REPORT ON

GROUND GEOPHYSICAL SURVEYS

TAY RIVER, YUKON

This report has been examined by the Geological Evaluation Unit.
Approved as to technical worth by:
D. C. Findlay
RESIDENT GEOLOGIST
Approved as to cost in the amount of: $ see report 60 J. H. Bradley
D. G. Redden
RESIDENT MINING ENGINEER
Accepted as representation work under Section 53(4) Yukon Quartz Mining Act.
COMMISSIONER OF YUKON

...instrument
...of the
...o be a
...Office
...Y.T.
...Recorder,
...Mining District

FOR

TAY RIVER MINES LIMITED

BY

HUNTEC LIMITED

TORONTO, ONTARIO

OCTOBER, 1966

GEOLOGICAL SURVEY
DEC 19
Resident Geologist
Whitehorse, Y.T.

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FIGURE 1 - Location of Claim Groups A, B and C

ACCOMPANYING MAPS		MAP POCKET
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Group A - Main Grid	Horizontal Loop E. M. Survey E. M. Data with Topographic Comments	1" - 400'
Group A - Main Grid	Detail E. M. Survey	1" - 200'
Group A - Ken Claims	Horizontal Loop E. M. Survey	1" - 400'

ACCOMPANYING MAPS Cont'd — MAP POCKET

Group B	Ground Magnetometer Survey with Interpretation	1 " - 400'
Group B	Horizontal Loop E. M. Survey E. M. Profiles	1" - 400'
Group B	Horizontal Loop E. M. Survey E. M. Data with Topographic Comments	1" - 400'
Group C	Ground Magnetometer Survey	1" - 400'
Group C	Horizontal Loop E. M. Survey E. M. Profiles with Interpretation	1" - 400'
Group C	Horizontal Loop E. M. Survey E. M Data with Topographic Comments	1" - 400'

INTRODUCTION

Between March 18th and July 3rd, 1966, ground magnetometer surveys were carried out in the Tay River area, Yukon Territories, by Huntec Limited for Tay River Mines Limited. These surveys were conducted on three properties referred to as the A.B and C Groups, the location of which with respect to the Dynasty orebody and other geographical landmarks are shown in Figure 1.

The geophysical program was supervised by Mr. P.E. Lane who was based in Vancouver during the period but visited the property on three occasions. Party chiefs in the field were: J. Zeigler, A. Gervais, M. Currie, V. Gupta, and L. Giovanetti. The names and periods of employment of Huntec's personnel are shown in the Appendix to this report. The program was under the overall direction of Messrs. R.K. Watson and N.R. Paterson in Toronto. Preliminary data reduction and some plotting were done in the field. Final reduction, plotting and drafting, together with interpretation and report writing, were done in the Toronto office of Huntec Limited.

PROPERTY LOCATION, GEOLOGY AND ACCESS

The three claim groups of Tay River Mines Limited are situated on the north flank of the Pelly River valley and adjacent to several properties of Dynasty Mines Limited. These properties are undergoing active exploration as the result of a lead-zinc discovery of major importance by Dynasty on their property straddling Vangorda Creek. The locations of these properties and the Dynasty orebodies are shown in Figure 1.

Geologically, the area consists of cretaceous granite, quartz monzonite and granodiorite, forming the core of the Anvil Range, flanked by Mississippian (?) sediments and volcanics. The latter rocks are metamorphosed, locally to grades as high as coarse grained staurolite-garnet-mica schist.

Outcrop is scarce on all three Tay River properties. Group A appears to be underlain mainly by granite, flanked by the lower (granulite/skarn/schist) member of the Mississippian (?) series. Group B is covered completely by overburden, apparently of considerable thickness, but lies between exposures of both granite and the previously mentioned sedimentary member. Group C appears to straddle rocks belonging to the latter member and older sediments (conglomerate/slate/shale/quartzite), probably of Upper Devonian age.

Lead-zinc deposits in the area are reported to occur in the Mississippian (?) granulite/schist member close to granite contacts.

Topographically the area is extremely hilly, all three properties being located within the Anvil Range of mountains. Regional slopes of up to 1 in 5 are quite common, and locally gradients of 1 in 2 or steeper must be traversed. Some of the creeks in the area, particularly those on B. Group, cut deeply into glacial deposits of sand and gravel. Here, the river banks reach heights of more than fifty feet and locally become unscalable.

The regional geology of the area is presented on Geological Survey of Canada Map 13 - 1961, entitled Tay River, Yukon Territory.

Although the Pelly River can be reached by road during the summer, access during the geophysical program was by helicopter from Whitehorse (approximately 160 miles) or Ross River (approximately 40 miles). Communications and supplies were handled through Territorial Expediters Limited in Whitehorse.

SURVEY METHODS AND DATA PRESENTATION

Horizontal Loop E.M.

For the electromagnetic surveys Ronka Horizontal Loop Mk III and Mk IV instruments were used. The basic reconnaissance frequency was 876 cycles. Some detailing was done with the Mk III instrument at 2400 cycles. The instruments were equipped with connecting cables allowing a 200-foot or 300-foot coil separation. The 300-foot separation provides the greater penetration but is more susceptible to anomalies from topographic effects. The system consists of a transmitting coil which creates a primary electromagnetic field, and a receiving coil which detects the resultant of this field and any secondary fields that are produced by conductors below the ground.

The primary field effect is compensated by means of a reference signal passed through the connecting cable. The compensation is accurate for a given transmitter-receiver relationship which, in the case of a 200-foot coil separation, requires the two coils to be exactly coplanar and 200 feet apart. Small changes in orientation of the coils reduces the primary field in the receiver and the instrument becomes over-compensated, leading to negative in-phase anomalies. If the coils are less than 200 feet apart, the primary field increases in the receiver and positive in-phase anomalies result. These effects are

termed "topographic", as they commonly result from inability to maintain the coils in their correct relationship in very steep terrain. The effects are usually recognizable on the profiles as they coincide with sharp topographic variations and are not accompanied by any out-of-phase variations.

The operator of the receiver records the in- and out-of-phase components at the survey stations which, on this survey, were 100 feet apart along picket lines spaced at 400-foot intervals. Readings are recorded as percentages of the primary field at the receiver, usually to an accuracy of 1%.

Under ideal survey conditions, instrument "noise" can be held to less than ±1%, allowing anomalies of 2 - 3% to be recognized. Topographic "noise" varies from less than 1% to more than 10% in the in-phase component, depending on the steepness of topography and the inter-visibility of the two operators. On this survey, great difficulty was experienced from topographic effects in parts of the area. Anomalies of up to 25% were in some cases experienced, leading to extreme difficulties in interpretation.

The E.M. data are represented as profiles of in-phase and out-of-phase response at a scale of 1" to 20%. Where detailing or re-runs have been carried out, these are sometimes shown on

separate maps and sometimes as profiles superimposed on the reconnaissance maps. The reconnaissance map scale is 1" to 400 feet; the detail map scale is 1" to 200 feet. In order to avoid congestion on the E.M. maps, the readings have not been plotted, but are shown on a separate map, together with comments regarding the topographic relief and other pertinent remarks. The E.M. interpretation is shown on the E.M. profile maps.

Ma gnetometer surveys

The magnetometer surveys were carried out using Jalander fluxgate magnetometers type 46-65. The Jalander magnetometer is a hand-held self-levelling instrument, with a reading accuracy of about 10 gamma and a range of 250,000 gamma on five sensitivity scales. By careful base looping procedures (base stations were established at approximately 800-foot intervals along all base lines), the overall accuracy of the magnetometer survey was maintained to approximately ±25 gamma. A contour interval of 50 gamma has been employed in presenting the results.

The magnetometer contours have been used to derive certain inferences regarding the underlying geology, and these are shown together with the E.M. interpretation on the E.M. profile maps.

INTERPRETATION

A Group

The survey on A Group was commenced in March 1966 at a time when snow cover was heavy and survey conditions were extremely difficult. Overall topographic relief on the claim group is 2,000 feet, and locally, particularly at the south end of the group, gradients reach 50° or more. The difficulty of movements and the steep topography lower the quality of the reconnaissance E. M. data, the average total 'noise' background becoming 2 - 3% over most of the area. On top of this apparent 'noise', a number of distinct anomalies of better than 10% amplitude were detected. These were all characterized by little or no out-of-phase component, and most of them were checked at a frequency of 2400 cycles before a positive interpretation was made. The anomalies remained strong at this frequency; the out-of-phase response remained negligible.

A preliminary interpretation was made following this work and a report on A Group was submitted at the end of May. The report recommended a gravity survey over two anomalous zones: the group of strong anomalies from Line 28E to Line 48E south of the south baseline,

and the anomaly on Line 40E between 5+00S and 12+00S. Following this work, it would be decided whether the other E. M. anomalies on the group should be investigated further.

It is understood that the gravity survey produced negative results, though the data have not been provided to the writer. Concurrently with the gravity work, further E. M. detailing was done over the main anomalous zone and over some of the other stronger E. M. anomalies on the group. At this time the conditions of access were somewhat better and the data quality was improved. Information was received that most of the anomalies were in areas of locally very steep topography, so extra precautions were taken during this detailing phase to preserve the coils as coplanar as possible. The data from a portion of this detail work has been plotted and is shown on the attached map entitled "A Grid - Detail" at scale 1" to 200 feet. It is apparent that the strong negative peaks have been removed or reduced, and that the remaining positive peaks are the result of cable shortening at sharp gullies and ridges.

It was concluded, therefore, that most of the E. M. anomalies on this group, specifically those without any out-of-phase response, were caused by topographic factors and can be disregarded in the final

interpretation. The reasons for this conclusion can be summarized as follows:

(1) Close correlation with topography.

(2) Elimination or strong reduction in size on careful re-surveying.

(3) Lack of correlation with geology as shown by magnetic contours.

(4) Lack of gravity anomaly in some cases.

Disregarding the anomalies that show in-phase response only, the E. M. activity on A Group is confined to the central and southeastern parts of the property where broad, wavy anomalies were observed. The amplitude of these anomalies is generally less than 5%; response is typically stronger on the out-of-phase component than on the in-phase component. Trends are absent or discontinuous. There appears to be no correlation with the geology as revealed by the magnetic contours. In many cases, the in-phase and out-of-phase responses are of opposite sign.

The above characteristics are typical of background E. M. effect from conducting overburden, supplemented by "noise" due to coupling between the receiving coil and damp ground or vegetation. Superimposed in-phase activity which is responsible for the stronger peaks in these areas, is almost certainly the result of topography.

No E. M. anomalies in A Group can be recommended at this stage for further investigation.

The magnetometer survey shows an indistinct pattern of trends, typical of intrusive rocks or highly contorted acid to intermediate volcanics. In places a number of flat magnetic regions, such as the far north and northwest, the southwest, and the far eastern portions of the group, could be underlain by sediments. Narrow, dyke-like zones, locally showing magnetic relief of up to 500 gamma, could represent basic dykes or, more probably, magnetite-rich zones in the country rock. The magnetometer data show little or no correlation with the E. M. data, supporting the conclusion that there exists little or no E. M. conductivity within the bedrock on this property.

