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MINING LANDS SECTION

GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL REPORT

ON THE PROPERTY HELD BY

NOVA-CO EXPLORATION LIMITED

MCAREE TOWNSHIP AND KEIKEWABIK LAKE

PATRICIA MINING DIVISION, ONTARIO

B. & C. LTD. A14872

D. R. Derry, Ph.D., P.Eng.

I. S. Thompson

2.1672

D. M. Rossell

*h.D.*

Toronto, Ontario  
February 24, 1981

NOTE

All surveys were directly supervised by D. M. Rossell, B.Sc., who is presently a candidate for the degree of Master of Science in geology at Michigan Technological University, Houghton, Michigan.

The information in this report was compiled by E. Stuart, M.Sc., of Derry, Michener & Booth.



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FIGURES

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Sioux Lookout Area, North Western  
Ontario.

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PROPERTY LOCATION AND ACCESS

The property comprises 6 claims (originally 11, 5 of which have been surrendered), optioned from Dejour Mines Limited, in the east part of McAree Township and in the west part of Keikewabik Lake, Patricia Mining Division, Ontario, as follows:- PA436356 to PA436363, inclusive, and PA436345, 436812 and 436818\*.

The centre of the property lies at about the 74 mile post on the 5th Meridian Line which forms the east boundary of McAree Township and is about 2.3 km (1.4 mi.) east of the southwest end of Pickerel Arm of Minnitaki Lake. This lake may be entered at many points from a paved highway between Dinoric, on the TransCanada Highway, and Sioux Lookout to the northeast. An old tractor road leads to the property from Pickerel Arm.

REGIONAL GEOLOGY (Map P.1204)

The Sioux Lookout District is underlain by a northeastward-trending belt of folded Keewatin greenstones and sediments, about 24 km (15 mi.) wide and 80 km (50 mi.) long which is surrounded and locally intruded by granite and related rocks. In this assemblage are three parallel belts of volcanic rocks and two of sediments; the latter are thought to be equivalent in age to the volcanics although the contacts are obscured by faulting (Chisholm, 1951). Most of the significant gold occurrences and deposits found to date are related to a belt of felsic

\* The following claims have been surrendered: PA436356 to PA436358, PA436362 and PA436361.

intrusive rocks in Echo, Pickerel and Jordan Townships which cut the central greenstone volcanic belt. The Goldlund property, now under active exploration and development, lies within the central volcanic belt in Echo Township. The McAree property lies in the third or most southerly greenstone belt about 6 km (4 mi.) southeast of the central belt.

#### HISTORY

The general area of the property was initially explored around the turn of the century at which time current claim PA463363 was test-pitted by the Wallbridge Interest (Hurst, 1932). The Schmidt and the Midas properties were prospects worked about the same time in the same belt of greenstone volcanics, to the northeast and southwest of the property, respectively. These workings involved the sinking of shallow shafts.

The second phase of activity probably occurred in the 1930's when the area around the Wallbridge Pit, a ridge of porphyry intruding the greenstones, was trenched extensively. Results of this trenching and sampling are not known in detail except by reference to them in subsequent examination and exploration reports. The sample locations from previous work cannot be accurately determined from these earlier reports.

The next important phase of activity was prompted by the discovery and development of gold from 1942 to 1950 on the Newlund (now Goldlund) property in Echo Township, about 10 km (6 mi.) NNW of Nova-Co's property.

At that time (in 1950) the property was examined and sampled by geologist John C. Rogers. The three samples taken at the Porphyry Ridge

showing returned 0.28 oz. Au/ton and 0.96 oz. Ag/ton over 3.2 ft., 1.26 oz. Au/ton and 11.70 oz. Ag/ton over 0.5 ft., and 0.56 oz. Au/ton over 3.2 ft. Coordinates were not provided with the geology and sampling sketch (Figure 6) accompanying Rogers' report (1958). Rogers (1950, 1958) recommended a programme of drilling; however, by this time the Newlund Mine had closed and exploration in the district became dormant.

The final phase of work occurred in 1960 when Teck Corporation drilled 2725 ft. in seven holes beneath the trenches on the recommendation of Rogers' report (Figures 4 & 5). A total of 426.4 ft. of silicified porphyry and quartz vein intersections were assayed of which four intersections assayed better than 0.4 oz./ton over widths of 1.5 to 4.3 ft. Most assays were nil to 0.02 oz. This was not considered of sufficient interest at that time to justify further drilling. Drill logs which accompany Figure 5 are provided in Appendix A.

The property, which was staked in the spring of 1979, was not worked in 1979 and an extension was granted to Dejour Mines Limited to carry out the work prior to December 31, 1980.

#### PROPERTY GEOLOGY

##### General:

On the basis of the surface maps, trenching, sampling and the subsequent drilling, it is apparent that the property is underlain by northeast-striking andesitic lavas which are intruded by porphyry dykes in a zone generally paralleling this northeasterly trend. The gold mineralization occurs within quartz veins, with some minor sulphide mineralization and in some cases coarse, visible gold was reported. The surface sampling indicates two main zones of quartz veins with a northeasterly strike and a steep dip to the southeast.



Diamond drilling appears to confirm the same pattern of quartz veins at depth. Of the 22 sampled intervals, assaying 0.02 oz. Au/ton or better, from the seven holes drilled, the four best intersections assayed more than 0.4 oz. Au/ton. The drill holes, which intersected these values, are in two tiers, which cross-section the veins, approximately 50 ft. apart. These intersections are:-

Cross Section	[	DDH No. 2 - 0.78 oz. Au/ton over 2.0 ft.	} (same intersections)
		- 0.44 oz. Au/ton over 10.0 ft.	
	[	DDH No. 6 - 0.66 oz. Au/ton over 2.2 ft.	
Cross Section	[	DDH No. 3 - 0.42 oz. Au/ton over 1.5 ft.	
		DDH No. 4 - 0.70 oz. Au/ton over 4.3 ft.	

The arithmetic average of the above intersections is 0.6 oz. Au/ton and accompanying silver assays average 2.5 oz./ton. Silver values average about four times those of gold. Available information is insufficient to permit correlation of those intersections.

#### Descriptions of Lithologic Units

Three major distinct lithologies are found within the claim group: (1) mafic flows; (2) feldspar-porphyry; (3) quartz-feldspar porphyry.

Mafic flows are generally greenish brown on weathered surfaces and bruise easily when struck with a hammer. The flows, massive to weakly foliated for the most part, are a dark greenish gray on fresh surfaces, with grain sizes ranging from aphanitic to fine-grained. The coarser grained samples are composed of abundant, small (1 mm), prismatic plagioclase crystals and slightly larger (1-2 mm) black pyroxenes (?). Suspected chlorite and epidote in the groundmass gives the rock its greenish tinge. Carbonate and cubic pyrite are rare, but ubiquitous components of the rock. Apparent ophitic texture in the coarser-grained samples suggest that, at

least in part, the flows may be basaltic in composition. A small outcrop of definite porphyritic basalt (leopard rock) along a small pond to the immediate southeast of the claim group supports this premise. Narrow zones of what look like highly deformed pillows parallel the porphyry flow contact to the immediate west of vein 3. Pillows were also seen at the base of the ridge, near the east end of line 34N+00. Epidote filled amygdules were seen in the very fine-grained flow near the west end of line 8N+00.

Two types of porphyry are present: feldspar-porphyry and quartz-feldspar porphyry. Both types of porphyry weather to a buff or tan colour and do not bruise, like the flow, when struck. Both types occur in dykes and/or sills ranging in width from 300 ft. to 2 inches.

The quartz feldspar porphyry is light gray on fresh surfaces. The rock has abundant (20%), large (4-8 mm), clear to smoky quartz phenocrysts and slightly more abundant (25%), clear subhedral to euhedral plagioclase phenocrysts in a fine-grained groundmass.

