Geological Report
on the
MJ-1 Mineral Claim
Clinton Mining Division

for

Radcliffe Resources Ltd.
Suite 900 - 475 Howe Street
Vancouver, B. C.
V6C 2B3

Covering:	MJ-1 Mineral Claim, Record No. 1160 (8 units)
Work Performed:	October 18th to October 20th, 1988
Location:	75 kilometres southwest of Clinton, B. C. 51° 21' North, 122° 27' West NTS 92 O/ 8W

Prepared by:

Douglas A. Leishman, B. Sc.
Consulting Geologist

Suite 2 - 423 First Avenue
Kamloops, B. C.

November 3, 1988

ARIS SUMMARY SHEET

District Geologist, Prince George — Off Confidential: 89.10.25

ASSESSMENT REPORT 17983 — MINING DIVISION: Clinton

PROPERTY: MJ
LOCATION: LAT 51 21 00 LONG 122 27 00
UTM 10 5688672 538303
NTS 092O08W
CLAIM(S): MJ 1
OPERATOR(S): Radcliffe Res.
AUTHOR(S): Leishman, D.A.
REPORT YEAR: 1988, 17 Pages
COMMODITIES SEARCHED FOR: Gold
GEOLOGICAL SUMMARY: The claim is underlain by Eocene volcanics. Northeast structures have been interpreted within the claim group. Past work has indicated values up to 10 000 ppb gold in soils.
WORK DONE: Geological
GEOL 200.0 ha
RELATED REPORTS: 10867

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Summary

Radcliffe Resources Ltd. has recently completed a geological assessment of their MJ - 1 mineral claim, located in the Clinton Mining District on the northeastern limb of Blackdome Mountain.

Blackdome Mountain is the volcanic centre of a large epithermal gold-silver district. Northeasterly trending quartz/shear zones carrying bonanza values in gold and silver have been found by Blackdome Mines Ltd. near the ridge crest of Blackdome Mountain. Recently, exploration activity has increased on the claim units peripheral to the Blackdome property.

The MJ - 1 mineral claim was staked in 1981 on the northeastern slopes of Blackdome Mountain. The claim unit is almost entirely drift covered and has had minimal exploration. Previous workers have established the presence of anomalous values in gold (up to 10,000 ppb) in the soils.

Recent work by Radcliffe Resources Ltd. has succeeded in establishing the true dimensions of the claim group relative to surrounding claim owners. In conjunction with this recent work the claim group has been thoroughly prospected and geologically mapped. Volcanic units of Eocene Age have been mapped on the property and a number of northeasterly trending structures have been interpreted as crossing the MJ - 1 mineral claim.

Further work is proposed for the MJ - 1 mineral claim. It appears that soil sampling, VLF-EM and Magnetic surveys with narrow sample spacing along east to west grid lines would be a suitable method of exploring this claim group.

