THIS PROSPECTUS CONSTITUTES AN OFFERING OF THESE SECURITIES ONLY IN THOSE JURISDICTIONS WHERE THEY MAY BE LAWFULLY OFFERED FOR SALE AND THEREIN ONLY BY PERSONS PERMITTED TO SELL SUCH SECURITIES. NO SECURITIES COMMISSION OR SIMILAR AUTHORITY IN CANADA HAS IN ANY WAY PASSED UPON THE MERITS OF THE SECURITIES OFFERED FOR SALE BY THIS PROSPECTUS AND ANY REPRESENTATION TO THE CONTRARY IS AN OFFENCE.

**PROSPECTUS** 

003203

DATED: February 15, 1988.



(the "Issuer") (Incorporated in British Columbia)

# 900,000 COMMON SHARES



Offering Price <sup>(1)</sup>	Commission	Net Proceeds to the Issuer (2)
 \$0.40	\$0.048	\$0.352
 \$360,000.00	\$43,200.00	\$316,800.00

established pursuant to negotiations between the Issuer and the Agent.

ion of the costs of this Prospectus estimated at \$25,000.00.

ESENTLY NO MARKET FOR THE SHARES OF THE ISSUER AND A PURCHASE OF THE SHARES IT THIS PROSPECTUS MUST BE CONSIDERED SPECULATIVE. REFERENCE IS MADE TO THE APTIONED "RISK FACTORS" AND "DILUTION".

IS AUTHORIZED BY THE ISSUER TO PROVIDE ANY INFORMATION OR TO MAKE ANY ATION OTHER THAN THOSE CONTAINED IN THIS PROSPECTUS IN CONNECTION WITH THE SALE OF THE SECURITIES OFFERED BY THE ISSUER.

RISON OF THE SECURITIES BEING OFFERED FOR CASH AND THOSE ISSUED TO PROMOTERS, AND OTHER INSIDERS, REFERENCE IS MADE TO THE SECTION CAPTIONED "PRINCIPAL DERS".

CERTAIN PRINCIPALS AND EMPLOYEES OF UNDERWRITERS AND/OR THEIR ASSOCIATES HAVE PURCHASED SHARES OF THE ISSUER. REFERENCE IS MADE TO THE SECTION CAPTIONED "OTHER MATERIAL FACTS".

ONE OR MORE OF THE DIRECTORS OF THE ISSUER ARE DIRECTORS OF OTHER NATURAL RESOURCE COMPANIES AND HAVE POTENTIAL CONFLICTS OF INTEREST WHEN SERVING IN SUCH CAPACITIES. REFERENCE IS MADE TO THE SECTION CAPTIONED "DIRECTORS AND OFFICERS".

THE VANCOUVER STOCK EXCHANGE HAS CONDITIONALLY LISTED THE SHARES OFFERED BY THIS PROSPECTUS. LISTING IS SUBJECT TO THE ISSUER FULFILLING ALL THE LISTING REQUIREMENTS OF THE VANCOUVER STOCK EXCHANGE ON OR BEFORE SEPTEMBER 6, 1988, INCLUDING PRESCRIBED DISTRIBUTION AND FINANCIAL REQUIREMENTS.

THIS OFFERING IS NOT UNDERWRITTEN AND IS SUBJECT TO A MINIMUM SUBSCRIPTION BEING RECEIVED BY THE ISSUER WITHIN 180 DAYS OF THE EFFECTIVE DATE OF THIS PROSPECTUS. REFERENCE IS MADE TO THE SECTION CAPTIONED "PLAN OF DISTRIBUTION".

WE, AS AGENT, CONDITIONALLY OFFER THESE SECURITIES SUBJECT TO PRIOR SALE, IF, AS AND WHEN ISSUED BY THE ISSUER AND ACCEPTED BY US IN ACCORDANCE WITH THE CONDITIONS CONTAINED IN THE AGENCY AGREEMENT REFERRED TO IN THE SECTION CAPTIONED "PLAN OF DISTRIBUTION".

# DAVIDSON PARTNERS LIMITED

SUITE 900, 580 HORNBY STREET VANCOUVER, BRITISH COLUMBIA, V6B 3G6

EFFECTIVE DATE: March 10, 1988.

(Kanloops)
Au 82 L/6 W
Rossland 8255 W243 123 - Homstute

# PROSPECTUS SUMMARY

#### THE OFFERING

Issuer: ANTELOPE RESOURCES LIMITED

Securities Offered: 900,000 Common Shares

Gross Proceeds: \$360,000.00

Net Proceeds: \$316,800.00

Price: \$0.40 per Common Share

Commission: \$0.048 per Common Share

Use of Proceeds: The net proceeds from this Offering will be

used to conduct: (i) Phase I of the recommended work program on the Issuer's Au property, and (ii) the balance of the Phase I recommended work program on the Issuer's Rossland property. The balance will be added

to the Issuer's working capital.

#### THE ISSUER

The Issuer is in the business of acquiring, exploring and developing natural resource properties. Reference is made to the section captioned "Business and Property of the Issuer".

# RISK FACTORS

Investment in the Common Shares must be considered speculative due to the nature of the Issuer's business and the present stage of its development. Reference is made to the sections captioned "Risk Factors" and "Dilution".

THE FOREGOING IS A SUMMARY ONLY AND SHOULD BE READ IN CONJUNCTION WITH THE MORE DETAILED INFORMATION CONTAINED ELSEWHERE IN THIS PROSPECTUS.

and the interest therein to be acquired by it, the Directors will primarily consider the degree of risk to which the Issuer may be exposed and its financial position at the time.

#### **PROMOTERS**

Christian von Hessert, President and a Director of the Issuer and Dal Stuart Brynelsen, a Director of the Issuer, are promoters of the Issuer as that term is defined by the British Columbia Securities Act.

Mr. von Hessert has entered into transactions with the Issuer as disclosed in the sections captioned "Escrowed Shares", "Executive Compensation", "Interest of Management and Others in Material Transactions" and "Options to Purchase Shares".

Mr. Brynelsen has entered into transactions with the Issuer as disclosed in the sections captioned "Escrowed Shares", "Interest of Management and Others in Material Transactions" and "Options to Purchase Shares".

#### BUSINESS AND PROPERTY OF THE ISSUER

The Issuer is engaged in the acquisition, exploration and development of natural resource properties. Trading in the securities of the Issuer was prohibited by a Cease Trading Order dated December 9, 1981, which Order remains extant. Since 1986, the Issuer has undertaken a plan of reorganization including a change of name, the election and appointment of new Directors and Officers, the acquisition of an interest in the Rossland property pursuant to that certain Option and Joint Venture Agreement with Bryndon Ventures Inc. and the completion of three private placements of its common shares enabling the Issuer to fund its business operations and programs of exploration and development.

The Issuer owns interests in the mining properties described hereunder and intends to seek and acquire additional properties worthy of exploration and development.

#### (i) AU PROPERTY:

# Description and Location

This property consists of four modified grid, one fractional and nine two post mineral claims totaling approximately 61 units, located in the Kamloops Mining Division, British Columbia, and more particularly described as follows:

# Name, Municipality of Residence and Position with the Issuer

ROBERT WILLIAM YORKE-HARDY 330 Stepping Stones Road Vernon, British Columbia V1T 7Z3

Secretary and Director

DAVID GEORGE MARK 5181 Killarney Street Vancouver, British Columbia V5R 3W1

Director

DAL STUART BRYNELSEN
4480 Ross Crescent
West Vancouver, British Columbia
V7W 1B2

Director and Promoter

# Principal Occupation

General Manager of Mining Operations for Mohawk Oil Company Ltd., 1980 - 1985; President of Y-H Technical Services Ltd., a company providing consulting and exploration services, 1985 to present.

President and Manager of Geotronics Surveys Ltd., a company providing geophysical services, since 1974.

Vice-President of Brynelsen, Benzon Realty Corp. since 1975; Executive Vice-President and Director of ABC Technologies Inc. since 1985; President and Director of Forester Resources Ltd. since 1986.

Certain of the Directors may also serve as directors of other companies and, to the extent that such other companies may participate in ventures in which the Issuer may participate, the Directors of the Issuer may have a conflict of interest in negotiating and concluding terms respecting the extent of such participation. From time to time several companies participate in the acquisition, exploration and development of resource properties thereby allowing participation in larger programs, permitting involvement in a greater number of programs and reducing financial exposure in respect of any program. It may also occur that a particular company will assign all or a portion of its interest particular program to another of these companies due to the financial position of the company making the assignment.

In accordance with the laws of British Columbia, the Directors of the Issuer are required to act honestly, in good faith and in the best interests of the Issuer. In determining whether or not the Issuer will participate in a particular program

Claim Name	<u>Units</u>	Record Number	Record Date	Expiry
2 Post Minera	l Claims			
Au 1	1	124480	March 8, 1973	
Au 2	1	124481	March 8, 1973	1988
Au 3	1	124482	March 8, 1973	1988
Au 4	1	124483	March 8, 1973	1988
Au 5	<u></u>	124484	March 8, 1973	
Au 7	<u></u>	125727	June 7, 1973	
Au 12	1	125732	June 7, 1973	
Au 19	<u></u>	125847	June 15, 1973	
Au 300	1	6669	June 13, 1986	
Modified Grid	Claims			
Au 100	6	422	June 18, 1976	1988
Au 200	15	6670	June 13, 1986	1989
Au 400	15	7102	June 10, 1987	1988
Au 500	15	7103	June 10, 1987	
Au fraction	_	6671	June 13, 1986	1989

The Au 1-5 claims will be absorbed into Au 200 upon their expiry. The Au 400 and Au 500 claims were recently staked by the Issuer and include ground previously covered by the Bay 1-12 and Bay Fraction claims acquired from Mr. William Day Yorke-Hardy pursuant to an Agreement dated July 31, 1987, in consideration of a cash payment of \$1,300.00 and the reservation of a 5% net profits royalty. Mr. William Day Yorke-Hardy is the father of Robert William Yorke-Hardy, a Director of the Issuer.

The Au property is located approximately 19 kilometers north northwest of Vernon, British Columbia and is accessible by gravel/dirt road by means of four wheel drive vehicles.

# History

The property was apparently staked several times during the 1960's and limited trenching is reported to have been carried out during that period. In 1969, Coseka Resources Ltd. acquired the property and carried out a program of geological mapping, geochemistry and blast trenching thereon, allowing the claims to The Issuer staked the claims in 1973 and conducted lapse in 1972. a program of soil and rock geochemistry and testlines of magnetic and VLF electromagnetic geophysics; additional geological mapping, soil and rock geochemistry and trenching was conducted in the vicinity of the East Showing in 1974 and 1976 by Newconnex Limited and diamond drilling was undertaken thereon in 1979. In 1983, a program of detailed VLF-EM geophysics and limited soil geochemistry was conducted over a newly established grid to establish a correlation of EM conductors with soil anomalies. In result, two strong conductors paralleling the regional trend were delineated,

however, coincident geochemical anomalies were not detected. During 1986, a follow-up program of geochemistry, trenching and test-lines of induced polarization-resistivity geophysics was conducted; the trenching exposed additional mineralization and an eastward extension of the West Showing. The Quartz Showing was trenched and mineralization encountered.

# Mineralization

Three distinct zones of mineralization have been exposed within the Au 200 claim: East Showing, West Showing and the Quartz Showing. Further, the electromagnetic geophysics carried out on the property successfully delineated two west-northwesterly trending conductors.

# Recommendations

Messrs. Nelles and Smith, in their appended Report dated June 11, 1987, recommended a two phase exploration program to further evaluate the property: the first phase, estimated to cost \$100,000.00, should include trenching between the East and West Showings to locate extensions of the known mineralization, geological mapping, sampling and limited test drilling. As well, the Au 400 and 500 claims should be prospected. If results are sufficiently encouraging, a second phase of exploration consisting of drill testing, additional geological mapping and sampling is recommended, at an estimated cost of \$150,000.00.

# (ii) ROSSLAND PROPERTY:

# Description and Location

Pursuant to an Option and Joint Venture Agreement dated June 3, 1987, (the "Agreement") made between the Issuer and Bryndon Ventures Inc. ("Bryndon"), the Issuer obtained the right to acquire an undivided fifty percent (50%) interest in and to fortyfour (44) Crown granted mineral claims by incurring \$150,000.00 of exploration expenditures thereon on or before June 15, 1988 and a further \$350,000.00 of exploration expenditures on or before December 1989. Upon the expenditure 31. of the \$500,000.00, the Issuer shall earn an undivided fifty percent (50%) interest and the subject claims shall be operated and managed as a joint venture, each party thereto being responsible for its pro-rata share of additional exploration expenditures thereon.

The following Crown granted mineral claims were optioned from Bryndon:

Crown Granted Mineral Claims	Lot	Number
Tourmaline	L.	457
Paris Belle	$_{ m L}$ .	531
Olla Podrida	L.	799

Homestake		L.	936
Phoenix		L.	953
Celtic Queen		L.	987
Monday		L.	
Derby		L.	
Hattie Brown		L.	1047
Gopher		L.	1050
Lily May			1052
Blue Bird		L.	1053
Fairview		L.	
Black Horse		L.	1059
Little Jack Fraction		L. L.	1080
St. Paul		L.	1208
Copper Queen		L.	1210
Venus		L.	
Badger		L.	1227
Green Crown		L.	1232
Young America		L	1233
Mayflower No. 2		L.	1274
Tuesday		L.	
Consolation		L.	1282
Camp Bird		L. L.	1283
Robert E. Lee		L.	1292
Maid of Erin		L.	1293
Rainy Day		L.	1339
Golden Dawn		L.	1349
Rhoderick Dhu		L.	1493
Alfe		L. L.	1506
Richmond		L.	1508
Red Eagle		L.	1615
Modena		L.	
Black Rock		L.	1821
Spitzee Fraction		L. L.	2520
Esmeralda Fraction		L.	2980
Fool Hen		L.	
Tat Fraction		L.	
Ella Fraction		L.	4920
Alcome Fraction		L.	
St. Peter Fraction	N <sub>e</sub>	L.	
Snowflake Fraction		L.	_
Friday	1.00	L.	
<del> 1</del>	a di nag		

One additional Crown granted mineral claim was included in the Agreement made between Bryndon and the Issuer and in the Report prepared by Messrs. Westoll and Jackson, however, Bryndon has been unable to establish good and valid title thereto. In result, only forty-four (44) claims are set out herein. In addition, five of the above claims' lot numbers were differently described in the Agreement, therefore title will not be fully established until the correct lot numbers are confirmed in writing by Bryndon. The Issuer is taking steps to obtain such written confirmation.

