G E O L O G I C A L

A N D

G E O C H E M I C A L R E P O R T

on the

VW and W Mineral Claims

by

Robert E. Van Tassell

Sheet No. 106-D-2

Latitude 64°01'N
Longitude 134°30'W
Date: Aug. 18th - Sept. 4th, 1965

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Geological Mapping performed by:

Mr. Scott Zimmer,
304 Sholden Road,
Iron River,
Michigan, U.S.A.

Geochemical Sampling by:

Mr. Rodney Peterson,
United Keno Hill Mines Ltd.,
Calumet, Yukon.

Mr. Ian Hutcheon,
1007 Wilkinson Road,
Richmond, B. C.

Supervised by:

Dr. Alex Smith, P. Eng.,
Consulting Geologist for U.K.H.M.,
Falconbridge Nickel Mines Ltd.,
1112 West Pender Street,
Vancouver, B. C.

SUMMARY

The VW 2 & 3 and W Claims (17 to 40) were staked following the release of results from a G.S.C. Geochemical Survey on March 31st, 1965.

The claim group contains approximately 25% outcrop. It was felt that a preliminary soil sampling program would give an indication to possible vein zones in the area and would closer define areas for more detailed follow-up work.

In addition to the geochemical survey, a preliminary geological reconnaissance was made to locate information which would aid in the interpretation of geochemical results.

PROPERTY

The VW and W Claim Group was staked for and is held by United Keno Hill Mines Limited, Elsa, Yukon. The group is made up of the following claims.

VW 2 & VW 3 Grant Nos. 84208 & 84209

W 17 to W 40 Grant Nos. 84154 - 84179

LOCATION

The Claim group lies in the Patterson Range some 30 miles northeast of Elsa and 6 miles southwest of the Beaver River. The area is accessible by helicopter.

TOPOGRAPHY

The Claim group runs at right angles to a valley which has a minimum elevation of approximately 3900 feet. The claims extend up the north and south slopes to an elevation of 4500 feet.

The property is covered by spruce, buckbrush and willow, which greatly thins out at higher elevations.

GENERAL GEOLOGY

The general geology of the area has been described by L. H. Green (1958). The rocks underlying the VW and W claims belong to the Yukon Group and may be PreCambrian or early Palaeozoic in age. They consist of thick and thin bedded quartzites but mostly the latter, sericite schist, graphite schist, greenstone and limestone.

This band of consolidated rocks runs from Roop Lakes north eastward to the Beaver River and dips to the southeast.

At the present time there are no known occurrences of mineralization in this belt.

I GEOLOGICAL SURVEY

A. Detailed Geology

The claim group contains approximately 25% outcrop, the remainder is covered by overburden.

The area was mapped using the claim baselines and aerial photos as reference. The area is underlain by thin bedded quartzites, graphite schist, sericite schist, greenstone and one band of limestone was noted.

The overall strike in the area is northeast, however local strike variations and varying dips indicates a complex folding.

(a) Thin Bedded Quartzites - A few thick bedded quartzite but maximum thickness is 5 feet. Thin bedded quartzites are separated by bands of graphitic phyllite most of which are only a few inches thick. These thin-bedded quartzites are from dark grey to black in color.

(b) Graphite Schist - Black in color, they are usually highly contorted and contain many stringers and bulbous masses of quartz.

(c) Sericite Schist - Mainly a light grey green to olive green with some chlorite. These schists are usually highly contorted and contain stringers and bulbous masses of quartz.

(d) Greenstone - A grey green to dark green in color and occur usually as lens like bodies. The larger greenstone bodies show original texture whereas smaller and thinner bodies have developed a foliation parallel to the sediments.

(e) Limestone - Usually a blue grey to grey in color and show a small degree of banding. Only one narrow band was noted in the map area.

B. Structure

The rocks in the area show varying strikes and dips. The overall strike in the area is to the northeast but local strikes and dips show a complex, isoclinal folding and in some local areas individual beds have been repeated a number of times in a single outcrop.

A number of aerial lineations, apparent from photos, were prospected and a number of barren faults found.

C. Mineralization

Reconnaissance prospecting did not reveal mineralization either in place or as float.

