

830391

GEOLOGICAL REPORT
ON THE
PATSY GROUP MINERAL CLAIMS
NEAR HEDLEY, B.C.

Prepared for

THOMAS E. KIRK

By

W.G. SMITHERINGALE & ASSOCIATES LTD.
Vancouver, B.C.

April 21, 1982

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
INTRODUCTION	2
PROPERTY DESCRIPTION AND TITLE	2
LOCATION AND ACCESS	3
REGIONAL GEOLOGY	5
PROPERTY GEOLOGY AND MINERALIZATION	5
CONCLUSIONS	14
RECOMMENDATIONS	15
OTHER CLAIMS IN THE REGION	16
ESTIMATED COST OF RECOMMENDED EXPLORATION	18
LIST OF REFERENCES	19
CERTIFICATION	20

APPENDIX 1: Assay Certificates

FIGURES

FIGURE 1: Location Map	4
FIGURE 2: Patsy Claim, Plan of Old Workings.....	7
FIGURE 3: Patsy Claim, Lower Adit Sample Locations and Geology	8
FIGURE 4: Patsy Claim, Upper Adit Sample Locations and Geology	9
FIGURE 5: Patsy 2 Claim, Sample Locations	12

SUMMARY

1. The Patsy claim group, which consists of the Patsy, Patsy 1 and 2, Ivanhoe, B.C., Grandview, Gary and Gary 1, 2 and 3 claims, lies in the Similkameen Mining Division about 8 km by road NW of Hedley, B.C.
2. The property is underlain by folded and faulted Nicola Group rocks consisting of interbedded cherty argillite and cherty tuff and minor argillaceous limestone and andesite flows, all intruded by diorite dykes and sills.
3. Old workings on the property expose fracture filling veins several centimetres thick of semi-massive to massive arsenopyrite carrying up to several oz/ton Au, and lensy beds up to 15 cm thick of heavily disseminated to semi-massive arsenopyrite carrying up to several tenths of an oz/ton Au.
4. The property warrants exploration for wider veins and vein clusters that would provide adequate mining widths and for bodies of stratabound ore. The fact that the host rocks of the Patsy showings belong to the same group as, and in certain respects are similar to, the host rocks of the Hedley deposits is a favourable factor.
5. A two phase exploration program is recommended that will cost an estimated \$398,870.00. The first phase (\$76,245.00) consists of geological mapping, a soil geochemistry survey and trenching, and the second phase (\$307,625.00) consists of 4,500 ft. of diamond drilling. An additional \$15,000.00 is recommended for examination of 14 other claims in the Hedley area.

INTRODUCTION

The author was engaged by Mr. Thomas E. Kirk, owner of some of the mineral claims described herein and optionee of the others, to examine the Patsy claim group and to recommend an exploration program should the results of the examination warrant exploration of the claim group.

The author examined the property on November 5, 6 and 7, 1980, in the company of Messrs. T.E. Kirk and W.S. Welch. This report is based on that examination, on information published in the Annual Reports of the Minister of Mines of B.C. and on unpublished records provided by Mr. Thomas E. Kirk.

PROPERTY DESCRIPTION AND TITLE

The property consists of ten claims, the Patsy and Patsy Nos. 1 and 2, which are Crown-granted claims, the Ivanhoe, Grandview and B.C., which are reverted Crown-granted claims, and the Gary and Gary 1, 2 and 3, which are two post claims staked in 1979.

<u>Name of Claim</u>	<u>Record No.</u>	<u>Expiry Date</u>	<u>Registered Sole Owner (1*)</u>
Gary	395	Aug. 1983	Thomas E. Kirk
Gary 1	396	"	"
Gary 2	397	"	"
Gary 3	400	"	"
Ivanhoe	389	July 1983	"
B.C.	390	"	"
Grandview	391	"	"
Patsy	Lot 3404S		Laura Martin
Patsy 1	Lot 3403S		"
Patsy 2	Lot 3407S		"

*Numbers in parentheses refer to entries under References.

The Patsy, Patsy 1 and Patsy 2 claims are under option to Thomas E. Kirk according to an agreement dated August 2, 1978 shown to the writer by Mr. Thomas Kirk.

The location of the old adits on the Patsy claim were verified by reference to the number 1 location post of the Patsy claim. Posts for the Patsy 2 claim were not found. However, the adits examined correspond unmistakably to descriptions of the Patsy 2 workings in Annual reports of the Minister of Mines of B.C.