The feldspar-porphyry is generally light gray on a fresh surface. Phenocrysts in the rock are dominantly subhedral to euhedral plagioclase (2-10 mm) with rare, small quartz phenocrysts in a fine-grained matrix. Both types of porphyry have widely varying proportions of usually fresh-looking biotite (1-20%). Dark chlorite clots in some of the porphyry may be replaced hornblende or pyroxene. Sericite, carbonate and pyrite are usually present in minor amounts in both types of porphyry. Inclusions of flow are common in the larger dykes.

### Structure

Contacts in the area strike to the northeast and are usually vertical to near vertical. Small porphyry dykes (less than 0.5 m) tend to follow erratic paths, show chill and form sharp contacts with the surrounding flow. Larger dykes and/or sills follow more regular paths and in most cases the contacts with the flow have been the focus of intense shearing. The shear zones along the contacts are 2 to 4 m wide and encompass parts of both the flow and porphyry. A strong, near-vertical foliation, sub-parallel to the contact between the units is developed in both the flow and the porphyry. Closer observation shows in many cases that at least two foliations at low angles to each other exist in the porphyry. The first foliation ( $S_1$ ) is best seen as black streaks forming a  $L_2$  lineation on fracture cleavage planes ( $S_2$ ) along which the Porphyry in the shear zones usually breaks. Slickensides observed on some  $S_2$  planes suggest a strong vertical component to recent deformations.

The flow appears to have behaved in a more ductile manner than the porphyry during shearing, again with at least two periods of deformation represented in many of the shear zones. The earliest foliation in most cases is represented by a slaty cleavage, commonly outlined by sub-parallel carbonate veins and concentrations of pyrite along cleavage planes. This earlier foliation has been folded to form small amplitude folds and in some cases conjugate sets of kink bands cutting across the earlier foliation at high angles. An axial planar foliation is visible in some of the larger amplitude folds; this may be correlative with the  $S_2$  foliation seen in the porphyry. The preponderance

of small quartz veinlets, sub-parallel to the shear zones, in the porphyry which are not present in the flow, provide further evidence of the ductility contrast between the porphyry and the flow.

#### Veins and Mineralization

Five large quartz-carbonate veins were located on claims 436363 and 436345. The longest of these veins, vein 3, could be traced about 85 m. The veins follow erratic paths, but generally are located at or near porphyry flow contacts. The veins tend to pinch and swell, average about 0.25 m thick but reaching thicknesses of greater than 1 m.

By far the dominant gangue mineral in the veins is quartz. The quartz ranges in colour from clear to milky white to orangish-red with a characteristic sugary texture. Orange carbonate (Ankerite) is an abundant mineral in several of the veins. Other rare gangue minerals include: epidote, tourmaline and sericite. Sulphides are present in all of the veins in small amounts (usually less than 1%). The most abundant sulphide by far is cubic or massive pyrite, other much rarer sulphides include chalcopyrite, galena and sphalerite. The highest concentration of sulphides in the veins occurs near the margins of the veins. No visible gold was seen in any sample. Assays, taken this summer, of chip samples of veins 4 and 5 gave values of nil and 0.02 oz. Au/ton, respectively. A chip sample from a smaller 2 to 4 in. quartz vein at 8N+130'W gave values of 0.08 oz. Au/ton and trace Ag.

Silicification is extensive in the country rock surrounding the large quartz-carbonate veins. Silicification generally extends out further into the porphyry (1-3 m) than into the flow (0.5 m). Some

portions of porphyries not in the immediate vicinity of a larger vein show strong silicification with numerous, 1 to 10 cm wide, quartz veinlets. Locally strong concentrations of pyrite (10% to 20%) occur in strongly silicified and foliated portions of flow near veins 1, 2 and 3. Concentrations of pyrite are also found in silicified portions of porphyry bodies along with rare chalcopyrite, galena and sphalerite.

#### EXPLORATION PROGRAMME

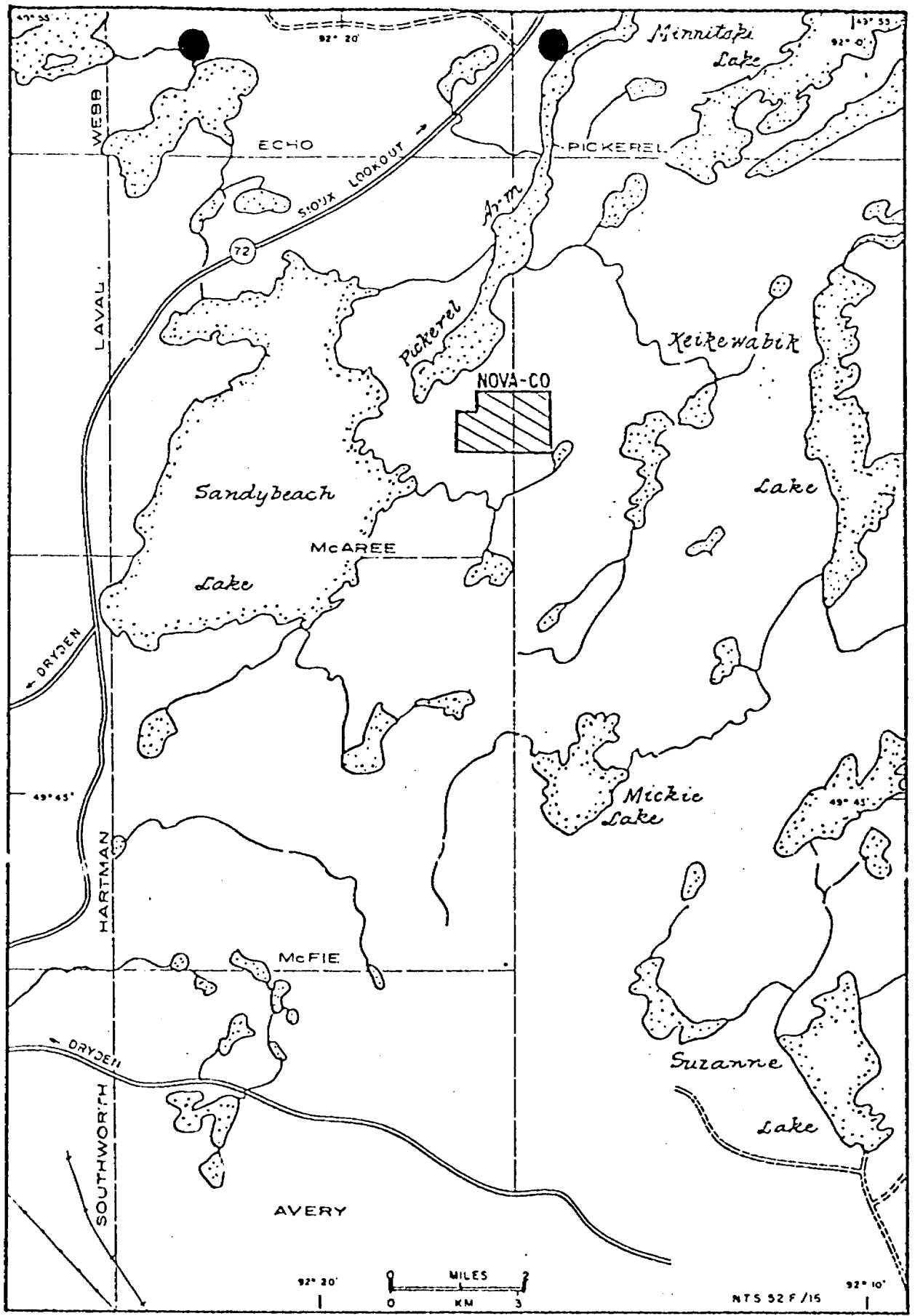
In order to evaluate the McAree property, a programme of geological, geophysical and geochemical investigation was carried out by the firm of Derry, Michener & Booth during the 1980 summer field season. This involved the placing of a geologist (D. M. Rossell) and assistant on the property for over two months. The property was also visited by D. R. Derry and I. S. Thompson during the early part of the season.

