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REPORT ON  
GEOLOGICAL EXPLORATION PROGRAMME  
BALMER TOWNSHIP, RED LAKE AREA,  
THUNDER BAY MINING DIVISION  
ONTARIO

Onaping Resources Limited  
(M.E.A.P. Contract # R.L.66)

B. & C. LTD.

P. D. Michna, B.Sc.

February 13, 1980  
Toronto, Ontario

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                   1" = 200' In Map Folder

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SUMMARY AND RECOMMENDATIONS

Between late 1978 and December 31st, 1979 Derry, Michener & Booth supervised an exploration programme on behalf of Onaping Resources Limited on its 1,462.55 acre property in Balmer Township, Red Lake, Ontario. The principal purpose of the programme was to examine the stratigraphy and structure along the projected surface trend of the Campbell-Dickenson ore zone easterly into the Onaping property. This work consisted of line cutting, geological mapping, magnetic and electromagnetic surveying and diamond drilling. By December 31st, 1979 seven diamond drill holes totalling 3,965 ft. had been completed. Magnetometer and electromagnetic surveys are summarized in a separate report.

Previous work on the property, in addition to limited geological mapping and geophysical surveying, included 35 shallow drill holes and one deeper hole to 1,493.5 ft. Ten of the shallow holes partially cross section the central part of the property and another six holes on this section failed to reach bedrock.

A geological picture of the property was built up from detailed grid mapping of the sparse outcrops, previous drill hole data and information derived from electromagnetic and magnetic surveys. Diamond drill holes were targeted to intersect conductors and magnetometer highs and to obtain lithological and structural data.

A total of 88 core samples were taken and assayed for gold and silver. No significant values were obtained.

The east-southeast trending, south dipping metavolcanic and metasedimentary rocks on the property illustrate a continuous depositional sequence in a basin-like structure. The rocks appear to pinch out to the east and plunge steeply to the southeast.

At the end of 1979 it was recommended that the proposed drilling programme should be completed and that a deep hole (3,500+ ft.) be drilled near the western side of the property to explore for a continuation of the Campbell-Dickenson ore zone at depth. This drilling is now in progress.

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Toronto, Ontario  
February 13, 1980

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PROPERTY DESCRIPTION, LOCATION AND ACCESSIBILITY (N.T.S. - 52/N/4E 1/2)  
(Lat. 51°03'; Long. 93° 43')

The Onaping property consists of 39 contiguous claims, totalling 1,462.55 acres. It is situated in the improvement District of Balmertown, Balmer Township, District of Kenora, Patricia Portion, Ontario (Dwg. 1).

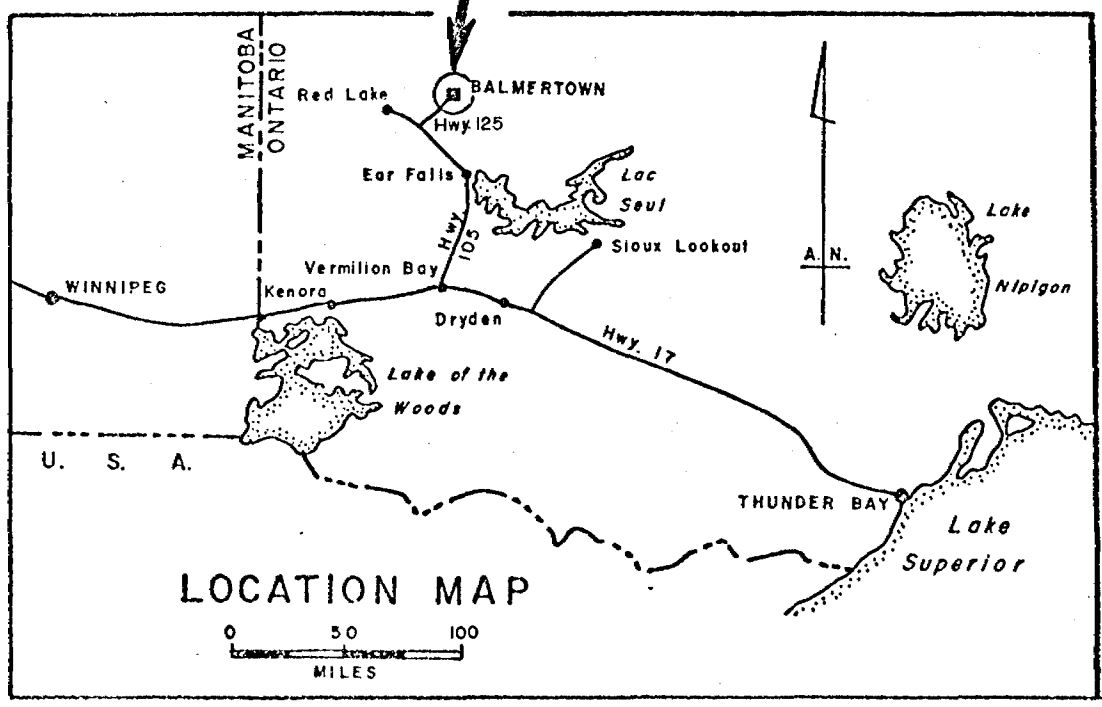
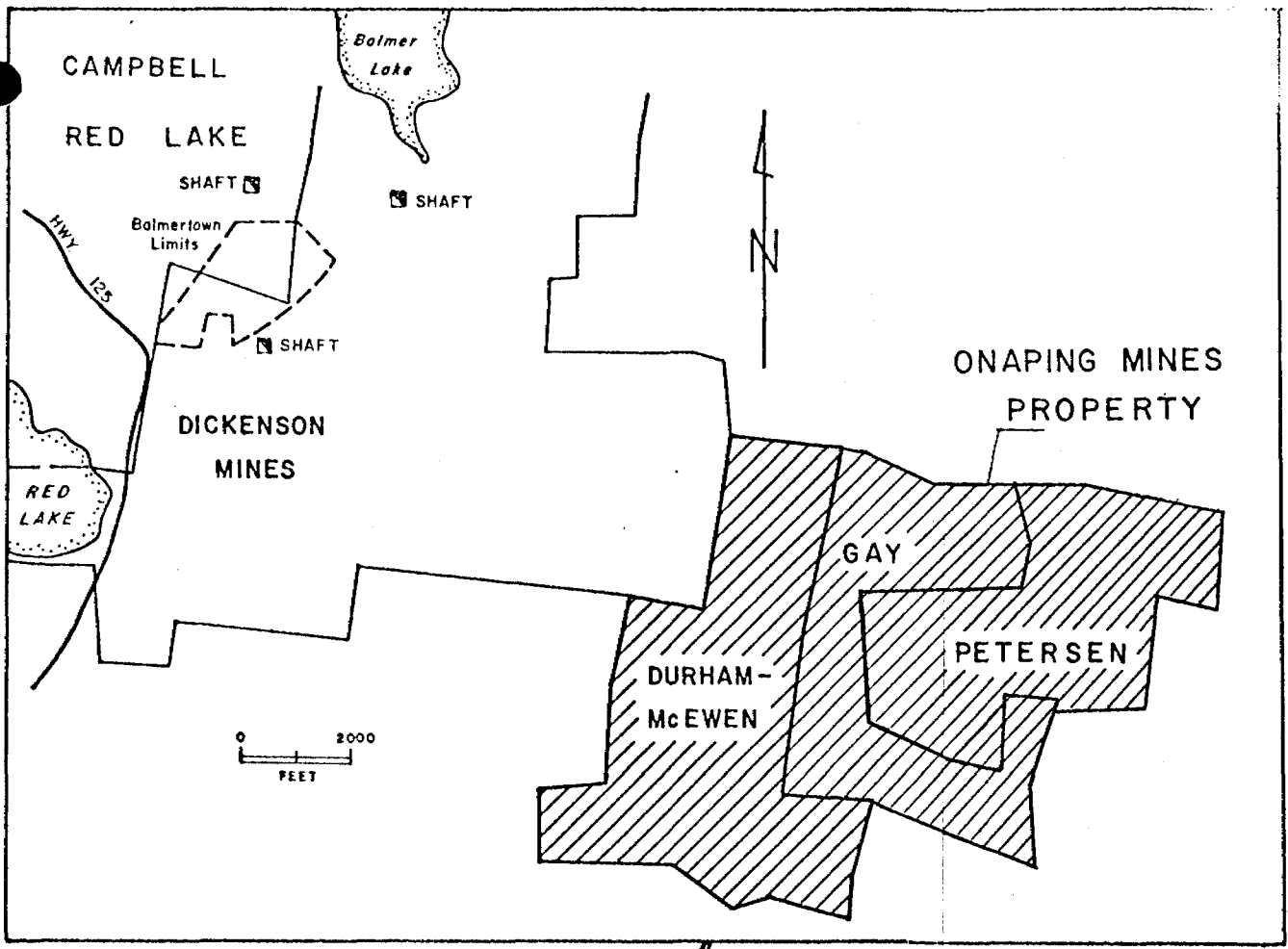
The three former properties held by Onaping, through separate agreements, are summarized as follows:-

<u>Name</u>	<u>Property</u>	<u>Acres</u>
(a) Durham-McEwen	CLM-165*	625.33
(b) Gay-Royal Trust	12 Mining Leases	400.71
(c) Peterson	<u>11 staked claims</u>	<u>436.51</u>
TOTAL	<u>39 claims</u>	<u>1,462.55</u>

\* - 16 claims under one lease.

A listing of the individual claims is provided in Appendix 1.

CLM-165 is held by Mining Rights Lease No. 102885 for a period of 21 years commencing December 1st, 1973. The Gay-Royal Trust claims are each held by a separate lease. These leases, 102045 through 102056 inclusive, are also for a period of 21 years commencing May 1st, 1969.



DERRY MICHENER & BOOTH		
Date: Sept., 1978	By: O.E. Leigh.	Dwg. No. 1

The Peterson staked claims were recorded on May 15th, 1978 and require annual assessment work to maintain the title. The mining leases only require annual tax payments.

The property is approximately 6 miles ENE of the town of Red Lake and approximately 3 miles SE of Balmertown. Red Lake is at the terminus of Highway #105 which connects with the Trans-Canada Highway at Vermilion Bay, approximately 110 miles to the south (Dwg. 1). Balmertown is accessible from Red Lake via Highway #125. These towns are serviced by scheduled airlines and are the local supply centers for the area.

Access to the property is provided by a lumber road, along the north side of the property from Balmertown, and by a bush trail, now largely overgrown, along the Chukuni River on the south side.

In September 1979 a road, suitable for a four-wheel drive vehicle, was constructed from the lumber road into the north-central part of the property. This road provides much improved access for future exploration.

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PHYSIOGRAPHY

Balmer Township, in which the property is situated, consists mostly of low ground and rolling hills. In general, the volcanics and iron formations form low ridges and the softer sediments, such as slates and graywackes, form shallow depressions, although greenstones sometimes also underlie swampy areas.

Glacial clay, sand and boulders cover much of the area and occasionally attain a thickness of up to 150 ft. However, over much of the property the overburden appears to be relatively thin, often less than 10 ft. being recorded in some drill logs.

Low, swampy ground produces small, dense spruce growth while higher areas and ridges are covered with larger poplars, some birch and spruce. There are occasional stands of pine on sand plains.

Two small streams flow southerly through the property. The western stream, through the Durham-McEwen property, turns southeast across the southeastern part of the property before entering the larger Chukuni River, which also flows eastward about 1/4 mile south of the property. The other stream flows southerly through the Peterson ground and joins the western stream in the southeast part of the Gay-Royal Trust property.

Outcrops are scattered along the northern and southern parts of the property but elsewhere are quite sparse, as shown on Map 1 (2 sheets).



EXPLORATION HISTORY OF THE PROPERTY

(a) Durham-McEwen Property

The past history of the property, which apparently dates back to the early prospecting days in the Red Lake Camp, is not well known. Part of the Durham-McEwen property was originally staked in 1945 by Ronal Red Lake Gold Mines Ltd. which acquired nine claims in the south-central part of Balmer Township. The Ronal claims, numbered KRL-29883 to KRL-29891, essentially cover the same ground as the present claims KRL-47680 to KRL-47691. A geological and geophysical survey of the property was made and a small amount of surface trenching was done. No gold was reported from this work. The geophysical survey may have included the ground magnetometer survey shown on O.D.M. Map P-47 which was compiled from company data by S.A. Ferguson in 1960.

In January 1958, the drill logs from six holes put down in the southwest corner of the property were filed in the Red Lake Mining Recorder's office. The drill logs, which indicated a total of 1,150 ft. of drilling, were signed by J.E. Durham. The first five holes were drilled on claim KRL-38205 which essentially covered the ground later staked as claim KRL-47691 and the sixth hole was drilled on claim KRL-38194, later staked as claim KRL-47690 (Map 1)

The collar declinations of the above-mentioned six holes varied from  $40^{\circ}$  to  $55^{\circ}$  and the hole lengths from 175 ft. to 203 ft. The holes intersected mainly andesite, cut by numerous, narrow quartz-carbonate stringers and occasional quartz porphyry dykes. Hole No. 4, however, intersected sediments, primarily greywacke, slate and conglomerate, at a depth of 51 ft. and continued in these rocks to the end of the hole at 203 ft. No mineralization was reported in any of the holes. The drill logs indicate seven samples were taken but no assays were provided.

In April and May, 1962, four diamond drill holes 62-1, 2, 3 and 4 were put down by Cochenour Willans Mines in the northeast corner of the property of claims KRL-47680 and KRL-47681 (Map 1). These holes were drilled at a dip of  $45^{\circ}$  and varied in depth from 452 ft. to 557 ft. for a total of 2,034 ft. of coring. Hole 62-1 required 32 ft. of casing, 62-4 required 15 ft., while holes 62-2 and 62-3 required only 5.0 and 4.0 ft. respectively.

Holes 62-1 and 62-2 intersected argillaceous sediments to a depth of 283.4 ft. and 298.8 ft. respectively and then andesitic lavas with some quartz porphyry dykes to the bottom of the holes. Hole 62-2 intersected up to 20% pyrite and pyrrhotite over core lengths of less than 5 ft.

Holes 62-3 and 62-4 intersected mainly andesitic lavas with quartz porphyry dykes and some possible sediments. Minor magnetite and pyrrhotite, as well as traces of sulphides, were encountered. Drill logs indicate 56 samples were cut, primarily from quartz carbonate stringer zones or sections containing sulphides, magnetite or a high degree of silicification. However no assays are provided on the drill logs and no gold values are mentioned.

In November, 1964 drill hole Mc 1-64 was put down by Dickenson Mines near the No. 2 post of claim KRL-47684 (Map 1). The dip of the collar was  $-45^{\circ}$  at a bearing of  $N45^{\circ}E$ . The hole was first drilled to 1,166 ft. and later deepened to 1,493.5 ft. in May, 1965. The hole intersected mainly rhyolite from the bottom of the casing at 66.0 ft. to a depth of 378 ft., and then black slaty sediments, cut by numerous quartz porphyry dykes and four lamprophyre dykes. The quartz porphyry dykes were up to 55 ft. in core length and one of the lamprophyre dykes extended from 1,195 ft. to 1,280 ft., a core length of 85 ft. No significant mineralization was reported from nineteen sampled sections in the hole.

In March 1965, C.D. Huston, on behalf of Dickenson Mines Ltd., carried out a magnetometer survey using a low-accuracy Sharpe PMF-3 instrument over the south-central part of the property.

Readings were taken at 100 ft. intervals along lines 400 ft. apart and cut perpendicular to a base line which was approximately 4,400 ft. long and parallel to the NW-trending sediment-volcanic contact tested by drill hole Mc 1-64.

No report on this survey is available but background readings are shown on a map, at a scale of 1' to 200 ft., as ranging between -700 and -1,000 gammas within a total range of from -100 gammas to -1,900 gammas. All readings are shown to the nearest 100 gammas which is not sufficiently accurate for geological correlation. However, the range of values would indicate that a detailed magnetometer survey would be useful for geological interpretation.

In August 1965, Huston also produced a preliminary geological map of the property at a scale of 1' to 200 ft. showing outcrops, inferred geological contacts and the location of the drill holes as of that date. Again, no report appears to accompany this map.

In November 1969, D.A. Hutton, on behalf of Cochenour Explorations Ltd., presented a map at a scale of 1' to 300 ft, showing what appear to be INPUT airborne EM anomalies (no legend attached) covering a large area, termed Block 8, of Balmer Township. A single line airborne anomaly, fully-shaded and therefore presumably a strong anomaly by the standard INPUT notation, occurs on claim KRL-47692 in the southeast corner of the property. This anomaly was covered by ground magnetometer and horizontal loop EM surveys on north-south lines 900 ft. long and 300 ft. apart. The northern claim boundary was used as a base line.

This field work outlined a weak magnetic anomaly on lines 0 and 3W and an EM anomaly which appeared to have magnetic coincidence on line 3W but lies 200 ft. north of the magnetic anomaly on line 0. The "Touchdown Syndicate" drilled one hole, D-69-1, grid south at  $-45^{\circ}$ , to a depth of 257 ft. in order to test this anomaly. The hole intersected mainly acidic and intermediate metavolcanics with some quartz porphyry dykes. Seven samples over core lengths of from 0.5 ft. to 19.8 ft. returned only traces of gold. However, three of these samples, from 199.2' to 201.7' (2.5'), 211.7' to 231.5' (19.8') and from 239.7' to 240.6' (0.9'), returned 0.36, 1.10 and 2.04 oz. Ag/ton respectively. The highest grade sample was from a quartz-carbonate stringer while the sample assaying 1.10 oz. Ag/ton over 19.8 ft. was estimated to contain 25% to 35% sulphides and this is presumably the conductor. No base metal assays were reported.

In 1971 Robert E. Brannan, Ontario Land Surveyor, carried out a perimeter survey of the property for Mr. J. E. Durham. This survey was registered as CLM 165.

No other work has been reported to have been carried out on the Durham-McEwen portion of the property since 1971.

(b) Gay-Royal Trust and Peterson Properties

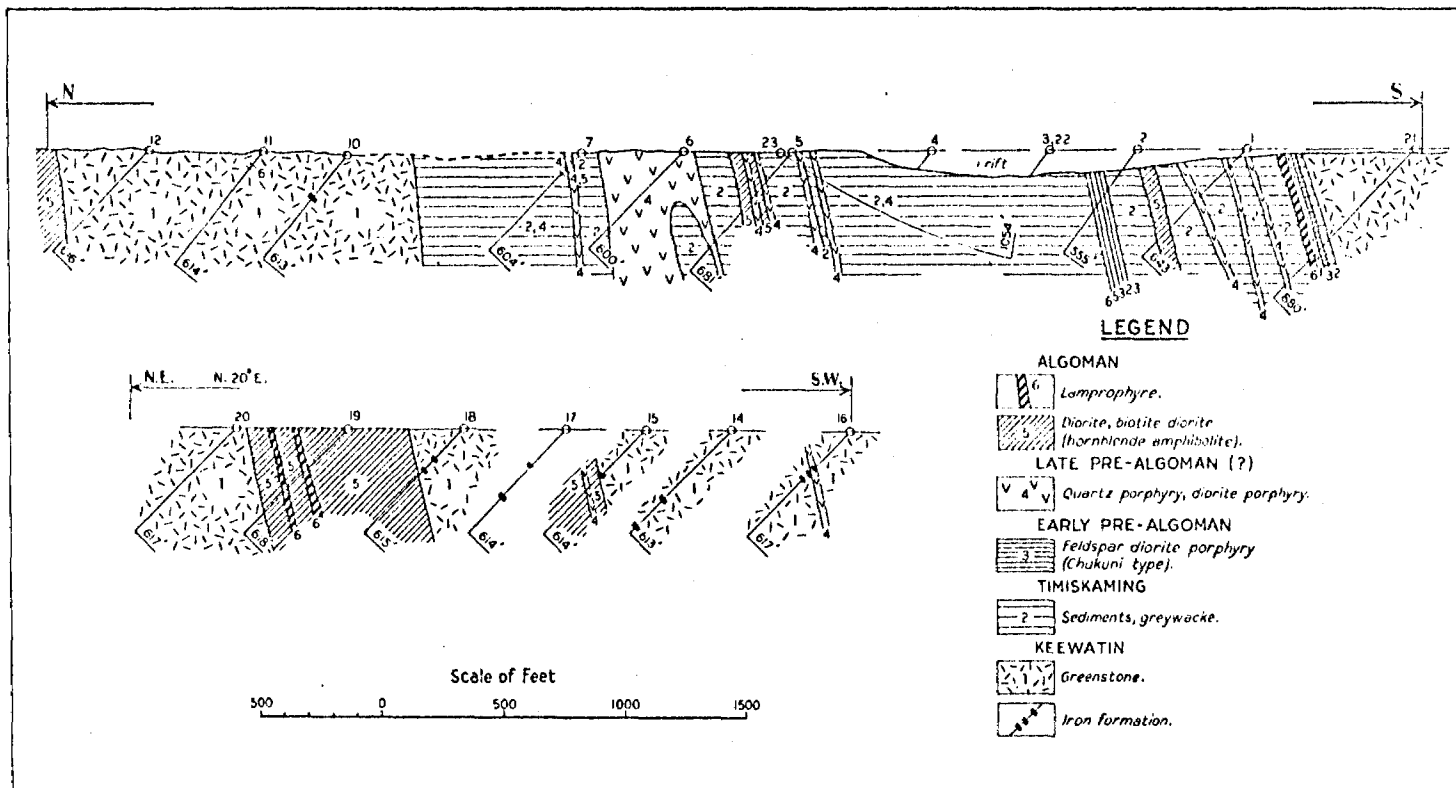
Abacus Gold Mines acquired the above ground in 1945. Geological mapping was carried out the same year and in the following year, twenty-three holes totalling about 10,500 ft. of drilling were completed. Sixteen of these holes partially cross sectioned the center of the property from south to north and the remaining seven holes were drilled in the northeast part of the property (Map 1). Only sketchy comments on this core are available but Chisholm (1) provided cross sections of the holes.