B Group

Surveying conditions on B Group were considerably better than those on A Group, resulting in far better survey data. Over most of the area the background "noise" is less than ± 2%, making anomalies of 5% or more easily distinguishable. Unfortunately, all of the anomalies over 5% appear to be the result of either:

(1) topographic factors causing cable shortening (e.g. most of the anomalies from Line 8W to Line 108W north of the baseline) or coil misorientation (e.g. Line 4W);

(2) overburden effects (e.g. the anomalies in the southwest corner of the area).

The causes of the topographic anomalies have been discussed in detail in the preceding sections. In B Group the effects are considerably reduced but are still evident in the region of sharp creek valleys, cliff edges and ridges. The erratic behaviour of Line 68W is more probably an instrumental effect.

The E. M. activity on Lines 188W to 204W in the southwest corner of the area is typical of overburden effect. The out-of-phase component is more active than the in-phase component and the anomaly characteristics are typical of shallow, poorly conducting material.

The magnetometer survey indicates a pattern fairly similar to that on A Group. The lack of distinct magnetic trends and the generally moderate magnetic relief suggests the presence of intrusive rocks possibly surrounded by, or mixed with, sedimentary, metamorphic or acid volcanic rocks.

The more or less circular feature on Lines 56 and 60W is almost certainly an intrusive body; in fact, the whole eastern half of the area would appear to be underlain mainly by intrusives or very highly contorted volcanic rocks. In the western half of the area the pattern is more elongated and the relief is more typical of sedimentary, metamorphic and volcanic rocks. No obvious major structures can be interpreted from the magnetometer contours, though there are weak indications of possible

northwest and northeast trending faults or shears in the locations indicated on the contour map.

C Group

The quality of the E. M. data on C Group compares roughly with that of A Group, other than in the flat regions in the centre and eastern parts of the group, where background "noise" is of the order of ± 2%. Topographic relief on this group is generally similar to that on B Group, but locally, particularly in the vicinity of the creek valleys, gradients reach as high as 60° along the picket lines. In these regions, despite the attempts of the operators to maintain coils coplanar, strong topographic effects were observed. Two anomalies, one between Lines 32W and 56W at 20 to 25S of the baseline, and the other centred around 24E north of the baseline, were detailed in order to verify the cause of the strong in-phase response. The detail work, carried out with the same care as in A Group, reduced the strength of the anomalies considerably and established without any reasonable doubt that their cause was topographic.

Apart from these and similar anomalies that show only in-phase activity, there are two disturbed regions that bear closer attention and description. These two regions are shown as Zone 1 and Zone 2 on the E. M. profile maps. The E. M. activity in these regions is observed

more or less equally on the in- and out-of-phase components. As mentioned in previous sections of this report, such activity is consistent with conductive overburden or with weakly conductive bedrock. Locally, within the two zones, individual anomalies on adjacent lines appear to form distinct trends or groups. Two such groups are shown as anomalies A and B. The in-phase to out-of-phase ratio of these anomalies is slightly less than 1. Normally, anomalies with ratios and shapes of this type are given low priority as they frequently correlate with graphitic beds or water-filled shears or buried valleys. Such may easily be the explanation here. Clearly the environment surrounding these anomalies is highly conductive, and all that is required to produce a group or trend is some controlling structure, such as a porous bed, shear or buried valley.

By comparison with the magnetometer contour maps, it is obvious that Zone 1 coincides with the region that displays much more magnetic activity than the remainder of the area. This is particularly noticeable at the south boundary of the Zone, near the centre of the area, where the boundary coincides roughly with the topographic low formed by the main creek bed.

The correlation between magnetic and E. M. activity is believed to be the result of variations in overburden thickness. It is suggested that bedrock comes closer to surface in the higher ground than it does

in the topographic lows, where both the E. M. and magnetic data are relatively flat. This is confirmed by the apparently thick overburden sections on the creek banks. Lack of correlation between E. M. and magnetic activity at the eastern end of Zone 1 and over most of Zone 2 is attributed to lack of magnetic contrast in the bedrock in those areas. Sharp, though weak, magnetic anomalies in the northeastern corner of the area confirms that bedrock is shallow in this area.

The magnetic contours themselves tell the same story as in Groups A and B. Trends are discontinuous and the patterns are typical of intrusive rocks or highly contorted volcanics. Again, sediments, metamorphic rocks and acid volcanics may be present, especially in the western and far eastern and northeastern parts of the area. In zone 1 it is evident that locally the rocks become more basic and there is some evidence in the region of Lines 80 to 104W that intrusive rocks are definitely present.

E. M. anomalies A and B show no obvious correlation with the magnetic contours. Both appear to lie in regions of relatively shallow overburden, anomaly A being close to an intrusive contact, anomaly B occurring in a region where the magnetic relief suggests sediments or acid volcanics. The anomalies, because of their E. M. appearance, are given a low priority for possible further investigation.

SUMMARY

In A Group, several E. M. anomalies originally thought to be indicative of strong bedrock conductivity, have since proven to be the result of unusual topographic effects. B and C Groups show similar effects, coinciding mainly with steep river banks, gulleys and ridges.

The remaining E. M. variations are attributed to conductive overburden and/or weakly conductive zones such as porous beds, shears or faults in the bedrock.

Two E. M. anomalies on C Group, referred to as Anomalies A and B, represent locally higher conductivity, but are believed to result from structural influences rather than metallic mineralization. These two anomalies represent the only targets that can be drawn from the E. M. survey results; and they are given a low priority for possible further investigation.

The magnetometer survey has been marginally helpful in interpreting the geology underlying the three properties, and confirms a lack of correlation between the E. M. anomalies and the bedrock geology.

HUNTEC LIMITED

N. R. Paterson, Ph. D., P. Eng.,
Geophysicist.

APPENDIX

Grid A

The survey over this area covered the following claims:

A3-26, 32-41, 43-45, 47-58, 60, 73-79, 82-86, 89-106, 109, 110

FARO 200, 205, 206, 208

LO 8, 10, 12, 14

FANNIN 24

KEN 1-16, 19-24

To complete this survey, 83.96 line miles of reconnaissance E.M. readings at 100 foot intervals on lines 400 feet apart were required.

In addition, 57.63 line miles of reconnaissance magnetometer readings at 100 foot intervals on lines 400 feet apart were required.

Grid B

The survey over this area covered the following claims:

B 1 to 14 numbered 94358 to 94371

B 23 to 36 numbered 94372 to 94385

B 37 to 68 numbered 94398 to 94429

B 69 to 80 numbered 94386 to 94397

To complete this survey, 70.13 line miles of reconnaissance E.M. readings at 100 foot intervals on lines 400 feet apart were required.

In addition, 70.45 line miles of reconnaissance magnetometer readings at 100 foot intervals on lines 400 feet apart were required.

Grid C

The survey over this area covered the following claims:

C 1 to 39 numbered 94231 to 94269

C 41 to 48 numbered 94270 to 94277

C 49 numbered 94209

C 50 to 57 numbered 94278 to 94285

To complete this survey, 53.28 line miles of reconnaissance E. M. readings at 100 foot intervals on lines 400 feet apart were required.

In addition, 53.98 line miles of reconnaissance magnetometer readings at 100 foot intervals on lines 400 feet apart were required.

The instruments used on this survey were as follows:

Ronka Mark III Horizontal Loop Electromagnetometer

Ronka Mark IV Horizontal Loop Electromagnetometer

Jalander Fluxgate Magnetometer

The number of man-days required was as follows:

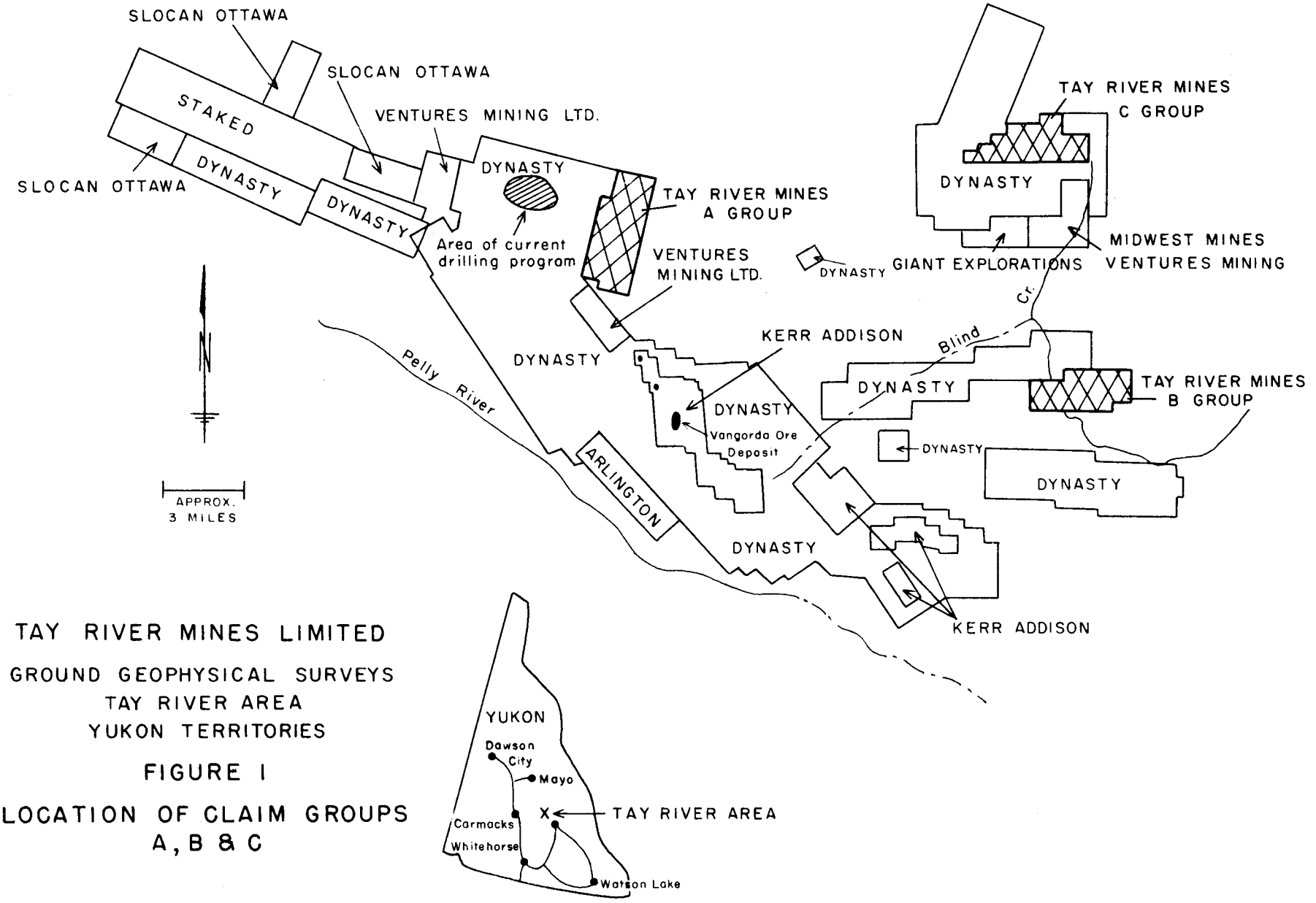
Operating Geophysical Equipment	188
Interpretation and report writing	8
Drafting	66
Office: Typing and supervision	1
	263

