

SELF-POTENTIAL SURVEY

over the

SUSAP PROPERTY

Keremeos District  
Osoyoos Mining Division  
British Columbia

**RECEIVED**

MAR 11 1997

Gold Commissioner's Office  
VANCOUVER, B.C.

NTS 82E/4W  
49° 06', Long 119° 48'

Prepared for:

Best Chance Exploration  
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By:

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21898



## SUMMARY

Aurora Gold Ltd., (now Best Chance Exploration), optioned the Susap property from Mr. L. Little of Penticton, British Columbia on June 6, 1989. The latest review of the geology and previous exploration over the property was made by W. A. MacLeod in September 1989 and was submitted as an assessment report.

The property, consisting of 24 mineral claims, is located 12 kilometres south of Keremeos and has been intermittently explored since 1903.

The claims are underlain by Mesozoic "Kruger" syenitic through quartz monzonitic lithologies and "Nelson" granodiorite to monzonite intrusive into older volcanics and sediments of the Triassic Old Tom Formation.

Copper, molybdenum, and precious metal sulphide mineralization is closely associated with late stage felsic intrusives, silicified zones, and open fracture linings in characteristic sub-horizontal fracture sets within both intrusive phases.

Diamond drilling coupled with surface and underground sampling has outlined reserves of approximately 1.5 million tonnes @ 0.158% Cu. and 0.075% MoS<sub>2</sub>. across 8 to 30 metres true width on a zone that can be traced for approximately 100 metres at the main Susap prospect.

Drilling 700 metres east of the main showing has intersected similar mineralization @ 0.132% Cu and 0.010% MoS<sub>2</sub> over 9 metres width.

Both of these mineralized zones appear to be located along a single mineralized trend at a bearing of approximately 80 degrees.

Regional aeromagnetic data suggests the presence of a buried late stage pluton within the main "Nelson" intrusive beneath the Susap prospect. "Climax type" molybdenum mineralization potentially related to late plutonism may be correlative with the drill defined near-surface mineralization.

The purpose of the Self-Potential survey was to determine if the method would produce any response from the near surface mineralisation as well as check any response from a deeper and potentially larger source.

The results of the survey do show a very weak response over the near surface mineralisation but no indication of any large mass at greater depth.

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## INTRODUCTION

The Susap property, consisting of 24 contiguous mineral claims, is located approximately 12 kilometres south of Keremeos in southern British Columbia.

Previous exploration, dating from 1903, has successfully delineated important copper, molybdenum, and precious metal prospects on the ground. In recognition of the exploration potential of the property, Aurora Gold Ltd., (now Best Chance Exploration), optioned the property from Mr. L. Little of Penticton, B.C. in June, 1989.

The present survey was carried out at the request of Mr. G. Nolin of Best Chance in order to determine if the mineralisation could be much wider than indicated by previous exploration and also whether the grade showed any improvement with depth.