These cross sections, reproduced on the following page, indicate the central part of the Abacus property is underlain by a band of sediments, bounded to the north and south by greenstone. These rocks were intruded by numerous diorite porphyry and lamprophyre dykes. One of the dykes, logged as a quartz-porphyry, was approximately 500 ft. thick. Chisholm (1) reports that "low-grade ore was found" on the property but no assays are available.

No further work appears to have been carried out on the property until Mr. Gay obtained an interest. Mr. Gay's work in the early 1960's was concentrated along the sediment-greenstone contact on claim KRL-41784. Four trenches over a distance of about 150 ft. were put down. The most westerly two trenches exposed quartz-carbonate veins up to 6" (+) wide and containing arsenopyrite, which is regarded as a

pathfinder mineral in the Red Lake camp. These veins occur in banded chert-magnetite iron formation in the sediments, which dip very steeply south. A selected grab sample from the dump, at the western trench, assayed 0.07 oz. Au/ton and 3.00% As. In 1962 Mr. Gay put down three drill holes, 62-1, 2 and 3, totalling 800 ft. and in 1964 another two holes, 64-1 and 2, totalling 267 ft., appear to have been drilled.

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Diamond-drill sections, Abacus Gold Mines, Limited.



Drill logs and profiles of holes 62-1,2, and 3 indicated they were drilled almost entirely in andesite with minor interbeds of sediments, the thickest being 10 ft. of core length. Several diorite and narrow quartz porphyry dykes were also intersected, as well as sections of core with up to 10% quartz carbonate veins.

The two holes drilled in 1964 were very similar. Some of this core appears to have been sampled but no assays are available. It was in this area of the property that we obtained an assay of 0.07 oz. Au/ton from a selected grab sample from the dump of the most westerly trench.

Stripping by Mr. Peterson, while road-building several hundred feet northeast of the above-mentioned trenches, exposed a 1" to 2" wide quartz vein over a length of about 40 ft. This vein trends about  $125^{\circ}$ , sub-parallel to the foliation, but dips about  $60^{\circ}$  to the northeast across the foliation.

In order to bring his claim block to lease, a survey of six of the claims, which had been restaked, was carried out by Mr. Robert E. Brannan, in 1967, on behalf of Mr. Gay. These claims were KRL-41802, 47087, 47089, 47090, 47092 and 47093. The previous survey of the remaining claims, the outline for which had not changed, comprised the balance of the ground for lease.

In 1973, Dickenson Mines Limited filed surveys of ground magnetometer, self potential and EM-16 surveys carried out on claim KRL-484330 in the northeastern corner of the property. These surveys constituted ground follow-up of airborne INPUT anomaly designation 14. The EM-16 survey indicated a weakly conductive, east-west trending zone at the south end of the claim within a linear magnetic high of over 500 gammas. A very weak S.P. anomaly of up to 150 m.y. over a background of approximately 60 m.y. was obtained on one line. A similar, but weaker, sub-parallel structure was located about 600 ft. further north.

Mr. S. B. Burr of Dickenson Mines interpreted these structures, on the basis of nearby drill holes, as weakly mineralized iron formation in intermediate to basic volcanics. Burr noted that gold values in this area may accompany the iron formation but did not recommend drilling.

A boulder of banded iron formation, about 200 ft. northeast of Post 3, claim KRL-484335, was reported by Mr. Peterson to carry low gold values. A sample of this boulder assayed only trace gold and silver.

In September, 1978, the Ontario Geological Survey released the results of an airborne INPUT and magnetometer survey carried out by Questor Surveys Limited. This survey obtained three groups of conductors on the Onaping property. The most extensive group broadly corresponds to the northern volcanic-sediment contact on the Gay and Peterson properties. Five and six-channel anomalies correspond more closely to an aeromagnetic high of over 62,700 gammas along the east-central part of the property. These combined magnetic and EM anomalies possibly represent sulphide-bearing phases of the iron formation. The weaker two to four-channel anomalies to the north and northwest may represent a weakening and fingering out of the iron formation in this direction.

In the northwest corner of the property, 4 six-channel anomalies and one five-channel anomaly were detected. These anomalies are on the flank of another aeromagnetic high of over 61,000 gammas. Except for the geophysical work by Dickenson Mines on claim 484330 and the drilling by the Touchtown Syndicate on part of claim 47692, no detailed investigation of these anomalies has been carried out.

On October 19th, 1978, the O.D.M. released a preliminary map P - 1976 of the geology of Balmer Township. This new map shows a belt of intermediate metavolcanics, up to 3,000 ft. wide, trending E-W across the south-central part of the property. This belt was not recognized in the previous Balmer Township mapping. The sills of amphibolite and diorite, within the andesite, along the northern part of the property, as shown on the earlier map, have been reclassified as coarser-grained phases of the andesite.

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REGIONAL GEOLOGY

The Red Lake area is underlain by volcanic, sedimentary and intrusive rocks of Precambrian age. The volcanic rocks consist primarily of andesite and some rhyolite flows with lesser pyroclastic rocks of equivalent composition. Most of the gold veins in the area are confined to these volcanic rocks, particularly to the more basic members which are locally grouped as "andesites".

The adjacent Campbell and Dickenson producing gold mines are underlain by a series of volcanic rocks consisting of andesitic lavas, an altered group of schists and rhyolites, and siliceous rocks. The andesitic flows show fine-grained, amygdaloidal tops, coarse-grained bottoms and rare pillow structures.

The volcanics are overlain by sediments consisting of black slates, quartzites, greywackes and conglomerates together with some lean iron formation.

These sediments, as well as being underlain by volcanics, are also overlain by a sequence of intermediate to acid volcanics in the order of 2,000 ft. (+) in thickness. The entire volcanic-sediment-volcanic sequence has been folded into an overturned anticline termed the Campbell-Dickenson Cross-Fold.

Large granite masses have intruded the Red Lake District, the closest one to the property, the Dome Batholith, being about 4 miles to the west. Associated with these granite intrusions are quartz porphyry and feldspar porphyry dykes.

Some of these dykes have hosted gold in the area. To the north of the Dickenson mine a multi-phase basic intrusive, over 2,000 ft. long and up to 500 ft. thick, intruded the basic volcanics sub-parallel to the regional trend. This is one of the few known basic intrusives in the area.

Outcrops are relatively sparse and therefore the relationship between the different rock units is largely inferred from drill cores and geophysical data. The volcanics were originally considered to be Keewatin in age, the sediments Temiskaming, and the major intrusives Algoman. However, R. Thomson (1946) suggested that the entire sedimentary series was intercalated with the lava series and was not an infolded syncline of later sediments. J. Pirie (personal communication), in his recent work in the area, also concluded that the volcanics and sediments were interbedded and therefore penecontemporaneous.

There has been at least two periods of folding in the area. The main structure in the region is an earlier NE-trending anticlinorium which passes through Dome, McDonough and Bateman Townships. This structure previously had been interpreted to be cross folded in a northwesterly direction, the resulting anticlines and synclines being best developed in Balmer Township. However, our field work has indicated that the rocks underlying the Onaping property, southeast of the Dickenson Mine, form a steeply dipping, south facing, stratigraphic sequence rather than an anticlinal structure.

The relationship of these, more east-west trending, south dipping, formations in south-central Balmer Township to the northeast-trending anticlinorium west of the Campbell Mine is not known.

PROPERTY GEOLOGY

The central part of the property is underlain by an east-southeast trending, south-dipping group of sediments which are approximately 3,000 ft. in stratigraphic thickness. These sediments are bounded to the north by mafic metavolcanics, mainly andesite, and to the south by an acid to intermediate metavolcanic unit of between 1300 and 1800 ft. in thickness, and consisting mainly of tuff and some lapilli tuff. All of these units thin to the east and may pinch out east of the property.

This central sedimentary belt has been divided, on a preliminary basis, into three sub-units. These consist of a central, predominantly greywacke unit, bounded on the north by greywacke, with some argillite, and on the south by argillite with some greywacke. Deeper drilling of these sediments in the west-central part of the property has intersected an abundance of quartz porphyry dykes. These dykes also occur on a more widely spaced pattern elsewhere in the northern part of the property but very few have been observed in the southern part of the property.

Isolated bands of cherty, magnetite-bearing and sulphide iron formation have been observed in outcrop and in drill core in both the sediments and the volcanic sequences. The more continuous, but very narrow bands of iron formation, as interpreted from ground magnetic and electromagnetic data, are best illustrated on the geophysical maps submitted under separate cover. This intermixed oxide and sulphide iron formation appears to have the most continuous and stratigraphically thick development along the southern side of the northern belt of andesite in the eastern side of the property. This is interpreted to represent the basal part of the overlying pelitic and clastic sediments. Based on regional aeromagnetic data this iron formation would appear to form a much thicker sequence to the east of the property and to a somewhat lesser extent to the west of the property.

The southern 1,500 ft. of the property is underlain by more east-west trending, intermediate to basic volcanics with only minor interbedded sediments. These volcanics appear to be more massive and siliceous than those on the north side of the property. On this basis they do not appear to be the same volcanic sequence and therefore do not represent the same unit on opposite limbs of a fold structure.

Pillows located at coordinates 20E and 33N and graded bedding in the upper part of drill hole 79-7 both indicate beds face south. We have not obtained any evidence of a major fold structure on the Onaping property. Rather these units appear to be a sequence of interdigitating sediments and volcanics younging to the south and probably deposited in a basin.

Outcrops of brecciated andesite in the southwest corner of KRL 484335 are interpreted from drill hole and magnetometer data to be the result of a shear zone trending east-southeast sub-parallel to the zone and about 100 ft. to the south as shown in drill hole 79-2. A second shear zone was also noted in the lower part of hole 79-3, approximately 800 ft. further south. This zone of coarsely brecciated andesite, extends over a length of approximately 200 ft., as indicated by two surface trenches. The matrix consists of white, massive carbonate with occasional specks of pyrite. This breccia is one of the most distinctive units located on the property.

Foliation is well developed, dips steeply to the south and strikes at about  $120^{\circ}$  in the northern part of the property. In the southern part the foliation trends more easterly at about  $100^{\circ}$ . Lineations all appear to dip steeply to the east-southeast suggesting a similar type of plunge. This change in the strike of the foliation and of the apparent bedding indicates a pinching out of these units to the east.



Chloritization is widespread in the volcanics and is particularly so in the northern belt. Finely disseminated pyrite and pyrrhotite occur along foliation planes and with quartz carbonate stringers but is primarily in the form of banded sulphides within the iron formation in the east-central part of the property. Drilling to date has not intersected any gold or base metal values associated with the sulphides or quartz carbonate stringers.

After completion of the current drilling programme, which commenced in late January, a more complete geological summary will be prepared.

CURRENT EXPLORATION PROGRAMME

In a report, dated October 27th, 1978, on the Onaping property a field programme of geophysics and geology for Phase I and of drilling for Phase II was recommended. The programme was accepted by Onaping Resources Limited and commenced during the winter of 1978-1979. An access road was constructed to the property and a grid was cut. This grid consisted of lines 400 ft. apart with pickets at 100 ft. intervals over the entire property for a total of 33 line miles of cutting.

In the early part of 1979 a magnetometer survey and an EM-16 VLF survey were completed. The principal conductors outlined by the electromagnetic survey were followed up by a vertical loop electromagnetic survey.

In the early summer of 1979 geological mapping along all of the grid lines and roads was carried out by a two-man field party. Compilation of the information obtained from these surveys resulted in laying out the Phase II drilling programme consisting of nine drill holes to test some of the geophysical and geological targets.

By year-end 3,965 ft. of drilling in 7 of these holes, all of which are shown on the accompanying geological maps, had been completed. Some of these holes were drilled to test EM conductors, and the remainder were drilled to investigate geologically interesting areas.

Drill hole numbers 79-1, 79-3, 79-4, 79-5 and 79-6 were drilled to test VEM conductors associated with magnetometer highs. The drill targets proved to be zones of cherty magnetite iron formation and/or zones of disseminated pyrite and pyrrhotite. Drill hole 79-2 tested a carbonate breccia zone exposed in outcrop and found this zone to weaken at depth.

Hole 79-7, which was 1,297 ft. long, was drilled to investigate the possibility of the volcanic rocks that host the Dickenson Mine to the west, continuing as a sub-surface unit at a shallow depth, into the western side of the property.

A total of 88 split core samples were sent to X-Ray Assay Laboratories of Toronto and fire assayed for Au and Ag. All of the assays returned nil to trace gold and silver assays.

The drill hole logs and profiles for these seven holes, which are listed below, are attached to this report. The assays are also provided on the drill logs.

List of Diamond Drill Holes

September 21st, 1979 - October 23rd, 1979

(Azimuth of all holes  $-020^{\circ}$ )

<u>Hole No.</u>	<u>Location</u>	<u>Dip</u>	<u>Length</u>	<u>Number of Samples</u>	<u>Dates</u>
79-1	L36+02E 35N	45 <sup>0</sup>	348'	8	Sept. 21-25
79-2	L52E 21+50N	45 <sup>0</sup>	272'	2	Sept. 25-27
79-3	L44E 14N	45 <sup>0</sup>	722'	21	Sept. 28-Oct. 3
79-5	L0E 23N	45 <sup>0</sup>	502'	9	Oct. 5-9
79-6	L20E 6N	45 <sup>0</sup>	452'	12	Oct. 9-12
79-7	L4E 2+61S	45 <sup>0</sup>	1,297'	29	Oct. 14-20
79-9	L40E 39+20N	45 <sup>0</sup>	372'	7	Oct. 20-23
			<u>3,965'</u>	<u>88</u>	

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Two additional holes planned for this Phase II drilling programme were postponed because of the lateness of the season. These holes are now being drilled but the information obtained is not yet available for inclusion in this report.

However, based on the information obtained to date a deep hole of between 3,500 and 4,000 ft. of core length, the first drilled in this area of the Red Lake camp, is planned and should be under way about the end of February. Dickenson Mines are participating in the drilling of this hole.

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*Paul Michna*

P. D. Michna, B.Sc.

Toronto, Ontario  
February 13, 1980

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- (1) Chisholm, E.O. - Geology of Balmer Thwnship; O.D.M., Vol. LX, Pt. X, 1951, Map 1951 - 3, scale 1" to 1,000'.
- (2) Thomson, R. - Notes on Some Recent Work in the Eastern Part of the Red Lake Area, Ontario: The Precambrian, Vol. XIX, 1946, No. 6.
- (3) O.D.M. - Red Lake Sheet - Preliminary Map No. P-355, scale 1" to 2 mi., (1966).
- (4) O.D.M. - Preliminary Ground Geophysical Map P-47, Township of Balmer, scale 1" to 1,000' (1960).
- (5) O.D.M. - Red Lake Area, Preliminary Map P-338, scale 1" to 1 mi., (1966).
- (6) O.D.M. - Red Lake - Birch Lake Sheet, Map 2175, scale 1" to 4 mi., (1970).
- (7) O.G.S. - Airborne Electromagnetic and Total Intensity Magnetic Survey, Red Lake Area, Map K, District of Kenora; by Questor Surveys Limited, for the Ontario Geological Survey, Prelim. Map P-1581. Geophys. Ser., scale 1:20,000, (1978). Survey and compilation, December 1977 and April 1978.
- (8) Gupta, V.K. and Wadge, D. R. - Bouguer Gravity and Generalized Geologic Map Red Lake Area, District of Kenora (Patricia Portion); Ontario Geological Survey Prelim. Map P-1248, Geophys. Ser., scale 1:100,000, (1978). Survey and compilation 1976, 1977.
- (9) Ferguson, S.A., Groen, H.A. and Haynes, R., 1971 - Gold Deposits of Ontario, Part 1; Ontario Dept. Mines, MRC 13, 315 p.
- (10) Pirie, J. and Grant A., 1978 - Balmer Township, District of Kenora (Patricia Portion); Ontario Geological Survey Prelim. Map P. 1976, Geological Ser., scale 1:10,560 or 1 inch to 880 feet. Geology 1977.
- (11) Koskitalo, L.O. and Panagapko, D.A., 1978 - Balmer Township, District of Kenora (Patricia Portion); Ontario Geological Survey Prelim. Map P. 1977, Red Lake Data Series, Scale 1:12,000 or 1 inch to 1,000 ft. Data compiled 1978.
- (12) Aeromagnetic Map - 852G - Red Lake (52/N4), scale 1" to 1 mi.

(13) O.D.M. - Balmer Township - Map M-2137, scale 1" to 1/2 mi.

(14) Airphotos - 66-5102-205 and 66-5102-206.

B. & C. LTD.

B. & C. LTD.

APPENDIX 1

LIST OF CLAIMS

Appendix 1  
Onaping Mines Ltd.  
List of Claims

	<u>Claim No.*</u>	<u>Acres</u>
(A) Durham-McEwen (Mining Rights Lease)	47680	-
	47681	-
	47682	-
	47683	-
	47684	-
	47685	-
	47686	-
	47687	-
	47688	-
	47689	-
	47690	-
	47691	-
	47692	-
	47693	-
	47694	-
	47695	-
Total	CLM - 165	625.33
(B) E. Gay - Royal Trust (Mining Rights Leases)	41802	22.95
	41784	36.19
	41785	53.89
	47087	37.11
	47088	29.30
	47089	33.79
	47090	20.24
	47091	48.21
	47092	46.57
	47093	17.24
	47094	29.06
	47095	26.16
Total	12	400.71
(C) C. Peterson (Staked claims)	484330	47.22
	484331	41.01
	484332	32.77
	484333	42.01
	484334	48.95
	484335	30.76
	484336	38.23
	484337	
	484338	
	484339	155.56
484340		
Total	11	436.51

\* Prefix KRL omitted from all claim numbers.

B. A. C. LTD.



CERTIFICATE OF QUALIFICATION

I, Paul Douglas Michna, of Unit 221, 123 Woodbine Avenue,  
Toronto, do hereby certify that:

- (1) I am a geologist in the employ of Derry, Michener & Booth.
- (2) I am a graduate of Laurentian University, Sudbury, in 1973 with a B.Sc. in Geology and have been practising my profession since graduation.
- (3) I am a Fellow of the Geological Association of Canada.
- (4) I have not received, nor do I expect to receive, any interest directly or indirectly in the stock of Onaping Resources Limited.
- (5) The statements contained in this report and the conclusions reached are based upon my review of the data made available to me by Onaping Resources Limited and upon examination of diamond drill core from the present drilling project.

