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NECHAKO JOINT VENTURE  
REGIONAL RECONNAISSANCE PROGRAM

Central British Columbia

NTS

93E, 93F, 93K, 93L

1986

Atna Resources Ltd.

Imperial Metals Corp.

Interaction Resources Ltd.

January 1987

## INTRODUCTION AND SUMMARY

The Nechako Joint Venture, comprised of Imperial Metals Corp., Atna Resources Ltd., and Interaction Resources Ltd., was formed to explore for precious metal deposits in the Nechako Plateau area. The region is underlain by favourable geology for hosts of such deposits, but exploration is hampered by extensive overburden and low relief. Significant precious metal deposits and showings are known in the region; Equity Silver Mine, Bradina, Capoose and the Wolf showings. The paucity of deposits is likely a function of difficult exploration problems.

The exploration program was based upon use of an inventory of all claims staked in the region between the early 1900's and 1960. The program comprised of prospecting around locations described in the old claim records and to assess any reason as to why a claim may have been staked. The program commenced in early August, 1986, and finished in October, 1986.

Two precious metal occurrences were staked as a direct result of the inventory of locations. The Bruce claim (22 units), immediately north of François Lake comprises gold to 0.250 oz/t hosted in quartz veins in Tertiary andesite, and the Boss Claims (60 units), located near the village of Danskin, contains anomalous gold (to 1600 ppb) in a quartz-carbonate-greenstone-diorite-shear zone assemblage with associated silicified conglomerate. Other, unstaked, areas noted with follow-up potential are northwest of Tchesinkut Lake (Old Woman Show), Bickle Lake area, and the Nithi River.

Follow-up program for 1987 should include evaluation of the two claimed areas, follow-up on unstaked areas with potential, and complete the prospecting of the old claim inventory.

Proposed program budgets are as follows:

Specific Project:	Bruce Claims	\$19,720.00
Specific Project:	Boss Claim	\$32,380.00
Regional Reconnaissance:		<u>\$37,560.00</u>
	TOTAL	\$89,660.00

### LOCATION, ACCESS AND PHYSIOGRAPHY

- The Area of Interest is located in central British Columbia, figure , including the southern part of Fort Fraser (93K), most of Nechako (93F), southeast corner of Smithers (93L) and a northeast sliver of the Whitesail Lake (93E) map areas. The north boundary is approximately  $54^{\circ} 20'$  and the south, near  $53^{\circ} 10'$  latitudes; the west boundary ranges between  $126^{\circ} 25'$  and  $126^{\circ} 05'$ ; the east boundary is at  $124^{\circ} 00'$  longitude.

The northern part of the area is transected by the Yellowhead Highway (16), which includes the service towns of Vanderhoof, Burns Lake and Houston. The outlying areas are serviced by a network of new and old logging roads that give access to much of the area. Copies of maps showing locations of these roads are readily available at 1:50,000 scale from the B.C. Forest Service in any of the above towns. Numerous lakes give further access.

The Area of Interest is entirely within the Nechako Plateau, a northern subdivision of the Interior Plateau. The Nechako Plateau comprises a series of low relief rounded hills separated by broad, low vallies, frequently occupied by long, narrow lakes.

Outcrop is limited to mainly south facing slopes, and hard, bed-rock knobs. Creeks are rarely incised into bed-rock.

Vegetation is mainly spruce and balsm in areas of poorer drainage with pine on well draned areas. Swamp land is common and ubiquitous.



## REGIONAL SETTING OF MINERALIZATION

Mineralization appears to be related to three dominant episodes: Jurassic-Hazelton volcanics, Jura-Cretaceous François Lake Intrusions, and Late Cretaceous to Eocene volcanics and intrusives. No Jurassic Hazelton associated mineralization is documented in the immediate vicinity. The Endako molybdenum mine, the Mo/U association on Nithi Mountain and numerous showings are coeval with the Jura-Cretaceous François Lake Intrusions. Most significant mineralization is cosanguineous with the evolution of the Upper Cretaceous-Tertiary volcanic assemblages. Significant precious metal mineralization includes the Equity Mine, and the Bradina, Bob Creek, Capoose and Wolf showings, as well as most of the known occurrences. These deposits are of differing ages within the Upper Cretaceous-Tertiary (Laramide) mineralizing episode, and represent a variety of styles and depths of mineralization, ranging from porphyry style (Capoose) to epithermal (Wolf). The episode includes all the porphyry deposits exclusive of those associated with the François Lake Intrusions. Figure , shows the relationships between the Buck Creek Caldera and mineralization in the western part of the Joint Venture area, between Houston and Burns Lake.