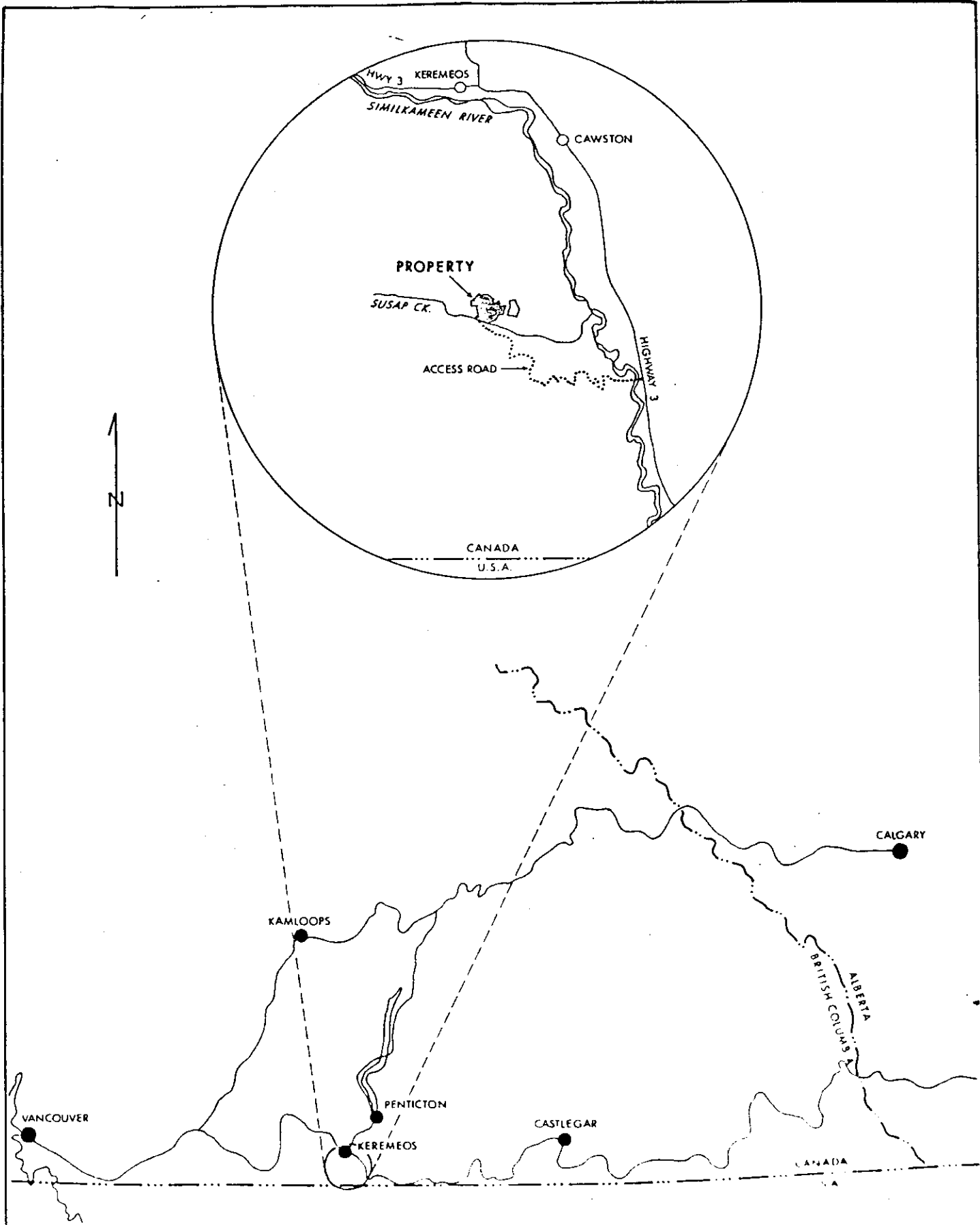
As this report is a continuation of the previous surveys carried out by W.A. MacLeod on behalf of Aurora much of the background information has been incorporated from that report except for the detail geology which the reader should obtain directly from the source.

