Report on VLEM, Magnetic,
Gravity Surveys.

Kenogaming Twp.

1965

63.1739

Introduction

Thirty miles West of the Timmins gold camp, the Porcupine-Destor break can be extended to pass through Dundonald Township, approximately 8 miles North of the centre of Munoga[illegible] Township. Since much of the surrounding country is underlain by a massive granite, the volcanic flows appearing in Kamgamin[illegible] have been the focus of a fitful search for gold for a number of years. Apart from a few smalls, nothing substantial has resulted. With the relatively recent discovery of Texas Gulf sulphur, however, attention has been redirected to the area as a possible favourable environment for base metal deposition. Similar flow rocks and basic intrusives had been mapped in which a number of sulphide showings of typical character had been noted. In the rush for ground following the Texas Gulf strike, claims were staked covering the volcanic belt in the Township were taken up. The present claims group is one of these, whose recent exploration is the subject of this report.

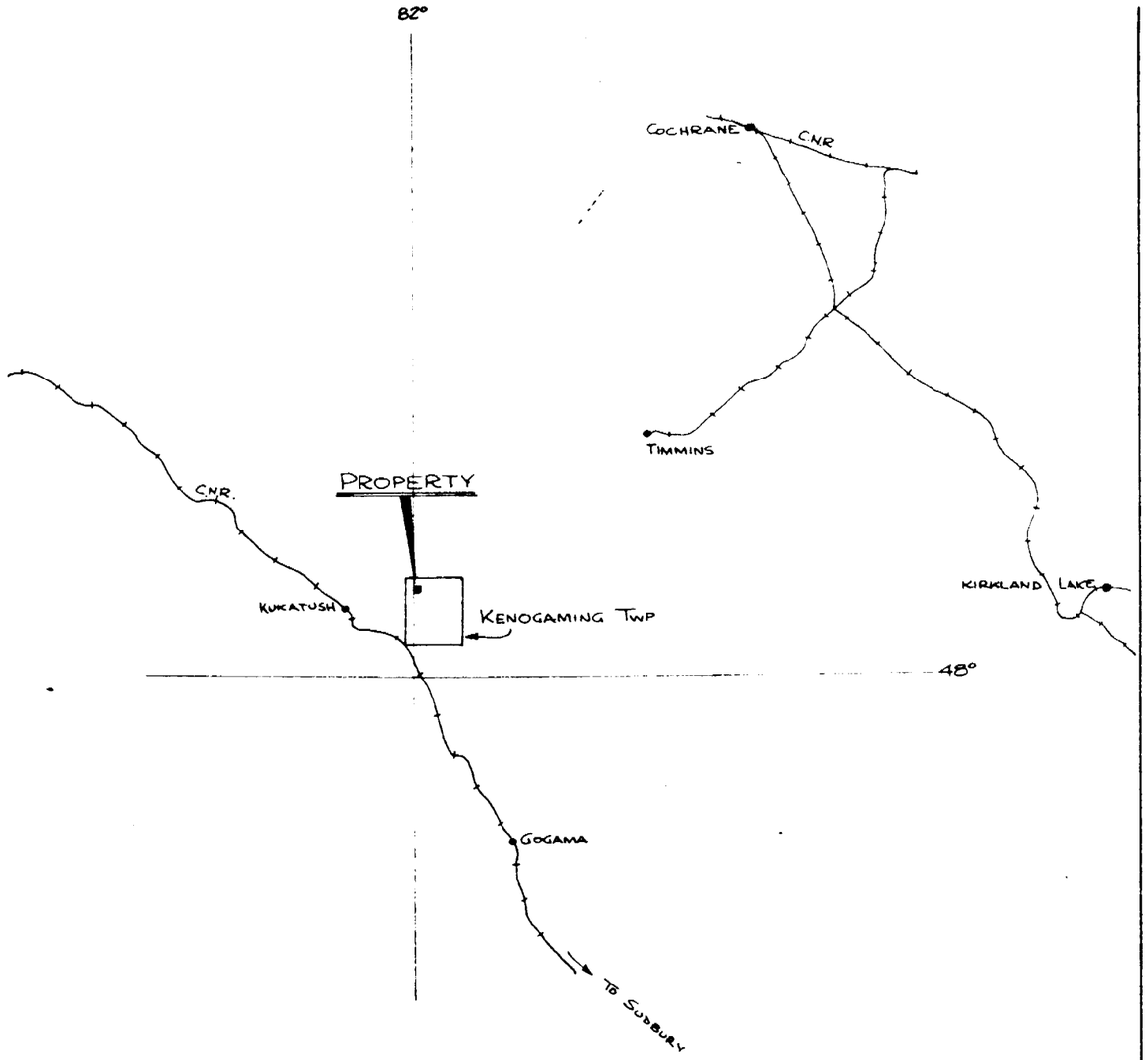
Description of Property

The group is comprised of 50 contiguous claims, nominally of 40 acres each, centred roughly in the N[illegible]-central sector of the Kenogaming Township. The claims are as follows, all claims duly transferred to the ownership of Cude Oil and Gas Company Inc., Los Angeles, California.

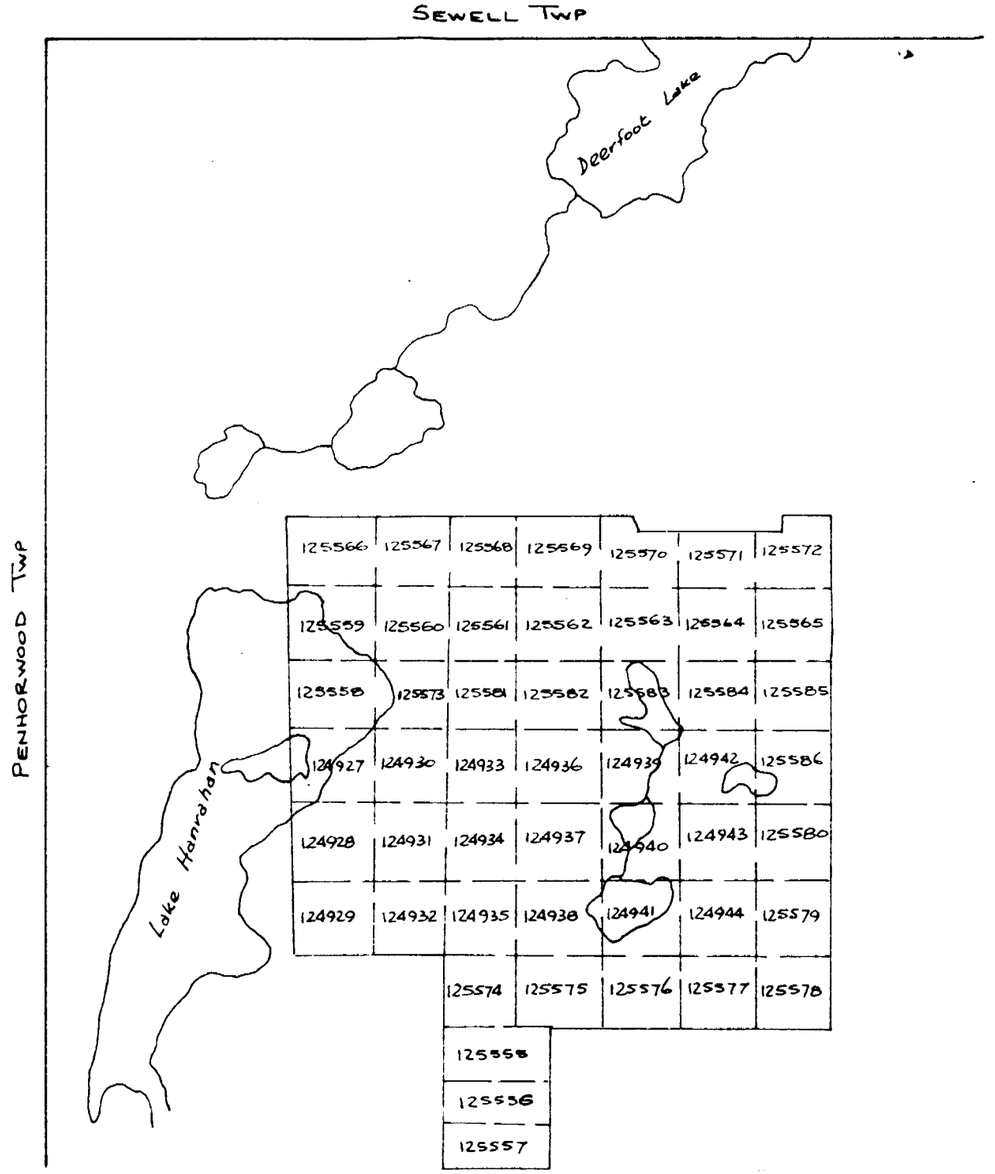
Claim Nos.	Mining Division
125535-38 Inclusive	Sudbury
125927-44 Inclusive	Sudbury