LOCATION AND ACCESS (Fig. 1)

The property is in the Similkameen Mining Division of B.C. (NTS sheet 92H/8E), about 6 km west of Hedley, at Lat. $49^{\circ}22'N$, Long. $120^{\circ}9.5'E$.

Access to the old workings on the Patsy claim is by 1 km of range land dirt road that joins Provincial highway #3 at the west end of the Similkameen River Bridge, 7.2 km northwestward from Hedley. A 0.5 km trail leads from the dirt road to the old workings. Access to the old workings on Patsy 2 is by 3.3 km of logging road up the west side of Whistle Creek and about 0.2 km of trail to the main adit on the east bank of the creek. The logging road joins highway #3 7.8 km northwestward from Hedley.

The Patsy claim group lies on a steep, moderately timbered mountain slope that is nonetheless easily traversed except for local cliffs.

REGIONAL GEOLOGY

The property and surrounding area is underlain by the Nicola Group of Late Triassic Age. In this region the Nicola Group consists of thinly interbedded to massive, generally siliceous, locally tuffaceous, quartzite, argillite and limestone, all of varying degrees of impurity (3). Small stocks, dykes and sills of gabbro and diorite intrude the Nicola Group in the Hedley-Whistle Creek area. To the north (2.5 km) and south (6 km) of the property, as well as around Hedley, the Nicola rocks have been intruded by a granodiorite batholith belonging to the Coast Intrusions.

Hedley was a recognized gold camp. The deposits there, as well as other gold showings in the area, are hosted by the Nicola Group. Between 1904 and 1955 the Nickel Plate Mine and Hedley Mascot Gold Mine produced 1,556,749 oz. of gold and 188,139 oz. of silver from 3,967,350 tons of ore (4). This production came from replacement bodies of arsenopyrite, pyrite, pyrrhotite, chalcopyrite and sphalerite in a skarn aureole formed in siliceous limestone around a gabbroic stock.

PROPERTY GEOLOGY AND MINERALIZATION

The Nicola Group in the property area consists mainly of interbedded cherty argillite and cherty tuff and of less argillaceous limestone and andesite flows or dykes. These rocks are intruded by dykes and sills of medium-grained diorite that in places have produced small zones of hornfels. The strata are folded but the scale of folding is not known. At the Patsy workings beds dip steeply northward and at the Patsy 2 workings beds dip moderately eastward. Faults with various attitudes are

present. Most commonly, however, faults strike northerly and dip moderately eastward or westward. Gold values are closely associated with heavy disseminated to massive arsenopyrite in 5 cm to 15 cm thick tabular to lenticular bodies of quartz that lie parallel to bedding and in still thinner quartz veins that cross-cut bedding.