## LOCATION and ACCESS

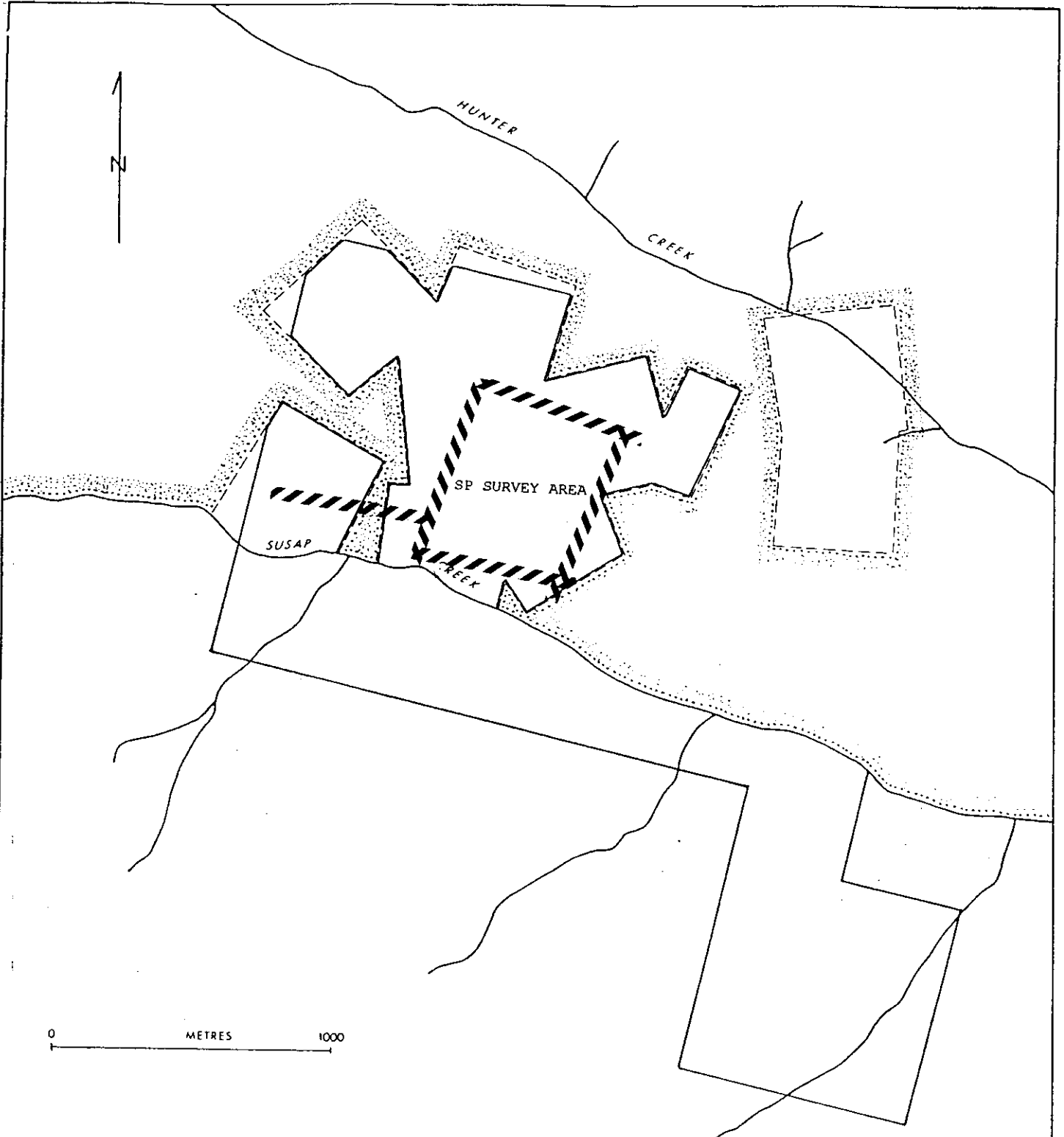
The Susap property is located within the Osoyoos Mining Division at an average elevation of 1400 metres ASL approximately 12 kilometres south of Keremeos in southern British Columbia at 49 degrees 06 minutes North Latitude; 119 degrees 48 minutes West Longitude in N.T.S. grid 82E/4W (Figure 1).

The area of interest on the property is situated on a steep partially forested ridge between Hunter and Susap Creeks - both tributaries to the Similkameen River (Figure 2).



Access to the property is gained via Provincial Highway No.3 nineteen kilometres south of Keremeos and 14.6 kilometres west across the Similkameen River on a branch road and rough 4x4 access trail to location with an attendant 900 metre elevation gain from the valley floor.



**FIGURE 1  
PROPERTY LOCATION MAP**



LEGEND

-  INDIAN RESERVE
-  SUSAP, RON, AND BUCK CLAIM GROUP

**FIGURE 2**  
**MINERAL CLAIMS MAP**  
**SCALE: 1:20,000**

**PROPERTY**

The Susap property consists of 24 contiguous mineral claims (Figure 2) summarized in the following table (Table I):

<u>Claim Name</u>	<u>Record Number</u>
Susap #2 (Fraction) . . . . .	15736
Susap #3 . . . . .	16608
Susap #4 . . . . .	16609
Susap #5 . . . . .	16610
Susap #6 . . . . .	16611
Buck #11 . . . . .	26218
Buck #12 . . . . .	26219
Buck #13 . . . . .	26220
Buck #14 . . . . .	26221
Buck #15 . . . . .	26222
Buck #16 . . . . .	26223
Buck #17 . . . . .	26224
Buck #18 . . . . .	26225
Buck #19 . . . . .	26226
Buck #20 . . . . .	26227
Buck #21 . . . . .	26228
Buck #22 . . . . .	26229
Buck #23 . . . . .	26230
Buck #24 . . . . .	26231
Ron #1 . . . . .	27428
Ron #2 . . . . .	27429
Ron #3 . . . . .	27430
Ron #4 . . . . .	27431
Ron #5 . . . . .	27432

The claims located on the north side of Susap Creek are restricted to those lands within ten original Crown Grants exclusive of the Range Indian Reserve 13. Since Susap Creek marks the southern boundary of the reserve, the claims south of the creek are thus wholly unencumbered.