Not too unnaturally, the reconciliation of actual positions on the ground to that shown by the Township claim map is not perfect. The only serious discrepancy is provided by claim claim, No. 125777, which is shown intruding between the main block and its southern tail (claim Nos. 125535, 125[illegible], 125537). This discontinuity is not substantiated in the field.

Access to the property can be had by timber road extending South-West 10 miles from Highway 101 running from Timmins to Chapleau, or by float plane to Hannahan Lake situated on the property west boundary.



Scale 1" = 20 miles



KENOGAMING TWP
Scale 1" = ½ m.

N
A

Work undertaken by BARRINGER RESEARCH LTD.

JADE OIL & GAS CO. INC.

KENOGAMING TWP. – ONT.

LOCALITY PLAN

JUNE 1965 | | DWG. 116-1

Work Undertaken

In an attempt to obtain coverage over the several small lakes from the ice, a grid of lines spaced 400' apart and controlled by a base-line bearing 50° W of North was cut, chained and picketed in the early part of April. This attempt was only partly successful. Rotten ice during break-up caused more than one accident and seriously delayed operations. In the three claims to the South, it was found that the property had been over-cut by a Johns-Manville grid extending from the adjoining claims. Not being winter lines, they were more easily traversible than the main grid extensions and were so used for the geophysical profiling. With the exceptions noted, complete electromagnetic coverage was accorded all lines employing the parallel line technique with a portable dip angle unit operating at 1000 cycle per second. For this work, a Sharpe model SE-250 electromagnetic transmitter and receiver were used. This coverage was supplemented by magnetic surveying of all lines using a Barringer model AM-102A total intensity nuclear precession magnetometer. To further resolve the setting of the more interesting sections, a limited amount of gravimetric profiling was undertaken with a Sharpe model CG-2 gravimeter with a scale constant of 0.1134 Mgal. per division. For corrections to the Bouguer value, a near-surface density of 2.65 grams/cc was assumed.

Assessment Data

Field operations were carried out ov[illegible]he period 9th April--26th June 1963. For assessment purposes, deta[illegible]of the programme are supplied below.

Work	Manmdays	Assessment Credit
Line cutting and chaining	100	100
Electromagnetic Survey	66	462
Magnetic Survey	42	294
Gravity Survey	24	168
Supervision	8	56
Interpretation and reporting	3	21
Drafting, typing	4	28
Totals	247	1129

Personnel

L. Feasey, Party Chief

R. McGowan, Geophysical Assistant

A. Roberton, Geophysical Operator

M. Anthony

L. Reed, Field Geophysicist

J. B. Boniwell, Chief Geophysicist

D. R. Stone, Draftsman

J. Barker, all typist of Barringer Research Limited
145 Belfield Road,
Rexdale, Ontario.

L. Fillion, Linecutter, Timmins, Ontario.

H. Bebbs, Linecutter, Timmins, Ontario.

J. Fournie, Linecutter, Timmins, Ontario.

C. Woods, Linecutter, Timmins, Ontario.

Discussion of Results

Two things are immediately evident from a first glance at the plotted data: first, there is considerable varied magnetic relief over much of the property; second, there is very little in the way of observed conduction. For additional convenience, the data has been compiled on to a magnetic contour plan on a scale of 1" to 400' showing the general trends (Dwg. No. 116-5); otherwise plots are presented in four sheets on a scale 1" to 200'. The more detailed discussion that follows works from the latter and logically moves from feature to feature rather than from sheet to sheet.

