

GEOLOGICAL MAPPING & PROSPECTING ASSESSMENT REPORT

BURN PROPERTY

Fort Steele Mining Division, B.C.
NTS 82 F/9E

Latitude 49° 36' N
Longitude 116° 07' W

for

BLACK BULL RESOURCES (B.C.) LTD.

1703 - 591 W. 57th Ave.
Vancouver, B.C.
V6P 1R9

BY

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January, 1999 GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25.808

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1.00 INTRODUCTION

The Burn claim group was staked in 1997 at the request of J. Macdonald of Black Bull Resources (B.C.) Ltd., to cover known stratiform zinc mineralization within the Aldridge Formation. The property occurs only 14 km south southwest of the Sullivan orebody, one of the world's largest zinc-lead-silver deposits. Mineralization at the Burn claims is recognized as being very similar to distal mineralization of the Sullivan.

Stratiform zinc mineralization was found in float in the area in 1991 and led to acquisition of mineral claims by Chapleau Resources Ltd., Barkhor Resources Ltd. and Kokanee Explorations Ltd., with ensuing exploration programs up to 1997 totaling more than \$460,000.

1.10 Location and Access

The Burn claims are located approximately 12 kilometers southwest of Kimberley, B.C., on the south side of the St. Mary River and immediately east of St. Mary Lake (Fig. 1), centered approximately at 49° 36' north latitude and 116° 07' west longitude on NTS reference map 82 F/9E.

Access to the property from Kimberley or Cranbrook is via the River Road which follows the St. Mary River east of St. Mary Lake and crosses parts of the claim group. The lower Angus Creek Forestry Road also crosses the claims and a recently constructed spur off this road crosses the claims at higher elevation. Other minor forest access roads provide further local access but parts of the central portion of the claims are within steep north-facing rugged mountain slopes and must be accessed on foot.

1.20 Property

The Burn property consists of 71 two-post mineral claim units in two contiguous blocks, covering a combined area of 1775 hectares (Fig. 3). The claims were staked from October 22 to 26, 1997 by D. L. Wood of Vancouver, B.C., and are held in trust for Black Bull Resources (B.C.) Ltd.

1.30 Physiography

The Burn claim groups are within the Moyie Range of the Purcell Mountains, on the south side of the St. Mary River valley just east of St. Mary Lake. The topography is generally rugged and mountainous with steep to moderate north-facing slopes ranging from 1100 to 2100 meters in elevation. Forest cover is a mixed assemblage of relatively mature pine, fir

and larch with cottonwood and birch at lower elevations. Small portions of the lower elevation areas have been logged in recent years.

1.40 Mineral Exploration History

Prior to 1979 Cominco Ltd. recognized the presence of a large fragmental located just west of St. Mary Lake which is at equivalent stratigraphy to the Sullivan orebody. The fragmental is exposed at lower elevations on both sides of the St. Mary valley. Most of Cominco's early work on this exploration target has not been reported on in publicly available assessment reports.

- 1979 Cominco Ltd. (AR 7676) reported on diamond drill hole C79-1 which tested the Clair fragmental on the south side of the St. Mary valley.
- 1981 Cominco Ltd. (AR 10,311) reported on diamond drill hole C81-1 which tested the Clair fragmental on the north side of the St. Mary valley.
- 1984 BP-Selco (Assessment Reports 13,108 & 13,871) conducted a program of soil sampling and geological mapping on the Pinetree claims as a follow-up program to a tin anomaly detected by regional stream sampling in 1983. The soil survey outlined a 500m by 100m tin in soil anomaly roughly coincident with the eastern extrapolation of the later discovered stratiform zinc Horn horizon. Follow-up detailed sampling showed that some pegmatite dikes in the survey area are anomalous in tin.
- 1985 Cominco Ltd. (AR 13,828) conducted a UTEM survey over the Clair fragmental and the strike extent of the lower-middle Aldridge contact on the south side of the St. Mary River.
- 1987 Esso Minerals Ltd. (AR 16,971) worked on the MAC claims which covered St. Mary Lake and small areas to the north, south and west. Their work included geological mapping over the Clair fragmental which occurs at the same stratigraphy as the Sullivan orebody. They collected and analyzed 32 stream sediment samples, 2 heavy mineral samples and 40 rock samples. One sample from a gabbro boulder with quartz veining returned .083oz/ton Au, 0.1oz/ton Ag, 8823 ppm Cu and 159 ppm Zn.
- 1991 The Darlin claims were staked based on a prospecting discovery of zinc-mineralized float along the lower Angus Creek Forestry Road. Chapleau Resources Ltd. and Barkhor Resources Ltd. optioned the property and in turn optioned it to Kokanee Explorations Ltd. who conducted a work program of line cutting, soil geochemistry, surface geophysics and 3025.6 meters of diamond drilling in 13 holes, D91-1 to D91-12 and D91-14. Some of the drill holes were tested by a borehole UTEM survey. The soil geochemistry and surface and downhole geophysical surveys have not been publicly reported on although the writer has reviewed the data in company files. Assessment report 22,799 (Pighin, 1992) reports only on diamond drill holes D91-1,2,3 and 6. No Report was filed on the

