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REPORT OF GEOCHEMICAL SURVEY OF HOLDINGS OF

SALMO PRINCE MINES LTD., N.P.L.,

IN THE HIGHLAND VALLEY COPPER CAMP,

KAMLOOPS MINING DIVISION

BY

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May 2nd, 1957

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REPORT ON THE GEOCHEMICAL SURVEY  
OF CLAIMS HELD BY SALMO PRINCE MINES LTD., N.P.L.,  
IN THE HIGHLAND VALLEY AREA,  
KAMLOOBS MINING DIVISION, BRITISH COLUMBIA.

INTRODUCTION

Salmo Prince Mines Ltd. holds a total of 57 mineral claims in the Highland Valley copper camp of British Columbia. These claims were in part purchased and in part staked by the Company as raw prospecting ground underlain by similar intrusive rocks to those being explored for copper with encouraging results by other companies in that camp.

Because of the scarcity of outcrops, it was decided to commence prospecting the area by conducting a systematic soil sampling programme over all of the claims and then to strip, and possibly diamond-drill areas in which the topsoil was found to contain unusually large amounts of copper. This work was done under my direction by a graduate mining engineer, Mr. R. Stokes, aided by several assistants. The survey was carried on from May 1st 1956 to October 25th 1956.

AREA TESTED

The survey was run over a total of 57 claims, omitting only areas underlain by volcanic flow-rocks of Tertiary age. The claims surveyed include the Thumper Group of 20 claims, the Wildeat Group of 22 claims, the Ann Group of 9 claims, and the Looe Group of 6 claims.

FIELD PROCEDURE

A base-line was layed out at 330° (magnetic) and picket lines were cut out at right angles to the base-line. The picket-lines were spaced 400 feet apart for preliminary work and intermediate lines, 200 feet apart, were cut in areas of interest. Soil samples were taken at 100 foot intervals along the picket-lines at first, then at 50 feet, and even 25 foot intervals, in areas of interest. A total of 62.6 miles of picket-line was cut from which 3,739 samples were taken and assayed.

Soil samples taken weighed approximately 50 grams. They were taken with a stainless steel spoon from depths varying from 8 inches to 2 feet. Procedure followed required removal of the humus layer to the "Layer of Accumulation or Zone B". This is below the humus and the leached and bleached zone, and is generally clayey.

The sample was placed in a 4" x 8" plastic bag and labelled with masking tape marked with a ball-point pen.

#### CHEMICAL ASSAY METHOD

At first the assaying was done for us by F.C. Darsel at the University of British Columbia. Later he made up a kit for us and the assays were made in camp.

The kit consisted of:-

12	20 ml. beakers
12	vials graduated at 3 mls.
1	wash bottle
2	2 mm. bore capillary tubes with rubber tubing, graduated to contain and to deliver approximately .2 mls.
1	half-teaspoonful measure
1	test-tube brush
12	corks for vials
1	250 mls. beaker for washing corks, complete with watch glass for covering same
1	roll rubeanic acid treated test paper
1	set of calibrated test spots (in ppm. available copper)
1	bottle (approx. 600 mls.) sodium acetate-acetic acid extracting solution.
1	bottle copper-free distilled water
3	boxes of 100 7 cm. No. 50 Whatman filter papers.

#### Procedure

Dry soil to be crushed on plastic cut from top of sample bag (can be placed under a second piece of plastic and crushed with hammer)

Sort out from this crushed soil one half-teaspoonful and transfer back to paper for pouring into vial containing 3 mls. extraction solution (red line)

Cover cork with two thicknesses of plastic and place in vial. Shake vigorously 30 seconds to 1 minute - longer if possible.

Allow to settle; withdraw .2 mls. with micro pipette; i.e. to the level of the upper red line on the pipette if the pipette is allowed to drain itself or to the lower red line if the liquid is blown out of the pipette. **NOTE:** One can conveniently pinch the rubber tube between thumb and finger to hold liquid in pipette.

(Use a test tube holder made from corrugated layer of egg carton - cut off flat ends.)

Transfer the .2 mls. by pipette to the folded 7 cm. filter paper, the point of which is in firm contact with a piece of rubeanic acid treated paper in the bottom of a dry 20 ml. beaker.

Allow liquid to drain through filter paper and develop black spot on treated paper. Compare intensity of black spot with standards.

Wash vials first with tap water, then with distilled water. Rinse pipettes with distilled water. Dry out beakers with tissues; if the previous sample tested high in copper, rinse first with distilled water.

#### RUBEANIC ACID TEST FOR COPPER IN SOILS: (Semi-quantitative)

##### Procedure:

Place a strip of rubeanic acid paper 3 centimeters (about  $1\frac{1}{2}$ " long) in the bottom of a 50 ml. beaker (preferably pyrex glass) or a similar container. Number of assay may be pencilled at one end of paper.

Place a 9 cm. filter paper circle, folded in the usual way, so that its point, which must be folded quite sharply, rests on the centre of the reagent paper. It may be more practical to reduce the size of the filter a little for a better fit.