Acquisition of the mineral rights on the Reserve remains as negotiable with the local Indian Band.

The Susap Property is owned by Mr. Lyle Little of Penticton, British Columbia and was optioned to Aurora Gold Ltd. of Calgary, Alberta on June 6, 1989.



**EXPLORATION HISTORY** (from W.A.MacLeod report 1989)

Previous exploration dates from 1903 with the first recorded work on the property by King Edward Mines Ltd. Two important copper - molybdenum - silver and gold showings were located 1500 metres apart on the north side of Susap Creek and immediately southwest of Hunter Creek.

A 46 metre adit intersected the Susap mineralization at an elevation of 1241 metres in 1904. A second adit of 11 metres length was driven in the showing at an elevation of 1276 metres during 1935.

The Hunter Creek prospect was similarly explored by a 10 metre adit and nearby 5 metre shaft.

Mineralization was reported to be intermittently traceable across widths of 3 to 12 metres between the two prospects.

The property was later acquired by Friday Mines Ltd. who, in 1962, completed trenching and sampling of the Susap and Hunter Creek adits. General geological mapping, prospecting, longwire Afmag geophysics preceded the drilling of four short X-ray drill holes at the Susap location.

Combined airborne e/m, magnetic, and radiometric surveys were completed over the property by Grand Duchess Mines Ltd. in 1967.

Noranda Exploration Company optioned the property in 1967 and carried out geological mapping and soil sampling in addition to continued trenching and sampling over a small portion of the present property.

Cro-Mur Mining and Exploration Co. Ltd acquired the property in 1970. Upon completion of bulldozer trenching and access road construction, an evaluation report was prepared by Mr. W.V. Smitheringale. The claims were subsequently optioned to Scurry Rainbow Oil Ltd. in 1971.

Scurry remapped both the surface and underground geology and completed considerable trenching and a limited extension of one of the Susap adits. They followed their initial year's work with an IP and magnetometer survey and completed three diamond drill holes in the Susap Creek area in 1972.

Canadian Occidental Petroleum Ltd. operated the property under option in 1973. A very comprehensive regional and detailed geological, magnetometer, soil sampling and access road construction program ensued over a large area extending well past the presently held lands. One 305 metre drill hole was completed beneath the earlier Scurry drilling at the Susap prospect in late 1973 and the option allowed to lapse.

Brenda Mines Ltd. completed a single 122 metre diamond drill hole just west and beneath the main Susap showing in 1977.

Teck Corporation Ltd. sampled the lower Susap adit in 1977.

United Hearne Resources Ltd. optioned the property from Cro-Mur in late 1978 and carried out a general prospect evaluation by G.A. Noel early the following year. The company subsequently resampled and mapped the old Hunter Creek workings and completed 6 diamond drill holes on the Susap prospect.

The property has apparently lain dormant until its acquisition by Mr. L. Little and the current option agreement with Aurora Gold Ltd.

#### AURORA GOLD

A complete review of previous exploration results and additional geological evaluation was carried out by W.A. MacLeod (1989) and this work was submitted for assessment. In conjunction with that survey a test VLF survey was conducted across the strike of the mineralisation.

## GEOLOGY

The property is located on the part of a extensive structure which has a number of major showings of copper / molybdenum along its length. The trend is approximately 080 degrees. The known mineralisation is associated with batholithic intrusions of Jurassic/Cretaceous age into earlier volcanics of the Old Tom Formation.

The geology and the copper/molybdenum mineralisation have been described in detail in the W. A. MacLeod report.

## SELF-POTENTIAL SURVEY

The field survey was carried out in the period October 17-22, 1996 by the author accompanied by Mr. G. Nolin of Best Chance Exploration. A total of 5.44 kilometers were surveyed at a 40 metre interval.