*Paul Michna*

P. D. Michna, B.Sc.

Toronto, Ontario  
February 13, 1980



52N04SE0087 63.3662 BALMER TWP

020

GEOPHYSICAL REPORT ON THE PROPERTY

of

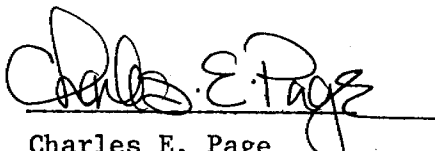
ONAPING RESOURCES LIMITED

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GROUND MAGNETIC SURVEY

Toronto, Ontario

January 1980

  
Charles E. Page



52N04SE0087 63.3662 BALMER TWP

020C

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INTRODUCTION

Onaping Resources Limited acquired a 100% interest in three contiguous properties adjoining the eastern side of the former Robin Red Lake gold mine now owned and operated by Dickenson Mines Limited in the Red Lake Mining District.

This report reviews the results of a magnetometer survey carried out on the Onaping property.

PROPERTY DESCRIPTION

The property consists of 39 claims totalling 1,462.55 acres in three groups, namely the Durham-McEwen group, E. Gay-Royal Trust group and the C. Peterson group.

The Durham-McEwen group was acquired by Onaping Resources Limited on March 8th, 1978 from the Durham-McEwen partnership. This group consists of 16 claims held under one lease, CLM-165, as tabulated below:

<u>CLAIM NO.</u>	<u>ACRES</u>
KRL 47680	-
KRL 47681	-
KRL 47682	-
KRL 47683	-
KRL 47684	-
KRL 47685	-
KRL 47686	-
KRL 47687	-
KRL 47688	-
KRL 47689	-
KRL 47690	-
KRL 47691	-

KRL	47692	-
KRL	47693	-
KRL	47694	-
KRL	47695	-
<hr/>		<hr/>
CLM - 165		625.33

The E. Gay-Royal Trust group was acquired by Onaping Resources Limited on August 23rd, 1978 from the E. Gay-Royal Trust partnership. This group consists of 12 claims, each held under separate mining leases as indicated below:

<u>CLAIM NO.</u>	<u>ACRES</u>
KRL 41802	22.95
KRL 41784	36.19
KRL 41785	53.89
KRL 41786	37.11
KRL 41787	29.30
KRL 41788	33.79
KRL 41789	20.24
KRL 41790	48.21
KRL 41791	46.57
KRL 47092	46.57
KRL 47093	17.24
KRL 47094	29.06
KRL 47095	26.16
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12	400.71

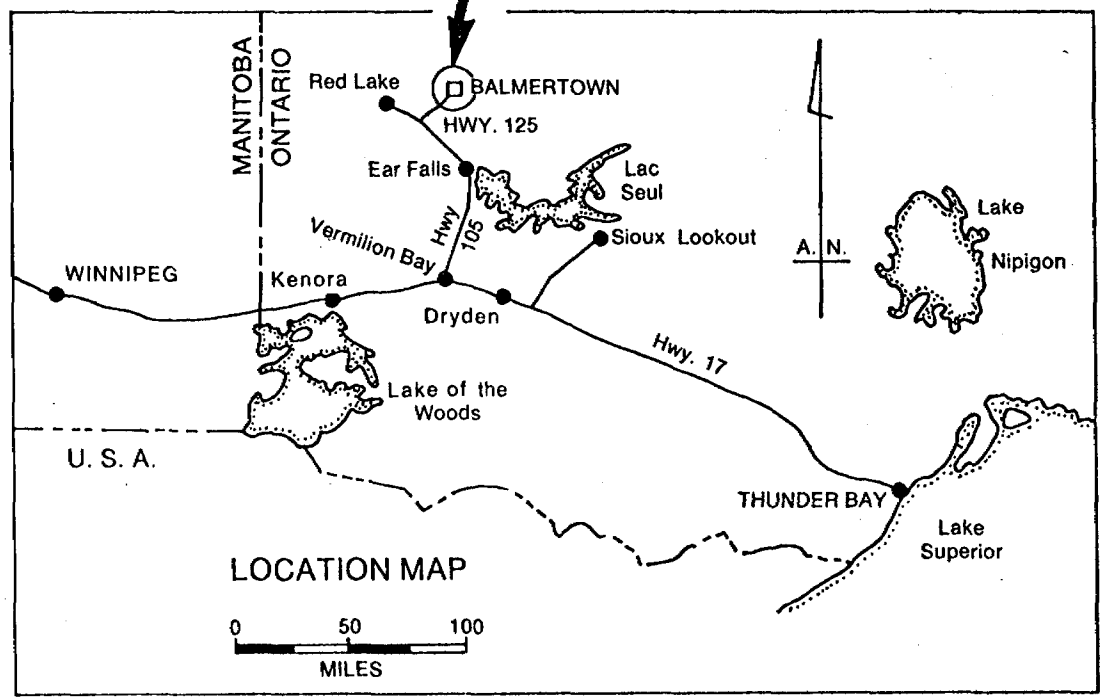
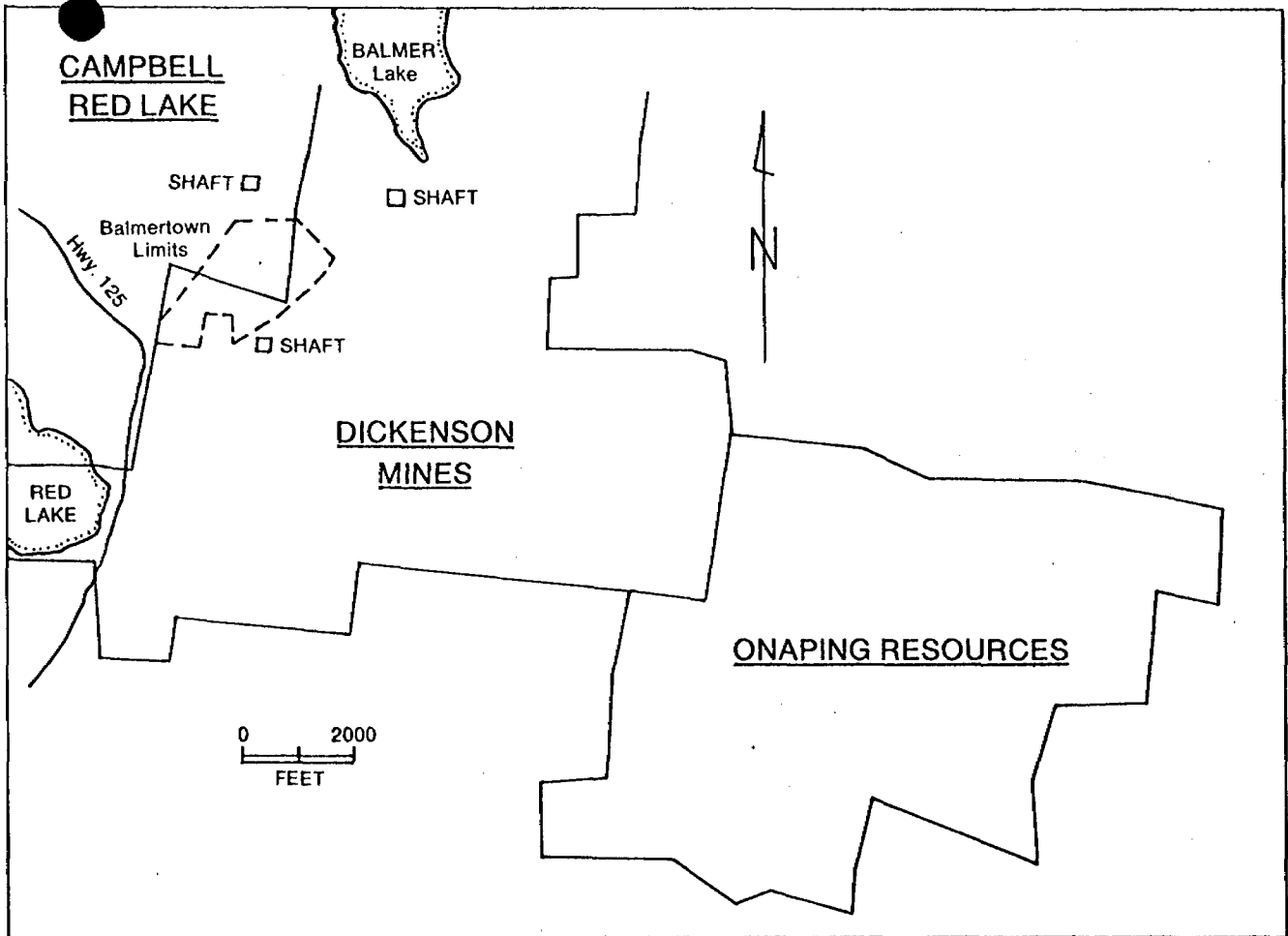
The Peterson claim group was aquired by Onaping Resources Limited on August 23rd, 1978 from Mr. C. Peterson. The Peterson staked claims were recorded on May 15, 1978 and consist of 11 contiguous, unpatented mineral claims totalling 436.51 acres as outlined below:

<u>CLAIM NO.</u>	<u>ACRES</u>
KRL 484330	47.22
KRL 484331	41.01
KRL 484332	32.77
KRL 484333	42.01
KRL 484334	48.95
KRL 484335	30.76
KRL 484336	38.23
KRL 484337)	
)	
KRL 484338)	
)	
KRL 484339)	155.56
)	
KRL 484340)	
<hr/>	<hr/>
11	436.51

LOCATION AND ACCESS

The Onaping property is approximately 6 miles ENE of the town of Red Lake and approximately 3 miles SE of Balmertown. Red Lake is at the terminus of Highway #105 which connects with the Trans-Canada Highway at Vermillion Bay, approximately 110 miles to the south.(figure 1)

Balmertown is accessible from Red Lake via Highway #125. These towns are serviced by scheduled airlines and are local supply centers for the area.



Access to the property is provided by a lumber road, along the north side of the property from Balmertown, and by bush trail, now largely overgrown along the Chukuni River, on the south side.

In September 1978 the company contracted to have a road, suitable for a four-wheel drive vehicle, constructed from the lumber road into the north-central part of the property.

#### HISTORY (EXPLORATION AND DEVELOPMENT)

##### a) Durham-McEwan Property

The Durham-McEwan property was originally staked by Ronal Red Lake Gold Mines Ltd. in 1945. The Ronal claims, numbered KRL - 29883 to KRL - 29891 cover the same ground as the present lease CLM - 165. A geological and geophysical survey of the property was made that year followed by surface trending.

In 1957 six drill holes totalling 1,150 feet were put down by J. E. Durham in the southwest corner of the property in the vicinity of claim KRL - 47691. These ranged between 175 feet to 203 feet deep and intersected dominantly andesite and greywacke. No mineralization was reported in any of these holes.

In May 1962, four diamond drill holes totalling 2,034 feet were put down by Cochenour Willams Mines in the northeast corner of the property on claims KRL - 47680 and KRL - 47681. All six holes encountered volcanics and sediments with four intersecting quartz-carbonate veins apparently devoid of any gold mineralization.

In November, 1964 Dickenson Mines drilled a 1,106 foot hole on claim KRL - 47684 which was deepened to 1493.5 feet in May 1965. This hole encountered dominantly sediments cut by numerous quartz-porphyry and lamprophre dykes. No significant mineralization was reported.



In 1969 a ground magnetometer and EM survey was initiated to define an airborne Input anomaly on claim KRL - 47692 in the south east portion of the property. The drilling of a 257 foot hole tested this anomaly the same year intersecting mainly volcanics with some quartz porphyry dykes. A 19.8 foot mineralized zone containing some 30% sulphides was intersected and is identified as the conductor. This zone has associated silver values but no gold mineralization was indicated.

In 1971 a parimeter survey was conducted on the property and was registered as CLM - 165.

Since 1971 no further work has been carried out on the property.

b) Gay-Royal Trust and Peterson Properties

The Gay-Royal Trust and Peterson Properties were acquired in 1945 by Abacus Gold Mines.

Abacus geologically mapped the property that year and drilled a series of twenty-three holes totalling 10,500 feet. Sixteen of these holes partially cross-sectioned the centre of the property from south to north and the remaining seven holes were drilled in the northeast part of the property.

The drilling indicated that the property is underlain by a band of sediments bounded to the north and south by greenstone.

In 1960 Mr. Gay obtained an interest and did some 150 feet of trending on claim KRL - 41784 at the greenstone sediment contact. A banded chert-magnetite iron formation was encountered in the trending, revealing low gold values.

In 1962 Mr. Gay drilled three holes totalling 800 feet and in 1964 another two holes were drilled totalling 267 feet. These holes appeared to intersect volcanics with minor sediments. No gold or silver values were reported.

The Gay-Royal claims were surveyed in 1967 and brought to lease.

In 1973, Dickenson Mines Ltd. ran a magnetometer, self potential and EM-16 survey on claim KRL 484330. A weakly conductive iron formation was encountered but drilling was not recommended.

In 1978, the Ontario Geological Survey released the results of an airborne INPUT and magnetometer survey carried out by Questor Surveys Limited. The survey indicated a number of conductors on the Onaping claim group which correspond to aeromagnetic highs.

#### GEOLOGY

##### Regional

The Red Lake area is underlain by volcanic, sedimentary and intrusive rock of Precambrian age.

The volcanic rocks consist of andesite and some rhyolite flows with lesser pyroclastic rocks of equivalent composition.

The sediments, believed to be Timiskaming, largely consist of slates, graywackes, conglomerates together with some lean iron formation. These sediments overlie the volcanic units and possibly suggest the presence of turbidite sequences.

These sediments in turn are overlain by volcanics, and it appears the entire sequence has been folded into an overturn anticline termed the Cambell-Dickenson Cross fold.

The intrusive rocks consist of large granite masses with associated quartz porphyry and feldspar dykes.

There has been at least two periods of folding in the area. The main structure is an earlier NE trending anticlinorium which passes through Dome, McDonough and Bateman Townships. This structure has been folded in a north westerly direction, with the resulting anticlines and synclines being best developed in Balmer Township.

Local (after Leigh 1978)

The central portion of the property is underlain by belt of steeply south-dipping sediments, up to 4,500 feet wide at the western side of the property and narrowing to 2,700 feet at the eastern side.

Within the sediments numerous magnetic iron formations are represented by magnetic highs. It is suggested that these are chemical sediments and represent original deposition.

These sediments are bounded to the north by fine medium grained mafic metavolcanics. The northern contact of the belt of sediments trends southeast-northwest which parallels the general attitude of the volcanic unit. A well developed foliation in the sequence dips steeply to the south and strikes  $125^{\circ}$ .

The sediments are bounded to the south by a rather narrow 1500 foot wide belt of intermediate metavolcanics composed dominantly of tuff, lapilli tuff and lapillistone. This sequence trends virtually east-west across the Onaping property.

The extreme southern portion of the property is underlain by basic to intermediate volcanics with some narrow interunit sediments.

Numerous acid to intermediate dykes, primarily quartz porphyry, occur throughout the area. Lamprophyre and more basic dykes are also noted on the property and appear to have an affinity towards the sedimentary units.

In summary the geology of the Onaping property indicates a rather continuous sequence of east-west trending, southerly dipping volcanic and volcaniclastic units which suggest formational tops to the south.

Magnetic Survey

In December 1978 and January 1979 Onaping Resources Limited carried out a programme consisting of line cutting and a ground magnetic survey on its Balmer Township property.

The covering dates of the magnetic survey are from December 12, 1978 to January 10, 1979 employing a Barringer GM - 122 Protan Magnetometer.

The Barringer GM - 122 Protan Magnetometer is an efficient instrument for measuring changes in the earth's magnetic field. The instrument is calibrated at a chosen base station and at each station on the survey the GM - 122's sensor, which is mounted on a staff is held roughly level, and a measurement of the increase or decrease in the magnetic field is read off the meter on a digital display directly in gammas. The GM - 122 has a range from 0-90,000 gammas with a sensitivity of 1 gamma.

The Onaping property was covered by the magnetometer survey on grid lines located at 400 foot intervals along a baseline with an azimuth of 108 degrees.

The orientation of the grid was determined principally from the attitude of the underlying volcanic and sedimentary rocks in the vicinity of the Onaping property. Pickets were located at 100 foot intervals on these stations with some closer spacing on anomalies.

A total of approximately 2,500 stations were established on the Onaping property along some 33.04 miles of cutline.

Analysis

The results of the ground magnetic survey are illustrated on the accompanying plan.

Background readings are in the order of 600 gammas with readings above 700 gammas contoured as positive anomalies and values below 500 gammas contoured as magnetic depressions.

A rather broad feature with values up to 5,000 gammas is located in the central-eastern portion of the property along baseline 0-20N. This NW-SE trending anomaly, some 2,000 feet wide, corresponds to a rather strong magnetic feature outlined by the Airborne Electromagnetic survey performed for the Ontario Government in 1978.

Another magnetic anomalous zone is indicated along the eastern boundary of the property north of the main Baseline. This feature with values up to 2,000 gammas appears to be the eastern extremity of a rather strong continuous magnetic anomalous horizon which transects the Dickenson-Robin Properties to the east as indicated by the Airborne Electromagnetic Survey.

A short-narrow (1,000 feet x 500 feet) magnetic anomaly is situated in the north-east portion of the Onaping Property. This anomaly, although relatively discontinuous, contains readings up to 5,000 gammas.

Weakly magnetic, expressions, trending NW-SE transect the northern portion of the property connecting the broad magnetic feature in the east to the magnetic expression in the west.

INTERPRETATION

The broad magnetic anomaly situated in the central eastern portion of the property appears to be the eastern extremity of a rather continuous magnetic expression which extends into Ranger Township, as indicated by the Provincial Airborne Electromagnetic Survey. This magnetic expression corresponds rather closely to the positioning of the sediment-volcanic contact on the Onaping property and suggests the presence of magnetic iron formation either contained within the sediments or at the sediment-volcanic contact.

The magnetic feature located along the eastern boundary of the property north of the main baseline corresponds to the western extremity of a continuous magnetic expression originating from the Dickenson property to the west. Lean magnetic iron formation has been mapped within the sediments on the adjacent Dickenson-Robin property suggesting the continuation of this feature to the Onaping property.

The continuation of the rather strong magnetic features described above through the northern portion of the property is interpreted from the results of the survey. Although not as strong a definite magnetic correlation exists through the north central portion connecting the east and west features along what is postulated the sediment-volcanic contact.

A rather narrow but continuous weak magnetic zone exists some 600 to 800 feet north of the sediment-volcanic contact trending parallel to regional geology. It is suggested that this feature represents a more basic member of the volcanic unit.

The weaker short-narrow magnetic anomalous zone situated in the north-east portion of the property corresponds to a weak EM - 16 conductor indicated by Dickenson Mines Ltd. in 1973 when they geophysically surveyed the area. Dickenson interpreted this feature as weakly mineralized iron formation to intermediate

volcanics.

The magnetic zone located in the south western corner of the property is interpreted as being lean magnetic iron formation.

The discontinuous, narrow, rather weak magnetic expressions in the southern portion of the claim group have been attributed to more basic portions of the underlying volcanics.

#### CONCLUSIONS

The ground magnetic survey performed on the Onaping property outlined various magnetic features which have been correlated by the local geology.

All of the magnetic features trend in a WNW-ESE direction which corresponds and parallels the local geology.

The stronger magnetic anomalies have been attributed to indicate lean magnetic iron formation which is common in volcanic terrains where these chemogenic sediments (iron formation) are deposited during quiescent periods in volcanism.

The weak magnetic expressions which parallel the geology have been interpreted as indicating basic members of underlying volcanics.

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Company Report on File





52N04SE0087 63.3662 BALMER TWP

030

GEOPHYSICAL REPORT ON THE PROPERTY

of

ONAPING RESOURCES LIMITED

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EM 16 VLF SURVEY

Toronto, Ontario

January, 1980

  
Charles E. Page



52N04SE0087 63.3662 BALMER TWP

030C

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INTRODUCTION

Onaping Resources Limited acquired a 100% interest in three contiguous properties adjoining the eastern side of the former Robin Red Lake gold mine now owned and operated by Dickenson Mines Limited in the Red Lake Mining District.