Introduce  $\frac{1}{2}$  teaspoonful (about 2 grams of dry soil), selecting the finest part of the soil, into a 15 ml. diameter Pyrex test tube. It is convenient to sort the soil on a little square of plastic, 2" by 2", which is used after to protect the stopper from contamination. Add acetic acid-acetate solution, usually 3 ml. are enough to thoroughly moisten the soil and leave a little excess of liquid. Put on stopper. Shake 100 strokes, about 20 seconds. Throw the contents of the test tube into the filter. (3 mls. is approximately 0.6 ccs. from the very bottom of the vials used.) Prepare 6 and hold 3 in each hand.

If the amount of acetic solution has been properly judged, the liquid will filter slowly without forming a drop at the tip of the filter and the eventually appearing blue black spot of copper rubeanate will be concentrated at one point, where the filter touches the paper.

Unless the filter has been overloaded and too much liquid passes, the beaker is then ready again for use. Otherwise, wipe it

with filter paper. Same if a very dark and large spot indicates a large amount of copper. (Clean with a strip of toilet tissue)

REAGENTS:

Rubeanic acid paper: dissolve rubeanic acid (dithio-cyanide) one gram per 100 ml. acetone (C.P.); pass strips of filter paper for chromatography,  $\frac{1}{2}$  inch wide, 4 feet long in the solution which has been poured into a shallow porcelain dish. Pin on the edge of a shelf for drying, which takes a few minutes. Utmost cleanliness is required. Reagent stains fingers.

Acetic-acetate solution: For a gallon use 1 lb. hydrated sodium acetate, and one quart or litre of C.P. acetic acid. If it does not give a good blank, remove copper by shaking with dithionite solution in carbon tetrachloride.

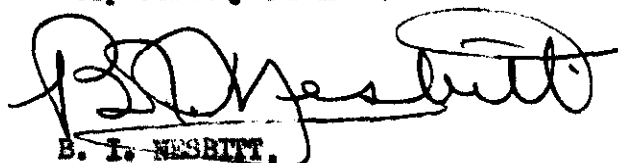
(Clean snow water can be used instead of distilled water. Test by running a blank.)

RESULTS:

Copper concentration was determined from the intensity and size of the black spot obtained and was calibrated against a standard of known strength. The concentration was measured in parts per million (P.P.M.) of available copper and 3 P.P.M. was considered anomalous.

The results were recorded on the accompanying geo-chemical plan.