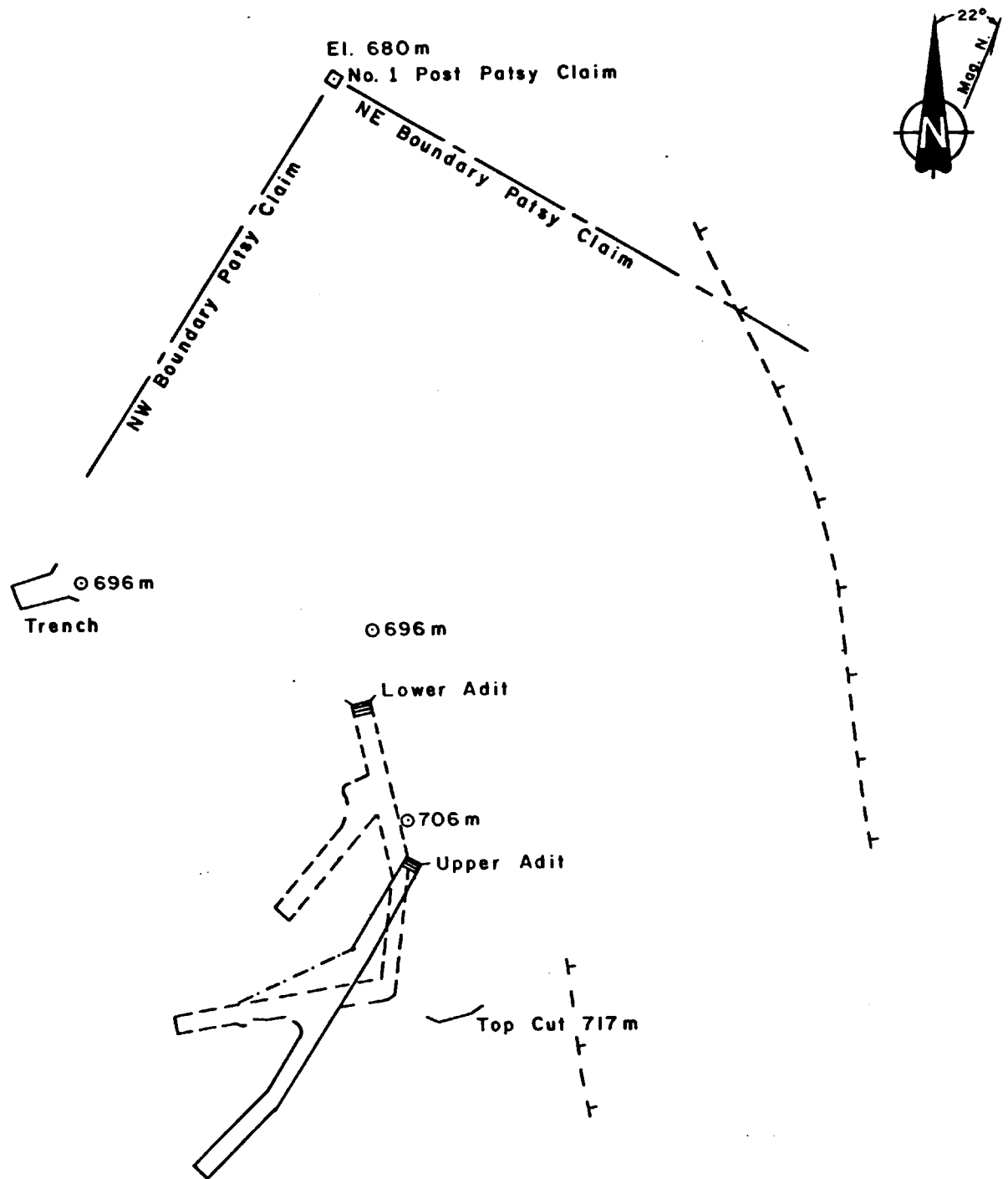
Patsy Workings (Figs. 2, 3, and 4)

The workings on the Patsy claim consist of:

1. An upper adit, 29.5 m long, driven along a vein.
2. A lower adit, driven 12 m below the upper adit, 20 m long with a cross-cut at its end driven 17 m westward to intersect the downward extension of the vein exposed in the upper adit.
3. A large cut 8 m above the upper tunnel that is the former site of an 8 m long tunnel that has been completely excavated.
4. An open cut 16 m above the upper adit, in which a vein is exposed.
5. Numerous pits and trenches west of these workings, including an open cut 18 m west of the lower adit.

The adits are accessible and the cuts and trenches are partly sloughed.

The rocks exposed in the Patsy workings and adjacent cliffs are medium to dark grey, medium-bedded to massive, cherty argillites with some argillaceous chert beds. Many beds carry abundant, very finely disseminated pyrite. In places argillites



LEGEND

- Lower Adit
- === Upper Adit
- - - Under Hand Stope, Upper Adit
- T - T Cliff Edge

FIG. 2

Scale : 1cm = 5m

PATSY CLAIM

PLAN OF OLD WORKING

To Accompany Report By W.G. Smitheringale & Associates Ltd. Dated: Ap. 21, 1982

El. 696m
4823;1.4;0.002



Assay Key

Sample No; Length; Au oz/ton

NOTE

All Samples are Continuous Chip
Approximately Perpendicular To
Fractures 30-50/15-50 NW