## BRUCE CLAIM

The Bruce Claim (22 units) is located 3 km west of the southwest area of Tchesinkut Lake, 12 km south of the village of Burns Lake (map sheet 93K4). The claims are centered on a small outcrop boss, 300 meters north of a major side road, above fenced pasture land. Exposure is limited to the pine and poplar forested south-facing slope, and in a small creek draining the western part of the claim. Outcrop is less than 5% of the claimed area.

The claims are underlain by andesitic volcanics of probable Tertiary age (Ootsa Lake Group?) overlying conglomerates and siltstones correlative with the Cretaceous Skeena Group. The andesite, which hosts all the presently known mineralization, is a fine-grained, dense, closely fractured red, maroon to green mottled unit, that appears to be a flow assemblage. Local breccias are probably flow breccias. Amygdules filled with combinations of quartz, chalcedony, epidote and calcite are characteristic of the andesite. Propylitization appears to be correlative with abundance of amygdules. Rusty pebble conglomerate is exposed in subdued outcrops to the east of the andesite. To the west, in outcrops along a small creek, grey to maroon, pencil-fractured and sheared siltstones are exposed. A diorite dyke, trending  $030^{\circ}$  intrudes the andesite.

Mineralization comprises quartz veins, lenses, stringers and stockworks, trending northeasterly, hosted in the andesite. The main showings consist of a quartz vein, to 0.7 m. width, trending  $055^{\circ}$ , dipping  $70^{\circ}$  west, exposed along the south-facing slopes in the central part of the andesite boss. The vein is composed of banded, locally vuggy, fine-grained quartz and quartz breccia with disseminated pyrite and unidentified grey to dark grey mineral irregular patches. The selvage of the veins is argillic altered, the host andesite propylitized. This main vein is exposed in a blast-pit trench at least 20 years old. Exposure of the vein is limited to this trench and from a subdued outcropping on strike some 30 meters to the northeast. Anomalous gold values from this vein include 6340 (0.250 oz/t), 5210, 240, 570 and 460 ppb. There is no exposure on strike with this vein to the southwest and northeast. 100 meters to the west of the main vein, two parallel stringer systems trend  $030^{\circ}$  to  $050^{\circ}$ . In situ quartz stringers, proximal float is exposed over an intermittent length of 150 meters. Gold values from this zone include 4450, 1645 and 360 ppb. Mineralized quartz is associated with fracture and shear zones in andesite.

82 soil samples, from threelines 50 meters apart with 25 meter sample  
-spacings were collected across the andesite boss. A single anomalous gold  
value of 75 ppb was located. Geochemically, the values from the suite of  
samples from the soil grid are low.

BOSS CLAIM NECHAKO #

The Boss Claims comprise 60 units located immediately west and south of the village of Danskin on map sheet 93F/13. The claims are bisected by a paved highway leading from the south side of François Lake. Numerous good secondary roads give ready accessibility to most of the claim block. The claims are underlain by low, rolling hills covered by fenced pasture, open range, pine-spruce-poplar forests, rock boss, small lakes and swamps. The claimed area supports a scattered rural population and two small Indian Reservations. Outcrop is limited to rock knobs and isolated minor exposure.