II GEOCHEMICAL SURVEY

The claim baselines were used for setting up a grid for soil sampling.

(a) Sampling - A total of 1162 soil samples were taken in 36 man days. Preliminary sampling was done on 300 foot line spacings with samples taken at 100 foot intervals on the lines.

Samples approximately one cup in size were taken, using a mattock. Holes from 6 to 18 inches deep were dug in order to obtain an "organic free" sample. All samples were tagged and placed in small plastic sample bags.

(b) Lab Procedure for Chemical Analysis of Soil Samples for Lead, Zinc and Copper.

(i) General

The initial laboratory techniques and methods of analysis were set up by Dr. R. E. Delevault of the University of British Columbia, during a three week visit early in the 1964 season. He felt that the techniques as set up were those best applicable to the particular conditions of the area.

(ii) Sampling

1. Place approximately 200 grams of the soil sample on a clean sheet of paper and allow to dry thoroughly.
2. When soil has dried, mix thoroughly and crush.
3. With one gram scoop select a sample which possesses as little organic matter as possible and disregard any rock fragments larger than 1 mm. (a one mm. mesh seive may be used.)
4. Place the one gram soil sample in a small aluminum cup (made from aluminum foil) and tag.

(iii) Digestion

1. Place the one gram (well crushed) soil sample into a 22 x 175 mm. test tube, add one ml. of aqua regia and heat gently (about an hour) in the fume hood until the aqua regia has evaporated.
2. Allow the sample residue to cool for 10 or 15 minutes.
3. Add 1 ml. of dilute hydrochloric acid (1HCl:10 H_2O) to the residue and gently heat (approx. 15 minutes) until the soil is just moist.
4. Dilute to 20 mls. with demineralized water and shake well.

(iv) Copper Test

1. Make a series of copper standards by diluting the 100 γ/ml. stock solution to 1/ml., i.e. take 1 ml. of 100 γ/ml. solution and dilute it to 100 mls. with demineralized water. The copper standards should be 0 γ, 0.2 γ, 0.5 γ, 0.7 γ, 1 γ, 2 γ, 3 γ, 4 γ, 6 γ, 10 γ. Therefore measure with a pipette respectively 0.2, 0.5, 0.7, 1.0, 2.0 mls., etc. of the 1 γ solution into separate 18 x 150 mm. test tubes. Add the reagents for this test described below. These standards will keep for days, even weeks, if well stoppered.

2. To an aliquot of the sample solution in a 18 x 150 mm. test tube add 2 ml. of the ammonium citrate-sodium acetate-acetic acid buffer solution, enough demineralized water to make the total volume 6 to 8 mls., mix, and add 1 ml. of the biquinoline solution.
3. Put a plastic stopper on the test tube and shake about 20 seconds or 100 strokes.

(v) Lead Test

1. To an aliquot of the sample solution add 5-10 milligrams of ascorbic acid, wait a few minutes, then add ½ ml. of the potassium cyanide solution, and 1 ml. of ammonium-citrate buffer solution. Wait at least two minutes if much iron is present.
2. Add ½ or 1 ml. of dithizone working solution (dithizone dissolved in chloroform).
3. Shake and compare with the standards unless the color is the pink color of the pure complex. In such case, add more dithizone until a mixed color persists and match to the standards. The amount contained in a matching standard must, of course, be multiplied by the total number of ½ mls. of dithizone used.
4. Prepare a series of standards in the same manner as for copper and add the reagents as in "1" above. The standards should have the following range:
γ's lead 0, 0.2, 0.5, 0.8, 1, 1.5, 2, 3, 4, 5, 8 mls. of Dz. 1 ml. ½ ml, ½ ml, 1 ml, 1 ml, 2 ml, 2 ml, 3 ml, 3 ml, 4 ml.
For higher amounts than 8γ per ml. add dithizone and shake until color for 8 is reached then there are 2γ per ml. used. These standards will keep for about 4 hours at normal room temperatures.