In addition, the following fractional claims and modified grid claim were staked by the Issuer:

Fractional Claims	Record Number	Record Date	Expiry Date
Antelope #1 Fr. Antelope #2 Fr. Antelope #3 Fr. Antelope #4 Fr. Antelope #5 Fr. Antelope #6 Fr. Antelope #7 Fr. Antelope #8 Fr. Antelope #9 Fr. Antelope #10 Fr. Antelope #11 Fr. Antelope #12 Fr. Antelope #13 Fr. Antelope #14 Fr. Antelope #15 Fr. Bender #1 Fr. Bender #2 Fr.	1001 1002 1003 1004 1005 1006 1007 1016 1020 1021 1022 1023 1024 1058 1059 1017	July 8, 1987 Aug. 13, 1987 Aug. 28, 1987 Jan. 7, 1988 Jan. 7, 1988 Aug. 13, 1987	July 8, 1988 Aug. 13, 1988 Aug. 28, 1988 Jan. 7, 1989 Jan. 7, 1989 Aug. 13, 1988
Bender #3 Fr. Bender #4 Fr. Bender #5 Fr. Bender #6 Fr.  Modified Grid Claim	1018 1025 1026 1027 1028	Aug. 13, 1987 Aug. 28, 1987 Aug. 28, 1987 Aug. 28, 1987 Aug. 28, 1987	Aug. 13, 1988 Aug. 28, 1988 Aug. 28, 1988 Aug. 28, 1988 Aug. 28, 1988
Antelope (4 units)	1029	Aug. 28, 1987	Aug. 28, 1988

The Issuer has also acquired the following reverted Crown granted 2 post claims:

Claim	Record Number		Record Date		Expiry Date	
Jumbo No. 3 Fr. Hattie Gertrude Leinster Light Double Fraction East Columbia	1000/L. 944/L. 943/L. 1048/L. 1047/L.	690 2397	July 14, January 23, January 23, Sept. 10, Sept. 10,	1987 1987 1987	July 14, January 23, January 23, Sept. 10, Sept. 10,	1988 1993 1998 1988 1988
Mtn Fraction Boomer Monte Cristo Fr. Knoxville Fr.	1045/L. 1046/L. 1043/L. 1044/L.	,	October 9, October 9, October 9, October 9,	1987 1987 1987 1987	October 9, October 9, October 9, October 9,	1988 1988 1988 1988

All claims staked and acquired by the Issuer are located within the area of interest defined in the Option and Joint Venture Agreement and, accordingly, are subject to its terms.

This property is located in southeastern British Columbia and lies immediately south of and partially within the city

limits of Rossland. Access to the majority of the property is by way of well maintained public roads south of Rossland and, elsewhere, by dirt/gravel roads.

# Regional History

The Rossland gold camp produced approximately 6.2 million tons of ore, of which ninety-eight percent (98%) was mined from four adjacent properties located on the northwest contact of the Rossland monzonite intrusion, northwest of Rossland. These four properties were collectively known as the Le Roi Mine and were operated by Cominco (formerly Consolidated Mining and Smelting Company).

Messrs. Westoll and Jackson, in their appended report dated August 18, 1987, are of the opinion that the most promising area of the property appears to be the Bluebird-Homestake claim group located on the southern margin of the Rossland monzonite intrusion, approximately 2.3 kilometers southeast of the Le Roi Mine area.

# Property History

The major portion of the present claims were assembled by Bryndon (formerly Rossland Mines Ltd.) in 1947. During the period 1948 to 1956 some exploration and underground development work was conducted thereon and approximately 1,077 tons of ore was produced from the Bluebird-Mayflower zone. Ground electromagnetic, magnetometer, potentiometer and soil surveys of various claims were conducted by a number of companies during the period 1962 1967. Bluebird-Homestake to The area claims subsequently leased to Standonray Mines who produced approximately 6,450 tons of ore from the Bluebird zone. Since 1981, Bryndon has established 16 kilometers of grid lines on the Bluebird-Homestake claim group and conducted a VLF electromagnetic survey thereon.

Bryndon has also completed substantial trenching and diamond drilling on the Homestake-Gopher, Bluebird-Mayflower and North shear zones, all within the Bluebird-Homestake claim group.

# Mineralization

In general, gold and silver on the property are contained in sulphides which have replaced the augite andesite along eastwest shear zones. The concentrations of sulphides, predominantly pyrrhotile and pyrite, vary from disseminations to narrow stringers to massive sulphides up to 22 feet (6.7 meters) wide. The gold and silver bearing portions of these sulphide zones generally range from 1 to 2 meters in width.

As detailed in the appended report, three mineralized shear zones have been identified on the Bluebird-Homestake claim group:

- (i) The Bluebird-Mayflower shear zone;
- (ii) The Homestake-Gopher shear zone;
- (iii) The North shear zone.

# Conclusions

The authors of the appended report opined, at page 25 thereof, "...that the Rossland properties held by Antelope have potential, both near surface and at depth, to host gold mineralization similar to that mined in the Le Roi-Centre Star area of the Rossland Camp."

At page 26 of their report, the authors concluded as follows:

"The discovery of gold in the North shear zone at economic grades over mineable widths is a relatively recent development in the history of the property. Further work is required to define the strike length, plunge, and depth extent of this mineralization.

The Bluebird-Mayflower shear zone itself hosts Ag-Au-Pb-Zn mineralization. Portions of this structure have been explored by diamond drilling and underground development to depths varying from 45 metres to 110 metres. As there is no indication that the mineralization terminates at these depths, further potential exists here.

The Homestake-Gopher shear zone has been explored to a depth of 90 metres in the area of the Homestake workings but has received limited attention elsewhere. A trench close to the Gopher adit revealed significant values of Au over a one metre width. Diamond drilling is warranted in this area.

A combined approach of VLF electromagnetic and ground magnetomer surveys would appear to be the most effective means of identifying and tracing shear zones on the property while providing some information on important cross structures, either NE-SW trending faults or dikes occupying these faults. Further geotest work is required to assess the relative effectiveness of I.P. and other electromagnetic methods to detect concentrations of sulphides and thus assist in the selection of drill targets. Most of the lands held by Antelope have not been explored by modern methods."

#### Recommended Exploration Program

Messrs. Westoll and Jackson have recommended that the Issuer undertake a Phase I exploration program consisting of diamond drilling in the North shear structure, VLF electromagnetic and magnetometer surveys of the Bluebird-Homestake claim group and

a preliminary program of geological mapping and surface sampling of the Issuer's newly acquired claims, estimated to cost \$160,000.00. Such recommended program is currently underway.

A Phase II exploration and diamond drilling program, estimated to cost \$380,000.00, has been recommended, contingent upon the results of Phase I.

# (iii) HAPPY DAYS CLAIMS:

Pursuant to an Option Agreement dated March 1, 1978 made between the Issuer and Cominco Ltd. ("Cominco"), the Issuer granted to Cominco the right and option to acquire a one hundred percent (100%) interest in and to a certain mineral claim located in the Kamloops Mining Division, British Columbia, free and clear of encumbrances, reserving onto the Issuer an interest by way of royalty equal to twenty percent (20%) of the Net Proceeds of Production. The particulars of such mineral claim are as follows:

Claim Name	No. of Units	Record No.	Expiry Date
Happy Days	20	169	Dec. 30, 1992

Cominco has, in accordance with the terms of such Option Agreement, paid an aggregate of \$75,000.00 to the Issuer and has incurred an aggregate of \$500,000.00 in exploration expenditures on the claim and, accordingly, has excercised its option. Pursuant to such Option Agreement, the Issuer granted to Cominco certain additional option rights, all of which have expired unexercised.

Cominco has advised the Issuer that no exploration activity was undertaken on the claims in 1987 and that no program of exploration is intended during 1988.

# (iv) MONASHEE PASS CLAIMS:

Mineral Lease No. M-37 in respect of the Monashee Pass claims group located in the Vernon Mining Division, British Columbia was granted on June 6, 1972 for a term of twenty-one (21) years and was transferred to the Issuer on August 6, 1973. The Issuer intends to maintain such lease in good standing by the due payment of the requisite annual lease rental therefor.

Prior to 1923, considerable underground work was conducted on the claims and small volumes of ore were mined therefrom.

To date the Issuer has conducted limited exploration on the claims. It is intended to conduct a search for suspected stratiform gold/sulphide mineralization on the claims in the future however, none of the proceeds of this Offering will be used therefor.

THERE IS NO KNOWN BODY OF COMMERCIAL ORE ON THE PROPERTIES AND THE PROPOSED PROGRAMS MUST BE CONSIDERED AN EXPLORATORY SEARCH FOR ORE.

# ACQUISITIONS

The only material acquisitions made by the Issuer during the past two years are:

- (i) the Rossland property consisting of Crown granted claims under option from Bryndon, claim fractions recently staked by the Issuer and the reverted Crown granted 2 post claims acquired by the Issuer.
- (ii) the Au property consisting of the Au 200, 300, 400, 500 claims and the Au fraction.

Reference is made to the section captioned "Business and Property of the Issuer" for particulars of the Rossland and Au properties.

# SHARE AND LOAN CAPITAL STRUCTURE

The authorized capital of the Issuer consists of 10,000,000 common shares without par value of which 2,000,818 shares have been issued as fully paid and non-assessable.

The common shares of the Issuer rank equally as to dividends, voting rights and as to any distribution of assets on winding-up or liquidation.

The share and loan capital structure of the Issuer is as follows:

Designation of security	Amount authorized	Amount outstanding as at December 31, 1987 Bal- ance Sheet (1)	Amount outstanding as at February 15, 1988 (1)	Amount out- standing if all shares are sold (1) (2)(3)(4)
Common Shares	10,000,000	2,000,818	2,000,818	2,900,818
Promissory Notes		\$50,000.00	\$50,000.00	\$50,000.00

times offset the east-west shears. In addition to these recurrent structures, a north-south trending thrust fault has been identified by Little (1982) west of Rossland (Figure 4).

# Gold Deposits

The Rossland gold camp produced approximately 6.2 million tons of ore with a recovered grade of 0.47 oz/ton Au, 0.6 oz/ton Ag, and 1% Cu (Gilbert, 1948). Ninety-eight percent of the production came from four adjacent properties (Le Roi, Centre Star, War Eagle, Josie) located on the northwest contact of the Rossland monzonite, northwest of Rossland (Figure 2). These four properties were collectively known as the Le Roi Mine and acquisition and operation of them by Consolidated Mining and Smelting (now Cominco) in the early part of this Century was a major factor in the initial growth of that company. The Velvet Mine, located 8 km southwest of Rossland, also produced a significant tonnage of Au-Cu ore. Approximately another fifty small mines within the camp, including the Homestake, Maid of Erin and Lily May, produced up to 100,000 tons of ore (Little, 1960).

The orebodies in the centre of the camp consist of replacements along east-west fissures developed in augite porphyry and Rossland monzonite. The ore varies from disseminated to narrow stringers to massive sulphides. The sulphides are chiefly pyrrhotite and chalcopyrite, with only minor amounts of other sulphides. The gangue consists of altered wall rock with variable amounts of quartz and calcite.

The gold occurs in solid solution or ex-solution within chalcopyrite (Thorpe, 1967). The Au:Ag ratio of the ore averages 0.78. There is a trend toward a decrease in chalcopyrite content toward the monzonite contact coupled with an increase in the Au:Ag

ratio. Within the Le Roi Mine, a similar trend is observed from the upper to lower portions of the ore body.

Veins in the Rossland camp generally strike E-W to N60-70°E (Le Roi - Centre Star) but there exists a less frequently observed strike of N60°W (War Eagle). Dips are 60-80°N. Although the veins may be continuously mineralized over distances of several hundreds of metres, the ore bodies generally occur as a series of shoots 2-30 metres in width, 60-120 metres in strike length, and in excess of 300 metres in plunge length. Overall depth exceeded 480 metres in the Le Roi Mine.

A number of factors appear to be important in the localization of these ore shoots and these are:

- 1. proximity to the Rossland monzonite contact;
- 2. development of shears along the contacts of various intrusive dikes or tongues;
- 3. intersection between N-S structures and E-W shear zones;
- 4. intrusion of lamprophyre and diorite dikes in N-S structures which influenced thickening of ore;
- 5. wall rock reaction with intrusive dikes and tongues;
- 6. intensity of fracturing.

The Rossland camp consists of a small productive area about 2000 by 4000 feet (600-1200 m) in lateral dimensions, by 1600 feet (480 m) in depth, surrounded by a much larger area of occurrences and low

tonnage deposits (Gilbert, 1948). This larger area corresponds to the western part of the Rossland monzonite stock and the country rock immediately adjacent. Mineralization of significance occurs primarily in the augite porphyry and volcanic country rocks. Mineralization within sediments of the Mount Roberts Formation tends to be weakly disseminated rather than occurring as definite veins. Within the Rossland monzonite, the shear zones are distinct and tight. Except close to the monzonite/volcanic contact, only small amounts of gold and associated metals have been discovered. However, it should be emphasized that many of these smaller deposits have only been explored to shallow depths.

# Mineral Zonation in the Rossland Camp

The character of the numerous small deposits and occurrences of the area appear to vary in a more or less systematic way with respect to mineralogy, gold to silver ratio, alteration, and mode of occurrence. These variations likely reflect differences in the physical and chemical conditions that existed during ore deposition both laterally and vertically, and are typical of epithermal vein deposits.

We have attempted to establish the zonation pattern related to the main ore deposits of the Rossland Camp to try to provide a means of estimating the depth potential of near surface deposits. A preliminary review of occurrence descriptions (Drysdale, 1915) and a mineral zonation study of the Rossland area (Thorpe, 1967) suggests that the occurrences can be assigned to seven groups based on various similarities (Table 2).

The spatial distribution of these deposit groups is given in Figure 4. The Group 1 deposits have accounted for the bulk of

TABLE 2

Classification of Mineral Assemblages in the Rossland Camp

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
MINERALOGY	PYRRHOTITE CHALCOPYRITE pyrite sphalerite molybdenite arsenopyrite native silver	GALENA SPHALERITE TETRAHEDRITE BOULANGERITE pyrrhotite pyrite arsenopyrite native bismuth chalcopyrite magnetite	SPHALERITE NATIVE BISMUTH BISMUTHINITE pyrrhotite chalcopyrite pyrite arsenopyrite scheelite	MAGNETITE pyrrhotite chalcopyrite pyrite arsenopyrite	NATIVE BISMUTH BISMUTHINITE pyrrhotite pyrite chalcopyrite arsenopyrite cobaltite scheelite	MOLYBDENITE native bismuth bismuthinite pyrrhotite chalcopyrite pyrite arsenopyrite magnetite cobaltite scheelite	NATIVE GOLD pyrrhotite chalcopyrite pyrite galena sphalerite
GOLD ASSOCIATION	CHALCOPYRITE	TETRAHEDRITE boulangerite	?	?	?	?	NATIVE GOLD
Au:Ag RATIO	HIGH	LOW	?	?	?	?	HIGH
MODE OF OCCURRENCE	MASSIVE SULPHIDE REPLACEMENT	dissemination and narrow veinlet replacements	dissemination and narrow veinlet replacements	dissemination and narrow veinlet replacements	dissemination and narrow veinlet replacements	dissemination and narrow veinlet	QUARTZ VEINS
ALTERATION	Silicification biotite/sericite	chlorite	?	?	?	?	?
STRUCTURAL CONTROL	east-west	east-west	east-west	east-west	east-west	NORTH-SOUTH	east-west
HOST LITHOLOGY	VOLCANICS monzonite	VOLCANICS	SEDIMENTS volcanics	MONZONITE volcanics	VOLCANICS monzonite	SEDIMENTS	SERPENTINITE

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production in the Rossland Camp and occur on the NW margin of the Rossland monzonite where structural conditions at this level of erosion appear to be most favourable. They are characterized by a pyrrhotite-chalcopyrite mineral assemblage and a relatively high Au:Ag ratio.

The Group 2 deposits appear to form an isolated group on the southern margin of the monzonite. They are characterized by the appearance of tetrahedrite in place of chalcopyrite, the occurrence of lead, zinc and antimony sulphides, and the dominance of silver over gold (low Au:Ag ratio). These deposits are found in close association with Group 1 type occurrences (North Vein, Crown Point). In epithermal vein systems the lead-zinc-silver mineral assemblages generally occur vertically above the copper-gold assemblages. It is therefore possible that the Group 2 deposits represent a vertical zonation assemblage above a Group 1 vein deposit. Further analysis of data from the Rossland Camp is required to test this hypothesis.

