable mid-Paleozoic age within and adjacent to plutonic rocks. White to grey crystalline limestone overlies the metamorphic rocks and is believed to be part of a late Paleozoic sedimentary sequence which includes some minor greenstone units.

Intermontane belt in the Iskut River area is comprised principally of a Mesozoic volcanic and sedimentary sequence originally regarded as late Triassic. Grove(1986) is off the opinion that this sequence is correlative with Lower and Middle Jurassic units of the Unuk River and Stewart areas to the southeast. On the north slopes of Mt. Johnny and Snippaker Mtn., Paleozoic metasedimentary rocks overlie the Jurassic rocks and apparently represent the upper plate of an east-west regional thrust fault along the axis of the Iskut River (Grove, 1986).

Plutonic rocks of the Coast Crystalline belt, late Cretaceous to early Tertiary in age and ranging in composition from quartz

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diorite to quartz monzonite, intrude both the Paleozoic and Mesozoic sequences. Small granitic plugs and stocks are prevalent east of the main plutonic complex (Figure 3).

Youngest rocks of the area are Quaternary olivine basalt flows and ash deposits underlying Hoodoo Mountain and parts of the valleys of Iskut River and Snippaker Creek (Figure 3).

Kerr(1930,1948) noted that extensive altereation of country rocks marginal to small granitic intrusions included locally abundant pyrite and other sulfide minerals. The original mineral showing in the area, along Bronson Creek 2 miles from its confluence with Iskut River, were marked by a prominent gossan central to a feldspar (orthoclase) porphyry intrusion. Volcanic rocks in this area are sheared and altered within a zone 2 miles long and 1,000 to 2,000 feet wide and sulfide minerals include fracture filling and disseminated to near massive pyrite and lesser arsenopyrite, pyrrhotite, chalcopyrite, galena, sphalerite, tetrahedrite and molybdepite in fractures and quartz veinlets within and adjacent to the intrusion. Good copper and silver grades with some gold values were reported from earlier work. Similar altered and pyritized rocks adjacent to feldspar porphyry intrusions along Iskut and Craig Rivers were also reported by Kerr(1948).

A number of Narrow quartz-sulfide veins and skarn deposits are known along Iskut River. Most of these have reported good grades of copper, lead, zinc and silver with associated low gold

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values. Mineralized float has been reported (Kerr,1948) in moraine below several glaciers in the region.

Between 1965 and 1971, extensive surface and underground exploration and development work was carried out on a nickelcopper deposit hosted by a gabbro intrusion near the headwaters of Snippaker Creek. Some 3.2 million tons grading 0.80% nickel and 0.60% copper are indicated in two zones.

The most significant known mineral deposit in the Iskut area is the Reg property of Skyline Explorations Ltd. Situated in a relatively gentle area on the north slope of Mt. Johnny (Figure 3) the Reg property includes at least seven gold-bearing sulfide rich mineral lenses and quartz veins, collectively referred to as the Stonehouse Gold Zone (Grove, 1986). The zones are hosted by an east-west striking, northerly dipping sequence of Lower Jurassic volcaniclastics and feldspar porphyry flows. These are overlain unconformably ny Middle Jurassic volcanic breccias and well stratified volcanic sediments and tuffs on the upper slopes of Mt. Johnny.

Known mineralization is restricted to northeast trending, steeply dipping fractures developed in a zone some 4,700 feet long and 900 feet wide (Grove,1986). Mineralized zones consist of pods, lenses and quartz veins containing a variety of sulfide and sulfosalt minerals in addition to native gold and electrum. Wallrocks marginal to the zones exhibit extensive K-feldspar alteration.

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Gold is the major economic mineral on the Reg property but recoverable quantities of copper and silver are also present. Surface and underground work to date has resulted in measured reserves of 79,848 tons grading 1.33 oz. gold per ton while drill-indicated reserves are 153,598 tons grading 0.67 oz/ton. (Northern Miner, February 16,1987).

Geochemical soil sampling and VLF-EM surveys have been demonstrated to be effective tools in the discovery and definition of the various gold-bearing zones.