At the West end of the property and immediately North of Hanrahan Lake is a complex of magnetic activity sharply peaking in places to more than 3000 gammas (Dwg. No. 116-4A). For the most part these magnetic expressions are highly irregular only showing some consistency in strike and behaviour in the gross sense. Nevertheless, there are certain elements within that over short distances appear more regular e.g. the short linear centred on station 2 S, line 88 W and again 200' to the North at the BL. These events suggest a bedded source conformable to the geology. However, it is to be noted that they rather flank the more intense variations, which fact may distinguish them as border phases either in a contact zone to a basic intrusive or to an area of highly contorted sediments. Of the two, the first seems more likely, the peak magnetic activity being due to irregular segregations of magnetite within the body of the intrusive. In any event, the sharpness of the activity and the fairly common changes in polarity infer shallow seated sources in virtual outcrop conditions. Thus the lack of strong conducting effects throughout this zone (Dwg. No. 116-3A) fairly excludes any significant sulphide associations to the magnetics.

Weak conducting effects do exist, however, in an above-average multiplicity, but this is no more than to be expected in a setting that provides evidence of magnetite localization through probable associated fracturing.

Extending to the East and diverging slightly from the BL. is the apparent continuation to the above magnetic activity. However, this is only true in part. Between lines 60 W and 40 W, this extension has become a quite regular dual-peaked zone displaying a near-linear strike. Over this length, it clearly represents two parallel horizons approximately 400' apart in their peak expressions, and near-vertical in dip. The horizons themselves, while showing some variations, each appear to have widths in the order of 200'-300'. From this evidence, there is little doubt that again bedded geologic units have been resolved. Therefore, as an extension they are in all probability related to the two previously mentioned short linears adjacent to the BL. at line 88 W. Their connection provides a strike that is virtually East-West across the grid. This almost certainly is the regional country strike at least for this part of the area. The inferred intrusive then not only flanks the marker magnetic beds as seen in the West but actually transgresses them in the region of lines 64 W to 76 W. Here some distortion in the lithologic strikes occurs, presumably as a result of the intrusive action against the wall rocks. From this, it is assume that the magnetic activity at the BL. between lines 52 W and 64 W reflects the continuation of the intrusive body in this direction, and thereby to be identified with the zone of variable activity that extends SE to the property limits. This is best seen on the contour plan. The main bedded horizons so described and presumably to be extended through the apparent contortions in strike East, are clearly non-conducting. As they are at no time more deeply

buried than 120' and usually a lot less than this, these magnetic zones can not be underlain by sulphides. They fairly certainly therefore delineate weak magnetic iron formation which [illegible] view of the amplitudes recorded has negligible potential. In the [illegible] south of the BL., several relatively isolated magnetic zones have been defined that duplicate in strike direction that inferred as the regional from previous discussion. It would seem reasonable thereby to presume that these too represent bedded iron formations. However, in some places certain irregularities in strike and anomaly disposition make more possible the alternative that ultrabasic intrusions are the main cause of the magnetic relief here. As is known from regional mapping such intrusions are common to the area, they often appear in their dyke-like conformity as interbedded with the volcanic flows. Just as frequently of course, they show up more typically as intrusives by exhibiting transgressive or plug-like attributes. Their prevalence within the grid area therefore goes a long way to account for the many and varied magnetic bodies that have been defined by the coverage. Indeed so good is the probability that ultrabasics occur throughout this and other large segments of the property that individual attention of the various anomalies and the attitudes so provided is not warranted unless some additional feature is evident. However, without exception where ultrabasic bodies are suspected to underlie the observed magnetic relief, there is no suggestion of inherent conduction. As a group therefore, these intrusive rocks here are not particularly promising as hosts to sulphide mineralisation. Nevertheless, in line with results obtained elsewhere (e.g. at Timmins), they can be expected to yield minor amounts of non-conducting nickel and/or asbestos mineralisation but only in the latter case have ore-values been proven up into a mining situation, and this is one exception. Of greater interest are the two parallel and comperatively subtle magnetic axes that can be