(vi) Zinc Test

1. Make a series of zinc standards by diluting the 100 γ/ml. stock solution to 1 γ/ml. solution in the same manner as for copper. The zinc standards should be 0γ, 0.2γ, 0.5γ, 0.6γ, 0.8γ, 1γ. Add the reagents for the test described below. These standards will keep for about 1½ hours at normal room temperatures.
2. To an aliquot of the unknown sample solution add 5-10 milligrams of ascorbic acid, wait a few minutes, and then add 2 mls. of the sodium-acetate buffer solution, and 2 mls. of the dithizone working solution (dithizone dissolved in toluene-10 milligrams/liter).
3. Shake from 30 to 40 seconds and compare to standards.

NOTES

1. Extreme care must be taken to prevent contamination from any source. This necessitates good cleaning of glassware with metal-free water. Acetone and/or ethyl ether can be used as a rinser. Extreme care must be exercised with these latter organic solvents as they are extremely flammable.
2. Lead and zinc standards are very unstable (at normal room temperatures they keep from 1 to 4 hours), in presence of light and heat the metal dithizonate tends to break down. If standards wish to be preserved for a limited time, they should be put in a cold, dark place, e.g., a refrigerator. The author experimented with artificial standards by mixing suitable colored inks. These artificial standards were found to be unsatisfactory as the colors faded slightly in a short time and the accuracy desired was not possible.

(c) Interpretation of Results

All samples taken were analyzed for lead, zinc and copper. From three years of previous work on Galena and Keno Hills, soil sampling has proved to be an effective tool in locating vein zones in areas of relatively shallow overburden, e.g. less 10 feet. Copper analysis of soil samples is no longer done on local work as values have proved to be very erratic and usually reflect areas of greenstone and sericite schist.

It was felt that a three metal determination (lead, zinc and copper) should be done on outside property examinations to determine the cause of C.S.C. anomalies which were given as Total Heavy Metals.

In contouring lead values are cut at 50 parts per million (p.p.m.) zinc at 200 rather than 100 p.p.m. as the area appears to have a very high zinc background. Copper values are cut at 50 p.p.m. Lead has proven to be the best indicator for finding silver bearing vein zones. Zinc values occasionally reflect lead values but in a number of cases they are widespread and erratic making zinc interpretation very difficult. Copper very seldom reflects vein zones but high values (anomalous) have been obtained over areas of greenstone and sericite schist.

In the case of the W Group interpretation is based primarily on the lead plot although further study will be made to determine the cause of the high zinc values, which are attributed at the present to the rock types.

There are two small lead anomalies on WW #3 Mineral Claim, other than this there are only 4 isolated highs which are probably erratics. The lead anomalies on the WW 3 may be an extension of values found by Canadian Superior to the southeast.

Zinc values in the area are high and the contour interval was started at 200 parts per million. The highest values in the area occur in the valley portion of the claim group.

There are corresponding zinc anomalies over the lead anomaly on the WW #3 Mineral Claim.

Copper anomalies are for the most part small and scattered and may reflect greenstone and/or sericite schist. Two copper anomalies on the WW #3 Claim correspond to the zinc and lead anomaly discussed above.

CONCLUSIONS AND RECOMMENDATIONS

Reconnaissance prospecting did not find mineralization either in place or as float.

Soil sampling has revealed two minor lead anomalies with corresponding zinc and copper.

The area has shown an unusually high zinc background which is now felt to be the major cause of G.S.C. anomalies in the area.

It is recommended that the anomalies on the south boundary of the Claim group be resampled on a closer grid and possibly followed up with hand trenching.

Rock samples should be collected in the area and chemically analyzed for background areas.

Drop the northern portion of the claim group which has a striking absence of anomalies.

SUMMARY OF WORK

1. Geological Mapping August 18th - Sept. 4th, 1965

One man prospected the claim area and mapped on a scale of 1" = 400 feet for a total of 18 man days.

2. Geochemical Survey August 18th - Sept. 4th, 1965

Two men collected 1162 soil samples for a total of 36 man days. All samples were analyzed in the Geochemical Lab at Calumet.