Introduction

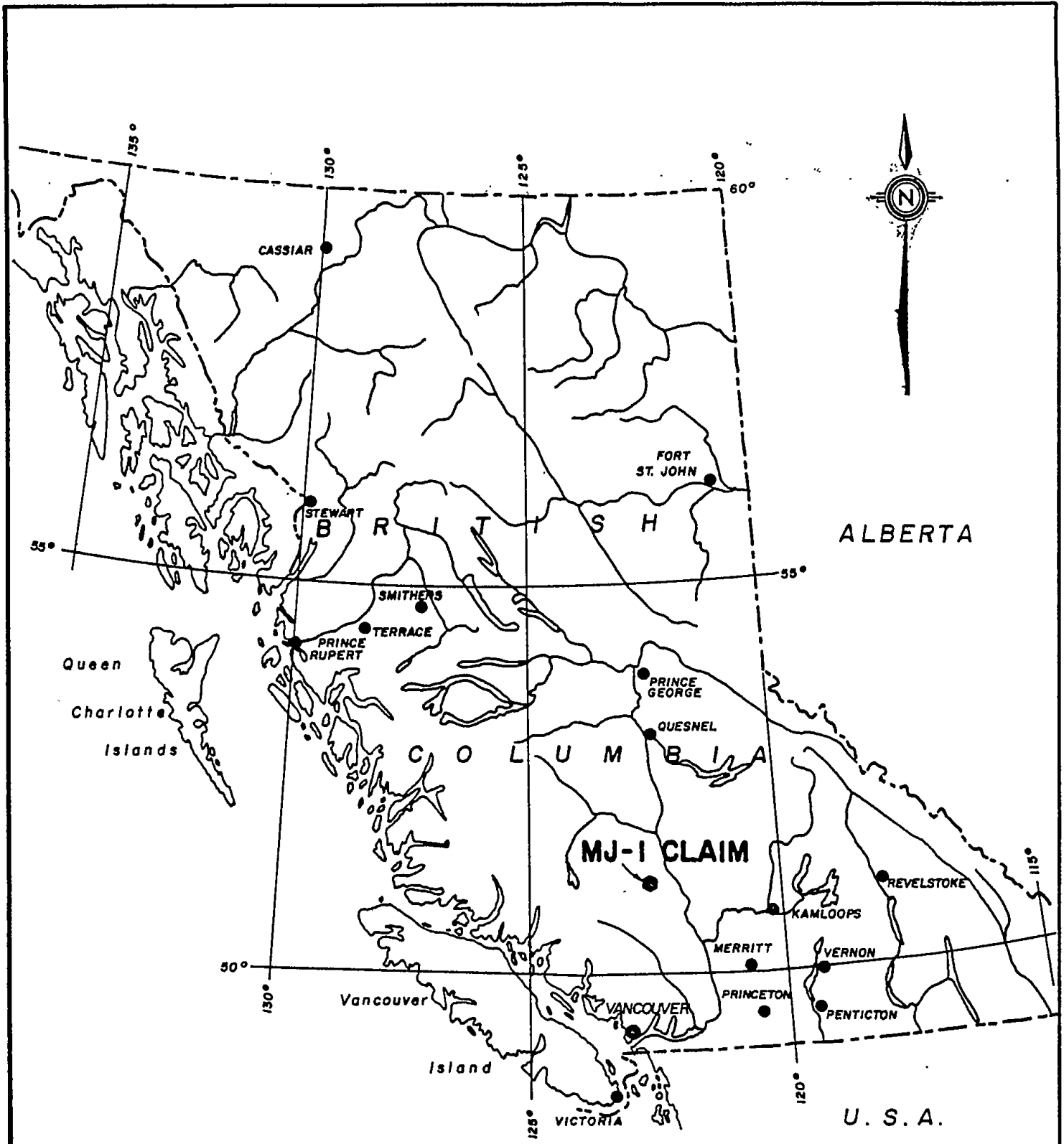
Upon the request of Mr. Clyde Smith, Vice President of Radcliffe Resources Ltd. the writer was asked to complete a geological assessment of the MJ-1 mineral claim located in the Clinton Mining Division. This work was completed between October 18th to October 20th 1988. Observations made by the writer in the field are discussed in this report. A series of figures showing the property , claim locations as well as observed data is included with this report.

Location and Accessibility

The MJ - 1 mineral claim is located in the Clinton Mining Division approximately 75 kilometres (by air) north 260° west of the town of Clinton (Figure 1 and 2) with geographic co-ordinates of the centre of the claims at 51°20' North, 122° 27' West and located on N.T.S. Map No. 92 O 8W.

The property is reached from Clinton by travelling along Highway #97 north towards 100 Mile House for approximately 18 kilometres (58 Mile) and turning west on the Meadow Lake Road. From here the Blackdome Mine is 130 kilometres in a southwesterly direction along gravel roads. The Meadow Lake road is travelled for approximately 80 kilometres in a westerly direction to the crossing on the Fraser River and then the secondary road is taken to the southwest along the west side of the river. At a road junction (Brown Lake) approximately 10 kilometres south of the bridge the main Blackdome Mine road is followed in a westerly direction. This road is followed to the 30 kilometre mark (100 metres past) where an older road turns to the southeast. At a point 1.1 kilometres along this road, a cut/surveyed north to south line is followed (on foot) for approximately 1 kilometre (Figures 2 and 3) which leads directly to the LCP of MJ - 1.