remaining 9 drill holes.

Kokanee Explorations Ltd staked the Horn claims, a large block surrounding the Darlin property and extending for about 8 km to the west, to cover previously identified soil geochem anomalies they were aware of.

Minnova Inc. optioned the Horn claims from Kokanee.

1992 Minnova Inc started their evaluation of the Horn property with a program of 61 km of line cutting, geological mapping, prospecting, 521 soil samples, 363 rock sample analyses, 49 core sample analyses, 12 km of ground Pulse EM geophysics, 22 km of ground VLF-EM / Mag geophysics and 2085.1 meters of diamond drilling in 6 holes, H92-1 to H92-6. Five of these holes, H92-1 to 5 were drilled on or very close to the present Burn claims and were reported on by Burge, 1993 (Assessment Report 22,799) Prospecting located a bedrock exposure of the stratiform zinc mineralization which is now referred to as the Horn horizon. Two of the drill holes successfully tested the Horn horizon, while other holes tested geologic and geophysical targets. One hole, H92-4, the easternmost hole drilled, intersected approximately 100 m of strong albite-chlorite-pyrite alteration. The alteration zone may be related to a fault structure but its similarity to hangingwall alteration at the Sullivan orebody requires a careful evaluation.

1993 Metall Mining Corporation (formerly Minnova) continued their evaluation of the Horn property with a program of 10 km of line cutting, geological mapping, 188 soil samples, 66 rock sample analyses, 105 core sample analyses, 11 km of ground Pulse EM geophysics and 1438 meters of diamond drilling in 2 holes in the western part of the property. The western two drill holes tested a Pulse EM anomaly and intersected a thick, complex section of the Clair fragmental which was not expected in the drill holes based on surface geology. Fracture zinc and lead mineralization is present in both drill holes.

These results showed that the Clair fragmental extended further south than was previously known and that the fragmental was better mineralized in these drill holes than in Cominco's 1979 drill hole which tested the fragmental on the south side of the St. Mary River. Metall then conducted a down hole EM geophysical survey which detected a strong off hole anomaly.

1994 Consolidated Ramrod Gold Corp. (formerly Kokanee Explorations Ltd.) deepened diamond drill hole H92-3 which was originally drilled to test a geophysical anomaly but was in position to be deepened to test the Horn horizon zinc mineralization. The hole was deepened from 343.2m to 752.1m for a total of 408.9m (Pighin, 1995, AR 23,911) and intersected three narrow zones of zinc mineralization, confirming a significant areal extent to the zinc mineralized Horn horizon.

1996 Quest International Resources Ltd. (formerly Consolidated Ramrod Gold Corp.) drill

tested the off hole EM anomaly detected by Metall Mining Corp. in 1993 on the western Horn property. The hole was drilled to 745.7 m and intersected a narrower zone of fragmental than in DDH H93-7 and 8, with minor base metal sulfides and graphite in brecciated fault zones and shears.

1.50 Scope of Present Work

The Burn Claims have seen two previous work campaigns both of which were terminated following short hole drilling programs. New work was conducted with the hope of delineating new exploration horizons, also, one previous target area was re-evaluated.

2.00 REGIONAL & PROPERTY GEOLOGY

Geological mapping involved only two days of fieldwork which briefly examined the outcrops along or proximal to a relatively new logging road. In total about 10 sq. km was traversed by the road with the mapping done at a scale of 1:10,000. The claims covered by this work include Burn 15 to 20 and Burn 31 to 44.

The Burn property is underlain by the Aldridge Formation, part of the Purcell Supergroup. The rocks, together with correlative stratigraphy in the United States, comprise a thick sequence of fine grained clastic and carbonate rocks of Middle Proterozoic age. The Aldridge Formation is the lowermost of the Purcell Supergroup and its base is not exposed.