In summary, known base and precious metals mineralization in the western Iskut River area is mainly fracture controlled with northwest and particularly northeast fractures being the most favourable orientations. Better gold grades are commonly, but not always, associated with zones of near massive sulfides. In addition, there is at least a spatial relationship between several mineralized zones and feldspar potphyry intrusions.

#### PROPERTY GEOLOGY

Available information indicates that the IAN 6 and 8 mineral claims are underlain principally by Mesozoic (Lower Jurassic?) felsic to intermediate volcanic rocks.

The claims are immediately east of ground held previously by DuPont of Canada Explorations Ltd. who carried out a heavy mineral stream sediment sampling program which yielded a 650 ppb gold value in a tributary of Verrett River. Follow-up work

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(Strain,1981)disclosed the presence of a gossan zone on a ridge 6,000 feet west of the IAN 6 claim boundary. Bedded cherts and felsites were noted to contain 2-15% pyrite in fractures and as disseminations. Four of nine soil samples collected in the immediate area returned values of between 40 and 200 ppb gold and three contained 2.4-6.5 ppm silver.

Three gold showings have been identified on the Tungco Resources property south of Iskut River and three miles southwest of the IAN 6 and 8 claims. Grab samples returned assays ranging from 0.495 to 2.873 oz/ton gold (Caulfield and Ikona,1985). These showings and anomalous areas indicated by soil geochemistry and an airborne EM survey have distinct northeast trends as do mineralized zones discovered by DuPont (Eccles,1981; Barde and Radford,1983) on the steep slope of Snippaker Mtn. to the south.

These northeast trends are reflected by drainage patterns on the subject properties and it is of interest that major drainages on the IAN 6 and 8 claims also have a distinct northeast trend.

#### CONCLUSIONS AND RECOMMENDATIONS

The IAN 6 and 8 claims are underlain by Mesozoic volcanic and lesser sedimentary units considered to be favourable host rocks for precious and base metals in the Iskut River area.

Limited previous work immediately west of the present claims has disclosed significant gold (and silver) values in stream sediment and soil samples, and fracture filling and disseminated

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pyrite in bedrock.

Northeast trending fracture zones are the preferred orientation for known gold-bearing mineral zones in the district and drainage patterns suggest similar fracture orientations on the IAN 6 and 8 mineral claims.

The property warrants a preliminary program to assess the potential of the claims area. A 15 to 20 day program of geological mapping, soil and stream sediment sampling and VLF-EM orientation surveys is recommended.

Field work should be preceded by an air photo interpretation study and preparation of an adequate base map. Stream sediment (heavy mineral) sampling should be undertaken of all tributary drainages within the claims area. Soil and/or rock samples could be collected during geological reconnaissance and prospecting of the more accessible areas.

Exact location of the common Legal Corner Post for the two claims and proper definition of the claim boundaries should be established during the course of the exploration program.

In view of anticipated difficulty of access over much of the property, it is recommended that a four person crew be deployed from a base camp at Snippaker Creek airstrip, 14 miles southeast. Daily set-outs and pick-ups by helicopter should result in a more efficient program.

A second phase program, involving follow-up work, would be contingent on results obtained from the recommended preliminary work.

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#### COST ESTIMATE

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## Phase One

Crew Wages (geologist, prospector, 2 assistants)	\$20,000.00
Camp costs (including freight)	\$7,500.00
General transportation	\$2,500.00
Helicopter support - 20 hours	\$12,000.00
Sample analyses	\$5,000.00
Base map preparation, air photos	\$2,000.00
Engineering, supervision, reports	\$5,000.00
Contingencies	\$6,000.00
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Total