The work carried out on the property is as follows.

#### Geological Survey

A detailed geological survey was carried out over claims PA-436363 and PA-436345 between July 25th and August 19th, 1980. This survey included the cutting of a grid over the eastern portion of claim PA-436363 and western portion of claim PA-436345. The grid consists of a NE-SW base line with 44 perpendicular cross lines at 50 ft. intervals totalling 6.82 line km (4.26 line miles).

Cross lines were traversed systematically and detailed observations recorded. These observations are shown on Map #1 and are discussed in section titled 'Property Geology'.



1" = 2 mi.

FIGURE 1 - LOCATION OF McAREE TOWNSHIP PROPERTY, SIOUX LOOKOUT AREA, NORTH WESTERN ONTARIO.

### Geological Mapping

This refers to early reconnaissance mapping which was carried out along the boundaries of claims PA-436812, PA-436813, PA-436363, PA-436345, PA-436359 and PA-436358 between June 21st and July 19th, 1980. Claim boundaries were systematically walked and all outcrops encountered were mapped to their full extent. The results of this mapping are shown on Map #2 and are included in the section titled 'Property Geology'. Also shown on Map #2 are the locations from which rock samples were collected for assay during the course of the season.

### Magnetic Survey

#### (a) General

A magnetometer survey totalling 6.25 line km (3.88 miles) was carried out from July 29, 1980 to August 4, 1980. Seven hundred and seventy-three measurements were made at 25 ft. stations on all cross-lines of the grid using a Sharpe MF-1 Fluxgate Magnetometer. This lightweight portable system consists a saturable core sensor and analogue display console capable of measuring changes in the vertical intensity of the earth's magnetic field. For measuring this vertical component, the instrument is held vertically and set to zero at a chosen base station. The effective sensitivity is in the order of several gammas.

One base station was established and used to tie-in subsidiary base stations located along the baseline at the intersection of the cross-lines. The base station is located at the boundary of the two claims (Claim Nos. PA-436363 and PA-436345) at 6+60S, 0+05E on the grid. The instrument was zeroed at the base station and readings were

subsequently taken at 50 ft. interval stations along the baseline. The instrument was periodically returned to the original base station to determine daily drift. This diurnal variation in the magnetic field and instrument drift was corrected using Time versus Drift graphs as related to the base station. The corrected readings ranged from -3373 gammas to +3908 gammas and were contoured in 50 gamma intervals. These data are shown on Map #3.

(b) Interpretation

Contoured data reveals two contrasting areas of magnetic susceptibility. The southern part of the grid, from 20+00S to 8+00S, has a very flat magnetic signature, with readings fluctuating between 50 and 150 gammas. This zone coincides with swamps and forested areas and has little outcrop. (Note: line 16+00S was not read as it follows the course of the river).

The magnetic susceptibility increases north of line 8+00S and this corresponds to an area of increasing outcrop. The contours in this area suggest a north to NEN linear pattern. A 250 ft. zone exhibits magnetic changes of up to 900 gammas above base station values and extends through the central portion of the northern grid. This zone coincides with a quartz carbonate vein mapped as vein #3 (see Map #1). It is one of five which were located and it can be traced on the surface for about 280 ft. Cubic and massive pyrite plus other rarer sulphides occur in the vein. It is located at the contact between the quartz feldspar porphyry and andesite volcanics and the magnetic signature may be related to the andesite contact. The other veins are not as well exposed or continuous and lack any significant magnetic imprint.



Four roughly circular areas of higher magnetic susceptibility, in the order of 500 gammas above background, are evident from the magnetic pattern. These are found on line 4+50S, 5+50S and 7+50S and are broadly associated with outcrops of andesite.

Apparently, intense solar activity during the course of the survey resulted in very serious precision problems. Drift of as much as 100 gammas occurred during the time it would take to make one traverse. As a result large correctional factors were needed for this drift and in some cases values were eliminated because there was doubt as to their validity.

Geochemical Survey (Humus)

(a) General

A humus geochemical survey covering 3.8 line km (2.37 line miles) was carried out over claims PA-436363 and PA-436345 between June 15th and August 8th, 1980. Control for this survey was provided by a grid consisting of a 2,500 ft. NE-SW baseline with 44 perpendicular cross cuts at 50 ft. intervals. This survey was conducted subsequent to a pilot or experimental sampling of the humus layer at 20 points on the northwestern part of the same grid. The results of this pilot sampling (see Map #5 - for sample location and assay values) were sufficiently encouraging to warrant a full scale survey over the entire grid. Although Au, Ag and As were analyzed in the pilot samples, it was deemed sufficient to analyze for Au only in the survey samples.

Two hundred and fifty samples were taken at 50 ft. intervals from every other cross-line of the grid. Nine of these samples are duplicates and are shown as such on Map #4. Sampling was carried out by hand selection of representative samples (approximately 10 gr.) of the humus or forest floor debris in the immediate vicinity of each station. Emphasis was placed on collecting pine needles but, inevitably, other debris was also incorporated. The samples were placed in paper sample bags and sent directly for neutron activation analysis. The laboratory procedure can be summarized as follows: samples were dried and crushed (blended) to approximately 5 mesh. Eight gr. were then used to make 40 mm pellets or briquettes which were irradiated for approximately 30 minutes. The pellets were left to stand for 8 days before gold detection was made.

(b) Interpretation

The data from the survey reveals a number of factors.

The general background concentration of Au in humus material from the surveyed area is very low. Fifty-eight percent of the samples analyzed were at or below the detection limit of the analytical technique, that is 1 ppb. This suggests that the average background value may be significantly lower than 1 ppb and that potential weak anomalies have not been detected. The area of lowest background is in the southern part of the grid, south of 8+50S. Within this entire area, only 34 samples have values above 1 ppb, the highest being 5 ppb. North of this line, a greater proportion of the samples have values above 1 ppb. This is consistent with the general increase in magnetic susceptibility (see section on Magnetic Survey) in the northern portion of the grid and corresponds to an increase in the degree of outcrop.

Within this latter area, a roughly NE-SW trending anomaly rises to a maximum value of 38 ppb at 3+50S and 1+00W. This anomaly has been contoured at 5, 10, 20, 30 and 35 ppb intervals and its outline roughly corresponds to the area of greatest density of quartz feldspar porphyry intrusions (see Map #1). Also included within this anomalous zone are quartz carbonate veins #1 and #2, and the southern extension of #3. The anomaly peak lies almost directly over a small (50 m) NW-SE trending quartz-feldspar porphyry intrusion. No quartz carbonate veins have been noted in this immediate vicinity but sampling and possibly trenching are recommended.

Another anomalous zone, although much smaller and weaker, lies in the NE portion of the grid. It is centered around a maximum value of 10 ppb at 0+50N and 1+00E. Twenty-five feet grid east of this point, a trench has been cut exposing volcanics in contact with feldspar porphyry. This trench should be extended westward along the cross line to expose bedrock under the sample station 0+50N and 1+00E. It should be noted that the large discrepancy between duplicate samples at this station casts significant doubt on the validity of these assays.

A number of isolated anomalies occur at various points on the grid but none of these rise above 6 ppb. These points have essentially been ignored.

Nine samples were duplicated during the course of the survey. Of these, only two sets have the same gold value. One set differs by a factor of 10, two sets by a factor of 2 and the rest differ by 1 ppb. These discrepancies were probably caused by sampling inconsistencies between sample and duplicate. Although most of the inconsistencies are only in the order of 2 or 3 ppb, they are very significant in relation

to background values of 1 ppb or less. Consequently, some doubt is cast on the success of the survey in areas of poor outcrop.