The Aldridge Formation is informally divided into three units; Lower Aldridge which is rusty weathering, thin to medium bedded quartz wacke through argillite; Middle Aldridge which is grey to rusty weathering, dominantly medium bedded quartz wacke to quartzitic wacke; and Upper Aldridge which is very rusty weathering, laminated to thin bedded, interbedded argillite and siltstone. These rocks are composed predominantly of quartz, plagioclase, muscovite, biotite and chlorite. They are regionally metamorphosed to biotite and garnet zone greenschist facies.

Aldridge Formation rocks are intruded by Moyie Intrusions, gabbro to diorite composition sills and dykes which are common within the Lower Aldridge and lower half of the Middle Aldridge. Narrow lamprophyre dykes of Cretaceous age are present through most of the Aldridge terrain. Generally small Cretaceous granitic intrusions are present within the Purcell Supergroup rocks, commonly spatially related to major fault structures. In the vicinity of the Burn claims, Aldridge rocks are also intruded by the Precambrian Hellroaring Creek pegmatite stock and associated narrow dykes and sills.

The Aldridge Formation is conformably overlain by the Creston Formation which consists of up to 2,000 m of medium to thick bedded white, green and maroon quartzites and argillites of generally shallow water regime. The Creston is in turn overlain by the Kitchener Formation which consists of about 1,200 m of dolomitic siltstones and argillites.

The Sullivan orebody of lead, zinc and silver occurs near the top of the Lower Aldridge

formation. The adjacent stratabound North Star and transgressive Stemwinder deposits, located just south of the Sullivan Mine, are hosted by Lower Aldridge rocks. The Horn (multiple pyrrhotite \pm sphalerite units to 10 cm thick) occur within the Lower Aldridge at an undetermined stratigraphic level.

On the property, Lower Aldridge metasediments of thin to medium bedded metasiltstone, phyllitic siltite, phyllitic argillite and muscovite schist dominate. There are some sequences of grey weathering, thin to medium bedded quartzitic wackes to siltstones which may be Middle Aldridge but this has not been determined. Bedding on the west side of the Burn strikes northwest, dipping shallowly to moderately to the east with some variations. To the east the dips change to northerly then dip to the west. This suggests a large syncline may core the property. There are numerous gabbro intrusions but their orientations and correlations from one outcrop to another remain in doubt. There are pegmatite sills and dykes, generally less than 2 m in thickness which consist of coarse feldspar, muscovite, quartz and minor tourmaline.

A major shear zone is exposed by the road. The shear in gabbro and sediments is west dipping about 50 to 60 degrees and has accompanying folding. Movement on this structure has not been determined but preliminary indications suggest it is a thrust fault.

No showing of sulfides of significance was located by this preliminary mapping. Some of the sediments are quite pyrrhotitic however.

3.00 PROSPECTING REPORT

Previous exploration programs have confirmed the existence of exhalative, iron-rich, base metal horizons in stratigraphy mapped as Lower Aldridge sediments. Though these conformable zones are narrow (widest intercept 0.10 m) they have been traced successfully by soil geochemistry and short hole drilling. These strataform lenses have a known strike length in excess of 2 km.

The 1998 summer work program concentrated activity in the northern and southwestern portions of the Burn claim block. The area prospected straddles a steep northwest striking syncline which has been delineated by previous geological mapping.

The major prospecting problem encountered on the Burn claims is the lack of sustained outcrop. This factor is very evident on the northwestern part of the property. Here most outcrops encountered are gabbros dominating topographic highs. Topographic highs are sporadic which makes gabbro correlation a best guess effort.

Features of interest encountered during the 1998 prospecting program:

- 1) Granophyre;
- 2) Iron-rich bedrock horizon;
- 3) Sulphide-rich sedimentary float (minor base metals);
- 4) Intrusives - gabbros & pegmatites.