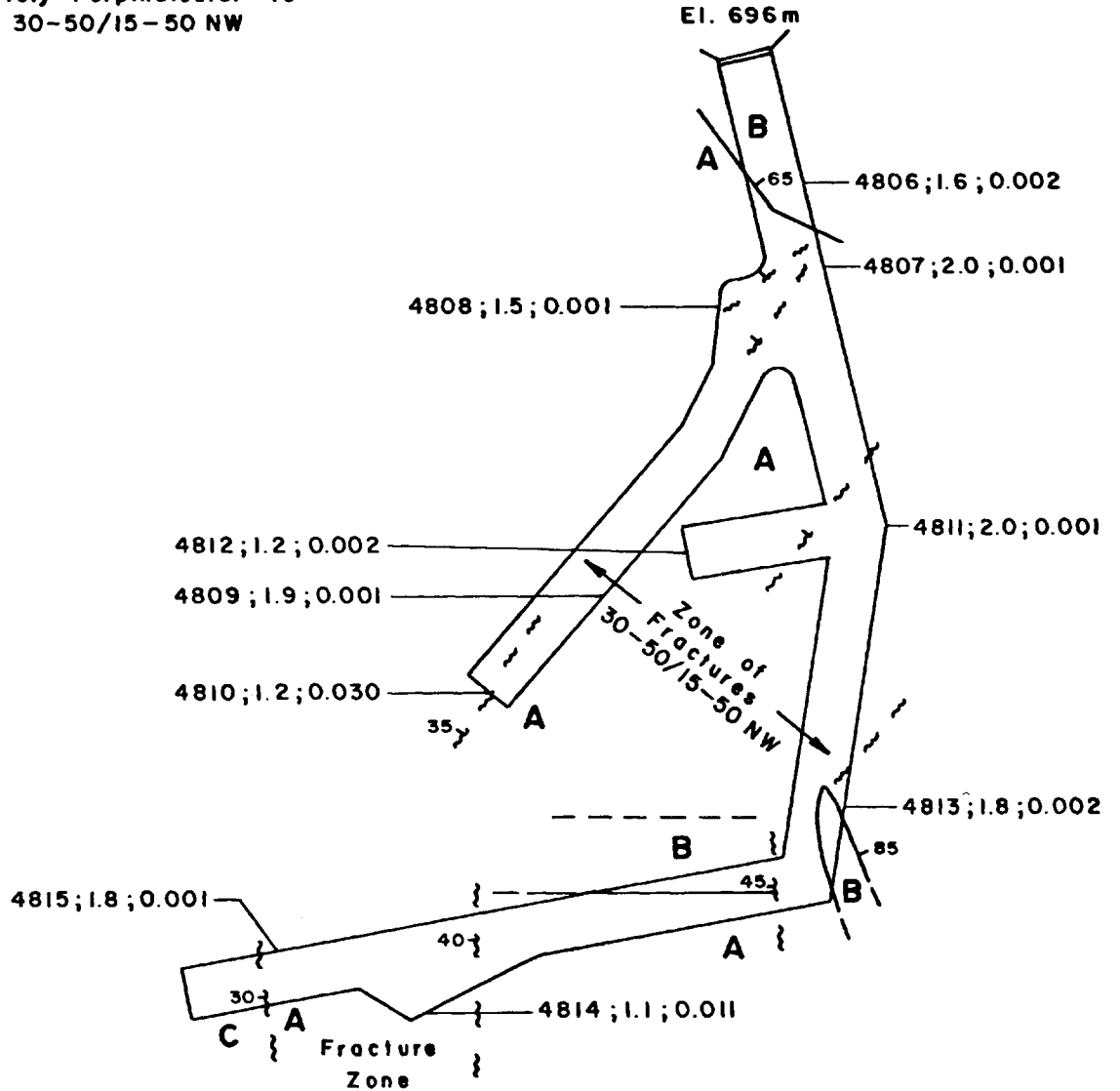


FIG. 3

Scale : 1cm = 2m

LEGEND

- A Cherty Argillite
- B Diorite Dyke or Sill
- C Andesite

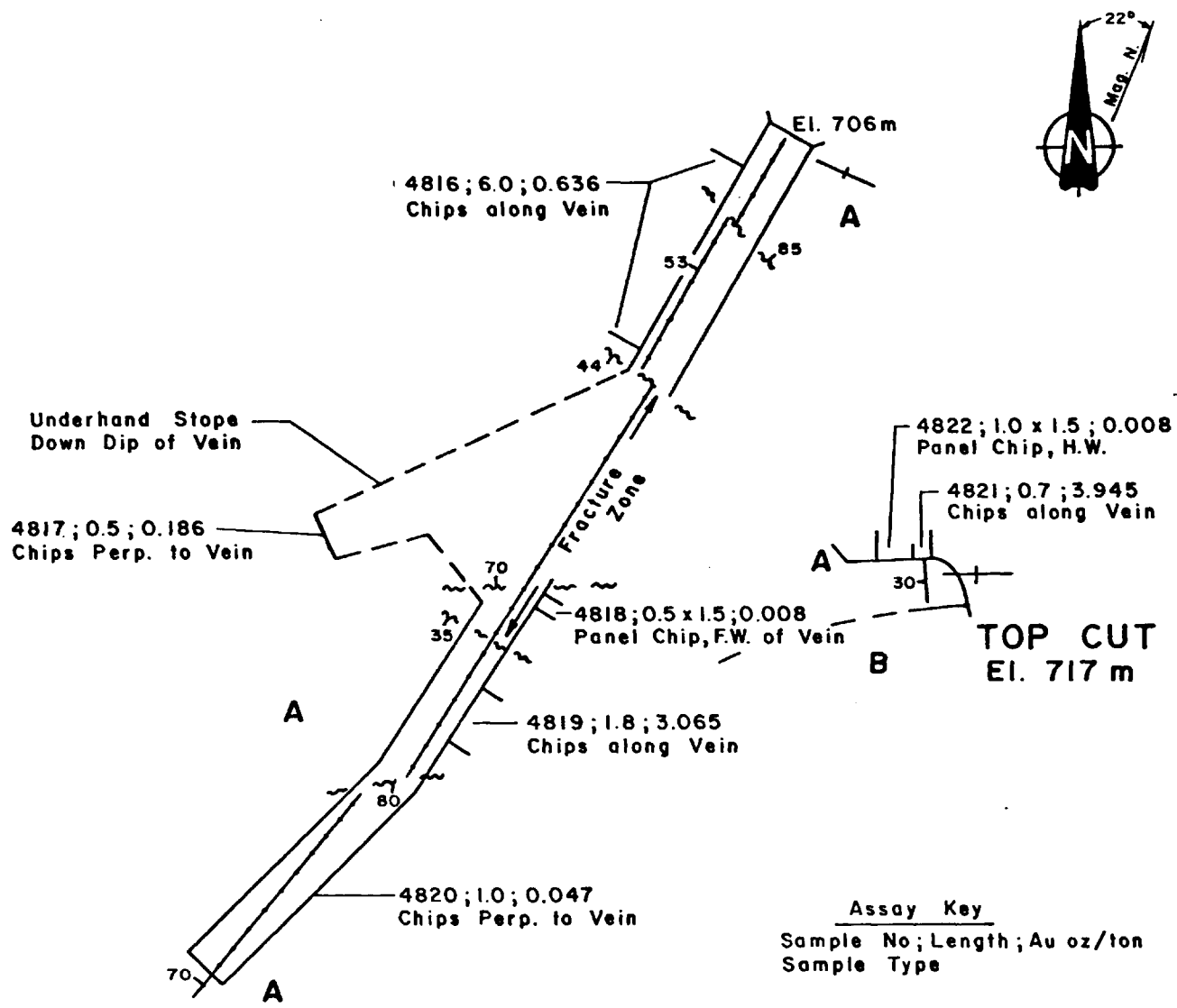
Geological Contact, Mapped, Assumed

Fault with Dip

PATSY CLAIM

**LOWER ADIT
SAMPLE LOCATIONS
AND GEOLOGY**

To Accompany Report By W.G. Smitheringale
& Associates Ltd. Dated: Ap 21, 1982



LEGEND

- A** Cherty Argillite
- B** Diorite Dyke or Sill
- Geological Contact, Mapped, Assumed
- + Bedding, Dip Vertical
- Vein with Dip
- Fault with Dip

FIG. 4

Scale: 1cm = 2m

PATSY CLAIM
UPPER ADIT SAMPLE LOCATIONS AND GEOLOGY
To Accompany Report By W.G. Smitheringale & Associates Ltd. Dated: Ap 21, 1982

have acquired a hornfelsic texture. The strata are intruded by sills and dykes of medium-grained diorite. Bedding strikes west to northwest and dips vertical to steeply northeastward.

The upper adit exposes the main vein for 29 m strike length. The vein consists of massive to semi-massive arsenopyrite in a quartz and, in places, calcite gangue. It strikes 30° - 40° , dips 53° - 70° NW and has an average width of about 3 cm. It is offset to a minor extent by numerous small faults, of which one common set strikes 290° to 340° and dips 65° to 85° NE and another common set strikes 310° to 360° and dips 30° to 45° SW.

The lower adit does not intersect the main vein, however, a narrow discontinuous stringer of arsenopyrite in quartz is exposed in several places. A strong fracture zone in the lower adit strikes 30° to 50° and dips 15° to 50° NW, approximately parallel to the main vein in the upper adit. However, this fracture zone is barren.

