

6032

PROGRESS REPORT
ON
THE EXPLORATION OF THE
PAULA CLAIM GROUP
USK AREA, SKEENA
MINING DIVISION, B. C.

Part 2

FOR

INTERNATIONAL SHASTA RESOURCES LTD. (N.P.L.)

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MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. <u>6032</u>

PART 2

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Geological, Geochemical and Photogeological Progress Report
on the Paula Group in the Usk - Terrace Area, B. C. -
P. H. Blanchet, P.Eng. Oct. 28th, 1975

MAPS

Location Map of Paula Claims - - - follows p. 2
Tectonics Map - - - - - follows p. 4
Maps #1 Geochemical Plan Paula Claims)
#2 Magnetometer Survey, Paula Claims) - - - in pocket

PROGRESS REPORT ON THE EXPLORATION OF THE PAULA
CLAIM GROUP, USK AREA, SKEENA MINING DIVISION, B. C.

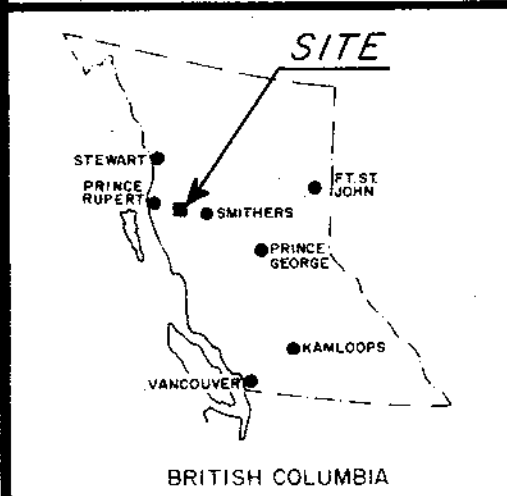
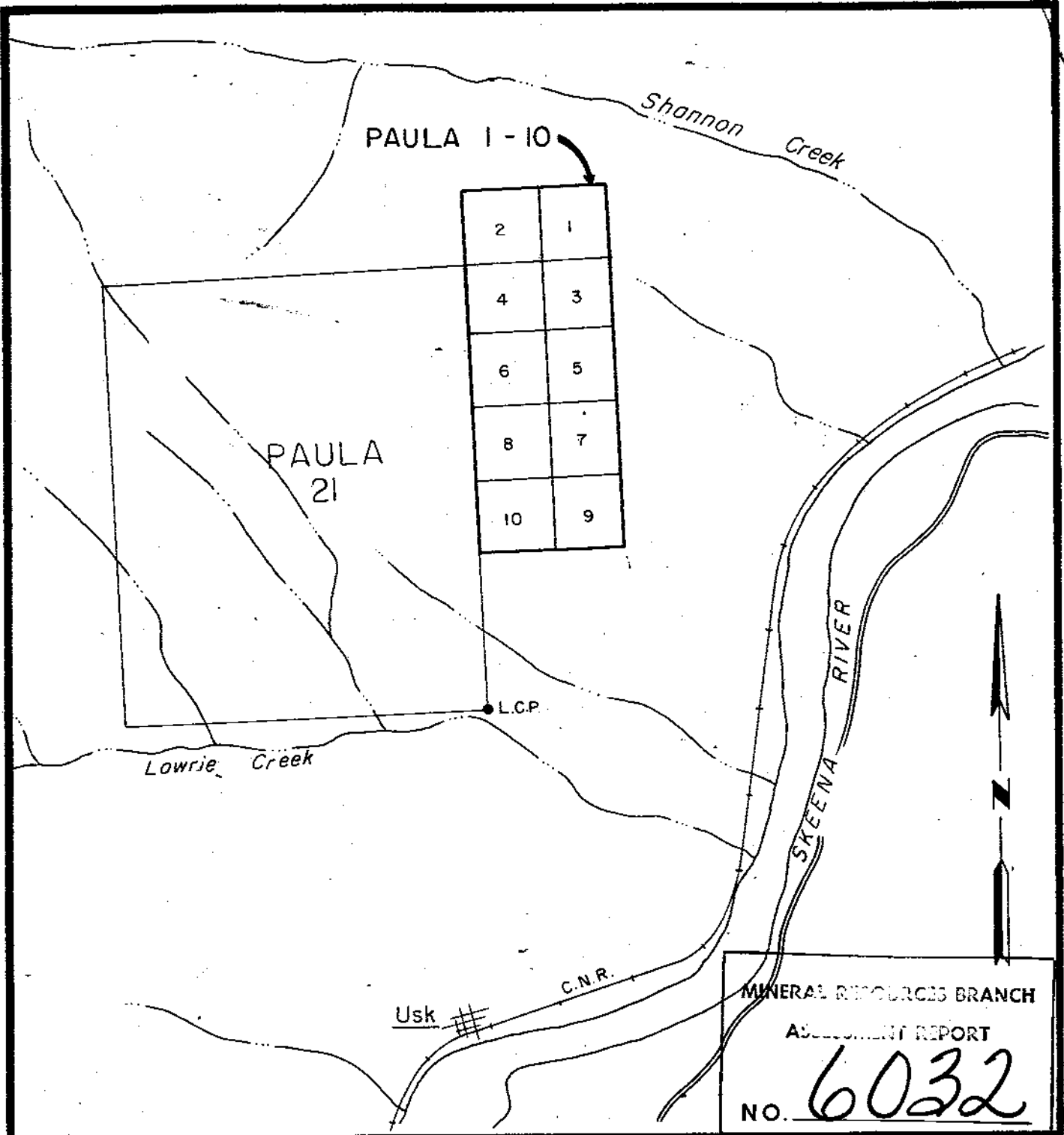
SUMMARY