1) **Granophyre**

Possibly the most intriguing discovery made during the prospecting program was that of two confirmed occurrences of granophyre. Granophyre is recognized within the gabbro complex (mine sill) which underlies the Sullivan orebody, 14 km to the northeast. Both outcrops prospected had zones in which clasts were noted, these clasts, though altered and similar in make-up to the matrix, do show faint but distinguishable boundaries. The granophyre is mostly made of quartz, biotite, and feldspar with varying amounts of iron sulphide. The outcrop on Routes 1 and 2 has a number of very iron-rich zones in which both pyrrhotite and pyrite are abundant, chalcopyrite is also quite common. Of most potential significance is that this outcrop has abundant disseminations of arsenopyrite in the more iron-rich zones. Another positive feature is the existence of quartz vein float containing massive sulphide lenses. The massive sulphide is pyrrhotite, chalcopyrite along with minor amounts of arsenopyrite. Where these veins were encountered in outcrop they were striking in a northwest direction, similar to weak but prevalent shearing noted within the package. The granophyre in this area seems to be structurally controlled as it pinches out to the east while thickening to the west before being lost in the overburden. A poorly exposed outcrop of Lower Aldridge phyllitic siltstone and muscovite schist, with minor fine-grained quartzite seems to be in contact with the granophyre hangingwall. An actual contact was not seen owing to the poor exposure. One narrow quartzite package within this sedimentary sequence was obviously more iron-rich. The abundant pyrrhotite section was accompanied by increased silicification, sericite, albite and chlorite alteration. Some rare disseminations of zinc mineralization were noted within this alteration. Again, due to poor exposure this horizon could not be traced along-strike east or west.

The granophyre encountered on Route 4 has a 5 m wide pegmatite sill on it's hangingwall with thin bedded phyllitic siltstones and muscovite schists on it's footwall. The granophyre is in excess of 20 m wide and contains abundant blebs and clusters of pyrrhotite. The more iron-rich zones contain disseminations of fine grained chalcopyrite, no arsenopyrite was noted. One hand sample from the outcrop did contain a small amount of lime green pyromorphite crystals in a quartz-rich vug. The pegmatite hosts rare blebs of galena in zones with yellow pyromorphite crust, this mineralization occurs close to the pegmatite granophyre contact.

2) **Iron-rich Bedrock Horizon**

Northeast of the granophyre on Route 4 you contact a quartzite dominated sequence of silicified pyrrhotite-rich rocks. This package overlies thin bedded phyllites and mica schists. These thin bedded rocks are rusty, sheared and slightly folded. Narrow chloritic limonite-rich quartz veins are commonly associated with more iron-rich shear plains within this stratigraphy. The pyrrhotite-rich quartz sequence is hosted within a 50 m thick sediment panel. Individual iron-rich quartzite beds reach widths in excess of 2 m with the majority 0.5 m or less. Pyrrhotite content within these beds exceeds 10% by volume. Rare chalcopyrite and arsenopyrite were the only other sulphides noted with the pyrrhotite.

This sedimentary horizon may represent the contact between Middle and Lower Aldridge stratigraphy. These rocks strike northwest and dip moderately to the northeast. They occupy the western flank of the northerly trending synform. A further support for Middle-Lower Aldridge

contact is that these rocks overlay the granophyre complex, this is a similar situation to what occurs at the Sullivan Corridor.

3) Sulphide-rich Sedimentary Float (minor base metals)

Two types of sedimentary float containing pyrrhotite and base metal mineralization was seen during the prospecting program.

The first type of float is similar to that found in outcrop, silicified fine grain quartzite with chlorite, sericite, albite and moderate to heavy disseminations of pyrrhotite. Some of the iron is obviously banded. The other type of float is a coarse grained quartz sand with actinolite, sericite and chlorite. The pyrrhotite is in blebs and clusters with thin threads of iron-pyrite. Minor amounts of sphalerite and galena are found along fractures or more rarely with the pyrrhotite. Mineralized float was encountered on Routes 1 and 3.

Quartz vein float with galena and sphalerite was seen on Routes 1 and 2.

4) Intrusives

Gabbro is the most abundant intrusive encountered on the property and also is the most dominant rock type on all traverse routes. Most gabbro is of standard type, dark green, fine to coarse grained, predominant hornblende, plagioclase with accessory mafic minerals. Of most interest are the iron-rich gabbros which have pyrrhotite with minor amounts of iron-pyrite and chalcopyrite. These unusual rusty outcrops are often found in association with granophyres or adjacent to structures.

Two float occurrences of abundant pieces of lamprophyre were seen along Route 2. The northern occurrence was lamprophyre made up of coarse matrix material, having clusters of ragged green mica. The other occurrence south on Route 2 is a more standard type lamprophyre, a very micaceous fine to medium grain rock. Samples tested from both locations proved non-magnetic.

Next to the gabbros, pegmatite sills and/or dykes are the most prevalent intrusives encountered on the property. They were seen on Routes 1, 2 and 3. Most sills or dykes are quite thin, usually less than 2 m in thickness. As mentioned previous, the largest pegmatite encountered was a sill in the granophyre complex on Route 4, this sill is in excess of 5 m. The pegmatites consist of very coarse feldspar, quartz, muscovite and occasionally minor tourmaline. The 5 m wide sill on Route 4 had the only base metal mineralization noted. All pegmatites had minor amounts of disseminated limonite or pyrite. Some of the mineralization occurred with very discontinuous narrow quartz veining.