The road from the Fraser River is generally well maintained however inclimate weather (rain or snow) results in it becoming very slippery and four wheel drive is necessary.



RADCLIFFE RESOURCES LTD.	
LOCATION MAP	
MJ - 1 CLAIM	
BRITISH COLUMBIA	
Technical Work by: DAL	Date : NOV., 1988
Scale : 1cm. = 87km.	Figure No.: 1

To accompany a report by D.A. Leishman, B.Sc.

Physiography and Vegetation

The MJ - 1 mineral claim is situated on the south facing slope which forms the north eastern limb of the ridge where Blackdome Mountain is situated. The southern portion of the claim is drained by Porcupine Creek (Figures 2 and 3) in an easterly direction. Elevations on the property range from approximately 1,580 metres a.s.l. in the south central portion of the property to 1,720 metres in the northern part of the property.

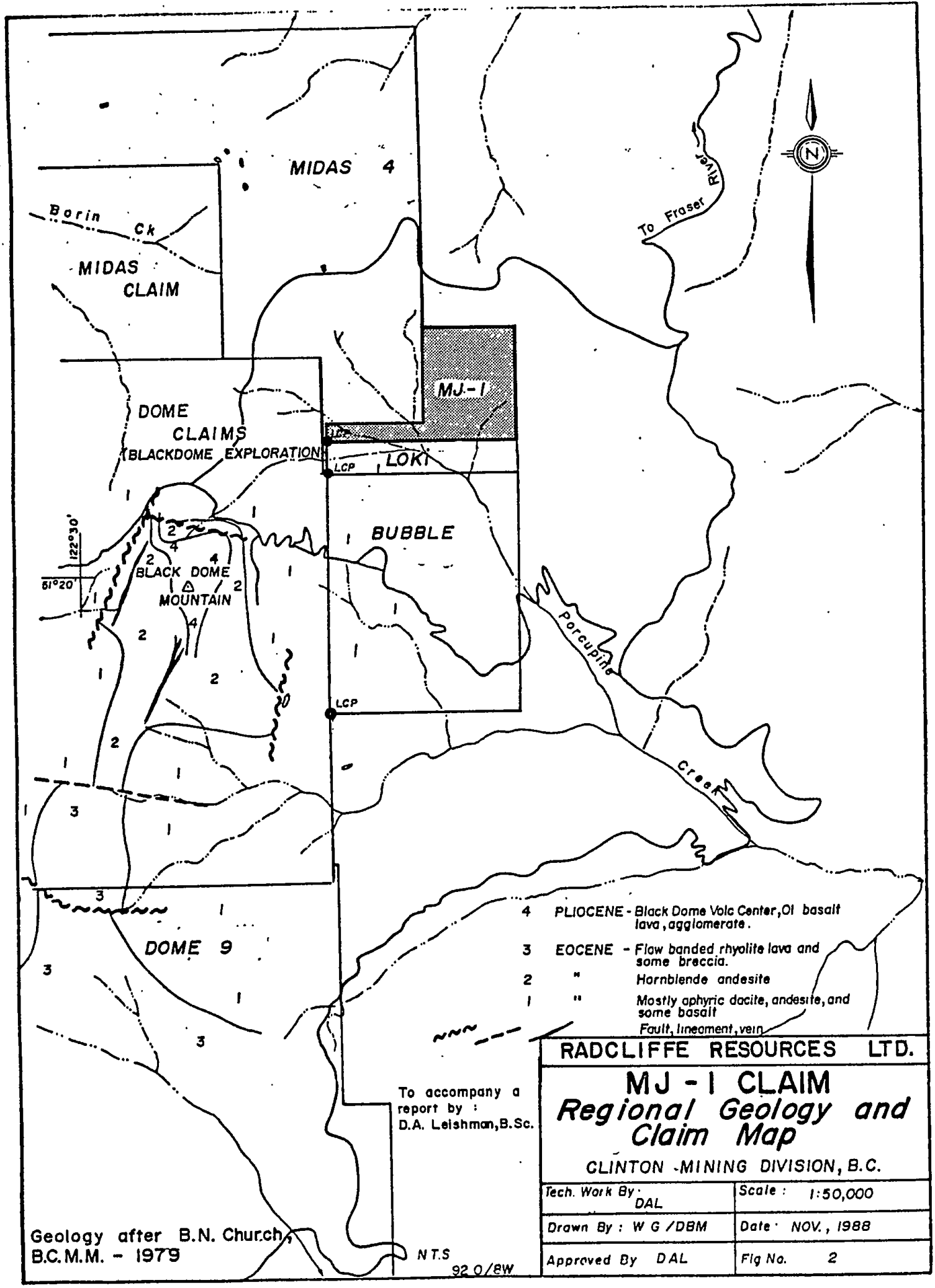
Traverses on the property are relatively easy due to the lack of undergrowth and the mature stands of pine with limited growth of smaller fir and spruce. Several small creeks drain the property in a south to southeasterly direction. These drainages form the headwaters of Porcupine Creek. Slopes are gentle to moderate. If necessary road access to the property could be established from the road near the cut line (south of the property) or from the main Blackdome Mine access road which travels within 1 kilometre of the northern boundary of the claim (see Figure 2).