The Paula claim group consists of 10 located claims and a 20 unit metric claim block adjoining the west boundary of the other claims.

Exploration carried out by International Shasta Resources Ltd. during 1975 consisted of stream sediment sampling, a fracture density study, and a ground magnetometer survey. Some highly anomalous values in molybdenum were encountered in certain of the stream sediment samples, and the location of these shows some correlation with areas of high fracture density.

Additional exploration work is recommended, consisting of detailed stream sediment sampling, and an I.P. survey over six units of the Paula #21 claim. If this work is successful, diamond drilling should be initiated.

The cost of the first phase of work is estimated at \$8,000, and a minimum of \$35,000 should be provided for follow-up diamond drilling.



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LOCATION MAP
PAULA CLAIMS
USK AREA, SKEENA MIN. DIV., B.C.

1/2 0 1/2 1
SCALE IN MILES

103 I 9 W

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INTRODUCTION

In May 1975 the writer prepared a report on the Paula claim group located in the Usk area of the Skeena Mining Division of B. C. This report included a physical and geological description of the property, the history of previous exploration, and an appraisal of the recent exploration work carried out by International Shasta Resources Ltd. The report contained recommendations for further photo-geological studies and stream sediment sampling with the objective of delineating a favorable area for molybdenum and copper mineralization which would justify exploration by diamond drilling.

These recommendations were carried out by the company during the summer of 1975 together with a magnetometer survey over part of the claim area, the work being supervised by Mr. P. H. Blanchet, P.Eng. geologist. The results of this work and a general appraisal of the property are covered in a report by Blanchet, dated Oct. 28th, 1975 and which is attached as an appendix to this report.

The purpose of this report is to up-date the property holdings and outline a further program of exploration.

PROPERTY

Of the original 14 claims, the Paula #1 to #10 have been maintained, Record Nos. 132280N to 132289N inclusive. In addition, a 20 metric unit claim, the Paula #21, Record No. 155(9) has been staked by the Modified Grid System on the east boundary of the other Paula claims.

A revised location map accompanies this report.