4.00 CONCLUSIONS

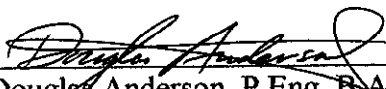
4.10 Conclusions - Geology

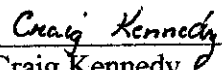
The Burn property requires considerably more mapping to gain an understanding of the stratigraphy and structure and how to correlate across the claims.

4.20 Conclusions - Prospecting

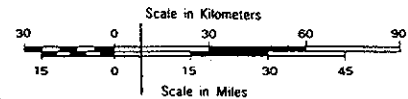
The discovery of granophyre outcrops on the Burn claims is very important for future property exploration as it provides a stratigraphic control to work from. As mentioned previous, a granophyre gabbro complex underlies the Sullivan Orebody. Previous exploration work on the Burn claims discovered stratiform ZnS/PbS mineralization which bears a close resemblance to distal mineralization of the Sullivan Orebody. The previous discovered Burn mineralization occurs 500 m east of the granophyre on Routes 1 & 2. The granophyre on route 4 underlies what possibly is the Middle-Lower Aldridge contact.

Future work should be done around both granophyres. The outcrop on Routes 1 & 2, if bedding conformable, is dipping west into the hinge area of the syncline. The granophyre on Route 4 dips east into the same hinge area. It is possible both granophyres occupy the same stratigraphic horizon making the synform a potential host for a large area of untested Middle-Lower Aldridge contact. The distal stratiform mineralization, underlying granophyre and potential Lower-Middle contact make this a very intriguing exploration target area.

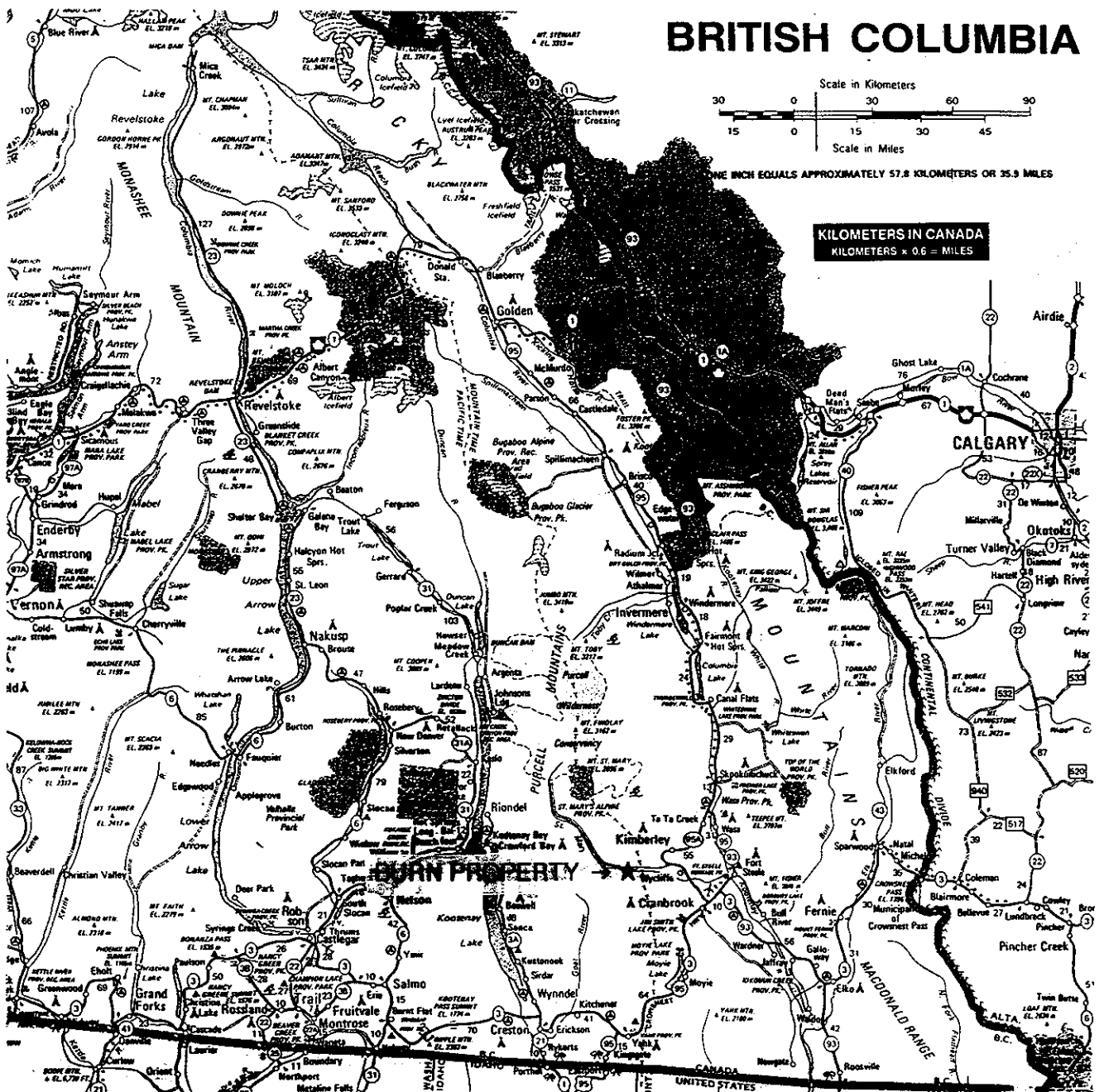
Signed: 
Douglas Anderson, P.Eng., B.A.Sc., FGAC
Consulting Geological Engineer