#### SUMMARY AND CONCLUSIONS

Gold mineralization on the property occurs in a series of quartz veins and associated sulphides within a much wider zone of silicified porphyry intrusive. Despite the somewhat erratic mineralization, the grades reported by Teck Corporation for their 1960 drilling programme were sufficiently encouraging to stimulate last summer's exploration programme by Nova-Co Exploration Limited.

Resampling of old trenches and test pits did not confirm the grades reported by Rogers (1958). From a total of 8 rocks sampled, the highest gold value found was 0.08 oz./ton.

The magnetic survey was conducted in order to locate structural features having the potential for gold mineralization. However, serious precision problems, apparently related to intense solar activity, has made data interpretation very difficult. Consequently, no conclusions in relation to structural features can be drawn from the survey.

The humus geochemical survey was conducted to investigate the possibility of gold mineralization in unexposed areas, particularly along strike to the southwest of the main Porphyry Ridge zone. The data confirms the presence of anomalous concentrations of gold within the main zone, and consequently, this area continues to have a certain potential. Further trenching, stripping and sampling are recommended in the area of highest gold values. However, the humus sampling technique has not been successful in locating gold mineralization beneath drift cover to the southwest and northeast of the Porphyry Ridge.

REFERENCES

- (1) Hurst, M.E., 1932, Geology of the Sioux Lookout area; Ontario Dept. of Mines Annual Report, Vol. XLI, pt. VI.
- (2) Rogers, John C., 1958, Report on Gold Properties, McAree and Pickerel Townships, Patricia Mining Division.
- (3) Teck Corporation, 1960, Geology and Diamond Drill Plan of McAree Property.

APPENDIX A

GEOPHYSICAL TECHNICAL DATA STATEMENT

D. B. C. LTD. A 14672



**GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT**

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT  
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT  
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Magnetic  
 Township or Area McAree Township  
 Claim Holder(s) Nova-Co Exploration Limited  
 Survey Company Derry, Michener & Booth  
 Author of Report D. M. Rossell and B. S. Kwjecn  
 Address of Author 2302 - 401 Bay Street, Toronto  
 Covering Dates of Survey July 29th - August 4th, 1980  
(linecutting to office)  
 Total Miles of Line Cut \_\_\_\_\_

<u>SPECIAL PROVISIONS CREDITS REQUESTED</u>	No	DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	_____
ENTER 20 days for each additional survey using same grid.	-Electromagnetic	_____
	-Magnetometer	_____
	-Radiometric	_____
	-Other	_____
	Geological	_____
	Geochemical	_____

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications \_\_\_\_\_

Previous Surveys

File No.	Type	Date	Claim Holder

<b>MINING CLAIMS TRAVERSED</b>	
List numerically	
(prefix)	(number)
PA	- 436363
PA	- 436345
<b>TOTAL CLAIMS</b> <u>2</u>	

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations \_\_\_\_\_ Number of Readings \_\_\_\_\_  
Station interval \_\_\_\_\_ Line spacing \_\_\_\_\_  
Profile scale \_\_\_\_\_  
Contour interval \_\_\_\_\_

MAGNETIC

Instrument Scintrex (Sharpe) MF-1 Fluxgate Magnetometer  
Accuracy - Scale constant 5 gamma  
Diurnal correction method Time vs. Drift Graphs  
Base Station check-in interval (hours) 4  
Base Station location and value 6+60S - Zero at Base Station

ELECTROMAGNETIC

Instrument \_\_\_\_\_  
Coil configuration \_\_\_\_\_  
Coil separation \_\_\_\_\_  
Accuracy \_\_\_\_\_  
Method:  Fixed transmitter  Shoot back  In line  Parallel line  
Frequency \_\_\_\_\_  
(specify V.L.F. station)  
Parameters measured \_\_\_\_\_

GRAVITY

Instrument \_\_\_\_\_  
Scale constant \_\_\_\_\_  
Corrections made \_\_\_\_\_  
Base station value and location \_\_\_\_\_  
Elevation accuracy \_\_\_\_\_

INDUCED POLARIZATION RESISTIVITY

Instrument \_\_\_\_\_  
Method  Time Domain  Frequency Domain  
Parameters - On time \_\_\_\_\_ Frequency \_\_\_\_\_  
- Off time \_\_\_\_\_ Range \_\_\_\_\_  
- Delay time \_\_\_\_\_  
- Integration time \_\_\_\_\_  
Power \_\_\_\_\_  
Electrode array \_\_\_\_\_  
Electrode spacing \_\_\_\_\_  
Type of electrode \_\_\_\_\_



APPENDIX B

GEOCHEMICAL TECHNICAL DATA STATEMENT

B. & C. LTD. 414672



Ministry of Natural Resources

File \_\_\_\_\_

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT  
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT  
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geochemical Humus  
Township or Area McAree Township  
Claim Holder(s) Nova-Co Exploration Limited  
  
Survey Company Derry, Michener & Booth  
Author of Report Dean Rossell and E. Stuart  
Address of Author 2302 - 401 Bay Street, Toronto  
Covering Dates of Survey June 15th - August 8th  
(linecutting to office)  
Total Miles of Line Cut 4.26 miles

MINING CLAIMS TRAVERSED  
List numerically

(prefix) (number)  
  
PA --- 436363  
PA - 436345

If space insufficient, attach list

SPECIAL PROVISIONS  
CREDITS REQUESTED

Yes

DAYS  
per claim

- Geophysical
- Electromagnetic \_\_\_\_\_
- Magnetometer \_\_\_\_\_
- Radiometric \_\_\_\_\_
- Other \_\_\_\_\_
- Geological \_\_\_\_\_
- Geochemical 40

ENTER 40 days (includes  
line cutting) for first  
survey.  
  
ENTER 20 days for each  
additional survey using  
same grid.

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications \_\_\_\_\_

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 2

GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken PA-436363  
PA-436345

Total Number of Samples 250  
 Type of Sample Humus  
(Nature of Material)  
 Average Sample Weight 10 gr.  
 Method of Collection grab sampling

Soil Horizon Sampled N/A  
 Horizon Development N/A  
 Sample Depth Surface  
 Terrain Medium to high relief along base line  
lower on either side.  
 Drainage Development None  
 Estimated Range of Overburden Thickness 0 to 20(?) feet

**SAMPLE PREPARATION**  
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis \_\_\_\_\_  
Samples are dried and blended to approx.  
5 mesh before pelletizing.

General \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**ANALYTICAL METHODS**

Values expressed in: per cent   
 p. p. m.   
 p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, (circle)

Others Au

Field Analysis (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Field Laboratory Analysis

No. (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Commercial Laboratory (\_\_\_\_\_ tests)

Name of Laboratory X-Ray Assay Laboratories

Extraction Method None

Analytical Method Neutron Activation

Reagents Used None

General Neutron Activation does not involve  
any extraction or reagents. Samples  
are dried, blended, pelletized  
and irradiated before detection.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

APPENDIX C

GEOLOGICAL TECHNICAL DATA STATEMENT

B. & C. LTD. A 14672



GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT  
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT  
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological  
Township or Area McAree Township  
Claim Holder(s) Nova-Co Exploration Limited  
  
Survey Company Derry, Michener & Booth  
Author of Report Dean Rossell  
Address of Author 2302 - 401 Bay Street, Toronto  
Covering Dates of Survey July 25th - August 19th, 1980  
(linecutting to office)  
Total Miles of Line Cut \_\_\_\_\_

MINING CLAIMS TRAVERSE(S)  
List numerical'y

(prefix) (number)

PA - 436363

PA - 436345

SPECIAL PROVISIONS  
CREDITS REQUESTED

No	Geophysical	DAYS per claim
	-Electromagnetic _____	
	-Magnetometer _____	
	-Radiometric _____	
	-Other _____	
	Geological _____	
	Geochemical _____	

ENTER 40 days (includes  
line cutting) for first  
survey.