To the west of the Le Roi-Centre Star area, Group 3 deposits occur in a linear belt roughly parallel to the monzonite contact. They are characterized by the presence of sphalerite and bismuth minerals in the sulphide assemblage. These occurrences are further evidence of a lateral mineral zonation away from the Rossland monzonite contact.

The Group 4 and 5 deposits occur along the remaining margins of the Rossland monzonite. Group 4 deposits, characterized by the presence of magnetite, are predominantly within the Rossland monzonite. The Group 5 deposits, characterized by bismuth minerals which formed late in the mineralizing sequence in response to lower temperature conditions (Thorpe, 1967), occur primarily in the volcanics and sediments. These assemblages could be considered a more distal environment around a centre of heat or fluid flow.

The Group 6 deposits, including the Red Mountain molybdenum mine, form a linear belt related to the major north-south regional structural trend and a series of granodiorite intrusions. The deposition of molybdenite preceded that of the Au, Ag and Cu ore minerals. This feature is likely an early one on top of which the signature of the Group 5 deposits has been overprinted. The Group 7 deposits in the OK Mountain area differ significantly from the other group deposits in their mineralogy, mode of occurrence, and host lithology. Their relationship to the other Rossland deposits is not clear.

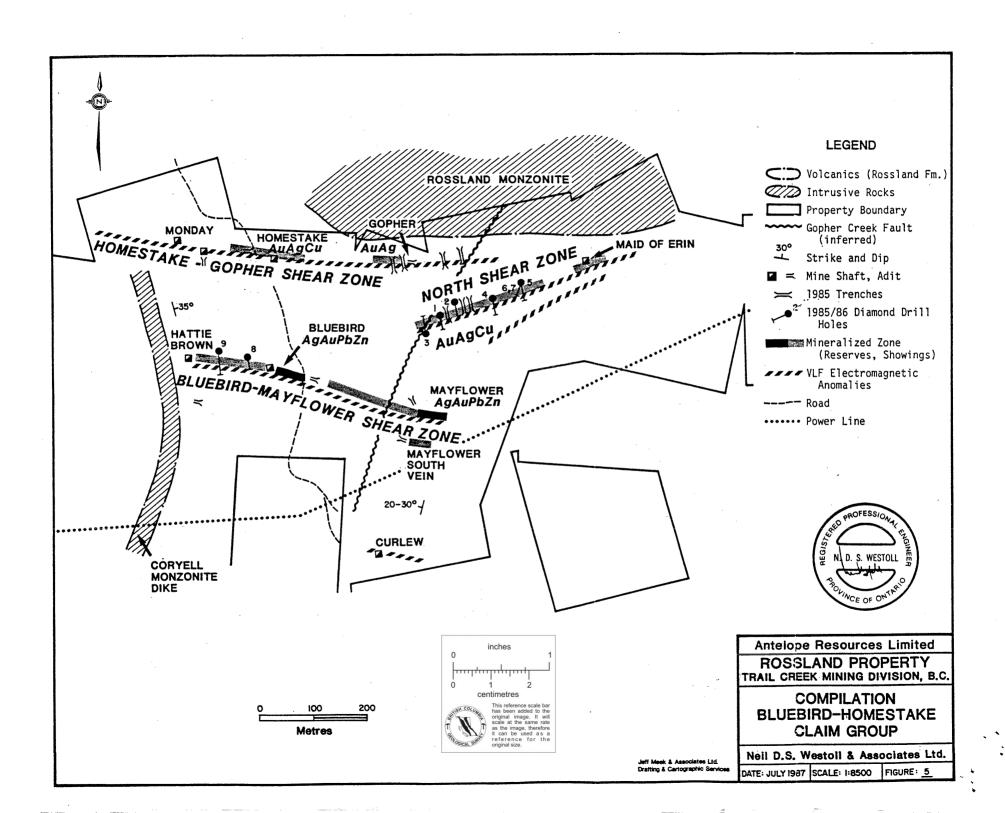
#### PROPERTY GEOLOGY AND MINERALIZATION

# Geology

The properties of Antelope are located along the southern margin of the Rossland monzonite which intrudes NE trending andesitic volcanics of the Rossland Formation (Figure 4). Since the main area of current interest is the Bluebird-Homestake claim group, a discussion of the property geology will focus on this area. The geology of this claim group is summarized from reports by Sampson (1984, 1986) and Skerl (1964). Limited level plans and sections were available for the old workings. Level plans from the more recent mining operations of Standonray Mines should exist, but were not available for examination.

The shear zones in this area are hosted by porphyritic and non-porphyritic augite andesite of the Rossland Formation (Figure 5). Locally they contain cherty tuffaceous interbeds. On the northern boundary of the claims, the Rossland monzonite forms an east-west contact with the volcanics. The volcanics have also been intruded by diorite porphyry and lamprophyre dikes along NE-SW fault structures. These are believed to be related to the intrusion of the Nelson batholith and are an important factor in the localization of ore shoots in the Rossland Camp. A monzonite porphyry dike striking N-S and dipping 35°E intrudes the volcanics and intersects the Bluebird-Mayflower vein west of the Hattie Brown shaft. This intrusion is believed to be related to the Coryell intrusions (Skerl, 1964) and would therefore post-date the mineralization.

The volcanic rocks predominantly strike N-NE and dip 20-30°NW. Locally they have been metamorphosed or altered by the emplacement of intrusions so they now appear to grade into rocks of dioritic texture. Similarly the siliceous sediments have been metamorphosed to



banded hornfels as part of a contact aureole around the Rossland monzonite.

East-west shear structures transect the property and dip moderately to steeply northward. These shears are intersected by N-NE and NW trending fault structures commonly occupied by diorite porphyry and lamprophyre dikes. Horizontal displacements along these structures may be up to 50 feet (15 m). Intersections of the E-W and NE-SW structures have been favourable loci for gold deposits in the Rossland Camp.

#### Mineralization

In general, gold and silver on the property are contained in sulphides which have replaced the augite andesite along east-west shear zones. The concentration of sulphides varies from disseminations to narrow stringers to massive sulphides up to 22 feet (6.7 m) wide. The most abundant sulphides are pyrrhotite and pyrite with accessory sphalerite, galena, arsenopyrite, tetrahedrite, chalcopyrite, and boulangerite (a Pb-Sb sulphide - occasionally Ag bearing). Three mineralized shear zones have been recognized on the Bluebird-Homestake claim group.

# 1. Bluebird-Mayflower Shear Zone

This structure accounts for most of the past production and the only delineated reserves on the property. The structure strikes N50-60°W, dips 50-65°NE, and is traceable for about 600 metres. Past production and reserve estimates are given in Table 3.

The Bluebird zone consists of a series of lens disrupted by numerous cross-faults and dikes. The iron sulphides are accompanied by

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Table 3

# Past Production and Reserve Estimates for the Bluebird and Mayflower Zones

	Tons	Au oz/ton	Ag oz/ton	Pb %	<u>Zn</u> %
Bluebird Section					
1908 - 1913 production	439	0.32	45.0	5.6	-
1951 production	207	Gross va	lue \$42.00	per ton	
1972 - 1977 production	6,450	0.050	14.02	2.07	2.82
	7,096				
Reserve Estimates	28,150	0.07	13.0	2.9	4.3
Mayflower Section					
	0.6	0.16			
1900 production	96	0.16	9.5	2.0	3.7
1949 production	870	0.12	12.5	2.9	5.6
•	966				
Reserve Estimates	18,000	0.13	3.7	1.5	3.4

sphalerite, galena, tetrahedrite, arsenopyrite, and boulangerite. The Au:Ag ratio for the mineralization is low being approximately 0.0054. The ore bodies have shown a tendency to pinch and swell. Underground development and drilling have tested the zone to a depth of 360 feet (110 m) at which level the structure and mineralization appear to be present.

The Mayflower zone, located 280 metres east of the Bluebird zone on the same structure, is similar in most respects to the Bluebird zone but differs in its higher Au:Ag ratio of approximately 0.035. Exploration has been carried out to a depth of 200 feet (60 m) at which level the mineralization is still present. A second parallel vein structure, the Mayflower South Vein, is located 80 metres south of the Mayflower zone.

Limited drilling between the Bluebird and Mayflower zones to a depth of 150 feet (45 m) has confirmed continuity of the mineralized structure but grades have been low. At the western extent of the shear zone near the Hattie Brown shaft, the structure encounters a 40-foot wide monzonite porphyry dike. Both surface work and underground drilling suggest the structure continues west of the dike and is mineralized. Limited work has been done in this area.

# 2. Homestake-Gopher Shear Zone

This structure has been explored extensively on the Homestake claim down to the 300 foot (90 m) level by underground development. However, limited work has been done on the eastern extension of the shear in the area of the Gopher adit. The structure strikes N80°W, dips 70°N, and is traceable for about 650 metres. A limited amount of ore was extracted from the Homestake workings in the early 1900's. This graded 0.04 oz/ton Au, 2.8 oz/ton Ag, and 0.3% Cu. Chip samples

Page 19.

across one metre widths in a trench west of the Gopher adit obtained values of 0.244-0.302 oz/ton Au and 0.36-0.88 oz/ton Ag (Sampson, 1986).

# 3. North (New) Shear Zone

This structure is located between the Homestake-Gopher and Bluebird-Mayflower shear zones. It strikes approximately N70°E, dips either vertically or shallowly to the southeast, and is traceable for 400 metres. Chip samples across 1 metre intervals in four of six trenches across the structure returned values averaging 0.355 oz/ton Au and 0.97 oz/ton Ag (Sampson, 1986). Six diamond drill holes tested this area in 1985/86. The best intersection consisted of 2 metres grading 0.664 oz/ton Au and 0.91 oz/ton Ag. The results are summarized in Table 4.

The mineralization consists of pyrrhotite, chalcopyrite, arsenopyrite, pyrite and sulphosalts. It varies from disseminations and veinlets in the volcanics to massive sulphide sections up to a metre wide. The sulphides are usually accompanied by silicification. The high Au:Ag ratio of 0.39 is typical of Group 1 occurrences.

The shear zone appears to be cut off to the west by the Gopher Creek fault. Two hundred metres to the northeast, sphalerite appears as part of the mineral assemblage. The structure is continuous to the northeast as far as the Maid of Erin occurrence and possibly beyond.

# Geophysical Response to Mineralization

The geophysical response to the known mineralized veins on the Bluebird-Mayflower claim group has been reviewed by John Boniwell

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of Excalibur International Consultants Ltd. This review was based on data from an airborne electromagnetic and magnetometer survey (Sheldrake, 1981) and a ground VLF and horizontal loop electromagnetic survey (Mark, 1986). Boniwell's summary report on the applicability of various geophysical methods to the property is presented in Appendix I.

In summary, the shear structures hosting the sulphide mineralization on the property are readily detectable and traceable by the VLF electromagnetic method. Although the VLF coverage of the property is incomplete, at least two additional east-west shear structures appear to be present, one immediately southeast of the North shear structure and the other coincident with the Curlew workings (Figure 5). Interpretation of the VLF data also suggests that a NE-SW fault exists along Gopher Creek. Marginal to this fault, the Au:Ag ratio of the mineralization appears to be higher than portions of the vein structures more distant from the fault.

The VLF data offers little information with regard to the quantity or nature of sulphides along the mineralized structures. A test line of horizontal loop electromagnetics, a method more specific to sulphides, yielded a response at high frequencies to the Gopher occurrence but not to the North vein. In addition, the airborne EM survey failed to detect any of the veins from a flight altitude of 40 metres. Given that the mineralization occurs primarily as disseminations and narrow veinlets with only local pockets of massive sulphides, it is likely that I.P. (Induced Polarization) methods may be more effective in reflecting the sulphide content of the vein structures near surface.

The aeromagnetic data are of mediocre quality owing to difficulties maintaining consistent flight altitude, but lithological

contrasts do exist. A ground magnetic survey would clearly assist in identifying fault structures and dikes which have played an important role in the localization of the mineralization.

Considerable potential exists for identifying drill targets at depth using geophysical methods. A carefully controlled aeromagnetic survey could possibly assist in tracing the contact of the Rossland monzonite to depth. Additionally, drill targets at depths below 150 metres should be identifiable using such methods as large loop broad band electromagnetics, gradient array I.P., and down-hole pulse EM.

#### EXPLORATION POTENTIAL

A number of observations lend support to interpretation of the mineralization on the Bluebird-Homestake claim group as the vertical expression of a gold-bearing chalcopyrite-pyrrhotite system similar to that in the Le Roi-Centre Star area. These are as follows:

- 1. gold-bearing chalcopyrite-pyrrhotite mineralization (North Vein) occurs along a shear structure oriented in a similar direction to the Le Roi-Centre Star structure and is similarly associated to the Rossland monzonite contact;
- 2. the above mineralization is closely associated with a unique mineral assemblage within the Rossland Camp, that being tetrahedrite-galena-sphalerite-boulangerite in the Bluebird-Mayflower zones; in epithermal vein systems, lead-zincsilver mineral assemblages generally occur vertically above copper-gold assemblages;
- in the Rossland Camp the structural intensity and the number of occurrences in the Bluebird-Homestake area appear to be second only to the Le Roi-Centre Star area;
- 4. a major north-south fault inferred to exist east of the Centre Star Mine projects south toward the Bluebird-Homestake claims and may in fact correspond to the structure along which a Coryell monzonite dike has been intruded at the west end of the Bluebird-Mayflower shear zone; this crossing structure may be fundamentally important in localizing ore in the Rossland Camp.

Exploration on the Homestake mineralization has been limited to about 90 metres below surface. Only minor ore has been extracted from this area due to generally low metal values. Further to the east in a trench along the same structure, mineralization grading 0.244-0.302 oz/ton Au has been observed. This portion of the structure has not been explored in detail.

Exploration on the Bluebird mineralization has been carried out to a depth of at least 110 metres. The ore bodies have been characteristically lenticular with a tendency to pinch and swell with depth. There is no indication that the mineralization terminates at the depth of current workings. However, the low Au:Ag ratio of these sulphides partly results in a low metal value. Should the Au:Ag ratio increase with depth, the economics of this zone could change dramatically. There are also indications that the shear zone and mineralization extend to the west of the Coryell monzonite dike. That area was not adequately tested by the VLF survey.

Exploration on the Mayflower mineralization has been to a depth of about 60 metres. Although the Au:Ag ratio of this mineralization is higher than the Bluebird sulphides, the total metal value is somewhat less. A higher Au:Ag ratio seems to be characteristic of mineralization close to the Gopher Creek fault which lies between the Bluebird and Mayflower zones. This area has been tested with only a few diamond drill holes to a depth of about 45 metres.

The discovery of economic grades of gold over mineable widths on the North shear zone is relatively recent in the history of the property. This reaffirms the potential of finding important new mineralization close to old established workings. Further drilling is warranted to fill in between holes 3 and 4 and to test for depth extensions. Although the mineralization appears to weaken to the

northeast, the entire length of the North shear zone should be tested at 50 metre intervals.

In addition to the near surface and depth potential of the known mineralization, potential exists for the discovery of new mineralization elsewhere on the property. At least two additional shear zones appear to be present, based on incomplete VLF coverage. The large majority of lands held by Antelope have not been explored by modern methods.

#### CONCLUSIONS

It is the opinion of Westoll & Associates, based on an evaluation of the regional setting and available work reports, that the Rossland properties held by Antelope have potential, both near surface and at depth, to host gold mineralization similar to that mined in the Le Roi-Centre Star area of the Rossland Camp.

The Le Roi-Centre Star gold-silver-copper deposits are characterized by pyrrhotite-chalcopyrite replacements along east-west shear structures developed in volcanics of the Rossland Formation close to the contact with the Rossland monzonite intrusion. Four properties in an area 600 metres by 1200 metres have produced approximately 6.2 million tons of ore from depths as great as 480 metres with a recovered grade of 0.47 oz/ton Au, 0.6 oz/ton Ag and 1% Cu.