Geological Mapping

One Party Chief @ $450.00 per month by 18 days	$ 261.36

Geochemical Survey

Two soil samplers @ $375.00 per month by 36 days	$ 435.60
1162 soil samples @ $2.00 per sample for 3 analysis (lead, zinc and copper)	$2,324.00
	$ 2,759.60

Geological Mapping	$ 261.36
Geochemical Survey	2,759.60
Total	$ 3,020.96

AFFIDAVIT OF COSTS

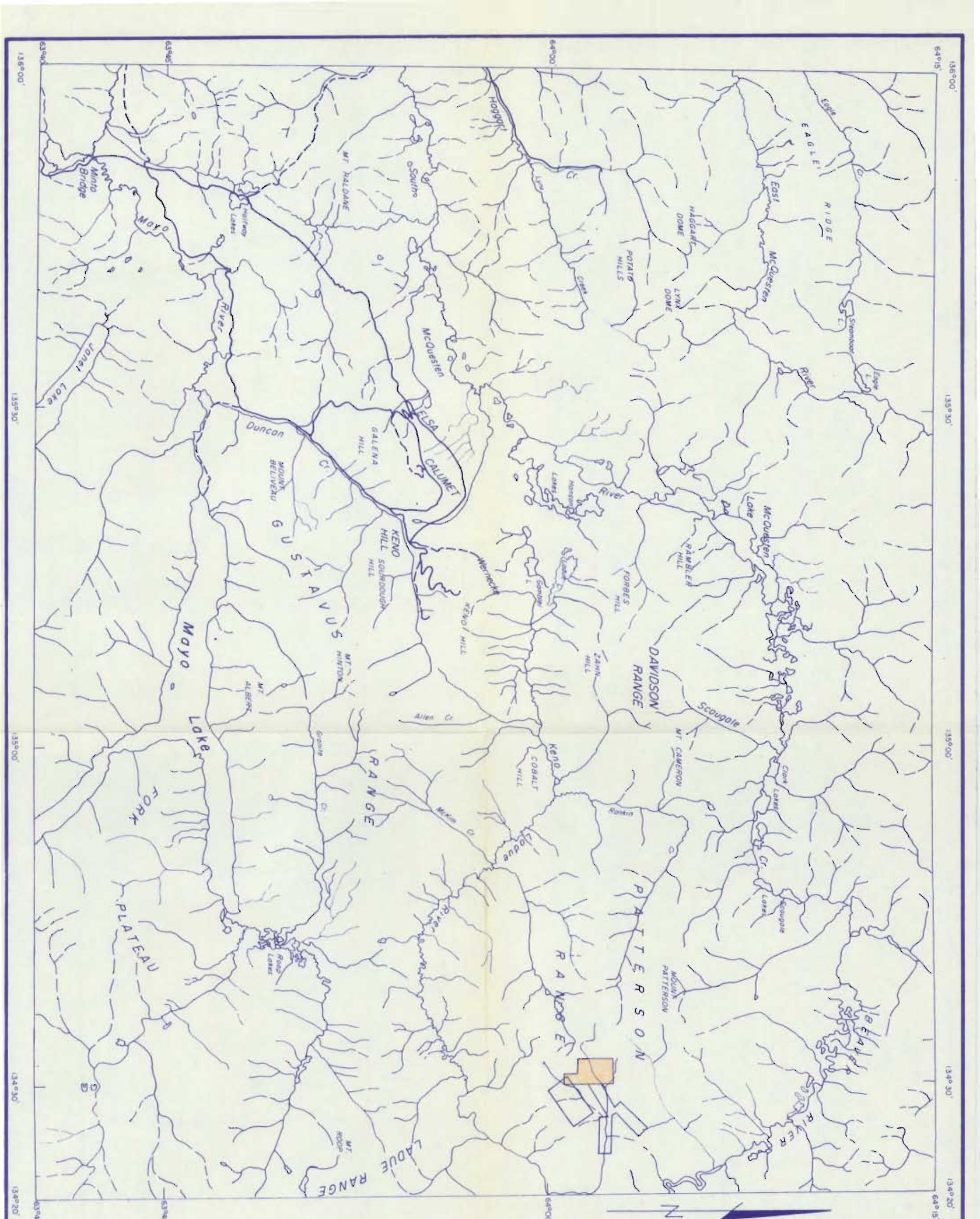
I, Robert E. Van Tassell, of Calumet in the Yukon Territory, make oath and say:

That the cost statement on page seven of the Geological and Geochemical Report on the W 2 & 3 and W 17 - 40 Mineral Claims, to the best of my knowledge and belief, is the true amount of money spent on the geological reconnaissance and geochemical survey of the said claims in 1965.