recognized running from station 37 S on line 64 W to 32 S on 72 W (and probably beyond to 24 S on 84 W), and from station 13 S on line 52 W to [illegible] on 68 W. These lineaers both NNW and obviously cross-cut the [illegible]. Although lacking definition [illegible] of over-riding magnetic [illegible], some measure of their consistency can be gauged by the very clear reappearance of the more southerly axis on lines covering the three claims forming the South "Tail" to the group. The interesting aspect of this continuation is that here the linear becomes identified with a known showing at 16 N on line 40 E. There can be little doubt that these twin lineare are structural axes. Their magnetic expressions are consistent with edge effects to a central flat sheet of lowered susceptibility, a set of circumstances readily accounted for by a faulted graben. Further as faults, these two axes assume the bearing of the major regional faults known to extend into the area from the South. Not too surprisingly, these two faults show a tendency to weakly conduct in places, e.g. at 4 S on 68 W, and again at 16 N on line 40 E (Johns-Manville grid). The latter, however, is notable in that it presumably represents as well the extent of the conduction to be observed over the showing sulphides. If this mineralisation is controlled by the structure, it manifestly is of no great extent or substance, for it is precisely in the circumstances of shear oriented sulphides that some of the strongest electromagnetic responses can be expected. On this basis, then, whatever sulphide localisation the faulting has brought about, such, to the limits of the property, can not be considered of any great consequence. In the south-east corner of the property, an area of magnetic relief has been recorded that is similar in its sharpness and irregular peaking as that observed in the NW corner. Again a variably magnetic intrusive body may be assumed, very near-surface if not in outcrop.

In fact, this appears the case with the noting in the field of silicified acidic rock exposures in this vicinity.

These rocks generally show a porphyritic texture and may well be intrusive. However, the very real possibility exists that they are essentially volcanic in character and to be more closely identified with a differentiated rhyolite than an acid plutonic. As a possible interflow, conduction associated with its contacts could hold some significance, and for this reason attention needs be directed to the weak conductor axis resolved across lines 4 W to 8 E between stations 25 S to 27 S. Although no stronger than effects observed elsewhere, this conductor shows a subtle improvement in character and is further distinguished by a close magnetic association that is fairly consistent over its defined strike. The magnetic expressions, although somewhat variable, indicate a body about 400' wide dipping rather flatly to the North. While no in precise correlation, this body seems so closely identified with the observed conductor that it is possible that minor amounts of sulphides could exist here centred in the wall rocks. The possibility that more massive sulphides occur in depth appears precluded owing to the shallow seated nature of the geophysical responses.

However, to further resolve this setting, gravimetric profiling was undertaken across this section of the property. The evidence it provided (Dwg. No. 116-3B) clearly showed that the locus of the conductor was largely coincident with a mass contrast implicit to a distinctive change in rock-type. The inherent lowered densities to the South are compatible with the increased acidity of the porphyry occurring there to lie at what could be a very favourable contact. This makes the small positive gravity residuals apparently correlating with the conductor on lines 4 E and 00 of some note. Whilst they are of an order that they may be considered within the

noise level of the method, particularly in the terrain and changing overburden conditions prevalent, nevertheless they also could reflect the presence of sulphides in the minor amounts previously inferred. One discrepancy however, is given by line 4 W where at station 28 S an identical gravity departure has been resolved completely divorced from the conductor. This adds quite some ambiguity to the significance of the gravity correlations, and they in fact may be more incidental than real.

The gravity coverage was extended to the North to encompass two further conductors of passing mention. The first, running from 20 S on line 4 E to 16 S on 4 W, was sectioned largely due to its proximity to the porphyry and its contact association and also to the fact that on line 4 E it was in good correlation with a 700 gamma magnetic anomaly also dipping North. The second, approximately 400' North of the BL. on lines 8 W and 12 W, was included for the reason that although completely non-magnetic, it appeared, comparatively speaking, about the strongest electrical expression in the survey. However, in both cases, the gravity data provided no clear evidence of related sulphides nor of a distinctive setting.

Conclusions and Recommendations

As a result of the foregoing geophysical coverage it is concluded extremely improbable that massive sulphide in near-surface and economic amounts exist on the property. No electromagnetic expressions were obtained symptomatic of this type of occurrence. Although a considerable amount of magnetic relief was resolved, lacking strong electrical properties, the various anomalies could not be construed to represent significant mineralization. Instead, magnetite, either as bedded iron formations, as segregations or as a constituent mineral was concluded to underlie the varied activity. None of these occurrences were of any interest as prospects for their iron content alone.