The Bluebird-Homestake claim group exhibits a number of geological features similar to that of the Le Roi-Centre Star area. These include:

- 1. close proximity to the margin of the Rossland monzonite;
- 2. volcanic host lithologies of the Rossland Formation;
- 3. intensity of shearing and frequency of occurrences;
- sulphide mineralization developed along east-west shear structures;
- presence of intersecting north-south fault structures, often healed with diorite porphyry and lamprophyre dikes, which in

the Le Roi Mine area were important in localizing mineralization;

6. presence of a gold-bearing chalcopyrite-pyrrhotite mineral assemblage.

The unusual mineral assemblage of tetrahedrite-galena-sphalerite-boulangerite which characterizes the Bluebird-Mayflower shear zone could represent a vertical zonation above a chalcopyrite-pyrrhotite system.

The discovery of gold in the North shear zone at economic grades over mineable widths is a relatively recent development in the history of the property. Further work is required to define the strike length, plunge, and depth extent of this mineralization.

The Bluebird-Mayflower shear zone itself hosts Ag-Au-Pb-Zn mineralization. Portions of this structure have been explored by diamond drilling and underground development to depths varying from 45 metres to 110 metres. As there is no indication that the mineralization terminates at these depths, further potential exists here.

The Homestake-Gopher shear zone has been explored to a depth of 90 metres in the area of the Homestake workings but has received limited attention elsewhere. A trench close to the Gopher adit revealed significant values of Au over a one metre width. Diamond drilling is warranted in this area.

A combined approach of VLF electromagnetic and ground magnetometer surveys would appear to be the most effective means of identifying and tracing shear zones on the property while providing some information on important cross structures, either NE-SW trending

faults or dikes occupying these faults. Further geophysical test work is required to assess the relative effectiveness of I.P. and other electromagnetic methods to detect concentrations of sulphides and thus assist in the selection of drill targets. Most of the lands held by Antelope have not been explored by modern methods.

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#### RECOMMENDED EXPLORATION PROGRAMME AND BUDGET

A two-stage exploration programme totalling \$540,000 is recommended for Antelope's Rossland properties.

#### Phase I

Phase I is designed to:

- determine the strike length, dip, plunge, and depth continuity of gold mineralization in the North shear structure by means of fill-in diamond drill holes and a second tier of holes to test the structure at a vertical depth of about 90 metres;
- 2. explore the central and eastern portions of the Bluebird-Homestake claim group for other shear zones or extensions of existing shear zones by means of a detailed VLF electromagnetic survey; and attempt to identify important north-south structures or dikes by means of a magnetometer survey;
- 3. evaluate the effectiveness of I.P. to screen various portions of shear zones with respect to sulphide content and thus assist in drill target selection;
- 4. begin a preliminary programme of geological mapping and surface sampling to evaluate the new claims acquired in the Rossland area;
- 5. compile geological data on the Le Roi-Centre Star deposits to establish the target size of the individual ore bodies and document any zonation trends within them; similarly compile

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data on the Bluebird zone based on the Standonray mining records, if they exist.

The estimated Phase I budget is as follows:

# A. Bluebird-Homestake Claim Group

Linecutting: 39 km - 50 m line spacing (\$500/km) VLF survey: 36.7 km (\$150/km)	\$ 19,500 5,505
Magnetic Survey: 39 km (\$165/km)	6,435
I.P. test surveys: 10 days (\$1,500/day)	15,000
Diamond drilling	
and assaying: 550 metres (\$80/m)	44,000
Miscellaneous surface sampling	5,000
Supervision, compilation and reports	40,000
	135,440
Contingencies - 10%	13,550
Sub-total Phase I-A	148,990
sa	y \$150,000

# B. Recently Acquired Claims

Geological	mapping	and	surface	sampling	\$ 10,000
TOTAL	- Phase	I			\$160,000

## Phase II

The elements of the Phase II programme will be determined, in part by the results of Phase I. The objectives of Phase II would be to:

1. assess, by additional diamond drilling, the following existing targets:

# Neil D.S. Westoll & Associates Ltd.

- Gopher adit area
- Bluebird-Mayflower depth extensions
- North Shear Zone (contingent on Phase I results)
- 2. develop drill targets along VLF conductors by means of geophysical techniques (I.P.) and trenching;
- 3. test some of the VLF conductors by diamond drilling;
- 4. extend the VLF and magnetic surveys to other land holdings in the Rossland area to evaluate their mineral potential;

The estimated Phase II budget is as follows:

		A 10 000
Linecutting: 20 km (\$500/km)		\$ 10,000
VLF-EM and magnetic surveys: 20 km (\$300/km)		6,000
I.P. survey: 10 days \$1,500/day)		15,000
Trenching: 1000 m		7,500
Geological mapping and surface sampling		15,000
Diamond drilling		
and assaying: 2500 m (\$80/m)		200,000
Supervision and reports		60,000
		313,500
		010,000
Contingency - 20%		62,700
TOTAL - Phase II		\$376,200
TOTAL - FRESE II		γ370,200
	say	\$380,000

#### REFERENCES

Drysdale, C.W., 1915	-	Geology and Ore Deposits of Rossland, B.C.; G.S.C. Memoir 77, 317p.
Gilbert, G., 1948	-	Rossland Camp; in Structural Geology of Canadian Ore Deposits, CIMM Jubilee Volume, pp.189-196.
Little, H.W., 1960	-	Nelson Map Area, West Half, B.C.; G.S.C. Memoir 308, 205p.
Little, H.W., 1982	-	Geology of the Rossland-Trail Map Area; G.S.C. Paper 79-26.
Mark, D.G., 1986	-	Geophysical Report on a VLF-EM Survey over the Ross Island Property, Rossland Area, Trail Creek Mining Division, B.C.; unpublished report, 8p.
Sampson, C.J., 1982	<b>-</b>	Report on the Rossland Claim Group, Rossland, B.C. for Ross Mining Co.; unpublished report, 26p.
Sampson, C.J., 1986	<del>-</del>	Report on Trenching and Diamond Drilling, Rossland Claim Group, Rossland Area, Trail Creek Mining Division, B.C. for Bryndon Ventures Inc.; unpublished report, 18p.

Sheldrake, R.F., 1981 - Report to Rubicon Resources on Helicopter Mag and E.M. surveys, Rossland, B.C.; unpublished report.

Skerl, A.C., 1964 - Rossland Mining Company, Geology of the Mine; unpublished report, 4p.

Thorpe, R.I., 1967 - Mineralogy and Zoning of the Rossland
Area; unpublished Ph.D. thesis,
University of Wisconsin, 131p.

#### APPENDIX I

Geophysics in the Rossland, B.C., Mineral Environment, by J.B. Boniwell

Excalibur International Consultants

## GEOPHYSICS IN THE ROSSLAND, B.C. MINERAL ENVIRONMENT

There has been enough recent work directed at the vein system(s) on the Rossland area claims to know that geophysics can detect these type occurrences, at least in the near-surface. Encouragingly, both V.L.F. (radio) em. and conventional horizontal loop em. (HLEM) in limited coverages have demonstrated that they can sense known veins to some extent or another in this environment.

However it is important to recognize that these so-called veins are in fact mineralized shears. As such, they are especially amenable to detection by the V.L.F. method, and indeed both the Bluebird-Mayflower and Homestake-Gopher veins on the property have been picked up in strength and delineated with authority by it. There is every reason to expect therefore that further detailed V.L.F. surveying in the area and to the limits of the property would result in new vein possibilities being found beyond past workings and drill testing.

The HLEM traversing by comparison has not fared as well. While it has produced recognizable anomalies it has done so mainly in the higher frequencies (>1000 Hz) only, or primarily in the out-of-phase. There is inherent to these results a regime of target lower in quality than HLEM normally likes to work with, and hence an aptitude to miss the weaker (i.e. less conducting) veins altogether. In fact it is to be noted that a 1981 helicopter em. survey operating at the single frequency of 918 Hz failed to detect either the Bluebird or Homestake veins from an altitude of 40 m.



The positive side of the HLEM results is that they show that enough sulphides do exist from place to place within the shears to allow their detection by standard em. method. This could prove valuable if an HLEM back-up to V.L.F. is required in problematic sectors, but most particularly does it promise that any down-hole em. which may eventually be undertaken to widen effective exploration at depth will be able to sense pods of sulphides up to about 70 m from the hole.

Magnetic surveying deserves to be applied to the property. Airborne data show that lithologic contrasts do exist magnetically, and that important structural information resides in and can be extracted from any well collected data set. There is moreover the further chance that with suitable processing deeply buried features and alteration aureoles can be discerned and defined. All this is worth pursuit.

#### It is therefore recommended that:

- i) a grid of lines be prepared for the property area, these 50 m apart, picketed every 25 m, to within a 20% positioning accuracy overall. A total of approximately 39 lineal kms is involved;
- ii) the grid line orientation be set at 350° controlled from a central BL run orthogonally;
- iii) a V.L.F. (radio) em. survey be extended to all lines of the grid. The use of the Geonics Em-16 receiver is advocated tuned to NSS (21.4 kHz)



Annapolis, Maryland. In-phase and out-of-phase readings are to be taken or attempted at all stations no matter the interference from local culture, especially the high tension transmission line which crosses the property longitudinally;

iv) a total field magnetic survey be completed contemporaneously over the whole grid to a sensitivity of 1 nT and an operational accuracy of 3 nT. The EDA PPM 350 proton precession magnetometer synchronized in time with a PPM 375 base station on site is commended as the suitable field equipment.

If this first geophysical phase proves itself effective in broadening knowledge and suggesting a further set of drill targets, as is anticipated, then immediate steps ought to be taken to screen such targets with IP/resistivity, both to determine how well IP can resolve and describe sulphides within a prospective vein, and also to gain some idea how best to explore for similar veins buried at depth. Several array geometries will probably have to be experimented with to achieve these objectives, but once any right approach is successfully applied to a situation it could directly assist drilling in optimising its siting, and likely in consequence, the returns obtained.



Such IP/resistivity traversing would represent a geophysical second phase. The foreseeable third phase would constitute an exploration that is taken to depths below 150 m from surface. In this realm, large loop braodband em. (e.g. Em-37, UTEM) would have to be considered, likewise wide spacing or gradient array IP, as well as down-hole IP, and most of all down-hole pulse em. All these are more specialized and costlier surveys, and properly belong to a late-stage in the programme when many of the closer-to-surface parameters for the geology/geophysics of the mineralized setting have been sorted out.

In both its recommended and perceived forms, the total cost of the geophysical surveying required to further exploration in this environment as proposed can be estimated at \$135,000 as follows, (all quoted rates all-inclusive of mobilization and field plots):

#### Phase I

a) Grid preparation:line-cutting, chaining, etc.;39 kms @ \$500/km

\$19,500.00

b) V.L.F. em. surveying; 36.7 kms @ \$150/km

5,505.00



c) Magnetic surveying;	
39 kms @ \$165/km	6,435.00
	31,440.00
Phase II	
d) IP/resistivity surveying;	
20 days @ \$1500 p.d.	30,000.00
e) Supervision, data processing, interpretation, reporting, incl. recommendations and drill lay-outs	
(Phase I and Phase II)	10,000.00
	40,000.00
Phase III	
Name to the second seco	
f) large loop em. and/or gradient array IP, say 15 days @ \$1800	27,000.00
g) down-hole em.;	
say, 10 days @ \$1500	15,000.00



h) supervision, interpretation reporting, etc.

4,500.00

46,500.00

TOTAL (Phase I, II, III)

117,940.00

+ contingencies 15%

17,690.00

\$135,630.00

\_== \_/ -

July 21, 1987

J. B. Boniwell

Exploration Geophysical Consultant

### ANTELOPE RESOURCES LIMITED (formerly K.D. Resources Inc.)

#### NOTES TO FINANCIAL STATEMENTS

## DECEMBER 31, 1987 (unaudited)

#### 7. RELATED PARTY TRANSACTIONS

- (a) During the period ended December 31, 1987 the company paid or accrued as owing a total of \$30,358 to a company controlled by a director for exploration work and reimbursement of related expenses.
- (b) During the period ended December 31, 1987 the company paid or accrued as owing to a company controlled by a director a total of \$31,582 for geophysical services.
- (c) The loans payable referred to in Note 4 were advanced by two directors. Accounts payable at December 31, 1987 include \$2,727 in accrued interest payable on these loans.
- (d) During the year ended April 30, 1987 the company paid a total of \$13,000 to a director for management and administration of the company's affairs.
- (e) During the year ended April 30, 1987 the company paid a total of \$8,196 to a company controlled by a director and a total of \$2,900 to a former director for exploration work.
- (f) During the year ended April 30, 1987 the company paid a total of \$12,000 to a company controlled by a director for geophysical services.

#### 8. SUBSEQUENT EVENT

Subsequent to December 31, 1987 the company has entered into an agency agreement for the sale of 900,000 common shares for net proceeds of \$316,800.

#### F. Marshall Smith Consulting Inc.

218-744 West Hastings Street, Vancouver, British Columbia, Canada, V6C 1A5
Phone: (604)684-2361 or (604)271-6556

#### **REPORT**

#### on the

#### **AU PROPERTY**

(Au 1 - 5, 7, 12, 19, 100, 200, 300 mineral and Au fractional mineral claims)

## KAMLOOPS MINING DIVISION BRITISH COLUMBIA

NTS 82 L/6W

Latitude: 50° 25'N Longitude: 119° 23'W

For:

Antelope Resources Limited 530-800 West Pender Street Vancouver, B.C. V6C 2V6

by:

David M. Nelles, B.Sc.

and

F. Marshall Smith, P.Eng.

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Table 1 Claim Data	Following 6

#### **SUMMARY**

The Au claims are located on NTS map 82 L/6W near 50° 25' north latitude, 119° 23' west longitude in the Kamloops Mining Division of British Columbia. The property comprises two modified grid, one fractional and nine two post mineral claims totaling approximately 31 units situated between Moffat and Gurney Creeks, approximately 19 kilometers north northwest of Vernon, B.C.

The mineralization now encompassed by the Au claims is reported to have been staked as early as 1899 and later became known as the Black Hawk property. By 1919, two adits with an aggregate length of 430 feet (131 meters) had been driven to test a quartz vein exposed on the surface for approximately 150 feet (46 meters) and over which surface samples were reported to have returned values ranging from 0.2 to 0.56 ounces/ton gold and 0.2 to 1.50 ounces/ton silver. Additional mineralization was soon discovered to the west of the original showing, which together have been the focus of the majority of the subsequent work on the property. This activity may have lead to the discovery of placer gold along Moffat Creek, which drains the western portion of the present Au group.

The Au property is underlain by a west-northwesterly trending belt of marine and continental volcanic and sedimentary rocks belonging to the Upper Triassic Nicola Group. Rocks belonging to this group include andesitic flows and pyroclastics, argillite, phyllite and local beds of limestone and impure quartzite. These members strike west-northwest, dip variably to the northeast and contain local disseminated pyrite, chalcopyrite and magnetite.

Precious metal mineralization exposed to date on the Au property occurs in stratiform horizons composed of ankerite, chlorite, quartz and variably oxidized sulfides. Where observed, these mineralized zones appear to be conformable with both the over and underlying volcanics and may represent syngenetic exhalative horizons sandwiched between successive flows. To date three significant, and possibly related mineralized zones have been exposed. The style of this mineralization implies continuity along strike and dip, increasing the probability of locating significant reserves.