ENTER 20 days for each  
additional survey using  
same grid.

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications \_\_\_\_\_

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 2

If space insufficient, attach list

W. B. C. LYO A 14872

APPENDIX D

FINANCIAL SUMMARY FOR EXPENDITURE CREDIT

FINANCIAL SUMMARY  
(For Expenditure Credit)

<u>Type of Work</u>	<u>Collect</u>	<u>Assay</u>	<u>Total</u>	<u>Location of Work</u>	<u>Credits Requested</u>
Experimental Humus Sampling (See Map #5)	\$ 50.00	\$253.00	\$ 303.00	PA 436363	20.2 man-days
Rock Sampling (See Map #2)	100.00	73.00	173.00	PA 436363 PA 436345 PA 436359	6.8 man-days
Consulting (only in relation to time physically spent on property)	N/A	N/A	\$1,175.00	PA 436363 PA 436345	78.3 man-days
 	<hr/>	<hr/>	<hr/>		<hr/>
TOTALS	<u>\$150.00</u>	<u>\$326.00</u>	<u>\$1,651.00</u>		<u>105.3 man-days</u>

P. S. C. LYD. A 14672

APPENDIX E

CLAIM DATA - PATRICIA MINING DIVISION



CLAIM DATA - PATRICIA MINING DIVISION

<u>Claim No.</u>	<u>Ownership</u>	<u>Status</u>	<u>Expiry Date (After Extension)</u>
PA-436345	Nova-Co Exploration Limited	In good standing	December 31, 1980
PA-436356	Nova-Co Exploration Limited	Surrendered	December 31, 1980
PA-436357	Nova-Co Exploration Limited	Surrendered	December 31, 1980
PA-436358	Nova-Co Exploration Limited	Surrendered	December 31, 1980
PA-436359	Nova-Co Exploration Limited	In good standing	December 31, 1980
PA-436360	Nova-Co Exploration Limited	In good standing	December 31, 1980
PA-436361	Nova-Co Exploration Limited	Surrendered	December 31, 1980
PA-436362	Nova-Co Exploration Limited	Surrendered	December 31, 1980
PA-436363	Nova-Co Exploration Limited	In good standing	December 31, 1980
PA-436812	Nova-Co Exploration Limited	In good standing	December 31, 1980
PA-436813	Nova-Co Exploration Limited	In good standing	December 31, 1980

APPENDIX F

ASSAY RESULTS FOR GEOCHEMICAL HUMUS SURVEY

B. I. C. LTD. A 14872

*File 4 McAree Novato*  
*10/28/80*

X-RAY ASSAY LABORATORIES LIMITED

1885 LESLIE STREET, DON MILLS, ONTARIO M3B 3J4

PHONE 416-445-5755

TELEX 06-986947

CERTIFICATE OF ANALYSIS

TO: DERRY, MICHENER & BOOTH,  
ATTN: RICHARD E. ROUTLEDGE,  
2302 THE SIMPSON TOWER,  
401 BAY STREET,  
TORONTO, ONT. M5H 2Y4

*McAree*

REPORT 9242

REF. FILE 5662-BR

220 HUMUS SUBMITTED ON 5-NOV-80

WERE ANALYSED AS FOLLOWS:

AU	UNITS	METHOD	DETECTION LIMIT
	PPB	NA	1.000

DATE 27-NOV-80

X-RAY ASSAY LABORATORIES LIMITED

CERTIFIED BY *J.H. Opdebeek*

J.H. OPDEBEECK

SAMPLE	AU PP8
8-6-1	2
8-6-2	1
8-6-3	1
8-6-4	2
8-6-5	3
8-6-6	4
8-6-7	<1
8-6-8	<u>10</u>
8-6-9	2
8-6-10	<1
8-6-11	<1
8-6-12	1
8-6-13	<1
8-6-14	<1
8-6-15	<1
8-6-16	1
8-6-17	2
8-6-18	1
8-6-19	<1
8-6-20	1
8-6-21	<1
8-6-22	2
8-6-23	1
8-6-24	4
8-6-25	<u>5</u>
8-6-26	<1
8-6-27	<1
8-6-28	2
8-6-29	5
8-6-30	2
8-6-31	1
8-6-32	2
8-6-33	3
8-6-34	<1
8-6-35	3
8-6-36	2
8-6-37	<u>18</u>
8-6-38	3
8-6-39	<u>32</u>
8-6-40	<1
8-6-41	<1
8-6-42	1
8-6-43	3
8-6-44	7
8-6-45	<1
8-6-46	38
8-6-47	33
8-6-48	<1
8-6-49	2
8-6-50	<u>15</u>
8-6-50B	SMP MISS
8-6-51	4
8-6-52	<u>10</u>
8-6-53	<u>10</u>
8-6-54	1

SAMPLE	AU PPB
8-6-55	<1
8-6-56	2
8-6-57	<1
8-6-58	1
8-6-59	<1
8-6-60	<1
8-6-61	2
8-6-62	<1
8-6-63	1
8-6-64	2
8-6-65	<1
8-6-66	1
8-6-67	2
8-6-68	<1
8-6-69	1
8-6-70	<1
8-7-1	<1
8-7-2	<1
8-7-3	<1
8-7-4	
8-7-5	
8-7-6	
8-7-7	
8-7-8	
8-7-9	3
8-7-10	3
8-7-11	<1
8-7-12	2
8-7-13	1
8-7-14	6
8-7-15	2
8-7-16	1
8-7-17	<1
8-7-18	<1
8-7-19	<1
8-7-20	2
8-7-21	1
8-7-22	1
8-7-23	<1
8-7-24	1
8-7-25	<1
8-7-26	1
8-7-27	<1
8-7-28	<1
8-7-29	1
8-7-30	3
8-7-31	<1
8-7-32	3
8-7-33	3
8-7-34	<1
8-7-35	<1
8-7-36	<1
8-7-37	<1
8-7-38	1
8-7-39	1
8-7-40	1

SAMPLE	AU PPS
8-7-41	3
8-7-42	4
8-7-43	3
8-7-44	1
8-7-45	5
8-7-46	<1
8-7-47	<1
8-7-48	<1
8-7-49	1
8-7-50	<1
8-7-51	<1
8-7-52	2
8-7-53	1
8-7-54	<1
8-7-55	2
8-7-56	<1
8-7-57	4
8-7-58	2
8-7-59	<1
8-7-60	2
8-7-61	<1
8-7-62	1
8-7-63	2
8-7-64	2
8-7-65	<1
8-7-66	<1
8-7-67	<1
8-7-68	<1
8-7-69	2
8-7-70	<1
8-7-71	<1
8-7-72	1
8-7-73	<1
8-7-74	<1
8-7-75	<1
8-7-76	2
8-7-77	1
8-7-78	5
8-7-79	<1
8-7-80	1
8-7-81	<1
8-7-82	1
8-7-83	2
8-7-84	1
8-7-85	<1
8-7-86	2
8-7-87	1
8-7-88	<1
8-7-89	<1
8-7-90	<1
8-7-91	2
8-7-92	<1
8-7-93	2
8-7-94	<1
8-7-95	1
8-7-96	1

SAMPLE	AU PPB
8-7-97	<1
8-7-98	1
8-7-99	1
8-7-100	3
8-8-1	1
8-8-2	1
8-8-3	<1
8-8-4	<1
8-8-5	1
8-8-6	<1
8-8-7	<1
8-8-8	2
8-8-9	<1
8-8-10	<1
8-8-11	2
8-8-12	2
8-8-13	<1
8-8-14	2
8-8-15	1
8-8-16	1
8-8-17	<1
8-8-18	1
8-8-19	2
8-8-20	1
8-8-21	<1
8-8-22	1
8-8-23	<1
8-8-24	<1
8-8-25	<1
8-8-26	2
8-8-27	2
8-8-28	<1
8-8-29	<1
8-8-30	1
8-8-31	<1
8-8-32	<1
8-8-33	<1
8-8-34	3
8-8-35	<1
8-8-36	<1
8-8-37	<1
8-8-38	<1
8-8-39	<1
8-8-40	1
8-8-41	<1
8-8-42	1
8-8-43	1
8-8-44	<1
8-8-45	1
8-8-46	2
8-8-47	1
8-8-48	1
8-8-49	2
8-8-50	1

APPENDIX G

ASSAY RESULTS FOR EXPERIMENTAL HUMUS SAMPLING

B & C LYD. A14672







N  
Natural  
Resources



52F16SE0004 52F16SW0020 MCAREE

900

(31) 52 F16/S W.