Signed: 
Craig Kennedy
Prospector

BRITISH COLUMBIA



KILOMETERS IN CANADA
KILOMETERS x 0.6 = MILES



BURN PROPERTY

PROPERTY LOCATION MAP

Scale: As Shown

Date:

Plate: 1



BURN PROPERTY
CLAIM MAP
NTS 82F/9E Scale: 1:31,680 Figure 2

STATEMENT OF EXPENDITURES

BURN PROPERTY

Geological Mapping & Prospecting Program

GEOLOGICAL MAPPING EXPENDITURES

Contractor

Anderson Minsearch Consulting, Cranbrook, B.C.

Geological Mapping - 2 days

Report writing & map prep - 1 day

3 days @ \$300/day

\$ 900.00

Transportation - 2 days @ \$100/day

200.00

Map Work - AutoCad

100.00

Subtotal - Geological Mapping =

\$ 1,200.00

PROSPECTING EXPENDITURES

Contractor

The Kennedy Group, Kimberley, B.C.

Prospecting

Craig Kennedy 4 days @ \$200/day

800.00

Tom Kennedy 4 days @ \$200/day

800.00

Mike Kennedy 4 days @ \$200/day

800.00

Transportation 4 days @ \$100/day

400.00

Report Writing & Map Work

Craig Kennedy 2 days @ \$200/day

400.00

Subtotal - Prospecting Costs

= \$ 3,200.00

TOTAL EXPENDITURES

= \$ 4,400.00

AUTHOR'S QUALIFICATIONS

Geological Mapping Report

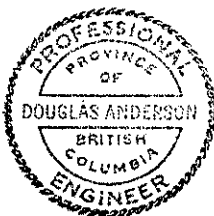
I, Douglas Anderson, Consulting Geological Engineer, have my office at 3205 - 6th St. S., Cranbrook, B.C., V1C 6K1

I graduated from the University of British Columbia in 1969 with a Bachelor of Applied Science in Geological Engineering.

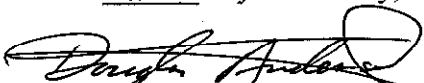
I have practiced my profession since 1969, predominantly with one large mining company, in a number of capacities all over Western Canada.

I am a Registered Professional Engineer and member of the Association of Professional Engineers and Geoscientists of B.C. and I am authorized to use their seal which has been affixed to this report.

I am also a Fellow of the Geological Association of Canada.