EXPLORATION PROGRAM

1. Stream Sediment Sampling

This program covered most of the streams on the Paula #1 to #10 claims, and some streams on the Paula #21 claim. This method of sampling was used as it had been established photogeologically that the streams flow in fracture channels, and it was reasoned that ground waters from any mineralized intrusive below the volcanics would be most likely to work up through the fractures and deposit detectable amounts of the minerals in the stream sediments.

From a statistical analysis of the 36 samples taken, Blanchet has concluded that 6 p.p.m. Mo. is definitely anomalous and 4-5 p.p.m. Mo. is probably anomalous.

As plotted on the geochemical plan which accompanies this report, it will be seen that there are a few scattered anomalous values in molybdenum in the Paula #1-10 claims, but the streams flowing around the supposed intrusive domes in the Paula #9 claim show particularly low values. The highest, and most consistent, samples appear to be on the streams flowing south, and converging in unit 19 of the Paula #21 claim. Other highly anomalous values were obtained over two claim units in an east-west direction near the north edge of Paula 21.

Copper values in p.p.m. were in general low, and except for the odd erratic cannot be considered anomalous.

2. Fracture Density Analysis

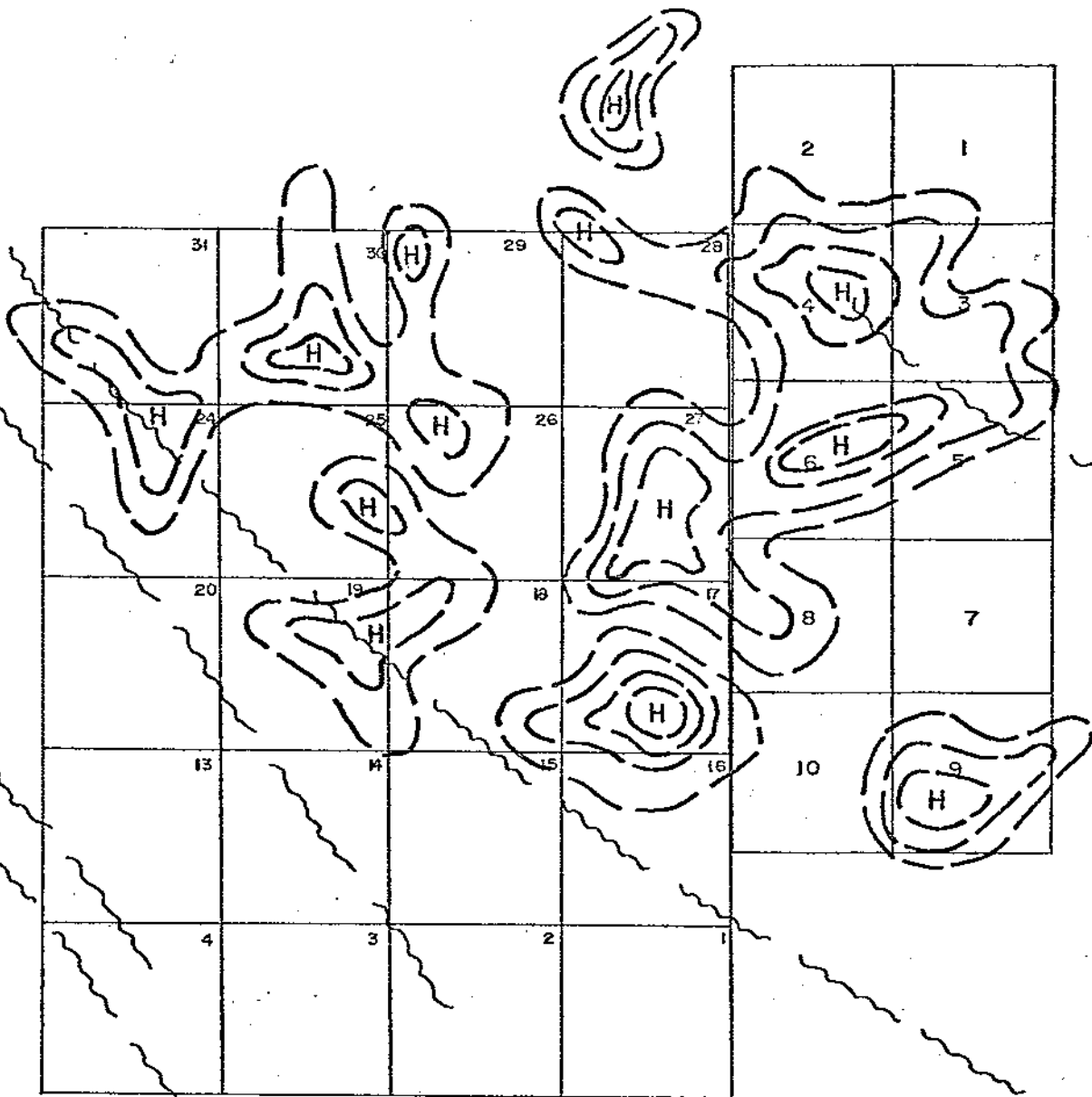
The entire claim area was covered by a fracture density study, the method of analysis being described on page 5 of Blanchet's report (see Appendix attached). The contoured highs are shown on the Tectonics map accompanying this report.