The cut 16 m above the upper adit exposes a 1 cm-5 cm thick (average 3 cm) arsenopyrite vein that strikes 355° and dips 30° W. The cut 23 m west of the lower adit exposes a vein of semi-massive arsenopyrite and quartz that varies from 0.5 cm to 10 cm thick, strikes 20° and dips 40° W.

It is not clear at this stage whether the Patsy workings expose one vein displaced by faults or whether several veins are present. The vein(s) clearly cross-cut the bedding, although in the adjacent cliffs several small lenses of semi-massive pyrite and/or arsenopyrite lie in bedding planes.

Samples from the Patsy workings (Nos. 4806 - 4823) show clearly that the gold values are carried by the arsenopyrite veins and that the host rocks are, for the most part, barren. Three

chip samples, representative of vein material, were taken along the strike of the vein(s). Sample 4816, from a 6 m portion of the main vein in the upper adit that averages 2 cm in width, assayed 0.636 oz/ton Au. Sample 4819, from a 1.8 m portion of the same vein that averages 4 cm in width, assayed 3.065 oz/ton Au. Sample 4821, from a 0.7 m portion of vein in the top cut that averages 3 cm in width, assayed 3.945 oz/ton Au.

Patsy 2 Workings (Fig.5)

The old workings on the Patsy 2 claim included 3 or 4 adits, several shallow shafts and a number of open cuts and pits(5). According to an unpublished company report written in the early 1930's these workings exposed mineralization over a strike length of approximately 260 m in north-south direction. The main adit is still accessible, however, most of the other workings are caved or sloughed. This adit was driven for 197 m in a direction 100° and has five north-south drifts.

Rocks exposed in the main adit, in outcrops near its portal and around the caved adit 30 m above the main adit are thin to medium bedded, intercalated, light grey cherty tuff and dark grey argillite. Bedding strikes 10° - 30° and dips 30° - 55° east.

No.1 drift north and south was driven along a 2 m thick interval of pyritic, thin bedded, very cherty tuff and minor argillite. The interval includes a horizon of massive to semi-massive pyrite and arsenopyrite in a quartz and calcite gangue that pinches and swells from 1 cm to 10 cm thickness. Assays show that gold values occur in the arsenopyrite horizon but that the

4826; 1.0; 0.244
Chips along 8cm Min. Bed

4825; 1.9; 0.009
Vert Chips, HW & FW only

4824; 1.65; 0.043
Vert. Chips

4828; 5.3; 0.057
Chips along 8cm Min. Bed

4827; 1.8; 0.002
Vert. Chips

4831; 10.0; 0.041
Chips along 10cm Min. Bed

4830; 1.45; 0.001
Chips Perp. to Bed'g

4829; 1.4; 0.003
Vert. Chips

4432; 1.7; 0.010
Chips Perp. to Bed'g



PLAN

4833; —; 0.226
Composite Grab from
10 cm Min. Bed

El. 787 m

El. 760 m

SECTION

LEGEND

- Mineralized Bed
- Bedding with Dip
- Fault

FIG. 5

Scale: 1cm = 10m

Assay Key
Sample No; Length; Au oz/ton
Sample Type

PATSY 2 CLAIM

SAMPLE LOCATIONS

To Accompany Report By W.G. Smitheringale
& Associates Ltd. Dated: Ap 21, 1982

cherty tuffs in its footwall and hangingwall are barren. Sample 4826, which comprises chips from a massive sulphide portion of the arsenopyrite horizon that averages 8 cm in width over 1 m strike, returned 0.244 oz/ton Au. Sample 4828, which comprises chips from a 5.3 m long interval of the arsenopyrite horizon that averages about 25% sulphides and about 8 cm in width, returned only 0.057 oz/ton Au. The gold content of the arsenopyrite horizon appears to vary with its sulphide content.

No.2 drift north was driven on a 1.5 m thick interval of light grey, thin bedded, very cherty tuff and/or tuffaceous chert that contains discontinuous thin laminae of massive sulphides that occasionally swell to lenses up to 10 cm thick and 1 m long. A chip sample (4831) along 10 m of a semi-massive arsenopyrite-pyrite horizon assayed 0.040 oz/ton Au, and a representative chip sample (4830) across 1.45 m containing only several thin bands of semi-massive sulphides assayed 0.001 oz/ton Au.

Drifts 3 and 4 were driven on similar intervals of pyritic, thin bedded, cherty tuff and argillite containing scattered laminae and small lenses of semi-massive arsenopyrite and pyrite.