Robert E Van Tassell

Sworn before me at ~~Calumet~~ MAYO in the Yukon Territory
this 7TH day of APRIL, 1966.

P M Cunningham
A Commissioner for Oaths
for Yukon Territory.



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ELSA YUKON

EXPLORATION DEPARTMENT

W CLAIM GROUP - PATTERSON RANGE

Latitude: 64°01' N Longitude: 134°30' W

Staking Sheet No. 106-D-2

4 2 0 4 8 12

Scale: 1 inch = 4 miles

FIG. #2
GENERAL GEOL

017464

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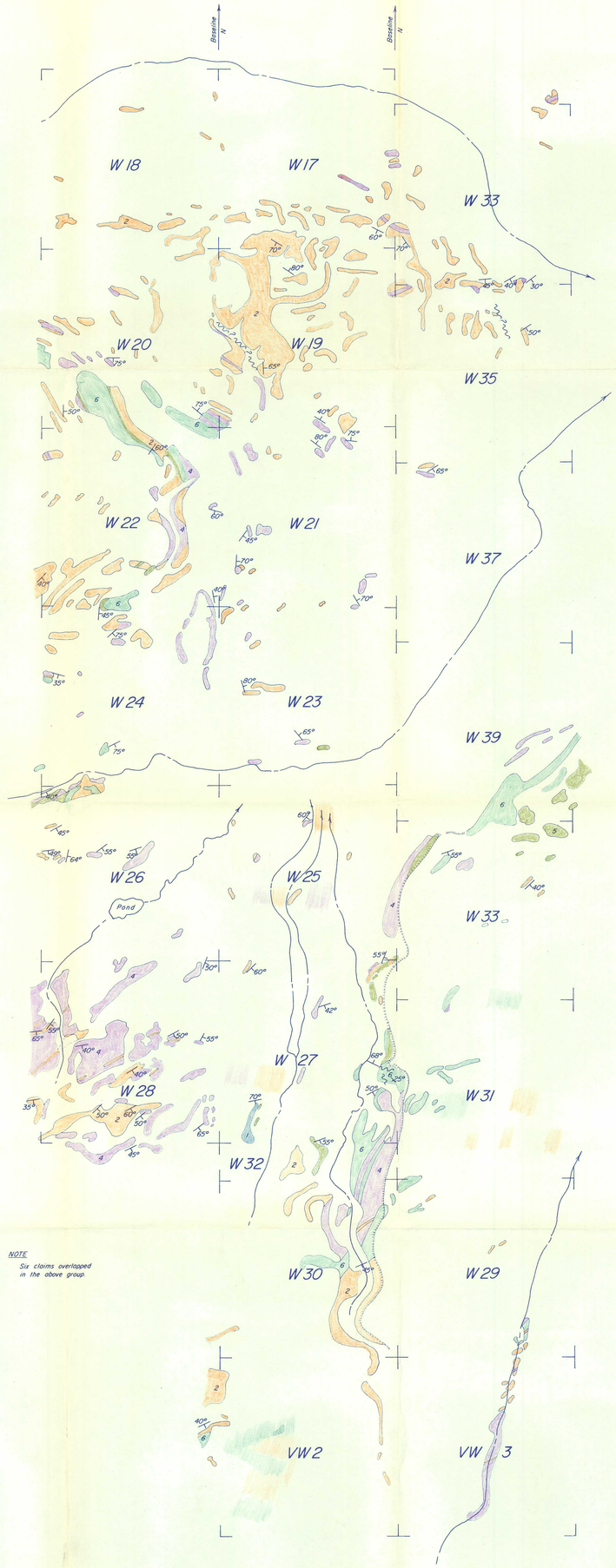
W CLAIM GROUP

GENERAL GEOLOGY



Sediments

1 Limestone

2 Quartzite — 2a Quartzite with Graphite Schist — 2b Quartzite (broken or crushed)

3 Pale Siliceous Quartzite

4 Graphite Schist — 4a Graphite Schist with Quartzite

5 Sericite Schist

Intrusives

6 Greenstone — 6a Greenstone (altered or highly schistose)

7 Acid Dyke

8 Lamprophyre

Vein Material

Vein Material (breccia, siderite, limonite etc.)