Claims

The MJ -1 claim group consists of 1 metric cliam, MJ- 1 (8 units) covering an area of approximately 200 hectares (Figures 2 to 3).

Claim Name	Units	Record No.	Expiry Date
MJ - 1	8	1160	October 27, 1989

The claims are owned by Radcliffe Resources Ltd., Suite 900 - 475 Howe Street, Vancouver, British Columbia.


MIDAS 4
Borin Ck
MIDAS CLAIM
To Fraser River
N
MJ-1
DOME CLAIMS (BLACKDOME EXPLORATION)
LCP
LOKI
BUBBLE
122°30'
51°20'
BLACK DOME MOUNTAIN
Porcupine Creek
DOME 9
4 PLIOCENE - Black Dome Volc Center, Ol basalt lava, agglomerate.
3 EOCENE - Flow banded rhyolite lava and some breccia.
2 " Hornblende andesite
1 " Mostly aphyric dacite, andesite, and some basalt
Fault, lineament, vein
To accompany a report by : D.A. Leishman, B.Sc.
Geology after B.N. Church, B.C.M.M. - 1979
N.T.S 92 O/8W
RADCLIFFE RESOURCES LTD.
MJ - 1 CLAIM
Regional Geology and Claim Map
CLINTON MINING DIVISION, B.C.
Tech. Work By: DAL
Scale : 1:50,000
Drawn By : W G /DBM
Date : NOV., 1988
Approved By DAL
Fig No. 2

Exploration History

The area of Blackdome Mountain has been subject to extensive amounts of exploration particularly after the discovery of the epithermal gold-silver deposits on Blackdome Mountain by what is now known as Blackdome Mines Ltd.

In 1947 Mr. Laurence Frenier discovered gold bearing quartz veins on Blackdome Mountain. Subsequently he staked the showings and prospected the ground for several years. In 1952 he optioned his claims to Empire Valley Gold Mines Ltd. and in 1953 the claims were optioned to Silver Standard Mines who held the ground until the late 1970's.

In 1977 the Dome claims (which surround the above property) were acquired by Barrier Reef Resources Ltd. and in 1979 a new company called Blackdome Exploration Ltd. was formed which was a consolidation of the claims held by Silver Standard with those held by Barrier Reef Resources Ltd. Exploration and development continued through the early 1980's (including a brief option period with Heath Steele Mines Ltd./ Mattaggami Lake Mines) until the spring of 1985 when financing was secured to proceed towards production. The Blackdome mine opened in the summer of 1986 and is expected to continue in production for a considerable number of years.