Drift No.5 follows a 2 m thick shear zone of light grey sericite schist. From 47 m to 68 m north the footwall of this shear consists of interbedded argillaceous tuff and dark grey argillaceous limestone that is brecciated and healed with calcite and quartz. This footwall breccia contains disseminated pyrite and lenses of pyrite that dip 45°E. A representative chip sample (4432) across 1.7 m perpendicular to bedding returned 0.010 oz/ton Au.

At the caved portal 30 m above the main adit there is exposed an arsenopyrite horizon that varies from 2 cm of massive arsenopyrite to 15 cm of 30% arsenopyrite and 70% quartz. The wall rocks are cherty argillites. A composite grab sample (4833) from four places along the vein assayed 0.226 oz/ton Au.

The mineralization exposed in the main adit and the caved adit above it is stratigraphically controlled, not structurally controlled. Several mineralized horizons appear to be present, for there is no evidence of repetition by isoclinal folding or faulting.

CONCLUSIONS

1. Gold occurs with semi-massive to massive arsenopyrite in two modes:

- (a) narrow veins cross-cutting bedding, e.g. Patsy workings;
- (b) thin beds, lenses and laminae within very cherty tuff and argillite, e.g. Patsy 2 claim. This mode appears to be syngenetic, probably related to submarine volcanic processes.

2. The property warrants a comprehensive program for the following reasons:

- (a) It is underlain by the same rocks, the Nicola Group containing mafic intrusions, that host the Hedley gold camp

7 km to the east and also host another gold prospect 2.5 km to the east. Also, the sulphide mineralogy is similar to the Hedley camp, i.e. gold associated with arsenopyrite.

- (b) The presence of limey rocks in the main adit on the Patsy 2 claim raises the possibility that limestone members could be present on the property. If such were the case, it would be a favourable factor in that the mineralization at Hedley occurs in limestone skarn.
- (c) The structural style of the narrow veins on the Patsy claim is such that there is a possibility that several veins could be clustered together within a mineable width or that a single vein could widen to an adequate mining width.
- (d) If the sulphide bearing beds and lenses on the Patsy 2 claim are indeed syngenetic concentrations related to volcanism there is a possibility that the same volcanic processes may have formed large, although perhaps low grade, stratabound gold deposits.

RECOMMENDATIONS

The following exploration program is recommended for the Patsy claim group.

Stage I

1. Geological mapping
2. Clean out and sample old pits and trenches.
3. A reconnaissance soil geochemistry survey for arsenic over the entire claim group on sample lines oriented 300° and spaced 100 m apart, and with sample sites spaced 20 m apart.

4. Follow-up soil geochemistry survey for gold and arsenic in areas of anomalous arsenic on sample lines spaced 20 m and sample sites spaced 5 m.
5. Hand trench anomalies resulting from the follow-up soil geochemistry survey.

Stage II (Dependent on suitable drill targets from Stage I)

4,500 ft. diamond drilling

OTHER CLAIMS IN THE REGION

Mr. Thomas E. Kirk is the registered owner of 14 reverted Crown-granted claims in the Hedley area. All are in good standing until August 21st, 1983. The claims and their record numbers are listed below.(6)

Ruby Group

Ruby, 1213; Roddy 1212; Blue Grouse, 1204; Mule Deer, 1209; Bulldog Fraction, 1204; War Eagle, 1204.

This group is north of and contiguous to Highway 3, approximately 1.5 km northwest of Hedley.

Crackerjack Group

Alpine, 1203; Kimberly, 1203; Ready Cash Fraction, 1211; OIC Fraction, 1210; Midnight Fraction, 1208; Crackerjack, 1207.

Most of this group lies on the west side of Hedley Creek, immediately north of and partly overlapping the town of Hedley.

Billy Goat Claims

Billy Goat No.1, 1205, and Billy Goat No.2, 1206.

These claims are located on Hedley Creek about 3 km by dirt road north of Hedley.

All of the above claims are underlain by Nicola Group rocks. They are all readily accessible.

The writer has not examined these claims or made a detailed literature search for information concerning them. Nevertheless, because of their location in a well known mining camp and because they are underlain by the same group of rocks that host the Hedley gold deposits the writer believes that they warrant some preliminary work in order to assess their potential. This work would consist of a geological examination, cleaning out and sampling old pits and trenches and, where applicable, reconnaissance soil geochemistry. This work would cost approximately \$15,000.00.