Your file:

December 23, 1981

Albert Hanson  
Mining Recorder  
Ministry of Natural Resources  
P.O. Box 669  
Sioux Lookout, Ontario  
POV 2T0

File: 2.3761  
Ministry of Natural Resources

RECEIVED

DEC 4 1981

RESIDENT GEOLOGIST  
SIOUX LOOKOUT

Dear Sir:

Re: Geophysical (Magnetometer), Geochemical, Geological and Assaying submitted under Section 77(19) of the Mining Act R.S.O. 1980 Survey on Mining Claims Pa.436345 et al, in the Township of McAree and Area of Keikewabik Lake.

The Geophysical (Magnetometer), Geochemical, Geological and Assaying submitted under Section 77(19) of the Mining Act R.S.O. 1980 Survey assessment work credits as listed with my Notice of Intent dated November 19, 1981 have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours very truly,

E.F. Anderson  
Director  
Land Management Branch

Whitney Block, Room 6450  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: 416/965-1380

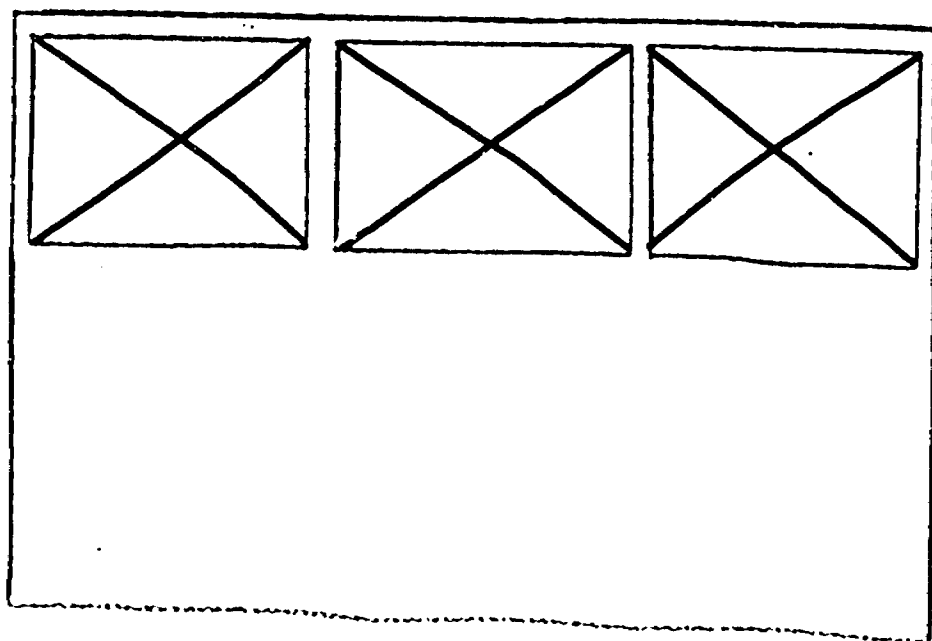
A. Barr/bk

cc: Nova-Co Exploration Limited  
Toronto, Ontario

cc: Resident Geologist  
Sioux Lookout, Ontario

SEE ACCOMPANYING  
MAP(S) IDENTIFIED AS  
52F/16SW-0020, #1, #2

LOCATED IN THE MAP  
CHANNEL IN THE FOLLOWING  
SEQUENCE (X)



FOR ADDITIONAL  
INFORMATION

SEE MAPS:

52F/16SW-0020 #3-5

MAP 1

# GEOLOGY

OF

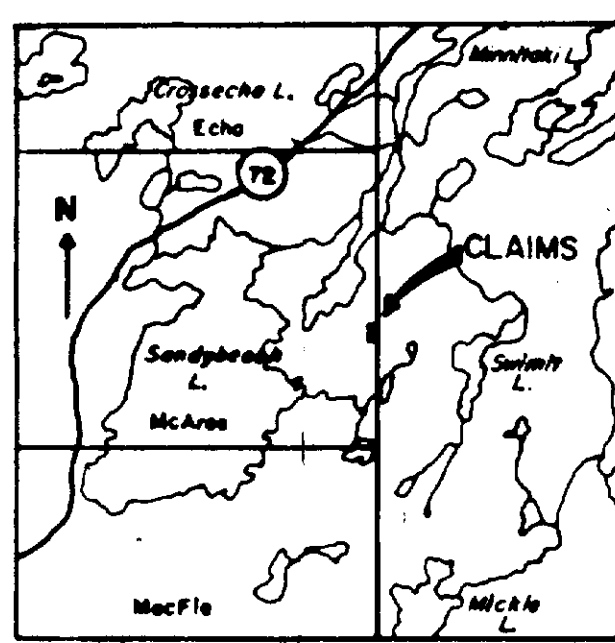
## McAREE CLAIMS 436363 and 436345

TOWNSHIP OF McAREE  
PROVINCE OF ONTARIO  
FOR

### NOVA-CO EXPLORATIONS L.T.D.

BY

DERRY, MICHENER and BOOTH



#### Legend

- Outcrop
- Contact
- Strongly foliated contact
- Trench
- Drill hole collar
- Quartz-carbonate vein
- Quartz-feldspar porphyry
- Feldspar-porphyry
- Andesite volcanics

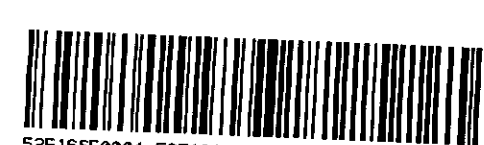
Scale: 1 inch = 50 feet

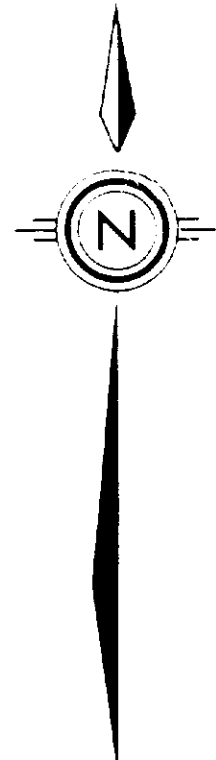
MAPING BY: DEAN ROSSELL  
INTERPRETATION BY: D.R. DERRY, I.S. THOMPSON,  
& DEAN ROSSELL.  
DECEMBER 15, 1980.

Pa 436363

Pa 436345

Also: boundaries of ridge with extensive  
outcrop of 7' and more FP.





McAREE TWP.

KEIKEWABIK TWP.

436362

436361

436356

436812

436363

436360

436357

436813

436345

436359

436358

TRAIL TO LAKE

SULPHIDES IN FLOW.