Personnel Employed on Survey

Name	Occupation	Address	Dates
P. E. Lane	Geophysicist	1450 O'Connor Drive Toronto 16, Ontario	Mar. 18-30 May 4-9 June 16-19
J. Ziegler	Geophysical Operator	"	Mar. 22 - Apr. 9 Apr. 18 - Apr. 28
A. Gervais	"	"	Mar. 26 - May 25
P. Erlam	Geophysical Helper	"	Mar. 26 - Apr. 9 Apr. 18 - Apr. 27
C. Christianson	"	Tay River Mines	Mar. 28 - Apr. 9
S. Tom	"	"	Mar. 28 - May 1
V. Gupta	Geophysical Operator	1450 O'Connor Drive Toronto 16, Ontario	May 5 - July 3
R. Jules	Geophysical Helper	Tay River Mines	May 2 - May 7
B. Haley	"	"	May 9 - May 30
T. Dick	"	"	June 13 - June 14
M. Currie	Geophysical Operator	1450 O'Connor Drive. Toronto 16, Ontario	May 11 - May 29
L. Giovannetti	"	"	May 26 - July 3
D. Lutz	Geophysical Helper	Tay River Mines	June 2 - June 3 June 17 - June 28
S. Marko	"	"	June 5 - June 9 June 29 - June 30
J. Wilson	Drafting	1450 O'Connor Drive Toronto 16, Ontario	Apr. 15, 18, 19, 26 May 9-11 June 10, 13-15 June 20, 21, 29, 30

Personnel Employed on Survey cont'd

Name	Occupation	Address	Dates
J. Wilson	Drafting	1450 O'Connor Drive Toronto 16, Ontario	July 4-6, 15 July 18-22, 25-27 Aug. 2-5, 8, 9 Sept. 9, 16, 21, 22, 30 Oct. 3-6, 11-14, 17-21
H. Ricketts	"	"	Apr. 19, May 11, 12 June 20, 30 July 20-22 Oct. 7, 13, 14, 17, 18, 20, 21
L. Brunton	Typing	"	Oct. 20
K. Wilson	Instrument Service Technician	"	May 28-29
N.R. Paterson	Geophysicist, P. Eng.	"	June 27, July 16, Aug. 11, Sept. 28
R.K. Watson	"	"	June 25, 26, July 11, 17



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GROUND GEOPHYSICAL SURVEYS
TAY RIVER AREA
YUKON TERRITORIES

FIGURE 1

LOCATION OF CLAIM GROUPS A, B & C

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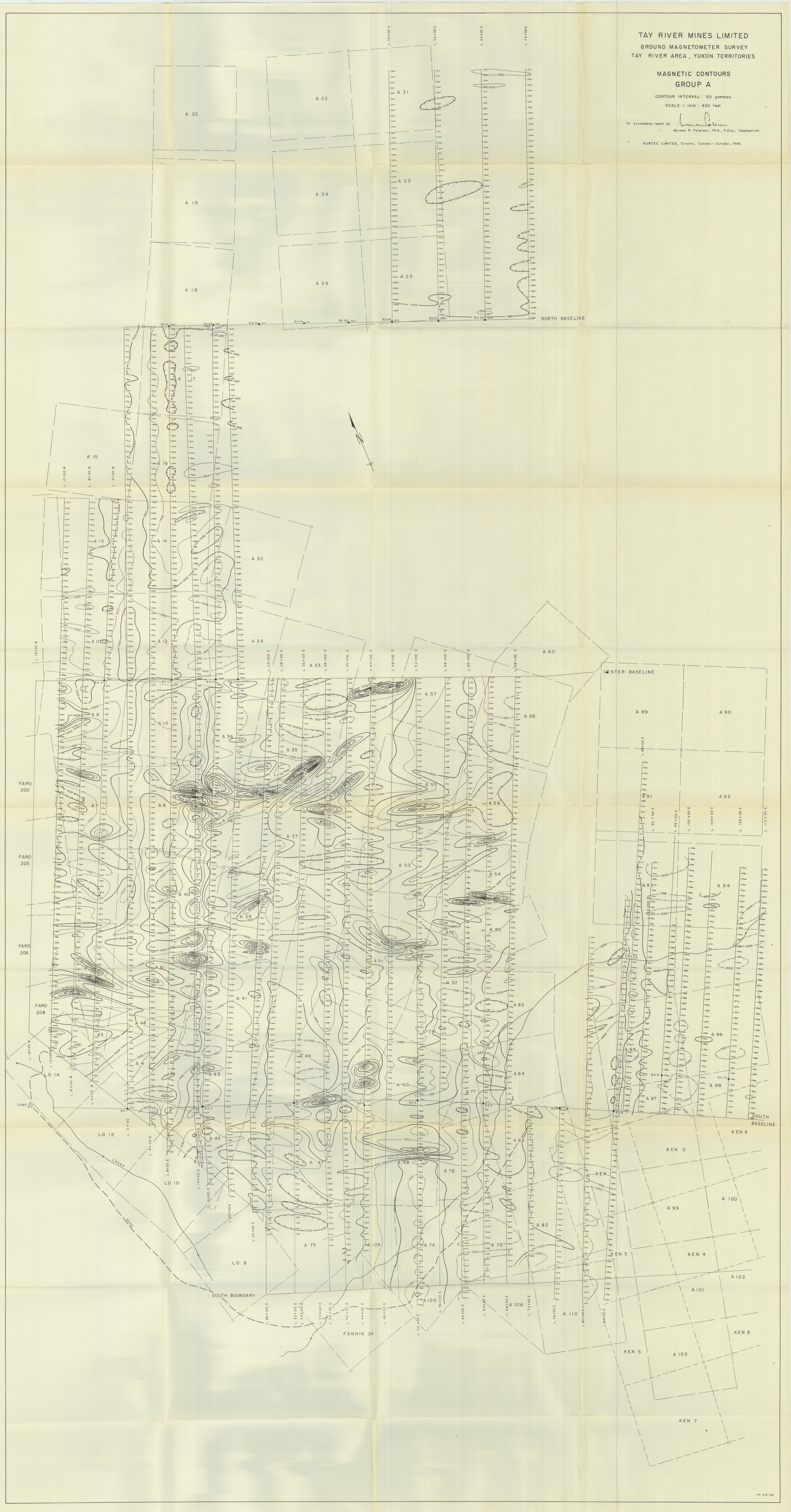
GROUND MAGNETOMETER SURVEY
TAY RIVER AREA, YUKON TERRITORIES

MAGNETIC CONTOURS
GROUP A

CONTOUR INTERVAL: 50 gammas
SCALE: 1 inch = 400 feet

To accompany report by
Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada - October, 1966



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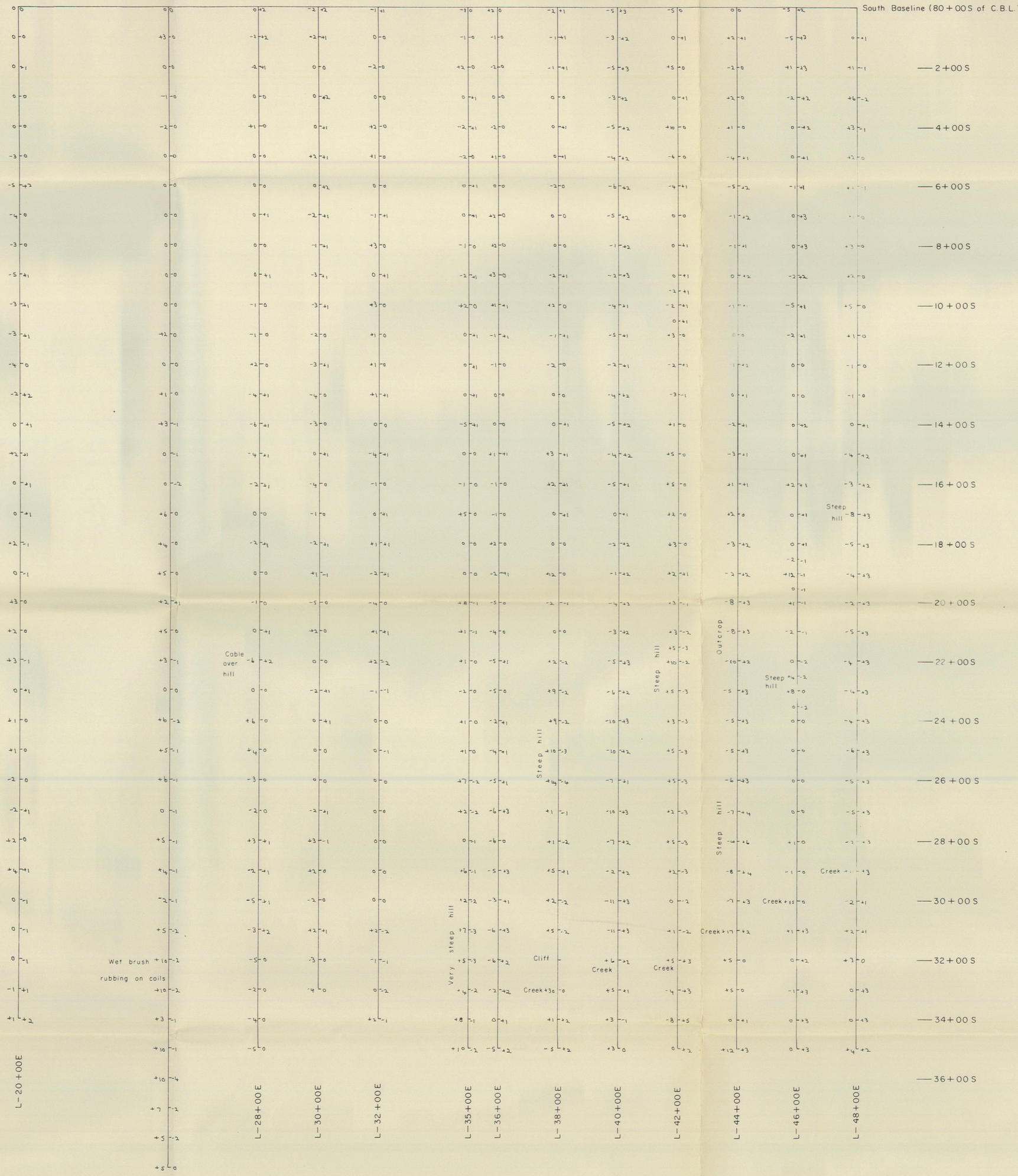
HORIZONTAL LOOP E.M. SURVEY
TAY RIVER AREA, YUKON TERRITORIES