This report reviews the results of an EM 16 VLF survey carried out on the Onaping property.

PROPERTY DESCRIPTION

The property consists of 39 claims totalling 1,462.55 acres in three groups, namely the Durham-McEwen group, E. Gay-Royal Trust group and the C. Peterson group.

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KRL 47688	-
KRL 47689	-
KRL 47690	-
KRL 47691	-

KRL 47692	-
KRL 47693	-
KRL 47694	-
KRL 47695	-
<hr/>	<hr/>
CLM - 165	625.33

The E. Gay-Royal Trust group was acquired by Onaping Resources Limited on August 23rd, 1978 from the E. Gay-Royal Trust partnership. This group consists of 12 claims, each held under separate mining leases as indicated below:

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KRL 41784	36.19
KRL 41785	53.89
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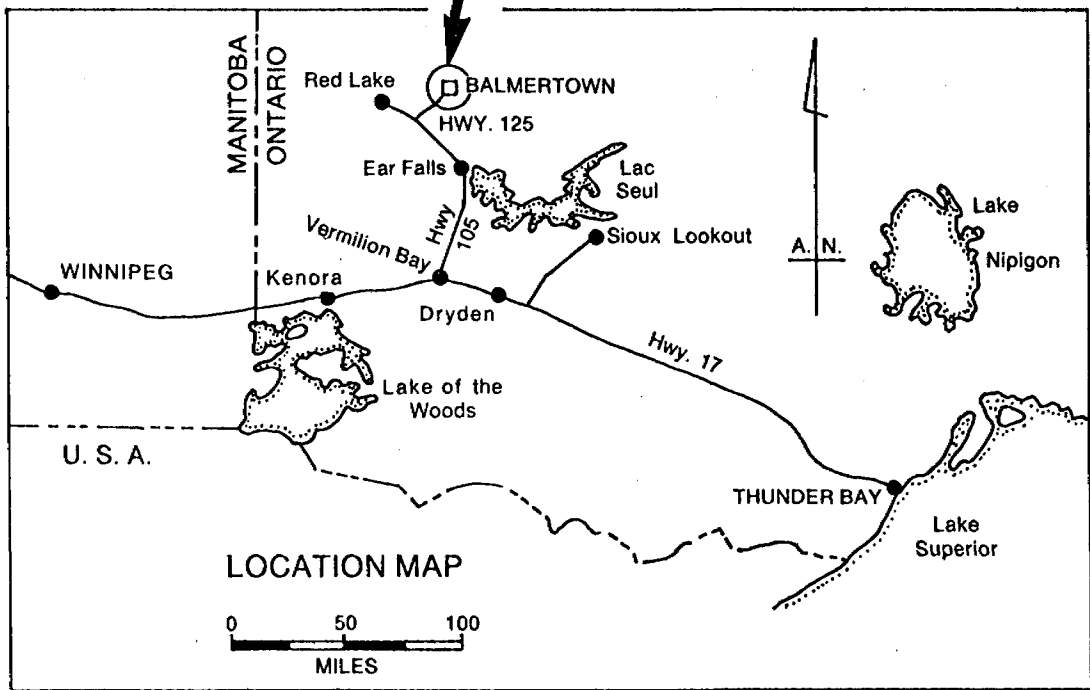
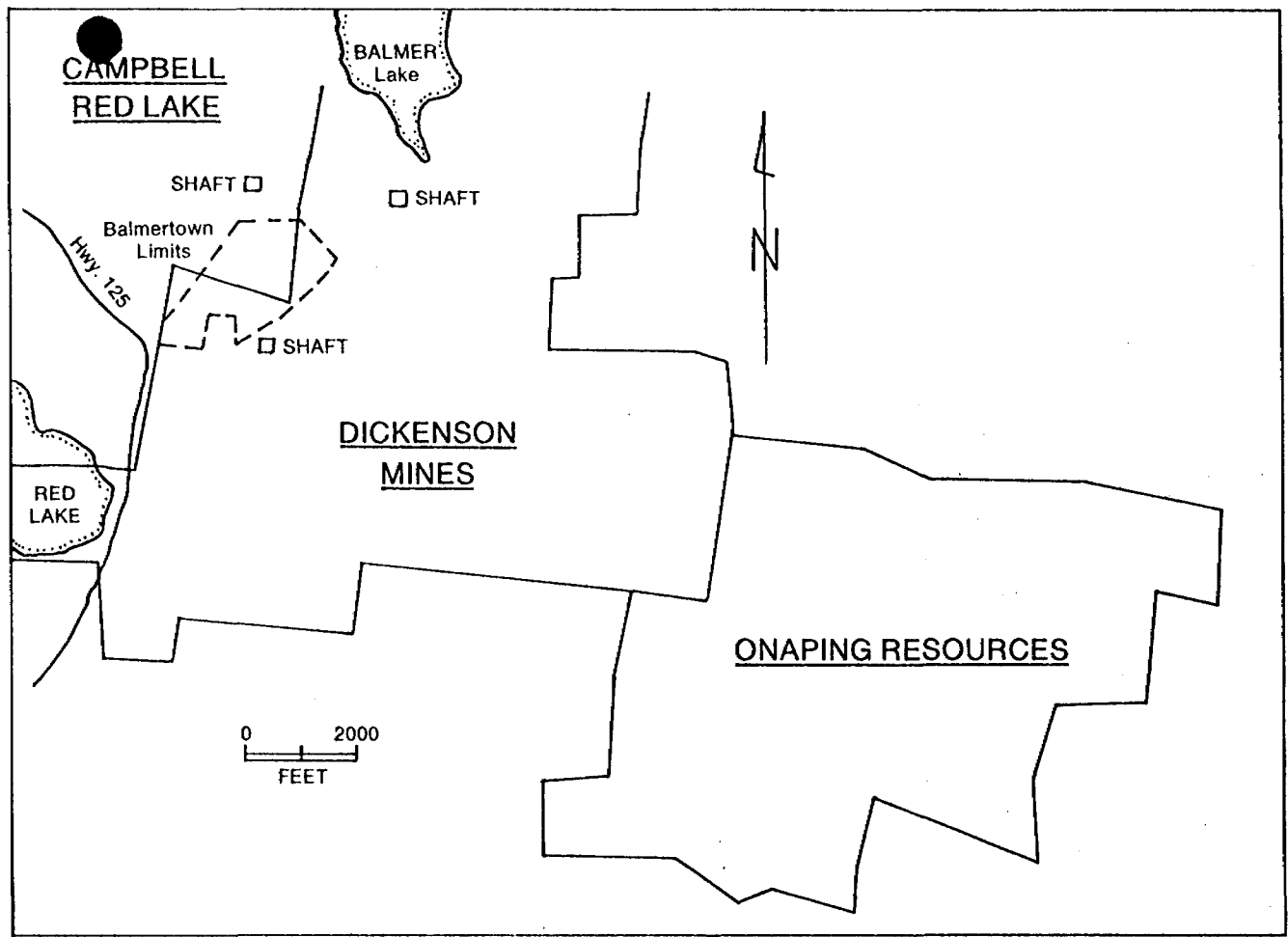
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KRL 484330	47.22
KRL 484331	41.01
KRL 484332	32.77
KRL 484333	42.01
KRL 484334	48.95
KRL 484335	30.76
KRL 484336	38.23
KRL 484337)	
)	
KRL 484338)	
)	155.56
KRL 484339)	
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KRL 484340)	
<hr/>	<hr/>
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LOCATION AND ACCESS

The Onaping property is approximately 6 miles ENE of the town of Red Lake and approximately 3 miles SE of Balmertown. Red Lake is at the terminus of Highway #105 which connects with the Trans-Canada Highway at Vermillion Bay, approximately 110 miles to the south.(figure 1)

Balmertown is accessible from Red Lake via Highway #125. These towns are serviced by scheduled airlines and are local supply centers for the area.



Access to the property is provided by a lumber road, along the north side of the property from Balmertown, and by bush trail, now largely overgrown along the Chukuni River, on the south side.

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In 1971 a perimeter survey was conducted on the property and was registered as CLM - 165.

Since 1971 no further work has been carried out on the property.

b) Gay-Royal Trust and Peterson Properties

The Gay-Royal Trust and Peterson Properties were acquired in 1945 by Abacus Gold Mines.

Abacus geologically mapped the property that year and drilled a series of twenty-three holes totalling 10,500 feet. Sixteen of these holes partially cross-sectioned the centre of the property from south to north and the remaining seven holes were drilled in the northeast part of the property.

The drilling indicated that the property is underlain by a band of sediments bounded to the north and south by greenstone.

In 1960 Mr. Gay obtained an interest and did some 150 feet of trending on claim KRL - 41784 at the greenstone sediment contact. A banded chert-magnetite iron formation was encountered in the trending, revealing low gold values.

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#### GEOLOGY

##### Regional

The Red Lake area is underlain by volcanic, sedimentary and intrusive rock of Precambrian age.

The volcanic rocks consist of andesite and some rhyolite flows with lesser pyroclastic rocks of equivalent composition.

The sediments, believed to be Timiskaming, largely consist of slates, graywackes, conglomerates together with some lean iron formation. These sediments overlie the volcanic units and possibly suggest the presence of turbidite sequences.

These sediments in turn are overlain by volcanics, and it appears the entire sequence has been folded into an overturn anticline termed the Cambell-Dickenson Cross fold.

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There has been at least two periods of folding in the area. The main structure is an earlier NE trending anticlinorium which passes through Dome, McDonough and Bateman Townships. This structure has been folded in a north westerly direction, with the resulting anticlines and synclines being best developed in Balmer Township.

Local (after Leigh 1978)

The central portion of the property is underlain by belt of steeply south-dipping sediments, up to 4,500 feet wide at the western side of the property and narrowing to 2,700 feet at the eastern side.

Within the sediments numerous magnetic iron formations are represented by magnetic highs. It is suggested that these are chemical sediments and represent original deposition.

These sediments are bounded to the north by fine medium grained mafic metavolcanics. The northern contact of the belt of sediments trends southeast-northwest which parallels the general attitude of the volcanic unit. A well developed foliation in the sequence dips steeply to the south and strikes  $125^{\circ}$ .

The sediments are bounded to the south by a rather narrow 1500 foot wide belt of intermediate metavolcanics composed dominantly of tuff, lapilli tuff and lapillistone. This sequence trends virtually east-west across the Onaping property.

The extreme southern portion of the property is underlain by basic to intermediate volcanics with some narrow interunit sediments.

Numerous acid to intermediate dykes, primarily quartz porphyry, occur throughout the area. Lamprophyre and more basic dykes are also noted on the property and appear to have an affinity towards the sedimentary units.

In summary the geology of the Onaping property indicates a rather continuous sequence of east-west trending, southerly dipping volcanic and volcaniclastic units which suggest formational tops to the south.

EM 16 VLF Survey

In May 1979 Onaping Resources Limited conducted a EM 16 VLF survey on its Balmer Township property.

The EM survey was carried out with a Geonics Ltd. EM 16 VLF receiver tuned to station NAA Cutler, Maine (17.8 KHZ). Two readings were recorded at each station, the tangent of the tilt angle of the magnetic field polarization ellipse (measure in a vertical plane containing the strike of the field) and the ellipticity of the polarization ellipse. Both readings were recorded in percentage.

Readings were taken at 50 feet stations on grid lines separated by 400 feet. The directions to the transmitting station makes an angle of  $10^{\circ}$  with the base line, which is ideal for detecting conductors striking across the grid.

The baseline has an azimuth of 108 degrees and its orientation was determined principally from the attitude of the underlying volcanic and sedimentary rocks in the vicinity of the Onaping property.

A total of approximately 3,000 stations were established on the Onaping property along some 33.04 miles of cut line.

### Analysis

The VLF EM survey reveals extensive areas of irregularly conductive rock. The central portion of the property south of the baseline indicates a relatively undisturbed EM field.

A strong line-to-line correlation of the VLF profiles exists throughout most of the anomalous area. The correlation follows the regional strike of bed-rock geology.

The style of the VLF-EM response suggests a steeply dipping, banded sequence of formations having variable, but not necessarily high conductivity. Many of the sharp inflections of the profiles are considered to be due to contacts between more conductive and less conductive formations rather than due to localized zones of high conductivity.

The location of the VLF-EM responses is shown on the accompanying Geophysical Interpretation Map along with many correlation lines which indicate the strike of contacts in the banded sequence.

When comparing the VLF-EM interpretations with the ground magnetometer profiles there is general agreement between the two surveys. A number of VLF-EM conductors especially in the northeastern part of the block show a clear direct association with magnetic anomalies.

The anomaly locations from the Provincial Airborne Input survey are plotted on the compilation plan and shows good correlation with the ground EM conductor locations.

## INTERPRETATION

According to the local geology of the area the property is traversed by four sub-parallel formations. From north to south these are: 1) mafic meta-volcanics 2) metasediments 3) intermediate metavolcanics and 4) mafic to intermediate volcanic with interunit sediments.

All the VLF-EM anomalies are considered to be due to sulphides and/or graphite in metasediments. Where these anomalies lie within the volcanic formation they most likely delineate thin sedimentary horizons intercalated with the volcanic units.

Magnetic anomalies associated with the EM anomalies are most likely due to magnetite. Pyrrhotite may be the origin of some of the weaker anomalies, but the strong magnetic anomalies associated with the conductors suggest magnetic iron formation with associated sulphide facies.

The various EM anomalies have been classified into three groups as outlined on the Geophysical Interpretation Map enclosed. Groups A and B lie north of the baseline while group C is situated south of it. The separation is made primarily on the basis of location, but anomalies of the A group on the east are more continuous and have stronger magnetic correlation than the anomalies of the B and C groups.

### Group A

Anomalies A-5, A-8, A-9 and A-10, A-11 and A-12 are the most continuous conductive zones found by the survey. All have magnetic correlation with A-8, A-10 and A-11 following along some of the strongest magnetic anomalies of the survey. A-11 shows a correlation with Input anomalies, with the central part (lines 44E to 52E) of A-11 giving a 5 channel response. These features are interpreted to be due

to magnetite-sulphide iron-formations occurring within the sediments or along the sediment-volcanic contact.

The remaining A group anomalies have much shorter strike length, but are likely of the same origin. Anomalies A14 and A15 may be notably conductive, as they seem to correlate with 5 channel Input anomalies.

#### Group B

These anomalies appear to lie where the magnetic correlation is much weaker.

Anomalies B1, B2, B3 and B4 have moderate magnetite correlation and appear to be the eastern extremity of a magnetic-conductive feature dominant to the west. These anomalies fall within the sedimentary unit, which correlate with 6 channel Input responses, and appear to suggest magnetite-sulphide iron formation similar to the features outlined in the western portion of the property identified as A group anomalies.

Anomalies B6, B7, B9 and B10 appear to have very little or no magnetic correlation and may be interpreted as sulphides and/or graphitic argillite.

#### Group C

These anomalies appear to fall within the intermediate and mafic volcanic formations on the southern portion of the property.

Anomaly C6 has definite magnetic correlation which coincides with a 6 channel Input anomaly. This may suggest the occurrence of a sulphide-magnetite iron formation.

The remaining C group anomalies are rather discontinuous and may be interpreted as being sulphide or graphitic in origin.

CONCLUSIONS

Sulphide mineralization is the probable cause of all of the VLF-EM anomalies although graphite cannot be ruled out. None of the anomalies are thought to be caused by overburden effects.

The most likely interpretation of the geophysical survey is the occurrence of sulphide bearing magnetic iron formation. This is further substantiated by the correlation with the Provincial Airborne Input Survey.

The structural information provided by the survey supports the geological interpretation of the local geology.

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B. & C. LTD.

APPENDIX 2

DIAMOND DRILL LOGS WITH ASSAYS

DERRY, MICHENER & BOOTH  
DIAMOND DRILL RECORD

CO-ORDS L36 + 02E; 35 + 00N - 560' South  
of North Property boundary  
AZIMUTH: 020°

HOLE NO: 79-1

DIP: -45° DRILL TYPE & SIZE: LOCATION: Balmer Twp. - Red Lake, Ont.  
ELEVATION: - DIP TESTS: DATE STARTED: Sept. 21, 1979  
LENGTH: 348' DATE COMPLETED: Sept. 25, 1979  
SECTION: LOGGED BY: O.E. Leigh  
PURPOSE: Test 4 line E-M conductor and single line magnetometer high (Located S.W. of low gold values near Onaping Alexander Red Lake,)  
boundary. DATE LOGGED: Sept. 24-25, 1979

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Oz/ton Au	Oz/ton Ag	As (%)			
from	to			from	to							
0	66'	O.B.										
66'	69'	ANDESITE - f.g. grey-green, well foliated (45° C.A.) with very fine biotite. 69' - Qtz-carb veinlet, occ. blebs py and tr. chalco - Note - possible fault at 69' represented by change from foliated to non-foliated rx? (May also be altered dike contact)	131	68	71	3'	Tr	-	-			
69'	90'	ANDESITE - m.g., green, massive, chloritized 75'4" -75'5.5" - qtz -carb veinlet -bleb of po. & chalco (50° C.A.) 78'3" -78'5" - qtz. -carb. stringer 88' -88'4" - fractured or brecciated rock with qtz -carb filling	132	87	89	2'	Tr	Tr	Tr			

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Oz/ton Au	Oz/ton Ag	As %			
from	to			from	to							
90'	179'	<p><u>ANDESITE</u> - Alternating bands of fine to med. grained weakly to moderately foliated, (coarser grained bands are generally less foliated.)</p> <p>90'-92' -transition zone from massive to weakly foliated.</p> <p>98'; 101'; 104' - fol. @ 60° C.A.</p> <p>101'4" - 101'7" - alternating ¼" to ½" wide bands of qtz - carb &amp; host rx (60° to C.A.)</p> <p>108'8" - qtz - carb veinlet (75° C.A.)</p> <p>124' -126' - paler green - weakly carbonated</p> <p>137 -140'6" -more foliated with poorly defined qtz -carb stringers</p> <p>161'2" -161'7" -carbonated</p>										
179'	199'	<p><u>ANDESITE</u> - Coarser grained, chloritized upper and lower contacts gradational</p> <p>170'11" - 171'4" - Carbonated</p> <p>180'10" &amp; 182 - Carbonate veinlets (45° C.A.)</p> <p>187 -188'6" Qtz - Carb. vein, subparallel to to core - minor diss. sulphides in altered f.g.host rx.</p>	133	187	189	2	-	-	-			

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	Oz/ton Au	Oz/ton Ag	As %			
from	to			from	to							
199'	203.5'	<u>ANDESITE</u> - f.g. weakly foliated 200' -202' - very weakly magnetic										
203.5'	207	<u>DIKE?</u> - coarser grained - more mafic minor blueish tinged qtz. eyes										
207'	231.2	<u>ANDESITE</u> (Tuff?) - f.g. - massive becomes darker over last 5'-10' 221'2" -222'5" - more intensely carbonated with qtz vein near centre of section 225-227 - Qtz - carb stringers, trace py. 229'9" - 230'5" - Light grey band, well carbonated.	134	225	227	2'	-	-	-			
231.2'	232'	<u>ALTERED ZONE</u> - <u>intensely silicified</u> , carbonated, banded with seams of f. to m. grained po & py and finely diss. sulphides. Foliation - approx. 90° to C.A. (Possible gold bearing zone of alteration)	135	231	234	3'	Tr	Tr	-			
232'	235.5'	<u>ALTERED ZONE</u> - Silicification gradually weakens, well carbonated, some fine biotite towards lower part of section, po & py diss. and in narrow seams (up to 15% of core in upper 1½ ft of	136	234	242	8	Tr	Tr	Tr			

FOOTAGE		DESCRIPTION	SAMPLE No:	FOOTAGE		LENGTH	Oz/ton	Oz/ton	As			
from	to			from	to		Au	Ag	%			
232'	235.5'	<u>ALTERED ZONE</u> (cont'd)  section and gradually decreases), weakly magnetic. Fol. 75° - 90° to C.A. Tr of graphite Stibnite (?) speck @ 231'10"										
235.5'	242'	<u>SCHIST</u> - f.g. brownish, carbonated, very well foliated, biotite rich zone, py & po (approx.5%)  (Probably represents shear zone)  Stibnite (?) speck @ 236'										
242'	348'	<u>ANDESITE</u> (Possibly some dacite)  - generally f.g. & grey-green  - numerous qtz -carb veinlets and stringers, from hair line up to 4" wide, breccia zones.  245'10" - 247' - py. stringers & blebs. 253'5" - 253'8" " " " 265'10" - 266'1" " " " 274'1" - 277'4" - 5 - 10% po. in numerous stringers & diss. in rock - magnetic  283-284 - 3-4" wide qtz vein - 70° C.A. 286'-289'3" - qtz -carb & po. 309'10" - 310'3" qtz -carb & po.	137	249	251	2'	Tr.	-	-			
			138	283	284	1	-	Tr	-			

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	Oz/ton	Oz/ton	As			
from	to			from	to		Au	Ag	%			
242'	348'	<p><u>ANDESITE</u> (cont'd)</p> <p>311' - 312'3" - blebs &amp; streaks of po (&lt; 5%)</p> <p>313'6" - 314' - as above</p> <p>324'3" - 326'6" - brecciated qtz -carb vein - minor po</p> <p>332'8" - 333'5" - as above</p> <p>343'9" - 344'4" - as above</p> <p>Note. - General decrease in frequency of po bearing stringers &amp; blebs - from top to bottom of section - corresponds to surface magnetometer anomaly.</p> <p>348<sup>0</sup> END OF HOLE</p> <p><u>SUMMARY</u></p> <p>- Hole intersected an 11 ft altered silicified, carbonated zone from 231'-242', with lower 6.5' intensely biotitized - sufficient banded sulphides to provide weak E-M anomaly</p> <p>- Alteration appeared favourable for gold but assays were negative</p> <p>- Sufficient po below altered zone to correlate with broad magnetic anomaly outlined by magnetometer survey.</p>										

DERRY, MICHENER & BOOTH

DIAMOND DRILL RECORD

CO-ORDS: L 52E 21 + 50N  
 109' south of surveyed claim line  
 AZIMUTH: 020°

HOLE NO: 79-2

PROPERTY: Onaping Resources Ltd.