ESTIMATED COST OF RECOMMENDED EXPLORATION

Patsy Group, Stage I

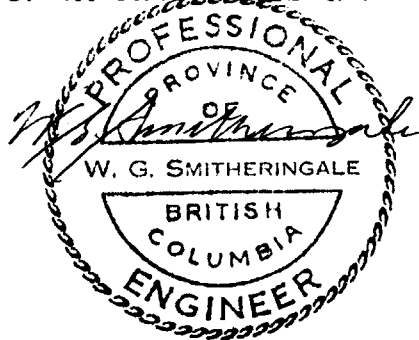
Soil Geochemistry Survey	\$ 33,000.00
Trenching	10,000.00
Geology and supervision	8,600.00
Topo map from airphotos	2,500.00
Rock assays	1,200.00
Vehicle rental and gas	3,000.00
Report and maps	4,000.00
Consultant	<u>4,000.00</u>
	66,300.00
15% Contingency	<u>9,945.00</u>
Sub Total	\$ 76,245.00

Patsy Group, Stage II

Cat road for drill access	\$ 20,000.00
4,500 ft. diamond drilling at \$55/ft., all inclusive	<u>247,500.00</u>
	\$267,500.00
15% Contingency	<u>40,125.00</u>
	\$307,625.00
Examination of other claims	<u>15,000.00</u>
Total	\$398,870.00

Respectfully submitted,

W.G. SMITHERINGALE & ASSOCIATES LTD.



W.G. SMITHERINGALE, P.Eng.

April 21, 1982

LIST OF REFERENCES

1. Oct. 30, 1980: information from files in the Mineral Titles Office, Vancouver.
2. Claim Map M92H/8E, Nov. 20, 1980: B.C. Ministry of Energy, Mines and Petroleum Resources.
3. Rice, H.M.A., 1947: Geology and Mineral Deposits of the Princeton Map-area, British Columbia, Geol. Surv. Canada Mem. 243.
4. 1955 Annual Report, B.C. Minister of Mines, p.42.
5. 1937 Annual Report, B.C. Minister of Mines, pp.D4-D8.
6. Dec. 2, 1980; information obtained by phone from the Mineral Titles Office, Penticton.

CERTIFICATION

I, William G. Smitheringale, certify that:

I am a practising Professional Geological Engineer, resident at 4611 Hoskins Road, North Vancouver, B.C.

I am a graduate of the University of British Columbia with a degree in Geological Engineering (B.Ap.Sc., 1955) and of the Massachusetts Institute of Technology with the degree of Doctor of Philosophy in Geology (Ph.D., 1962).

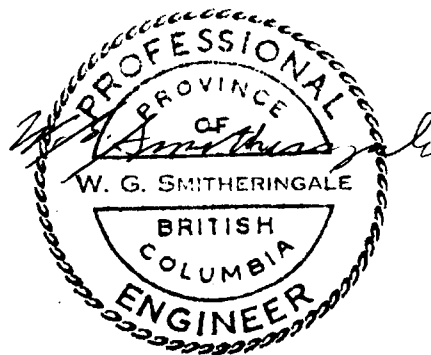
I have practised my profession continuously for twenty years as geologist with the Geological Survey of Canada, as Assistant and Associate Professor, Department of Geology, Memorial University of Newfoundland, and since 1974, as a Consulting Geologist.

I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.

The geological content of this report is based on data collected by me during November 5, 6 and 7, 1980.

I hold no interest, nor do I expect to receive any interest, in the Patsy group claims or in other claims described in this report.

I hereby consent to this report being used by Mr. Kirk in a Statement of Material Facts or a Prospectus.



W.G. SMITHERINGALE, P.Eng.

April 21, 1982

A P P E N D I X I

ASSAY CERTIFICATES

MIN-EN LABORATORIES LTD.

705 WEST 15TH STREET
 NORTH VANCOUVER, B.C.
 Phone: 980-5814

Certificate of Assay

TO: Smitheringale & Assoc.
1328-510 W. Hastings St.,
Vancouver, B.C.

PROJECT No. A
 DATE Nov. 19/80.
 File No. 0-1129

SAMPLE No.	Au			
	oz/ton			
4806	.002			
07	.001			
08	.001			
09	.001			
10	.030			
11	.001			
12	.002			
13	.002			
14	.011			
15	.001			
17	.186			
18	.008			
20	.047			
22	.008			
23	.002			
24	.043			
25	.009			
27	.002			
29	.003			
30	.001			
4832	.010			

MIN-EN Laboratories Ltd.

CERTIFIED BY