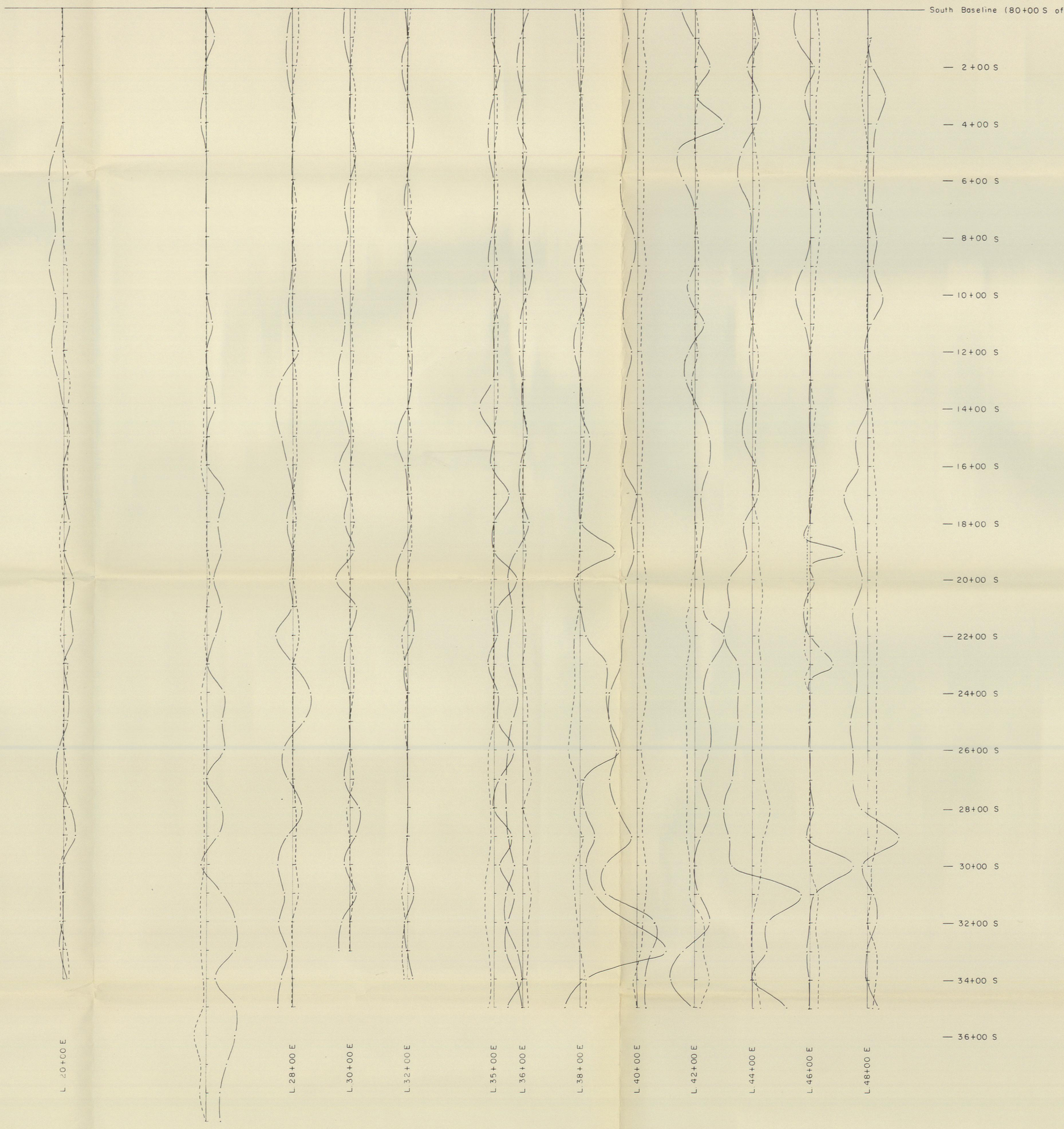
E.M. PROFILES
GROUP A

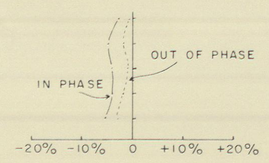
Scales: 1 inch = 400 feet
1 inch 20% of primary field

To accompany report by Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada – October, 1966.







Frequency 876 c.p.s
Coil Separation 200 feet

TAY RIVER MINES LIMITED

HORIZONTAL LOOP E.M. SURVEY

TAY RIVER AREA, YUKON TERRITORIES

DETAIL SURVEY - GROUP A

Scales: 1 inch 200 feet
1 inch 20% of primary field

To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

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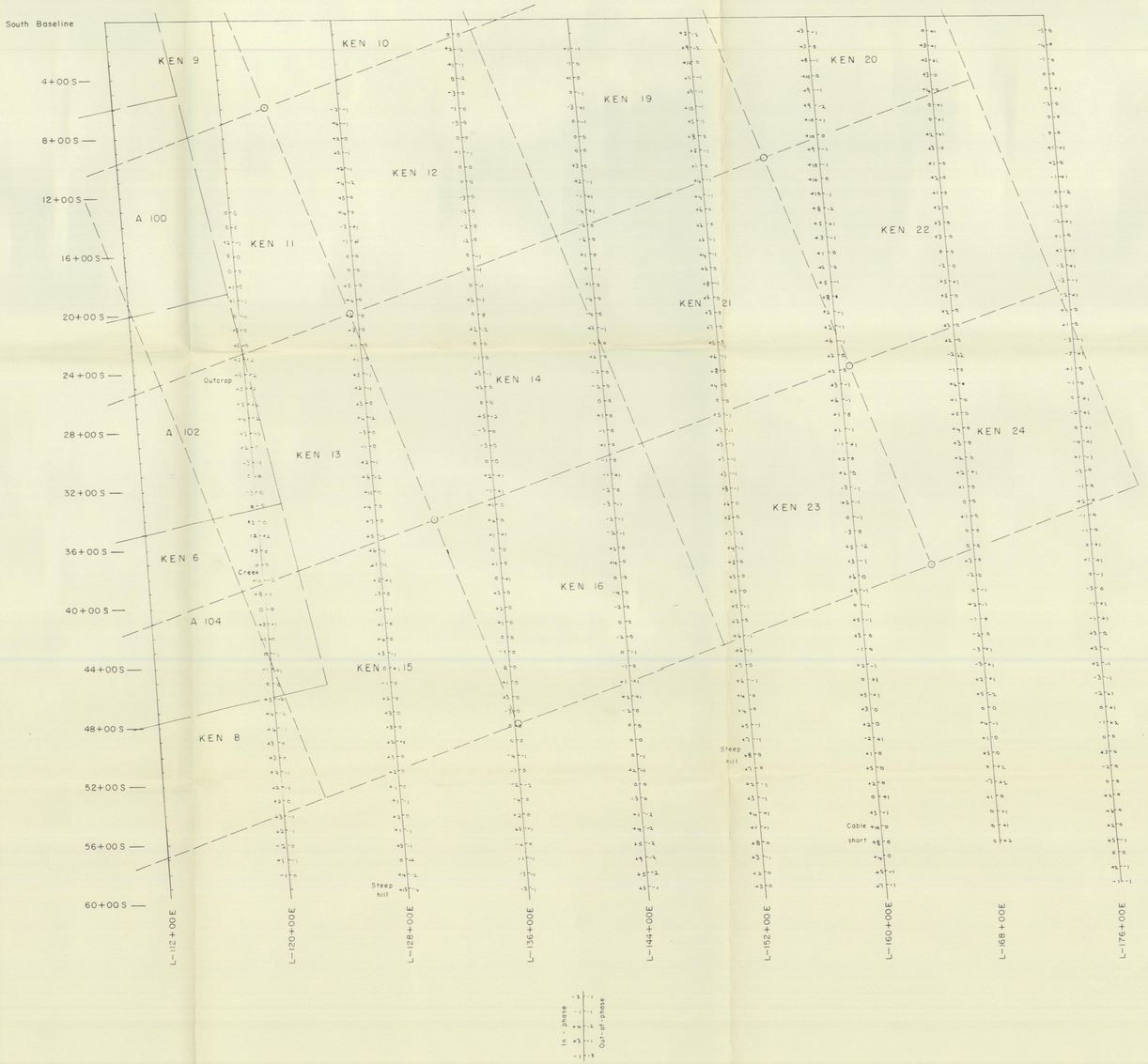