Shortly after the time of the formation of Blackdome the MJ - 1 mineral claim was staked (fall of 1981). The MJ - 1 mineral claim was originally staked as a 20 unit mineral claim by a Mr. A. G. Walker Mooney for Macmillan Energy Corporation. This ground was acquired to tie on to the Bubble claim (to the south) that was acquired by Macmillan Energy Corporation in 1980 in an option agreement with Malabar Mines Ltd.

In 1982 J. G. Ager and Associates were contracted to perform property work on both the Bubble and MJ - 1 mineral claims. Work performed on the MJ - 1 mineral claims consisted essentially of soil sampling along north to south grid lines. Work programmes on the Bubble Claim were more extensive consisting of both soil sampling, VLF-EM surveys and geological mapping along contiguous grid established with the MJ - 1 mineral

claim and later followed by very limited diamond drilling of selected targets.

It is understood the work by Agar was the last assessment work perfomed on the MJ - 1 mineral claim.

Regional Geology

Figures 3 illustrates the regional geology of the area (after Church 1979) and shows that the oldest rocks in the area are Lower Cretaceous volcanic rocks, possibly related to the Spences Bridge Group. These units are known to outcrop from 18 kilometres east to approximately 12 kilometres west of Blackdome Moutain and are believed to underlie the are of Blackdome Mountain at depth.

The mineralization at Blackdome occurs in an asemblage of felsic to andesitic flows, tuffs and breccias of Eocene age. This assemblage unconformably overlies the Cretaceous basement sequence of volcanics . More recent olivine basalt flows cap many of the hills and fill the valleys in the post-Eocene topography.

The gold and silver values at the Blackdome mine occur in epithermal quartz filled vein systems trending in a north to northeasterly direction with a steep to vertical dip. These vein systems are up to 3 metres wide being more diffuse in the rhyolitic rocks and more sharply defined in the andesitic rocks. Often the veins are encompassed by alteration zones up to 15 metres wide. Gold values can be erratic however several shoots within vein systems have been found to contain Bonanza values in gold and hence the Blackdome Mine has become a very viable economic deposit in gold (with minor silver values). Production in the first quarter of this year (1988) was 16,498 ounces of gold and 53,272 ounces of silver from 20,491 tons milled (average grade of 0.8ounces/ton gold, 2.7 ounces /ton silver).

B. N. Church indicates that Blackdome Mountain is the volcanic centre of all

Eocene volcanism rocks in the area . It has been postulated that the gold-silver filled fracture and fissure zones are related to the proximity to this volcanic centre.