Dated this 13th day of January, 1999


Douglas Anderson, P.Eng., B.A.Sc., FGAC
Consulting Geological Engineer

AUTHOR'S QUALIFICATIONS

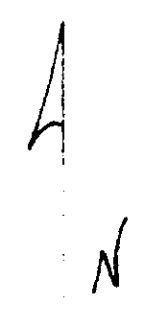
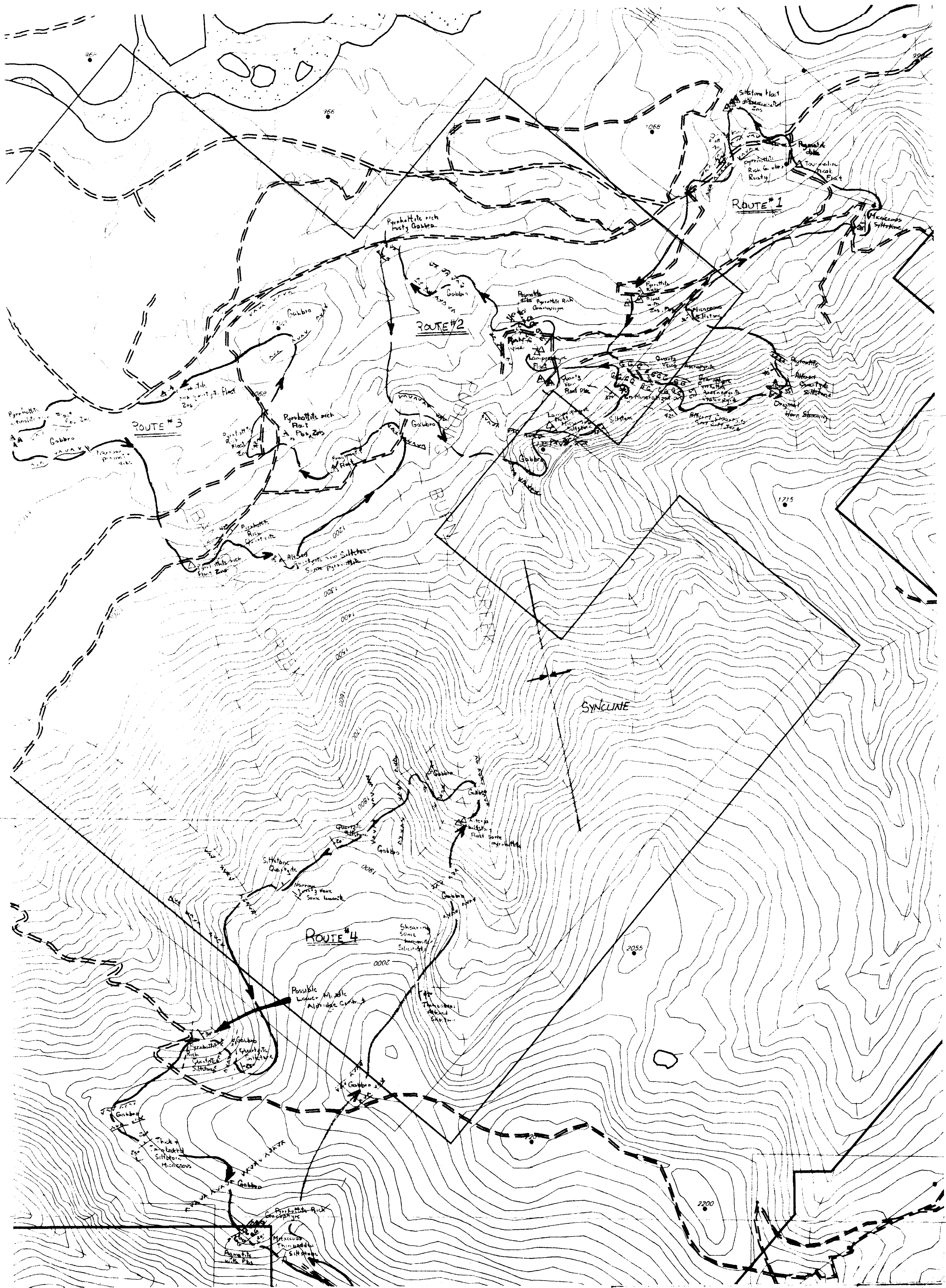
Prospecting Report

As the Author of this report I, Craig Kennedy, certify that:

1. I am an independent Prospector residing at 2290 DeWolfe Avenue, Kimberley, B.C.
2. I have been actively prospecting in the East Kootenay District of B.C. for the past 24 years, and have made my living by prospecting for the past 10 years.
3. I have been employed at a professional prospector by major and junior mineral exploration companies.
4. I own and maintain mineral claims in B.C. and have optioned numerous claims to various exploration companies.