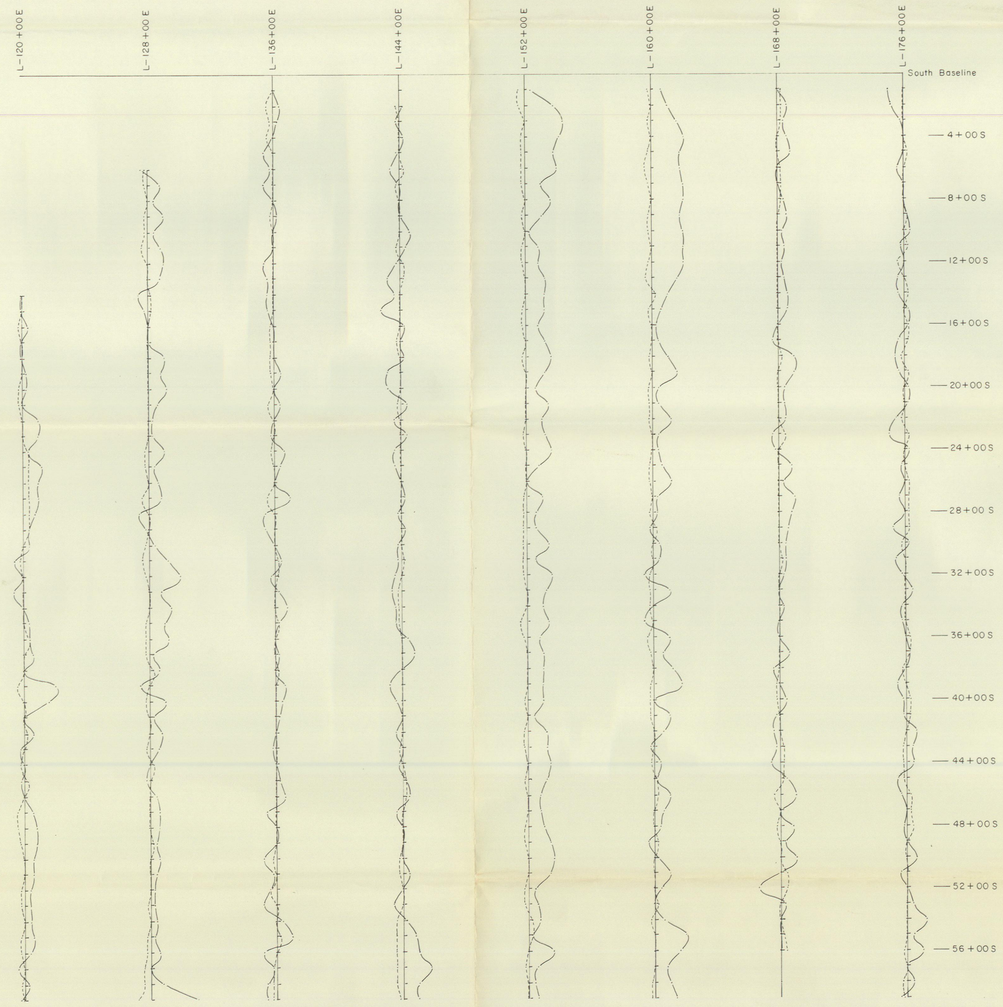

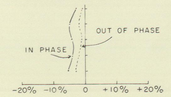

Frequency 2400 c.p.s.
Coil Separation 200 feet

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HORIZONTAL LOOP E.M. SURVEY

TAY RIVER AREA, YUKON TERRITORIES

GROUP A - KEN CLAIMS

Scales: 1 inch : 400 feet
1 inch : 20% of primary field

To accompany report by

Norman R Paterson, Ph.D., P.Eng., Geophysicist

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GROUND MAGNETOMETER SURVEY

TAY RIVER AREA, YUKON TERRITORIES

MAGNETIC CONTOURS WITH INTERPRETATION

GROUP B

CONTOUR INTERVAL: 50 gammas

SCALE: 1 inch = 400 feet

To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada – October, 1966

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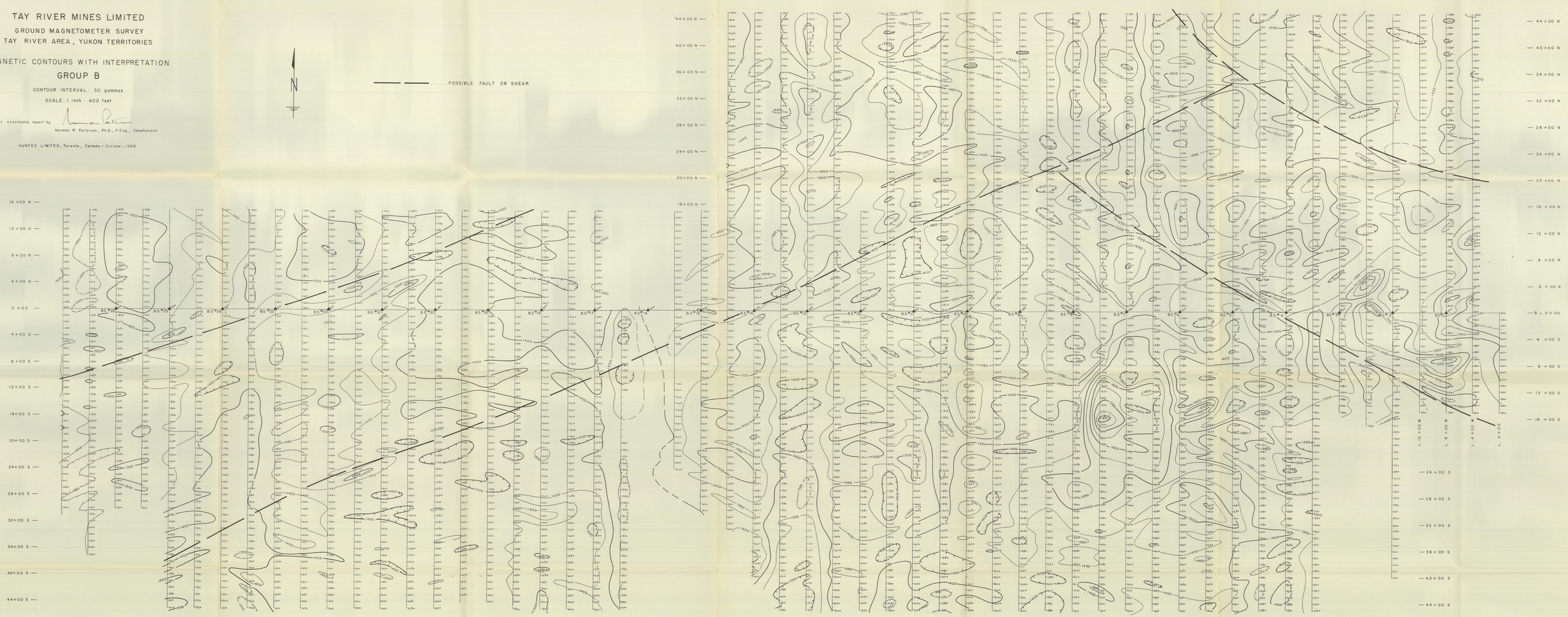
.....POSSIBLE FAULT OR SHEAR



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HORIZONTAL LOOP E.M. SURVEY
TAY RIVER AREA, YUKON TERRITORIES

E.M. PROFILES

GROUP B

Scales 1 inch = 400 feet
1 inch = 20% of primary field

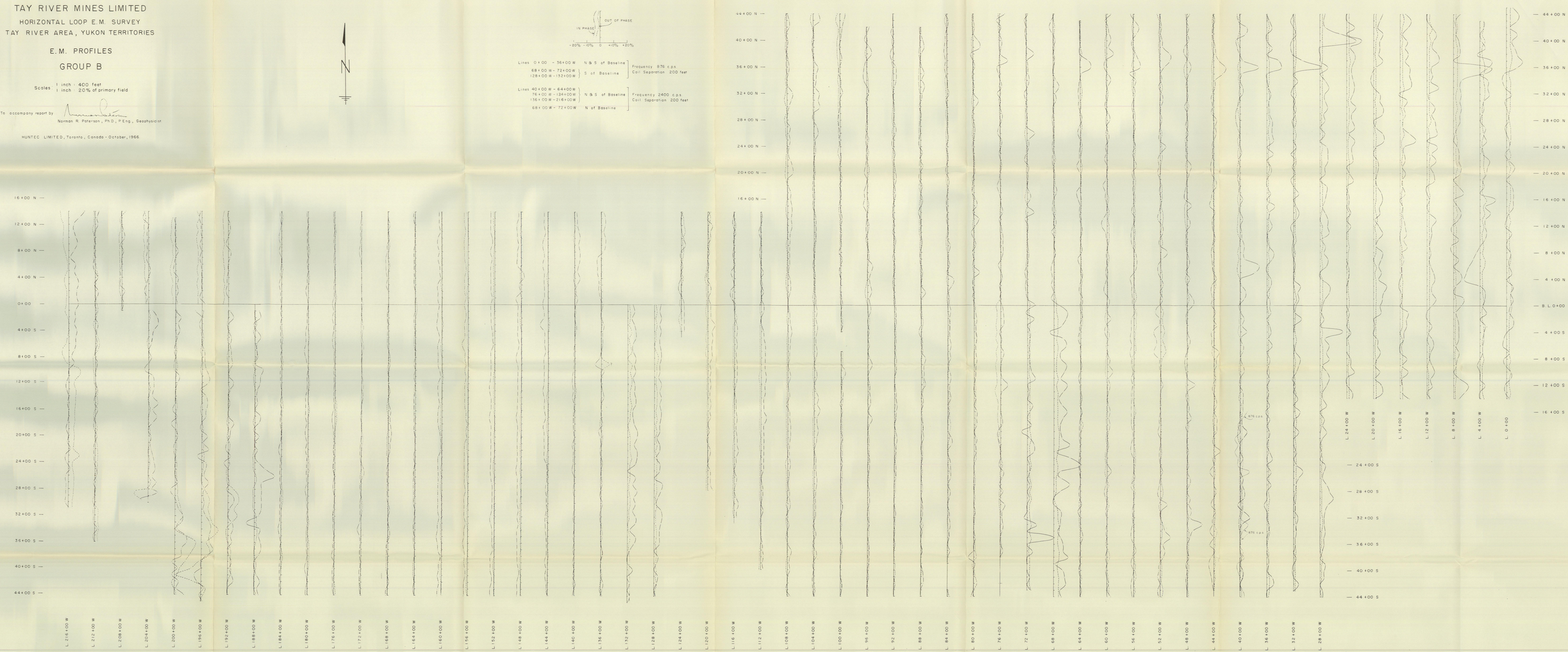
To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada - October, 1966

Lines 0+00 - 36+00W N & S of Baseline
68+00W - 72+00W S of Baseline
128+00W - 132+00W
Frequency 876 c.p.s.
Coil Separation 200 feet

Lines 40+00W - 64+00W N & S of Baseline
76+00W - 124+00W
136+00W - 216+00W
68+00W - 72+00W N of Baseline
Frequency 2400 c.p.s.
Coil Separation 200 feet



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TAY RIVER MINES LIMITED

HORIZONTAL LOOP E.M. SURVEY

TAY RIVER AREA, YUKON TERRITORIES

E.M. DATA WITH TOPOGRAPHIC COMMENTS

GROUP B

SCALE 1 inch = 400 feet

To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada - October, 1966

PH 414/66

TAY RIVER MINES LIMITED

GROUND MAGNETOMETER SURVEY

TAY RIVER AREA, YUKON TERRITORIES

MAGNETIC CONTOURS

GROUP C

CONTOUR INTERVAL: 50 gammas

SCALE: 1 inch = 400 feet

To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada – October, 1966.

PH 414/66

L 124+00 W
L 120+00 W
L 116+00 W
L 112+00 W
L 108+00 W
L 104+00 W
L 100+00 W
L 96+00 W
L 92+00 W
L 88+00 W
L 84+00 W
L 80+00 W
L 76+00 W
L 72+00 W
L 68+00 W
L 64+00 W
L 60+00 W
L 56+00 W
L 52+00 W
L 48+00 W
L 44+00 W
L 40+00 W
L 36+00 W
L 32+00 W
L 28+00 W
L 24+00 W
L 20+00 W
L 16+00 W
L 12+00 W
L 8+00 W
L 4+00 W
L 0+00
L 4+00 E
L 8+00 E
L 12+00 E
L 16+00 E
L 20+00 E
L 24+00 E
L 28+00 E
L 32+00 E
L 36+00 E
L 40+00 E

16+00 N
12+00 N
8+00 N
4+00 N
0+00 BL
4+00 S
8+00 S
12+00 S
16+00 S
20+00 S
24+00 S
28+00 S
32+00 S
36+00 S
40+00 S
44+00 S

32+00 N
28+00 N
24+00 N
20+00 N
16+00 N
12+00 N
8+00 N
BL. 0+00
4+00 S
8+00 S
12+00 S
16+00 S
20+00 S
24+00 S
28+00 S
32+00 S
36+00 S
40+00 S
44+00 S
48+00 S
52+00 S
56+00 S
60+00 S
64+00 S
68+00 S
72+00 S
76+00 S
80+00 S
84+00 S
88+00 S

A

B

ZONE 1

ZONE 2

N

IN PHASE
OUT OF PHASE
-20% -10% 0 +10% +20%

Frequency 876 c p s
Coil Separation 300 ft (Lines 40+00E - 60+00E)
200 ft (all other lines)

TAY RIVER MINES LIMITED

HORIZONTAL LOOP E.M. SURVEY

TAY RIVER AREA, YUKON TERRITORIES

E.M. PROFILES WITH INTERPRETATION

GROUP C

Scales: 1 inch : 400 feet
1 inch : 20% of primary field

To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada - October, 1966.

PH 414/66.

TAY RIVER MINES LIMITED

HORIZONTAL LOOP E.M. SURVEY

TAY RIVER AREA, YUKON TERRITORIES

E.M. DATA WITH TOPOGRAPHIC COMMENTS

GROUP C

SCALE 1 inch : 400 feet

To accompany report by

Norman R. Paterson, Ph.D., P.Eng., Geophysicist

HUNTEC LIMITED, Toronto, Canada – October, 1966.

Frequency 876 c.p.s.

Coil Separation 300 ft. (Lines 40+00E – 60+00E)
200 ft. (all other lines)

PH 414/66

This report has been examined by the Geological Evaluation Unit. Approved as to technical worth by:

RESIDENT GEOLOGIST

Approved as to cost in the amount of: $ see report by F. Hockey

RESIDENT MINING ENGINEER

Accepted as representation work under Section 53(4) Yukon Quartz Mining Act.