It will be noted that a fracture density high coincides closely with the apparent domes in Paula #9. Other highs correspond closely to the anomalous molybdenum sediment samples from the streams in units 18 and 19 of Paula #21, and another interconnecting group of highs covers the northern part of Paula #21 where anomalous molybdenum values have been noted in preliminary sampling. The high centered on Paula #4 and #6 claims may be associated with the mineralized trenches and anomalous stream sediment samples noted in Paula #5 and #6 claims.

3. Magnetometer Survey

A ground magnetometer survey was conducted over the Paula #1 to #10 claims, and the northern part of the Paula #21 claim. A map contoured at 1000 gamma intervals accompanies this report.

The results show a number of magnetic highs, some of which generally correspond with phenomena noted in the other surveys. For example, the high over Paula #9 corresponds with the fracture density high and the intrusive domes, and the center of another high occurs at the junction of units 18, 19, 25, and 26. This is roughly the position of a fracture density high. There seems to be no significant correlation between the magnetics of the area, and the stream sediment sampling results and it is suspected that the highs may be due to some extent to concentrations of magnetite in the overlying volcanics.



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TECTONICS MAP
PAULA CLAIMS
FAULT

MINERAL RESOURCES BRANCH
ANNUAL REPORT
No. *6032*



FRACTURE DENSITY HIGHS:-
GRADING FROM ABOVE BACKGROUND
TO CONSIDERABLY ABOVE AT "H"

CONCLUSIONS

Of the field work completed to date, the stream sediment sampling program, and the fracture density study appear to have produced the most significant results.

The principal area of interest on the basis of the results to date is the block covered by units 18, 19, 25, 26, 29 and 30 of Paula #21 wherein there are a number of fracture density highs, supported by some very highly anomalous molybdenum values in the stream sediment samples. This zone of interest appears to extend beyond the north boundary of the Paula 21, and may extend across the volcanic-intrusive contact. Some additional geo-physical and geochemical studies are required for this area with the objective of outlining specific drill targets.

RECOMMENDATIONS

1. Detailed stream sediment sampling should be conducted on all the streams within the area described above with the samples being analyzed for copper and molybdenum.
2. Conduct an I.P. survey over the 6 units of the Paula #21 claim mentioned previously. Standard 400 foot line spacing should be used.
3. If the results of this work are favorable sufficient information should be available to program some test diamond drilling.