DIP: -45°N DRILL TYPE & SIZE: BQ LOCATION: Balmer Township, Red Lake

Ontario

ELEVATION: DIP TESTS: 272' -42°N DATE STARTED: September 25, 1979

DATE COMPLETED: September 27, 1979

LENGTH: 272" LOGGED BY: P. Michna

DATE LOGGED: September 27, 1979

SECTION:

PURPOSE: Test carbonate breccia zone indicated in trenched outcrop and mag. anomaly to the south of the trench

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	Oz/ton Au	Oz/ton Ag				
from	to			from	to							
0	19'	<u>OVERBURDEN</u> - many boulders										
19'	45'10"	<u>ANDESITE</u> : massive grey-green, medium/fine grained, chloritized, contains up to 10% qtz.-carb stringers and veins up to 1" in width, rare pyrite in stringers, upper portion contains felsic dark rimmed fragments, up to 0.10" (Tuffaceous) 41'9" -43'4" -weathered fracture 44'6" -45'6" -weathered fracture										
45'10"	47'4"	<u>COURSE FRAGMENTAL OR FAULT BRECCIA</u> @ 46' - shear plane (?) @ 47' - 2-3" of gouge material	168	46	47	1	Nil	Nil				
47'4"	55'6"	<u>ANDESITE</u> - as above										

FOOTAGE		DESCRIPTION	SAMPLE No:	FOOTAGE		LENGTH	Oz/ton Au	Oz/ton Ag				
from	to			from	to							
55'6"	58'10"	<u>IRON FORMATION</u> - cherty bands, some fine, pinkish garnet in more chloritic bands of magnetic.										
58'10"	62'8"	<u>ANDESITE BRECCIA</u> - Some andesite separated by carbonate stringers fragments. 4" wide cherty band at top and bottom of interval.										
62'8"	64'6"	<u>IRON FORMATION</u> - as above										
64'6"	168'	<u>ANDESITE</u> - numerous qtz. -carb veins and veinlets often contain angular fragments up to 1" (+) across.										
168'	190'	<u>ANDESITE</u> - with grey to black bands of metasediments										
190'	272'	<u>ANDESITE TUFF</u> with minor interbeds of greywacke, garnet pseudomorphs and garnetiferous bands	139	227	233	6'	Nil	Nil				
	272'	END OF HOLE -42° (acid test)										
		<u>SUMMARY</u>  Hole intersected 2 narrow zones, of cherty banded magnetite bearing iron formation between 55.5' and 64.5' followed by chloritized andesitic volcanics. Bands of white carbonate, some containing breccia fragments, between about 90' and 240' suggest this section, corresponds to the intensely carbonated breccia zone exposed in an old trench along the claim line, above the drill hole.										



DERRY, MICHENER & BOOTH  
DIAMOND DRILL RECORD

CO-ORDS. L 44E 14N  
527' grid south of surveyed claimline  
AZIMUTH: 020°

HOLE NO. 79-3

PROPERTY: Onaping

DIP: -45°N DRILL TYPE & SIZE: BQ LOCATION: Balmer Township, Red Lake, Ontario

ELEVATION: DIP TESTS: 722' -36°N DATE STARTED: September 28, 1979  
DATE COMPLETED: October 23, 1979

LENGTH: 722' LOGGED BY: P. Michna  
SECTION: DATE LOGGED: October 3, 4, 1979

PURPOSE:

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
0	56'	<u>OVERBURDEN</u>										
56'	71'	<u>GREY CHERTY BANDED METASEDIMENTS</u>	140	64	67	3'	Nil	Nil				
71'	72'	<u>QUARTZ PORPHYRY</u> -blue qtz. eyes	141	70.5	72	1.5'	Tr	Nil				
72'	102'	<u>ARG. METASEDIMENTS</u> -sericite, carbonate, minor qtz.										
102'	109'6"	<u>QUARTZ PORPHYRY</u> -as above	142	105	110	5'	Nil	Nil				
109'6"	111'	<u>ARG. METASEDIMENTS</u> -as above										
111'	113'6"	<u>QUARTZ PORPHYRY</u>										
113'6"	114'	<u>ARG. METASEDIMENTS</u>										
114'	116'6"	<u>QUARTZ PORPHYRY</u> 116'2" narrow (1/10) fracture with possible single grain of stibnite dissem. sulphides										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
116'6"	117'	<u>ARG. METASEDIMENTS</u>										
117'	145'	<u>INTERBANDED METASEDIMENTS AND QTZ. PORPHYRY</u> intensely contorted 123'-125' fol. 25° ⊥ to core axis	143	117	119	2'	Nil	Nil				
145'	154'	<u>ARGILLACEOUS SEDIMENTS</u> -soft, -light grey at top becoming black at base										
154'	166'6"	<u>ARGILLACEOUS SEDIMENTS</u> -cherty with seams of pyrite and veined fractures and up to 4% disseminated sulphides - 159'6" -possible fault 2" wide - 164'6" -fault gouge for 3"	144	166	168	2'	Nil	Nil				
166'6"	168'	<u>SILICIFIED ZONE</u> -brownish with up to 15% disseminated pyrrhotite and tyrite - moderately magnetic - Vuggy po., py. massive from 166'9"-167'2"										
168'	189'	<u>ARGILLACEOUS SEDIMENTS</u> -softer -less silicified										
189'	21'6"	<u>GREYWACKE</u> -medium/light grey more siliceous 2" Q.V. @ 218' fol. 35° ⊥ to core axis - 216' becomes garnetiferous	145	215'6"	216'6"	1'	Tr	Tr				
218'6"	220	<u>IRON FORMATION</u> -@ 219'4" massive po., py. 2"	146	219	221	2'	Tr	Nil				

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
220'	224'	<u>CALCAREOUS ZONE</u> -light grey no sulphides - 222'6"-224' garnetiferous	149	221	223	2'	Nil	Nil				
			150	223	224	1'	Nil	Nil				
224'	238'	<u>I.F.</u> strongly magnetic to 236 garnetiferous, py., po.										
238'	284'	<u>GREYWACKE</u> -weakly magnetic, garnetiferous, grey - 284 2-5% py., po.										
284'	321'6"	<u>METASEDIMENTS</u> -hard, med-grey siliceous - minor carbonate py., po.										
321'6"	334'	<u>I.F.</u> strongly magnetic with magnetite -banded hard -siliceous -332'-334' dissem. py. 3%	147	325	330	5'	Tr	Nil				
			148	332	334	2'	Tr	Nil				
334	345	<u>GREYWACKE</u> -silicified, carbonated, garnetifeous some bands of magnetite										
345'	365'	<u>I.F.</u> occasional magnetite bands -hard -siliceous										
365'	457'	<u>GREYWACKE</u> -massive - q.v. 382'6" 2" wide, po. - q.v. zone 383'-385' with po., py. - q.v. 394' -3" wide - 424' magnetite band on narrow qtz.-carb vein - 437' magnetite on narrow qtz.-carb vein	151	383	385	2'	Nil	Nil				

FOOTAGE		DESCRIPTION	SAMPLE NO:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
457'	472'2"	<u>I.F.</u> -hard , some carb., intensely fractured with py. mineralized fractures and microfractures - highly magnetic, (magnetite) to 472'2" may represent a broad fracture zone, graphite on slips - 462'-463' brecciated zone sed. fragment in carbonate (single grain of sphalerite?) - fault gouge at 470' for 3"	152	457	462	5'	Tr	Nil				
			153	462	467	5'	Nil	Nil				
			154	467	472	5'	Nil	Nil				
472'2"	479'	<u>GREYWACKE</u> -fine grained non magnetic -massive										
479'	481'	Transition to I.F.										
481'	496'	<u>I.F.</u> banded with magnitite, minor py., po. - 485' less magnetic with white porphyroblasts up to 1/10" for 10" then I.F.										
496'	498'	<u>GREYWACKE</u> -becomes more siliceous at base										
498'	515'	<u>I.F.</u> with pyrrhotite and pyrite 2-5% - garnetifeous 511'6"-512'6"	155	508	511	3'	Tr	Nil				
515'	517'	<u>GREYWACKE</u> -some garnets										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
517'	543'	<u>I.F.</u> -massive qtz. bounded by pyrrhotite to 521' - 521'-535' strongly magnetic many white porphyroblasts (garnets?) - 535'-537' Lacy microveinlets of po., py. intense fracturing	156	517	521	4'	Nil	Nil				
543'	557'	<u>GREYWACKE</u> -massive - occasional garnets	159	542	547	5'	Tr	Nil				
557'	570'	<u>I.F.</u> -rapidly changing arg. seds./greywacke with veins and lenses of po., py.	158	562	566	4'	Tr	Nil				
570'	(669')	<u>Transition Zone</u> From Sediments To Massive Andesite Outlined As Follows: Transition zone										
570'	602'	<u>GREYWACKE</u> fine grained massive - 585' with carbonate stringer -few sulphides - 602' garnetifeous, more stringers -few sulphides dissem. po., py. 2%										
602'	608'	<u>MASSIVE FINE GRAINED GREYWACKE/ANDESITE TUFF?</u>										
608'	613'	<u>GREYWACKE</u> -garnetifeous, siliceous with po., py. and q.v.										
613'	634'	<u>MASSIVE FINE GRAINED GREYWACKE?/ANDESITE TUFF?</u>	160	622	627	5'	Nil	Nil				
634'	649'	as above 1% po. on q.v. and stringers										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
649'	652'	<u>MASSIVE F.G. ANDESITE?/GREYWACKE/TUFF?</u>										
652'	654'	as above with some q.v. and 1% po.										
654'	667'	<u>MASSIVE F.G. GREYWACKE?/ANDESITE?</u>										
667'	669'	as above but garnetiferous End Of Garnetiferous Sediments										
669'	676'	<u>MASSIVE F.G. ANDESITE TUFF?</u>										
676'	680'	Rapidly Changing Sequence -massive dark and med. grey bands and lenses tuff?										
680'	722'	<u>ANDESITE MASSIVE BARREN</u>  END OF HOLE 722' -36°										

DERRY, MICHENER & BOOTH

DIAMOND DRILL RECORD

CO - ORDS.	LOE 23N		HOLE NO:	79-5	
	1048' grid south of surveyed claim line		PROPERTY:	Onaping	
AZIMUTH:	020°		LOCATION:	Balmer Township, Red Lake, Ontario	
DIP:	-45N	DRILL TYPE & SIZE:	BQ	DATE STARTED:	October 5, 1979
ELEVATION:		DIP TESTS:	502' -38°N	DATE COMPLETED:	October 9, 1979
LENGTH:				LOGGED BY:	P. Michna
SECTION:				DATE LOGGED:	October 6-10, 1979
PURPOSE:	TEST ONE 3 LINE CONDUCTOR AND ONE SINGLE LINE CONDUCTOR AT NOTRHWEST CORNER OF PROPERTY ON EDGE OF MAG. LOW				

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	oz/ton Au	zo/ton Ag				
from	to			from	to							
0	79'	<u>OVERBURDEN</u>										
79'	124'6"	<u>IRON FORMATION</u> -siliceous, banded foliation 25° to core axis 5% dissem. po., py. along foliations and as stretched blebs, slightly carbonated occasional quartzitic pebbles & stringer zones	161	107	108	1'	Tr	Nil				
124'6"	125'	<u>TUFFACEOUS? ZONE</u> -5-7% dissem. po., py.	162	124	127	3'	Nil	Nil				
125'	127'	<u>CONGLOMERATE</u> -well fractured with relatively unfractured quartzitic angular and sub angular pebbles 5% po., py., moderately magnetic, some cherty bands										
127'	145'8"	<u>IRON FORMATION</u> -as above - 132'-132'6" conglomerate as above - 135'6"-136'6" Tuffaceous? zone	163	135	137	2'	Tr	Nil				

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
		- foliation 15° $\perp$ to core axis - 145'6"-145'8" massive quartzite (large pebble?)										
145'8"	179'6"	<u>CONGLOMERATE</u> -sub angular quartzitic pebbles slightly to moderately magnetic becomes coarser at base 5% po., py., in matrix 158'- 158'6" Tuff? - from 158'6" grades into banded sediment with occasional angular pebbles and highly magnetic po. magnetite blebs up to 1/2" in length - 164'6" massive quartzitic block 3" - 164'9"-166'6" Tuff? - 166'6" becomes highly magnetic with angular and sub angular fragments - to 179'6" more massive 5% po., py.	164	152	157	5'	Nil	Nil				
			165	175	180	5'	Nil	Nil				
179'6"	191'	<u>TUFFACEOUS</u> waterlain volc./sed. -medium/dark grey with some argillaceous bands -highly contorted (local folds?)	166	185	190	5'	Tr	Nil				
191'	194'	<u>METASEDIMENTS</u> with carbonate stringers -low sulphides -med. grey (greywacke?)	167	204	206	2'	Nil	Nil				
194'	257'	<u>IRON FORMATION</u> -dissem. po., py. -med. grey foliation 20° $\perp$ to core axis - massive virtually no q.v. or carb stringers - 204'-206' metasediments, grey massive non-mag. - 245' foliation 20° $\perp$ to core axis	178	221'6"	225'6"	4'	Nil	Nil				
			179	227	232	5'	Nil	Nil				



FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton			
from	to			from	to		Au	Ag			
257'	290'	<u>IRON FORMATION</u> -with angular and sub angular quartzitic blocks 4% po., py., moderately magnetic									
290'	448'	<u>GREYWACKE?</u> -med. grey, massive, low sulphides - some cherty bands and rare glass dark qtz. veins up to 1/4" wide - py. and magnetite on slips gradually becomes light grey and siliceous - 337'-338' small breccia zone no sulphides possible garnet pseudomorphs									
448'	474'	<u>ARGILLACEOUS METASEDIMENTS</u> -dark grey, very fine grained foliation 45° ⊥ to core axis - 1/2" wide massive po., py. at 457' and 462'									
497'	502'	<u>ARGILLACEOUS SEDIMENTS</u> -with calcite stringers but few sulphides  END OF HOLE 502' -38°									

DERRY, MICHENER & BOOTH  
DIAMOND DRILL RECORD

CO-ORDS 1.20E 6400N  
 Not tied in to Claim Line  
 AZIMUTH: 020°  
 DIP: -45°N  
 ELEVATION:  
 LENGTH: 452'  
 SECTION:  
 PURPOSE: TO TEST A WEAK EM ANOMALY ASSOCIATED WITH A MAG. HIGH

HOLE NO: 79-6  
 PROPERTY: Onaping  
 LOCATION: Balmer Township, Red Lake, Ontario  
 DATE STARTED: October 9, 1979  
 DATE COMPLETED: October 12, 1979  
 LOGGED BY: P. Michna  
 DATE LOGGED: October 10-12, 1979

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
0	42'	<u>OVERBURDEN</u>										
42'	54'	<u>GREYWACKE AND ARG. SED.</u> soft, fol. & bedding 40° └ to core axis										
54'	64'	<u>QUARTZ PORPHYRY</u> -small dark quartz eyes, HCI yields slight carbonation, 3" thick cherty lower contact, no sulphides seen										
64'	83'	<u>GREYWACKE</u> very fine grained, slightly carbonated 0.5% fine sulphides on slips softer than above, a few quartz porphyry bands										
83'	105'6"	<u>QUARTZ PORPHYRY</u> -upper contact obscure no visible sulphides										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton			
from	to			from	to		Au	Ag			
105'6"	117'	<u>SILICEOUS METASEDIMENTS &amp; QTZ. PORPHYRY</u> increasing with depth, fol. 20° to core axis, <u>HARD</u>									
117'	125'	<u>QUARTZ PORPHYRY</u> with interlayered cherty bands <u>VERY HARD</u>	170	117	119	2'	Nil	Tr			
125'	138'2"	<u>CHERTY BANDED METASEDIMENTS</u> , banding 10° to core axis <u>HARD</u>	172	130	132	2'	Nil	Nil			
138'2"	141'	<u>QUARTZ PORPHYRY</u> -cherty lower contact	171	141	143	2'	Nil	Tr			
141'	145'	<u>VERY HARD QUARTZ PORPHYRY</u> -coarser than above with (qtz. vein material?) cherty bands									
145'	158'9"	<u>QUARTZ PORPHYRY</u> -finer grained - mottled and softer to 147' - some carb. stringers from 149' - 6" Tuff? band at 150' - 1" Tuff band at 152' - 3" cherty lower contact									
158'9"	176'	<u>METASEDIMENTS</u> -siliceous -very fine grained, medium to light grey, banded possible minor andesitic flows (conchoidal fracture) - andesite tuff bands, gradational lower contact									

FOOTAGE		DESCRIPTION	SAMPLE No.	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
176'	182'	<u>QUARTZ PORPHYRY</u> -HARD -small qtz. eyes	173	181	182	1'	Nil	Nil				
182'	193'6"	as above but <u>VERY HARD</u> with qtz. veins, free qtz., stringers -coarser grained	174	182	185	3'	Nil	Nil				
			175	190'6"	193'6"	3'	Nil	Nil				
193'6"	199'6"	<u>CHERTY METASEDIMENTS</u> -HARD -2% fine sulphides occur as elongate grains parallel to foliation 7° ⊥ to core axis	176	193.6"	195'6"	2'	Nil	Nil				
			177	185	187	2'	Nil	Nil				
199'6"	210'	as above but rare sulphides, gradational contacts										
210'	216'	<u>ANDESITE?</u> grey, very fine grained conchoidal fracture and possible Tuff bands										
216'	242'	<u>IRON FORMATION</u> -CONGLOMERATE - sub angular to rounded quartzitic pebbles - 220'6" becomes magnetic with 5% po. - 227 cherty bands with <u>MAGNETITE</u> and 2% very fine sulphides - 232 rounded quartzitic pebbles with fine magnetite in matrix and in cherty bands	180	226	231	5'	Nil	Nil				
242'	253'	<u>IRON FORMATION</u> - <u>CHERTY BANDED</u> with magnetite, hard, slightly carbonated - 245'-247' siliceous zones -medium grained with carbonate										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
253'	259'	<u>QUARTZ PORPHYRY</u> -dark qtz. eyes	181	252	255	3'	Nil	Nil				
259'	263'	<u>GREYWACKE</u> -softer than above, mottled grey fine grained										
263'	265'6"	<u>ARGILLACEOUS SEDIMENTS</u> -soft, dark with carbonate stringers										
265'6"	267'	<u>QUARTZ PORPHYRY</u>										
267'	277'	<u>ARG. SEDS.</u> with carb. stringers -soft - 273' becomes light mottled greywacke bedding 10° ⊥ to core axis										
277'	285'	<u>CHERTY BANDED METASEDIMENTS</u> -a few magnetite bands, rare sulphides										
285'	334'	<u>GREYWACKE</u> -soft mottled grey minor cherty zones bedding approx. 8° ⊥ to core axis										
334'	347'	<u>CHERTY BANDED SEDS.</u> -HARD -gradational contacts										
347'	351'	<u>GREYWACKE</u> -mottled grey										
351'	354'	<u>QTZ. PORPHYRY</u> -rare dark qtz. eyes dissem. fine sulphides	182	352	355	3'	Nil	Nil				