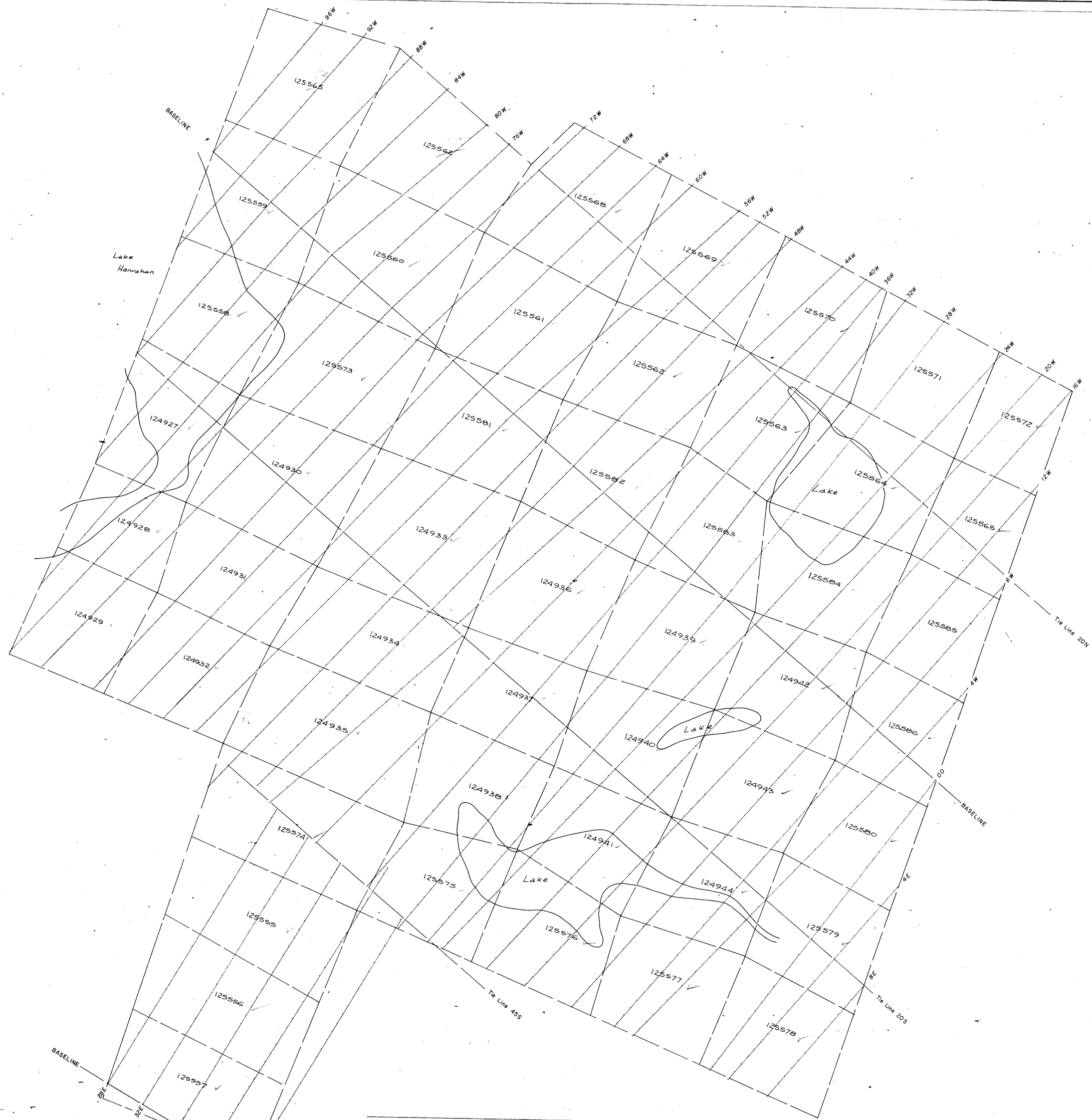
The most interesting section of the property is considered the South-East corner where an acid porphyry of highly variable and irregular magnetic character was found to exist. Although likely an intrusive, its origin may be volcanic providing a possibly favourable setting to a weak conductor detected at its contact. Some magnetic, even possibly excess mass properties may be ascribed to this horizon from the geophysical evidence. Whilst of potently limited potential, sulphides may be inherent, and some consideration might be given to their further reconnaissance, for example, by discriminatory soil sampling, trenching and/or shallow core drilling.

Aside from this one possibility, no recommendations are made for further exploration. This includes the showing in the South three claims which has been shown to be severely limited. It also includes such prospects that the geology may be held to offer in nickel, asbestos and gold, all of whose probabilities for a successful deposit are empirically discouraging.