ESTIMATE OF COSTSPhase I

1. Additional stream sediment sampling, allow 100 samples @ \$6.00	\$ 600.00
2. I.P. Survey, approx. 8 line miles @ \$600 per line mile	4,800.00
3. Travel, crew maintenance, etc.	1,600.00
4. Engineering and admin.	<u>1,000.00</u>
Total, Phase I	\$8,000.00

Phase II

If Phase I is successful, Phase II would consist of a minimum of 1500 feet of diamond drilling at an estimated all inclusive price of \$20.00 per foot. With assaying and auxiliary costs, a budget of \$35,000.00 should be provided for this phase.

Oct. 12th, 1976

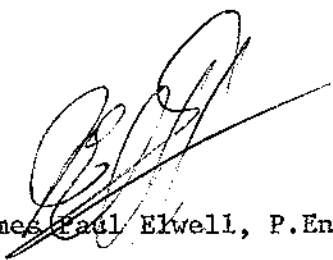

J. P. Elwell, P.Eng.

C E R T I F I C A T E

I, JAMES PAUL ELWELL, of 4744 Caulfield Drive, West Vancouver, B. C., do hereby certify that:

1. I am a Consulting Mining Engineer residing at 4744 Caulfield Drive, West Vancouver, B. C., and with an office at 1030 - 510 West Hastings Street, Vancouver, B. C. V6B 1L8
2. I am a graduate in Mining Engineering from the University of Alberta in 1940, and am a Registered Professional Engineer in the Province of British Columbia.
3. I have no personal interest, directly or indirectly, in the properties or in International Shasta Resources Ltd. (NPL).
4. The findings in the report are the result of an evaluation of geological data, and the report included as an appendix.

DATED at Vancouver, B. C. this 12th day of October, 1976



James Paul Elwell, P.Eng.

APPENDIX TO REPORT

INTERNATIONAL SHASTA RESOURCES LTD. (NPL)

GEOLOGICAL, GEOCHEMICAL & PHOTOGEOLOGICAL
PROGRESS REPORT ON THE PAULA GROUP
IN THE USK-TERRACE AREA, B.C.

October 28, 1975

P. H. Blanchet, P.Eng.

GEOLOGICAL, GEOCHEMICAL & PHOTOGEOLOGICAL
PROGRESS REPORT ON THE PAULA GROUP
IN THE USK-TERRACE AREA, B.C.

S U M M A R Y

The exploration work on the Paula Group of located claims has progressed to the point of some initial definition of several possible drilling targets. This has been accomplished with stream sediment sampling of many of the streams leading into and out of the claims area and by a detailed photogeological fracture density analysis.

A metric claim of 20 units (each unit 500 by 500 metres and approximately the size of the old claims) was staked in September to protect the west side of Paula Nos. 1 to 10 and to cover some interesting geochemical highs found during July.

Before test drilling any of the tentative targets so far outlined some additional sediment sampling is required and some detailed ground magnetometer is proposed and recommended.

INTRODUCTION

This is a progress report on the exploration and preliminary evaluation work on the Paula Group of located claims in the Usk area, 19 kilometres north-northeast of Terrace, British Columbia, lying on the west side of the Skeena River, between Lowrie and Shannon creeks. It presents the observations and findings of the writer based on several periods of intensive work on the property in combination with a detailed photogeologic fracture density analysis.

The writer was on the property for several days in September, 1974, and again in July/75, accompanied by an assistant and a helper. In September/75, a two-man staking crew was sent in to stake the ground to the west and adjoining the Paula Claims 1 to 10, for protection coverage and to claim some possibly significant geochemical high values found during the geochemical stream sediment work done during July, together with some well mineralized outcrops.

This report has been prepared at the request of Mr. Harry C. Faulkner, President of International Shasta Resources Ltd. (NPL), with offices at 1785 777 Hornby Street, Vancouver, B.C.