Sulfides (galena, sphalerite etc.)

Geological Contact (observed) — Geological Contact (assumed)

Vein (observed) — Vein (projected or possible)

Fault (observed) — Fault (assumed)

Bedding — Lineations

Schistosity

Photo Center — Trail

Spot Height — Cut Line

Buildings — Roads

Bluff — Bulldozer Trench

Swamp — Hand Trench

Stream — Workings

Slide Rock or Frost Heave — Adit

This reference scale bar has been added to the original maps and as the maps have been reduced from the original drawings it may not be the correct distance for the original scale.

400 200 0 400 800 1200 1600

SCALE: 1 inch = 400 feet

NOTE

Six claims overlapped in the above group.

Drawn by T.H. and G.S. Nov. 1965

Geology by G.S. Zimmer Sept 1965

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W CLAIM GROUP

SOIL SAMPLING
LEAD PLOT

CONTOUR INTERVALS IN PARTS PER MILLION (PPM)

	0	-	50
	50	-	100
	100	-	200
	200	-	400
	400	-	800
	800	-	1600
	1600	-	3200
	3200	-	6400
	6400	-	12,800
	over 12,800		

-5 -13 -5
-46 -7 -16 Lead plot in parts per million (ppm)

(5) Anomaly Reference Number

+ 245 Photo Center
· 3770 Spot Height
Buildings
Bluff
Swamp
Stream
Slide Rock or Frost Heave
Trail
Cut Line
Roads
Bulldozer Trench
Hand Trench
Workings
Adit