July/65

BARRINGER RESEARCH LIMITED

[illegible], Chief Geophysicist.



63.1737

JADE OIL & GAS CO. INC.		
KENOGAMING TWP. – ONTARIO.		
GRID & PROPERTY PLAN		
JULY 1965	Scale 1"= 400'	DWG. 116– 2.

Work undertaken by BARRINGER RESEARCH LIMITED

200

64W
60W
56W
52W
48W
44W
40W
36W
32W
28W
24W
20W
16W
12W
8W
Lake
N
A
LEGEND
Profile - Scale 1"= 20°
Transmitter location
Conductor Interpreted
Questionable conductor
INDEX
D	A
C	B
Work undertaken by BARRINGER RESEARCH LIMITED
63.1739
JADE OIL & GAS CO. INC.
KENOGAMING TWP.—ONTARIO.
VERTICAL LOOP E.M. SURVEY
JUNE 1965 | Scale 1" =200' | DWG. 116-3A
42A04NW8164 63.1739 KENOGAMING
210

LEGEND

——	Profile Scale 1" = 20°
△ 32w	Transmitter location
——	Conductor Interpreted
- - -	Questionable conductor

INDEX

D	A
C	B

631731

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KENOGAMING TWP. – ONTARIO.

VERTICAL LOOP E.M. SURVEY

JUNE 1965	Scale 1" = 200'	DWG. 116–3B

220

LEGEND

Profile Scale 1"= 20°

△32W Transmitter location

Conductor Interpreted

Questionable conductor

INDEX

D	A
C	B

N

A

63.1739

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JADE OIL & GAS CO. INC.		
KENOGAMING TWP - ONTARIO.		
VERTICAL LOOP E.M. SURVEY		
JUNE 1965	Scale 1"= 200'	DWG 116-3C

LEGEND

Profile Scale 1"= 20°

△ 32W Transmitter location

Conductor Interpreted

Questionable conductor

INDEX

D	A
C	B

631739

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KENOGAMING TWP— ONTARIO

VERTICAL LOOP E.M. SURVEY

JUNE 1965	Scale 1"= 200'	DWG. 116-3D

240

64W
60W
56W
52W
48W
44W
40W
36W
32W
28W
24W
20W
16W
12W
8W

Lake

N

A

LEGEND

Profile - Scale - 1" = 1000'

E.M. Conductor

INDEX

D	A
C	B

63.1737

JADE OIL & GAS CO. INC.

KENOGAMING T.WP. — ONTARIO.

TOTAL INTENSITY MAGNETICS

JUNE 1965 | Scale 1" = 200' | DWG. 116 - 4A

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42A04NW0164 63.1739 KENOGAMING

250

LEGEND

Profile - Scale - 1"= 1000 ft

E.M. Conductor

INDEX

D	A
C	B

631739

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JADE OIL & GAS CO. INC.

KENOGAMING TWP. – ONTARIO.

TOTAL INTENSITY MAGNETICS

JUNE 1965 | Scale 1"= 200' | DWG. 116– 4B

260

LEGEND

Profile-Scale 1" = 1000 δ

E.M. Conductor

INDEX

D	A
C	B

631739

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JADE OIL & GAS CO. INC.		
KENOGAMING TWP - ONTARIO.		
TOTAL INTENSITY MAGNETICS		
JUNE 1965	Scale 1" = 200'	DWG 116-4C

270

JADE OIL & GAS CO. INC.

KENOGAMING TWP– ONTARIO

TOTAL INTENSITY MAGNETICS

JUNE 1965 | Scale 1"=200' | DWG. 116– 4 D

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63.137

INDEX

C	B
D	A

LEGEND

Profile -Scale - 1"= 1000'