THE PROPERTY

The property consists of the Paula Group of located mineral claims, comprising Paula Nos. 1 to 10 (Record Nos. 132280N to 132289N inclusive) and Paula No. 21, Record No. 155, a metric claim of 20 units, located to the west and adjoining Paula Claims Nos. 2, 4, 6, 8, and 10. No. 21 is 2000 metres east-west and 2500 north-south. The rugged terrain and some steep to vertical cliffs made claim-staking under the new regulations difficult and time consuming. This property is located within the Omineca Mining Division. Paula Nos. 11 to 14 were allowed to lapse as they were considered to have no immediate importance.

LOCATION & ACCESS

The most efficient access to the property for personnel and light equipment is by helicopter, 20 kilometres north-northeast or less than 15 minutes from the Terrace-Kitamat Airport to a choice of several meadows and clearings on the property. However, by car the Usk cable ferry for cars is 20 kilometres from Terrace towards Hazelton by Highway 16. From the west side of the Skeena at Usk one kilometre of good gravel road extends to the north to Lowrie Creek

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where there is no bridge but where the creek can be forded with a 4-wheel-drive vehicle. From this ford across Lowrie Creek to the turn-off up to the property is about 1.2 km. The property road, with a few steep grades and one main culvert washed out, extends uphill and westwards, including switch-backs, for about .7 km.

A BRIEF HISTORY OF THE PROPERTY

The Usk area has been prospected since before 1893 when initial mineral discoveries were made, which attracted prospectors to the area. By 1910 about 200 claims had been staked in the vicinity of Usk.

Some old trenches and pits have been found, with copper mineralization in evidence. Several adits are reported on or in close proximity to the property but as yet have not been located, except for one on the south side of Shannon Creek, its location indicated on the accompanying maps. Another is supposed to exist about 300 m east of Paula No. 3, as indicated by mineralized outcrop symbol on the accompanying maps.

Five short X-Ray diamond drill holes were drilled in 1969 on and immediately east of Paula No. 9. Some copper and molybdenum mineralization was reported together with a little free gold. A diamond drill core barrel, stuck down one of the holes overnight, was reported heavily coated with green copper staining when recovered the following day. In the northwest part of Paula No. 21, mostly within Units 30 and 31, a number of diamond drill holes, EX in size, were drilled a few years ago, believed to be by Kokanee Mining.

THE STREAM SEDIMENT SAMPLING PROGRAM

In July/75, the three-man crew sampled all or most of large and small streams flowing into or out of the area covered by Paula Claims Nos. 1 to 10 and the area to the south of them. This was done because it can be clearly established photogeologically that all or almost all of the streams in this area are fracture controlled and flow in fracture zones for most of their course. It is therefore reasonable to expect that any significant mineralization at depth, in the intrusive granodiorite below the volcanics, would be reflected in the active stream sediments by virtue of circulating ground waters finding their way up through the fractures as springs. The volcanics themselves are not mineralized to any appreciable extent, so that the background values

T A B L E I
GEOCHEMICAL ANALYSES
Stream Sediment Samples
By
Vangeochem Lab Ltd.

Sample Site Number	Molybdenum ppm	Copper ppm	Silver ppm
1	30	50	
2	12	18	
3	14	165	
4	3	65	
5	10	310	2.2
6	4	55	
7	8	34	
8	5	16	
9	16	30	
10	2	36	1.1
11	3	35	
12	5	36	
13	2	16	
14	2	35	
15	270	85	
16	4	10	
17	4	51	
18	5	75	
19	3	36	2.0
20	6	137	
21	4	58	
22	2	45	
23	nd	20	
24	1	30	1.7
25	1	21	
26	1	15	
27	1	26	1.2
28	2	25	
29	2	15	0.9
30	1	21	
31	1	11	
32	1	19	
33	1	20	
34	1	24	4.0
35	2	14	
36	1	14	

nd = not detected
ppm= parts per million

Highest silver value: 4 ppm; lowest: 0.9 ppm (7 samples tested)
Gold was not detected in the 7 samples analyzed.

of molybdenum and copper were expected to be fairly low.