1988 Work Programme

Introduction

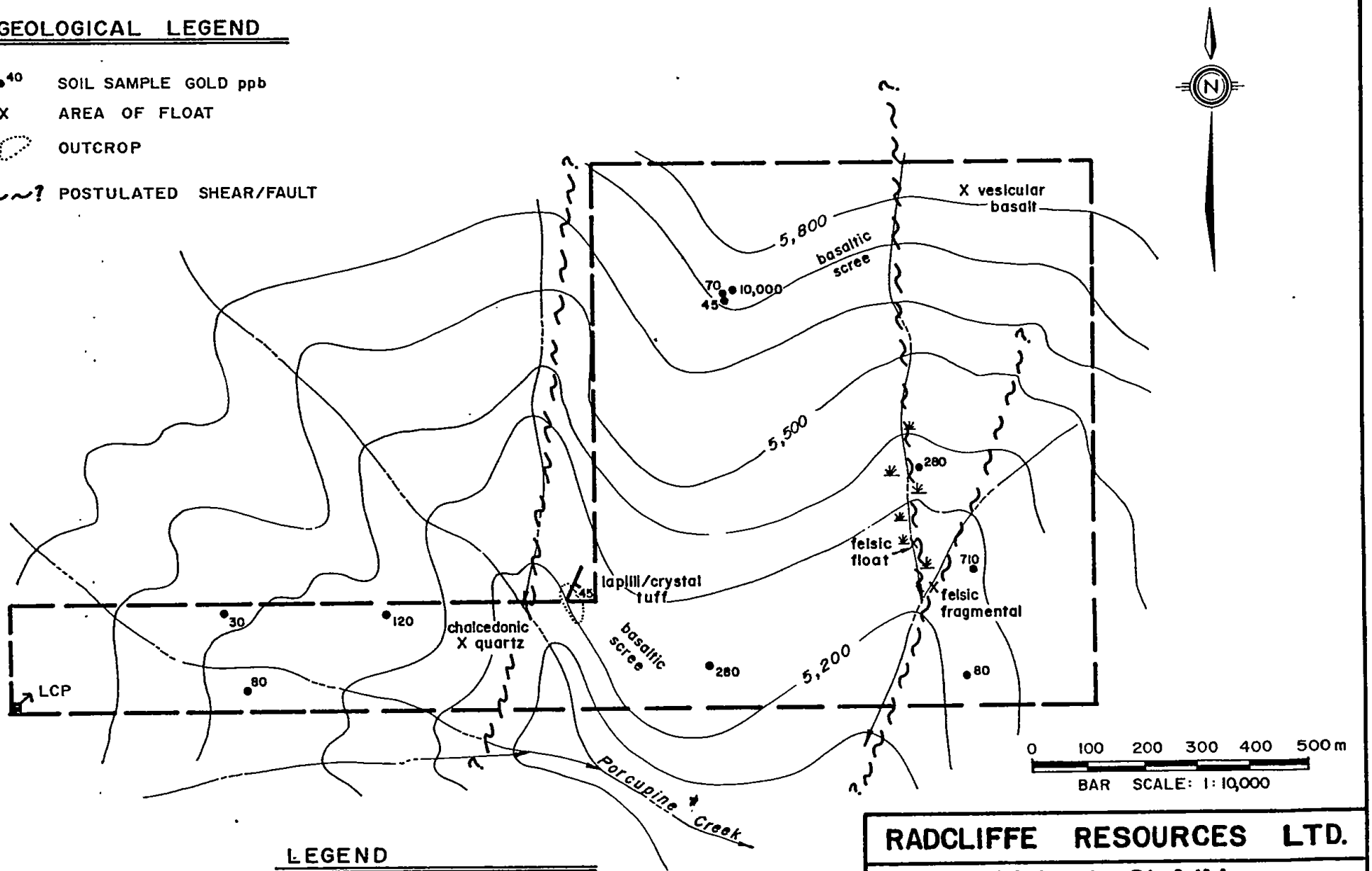
The purpose of the 1988 work programme on the MJ - 1 claim was threefold. Firstly to map and prospect the claim group to establish how the property relates geologically to the nearby Blackdome property, secondly to prospect all areas of previous anomalous gold values in soils (from Agars work in1982) and finally to establish exact location of the MJ - 1 claim group relative to adjacent properties. All of the above were accomplished in varying degrees of success and outlined below.

Property Geology and Examination

The outline of the MJ - 1 mineral claim is shown in both Figures 2 and 3. Very recently Blackdome Mining Corporation has completed transit surveys of their Dome claims and surrounding properties. In doing so they have located most Legal Claim Posts for all adjacent properties including the MJ - 1 claim group. The result of Blackdomes work is they have located and staked a number of fractions. The Loki claim (Figure 2, between the Bubble and MJ - 1 claim) is one such fraction. This has effectively eliminated approximately 300 metres from the southern portion of the MJ - 1 mineral claim (see Figure 2). The writer has seen the location of the LCP for the MJ - 1 claim post in the field and can confirm the location as plotted on Figures 2 and 3. The Midas 4 claim has also been surveyed by Blackdome and resulted in a sizeable overlap of the northwestern section of the MJ - 1 claim. Figure 2 does not correspond to the Government claim maps but is thought to be an accurate depiction of claims adjacent to the MJ - 1 mineral claim.