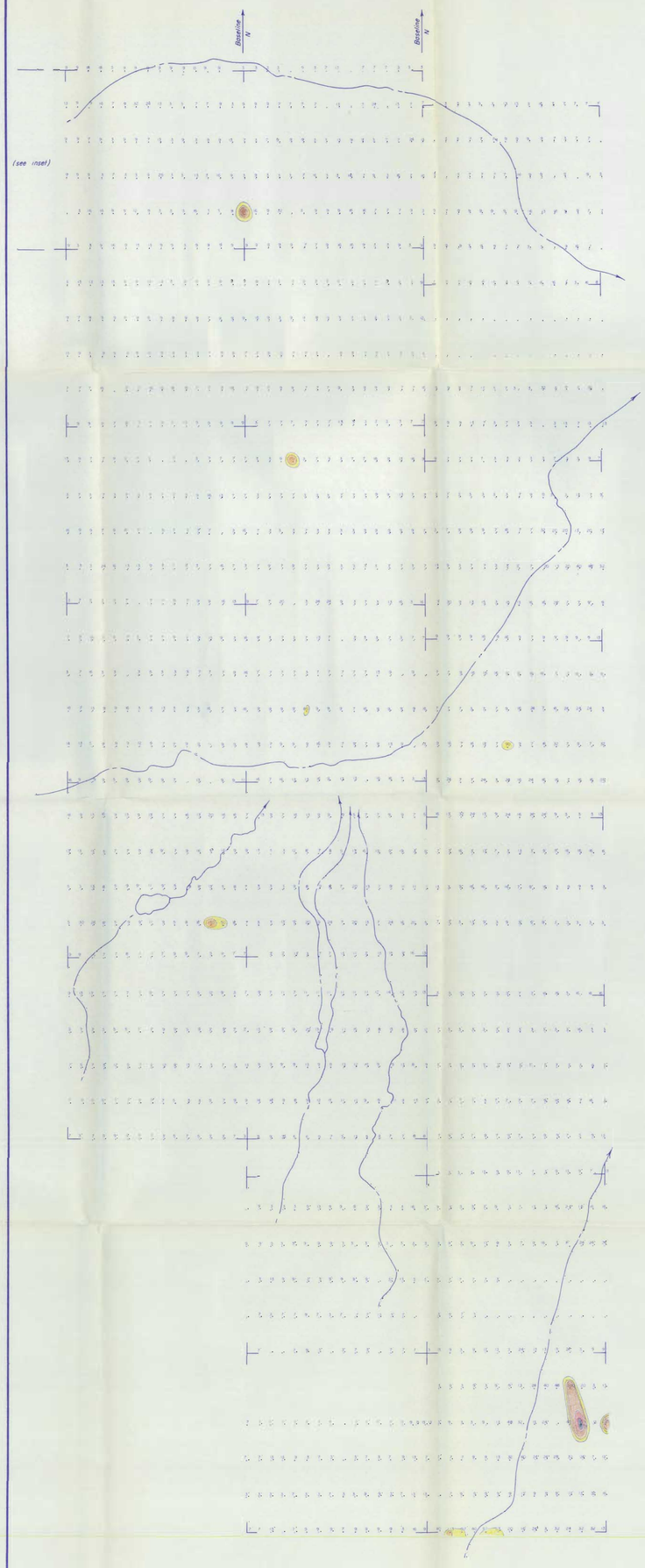
400 200 0 400 800 1200 1600

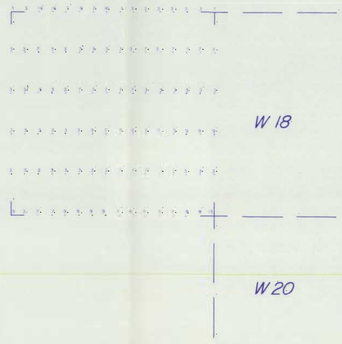
SCALE 1 inch = 400 feet

Baseline N

Baseline N

(see inset)





Drawn by T.H. and G.S. Feb. 1966

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W CLAIM GROUP

SOIL SAMPLING
ZINC PLOT

CONTOUR INTERVALS IN PARTS PER MILLION (PPM)

	0	-	100
	100	-	200
	200	-	400
	400	-	800
	800	-	1600
	1600	-	3200
	3200	-	6400
	6400	-	12,800
	12,800	-	25,600
	over 25,600		

-64 -48 -81
-96 -80 -64 Zinc plot in parts per million (ppm)

Depression contour

+	Photo Center		Trail
	Spot Height		Cut Line
	Buildings		Roads
	Bluff		Bulldozer Trench
	Swamp	<>>>>	Hand Trench
	Stream		Workings
	Slide Rock or Frost Heave		Adit

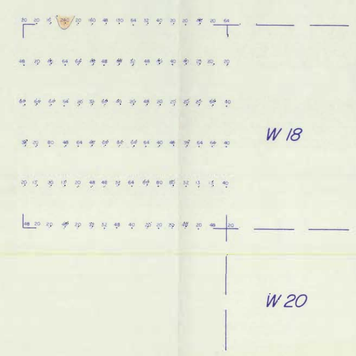
400 200 0 400 800 1200 1600

SCALE: 1 inch = 400 feet

Baseline N

Baseline N

(see inset)



Drawn by T.H. and G.S. Feb 1965

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EXPLORATION DEPARTMENT

W CLAIM GROUP

SOIL SAMPLING
COPPER PLOT

CONTOUR INTERVALS IN PARTS PER MILLION (PPM)

	0	-	50
	50	-	100
	100	-	200
	200	-	400
	400	-	800
	800	-	1600
	1600	-	3200
	3200	-	6400
	6400	-	12,800
	over 12,800		

Copper plot in parts per million (ppm)

+ 267	Photo Center		Trail
3770	Spot Height		Cut Line
	Buildings		Roads
	Bluff		Bulldozer Trench
	Swamp		Hand Trench
	Stream		Workings
	Slide Rock or Frost Heave		Adit

400 200 0 400 800 1200 1600

SCALE: 1 inch = 400 feet

Baseline N

Baseline N

(see inset)

W 18

W 20

Drawn by T.H. and G.S. Feb. 1966