After carefully plotting and analyzing the frequency distributions of the molybdenum and copper values obtained from this program, the conclusions reached are:

- (a) that for molybdenum,
 - 6 ppm and over are anomalous
 - 4 & 5 ppm are probably anomalous
- (b) that for copper,
 - 100 ppm and over are strongly anomalous
 - 40 ppm to less than 100 are probably anomalous
 - (even 30 ppm & over are possibly anomalous)

For molybdenum,

- 8 samples or 22% are anomalous
 - of which one is on Paula Nos. 1 to 10 (at sample site (ss.) 20)
 - the other 7 are on Paula No. 21, mostly near its centre (at ss. 1, 2, 3, 5, & 9) and near the NW corner of Unit 30 (at ss. 15)
- 6 samples or 17% are probably anomalous
 - of which 3 are on Nos. 1 to 10 (at ss. 17, 18 & 21)
 - the other 3 are near centre of No. 21 & east of centre (at ss. 6, 8 & 12)

For copper,

- 3 samples or 8% are strongly anomalous
 - of which one is on Paula Nos. 1 to 10 (at ss. 20)
 - the other 2 are near centre of No. 21 (at ss. 3 & 4)
- 8 samples or 22% are probably anomalous
 - half of which are on Nos. 1 to 10 (at ss. 17, 18, 21 & 22)
 - the other half on No. 21, mostly near centre (at ss. 1, 5 & 6)
 - and near NW corner (at ss. 15).

THE PHOTOGEOLOGICAL (FRACTURE DENSITY ANALYSIS) PROGRAM

A detailed fracture study was made of the whole claims area and several hundred metres beyond. The annotated fractures were transferred to a transparent overlay and then counted, using the standard block of circular cells, having a cell diameter in this instance of 210 metres. The fracture density ('FD') values were plotted at each cell centre. The block of cells was then shifted NW, one cell radius north and one west and all the fractures recounted and plotted in the new cell centres. This covered the interstices between the cells in their first position and also provides a double check and also a desirable smoothing effect. The resulting grid of values were then contoured, producing the Tectonics overlay accompanying.

Attention is drawn to the following:

- (a) A fracture density high occupies most of Paula #9, fairly closely corre-

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sponding in size and location to the three (or four ?) domal-type structures clearly observable on the airphotos and substantiated by ground observations. They are outlined in fine broken line on the Geochemical & Geological Plan accompanying. They probably represent intrusive domes resulting from small fingers or bosses, extending upwards along fracture intersections in the volcanics, of granodiorite or alaskite from the granodiorite intrusive mass below.

- (b) The largest fracture density high covers Paula Nos. 3, 4, N/2 of 5, 6, W/2 of 8 and most of Unit 21 of Paula #21, the north part of Unit 28 and the north part of Unit 17. Excluding Paula #21, the best geochemical values obtained appear to be directly associated with this FD high, particularly with the peak of it in Claim #6. The mineralized pits and trenches in the volcanics near the NE corner of #6 also appear to be associated with this same FD high peak.
- (c) Many of the curvilinear fractures, particularly those in the northeast part of the area analyzed, are concave towards Paula Nos. 1 to 4 and thereby tend to indicate local tectonic or intrusive activity, generally centred in this part of the area.
- (d) In Units 18 & 19 of Claim #21, a moderate FD high is present, which appears to be associated with the high geochemical values found there and with the prominent NW-trending fault, concave towards the northeast.
- (e) Midway between this high and the one in Claim #9, is another prominent small high, centred in the S/2 of Unit 17. However, the geochemical values associated with it are not impressive support.
- (f) Finally, in the NW part of Paula #21 is a large, sprawling FD high, the SW part of which is clearly associated with the main NW fault and the central and north part appear to be associated with the molybdenum and copper mineralization exposed in the trenches and outcrops and encountered in a number of diamond drill holes in that part of the area.
- (g) It is to be remarked that a rather dramatic decrease in the fracture density occurs immediately southwest of the NW-trending fault and beyond. The thickness of the volcanics northeast of the fault is probably substantially less and the underlying intrusives more nearly unroofed.