The claims are centred along a northwest trending ( $120^{\circ}$ ) shear zone some 2 km width. Bed-rock geology within the shear consists of diorite, bladed feldspar porphyry, feldspar-hornblende porphyry, quartz eye rhyolite, gabbro and diabase dykes and plugs in association with basic andesitic volcanics that includes greenstone and augite porphyry breccias, tuffs and massive units. Flanking the northern part of the shear zone is an assemblage of mainly chert pebble conglomerate, sandstone and siltstone of the Cretaceous Skeena Group, intruded by rhyolite, basalt, andesite, diorite and granodiorite dykes. The area to the south is covered. The shear zone is traceable over six kilometers and is open at both ends, although a marked change in geomorphic grain to the southeast (by the north trending Mollice Lake Valley) and to the northwest by an east northeast grain suggests the ground is adequately covered. The age of the intrusive-basic volcanic assemblage within the shear zone is in question. Augite porphyries are typical of both the Upper Triassic Takla Group and a suite of mid. Cretaceous volcanics locally interbedded within the Skeena Group.

Two distinct types of mineralization occur on the property.

A quartz-carbonate (ankerite) assemblage, parallel to and central to the shear zone represents the main anomalous zone at present. This zone is traceable intermittently over most of the length of the shear zone. Sulphides are sparse, comprising disseminated pyrite, minor chalcopyrite, galena and sphalerite. A bright green chloritic mineral resembling mariposite is locally present. Anomalous values of 1540, 890, 440, 160, 140, 120 and 110 ppb gold have been obtained from the quartz carbonate zone.



Silicified conglomerate is exposed on the northern part of Boss 27 claim. There, stringers of quartz with minor pyrite permeate rounded chert clasts in association with rhyolite dykes. In association with silicified conglomerate and rhyolite are veinlets of purple, green and colourless fluorite. No anomalous precious metal values have been obtained from this zone to date.



RECOMMENDED PROGRAM; BRUCE CLAIM

The area to be defined as a Special Project - Bruce Claim is to be outlined. The area outlined should be designed to include that area influenced by the mineralizing 'event' that is represented by the Bruce Claim, and other showings known in the immediate area, including areas of altered rock.

The focus of the exploration program on the Bruce Claim Special project area should be to:

1. Evaluate the Bruce Claim itself (contingent upon the results of the soil grid survey of 1986);
2. Evaluate the Old Woman area, by soil survey;
3. Detailed prospecting and geology within the surrounding area;
4. Reconnaissance geologic mapping.

BRUCE CLAIMS

Wages and Time		
Geologist	7 x 300 = \$	2,700
Prospectors	9 x 200	1,800
Assistants	18 x 150	2,700
Employee Expenses (20%)		<u>1,440</u>
		\$ 8,640
Travel/truck (9 x 50)		700
Geochemistry (200 x 18)		3,600
Travel/accommodation		1,500
Food (20 manday x 36)		720
Supplies (10 manday x 36)		360
Equipment rentals		500
Office, insurance, expditing		750
Report		1,200
Contingencies		<u>2,000</u>
		<u>\$ 19,720</u>

RECOMMENDED PROGRAM: BOSS CLAIM

The exploration program on the Boss Claim should comprise the following elements:

1. Soil grid surveys across selected areas within the claimed areas. These should be:
  - (a) Grid sampling and site-selective sampling across the known anomalous gold locations on Boss 25 and 26 claims;
  - (b) Grid sampling and site-selective sampling across the quartz vein system on Boss 27.
  - (c) Grid sampling and site-selective sampling across areas of silicified conglomerate and fluorite-bearing conglomerate.
2. Detailed rock sampling of O.C. and proximal float over the entire claimed area and the immediately adjacent areas. Exploration to the north and south is essential.
3. Reconnaissance geologic mapping.
4. EM - VFE and mag coincidents with soil grid.

BOSS CLAIMS

Wages and Time			
Geologist	14 x 300	= \$	4,200
Prospectors	14 x 200		2,800
Assistants	28 x 150		4,200
Employee Expenses (20%)			<u>2,240</u>
			\$ 11,200
Travel/truck (14 x 50)			700
Geochemistry (600 x 18)			10,800
Travel/accommodation			1,500
Food (20 manday x 56)			1,120
Supplies (10 manday x 56)			560
Equipment rentals			1,000
Office, insurance, expditing			1,000
Report			1,500
Contingencies			<u>3,000</u>
			<u>\$ 32,380</u>