\$60,000.00

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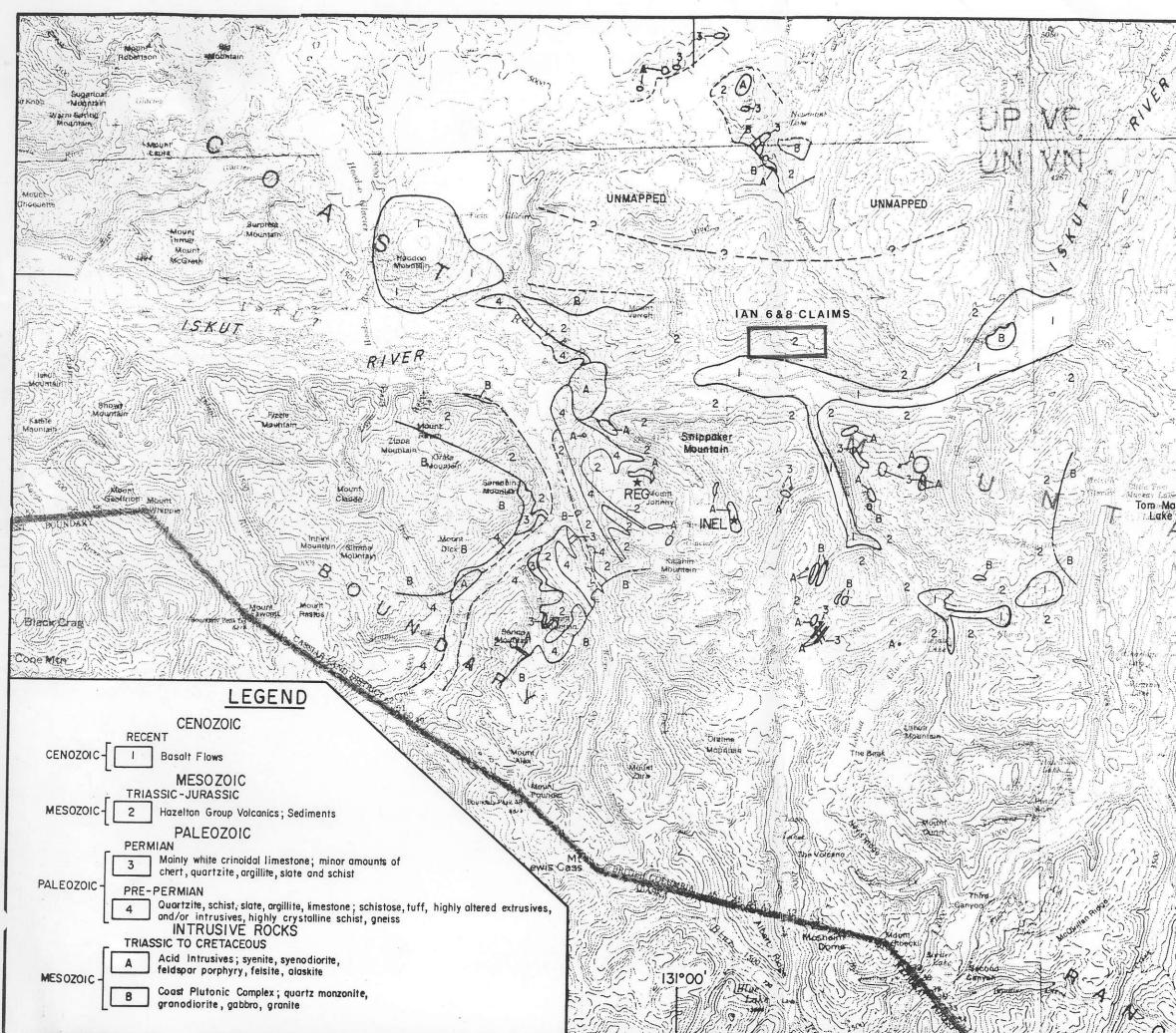
#### CERTIFICATE

I, NICHOLAS C. CARTER, of Victoria, British Columbia, do hereby certify that:

- 1. I am a Consulting Geologist registered with the Association of Professional Engineers of British Columbia since 1966.
- I am a graduate of the University of New Brunswick with B.Sc. (1960), Michigan Technological University with M.S. (1962) and the University of British Columbia with Ph.D. (1974).
- 3. I have practised my profession in eastern and western Canada and in parts of the United States over the past 25 years.
- 4. This report is based on public and private reports dealing with the geology and mineral deposits of the Iskut River area, British Columbia, and on a reconnaissance of the area January 20,1987.
- 5. I have no interest, direct or indirect, in the IAN 6 and 8 mineral claims or in Vanstates Resources Ltd.
- Permission is hereby granted to Vanstates Resources Ltd. to use this report in support of a Prospectus, Statement of Material Facts or Filing Statement to be submitted to the British Columbia Securities Commission and the Vancouver Stock Exchange.

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

Victoria, B.C. May 20,1987



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