GEOLOGICAL OBSERVATIONS, COMMENTS AND CONCLUSIONS

1. In connection with (g) above, it is to be noted that granodiorite of the Coast Intrusions are exposed on the south side of Shannon Creek, immediately north of the property, up to an elevation of 2500 to 3000 feet. (See Map 1136A of Duffel & Souther. North of Paula #1 and NW of the NW corner of Paula #21, the granodiorite/volcanic contact plunges steeply to the east and to the west, respectively. The main NW-trending fault may be partly or wholly responsible for the west flank, where the volcanics come back down to Shannon Creek. This should be determined in the field if possible.
2. It is also to be noted that Duffel & Souther show the intrusives on the

north side of Shannon Creek as being '7b' on the west and '7c' on the east, where '7c is the Inner Facies = white granodiorite'. This suggests alaskite, considered to be one of the preferred host rocks of molybdenite.

3. On Paula #9, at the NE end of the largest dome-like structure, there is a NE striking, steeply east-dipping, light-colored felsite, white granodiorite or alaskite dyke, quite altered, which occupies a radial fracture apparently emanating from the centre of that dome. Overburden obscures the complete relationship.

4. Dips in the volcanics are generally in the order of 30 to 55 degrees to the south-southeast. This is by no means necessarily the attitude of the upper surface of the granodiorite. However, it has to plunge fairly steeply to get under Lowrie Creek valley without being exposed. It does surface again near the mouth of Kleanza River, on both sides of the Skeena.

5. A necessarily fairly brief examination of the split diamond drill core stacked on the property near the northwest corner of Paula #21 indicates that they encountered some fairly impressive mineralization, including chalcopryrite and molybdenite. The molybdenite in the trenches and blasted outcrops in the vicinity of the NE corner of Unit 30 is usually either quite massive or it occurs as rosettes, suggesting outer, cooler margins. The rock in the trenches and outcrops is bleached, altered granodiorite or alaskite.

6. Probably of no economic significance, this property lies on the axis of the so-called 'Terrace Thermal Zone', trending N 8°W, of Dr. R.R. Culbert of the Department of Geophysics, University of Alberta. He considers that these geothermal axes, particularly the northerly trending ones, are associated with significant mineral deposits.

7. Although gold and silver values did not show up to any significant extent in the geochemical sampling, these precious metals have been found to be present in many of the base metal prospects in the Terrace area, and in the Usk area in particular.

CONCLUSIONS & RECOMMENDATIONS

1. The Claims area lying east of the prominent NW-trending fault, passing more or less diagonally across Paula #21, and in particular those areas shown as having substantially above average fracture density, should be surveyed by ground magnetometer, run along lines at 100-metre spacing with readings taken at 20 or 25 metre intervals.

2. It is anticipated that there would be a destruction of magnetite in the areas of greatest interest, possibly offset or confused by late epithermal magnetite introduced along fracture planes.

3. The stream sediment sampling program needs to be extended to include
 - (a) more non-anomalous areas in the volcanics to establish more definitely a background value for copper, and for this purpose the areas southwest of the NW-trending fault should be good. It is suspected that background for the volcanics should be below 20, and not above 30 or 40 ppm copper. Of the 36 samples in Table I, only 9 are less than 20, which when plotted for frequency distribution, do not form a recognizable background high;
 - (b) the fracture density highs, particularly the one in Paula # 3 to 6 and Unit 27;
 - (c) all streams crossed by the magnetometer lines should be sediment sampled.

4. If, when the above additional exploration work has been completed, analyzed and integrated with the earlier data, there emerges a drillable target(s) then an initial test drilling program of not less than 2500 feet (760 m) should be undertaken to test diamond drill them.

Respectfully submitted,

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