COMMISSIONER OF YUKON

I hereby certify that the within instrument is a true and correct copy of the instrument of which it purports to be a copy, and which was recorded in the Office of the Mining Recorder at Whitehorse, Y.T., this ..... day of ..... 19..... under number .....

Dated at Whitehorse, Y.T., this ..... day of ..... 19.....

Mining Recorder,
Whitehorse Mining District

REPORT ON

CRONE ELECTROMAGNETIC SURVEY

FOR

TAY RIVER MINES LIMITED

Snafu Mineral Claims 1 - 16 incl.

Sheet 105 K-2

Approximately 132° 15' W, 62° 15' N.

Whitehorse Mining District

Yukon Territory

Survey performed by:

Watts, Griffis and McOuat Limited

October 7 to October 13, 1966

GEOLOGICAL SURVEY
DEC 19 19..
Resident Geologist
Whitehorse, Y. T.

Toronto, Ontario
November 3, 1966

C. K. O'Connor, B.A.Sc., P.Eng.

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CERTIFICATE	
LOCATION MAP - "Snafu" Claim Group	
MAP POCKET - Electromagnetic Survey - scale 1" = 300 feet.	

SUMMARY AND CONCLUSIONS

The Crone electromagnetic survey conducted on the Snafu mineral claims for Tay River Mines Limited in the Vangorda Creek area of the Yukon indicated four weakly conductive zones.

Three of the conductors are open at one end. From the work done the conductors generally appear to be flat-lying, but as only the easterly end of three of them have been properly surveyed, the electromagnetic profiles are not definitive.

The conductors are believed to be caused by either weakly graphitic schists, or argillite, or possibly disseminated sulphides.

Because of the importance of the sulphide occurrences located in the Vangorda Creek area to-date, further work is warranted to evaluate the conductors located by this survey.

RECOMMENDATIONS

The grid should be enlarged to include mineral claims Snafu 17 and 18 in the southwest corner of the property.

Conductor No. 1 could then be traced further west and more information obtained as to its characteristics and attitude, especially as it appears to be stronger to the west. Detail fan method profiling is recommended for all the conductors, again to try and better determine their attitude.

Following this, it is recommended that magnetometer and gravity surveys be conducted over the four conductive zones and any additional ones that might be outlined on the Snafu 17 and 18 claims. Gravity surveys have been especially effective in outlining lead-zinc mineralization in the Vangorda Creek area.

Any conductors showing correlation with a strong gravity high should be investigated by either trenching or diamond drilling to obtain an explanation.

INTRODUCTION

This report describes the results of a Crone JEM duel frequency electromagnetic survey carried out on the Snafu mineral claims of Tay River Mines Limited in the Vangorda Creek area of the Yukon Territory during October, 1966.

The field work was conducted and supervised by Mr. Wayne Pelette with the assistance of Mr. Lloyd Alexander.

The author of this report is fully acquainted with the geology of the Vangorda Creek area and its relation to the various geophysical techniques employed in the area through personal experience over the past eight months.

PROPERTY

The property covered by the electromagnetic survey consists of 16 contiguous unpatented mineral claims known as the Snafu claims, numbered 1 to 16 inclusive located in the Whitehorse Mining District of the Yukon Territory.

These claims form the greater part of the total group of 18 Snafu claims staked and held by Tay River Mines Limited.

LOCATION, ACCESS AND TOPOGRAPHY

The Snafu mineral claim group of Tay River Mines Limited is located in the Vangorda Creek area of the Yukon Territory, about 130 air-miles northeast of Whitehorse.

The claims are on Sheet 105 K-2 in the Whitehorse Mining District, with co-ordinates approximately 132° 15' W longitude and 62° 15' N latitude, about 25 miles northwest of Ross River and eight miles northeast of the Pelly River.

Ross River is accessible by road from Whitehorse, a distance of about 220 miles.

At Ross River, helicopters can be chartered for direct access to the property as there are no roads suitable for wheeled vehicles within eight miles.

The Swim Lakes, two to three miles south of the property are suitable for fixed wing, ski or float-equipped aircraft, and there is a gravel airstrip at Ross River.

The property lies in relatively gently rolling terrain between the Swim Lakes and Blind Creek at elevations of about 4,000 to 4,500 feet above sea level, and is completely timbered with medium-sized pine and spruce, as well as tag alders and buck brush.

There are no streams on the property, but two swamps would probably provide sufficient water for drilling during the summer.

There are relatively few outcrops except on the high ridges.

HISTORY

The Vangorda Creek area recently gained prominence as an important economic mineral area of Canada with the discovery in 1965 by Dynasty Explorations of a large lead-zinc-silver deposit on their Faro claim group about 18 miles northwest of the Company's claims. This deposit, reported to contain in excess of 40 million tons of about 10 percent combined lead-zinc and 1.25 ounces of silver, is presently being developed by Anvil Mining Corporation, an operating company owned jointly by Dynasty Explorations Limited (40%) and Cyprus Mining Corporation (60%).

Prospectors Airways, since merged into Kerr Addison, discovered and drilled the first major deposit found in the area in the period 1953 to 1956, but ceased work due to unfavourable economic and logistic conditions. This deposit, located on Vangorda Creek about 10 miles west of the Snafu claims, contains about nine million tons of eight percent combined lead-zinc and 1.5 ounces of silver.

Kerr Addison resumed exploration in the area in 1963 and in 1965 discovered a second, large lead-zinc-silver deposit on their "Swim" claim group, only five miles west-southwest of the Company's claims. Kerr has been drilling this deposit with four machines for the past four months and although no tonnage figures have been published, the deposit is reputedly of similar grade and size to the original Vangorda deposit, if not larger.

Many companies staked or acquired claims in the Vangorda Creek area following the announcement by Dynasty in the fall of 1965 of their major discovery.

GENERAL GEOLOGY

The Vangorda Creek area is underlain by Paleozoic sediments and volcanics which have been intruded by the Cretaceous Anvil granitic batholith.

The sediments are strongly metamorphosed and now consist predominantly of quartz-sericite, chlorite and graphite schists, with lesser argillite, quartzite and limestone.

The lead-zinc-silver mineralization found to-date appears to be related to strong northeast-trending faults subsidiary to the Tintina trench which marks the Pelly River valley in this area, and to the Anvil granitic batholith. The three major deposits found to-date all occur in the favourable schists close to the batholith, northeast faults, or both.

The schists generally strike northwest and dip moderately away from the granitic core giving the appearance of a major anticlinal structure paralleling the Pelly River on the northeast side.

The Company's claims lie about five miles southeast of the main intrusive outcrop in a large basin of schists centred about Swim Lakes.

The property is indicated on the geological map (GSC No. 13 - 1961, "Tay River") to be underlain mainly by volcanics which probably form a thin capping over the underlying schists, striking northwest and dipping moderately northeast.

DISCUSSION OF RESULTS

The electromagnetic survey was carried out using a Crone JEM dual frequency unit on lines trending N 05° W spaced 400 feet apart. Readings were taken at 100-foot intervals.

The initial reconnaissance survey employed the in-line technique with a coil separation of 200 feet and the dip angle reading plotted between the two coils. The high frequency, 1,800 cps, was used for this reconnaissance.

No strong conductors were located, but several moderate to weak indications were obtained and these were checked by taking readings at 50-foot intervals, as well as employing the low frequency, 480 cps to determine the relative conductivity.

The conductors indicated are described individually as follows:

(1) This conductor was located on Line 28 W at 34 + 00 S, and was traced 400 feet west by blazing a short line at 32 + 00 W and pacing distances. It strikes slightly north of west and is open to the west.

(2) This conductor was located on Line 28 W at about 3 + 00 S. Again a line was run 400 feet to the west and the conductor was located on this line at about 2 + 00 N indicating a northwest strike.

(3) About 600 feet north of and parallel to the Number 2 conductor, a third indication was obtained with similar characteristics to the others. Again this conductor is open to the west, but no further work has been done as it extends off the property.

(4) A short conductor was indicated on Line 20 W at about 25 + 00 N. The strike is indicated to be east-west and the maximum length of the conductor is in the order of 300 feet.

All of the conductors located show a poor response on the low frequency, indicating relatively poor conductivity.

There is a suggestion from the profiles of a flat dip to the conductors, but the information is limited because of the short distance they have been traced on the property. If conductors 1, 2 and 3 were traced further west where they are indicated to be stronger, a more definite indication of their attitude might become apparent.

Depth to the conductive sources is probably in the order of 50 feet or less.

Although all of the conductors located are weak, they are not likely to be caused by overburden because of the relatively strong high frequency response and the absence of obvious overburden conductors associated with them.

The type of response that might be expected from a swamp is well illustrated in the area of Lines 4 E to 8 W at about 20 + 00 N as seen on the map.

The most likely explanation for the conductors is weakly graphitic schists or argillite, although they may be caused by disseminated sulphides.

Respectfully submitted,

WATTS, GRIFFIS AND McOUAT LIMITED

Toronto, Ontario
November 3, 1966

C. K. O'Connor, B.A.Sc., P.Eng.

APPENDIX

Survey Personnel and Data

Field Operators

Wayne Pelette,
Apartment 126 - 199 Upper Canada Drive,
Willowdale, Ontario.

Lloyd Alexander,
Apartment 602 - 100 Rowena Drive,
Don Mills, Ontario.

Supervising Consultant

Kelly O'Connor, B.A.Sc., P.Eng.,
278 Princess Avenue,
Willowdale, Ontario.

Miles of Line Surveyed 17.25

Instrument Crone JEM dual frequency (480/1,800 cps) unit.

Duration of Survey October 7 - October 13, 1966.

CERTIFICATE

I, Caven Kelly O'Connor, hereby certify:

1. That I am a geologist and reside at 278 Princess Avenue, Willowdale, Ontario.

2. That I am a registered Professional Engineer in the Provinces of Ontario and British Columbia.

3. That I graduated from the University of Toronto in 1962 with the degree of Bachelor of Applied Science in geological engineering.

4. That I have been continuously engaged in my profession for 4 1/2 years.

5. That the foregoing report is based on personal experience in the Vangorda Creek area since November, 1965, and on discussions with Mr. Wayne Pelette who conducted and supervised the survey.