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
354'	361'	<u>CHERTY DARK SEDIMENTS</u> -very fine grained, hard - concordant dissem. fine pyrite										
361'	377'6"	<u>GREYWACKE</u> -soft, mottled grey - 370'-371' cherty bands 5° to core axis - 373' cherty band 1' -2% dissem. po., py. - 376'6"-377'6" cherty lower contact										
377'6"	428'	<u>GREENSTONE</u> -(ANDESITE) -generally massive with some tuff zones, garnetiferous zones and rare bladed hornblende - 427'-428' cherty lower contact										
428'	435'	<u>COARSE ANDESITE OR HORNBLLENDE AMPHIBOLITE</u> - lower gradational contact										
435'	443'	as above but more siliceous, minor sulphides on slips										
443'	452'	<u>COARSE ANDESITE</u> 1-2% po.,py. -some garnetiferous zones become finer at 447'  END OF HOLE 452' -41°N										

DERRY, MICHENER & BOOTH

CO-ORDS L4E 2+1S  
 261' south of baseline (on backchained picket 2+00S)  
 AZIMUTH: 020°

DIAMOND DRILL RECORD

HOLE NO: 79-7

PROPERTY: Onaping

DIP: -55N DRILL TYPE & SIZE: BQ LOCATION: Balmer Township, Red Lake, Ontario  
 ELEVATION: DIP TESTS: 750' -38°N DATE STARTED: October 14, 1979  
 1297' -38°N DATE COMPLETED: October 20, 1979  
 LENGTH: LOGGED BY: P. Michna  
 SECTION: DATE LOGGED: October 15-21, 1979  
 PURPOSE:

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
0	97	OVERBURDEN -sandy with granitic boulders										
97	117	ARGILLACEOUS SEDIMENTS -carb. stringers -minor sulphides on slips bedding 20° ⊥ to core axis										
117	151	GREYWACKE -soft gradational contacts -tuff bands up to 3" thick										
151	169	ARGILLACEOUS SEDIMENTS -gradational contacts										
169	174	GREYWACKE										
174	184	QTZ.-FSP. PORPHYRY -no dark qtz. eyes -blocky fracture 1% sulphides - (a dirty arkosic quartzitic rock also suggested)	184	174	176	2'	Nil	Nil				
		- cherty lower contact	185	179	182	3'	Nil	Nil				
184	191	GREYWACKE? -massive fine grained grey										

FOOTAGE		DESCRIPTION	SAMPLE №:	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
191	201	<u>DARK DENSE FINE GRAINED MASSIVE METASEDIMENTS</u> - tending towards being cherty -sulphides on slips, bedding 20° ⊥ to core axis										
201	208'4"	<u>QTZ. PORPHYRY WITH SED. BANDS</u> - 204-6 Arg. with qtz. carb. - 204- Arg. seds. band										
208'4"	239	<u>QTZ. PORPHYRY</u> -massive - 217- Arg. Sed. band - 224 becomes coarser grained - 236 becomes finer grained										
239	242'2"	<u>CONTACT ZONE</u> -cherty, 2% sulphides	186	240	242	2'	Nil	Nil				
242'2"	249	<u>QTZ. FSP. PORPHYRY</u> -white phenocrysts up to ¼" - rare sulphides -(arsenopyrite?)	187	247	249	2'	Nil	Nil				
249	270	<u>ARG. SEDS. AND GREYWACKE</u> -soft - banded - bedding 15° ⊥ to core axis - 261-262 QTZ. FSP. PHRY.										
270	347	<u>QTZ. PORPHYRY</u> - 280-281 Arg. Seds. - 284 fractures parallel to core axis, blocky fracture rare sulphides - minor sed. bands and variation within unit samples taken of silicified zones	188	271	274	3'	Nil	Nil				
			189	340	342	2'	Nil	Nil				
			190	345	347	2'	Nil	Nil				



FOOTAGE		DESCRIPTION	SAMPLE No.	FOOTAGE		LENGTH	oz/ton	oz/ton				
from	to			from	to		Au	Ag				
347	354	<u>CHERTY SEDIMENTS? - DARK VERY FINE GRAINED</u>										
354	490	<u>QUARTZ PORPHYRY WITH BANDED METASEDIMENTS</u> - 404-411 dark arg. seds. - 422-425 dark arg. seds. with carb. stringers, fracture parallel to core axis - 448-454 dark fig. seds. banded 22° ⊥ core axis - 476-478 silicified zone, minor po., py., carb. - 485-487 qtz. vein & stringers, silicified minor po., py., on veins - 488-490 silicified zone or cherty lower contact	191 192 193	476 485 488	478 487 490	2' 2' 2'	Tr Nil Nil	Nil Nil Tr				
490	511	<u>GREYWACKE</u> -banded, soft < 1% fine dissem. pyrite. fine bedding 10° ⊥ to core axis										
511	552	as above but harder with fewer beds - softer from 538 - darker at 548										
552	558	<u>CARBONATE BRECCIA</u> -broken core - possible fault gouge with qtz. phry. type rock lacking dark qtz. eyes - becomes finer grained at base	194	552	557	5'	Nil	Tr				
558	573	<u>GREYWACKE</u> -massive soft - gradational lower contact										

FOOTAGE		DESCRIPTION	SAMPLE No:	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
573	621'4"	<u>QUARTZ PORPHYRY</u> -varying grain size - 595 cherty contact - well broken core to 605'fracture zone? - fractures parallel to core axis - coarse and hard 610-621'4"	195	599	602	3'	Nil	Tr				
621'4"	662	<u>GREYWACKE</u> -soft - minor po., py., -slightly magnetic on some beds, concordant sulphides $8^{\circ} \perp$ core axis - 629-631 carbonate breccia zone, moderate magnetism po., py., on slips - 631-661'9" greywacke with cherty bands hard slightly magnetic, bedded - 661'9"-662 cherty lower contact										
662	665	<u>QUARTZ PORPHYRY</u> -fine grained po., py., on slips										
665	667	<u>METASEDIMENTS AND QUARTZ PORPHYRY</u>	196	670	673	3'	Nil	Nil				
667	679	<u>QUARTZ-FELDSPAR PORPHYRY</u> -coarse grained rare sulphides -(possibly sphalerite trace?) - white phenocrysts make unit distinct										
679	687	<u>QUARTZ PORPHYRY</u> with some metased bands - slightly magnetic on contacts po., py., on slips										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
687	699	<u>QUARTZ FELDSPAR PORPHYRY- COARSE GRAINED, WHITE PHENOCRYSTS</u>										
699	749	<u>QUARTZ PORPHYRY</u> -some metased bands with slightly magnetic contacts - rare po., py.										
749	774	<u>QUARTZ PORPHYRY AND GREYWACKE</u> -softer than above gradation contact into greywacke										
774	782'6"	<u>GREYWACKE</u> -garnetiferous bands	197	782	787	5'	Nil	Nil				
782'6"	799	<u>CHERTY METASEDIMENTS</u> -highly contorted, dark slightly carbonated 1% po., py., possible trace Cu, carb. stringers -slight magnetism	198	787	792	5'	Nil	Nil				
799	841	<u>ARGILLACEOUS SEDEMENTS</u> -soft, bedding 4° core axis, some massive bands of po. also blebs up to ½" thick -magnetic, a few garnets - contorted at base	199	839	842	3'	Nil	Nil				
841	847	<u>QUARTZ MONZONITE PORPHYRY</u>										
847	861	<u>METASEDIMENTS</u> -cherty upper and lower contacts - some garnetiferous beds										

FOOTAGE		DESCRIPTION	SAMPLE No.	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
861	897	<u>QUARTZ MONZOMITE PORPHYRY - "BREWIS TYPE?"</u> - sericitization in upper portion- secondary quartz eyes with inclusions of matrix material - indistinct albite or microcline phenocrysts - concordant to bedding planes - possible trace galena*	*200	885	887	2'	Nil	Nil				
897	944	<u>ARGILLACEOUS SEDS.</u> and garnetiferous greywacke	15712	887	892	5'	Nil	Nil				
			15713	892	895	3'	Nil	Nil				
944	946	<u>CHERTY SILICEOUS ZONE</u>	15714	944	946	2'	Nil	Nil				
946	948	<u>MASSIVE PYRITE AND QUARTZ</u>	15715	946	948	2'	Nil	Nil				
948	971	<u>CONGLOMERATE</u> -quartzitic pebbles- sub angular and rounded some po., py., in matrix; magnetic in occasional cherty bands, sericitization at base										
971	983	<u>ARGILLACEOUS SEDIMENTS</u> -soft - some cherty bands with magnetite - some garnetiferous greywacke bands										
983	1008	<u>CONGLOMERATE</u> -softer than above - dark arg. matrix with some po., py. - slightly magnetic										
1008	1010	<u>GREYWACKE &amp; ARG. SEDE.</u> -some garnets										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
1010	1012	<u>SILICIFIED SEDS. &amp; QTZ. VEIN</u> -no visible metallics	15716	1010	1012	2'	Nil	Nil				
1012	1026	<u>GREYWACKE</u> -garnetiferous -up to 1% po.,py.										
1026	1071	<u>ARGILLACEOUS SEDIMENTS</u> -rare cherty bands with magnetite -py. on slips -some qtz. phry. - darker at base -contorted at base										
1071	1132	<u>QUARTZ PORPHYRY</u> -few quartz eyes - some sed. bands with garnets - 1131-1132 carb. stringers with py.	15717	1131	1132	1'	Tr	Nil				
1132	1199	<u>GREYWACKE</u> -mottled massive -some cherty bands										
1199	1210	<u>CHERTY METASEDIMENTS</u> -possible sericitization - fol. normal to core axis										
1210	1292	<u>GREYWACKE</u> -as above - 1260-1273 V.F.G. HARD SILICEOUS ZONE -(arseno?) -massive	15718 15719	1258 1263	1259 1268	1' 5'	Nil Nil	Nil Nil				

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton	oz/ton	Cu%			
from	to			from	to		Au	Ag				
1292	1297	CHERTY ZONE (1' of broken core returned for 5')										
		- (possible rare acicular arsenopyrite)	15723	1286	1289	3'	Nil	Nil	-			
		- copper or brass coloured metallic smear on	15720	1289	1291	2'	Tr	Nil	-			
		core -(brazing from bit when plugged)	15721	1291	1292	1'	Nil	Nil	-			
			15722	1292	1297	5'	Tr	Nil	Tr			
		END OF HOLE 1297' - 38°N										

DERRY, MICHENER & BOOTH  
DIAMOND DRILL RECORD

CO-ORDS: L40E approx. 39+20N  
250' south of survey claim boundary  
AZIMUTH: 020°

HOLE NO:  
79-9

PROPERTY: Onaping

DIP: -45°N

DRILL TYPE & SIZE: BQ

LOCATION: Balmer Township, Red Lake  
Ontario

ELEVATION:

DIP TESTS: 352' -45°N

DATE STARTED: October 20, 1979

DATE COMPLETED: October 23, 1979

LENGTH: 372'

LOGGED BY: P. Michna

SECTION:

DATE LOGGED: October 22-23, 1979

PURPOSE: TO DRILL THE QUARTZ PORPHYRY WHICH YIELDED VALUES IN ALEXANDER HOLES TO NORTH, SECOND HOLE INTO CONDUCTOR OBTAINED IN 79-1

FOOTAGE		DESCRIPTION	SAMPLE NO.	FOOTAGE		LENGTH						
from	to			from	to							
0	85	OVERBURDEN -includes 3' granitic boulder										
85	278	ANDESITE -pyritic up to 0.5% dissem. pyrite - rare pyrrhotite on fractures/carb. stringers - 87'- bull quartz for 2" - pyrrhotite & pyritic hornblende amphibolitic zones up to 2" - foliation normal to core axis - possible tuffaceous andesite @ 149' for 1' - becomes more massive at base - slightly coarser 183-203										
278	282	ANDESITIC TUFF? -softer -mottled dissem. rare pyrrhotite, pyrite										
282	336	ANDESITE as above - massive - no carb stringers in amphibolite from 294-301										

FOOTAGE		DESCRIPTION	SAMPLE Nº:	FOOTAGE		LENGTH	oz/ton Au	oz/ton Ag				
from	to			from	to							
336	372	ANDESITIC TUFF -finely dissem. pyrrhotite, pyrite (possibly arseno.?) -some mineralized quartz stringers	15724	343	348	5'	Nil	Nil				
			15725	348	353	5'	Tr	Nil				
			15726	353	354	1'	Tr	Tr				
			15727	354	356	2'	Nil	Nil				
			15728	356	358	2'	Nil	Nil				
			15729	358	361	3'	Tr	Nil				
			15730	371	372	1'	Nil	Tr				
				END OF HOLE 372' -45°N								



B. & C. LTD.

APPENDIX 3

DIAMOND DRILL SECTIONS

LEGEND

PRECAMBRIAN - ARCHEAN

- 7 Hypabyssal Intrusive Rocks  
a - quartz porphyry; quartz feldspar porphyry
- 6 Metamorphosed Intrusive Rocks  
a - diorite; hornblende diorite (may be coarse andesite)  
c - carbonate
- 5 Metasediments - Chemical  
a - chert; cherty quartzite  
b - ferruginous chert; banded iron formation;  
banded sediments, undifferentiated
- 4 Metasediments - Clastic  
c - conglomerate  
d - greywacke  
e - mudstone; slate; argillite
- 4 Metasediments - Undifferentiated
- 2 Metavolcanics - Intermediate to Felsic  
a - tuff  
c - carbonate  
d - massive to foliated dacite
- 1 Metavolcanics - Mafic to Intermediate  
a - massive to foliated andesite, fine grained  
b - pillowed  
c - carbonate bearing  
d - massive to foliated andesite, medium-coarse  
grained; may be intrusive in part (amphibolitic)  
f - amygdular  
h - tuff  
l - lapilli  
t - flow top

MINERALIZATION

- q - Quartz blebs  
qv- quartz vein  
s - sulphide  
cp- chalcopyrite  
py- pyrite  
asp-arsenopyrite  
c - carbonate bearing

Note: Assays not shown are nil or trace

GEOPHYSICS

.857  
magnetometer reading

x - EM crossover

L-36E,35N 747  
D.D.H. 79-1 (-45°)

900

1531

XEM

2287

1277

770

Az 020°

615

0/B

1A,C

6A or 1A

1A

100'

6A,C

1A,C

200'

1A or hornblende amphibolite  
tracts magnet (p, yrr)

1A, C, py  
altered zone  
schist (shear zone)

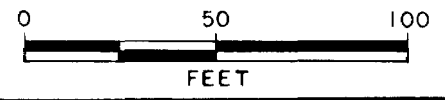
1A, C, py, p, yrr

py

300'

1A

348'



DERRY MICHENER & BOOTH		
ONAPING RESOURCES LTD.		
BALMER TWP. RED LAKE, ONT.		
D.D.H. 79-1		
FACING WEST		
Date: Oct. 1979	By: P. Michno	Dwg No.

465 490 1029 850 527 643

L-52 E, 21+50N

D.D.H. 79-2 (-45°)

O/B many boulders

IAC

weathered fracture / fault

IAC (dyke material)

5A

IAC breccia

5B

100'

IA

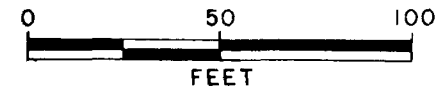
IA with 4D-E

200'

IH with 4D/E  
garnet pseudomorphs + garnet bands

272'

471  
Az 020°



DERRY MICHENER & BOOTH		
ONAPING RESOURCES LTD.		
BALMER TWP. RED LAKE, ONT.		
D.D.H. 79-2		
FACING WEST		
Date: Oct. 1979	By: P. Michno	Dwg. No.

852

L-44E, 14N  
D.D.H. 79-3 (-45°)

894

1082  
EM

1176

1166

1120  
EM

1190

2624

1880

958

655

605

Az 020°

0/B

5A, S, C  
7A

4E

100'  
7A

4E+7A interbanded

4E soft

4E cherty, S (4% dissem)  
silicified zone 15% dissem. sulphides

4E

200'  
4D

garnetiferous  
calcareous light grey no sulphides

4D, po, py, (cp), C  
weakly magnetic

300'  
5B-(4D)  
4D

5B strongly magnetic—magnetite, py, po  
5B moderate magnetite

400'  
4D

5B intensely fract. po, py, 2-5%  
po, s. (tr. sphalerite)

4D transition to I.F.  
5B  
4D

5B 2-5% po, py  
4D

5B lacy microveinlets po, py  
4D

5B  
4D

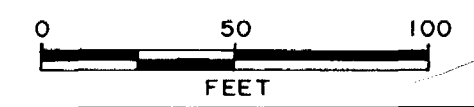
600'  
4D-1H, P  
4D

po, py stringers 1% S  
4D, 1H, 1A

garnetiferous rock ends  
1H, P  
1A-1H, P

700'  
1A

722'



DERRY MICHENER & BOOTH		
ONAPING RESOURCES LTD.		
BALMER TWP. RED LAKE, ONT.		
D.D.H. 79-3		
FACING WEST		
Date: Oct. 1979	By: P. Michna	Dwg. No.