As these mineralized zones have been evaluated over only a small portion of their potential strike and dip, excellent potential exists for the definition of a viable precious-base metal deposit through continued exploration. The program should focus on developing the stratiform horizons but also consider the possibility of an associated low grade, large tonnage target.

With this in mind, a two phase exploration program is recommended to further evaluate the Au property. The first phase should include systematic trenching between the East and West Showings, south of the East Showing in the area of the strong EM conductor, and around the Quartz Showing in an effort to uncover extensions of the mineralization presently exposed. These trenches should be mapped in detail and sampled where they expose mineralization of interest. Trench locations should also be determined according to local stratigraphy.

When significant targets have been defined, each should be tested by diamond drill to evaluate their potential grade and tonnage. At the same time, several holes should also be located to reevaluate dip extensions of the East Showing. The aggregate depth of all the holes should not exceed 500 meters. This phase has been budgeted at \$100,000.

If the results obtained from this program are sufficiently encouraging, a second phase of exploration should be initiated. This phase should focus on drill testing the mineralized zone(s) delineated during the first phase of exploration to further define their size and grade. This phase has been budgeted at \$150,000.

#### INTRODUCTION

The Au property comprises two modified grid, one fractional and nine two post mineral claims situated at Moffat Creek, approximately 19 kilometers north-northwest of Vernon, British Columbia. The two post claims were staked between March 6 and June 13, 1973 to encompass two possibly related zones of mineralization originally located around the turn of the century.

This report is based on data collected during two field examinations carried out on the Au property by Mr. Marshall Smith, P.Eng. and Mr. David Nelles, B.Sc. in October 1986 and May 1987 respectively, and was prepared at the request of Mr. David Mark of Antelope Resources Limited (formerly KD Resources Inc.). Selected references were also obtained from company reports and the Geological Survey of Canada.

#### **LOCATION AND ACCESS**

The Au claims are located on NTS map 82 L/6W near 50° 25' north latitude, 119° 23' west longitude in the Kamloops Mining Division of British Columbia (Figure 1). The property straddles the divide between Moffat and Gurney Creeks approximately 19 kilometers north northwest of Vernon, B.C.

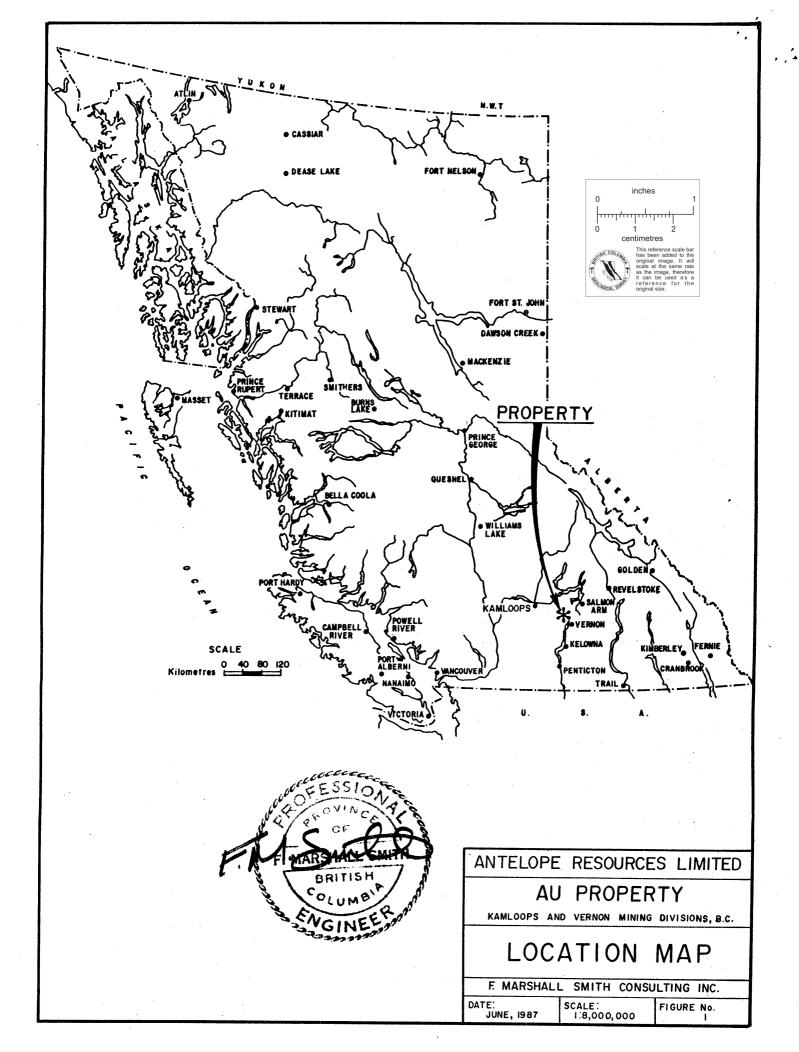
Access to the property can best be gained using Irish Creek Road which intersects Highway 97 approximately 18 kilometers northwest of Vernon. This improved gravel road eventually joins Moffat Creek Road near the East Showing, a distance of 8.5 kilometers from the highway. While in fair condition, several steep sections necessitate the use of four wheel drive vehicles over this road.

#### PHYSIOGRAPHY, VEGETATION AND CLIMATE

The Au property lies on the northeastern edge of a rolling upland plateau situated west of the Okanagan Valley. Elevations within the claims range from 500 meters in the northeast corner of the Au 200 claim to over 1250 meters atop the east-west ridge near the center of the property. Topography within the claims is generally steep, especially in the northwest corner.

The property lies within the Interior Douglas fir biogeoclimatic zone which is characterized by low precipitation (36-56 centimeters), hot summers and cool winters. Snow generally begins to accumulate on the property in November and has melted by late April.

Vegetation indigenous to the area includes Douglas fir, western cedar, spruce, lodgepole and western white pine, aspen and common paper birch. The area is moderately to densely forested, the majority being secondary growth. Selective logging has taken place locally within the claims.



#### PROPERTY AND OWNERSHIP

The Au property comprises two modified grid, one fractional and nine two post mineral claims totaling approximately 31 units, located in the Kamloops Mining Division (Figure 2). Most of the two post claims will be abandoned into the surrounding modified grid claims, eliminating redundant claims and resulting in a 22+ unit group. Two new claims, the Au 400 and 500 have recently been staked and will eventually be added to the group. Pertinent information regarding the present group is summarized in Table 1:

Table 1 - Claim Data

Claim Name	Units R	lecord Number	Record Date	Expiry
Au 1	1	124480	March 8, 1973	1988
Au 2	1	124481	March 8, 1973	1988
Au 3	1	124482	March 8, 1973	1988
Au 4	1	124483	March 8, 1973	1988
Au 5	1	124484	March 8, 1973	1988
Au 7	1	125727	June 7, 1973	1988
Au 12	1	125732	June 7, 1973	1988
Au 19	1	125847	June 15, 1973	1988
Au 100	6	422	June 18, 1976	1988

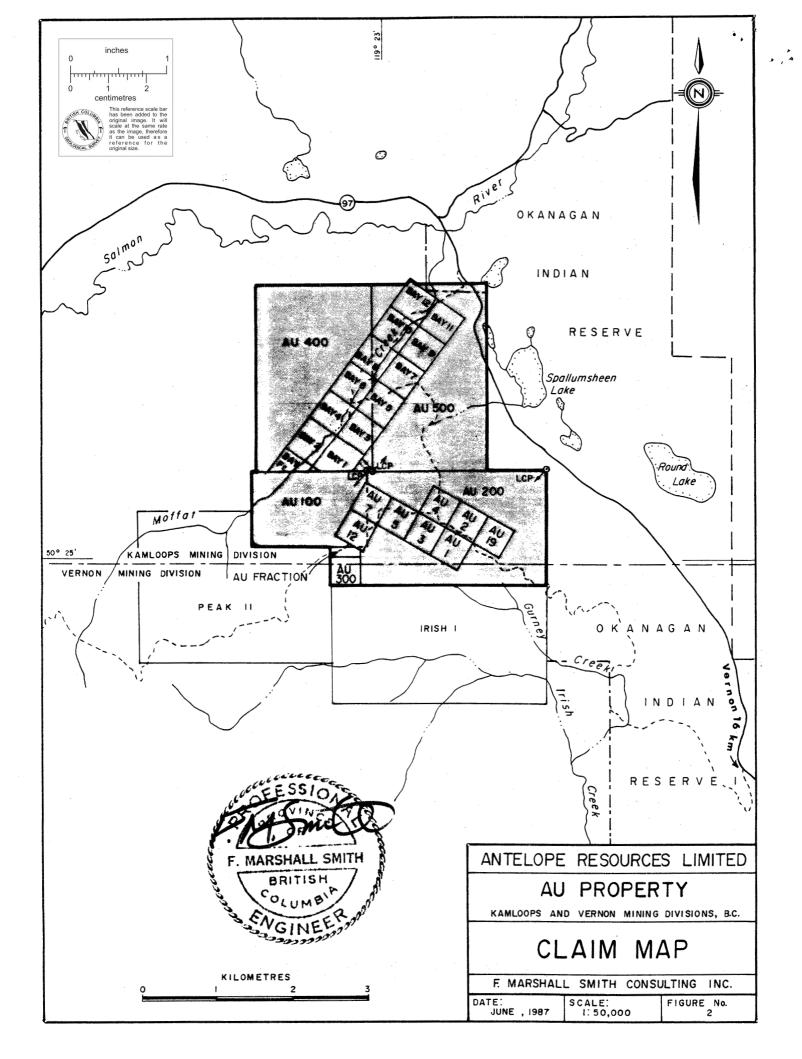
The above claims are presently registered in the name of Antelope Resources Limited (formerly KD Resources Inc.).

Au 200	15	6670	June 13, 1986	1989
Au 300	1	6669	June 13, 1986	1989
Au fraction	•	6671	June 13, 1986	1989

The above claims are registered in the name of S. E. Arnold. A bill of sale transferring title to Antelope Resources has been prepared but has yet to be recorded.

Bay 1-4	4 2 post	6723-6726	August 11, 1986	1987
Bay 5-12	82 post	6757-6764	August 22, 1986	1987
Bay Fr.	12 post	6727	August 22, 1986	1987
Au 400	15	7102	June 10, 1987	1988
Au 500	15	7103	June 10, 1987	1988

the above claims are subject to an agreement to transfer to Antelope Resources Limited.



#### HISTORY AND PREVIOUS WORK

The area encompassed by the present Au claims is reported to have been staked as early as 1899 and later became known as the Black Hawk property. While sporadic work is known to have been carried out over the next two decades, it was not until 1919 that an inspection by the British Columbia Department of Mines revealed two 'tunnels' with an aggregate length of 430 feet (131 meters) at what is now known as the East Showing. These adits were driven to test a quartz vein exposed on the surface for approximately 150 feet (46 meters) and over which surface samples were reported to have returned values ranging from 0.2 to 0.56 oz/t gold and 0.2 to 1.50 oz/t silver across widths varying up to six feet (1.83 meters). Unfortunately, little mineralization was encountered in either of these adits, although the longest crosscut was apparently started in the vein hangingwall and 'had no possible chance of ever reaching it'.

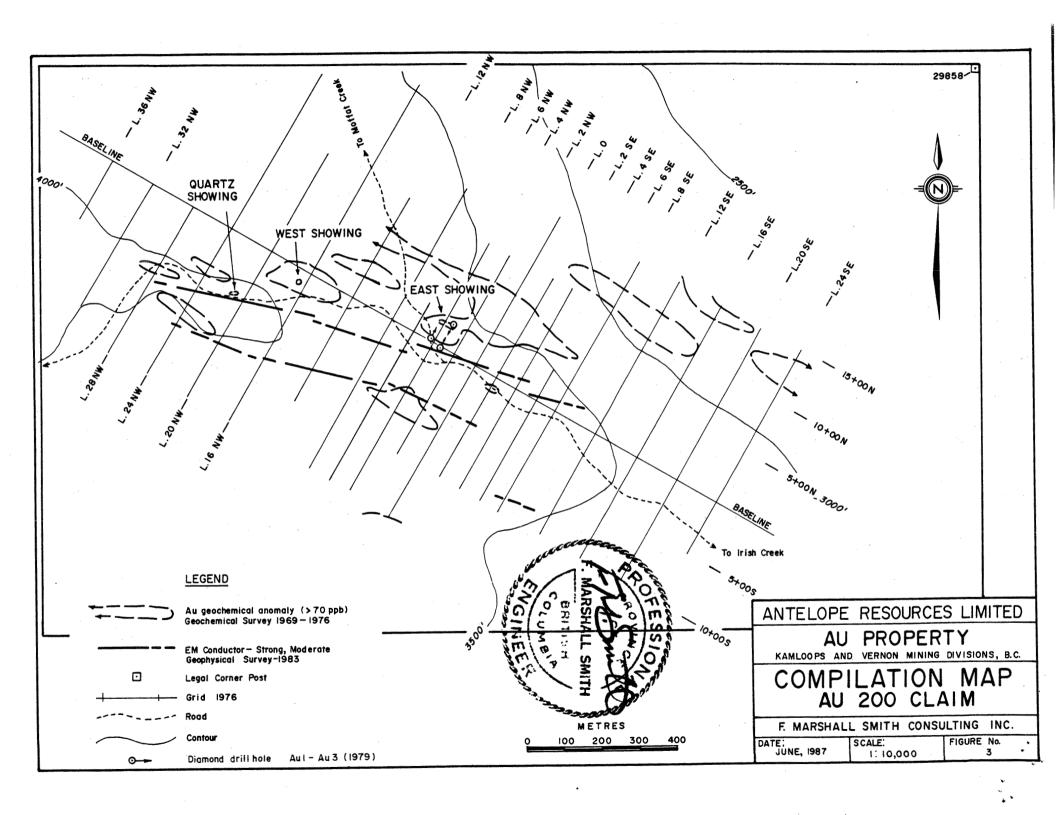
Additional mineralization was also reported the following year at what is likely the present West Showing. Here, veining assayed 0.3 oz/t gold and 0.1 oz/t silver across two feet (0.61 meters).

Records of additional work between 1922 and 1969 are lacking, although the property was apparently restaked several times during the 1960's and limited trenching is reported to have been carried out. Sporadic placer mining on Moffat Creek, tributaries of which drain the Au claims, is also reported to have occurred during this period. Although several quartz veins which contained 'widely distributed segregations of free gold associated with iron sulfides' are reported to have occurred along Moffat Creek, the placer gold is described as being well worn, suggesting a distal source.

In 1969, Coin Canyon Mines Ltd. (later Coseka Resources Ltd) acquired the property and carried out a program of geological mapping, geochemistry and blast trenching before allowing the claims to lapse in 1972.

The Au Group of claims was staked by Keda Resources in 1973 and underwent a program of soil and rock geochemistry and magnetic and electromagnetic geophysics. Assay results from both the East and West Showings were encouraging and possible extensions of this mineralization were indicated by both the soil geochemical and geophysical surveys.

In 1974, Newconnex carried out a program of detailed rock and soil geochemistry in the vicinity of the East Showing. Results from this survey confirmed previous findings. A follow up program of geological mapping, soil and rock geochemistry and trenching was carried out in 1976.



The East Showing was further tested by diamond drill in 1979. Three BQ holes totaling 163.5 meters were targeted to intersect the mineralized zone at depths between 40 and 60 meters below its surface expression. Hole Au-1 terminated in overburden west of the current workings and appears to have been located over a ravine filled with colluvial material. Hole Au-3 was collared north of the zone and appears to have paralleled the horizon. Recovery problems were encountered while drilling Hole Au-2, collared south of the zone. Actual recovery through the projected position of the horizon appears to have been less than 10% (2.29 meters lost between 48.2 and 50.6 meters). The loss likely occurred as a result of too small core diameter and the friable nature of the horizon. The results of the drill program should thus be viewed as uninformative at best. Core from at least two additional holes has been located on the property, but no records exist detailing their locations or results.