6 That I have no personal interest, nor do I expect to receive any interest directly or indirectly in the properties or in the securities of Tay River Mines Limited.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA

Toronto, Ontario
November 3, 1966

C. K. O'Connor, B.A.Sc., P.Eng.

62°15'

39°

True North

Magnetic North

FRONTIER EXPLORATIONS

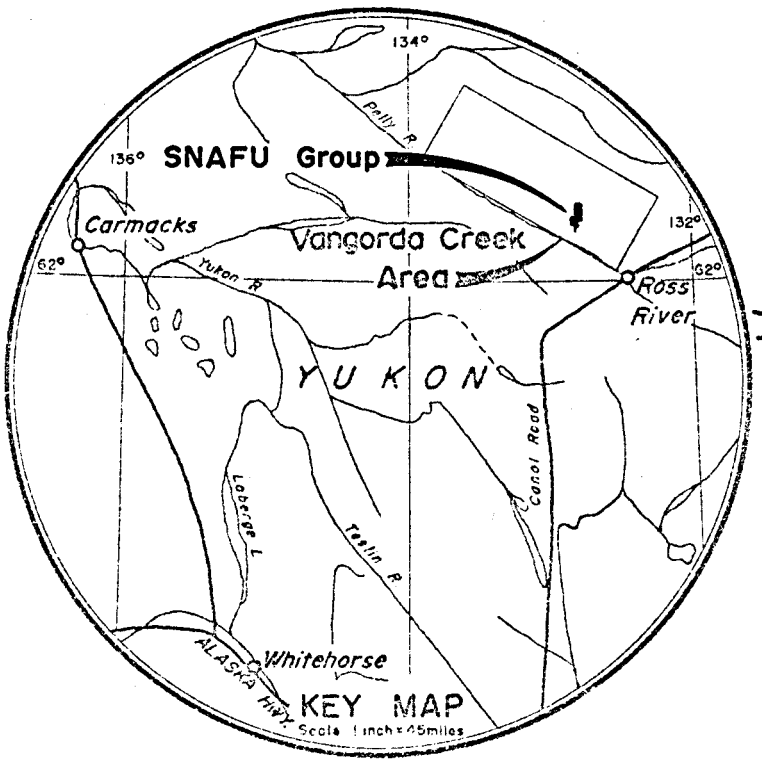
ANVIL MINING CORPORATION

13	1	2
14	3	4
15	5	6
17	16	7	8
18	11	9
(12)		10

Outline of surveyed area

GOLDEN GATE

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
O'CONNOR



Swim Lakes

130°50'

WATTS, GRIFFIS & McOUAT LIMITED

TAY RIVER MINES LIMITED

SNAFU CLAIM GROUP

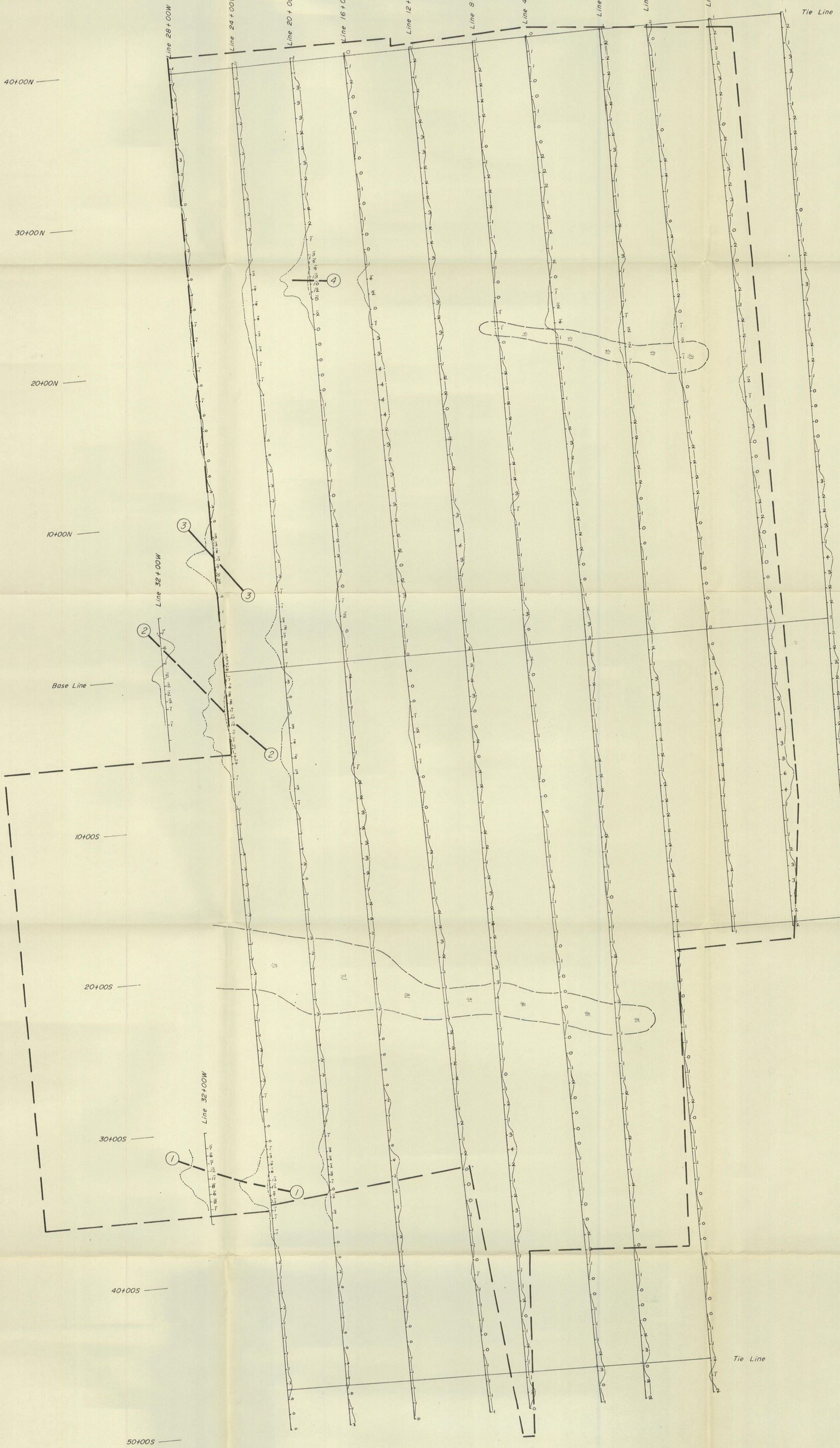
VANGORDA CREEK AREA

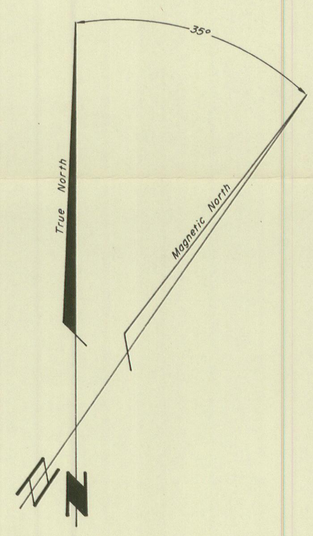
Whitehorse Mining District

— YUKON TERRITORY —

Scale 1" = 1/2 mile

October 1966





LEGEND

- Property boundary
- 2 Dip angle degrees (1800 c.p.s.)
- Profile (1800 c.p.s.)
- Profile (480 c.p.s)
- Swamp
- (2) Conductor

Instrument – Crone Jem (dual frequency)

Profile scale: 1" = 20°

WATTS, GRIFFIS & McOUAT LIMITED

TAY RIVER MINES LIMITED

Snafu Group

VANGORDA CREEK AREA

— YUKON TERRITORY —

ELECTROMAGNETIC SURVEY

Feet 300 0 300 600 900 Feet

TORONTO, ONTARIO

OCTOBER, 1966.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

Kelly O'Connor Nov 3/66

TABLE OF CONTENTS

This report has been examined by the Geological Evaluation Unit. Approved as to technical worth by:
RESIDENT GEOLOGIST
Approved as to cost in the amount of $ 109,500
for MINING ENGINEER
Accepted as representation work under Section 53(4) Yukon Quartz Mining Act.
COMMISSIONER OF YUKON

$109,500

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"A" & KEN GROUPS 4
"B" GROUP 5
"C" & DOC GROUPS 5
SNAFU GROUP 6
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EVIDENCE OF EXPENDITURES -"A" Group 9
EVIDENCE OF EXPENDITURES -"C" & DOC Groups 10
EVIDENCE OF EXPENDITURES - SNAFU Group 11

ENCLOSED IN MAP POCKET:

Location Map
Grid & Claim Map - "A" & KEN Groups
Grid & Claim Map - "B" Group
Grid & Claim Map - "C" Group

"C" Group - Soil Sample Results - Cu
"C" Group - Soil Sample Results - Pb
"C" Group - Soil Sample Results - Zn
"C" Group - Silt Sample Results - Cu
"C" Group - Silt Sample Results - Pb
"C" Group - Silt Sample Results - Zn

SNAFU Group - Claim & Grid Map
SNAFU Group - Soil Sample Results - Cu
SNAFU Group - Soil Sample Results - Pb
SANFU Group - Soil Sample Results - Zn

ACCOMPANYING THIS REPORT ARE:

Huntec Ltd. Geophysical Report - "A", "B", "C" & DOC Groups
Watts, Griffis & McOuat Ltd. Geophysical Report - SNAFU Group

GEOLOGICAL SURVEY

TAY RIVER MINES LTD. (N.P.L.)

To: Mr. A.C. Ritchie, President — November 14, 1966

SUBJECT: Exploration Program Conducted by Tay River Mines Ltd., on "A", "B", "C", KEN, DOC and SNAFU Mineral Claims in the Pelly River Area, Yukon Territory.

INTRODUCTION:

Tay River Mines Ltd. began field work on the above-mentioned claim groups on January 16, 1966. The work was supervised by Mr. Hu Naylor until May 6, 1966, and then by myself until October 15, 1966.

The program consisted of establishing grids, partially of hand-cut lines and partially of cat lines. These lines were run at a spacing of 400 feet, except over the north end of "A" Group and over the KEN claims where the lines were spaced at 800 feet. Stations were established every 100 feet along these lines, and ground magnetometer and electromagnetic surveys were conducted over the entire grids.

Detailed prospecting and mapping were conducted over most of the claim areas, but this was skimpy due to lack of outcrop.

Silt sampling and soil sampling was conducted over parts of "C" Group and SNAFU Group.

Very little previous information was available on this area, other than G.S.C. Memoir 280 "A Reconnaissance of Pelly River between MacMillan River and Hoole Canyon, Yukon", by J.R. Johnston, and the G.S.C. Map 13-1961.

PROPERTIES:

Tay River Mines Ltd. holds 287 unpatented mineral claims in the Whitehorse Mining District. These claims are located in the Pelly River area about 125 miles northeast of Whitehorse and 30 miles northwest of Ross River. They lie on the northeast flank of the Tintina Fault, which follows the Pelly River valley.

GEOLOGICAL SURVEY
DEC 19 1966
Geologist
Whitehorse, Y. T.

The claims are divided into the following groups:-

"A" GROUP -

This group consists of 110 claims located on claim map 105 K6, and is tied on to the East boundary of the Faro Group of claims which cover the Faro orebody, being developed by Anvil Mining Corporation:-

Tay River Mines Ltd. (N.P.L.) - cont'd:-

"A" Group - cont'd -

Claim	Claim Record No.	Assessment due
A1 -A28	94286-94313	Nov. 22, 1966
A29 -A36	94350-94357	Nov. 22, 1966
A37 - A68	94318-94349	Nov. 22, 1966
A69 -A72	94314-94317	Nov. 22, 1966
A73 -A106	Y4173-Y4206	Apr. 5, 1967
A107-A110	Y4948-Y4951	Apr. 25, 1967

KEN GROUP -

This group consists of 24 claims which are tied on to the southeast corner of "A" Group, and it is included in the discussion of "A" Group:-

Claim	Claim Record No.
KEN 1-24	Y3514-Y3537

"B" GROUP -

This group consists of 71 claims located on claim map 105 K7 and is tied on to the east boundary of Anvil's Rusty claims:-

Claim	Claim Record No.	Assessment due
B1 -B14	94358-94371	Nov. 22, 1966
B23-B36	94372-94385	Nov. 22, 1966
B37-B68	94398-94429	Nov. 22, 1966
B69-B80	94386-94397	Nov. 22, 1966

"C" GROUP -

This group consists of 56 claims located on claim map 105 K7 and is tied on to the northeast corner of Anvil's Ace group.