GEOLOGICAL LEGEND

- •40 SOIL SAMPLE GOLD ppb
- X AREA OF FLOAT
- OUTCROP
- ?~~~? POSTULATED SHEAR/FAULT



LEGEND

- CLAIM BOUNDARY
- DRAINAGE
- ELEVATION CONTOUR
- SWAMPY

To accompany report by D. A. Leishman, B Sc.

RADCLIFFE RESOURCES LTD.

MJ - 1 CLAIM

Geology & Compilation

Technical Work By DAL	Scale 1:10,000
Drawn By DBM	Date NOVEMBER, 1988
Revisions ·	Figure no. 3

Previous work by Agar has referred to the geology of the MJ - 1 mineral claim however it was difficult to determine if a proper survey was ever made of the property. A previous report had made reference to property geology, down faulted block faulting etc. however no information was ever plotted.

Figure 3 illustrates geological data observed and interpreted (outcrop and float) during the writers examination of the MJ - 1 mineral claim.

Since the early days of exploration of the Blackdome property the targets for mineralization have been northeasterly trending veins and vein complexes. Surficial expressions would either be actual vein and altered country rock or quite possibly sheared and altered country rock. Therefore the writer has felt at ease to interpret possible shear/fault zones along northeasterly drainages. These drainages are more likely to have developed along weak/altered zones within the underlying bedrock. Several of these postulated shear/fault zones are shown on Figure 3.

The only outcrop found by the writer on the property is located on the boundary between the MJ -1 and the Midas 4 mineral claim (Figure 3). Here an outcrop area of approximately 40 metres in strike length, consisting of a pale grey, lapilli/crystal tuff with disseminated pyrite/ilmenite with quartz grains or "eyes" strikes in a north 25° east direction with a 50° dip to the southeast. These units are slightly oxidized (limonitic) with minor hematite stain. No quartz veining was seen in the outcrop. A postulated shear/fault zone has been plotted on Figure 3 just to the east of this outcrop to co-incide with the southerly drainage. To the west of this postulated fault a few fragments of chalcedonic quartz float have been found.

In the eastern part of the claim group similar, angular, felsic float to that seen in outcrop has been located in significant quantities along two southerly drainages. These fragments have undergone minor iron oxidation similar to that described above. Again the writer has postulated two northeasterly trending shear/fault lineaments in these drainages.

The northern part of the claim area has scattered but significant quantities of vesicular basalt float and basaltic scree to indicate a nearby source. It is postulated that this material originates from upslope of the claims or possibly underlies the northern part of the claim group.

In summary it appears that the MJ - 1 mineral claim is underlain by a basalt(vesicular in places) which overlies a sequence of bedded tuffs of felsic origin. These would be of Eocene age similar to that underlying the Blackdome area to the west. Northeasterly drainages are indicative of zones of weakness which may indicate shear/vein zone complexes. The only outrop found on the property is found along one of these zones of weakness. A few fragments of chacedonic float have also been found near one of these postulated shears.

The writer also attempted to locate the various soil sample sites (shown on Figure 3) which had returned anomalous values in gold. Individual sample sites were almost impossible to locate due to lack of visible markers from the previous grid (summer 1982). However enough marked flags were located with topography to enable the writer to traverse in the vicinity of all the anomalous sample sites shown on Figure 3. No outcrop or mineralized float was seen in the area of any of these sample sites. Examination of soils over the property indicates development of residual soils. The only exception would be in the low lying area near the eastern drainage where slightly swampy ground is found. Hence soil sampling should be an effective means of exploration for this property.

Conclusions and Recommendations

Recent surveys have indicated the MJ - 1 mineral claim is not contiguous with the Bubble claim to the south.

There are indirect indications of northeasterly trending zones of weakness traversing the MJ - 1 mineral claim however no vein or shear zones have been found in outcrop within the area of the claim group.