In 1983, Kerr, Dawson & Associates Ltd undertook a program of detailed VLF-EM geophysics and limited soil geochemistry over a newly established grid. The purpose of this survey was to correlate EM conductors with soil anomalies. While two strong conductors paralleling the regional trend were delineated, coincident geochemical anomalies were not detected.

The most recent work on the property was carried out in 1986 and consisted of follow up soil and rock geochemistry, back-hoe trenching and induced polarization-resistivity geophysics over both the East and West Showings. The trenching was successful in exposing additional mineralization near L-20 NW, 4+50 S (old grid), as well as an eastward extension of the West Showing.

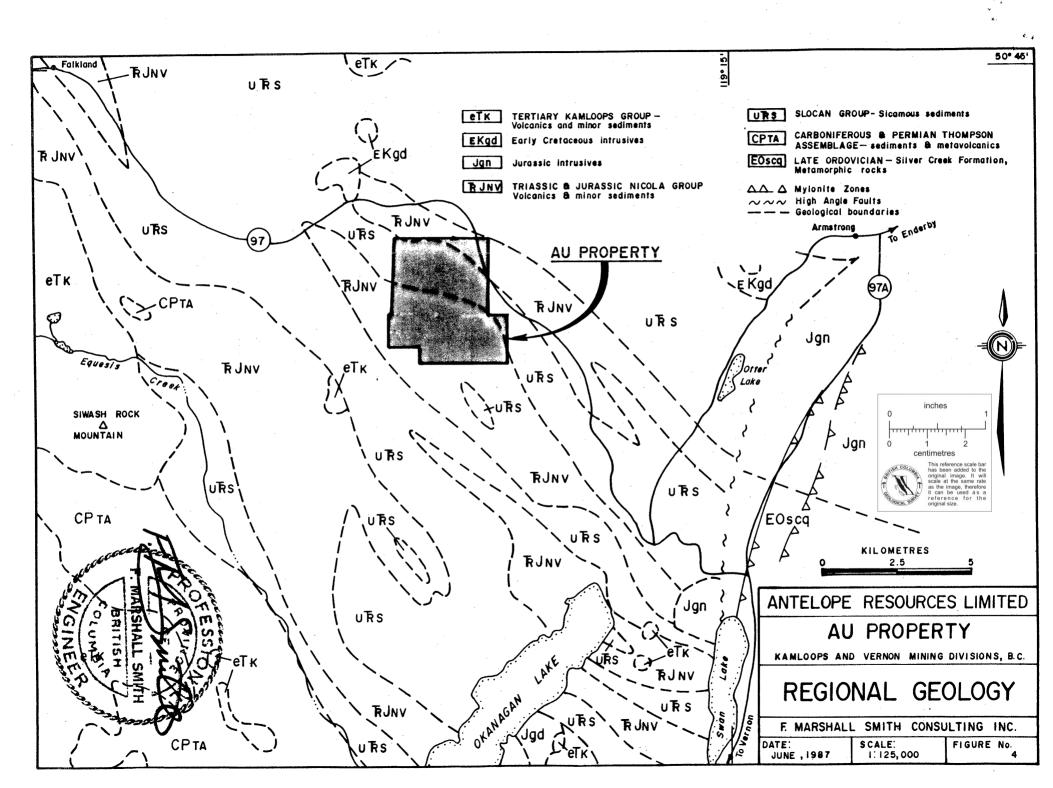
#### **GEOLOGY**

The Moffat-Gurney Creek area is underlain by a northwesterly trending belt of marine and continental volcanic and sedimentary rocks belonging to the Upper Triassic Nicola Group (Figure 4). These rocks were originally interpreted as part of the Permo-Triassic Cache Creek Group but have been recently reassigned as an eastern argillaceous facies of the Nicola Group on the basis of microfossil identification.

The predominant rock unit underlying the property consists of pale to dark green andesitic flows, tuffs and minor agglomerate interbedded with dark gray to black argillite, phyllite and local beds of impure quartzite. These members strike west-northwest, dip variably to the northeast and contain local disseminated pyrite, chalcopyrite and magnetite. The volcanic members also host ankerite-chlorite-quartz-sulfide mineralization at both the East and West Showing.

Where observed, the andesitic flows range from fine to medium grained and are locally porphyritic (hornblende and/or plagioclase phenocrysts). Fine grained foliated tuffs of similar composition are generally interspaced between these flows. The sedimentary members, ranging from a few millimeters to many meters in width, are also intercalated at varying intervals within the sequence. The argillaceous members are often calcareous and/or graphitic and locally contain up to 2% pyrrhotite/pyrite. In the southern part of the property, scattered outcroppings of pale brown to gray limestone have also been observed.

The rocks exposed on the property are not, in general, strongly deformed but have undergone lower greenschist facies metamorphism. This has resulted in, among other things, the alteration of hornblende to variable aggregates of chlorite, calcite and plagioclase.



#### West Showing (L. 16 NW, 0+50 SW)-

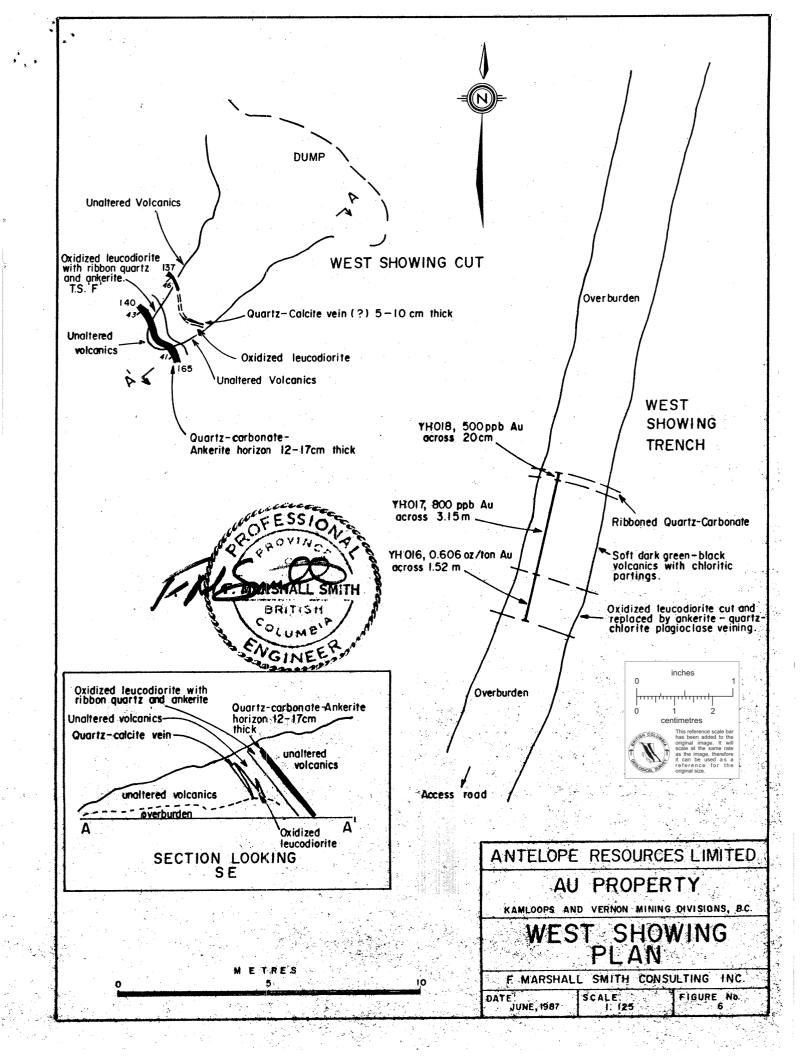
Mineralization at the West Showing has been exposed along strike in two workings separated by approximately 15 meters (Figure 6). In the original cut, a 30 to 50 centimeter wide horizon of oxidized leucodiorite is hosted by fine grained andesite. This unit is dominated by plagioclase, displays widely variable texture and is cut by veins of altered marcasite/pyrite (after pyrrhotite) and chalcopyrite. A 12 to 17 centimeters wide zone of oxidized quartz-carbonate-ankerite occurs along the hangingwall of this horizon. Additional, possibly related quartz-carbonate veining was also observed in contact with an obscure lens of leucodiorite(?) approximately half a meter lower in the sequence.

An extension of this mineralization was recently exposed in a trench 15 meters to the southeast. Here, the leucodiorite horizon has widened to approximately 1.5 meters and has been cut and extensively replaced by ankerite-quartz veining(?) containing significant sulfides (sphalerite and pyrite). A 1.52 meter sample across this zone assayed 0.606 oz/ton gold. The distribution of the gold, however, could not be determined. Here, a plagioclaserich flow(?) unit appears to be associated with a thin zone of quartz-ankerite mineralization. The significance of this unit, however, can not be determined without additional work.

The leucodiorite is underlain by soft, dark green volcanics with chloritic partings and local <20 centimeter quartz-carbonate ribbons. These chloritic volcanics could play an important role in locating extensions of the overlying mineralization.

Quartz Showing (L. 20 NW, 4+00 SW)-

Trenching undertaken at this showing has exposed a quartz stockwork which has intruded andesitic flows and pyroclastics. Most of the quartz is an opaque white color and is apparently barren of mineralization. Local limonite/ankerite development has occurred in the host andesite, which also contains minor sulfides. One sample from a deformed chloritic quartz-ankerite horizon within the volcanics did, however, return 0.362 oz/ton gold across 0.914 meters. The relationship between this zone and the others will have to be determined through additional trenching.



#### **GEOPHYSICS**

Electromagnetic geophysics carried out on the property was successful in delineating two west-northwesterly trending conductors (Figure 3). The strongest of these extends across the full 1.1 kilometer length of the surveyed area and lies approximately 60 - 75 meters south of the East and West Showings. The significance of this apparent offset has not yet been determined.

A follow up program of induced polarization-resistivity geophysics undertaken in 1986 successfully defined the probable dip extension of the ankerite-quartz/leucodiorite zone at the West Showing as a resistivity high and chargeability low, but provided conflicting results over the East Showing. The profiles generated in the area of the West Showing closely resemble those produced at Inca Resources' Rich Gulch deposit in Plumas County, California, where similar gold bearing horizons have been outlined at depth using induced polarization-resistivity geophysics.

#### **GEOCHEMISTRY**

Soil geochemistry carried out in 1976 was found to be an effective method for delineating gold mineralization on the Au property (Figure 3). Strong anomalies (up to 1475 ppb gold) were defined around both the East and West Showings as well as along a general east-west trend down-slope from each. This would suggest possible extensions of the presently exposed mineralization in both directions.

#### **CONCLUSIONS**

The Au property is underlain by a poorly exposed west-northwest trending sequence of marine volcanic and sedimentary rocks of Upper Triassic age. These rocks form part of an eastern argillaceous facies of the Nicola Group which extends from Okanagan Lake to Prince George.

Precious metal mineralization exposed to date on the Au property occurs in stratiform, possibly exhalative horizons composed of ankerite, chlorite, quartz and variably oxidized sulfides, all occurring within a thick sequence of volcanic flows and pyroclastic rocks. Where observed, these mineralized horizons appear to be conformable with both the over and underlying rocks and hold significant potential for continuity along strike and down dip. The style of the mineralization exposed at the West Showing, in particular, resembles that being developed in the Motherlode District of California, as well as near Hedley, B.C. The resemblance is based on the style of the geology, both local and regional, on the stratiform nature of the mineralization and on the composition of the unit hosting the gold and its apparent association with placer gold in the district.

Previous exploration programs carried out on the property have had limited success in defining extensions of this mineralization. Extensive overburden and core recovery problems have, however, diminished the effectiveness of much of the past work. Even so, several significant anomalies have been delineated using geochemistry and geophysics, and their magnitude suggests the source(s) should be further investigated.

For this reason, and as excellent potential exists for the definition of a viable precious-base metal deposit associated with those zones previously exposed, additional exploration is warranted. The program should focus on defining extensions of the stratiform horizons but also consider the possibility of an associated low grade large tonnage target related to the plagioclase-rich flow(?) unit exposed at the West Showing.

#### RECOMMENDATIONS

In light of the preceding conclusions, a two phase exploration program is recommended to further evaluate the Au property. The first phase should include systematic trenching between the East and West Showings in order to locate extensions of the known mineralization and determine its control(s). Additional trenching should also be undertaken south of the East Showing in the area of the strong EM conductor to determine if the eastern extension of the ankerite-chlorite-sulfide-quartz horizon has been faulted off, and around the Quartz Showing in an effort to uncover extensions of the mineralization. All of these trenches should be mapped in detail and sampled where they expose mineralization of interest. As the trenching proceeds, the western portion of the property, including the recently staked Au 400 and 500 claims, should be prospected to determine whether additional mineralization exists.

Once the style of mineralization has been determined, potential zones should be drill tested. As problems with recovery were encountered in previous drill programs, NQ sized equipment should be employed and an attempt should be made to collect sludge samples over the length of the holes. At least one hole should be located to reevaluate the East Showing. The aggregate depth of the holes should not exceed 500 meters. This phase has been budgeted at \$100,000, should take approximately three to four weeks to complete, and can be commenced immediately.

If the results obtained from this program are sufficiently encouraging, a second phase of exploration should be initiated. This phase should focus on drill testing the mineralization defined during the first phase of exploration to determine the size and grade of the zone(s). Additional geological mapping and sampling should also be carried out in the area of any mineralization uncovered within the western claims. This phase has been budgeted at \$150,000 and should take six to seven weeks to complete. Once completed, additional recommendations can be made.

F. Marshall Smith, P.Eng.

June 11, 1987.

MARSHALL SMITH

#### **BUDGET**

#### PHASE 1

Mob/demob	\$2,000
Geology and assays	\$18,000
Trenching and drill sites	\$13,000
Core Drilling 500m @ \$80/m	\$40,000
Engineering & Report	
Support costs	
Sub Total	\$91,000
Contingencies	<u>\$9,000</u>
Total Phase 1	\$100,000

#### PHASE 2

Mob/demob	\$2,000
Geology and assays	\$18,000
Core Drilling 1200m @ \$80/m	\$96,000
Engineering & Report	\$8,000
Support costs	<u>\$12,000</u>
Sub Total	\$136,000
Contingencies	<u> \$14,000</u>
Total Phase 2	\$150,000

MARSHALL SMITH

F. Marshall Smith, P.Eng. June 11, 1987.

#### **BIBLIOGRAPHY**

- Dawson, J. M., 1973: Geochemical and Geophysical Report on the Au Claim Group for Keda Resources (1973) Ltd.
- Gutrath, G., 1970: Geochemical and Geological Report on the B. J. Claim Group for Coin Canyon Mines Ltd.
- Gutrath, G., 1976: Report on the Au Claim Group for Keda Resources (1973) Ltd.
- Kerr, John R., 1980: Drill Report on the Au Claims for Keda Resources (1973) Ltd.
- Kerr, John R., 1983: Geophysical Report on the Au Claims for KD Resources Inc.
- Whiting, F. B., 1975: Letter to J. M. Dawson of Kerr, Dawson and Associates Ltd. dated June 19.
- Yorke-Hardy, R., 1986: Geochemical Report and Data Compilation/Reevaluation on the Au Property for KD Resources Inc.