Claim	Claim Record No.	Assessment due
C1 -C39	94231-94269	Nov. 22, 1966
C41-C48	94270-94277	Nov. 22, 1966
C49	94209	Nov. 22, 1966
C50-C57	94278-94285	Nov. 22, 1966

DOC GROUP -

This group consists of 8 claims tied on to the southeast corner of "C" Group and it is included in the discussion of "C" Group:-

Claim	Claim Record No.	Assessment due
DOC 1-DOC 8	Y5959-Y5966	May 24, 1967

. 3

Tay River Mines Ltd. (N.P.L.) - cont'd:-

Properties - cont'd -

SNAFU GROUP -

This group consists of 18 claims located on claim map 105 K2 and is tied on to the west boundary of Anvil's Nasty group. This group was staked to cover ground originally thought to be covered by Abel 3 - Abel 21. These Abel claims were abandoned September 30, 1966, due to poor staking:-

Claim	Claim Record No.	Assessment due
SNAFU 1-8	Y10266-Y10273	Sept. 2, 1967
SNAFU 9-12	Y10324-Y10327	Sept. 7, 1967
SNAFU 12-18	Y10805-Y10810	Oct. 31, 1967

ACCESSIBILITY:

Ross River is accessible by road from Whitehorse, a distance of about 220 miles. A good gravel road runs along the south-east side of the Pelly River to the ferry crossing at Blind Creek, and Anvil has maintained a good gravel road from the crossing to its Faro camp.

During the winter months, it is possible to drive a 4 x 4 vehicle from the Anvil road over 1 1/2 miles by tote road to "A" camp, and also from the Anvil road at Blind Creek about 16 miles along the Ace road and then over 6 miles of tote road to "C" camp.

The camps are accessible by float or ski-equipped plane from Whitehorse to Swim Lake and then by helicopter to camp, or alternatively, by helicopter from Ross River.

Anvil Mining Corporation has a well-kept airstrip at the Faro camp, suitable for Beechcraft, which they refuse to allow other companies to use. There are also airstrips at the Anvil "Ace" property and the Kerr Addison Vangorda property, but these strips are too rough to be used during the summer months.

GEOLOGY:

The general area is underlain by sediments and andesitic volcanics of Mississippian age that trend northwesterly along the northeasterly side of the Tintina Fault. These rocks have been intruded by the Cretaceous Anvil granitic batholith. The sediments are strongly metamorphosed and are now predominantly quartz-sericite, chlorite and graphite schists, with lesser quartzite, limestone and phyllite. These rocks dip gently away from the Anvil batholith.

. 4

Tay River Mines Ltd. (N.P.L.) - cont'd:-

Geology - cont'd -

The sulphide mineralization found to-date occurs in the schists, close to the batholith, and apparently related to strong northeast-trending faults subsidiary to the Tintina Fault.

"A" and KEN GROUPS -

A total of 92.7 miles of grid line were cut over the "A" and KEN claims. Fifty-five miles of this was done by caterpillar and the remaining 37.7 miles of line were handcut.

From the Anvil road to "A" camp 1.5 miles of access road was established, and 2.8 miles of road was pushed through from "A" camp to the southeast corner of "A" group.

Reconnaissance EM was conducted over 83.95 miles of this grid and also, 57.69 miles of magnetometer survey. It is unfortunate that the final results are inconclusive to a certain extent, in that Huntec Ltd. provided us with inexperienced geophysical operators. Consequently the results are in some doubt.

In the Huntec preliminary report by Peter Lane, May 1966, he indicates five conductors of varying strengths. He states, "...The most significant conductors to-date are grouped in an anomalous area bounded by Line 28E to Line 40E south of station 90 + 00 S. Within this area the strongest conductor lies on Line 36E at approximately station 106 S. The in-phase to out-of-phase components are high on both frequencies indicating a high conductivity. This is typical of the surrounding conductors..." The EM data for the above anomalous area was collected by Peter Lane.

Also, in the same report he indicates "...a very strong conductor..." at 11 + 00 S on Line 40E, "...a conductor of possible moderate strength..." on Line 12E, 50 + 00 S, "...a weakly conductive zone..." on Line 16E between 88 + 00 S and 82 + 00 S, and "... a weakly conductive region..." on Line 25E between 15 + 00 S and 20 + 00 S. On his recommendation a gravimeter survey was conducted over the most significant conductive area with negative results. At the same time intermediate grid lines with 200 foot spacing were cut over the conductive area and the complete area was re-checked with the Ronka, by an experienced operator, and this 'anomaly' was found to be due to misorientation of the coils on hilly ground. Most of the remaining anomalies were also found to be due to topographic factors.

This extra geophysical and linecutting work cost Tay River Mines Ltd. several thousand dollars in added expense.

Tay River Mines Ltd. (N.P.L.) - cont'd:-

"A" and KEN Groups - cont'd -

No further anomalies were located by Huntec on "A" Group and for a complete description of the results see the Huntec Report, October 1966, by Dr. Paterson.

A total of 4.36 miles of gravity survey was conducted over these EM 'anomalous' areas.

"B" GROUP -

A total of 69.6 miles of grid line were handcut over this group.

Huntec ran 70.13 miles of reconnaissance EM and 70.45 miles of magnetometer survey over this grid. The EM survey located an 'anomaly' on Lines 180W to 204W, south of the base line. This area was re-checked by an experienced EM operator, and the 'anomaly' was attributed to overburden effect. The area was also checked by 2.55 miles of gravimeter survey with negative results.

No other significant anomalies were located. The entire property is covered by overburden.

"C" and DOC GROUPS -

A total of 65.2 miles of grid line were cut, with 54.2 miles being done by cat and the remainder being handcut. Six miles of access road was pushed through to the camp from Anvil's "Ace" road.

Huntec ran 53.28 miles of EM and 53.98 miles of magnetometer survey over the grid. In a preliminary interpretation in late June, 1966, by Dr. Paterson of Huntec, he indicated, "...four separate conducting zones..." In order of priority he stated, "... Conductor No. 2 is 4500 feet in overall length; some elements appear to be banded or possibly continuous over widths of up to 300 feet...". and, "... certainly, it appears to have a geological rather than a purely topographic explanation..."

Referring to Conductor No. 4 he states, "...again, there is evidence of multiple banding or conductivity over substantial widths...", and he says, "... conductors 1 and 3 are narrow features of approximate strike lengths of 500 and 1500 feet respectively..."

He states, "... we can assume that these are bona fide conductors of very massive though possibly discontinuous type, probably lenses, pods or veins..."

. 6

Tay River Mines Ltd. (N.P.L.) - cont'd:-

"C" and DOC Groups - cont'd -

On Dr. Paterson's recommendation, intermediate lines at 200 foot spacing were cut over parts of these anomalies and these lines were run by EM with an experienced operator. His results, according to Dr. Paterson, "...tell the same story as did the detailing on "A" grid...", and, "... point strongly to coil misorientation as the cause of the anomalous EM response..."

Again, this detailed work cost Tay River additional expenses.

In his final report, Dr. Paterson mentions two electromagnetically disturbed regions on "C" Group, which show the type of EM activity that is sometimes associated with clay overburden, and is also found over sedimentary rocks where these contain electrolytic solutions or graphite. He states that these zones have a low probability of economic significance. For details see the Huntec Report, October, 1966.

In May, at our request for suitable equipment to test the depth of overburden along the creek on "C" Group, Huntec recommended a resistivity unit. This unit was twice flown in to "C" Group by helicopter and two separate methods were tried to operate the equipment on the permafrost without success, and on the recommendation of Dr. Paterson, the survey was abandoned. In a letter, dated July 15, Dr. Paterson says that the resistivity unit should never have been sent to the area and that it is doubtful if they would have been able to obtain reliable information on depth. This unsuccessful attempt at the resistivity survey cost Tay River a considerable amount of money in helicopter time, wages and supplies.

A total of 21.6 miles of soil sampling was done, mostly over the false EM anomalies and the weakly conductive zones mentioned in Dr. Paterson's final report. The samples were taken every 100 feet and results were unencouraging. A narrow weak area of higher geochem results was noted on the western side of the DOC Group and running East - West. This does not correlate with any EM activity and appears to be caused by drainage from the Ace Group where some mineralization has been noted in place.

SNAFU GROUP -

SNAFU 1 - 16 required 19.3 miles of grid line, which was handcut, mostly through buckbrush.

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Tay River Mines Ltd. (N.P.L.) - cont'd:-

SNAFU Group - cont'd -

Watts, Griffis & McOuat Ltd., of Toronto, was contracted to run 17.25 miles of Crone-type EM survey over this grid. It was a pleasure to deal with them and the survey was conducted promptly and efficiently. Their interpretation by C.K. O'Connor, P. Eng., notes four weakly conductive areas and suggests the conductors are flat-lying and open to the west. He believes the conductors to be caused by either weakly graphitic schists, or argillite, or possibly disseminated sulphides.

A total of 4.56 miles of reconnaissance soil sampling were run over part of the claim group, including the east end of both conductors 1 and 2. The results of this survey were negative.

M.C. GROUP - Seagull Creek -

An examination of this group was made by Tay River Mines on an examining option from the Quiet Lake Syndicate, who hold the claims. Two trenches were cleared over the main showing exposing the vein for a strike length of 105 feet. Channel and grab samples were taken but the vein was found to be too narrow to be of economic interest. The claim group was covered by reconnaissance prospecting.

SUMMARY -

From the experience gained this season, it is obvious that if a hand-cut grid is cut during the winter months, then the geophysical survey should be run over this grid before break-up as the fresh undergrowth which appears after break-up obscures the grid lines and makes an EM survey difficult and sometimes unfeasible. Also, the break-up season in the Dynasty area hinders field work to the extent that such work should be abandoned during this period.

I would suggest that for any future geophysical contracts the contractor should provide the helpers. It is difficult to obtain suitable helpers in the field, whereas the contractor should be able to supply capable helpers. This is one difference noted between the Watts, Griffis and McOuat crew and the various Huntec crews.

All claim groups have been thoroughly explored and since no significant results have been obtained, no further work is recommended.

I recommend that a total of $1,820.00 be spent recording assessment on various claims. This includes assessment for five years on 47 "A" claims, three years on 12 "A" claims, one year on 28 "C" claims,

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Tay River Mines Ltd. (N.P.L.) - cont'd:-

Summary - cont'd -

three years on 18 DOC and "C" claims and one year on 11 SNAFU claims.

I recommend that the entire "B" Group be dropped.

Respectfully submitted,

J. H. Hackey

J.H. Hackey
Geologist