826

736

L-O, 23N  
D.D.H. 79-5 (-45°)

886

935  
EM

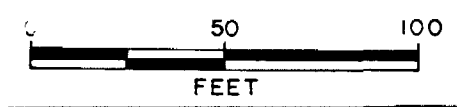
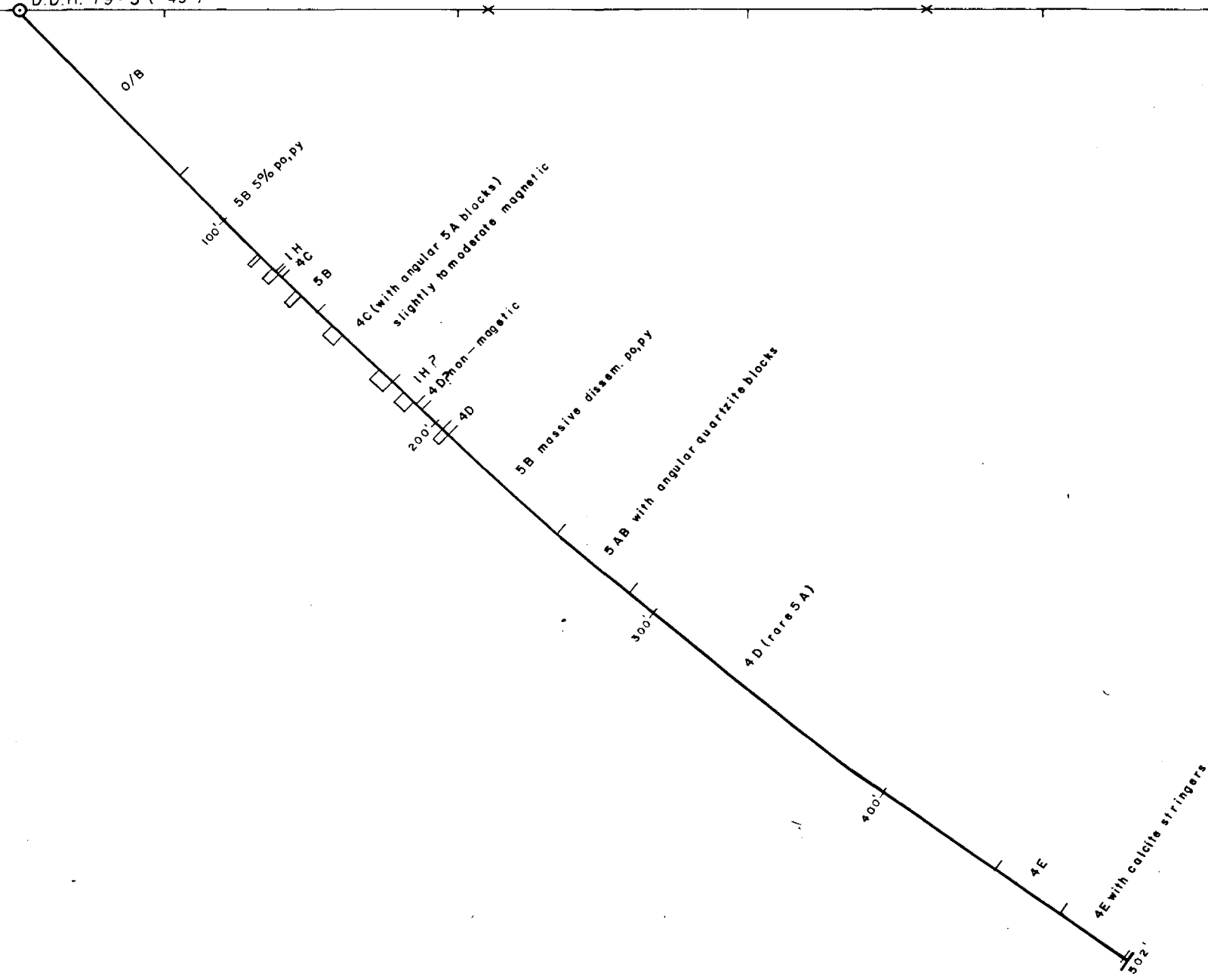
771

EM

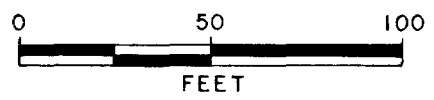
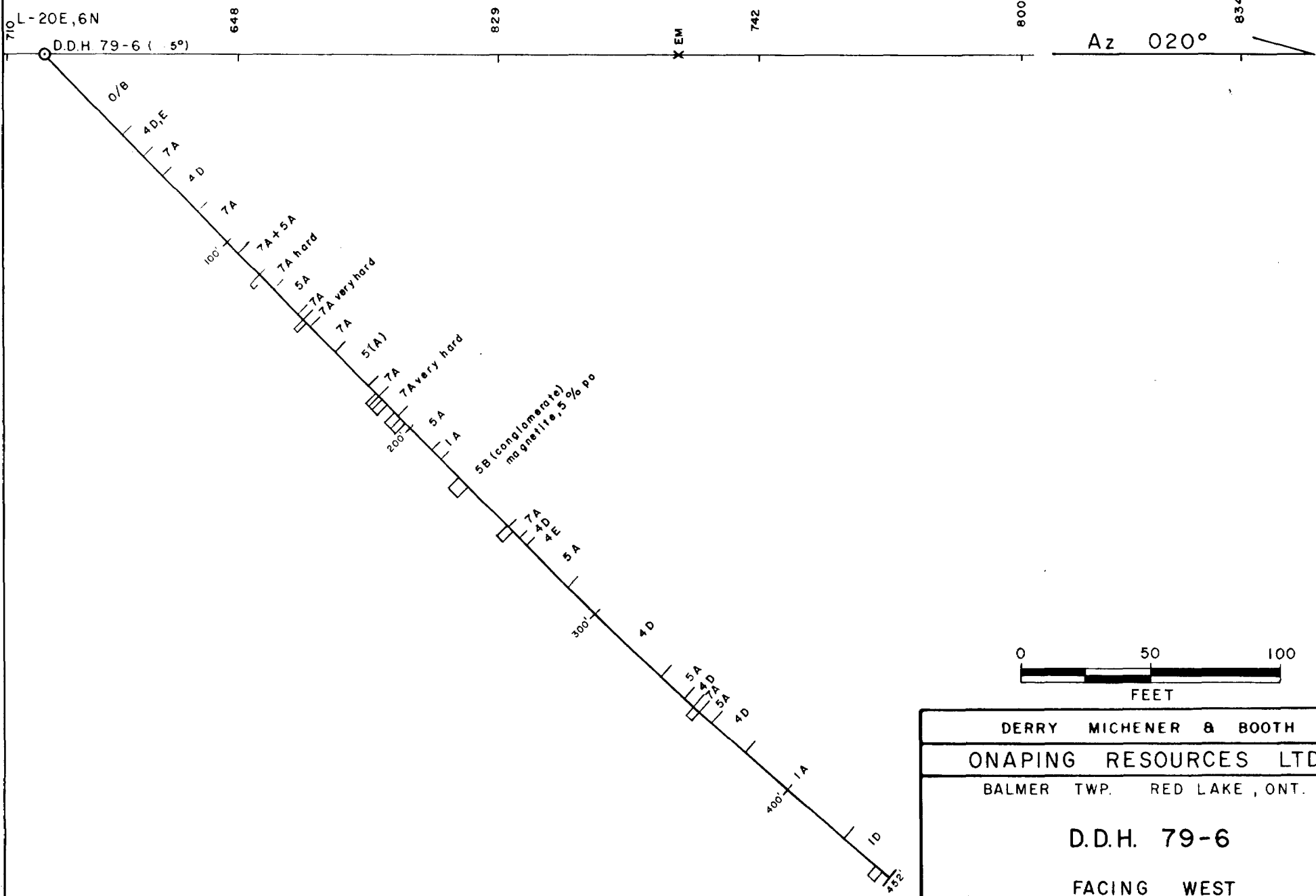
104

458

Az 020°



DERRY MICHENER & BOOTH		
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BALMER TWP. RED LAKE, ONT.		
D.D.H. 79-5		
FACING WEST		
Date: Oct. 1979	By: P. Michna	Dwg. No.



DERRY MICHENER & BOOTH		
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D.D.H. 79-6		
FACING WEST		
Date Oct. 1979	By. P. Michna	Dwg No

618  
L-40E, approx. 39+20N  
D.D.H. 79-9 (-45°)

468

513

Az 020°

O/B  
includes 3'  
granitic boulder

100'

ID,C, po, py  
up to 2' bands of hornblende  
amphibulite with 1-2% po, py

tuff

200'  
coarser grained

300'

IH

ID,C as above

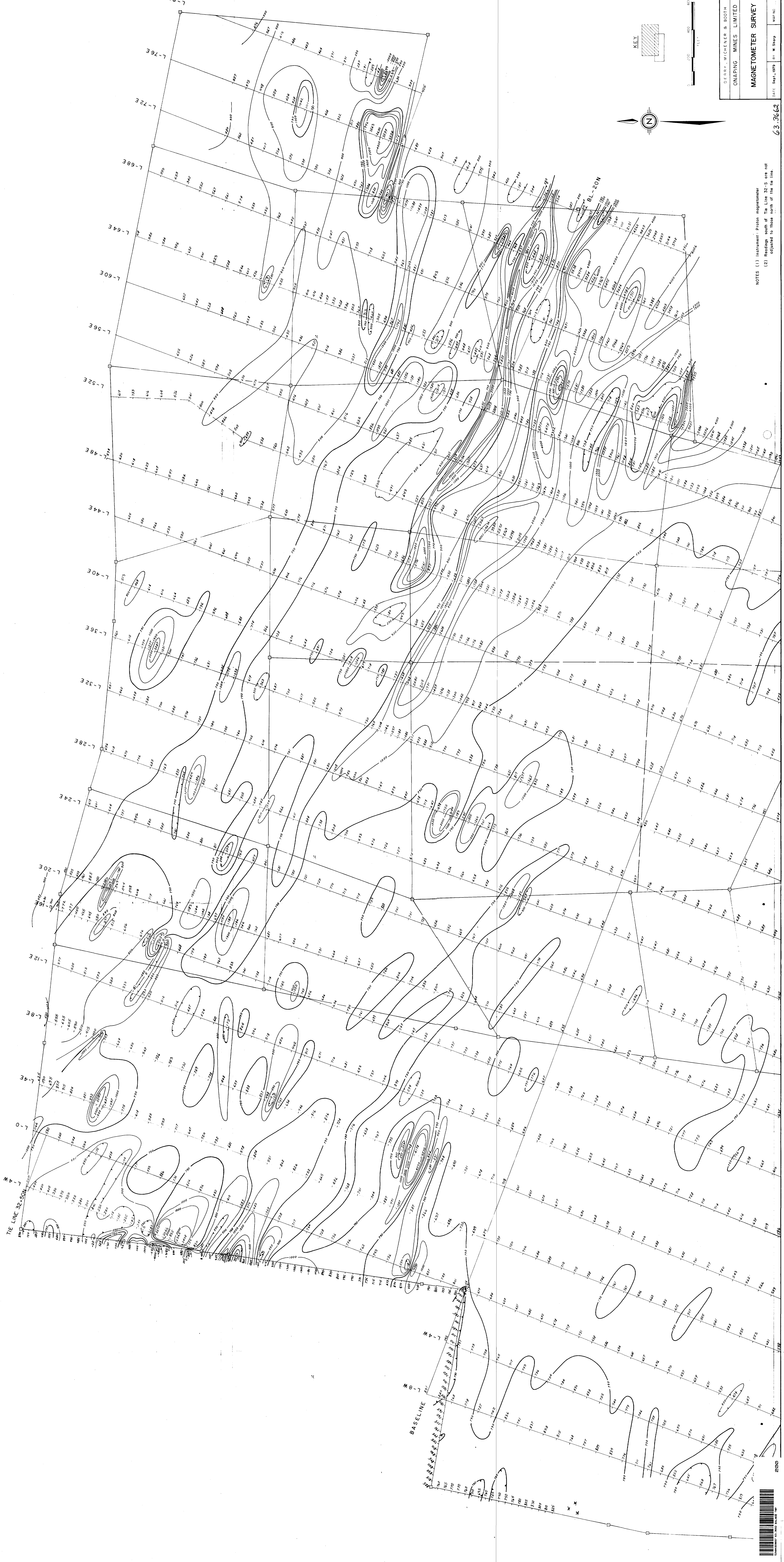
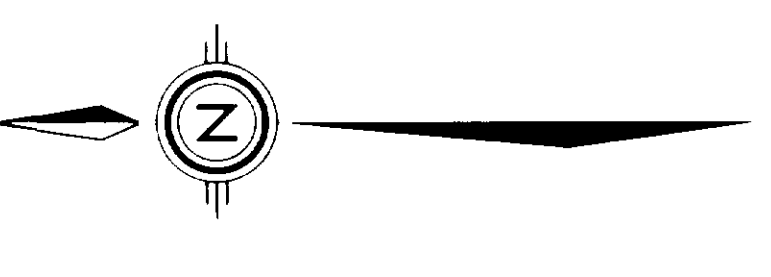
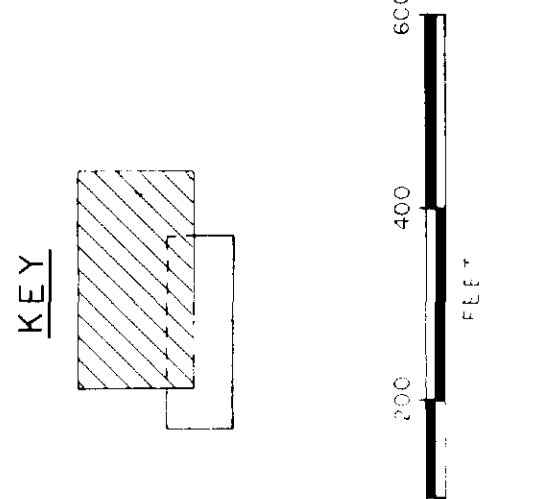
IH finely dissem sulfides  
po, py (poss. arseno)  
qtz stringers, mottled grey - brown

372'

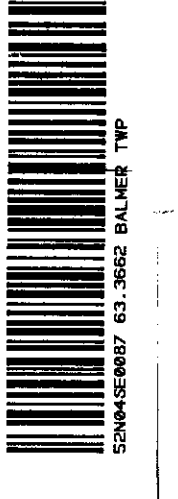


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BALMER TWP. RED LAKE, ONT.		
D.D.H. 79-9		
FACING WEST		
Date: Oct. 1979	By: P. Michna	Dwg No





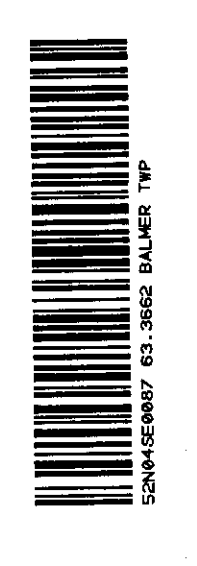
NOTES (1) Instrument: Proton magnetometer  
 (2) Readings south of Tie Line 32-5 are not adjusted to those north of the line.



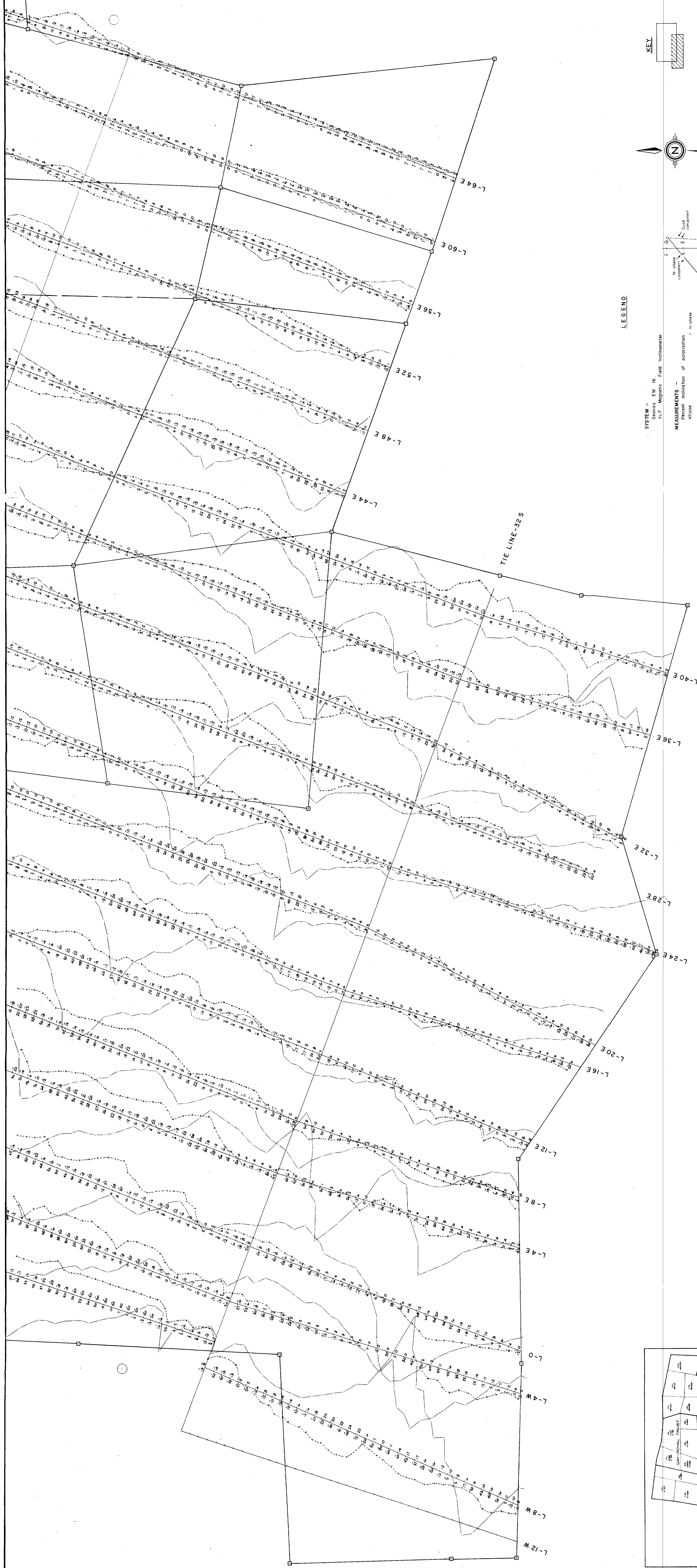




NOTES (1) Instrument - Proton magnetometer  
 (2) Readings south of Tie Line 32-S are not adjusted to those north of the tie line.



63-3662



**KEY**

0 200 400 600  
FEET

**LEGEND**

SYSTEM -  
 Geonics EM 16  
 VLF Magnetic Field Inclinator

**MEASUREMENTS -**  
 Percent inclination of polarization ellipse  
 Percent ellipticity of polarization ellipse  
 Ellipse measured in vertical plane combining maximum component of the horizontal polarization ellipse

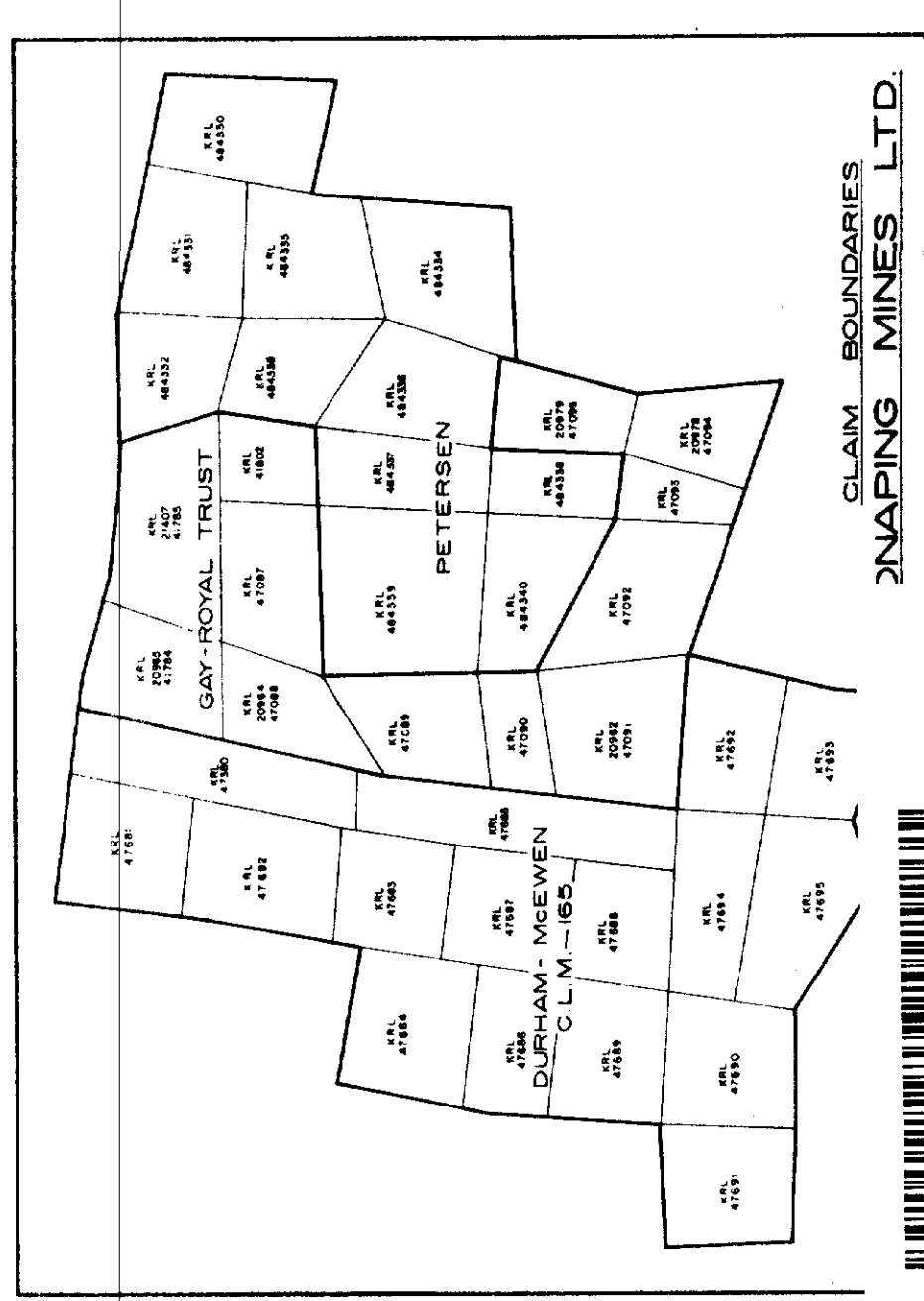
In-phase component  
 Out-of-phase component