#### CERTIFICATE OF QUALIFICATIONS

- I, David M. Nelles, do hearby certify that:
- 1. I am a geologist employed by Searchlight Resources Inc with business offices at 218-744 West Hastings Street, Vancouver, British Columbia.
- 2. I graduated from the University of British Columbia in 1983 with a Bachelor of Science degree in Geology.
- 3. I have practiced my profession in Canada and the United States for four years.
- 4. I am familiar with the geological setting of the district having worked on several properties in the general area.
- 5. This report is based on a two day field examination of the Au property in May 1987, and on data supplied to me by Antelope Resources.
- 6. I presently have no interest in the properties or securities of Antelope Resources Limited, nor do I expect, at any future time, to receive any.

David M. Nelles, B.Sc. June 11, 1987

#### CERTIFICATE OF QUALIFICATIONS

- I, F. Marshall Smith, do hereby certify that:
- 1. I am a consulting geologist and geochemist with offices at 218-744 West Hastings Street, Vancouver, British Columbia.
- 2. I am a graduate at the University of Toronto with a degree of B.Sc., Honors Geology.
- 3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.
- 4. I have practiced my profession continuously since 1967.
- 5. I am familiar with the geological setting of the Vernon district.
- 6. This report is based on reports by Professional Engineers and others working for the previous owners and operators of the property.
- 7. I have no interest in the properties or shares of Antelope Resources Limited or in any of the companies with properties contiguous to the Au claims.

F. Marshall Smith, P.Eng. F. MARSHALL SMITH
June 11, 1987.

F. Marshall Smith Consulting Inc.

218-744 West Hastings Street, Vancouver, British Columbia, Canada, V6C 1A5
Phone: (604)684-2361

#### TO WHOM IT MAY CONCERN:

The undersigned are the authors of the following report:

# REPORT on the AU PROPERTY

(Au 1 - 5, 7, 12, 19, 100, 200, 300 mineral and Au fractional mineral claims)

For:

Antelope Resources Limited

by:

David M. Nelles, B.Sc. and F. Marshall Smith, P.Eng.

June 11, 1987

The undersigned hereby authorize the use of this report or relevant and representative extracts therefrom, in any duly authorized Prospectus, Statement of Material Facts or other informational releases.

Yours truly,

David M. Nelles, B.Sc.

F. Marshall Smith, P.Eng.

June 11, 1987

#### ANTELOPE RESOURCES LIMITED

GEOLOGICAL REPORT

ON THE

ROSSLAND PROPERTY, B.C.

Neil D.S. Westoll & Associates Ltd. Suite 507 - 80 Richmond Street West, Toronto, Ontario. M5H 2A4

August 18, 1987.

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#### SUMMARY

Antelope Resources Limited holds a group of 45 Crown granted mineral claims in the Rossland area of British Columbia. It has staked an additional 11 claims in this area. Available property and regional geological reports have been reviewed to assess the surface and depth potential of the Antelope claims to host economic gold mineralization similar to that mined in the Le Roi-Centre Star area of the Rossland Camp. The most promising property at this time appears to be the Bluebird-Homestake claim group on which three mineralized shear zones have been recognized.

The Le Roi-Centre Star gold-silver-copper deposits are located on the northwestern margin of the Rossland monzonite intrusion. The deposits are characterized by pyrrhotite-chalcopyrite replacements along east-west shear structures developed in volcanics of the Rossland Formation close to the monzonite contact. Four properties collectively known as the Le Roi Mine and confined to an area 600 metres by 1200 metres produced approximately 6.2 million tons of ore to a depth of approximately 500 metres with a recovered grade of 0.47 oz/ton Au, 0.6 oz/ton Ag and 1% Cu between 1891 and 1941.

The Bluebird-Homestake claim group is located on the southern margin of the Rossland monzonite approximately 2.3 kilometres southeast of the Le Roi-Centre Star area. A number of geological features appear to be common to the two localities:

- 1. proximity to the Rossland monzonite contact;
- 2. volcanic host lithologies of the Rossland Formation;
- 3. high intensity of shearing and high frequency of occurrences;

- 4. sulphide mineralization developed along east-west shear structures;
- north-south fault structures and dikes which localize mineralization;
- 6. gold-bearing chalcopyrite-pyrrhotite mineral assemblage.

Some of the mineralization on the Bluebird-Homestake claim group is characterized by an unusual mineral assemblage for the region. This assemblage, tetrahedrite-galena-sphalerite-boulangerite, could possibly represent a vertical zonation above a chalcopyrite-pyrrhotite system.

The area of greatest surface potential at this time is that of gold-bearing chalcopyrite-pyrrhotite mineralization along the North shear zone from which drill intersections of up to 0.664 oz/ton Au and 0.91 oz/ton Ag over 2.0 metres have been obtained. The mineralization is traceable for at least 200 metres and the structure is traceable for at least 400 metres.

A second area warranting further work is the vicinity of the Gopher adit where a sample from a new trench returned 0.30 oz/ton Au and 0.36 oz/ton Ag over 1 metre. This mineralization is located along the Homestake-Gopher shear zone. Limited exploration has been carried out along this portion of the structure, and potential exists on strike and to depth.

Previous workers have calculated probable and possible reserves on the Bluebird deposit of 28,150 tons grading 0.07 oz/ton Au, 13.0 oz/ton Ag, 2.9% Pb and 4.3% Zn. The Mayflower deposit, located on the same structure, has similarly calculated reserves of 18,000 tons

grading 0.13 oz/ton Au, 3.7 oz/ton Ag, 1.5% Pb and 3.4% Zn. These deposits have been explored to a depth of only 200 to 360 feet (60-110 m). The depth potential of these zones is considered good particularly if the Au:Ag ratio increases with depth as part of a zoned system.

In the opinion of Westoll & Associates, good exploration potential exists on the property and further work is warranted. A two-phase exploration programme totalling \$540,000 is recommended as follows:

Phase I \$160,000 Phase II \$380,000

The Phase I programme is designed principally to follow-up the drill intersections on the North shear structure and to delineate additional drill targets on the Bluebird-Homestake claim group utilizing VLF-EM, magnetics and I.P. The Phase II programme is contingent upon the results of Phase I and consists of additional I.P., trenching and diamond drilling on new and existing targets as well as the extension of geophysical coverage to other portions of the land package.

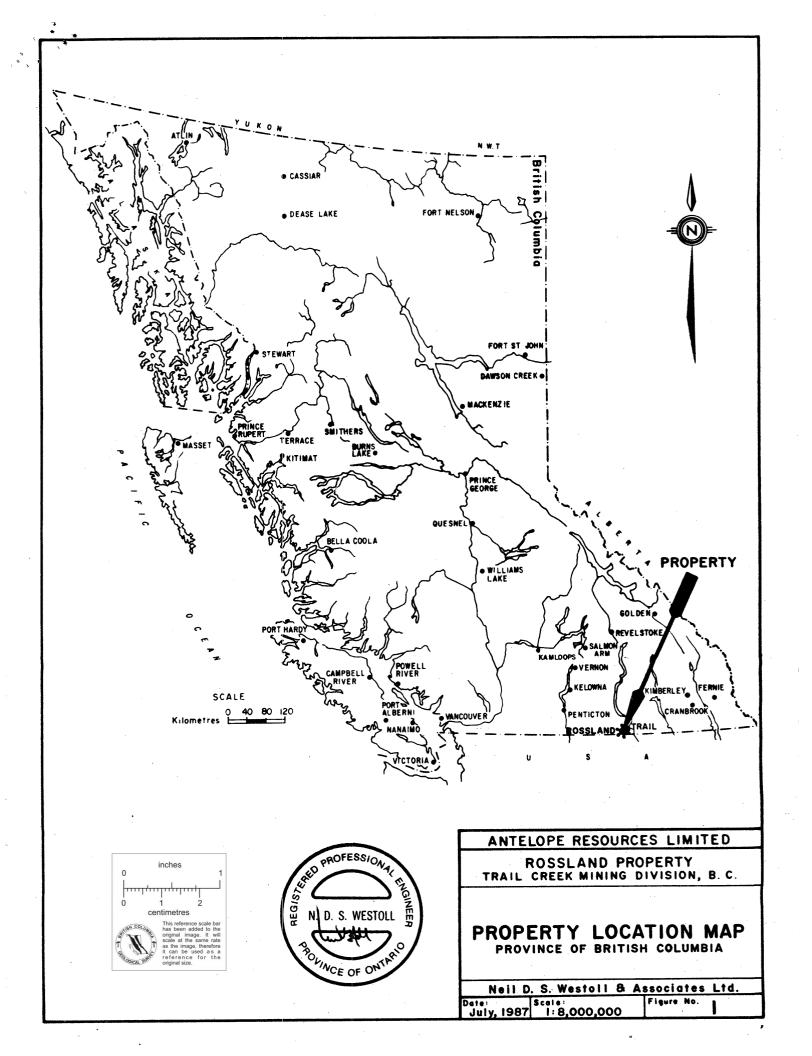
#### INTRODUCTION

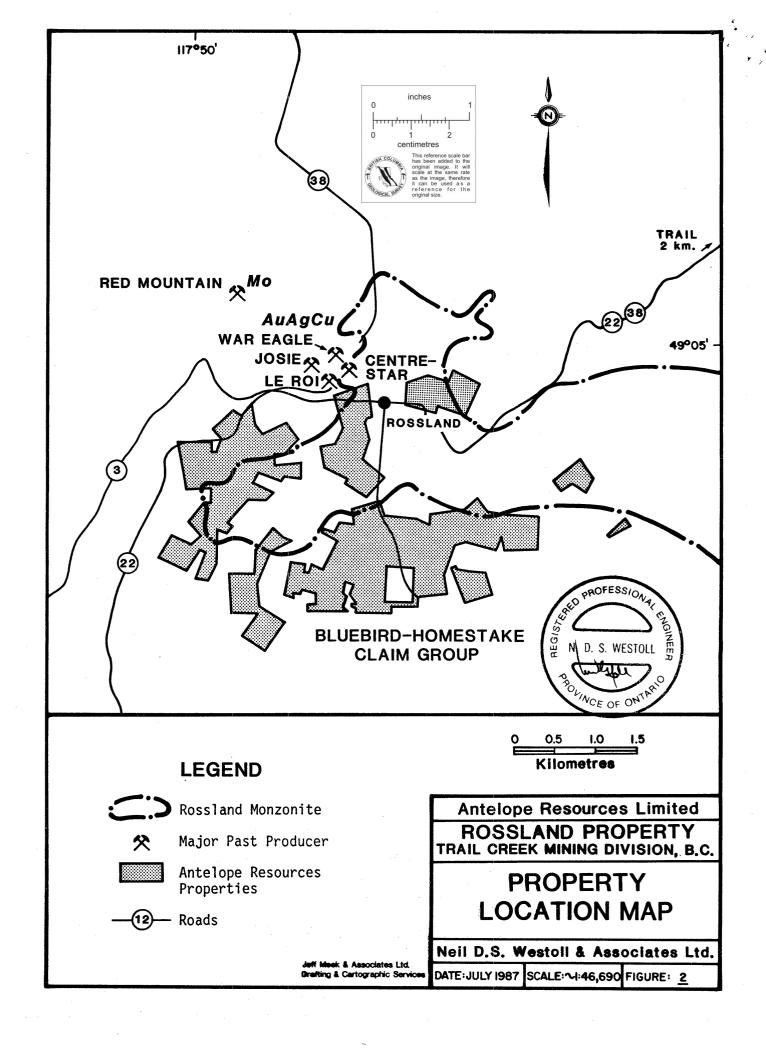
Neil D.S. Westoll & Associates Ltd. (Westoll & Associates) was requested by Antelope Resources Limited (Antelope) to review the exploration work carried out to date on the Rossland property of Bryndon Ventures Inc. (Bryndon) in British Columbia and to comment on both the surface and depth potential of the property to host economic deposits of gold mineralization. Antelope holds an option on the 45 claim property from Bryndon under which it must expend \$150,000 in exploration work in the first year and a total of \$500,000 over a 2-1/2 year period to acquire a 50% interest.

The property was visited by Dr. Westoll on June 16, 1987 with principals and consultants of Antelope and Bryndon. No independent sampling or check assaying was carried out by Westoll but drill core from previous drilling at the Bluebird was examined. No single summary report of previous work on the property was available from Antelope or Bryndon. Westoll sub-contracted various portions of the necessary data gathering to three separate individuals. geology reports and available literature on the regional geology and gold deposits of the area were reviewed by Robert Jackson of Robert G. Jackson & Associates and the geophysical reports were reviewed by John Boniwell of Excalibur International Consultants Ltd., both of whom are independent consultants. Boniwell visited the property on July 27 and 28, 1987. Because of his extensive experience in the area, Robert Yorke-Hardy of Y-H Technical Services Ltd. prepared the regional and property compilation maps. Yorke-Hardy is a Director of Antelope, and his data presentations were checked by Westoll and Jackson. report is derived from these sources of information and was prepared by Westoll and Jackson.

## LOCATION AND ACCESS

The property is located in southeastern British Columbia approximately 7 kilometres north of the United States border at latitude 49° 4' N/longitude 117° 48' W (Figure 1). It lies immediately south of, and partially within, the city limits of Rossland, which is located approximately 6 kilometres southwest of Trail, B.C. (Figure 2) and is served by major provincial highways. The nearest commercial airport is at Castlegar, some 30 km to the north. Access to the majority of the property is by way of paved roads within Rossland and a combination of gravel and 4-wheel drive roads elsewhere.





#### PROPERTY DESCRIPTION

The property consists of 56 claims assembled in eight contiguous groups (Figure 3). Of these, 45 are Crown granted mineral claims under option from Bryndon by an agreement dated June 3, 1987. The remaining 11 claims were staked by Antelope. The claims, covering a total of 1349.57 acres (546.15 hectares), are listed in Table I. Ground inspection of several of the claims staked by Antelope (Antelope fractions 3, 4, 6 and 7) was undertaken by Westoll.

Relief on the Bluebird-Homestake claim group is approximately 1200 feet (365 m) with moderate grades allowing for bulldozer access. The portals of the Mayflower and Bluebird workings are between 2800 and 3000 feet (850-915 m) above sea level. The property is snow covered for about four months of the year.

The area has been affected by continental glaciation. Two ice directions have been recorded with the final advance being south to southwest. A thin but relatively pervasive till cover exists on the Bluebird-Homestake claim group and till thickness is generally in the order of 3 to 8 metres. Consequently, outcrop is limited.