Respectfully submitted



B. I. NESBITT,  
Consulting Geological Engineer.

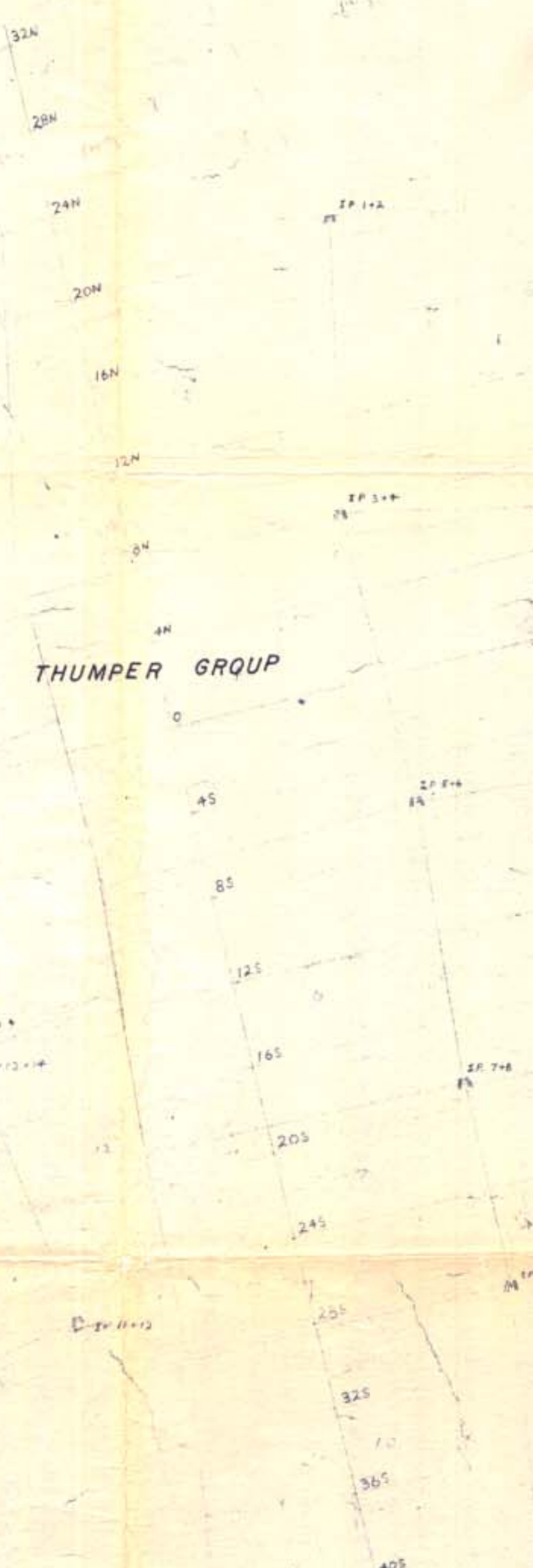
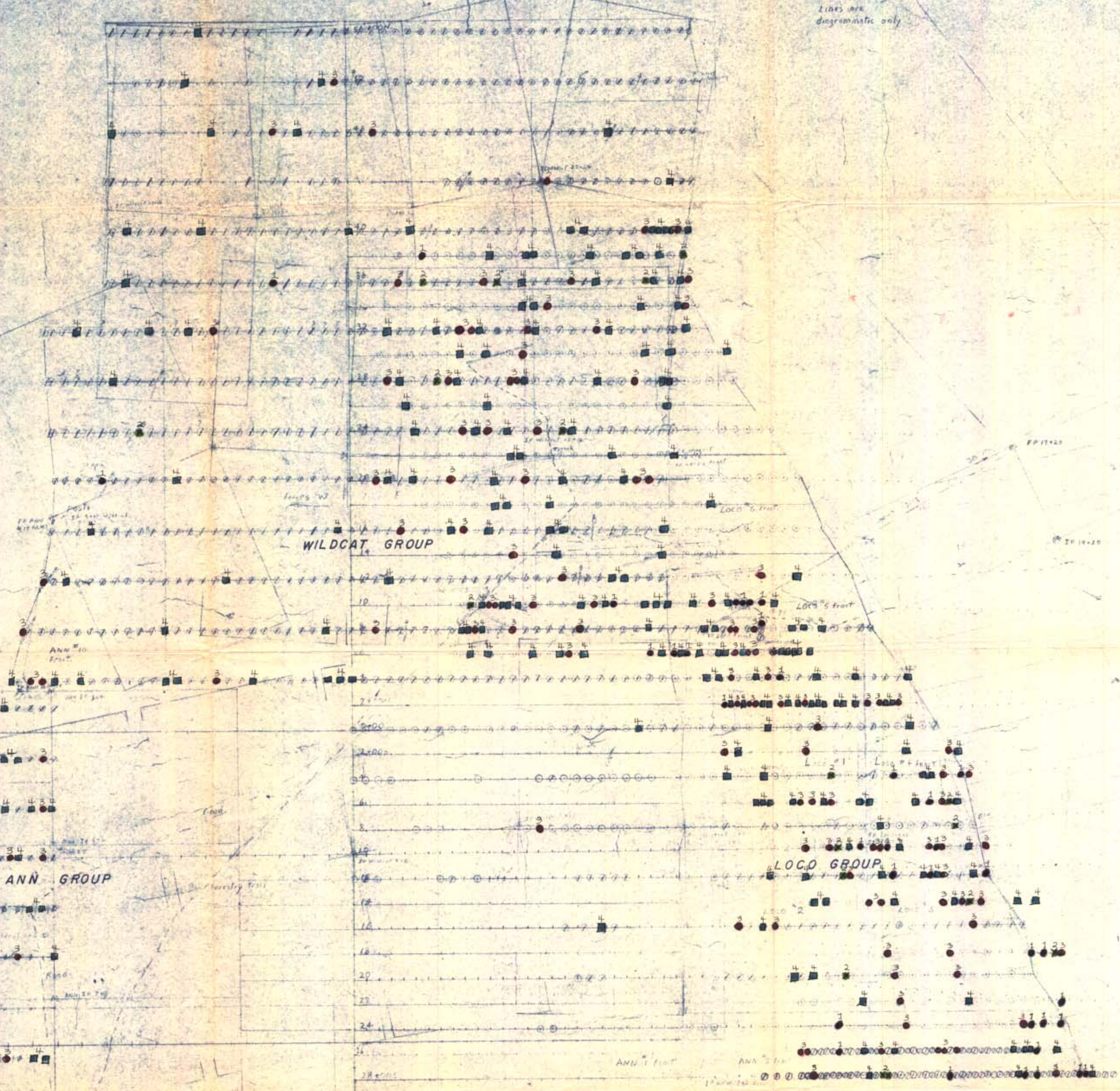
VANCOUVER, B.C.  
MAY 2ND 1957.



KRAIN GROUP

PATRICK GROUP

Lines are diagrammatic only



LEGEND

GEOCHEMICAL SAMPLES P.P.M.	
1 ● 10 and above	— Lines cut
2 ● 6-9	— Lines chained
3 ● 3-5	— Lines sampled
4 ● 2	— Claims boundary
0 ● less than 2	— Cut trench

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MAP 1

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 174 MAP #1

SALMO PRINCE MINES  
ASHCROFT, B.C.

CLAIMS PLAN  
a  
SOIL SAMPLING RESULTS

*R.D. Nesbitt*  
May 24, 1957

Drawn: R.B. Stokes Scale: 1 inch = 500 feet  
Date: Plan No