Craig Kennedy

Craig Kennedy
Prospector

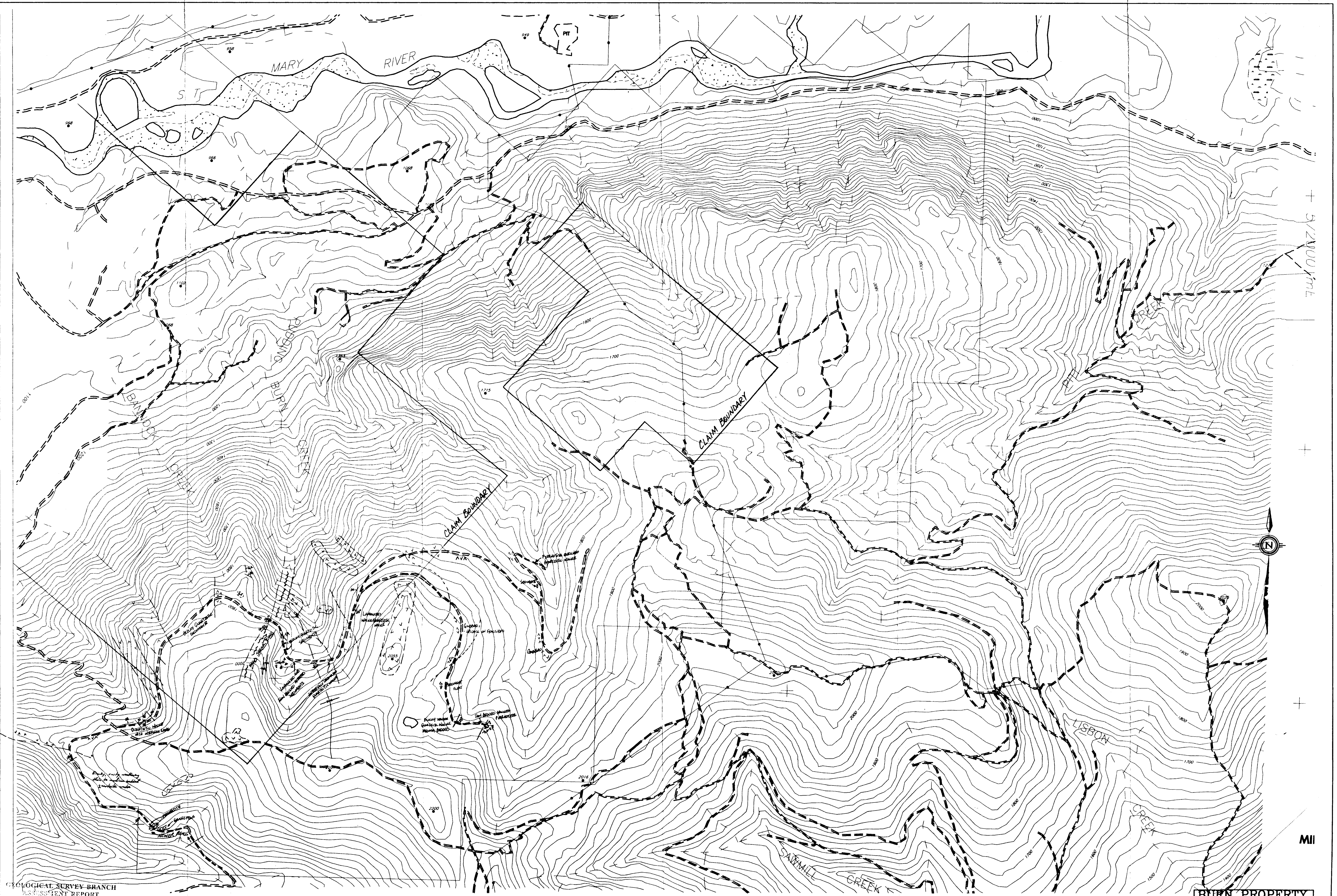


Scale 1:10,000

PROSPECTING MAP BURN CLAIMS

LEGEND

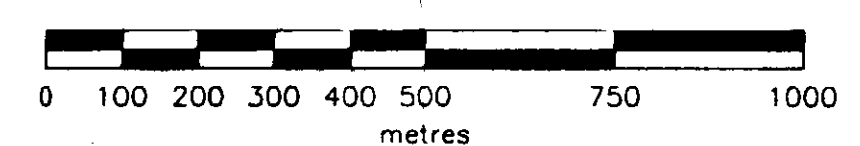
- Route #1 Traverse Route
- Route #2 Gabbro
- Route #3 Pegmatite
- Route #4 Granophyre
- Mineralized Flats
- Other types of Flats



GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,808

VAV = GABBRD



BURN PROPERTY
GEOLOGY MAP
Scale: 1:10,000
Map Ref: 82F050800
Date: Jan/99