SULPHIDES IN DYKE

SAMPLE: 3004

SAMPLES: 3508, 3509, 3510

SAMPLE: 3002 LARGE QTZ VEIN.

SULPHIDES IN DYKE+FLOW.

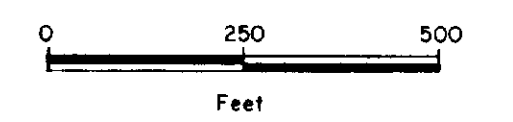
BASELINE

TOWNSHIP LINE

SAMPLE: 3001+3003 SULPHIDES IN DYKE, LARGE QTZ VEIN.

**LEGEND**

- AREA OF OUTCROP
- BASIC (ANDESITIC) FLOWS
- PORPHYRY (GRANODIORITE - TONALITE)
- PORPHYRY DYKE (not to scale)
- QUARTZ VEIN ( " " " )
- SWAMP
- TRAIL
- CLAIM BOUNDARY



DERRY MICHENER & BOOTH  
NOVA-CO EXPLORATIONS L.T.D.

GEOLOGICAL MAPPING

BY: DEAN ROSSELL DATE: DEC. 15, 1980 MAP 2



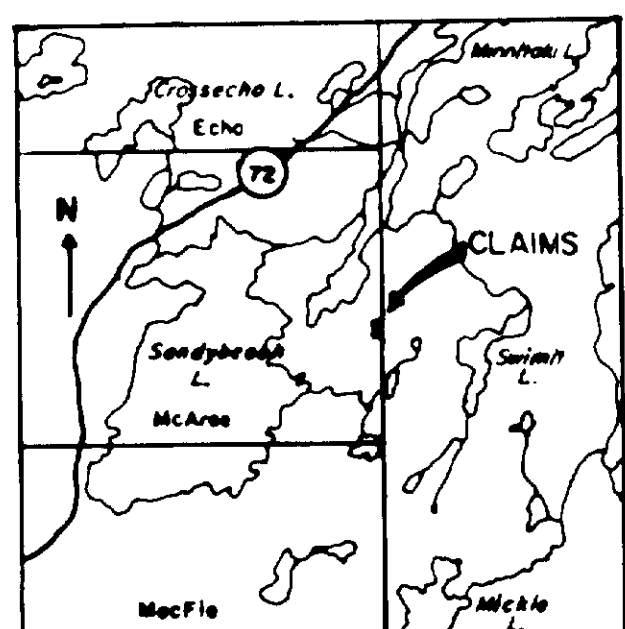
52F/16SW-0020, #2

MAP 3

MAGNETIC MAP  
OF  
McAREE CLAIMS 436363 and 436345

TOWNSHIP OF McAREE  
PROVINCE OF ONTARIO  
FOR  
NOVA-CO EXPLORATIONS L.T.D.

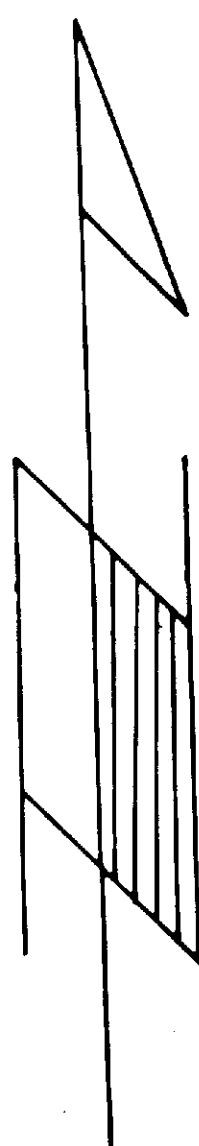
BY  
DERRY, MICHENER and BOOTH



Magnetic field measured in gammas, adjusted to an arbitrary datum.

50 ..... 50 gamma contour  
100 ..... 100 gamma contour  
150 ..... 150 gamma contour

SCALE: 1 inch = 50 feet



SURVEY BY: DEAN ROSSELL  
INTERPRETATION BY: D.R. DERRY, I.S. THOMPSON,  
& DEAN ROSSELL.  
DECEMBER 15, 1980.



436363

436345

52F/16SW-0020, #3



# GEOCHEMICAL SURVEY (HUMUS)

OF

## McAREE CLAIMS 436363 and 436345

TOWNSHIP OF McAREE

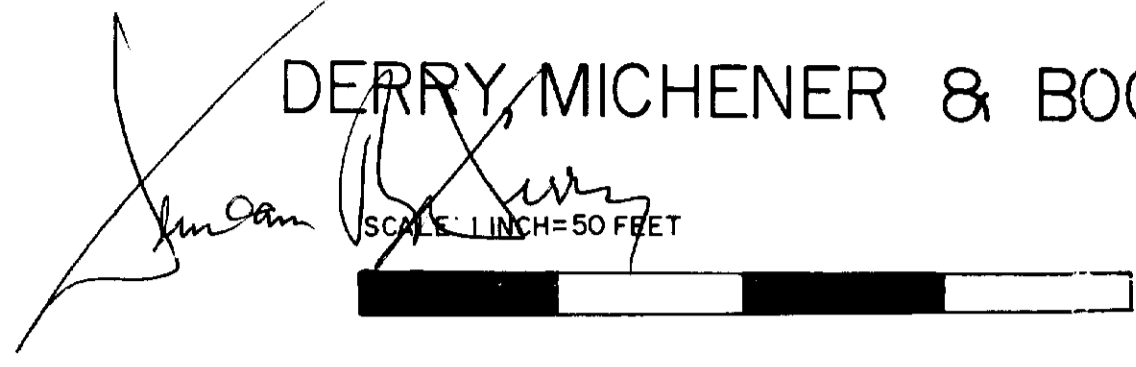
PROVINCE OF ONTARIO

FOR

### NOVA-CO EXPLORATIONS L.T.D.

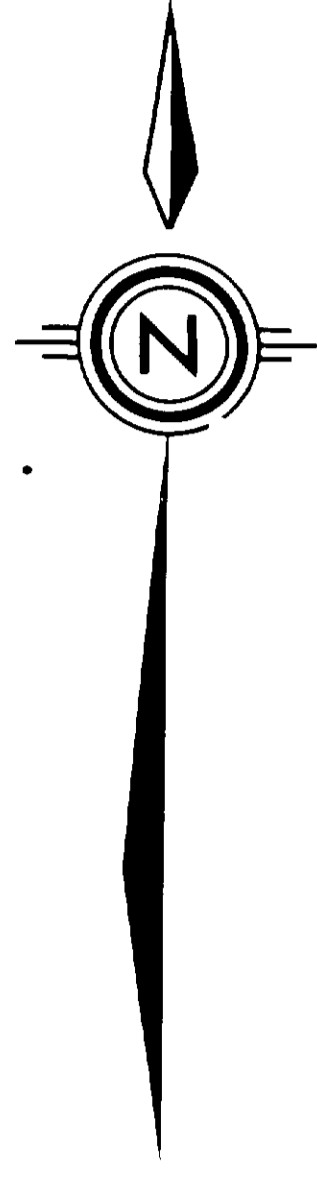
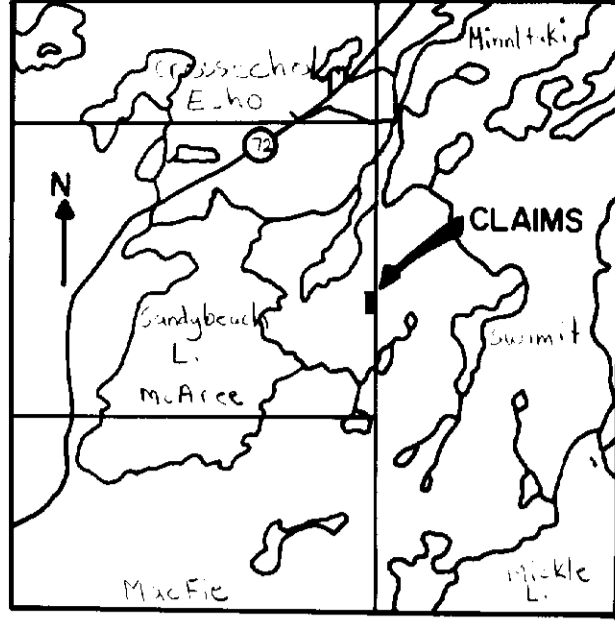
BY