### (A) Specifications

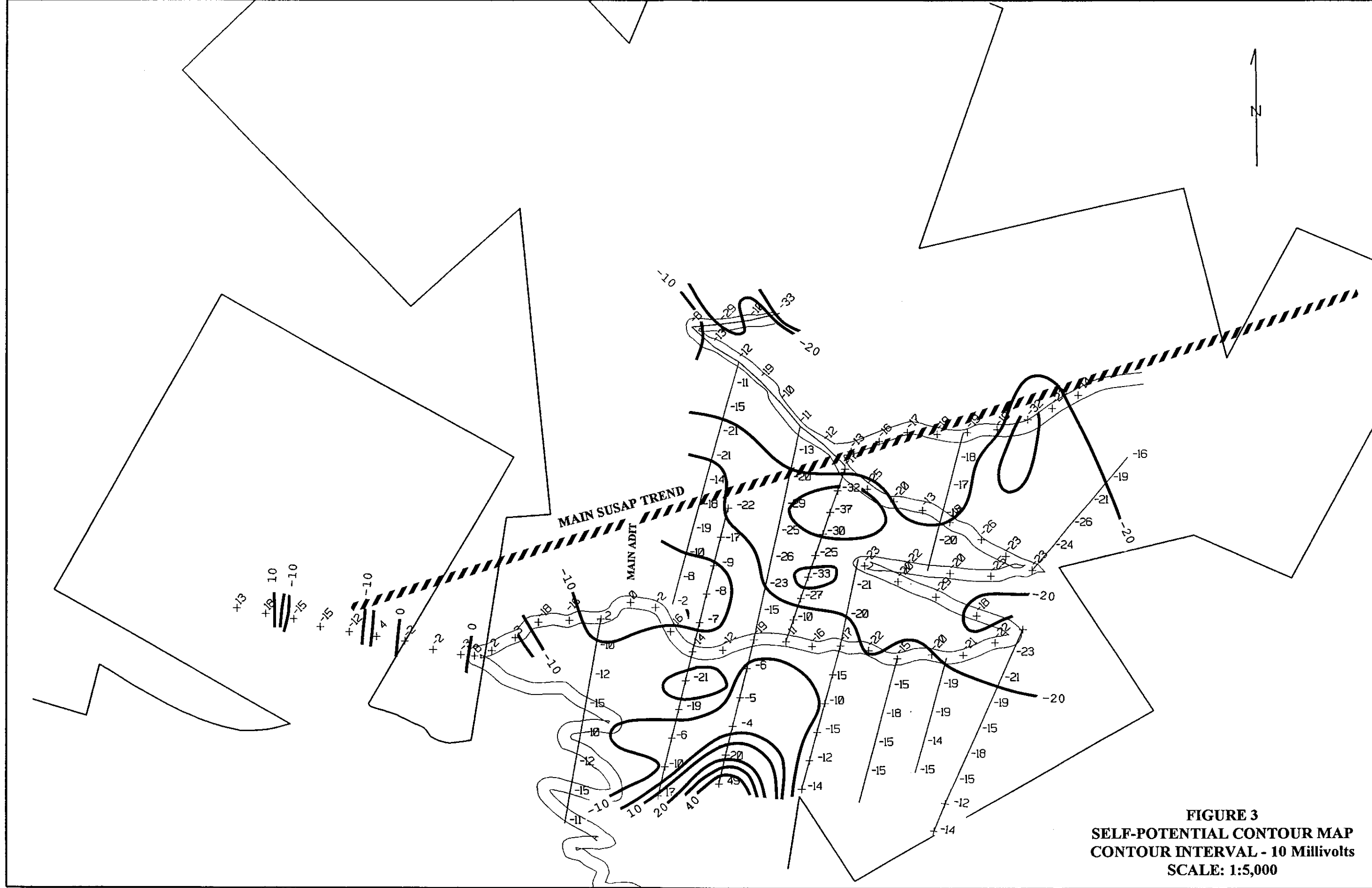
The self-potential is conducted by measuring the natural voltage between the survey stations using non-polarising copper sulphate electrodes. The voltage is measured by a high input impedance voltmeter capable of measuring in millivolts. A good summary of the theory and field application of the method has been provided by Burr, 1982.

The field procedure used was that of using a long reel of wire, approximately 600 metres in length, to minimise the number of reference stations that have to be established. This procedure is more time consuming to run compared to that of using a short wire equal to the station interval and using the leap-frog method of moving the electrodes. The increased accuracy in the final results was necessary in this location and worth the additional effort required. An arbitrary base value of zero was assigned to the main base located at the main adit and all values are relative to that station.