E.M. Conductor

N

280

L. Hanrahan

BASELINE

96W

92W

88W

84W

80W

76W

72W

68W

64W

60W

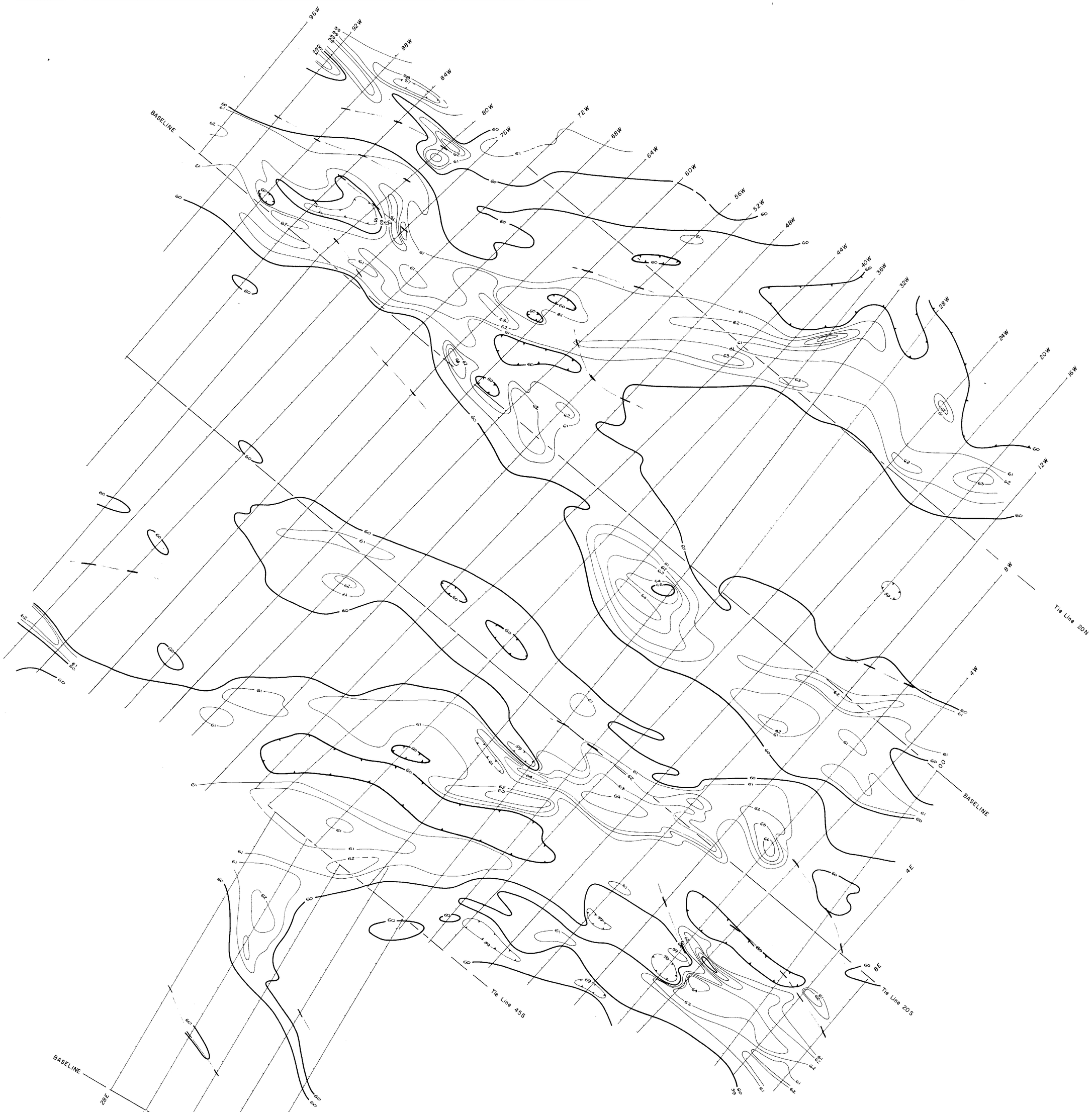
56W

52W

48W

44W

40W



LEGEND

Contour interval 1000 e (all values in 0000's e)

1000e interval

5000e "

Depression

E.M. Conductor

G-3. 1755

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JADE OIL & GAS CO. INC.		
KENOGAMING TWP. – ONTARIO.		
MAGNETIC CONTOURS		
JULY 1965	Scale 1"= 400'	DWG. 116-5

280

N

LEGEND

GRAVITY

Profile - Scale 1" = 10 mgl

ELEVATION

Profile - Scale 1" = 50'

E.M. Conductor

INDEX

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C	B

631739

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KENOGAMING TWP. — ONTARIO.

GRAVITY & ELEVATION SURVEY

JUNE 1965	Scale 1" = 200'	DWG. 116-6B

300