#### DERRY, MICHENER & BOOTH



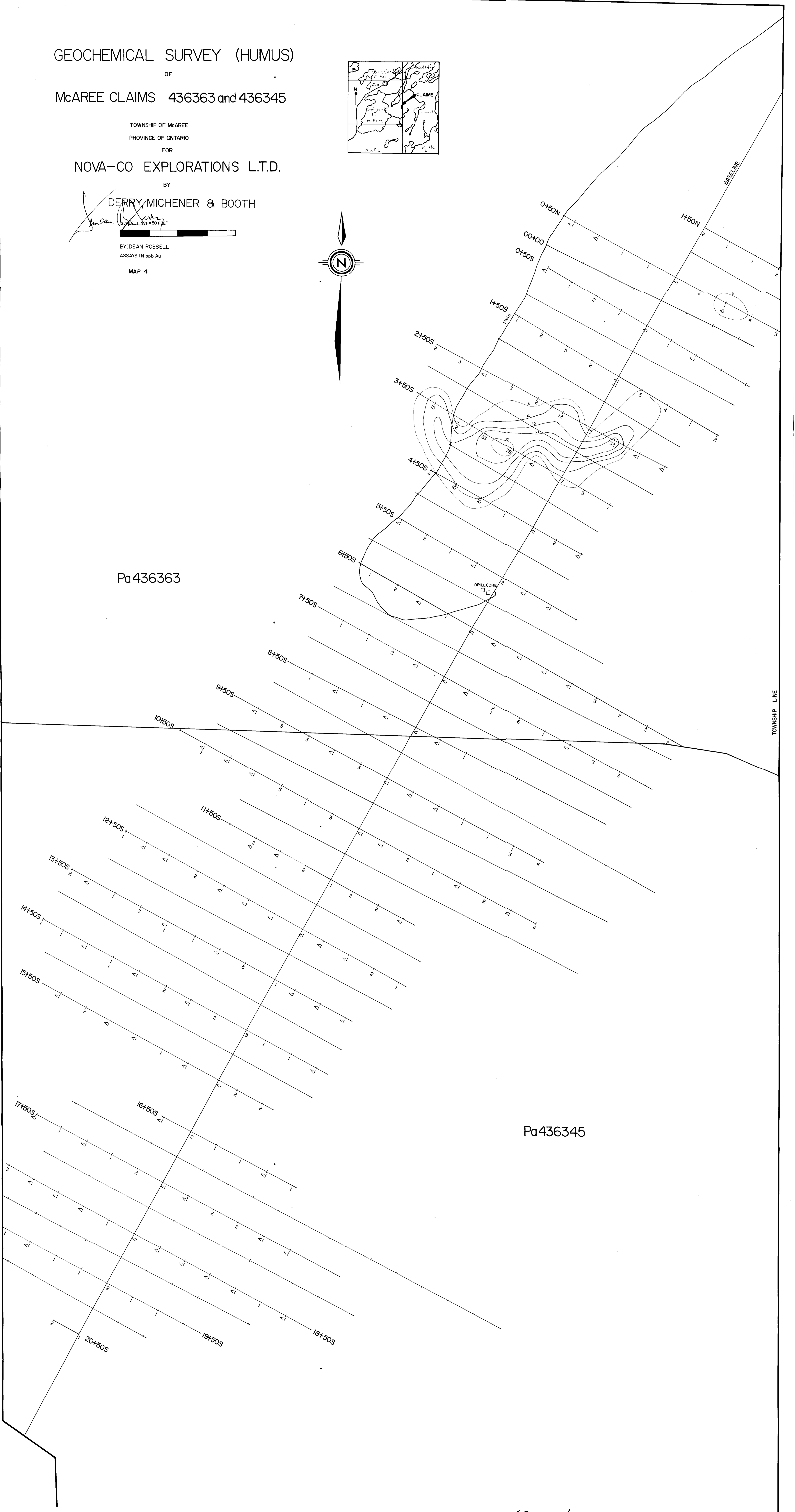
BY: DEAN ROSSELL  
ASSAYS IN ppb Au

MAP 4



Pa436363

Pa436345



52 F/16SW - 0020, #4



# EXPERIMENTAL HUMUS SAMPLING

ON  
McAREE CLAIM 436363

TOWNSHIP OF McAREE  
PROVINCE OF ONTARIO  
FOR

NOVA-CO EXPLORATIONS L.T.D.

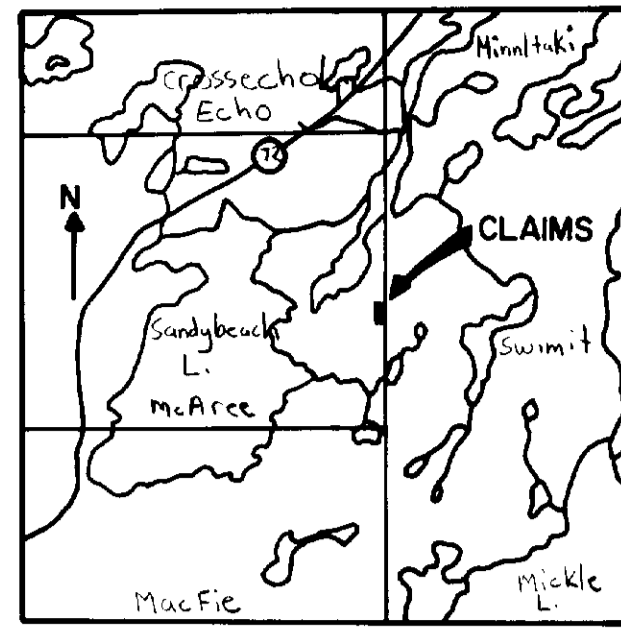
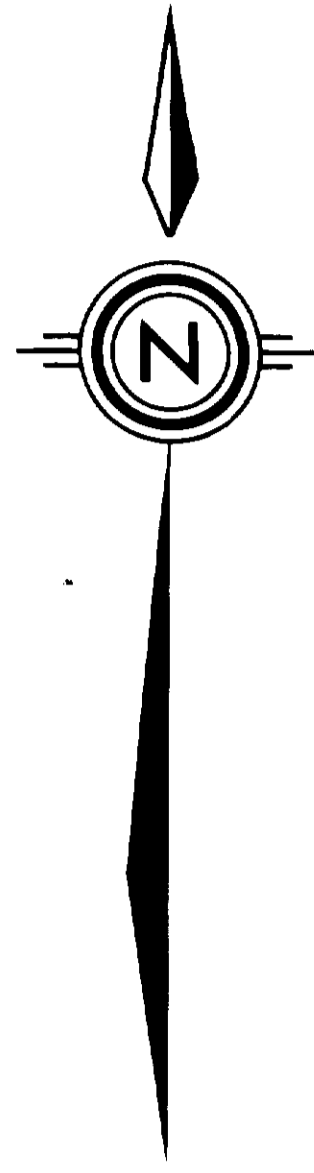
BY  
DERRY, MICHENER & BOOTH

SCALE: 1 INCH=50 FEET



ASSAYS  
EXAMPLE  
67 ppm Au  
11 ppm As  
1.2 ppm Ag

MAP 5



Pa436363

Pa436345