### (B) Results

The results are presented as a contour map, Figure 3, and a contour interval of 10 millivolts was possible due to the accuracy of the field procedure used.

The survey area is located on a very steep slope towards Susap Creek. There is normally a topographic effect with the method producing more negative values with increasing elevation and thus false anomalies over topographic highs. No such trend is obvious in the results and therefore no corrections for this effect have been applied to the data.



**FIGURE 3**  
**SELF-POTENTIAL CONTOUR MAP**  
**CONTOUR INTERVAL - 10 Millivolts**  
**SCALE: 1:5,000**

## INTERPRETATION

The results do show that the method has produced anomalous results over the known mineralisation but with only values of approximately 20 millivolts below local background. This is extremely weak which is not unexpected as the method is more applicable to more massive type mineralisation. Based on the results it would appear that the areas of self-potential response below the -20 millivolt level should indicate more concentrated mineralisation. The closure of the anomaly along the trend of the main Susap Zone does closely conform to previous geochemical surveys with the exception that no response was obtained over the location of the main adit.

The extension of the survey to the west was to provide a long profile centered on the adit. This crosses the area of a strong aeromagnetic anomaly and suggests the possibility of an intrusive at depth. There is no indication from the self-potential survey results that this method is responding to any corresponding source at depth.

## CONCLUSIONS AND RECOMMENDATIONS

The method has shown weak anomalous response over the known trend of the mineralisation. The contour values do show closures along the strike of the main trend and does appear to correlate with previous geochemical anomalies.

The field procedure of using the long wire method was proven to be necessary in this case in order to maintain the accuracy necessary, although it is much more time consuming to operate compared to the other field methods.

No indication was obtained that would indicate any deep sources within the survey area.

The method could be used as a first step in checking the response along the known strike of the mineralisation. The field survey should be conducted by using as long a wire as possible, e.g. up to 2000 metres, in order to maintain accuracy. Any survey work would have to be restricted to times when this extremely arid area has the most moisture, i.e. early spring or late fall. Any anomalous areas could then be checked by other methods, e.g. geochemistry.

**CERTIFICATE**

I, Trevor R. B. Dundas do hereby certify that:

- 1) I am a practicing consultant Geophysicist resident in the City of Calgary, Alberta.
- 2) I am a graduate of the Queen's University of Belfast, N. Ireland with a B.Sc.(1966) in Geology and a graduate of London University, Imperial College of Science and Technology with a M.Sc.(1968) in Geophysics.
- 3) I am a member of The Association of Professional Engineers, Geologists, and Geophysicists of Alberta.
- 4) This report with the conclusions and recommendations therein contained is based upon data derived from my work on the property during November of 1996.

  
T.R.B. Dundas, P.Geoph.



**CERTIFICATE**

I, Gary A. Nolin do hereby certify that:

- 1) I am a practicing geologist resident in the City of Calgary, Alberta.
- 2) I am a graduate of the Western Washington State, Bellingham, Washington, U. S. A. with a Batchelors Degree in Geology (1972).
- 3) I am a member of The Association of Professional Engineers, Geologists, and Geophysicists of Alberta.
- 4) This report with the conclusions and recommendations therein contained is based upon data derived from my work on the property during October of 1996.

DATED at Calgary this 25th day of January, 1997



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Gary A. Nolin

## REFERENCES

Burr, S.V., 1982, A Guide to Prospecting by the Self-Potential Method, Ontario Geological Survey, Miscellaneous Paper 99.

MacLeod, W.A. (1989): Assessment Report - Prospect Evaluation Report on the Susap Property.

Wallis, R.H., (1973): Final Report on the Susap Property, Keromeos Area, B.C.; Canadian Occidental Petroleum Ltd., Company Report.

**STATEMENT OF COSTS**

Mobilisation/Demobilisation			\$300.00
T. Dundas	Geophysicist	3 days @ \$450	\$1,350.00
G. Nolin	Geologist	3 days @ \$450	\$1,350.00
	Food & Exp	3 days @ \$50	\$150.00
	Sp rental		\$50.00
	Vehicle	3 days @ \$50	\$150.00
	Report		\$750.00
			=====
			\$4,100.00