Previous soil sampling (along north to south grid lines) indicated at least 10 soil sample sites that returned anomalous values (greater than 30ppb) gold. Though often single point anomalies any one of them could be significant in indicating hidden, buried, mineralized shear/vein structures.

Future work on the MJ - 1 mineral claim should be conducted along east to west grid lines. Soil sampling with magnetic and VLF-EM surveys on a very tight sample spacing (ie: 10 metres) would be the most cost effective method of exploration. This initial work should be followed up by trenching of any anomalous zones.

Shear/vein zones uncovered in the trenching with anomalous values in gold/silver should then be diamond drilled.

Douglas A. Leishman
Consulting Geologist

November 3, 1988
Kamloops, B. C.

References

Agar, James G. Geochemical and Electromagnetic Report on behalf of Malabar Mines Ltd. (Bubble Claims), June 1982, Assessment Report No. 10,486

Agar, James G. Geochemical Report on the MJ - 1 claim for Macmillan Energy Corporation, October 1982, Assessment Report No. 10,867

Agar, James G. Diamond Drilling Report for MacMillan Energy Corporation, Bubble Claim, January 1983 , Assessment Report No. 11,261

Dawson, J. Geological and Driling Report on the Blackdome Mountain Property, for Blackdome Exploration Ltd. , Kerr Dawson & Associates, February 1983

Kerr, John Compilation Report on the Bubble Claim , Malabar Mines Ltd., Kerr Dawson & Associates, June 1980, Assessment Report No. 8,119

Kerr, John Report on the Bubble Claim, for Malabar Mines Ltd., Kerr Dawson & Associates Ltd., February 1980

Kerr, John Report on the Bubble Claim, for Macmillan Energy Corporation, Kerr Dawson and Associates Ltd. December 1980

Personnal Communications with staff at Blackdome Mines Ltd. including G. Peatfield, Dave Jenkins, and Robert Simpson .

Appendices

Appendix I

Personnel

Douglas A. Leishman, B.Sc.	October 18th -20th, 1988	2.5 days
Report Preparation	October 28th - November 3rd	2 days

Appendix II

Program Costs

Labour

Douglas A. Leishman, B. Sc.	4.5 days x $275./day	$1,237.50

Expenses

Truck Rental 2 days @ $45./day		$90.00
Fuel		48.00
Field Expenses (Food, Accomodation etc.)		73.42
Drafting	DBM Drafting	100.00
Report Preparation	printing, copying, binding	65.00
Phone calls, shipping		45.00
	Total Expenses	$421.42

Total Assessment Costs Incurred on the MJ-1 Mineral Claim

$1,658.92

Appendix III

Writer's Certificate

Douglas A. Leishman, B.Sc., A.R.S.M.
Consulting Geologist
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Mailing Address: P. O. Box 1288 M. P. S., Kamloops, B. C. V2C 6H3
Telephone 604-828-6150

Certificate of Qualifications

I, Douglas A. Leishman, of Kamloops, British Columbia, Do Hereby Certify That:

(1) I am a self employed Consulting Geologist residing at the above address and was employed by Radcliffe Resources Ltd. to perform the work described in the previous report.

(2) I am a graduate of the Northern Alberta Institute of Technology, Exploration Technology (Minerals Option), 1971 Edmonton, Alberta.

(3) I am a graduate of the Imperial College of Science and Technology, Royal School of Mines, London, England, B.Sc. (Hons.) Mining Geology, 1981.

(4) I am an Associate Member of the Geological Association of Canada and a Member of the Institute of Mining and Metallurgy, London, England.

(5) I have been actively involved in mineral exploration since 1971. This report is based on my own work, a review of all pertinent available information and previous knowledge of the area of the Blackdome Mine having previously worked on the Blackdome property.

Douglas Leishman
Douglas A. Leishman, B. Sc.

Consulting Geologist

November 3, 1988
Kamloops, British Columbia