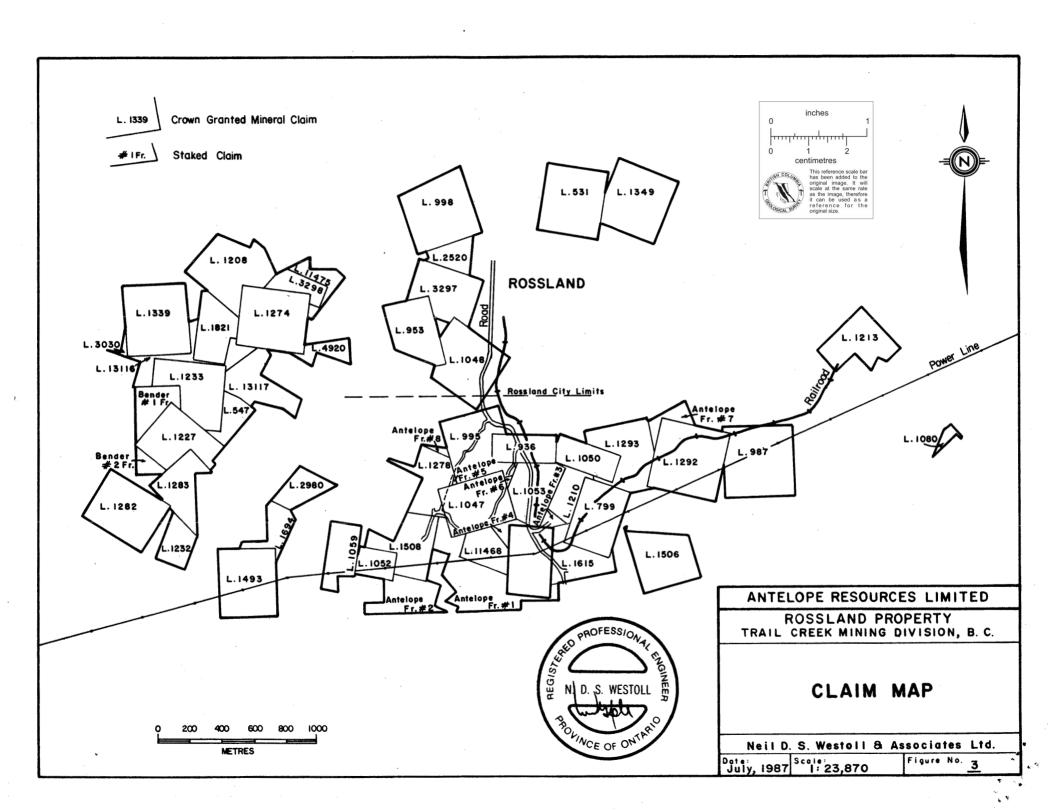


TABLE 1

List of Claims Optioned or Held

Crown Granted Mineral Claims	Lot No.		A1	Area	
Tourmaline	L.	457	4.27 ha	10.55 ac	
Paris Belle	L.	531	12.66	31.28	
Olla Podrida	L.	799	13.94	34.47	
Homestake	L.	936	8.04	19.87	
Phoenix	L.	953	12.69	31.36	
Celtic Queen	L.	987	20.36	50.30	
Monday	L.	995	15.78	39.00	
Derby	L.	998	19.51	48.21	
Hattie Brown	L.	1047	14.16	35.00	
Nest Egg	L.	1048	15.86	39.18	
Gopher	L.	1050	7.53	18.60	
Lily May	L.	1052	4.81	11.89	
Blue Bird	L.	1053	11.95	29.53	
Fairview	L.	1058	15.23	37.63	
Black Horse	L.	1059	8.22	20.31	
Little Jack Fraction	L.	1080	1.17	2.89	
St. Paul	L.	1208	16.02	39.58	
Copper Queen	L.	1210	5.50	13.60	
Venus	L.	1213	12.28	30.35	
Badger	L.	1227	13.26	32.76	
Green Crown	L.	1232	5.58	13.79	
Young America	L.	1233	14.04	34.69	
Mayflower No.2	L.	1274	18.01	44.50	
Tuesday	L.	1278	10.32	25.50	
Consolation	L.	1282	16.66	41.16	
Camp Bird	L.	1283	9.40	23.23	
Robert E. Lee	L.	1292	20.90	51.65	
Maid of Erin	L.	1293	13.09	32.35	
Rainy Day	L.	1339	18.51	45.75	
Golden Dawn	L.	1349	18.15	44.85	
Rhoderick Dhu	L.	1493	17.81	44.00	
Alfe	L.	1506	14.02	34.65	
Richmond	L.	1508	12.53	30.96	
Red Eagle	L.	1615	9.19	22.71	
Modena	L.	1694	5.35	13.21	
Black Rock	L.	1821	9.61	23.74	
Spitzee Fraction	L.	2520	4.01	9.91	
Esmeralda Fraction	L.	2980	6.25	15.45	
Fool Hen	L.	3297	12.60	31.14	
Tat Fraction	L.	3298	4.59	11.33	
Ella Fraction	L.	4920	3.57	8.81	
Alcome Fraction	L.	11468	6.95	17.18	
St. Peter Fraction	L.	11475	4.49	11.09	
Snowflake Fraction	L.	13116	5.83	14.41	
Friday	L.	13117	10.63	26.27	
			505.33 ha	1248.69 ac	

Table 1 (continued)

# List of Claims Optioned or Held

Claims Staked by Antelope	Record No.	Area	
Antelope # 1 Fr.	1001	16.30 ha	40.28 ac
Antelope # 2 Fr.	1002	8.97	22.17
Antelope # 3 Fr.	1003	1.12	2.77
Antelope # 4 Fr.	1004	1.47	3.63
Antelope # 5 Fr.	1005	0.11	0.27
Antelope # 6 Fr.	1006	0.26	0.64
Antelope # 7 Fr.	1007	2.88	7.12
Antelope # 8 Fr.	1016	0.53	1.31
Bender # 1 Fr.	1017	6.35	15.69
Bender # 2 Fr.	1018	1.86	4.60
		39.85 ha	98.48 ac

# Reverted Crown Grant picked up by Antelope

Jumbo No. 3 Fr.	L. 3030	0.97 ha	2.40 ac
	(Record No. 1000)		

TOTAL AREA <u>546.15 ha</u> <u>1349.57</u> ac

#### EXPLORATION HISTORY

The history of the discovery and development of mineral deposits in the Rossland area is described by Drysdale (1915) and summarized by Gilbert (1948) and Little (1982). The exploration and development history of the Antelope properties, in particular the Bluebird-Mayflower claim group, is described in detail by Sampson (1986). The following is an historical summary based on these sources.

## Regional History

- 1887 to 1889 Discovery of Au and Ag on the Lily May claim by Oliver Bordeau and Newlin Hoover. This claim, originally staked in the 1860's, was the first claim in the district.
  - 1890 Discovery of Au and Cu on the Le Roi, Centre Star and War Eagle claims by Bourgeois and Morris.
  - 1891 First ore shipment from the Le Roi Mine.
- 1894 to 1928 Increase in annual production of Le Roi and other mines from 1,800 tons to a peak of 360,000 tons in 1903.
  - Average annual production of 286,000 tons between 1903 and 1917.
  - Decline in production after 1917 and eventual closure of the main mines (Le Roi, Centre Star and War Eagle) in 1928.

- 1937 to 1941 An additional 137,000 tons mined by leasers.
- 1901 to 1941 Intermittent production of Au and Cu at the Velvet
  Mine (8 km southwest of Rossland).
- 1966 to 1972 Molybdenum production on the Coxey claim by Red Mountain Mines Ltd.
  - 1981 Airborne magnetic and electromagnetic survey of the area by Apex Airborne Surveys Ltd.

## Property History

- 1889 to 1938 Claims staked and worked by a number of different owners: Mayflower (1889), Homestake (1890), Bluebird (1900).
  - Limited underground development and production (535 tons).
  - 1947 Major portion of the present land package assembled by Rossland Mines Ltd.
- 1948 to 1956 Exploration and underground development work leading to calculation of ore reserves and a mill feasibility study.
  - Production of 1,077 tons of ore from the Bluebird-Mayflower zone.
- 1962 to 1967 Ground electromagnetic, magnetometer, potentiometer and soil surveys of selected claims under various

### Neil D.S. Westoll & Associates Ltd.

option agreements, including Noranda Inc. and Northwood Mining Ltd.

- 1972 to 1980 Ross Island Mining Co. Ltd. (previously Rossland Mines Ltd.) leased the Bluebird-Homestake area claims to Standonray Mines who produced 6,450 tons of ore from the Bluebird zone.
- 1981 to 1986 Bryndon Ventures Ltd. (previously Ross Island Mining Co. Ltd.) commissioned C. Sampson to compile development and production reports and update ore reserve calculations.
  - Bryndon established 16 km of grid on the Bluebird-Homestake group of claims and carried out a VLF electromagnetic survey.
  - 530 metres of trenching and 631 metres of diamond drilling on the Homestake-Gopher, Bluebird-Mayflower, and North shear zones carried out by Bryndon.

Summary of 1985/86 Drill Results from the North Zone

Table 4

Drill Hole	Depthm	Width m	$\frac{Au}{oz/ton}$	$\frac{Ag}{oz/ton}$
85-1	8.99 - 9.59	0.60	0.369	0.50
	28.56 - 29.56	1.00	0.531	0.53
85-2	46.26 - 46.76	0.50	0.223	0.30
	52.37 - 54.37	2.00	0.664	0.91
85-3	51.51 - 51.81	0.30	0.131	0.12
85-4	33.22 - 33.53	0.31	0.133	1.11
	38.10 - 38.71 53.95 - 54.25	0.61 0.30	0.259 0.120	0.41 0.30
0.6.6	(	0.61	0.226	0.12
86-6	6.40 - 7.01	0.61	0.326	0.13
86-7	10.36 - 10.97	0.61	0.646	0.88

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### REGIONAL GEOLOGY AND GOLD DEPOSITS

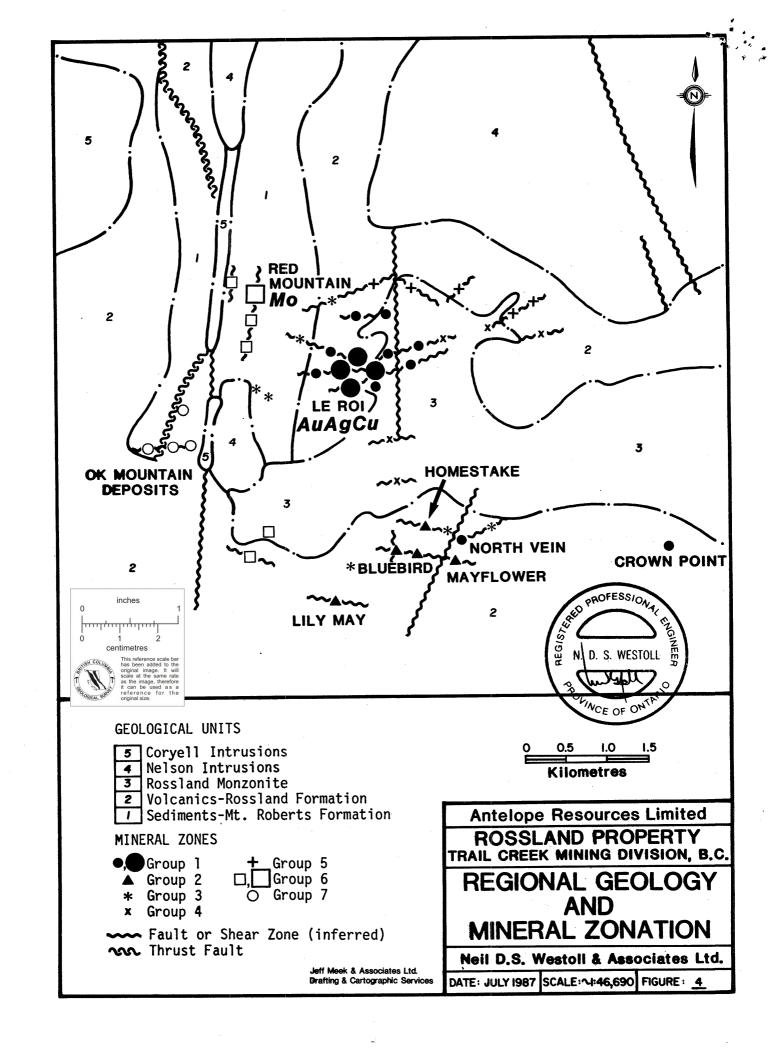
## Regional Geology

The rocks of the Rossland area (Figure 4) consist of Carboniferous siltstone, argillaceous quartzite and slate of the Mount
Roberts Formation, which are unconformably overlain by Lower Jurassic
volcanic flows, agglomerates, and tuffs of the Rossland Formation
(Little, 1982). Contemporaneous with the volcanism were intrusions of
augite porphyry sills and, southwest of Rossland, an ultramafic body.
The volcanic sequence has a regional north-south trend with dips
usually to the west.

These rocks have been intruded by the Rossland monzonite and Nelson plutonic suite of Upper Jurassic age. These intrusions are closely associated with the ore deposits of the area. The Rossland monzonite is an east-west trending elongated stock which plunges north to northwest. The Nelson granodiorite and diorite intrusions, which outcrop to the northeast of Rossland, are believed to underlie the area of the known ore deposits (Le Roi-Centre Star). Numerous diorite and lamprophyre dikes related to this instrusion cut the country rock and the Rossland monzonite.

During the Tertiary period, the Coryell alkaline syenite, Sheppard granite, and associated dikes intruded the area. These appear to be post-mineralization.

Major structural features in the area are poorly evident due to the lack of outcrop. Based on underground and geophysical information, there appear to be two main fracture directions: an east-west set of shears dipping north and a north-south set of faults dipping steeply east. The latter are frequently occupied by dikes and some-



# APPENDIX II

Certificates of Qualifications

## CERTIFICATE OF QUALIFICATIONS

As an author of this report on the Rossland Property of Antelope Resources Limited, I hereby make the following statements:

- My name is Neil D. S. Westoll and I am the Principal of Neil D. S. Westoll & Associates Ltd. My office address is Suite 507, 80 Richmond Street West, Toronto, Ontario, M5H 2A4.
- 2. I am a graduate of the University of Edinburgh, Scotland, having received a B.Sc. (Hons.) in Geology in 1963, and a Ph.D. in Geology in 1968.
- 3. I have been practising as a professional geologist for over seventeen years.
- 4. I am registered as a Professional Engineer in the Province of Ontario. I am a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.
- 5. This report is based on my personal review of technical reports and other data, both published and unpublished, and on other information supplied by Antelope Resources Limited. I have visited the property.
- 6. I have neither received, nor do I expect to receive, any interest, direct or indirect, in the properties of Antelope Resources Limited and I do not beneficially own, directly or indirectly, any securities of Antelope Resources Limited or any affiliate thereof.

Toronto, Ontario August 18, 1987.

Neil D. S. Westoll

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## CERTIFICATE OF QUALIFICATIONS

As an author of this report on the Rossland Property of Antelope Resources Limited, I hereby make the following statements:

- 1. My name is Robert G. Jackson and I am a consulting geologist employed by Robert G. Jackson & Associates. My office address is 359 Broadway Avenue, Toronto, Ontario, M4P 1X1.
- 2. I have received the following degrees in geological sciences:
  - B.Sc. 1973 Queen's University, Kingston, Ontario.
    M.Sc. 1975 Queen's University, Kingston, Ontario.
- 3. I have been practising as a professional geologist for over twelve years.
- 4. I am a member of the Canadian Institute of Mining and Metallurgy, the Association of Exploration Geochemists, and the Prospectors and Developers Association.
- 5. This report is based on my personal review of technical reports and other data, both published and unpublished, and on other information supplied by Antelope Resources Limited. I have not visited the property.
- 6. I have neither received, nor do I expect to receive, any interest, direct or indirect, in the properties of Antelope Resources Limited and I do not beneficially own, directly or indirectly, any securities of Antelope Resources Limited or any affiliate thereof.

Toronto, Ontario August 18, 1987.

CoSut Jackson

Robert G. Jackson.

#### Neil D.S. Westoll & Associates Ltd.

Suite 507 80 Richmond Street West Toronto, Ontario M5H 2A4 (416) 362-2833

# TO THE DIRECTORS OF ANTELOPE RESOURCES LIMITED

# Consent to Use Report

Neil D.S. Westoll & Associates Ltd., of the City of Toronto, in the Province of Ontario, hereby consents to the use of its report entitled "Geological Report on the Rossland Property, B.C." dated August 18, 1987, in whole or in part, so long as it is not quoted out of context, by Antelope Resources Limited in any Prospectus or Statement of Material Fact presented to a Securities Commission.

DATED AT Toronto, Ontario, this 18th day of September, 1987.

NEIL D.S. WESTOLL & ASSOCIATES LTD.

by:

Neil D.S. Westoll, Ph.D., P.Eng.

President.