% 30 20 10 0 -10 -20 -30

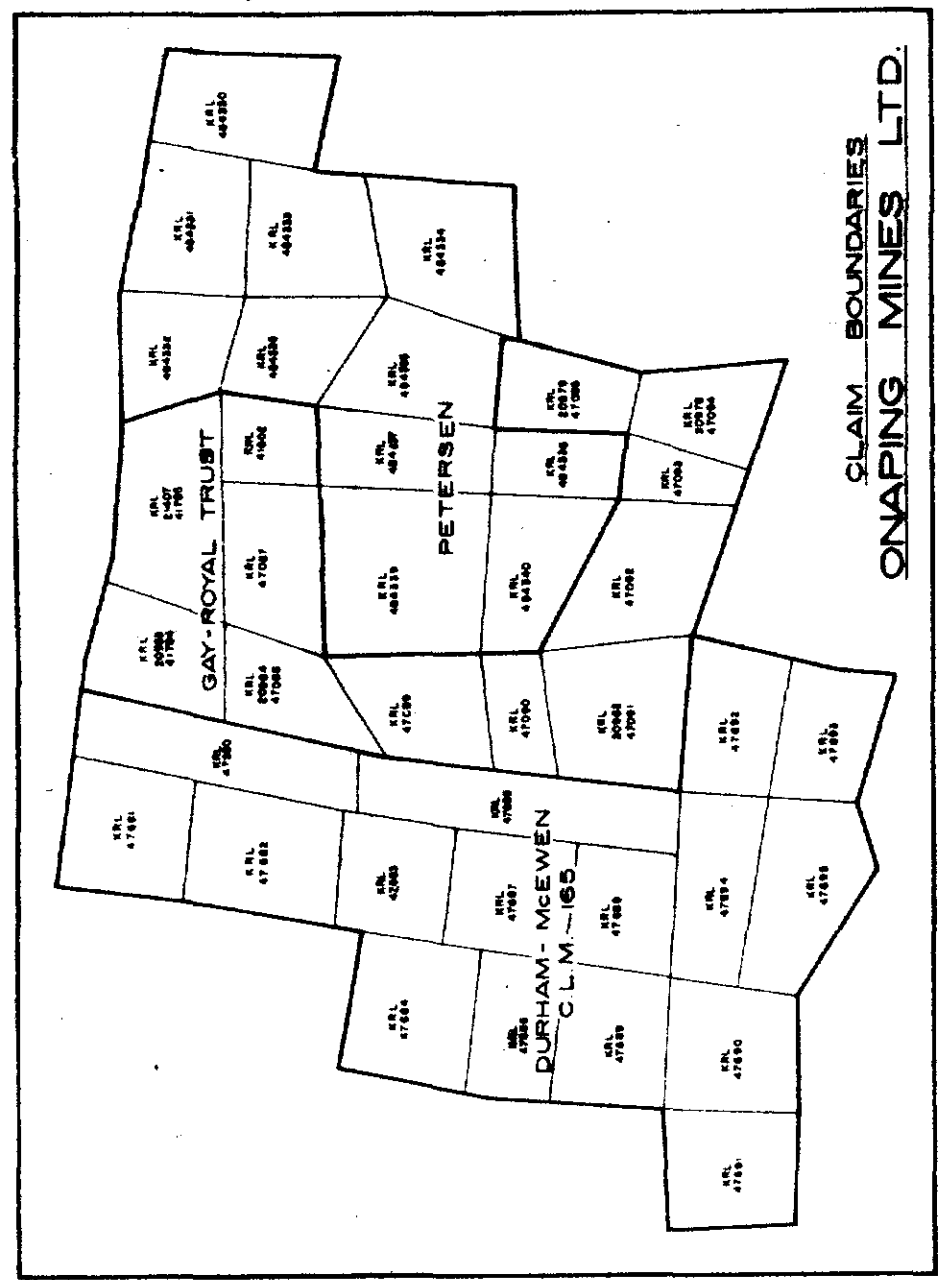
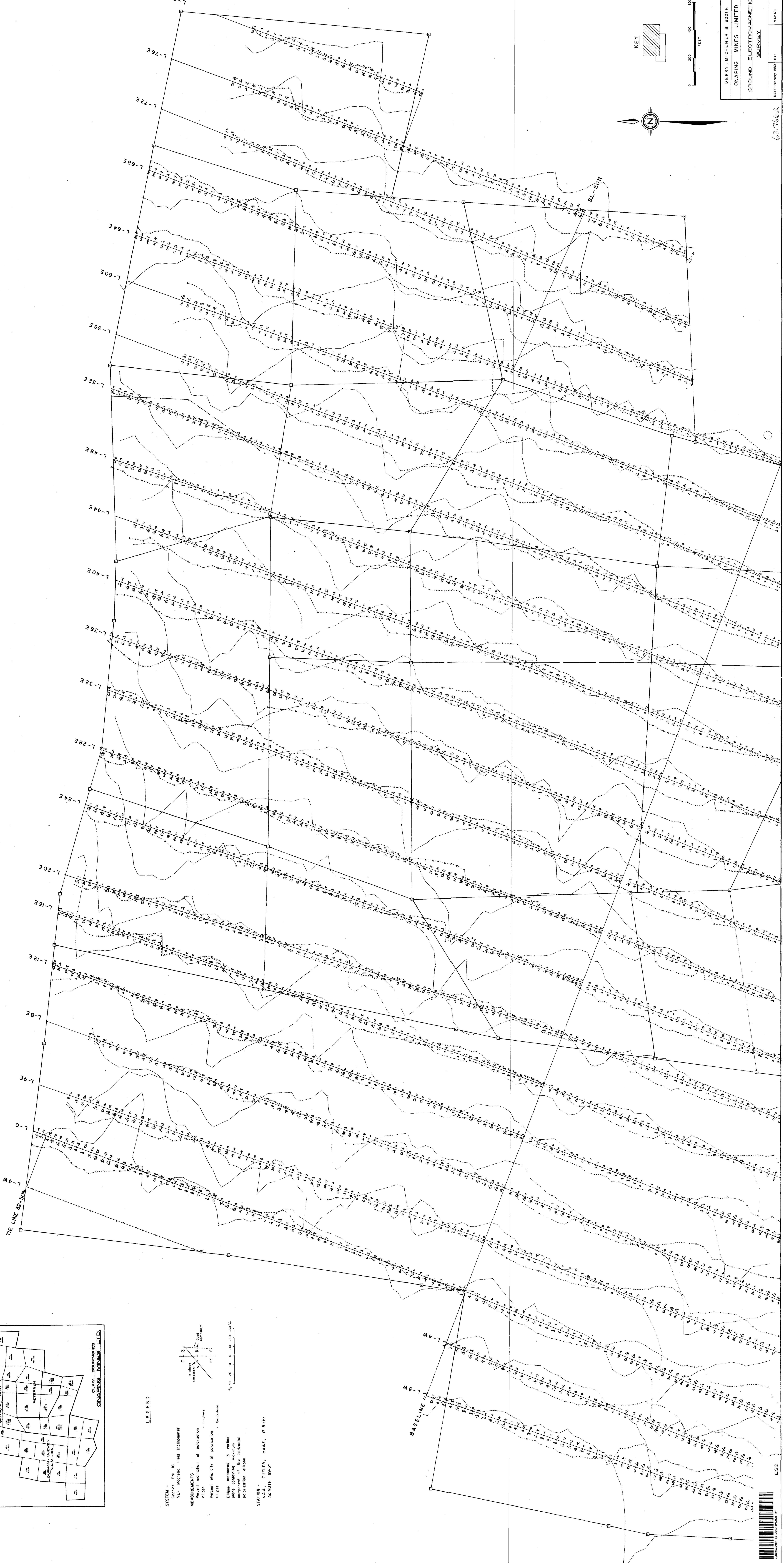
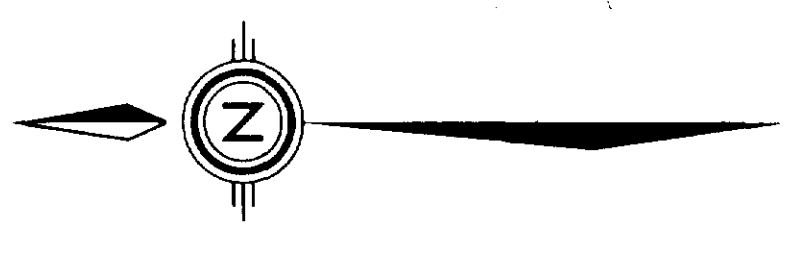
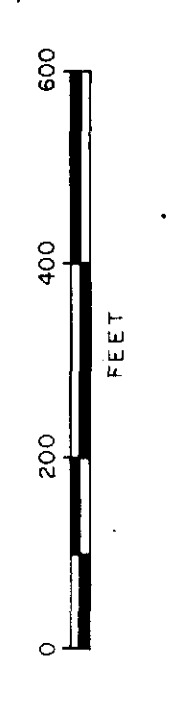
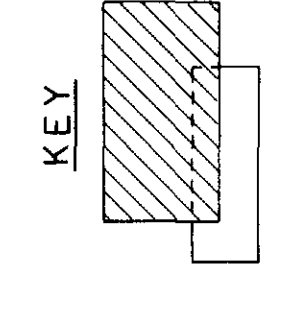
STATION -  
 N.A.A., CUTLER, MAINE, 17.8 MHZ.  
 AZIMUTH 99.3°

DERRY, MICHENER & BOOTH  
 ONAPING MINES LIMITED  
 GROUND ELECTROMAGNETIC SURVEY

DATE February 1980 BY: MAP NO.



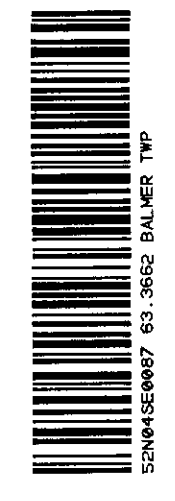




**LEGEND**

**SYSTEM** - EM 16  
 Geodesy, EM 16  
 U.C.I. Magnet, Field Indicator  
**MEASUREMENTS** -  
 Percent inclination of polarization  
 Percent ellipticity of polarization  
 Ellipse measured in vertical plane containing maximum polarization ellipse  
 Ellipse measured in horizontal plane containing maximum polarization ellipse  
 In above  
 Total stress  
 % 30 20 10 0 -10 -20 -30%

**STATION** - CUTLER, MAINE, 17 84N  
 N.A.S.  
 AZIMUTH 093°

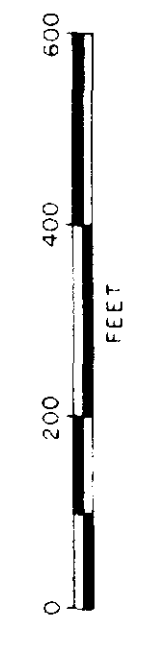
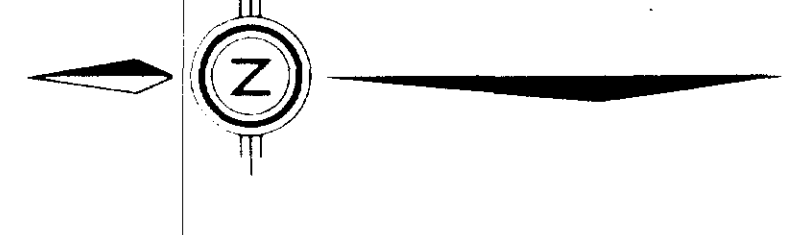




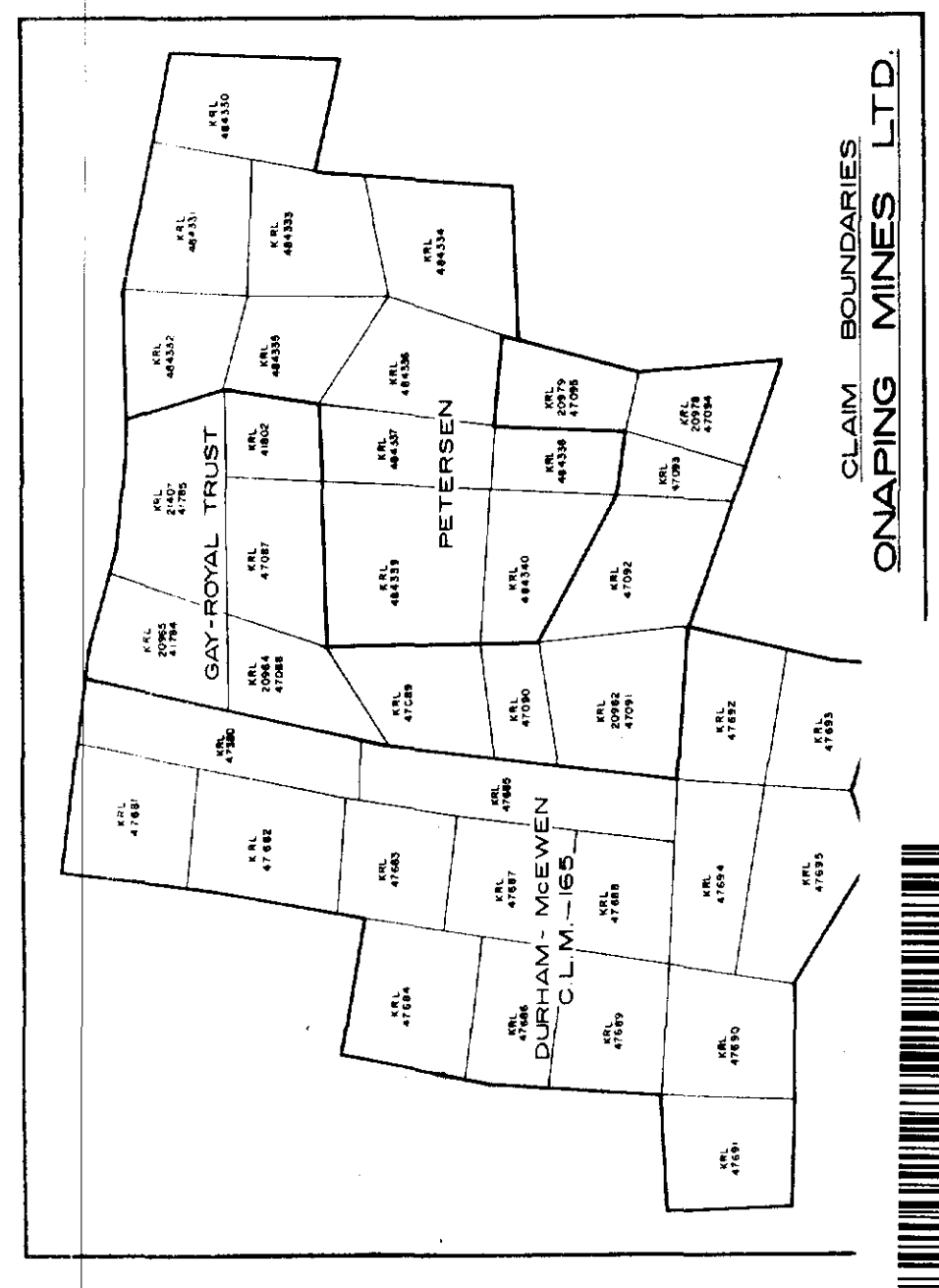


**LEGEND**

- CONDUCTOR AXIS -** Clear  
 Uncertain  
 With strong magnetic correlation  
 Magnetic correlation  
 Possible magnetic correlation
- RESISTIVITY STRUCTURAL CORRELATION LINES -**
- PRINCIPAL MAGNETIC ANOMALIES -**  
 (250 contour from magnetic map, with adjustments for anomalies of inverted polarity.)
- CLAIM LINES -**  
 Position from magnetic map  
 Position from Property Completion Map
- A E M ANOMALIES -**  
 Air E M Survey (input system)  
 From Derry, Michener & Booth  
 Property Completion Map
- KEY**
- Flight line  
 Number of channels

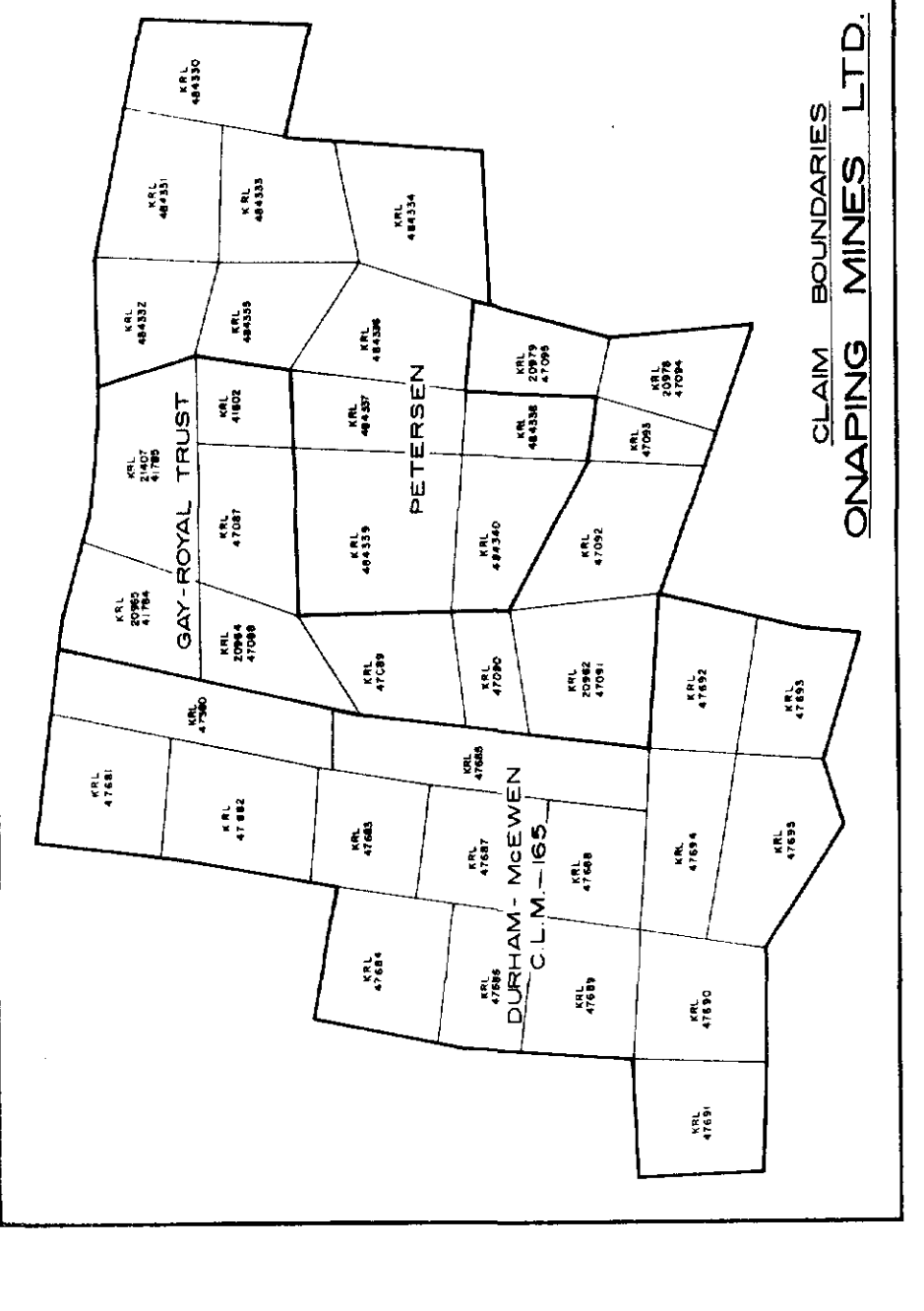
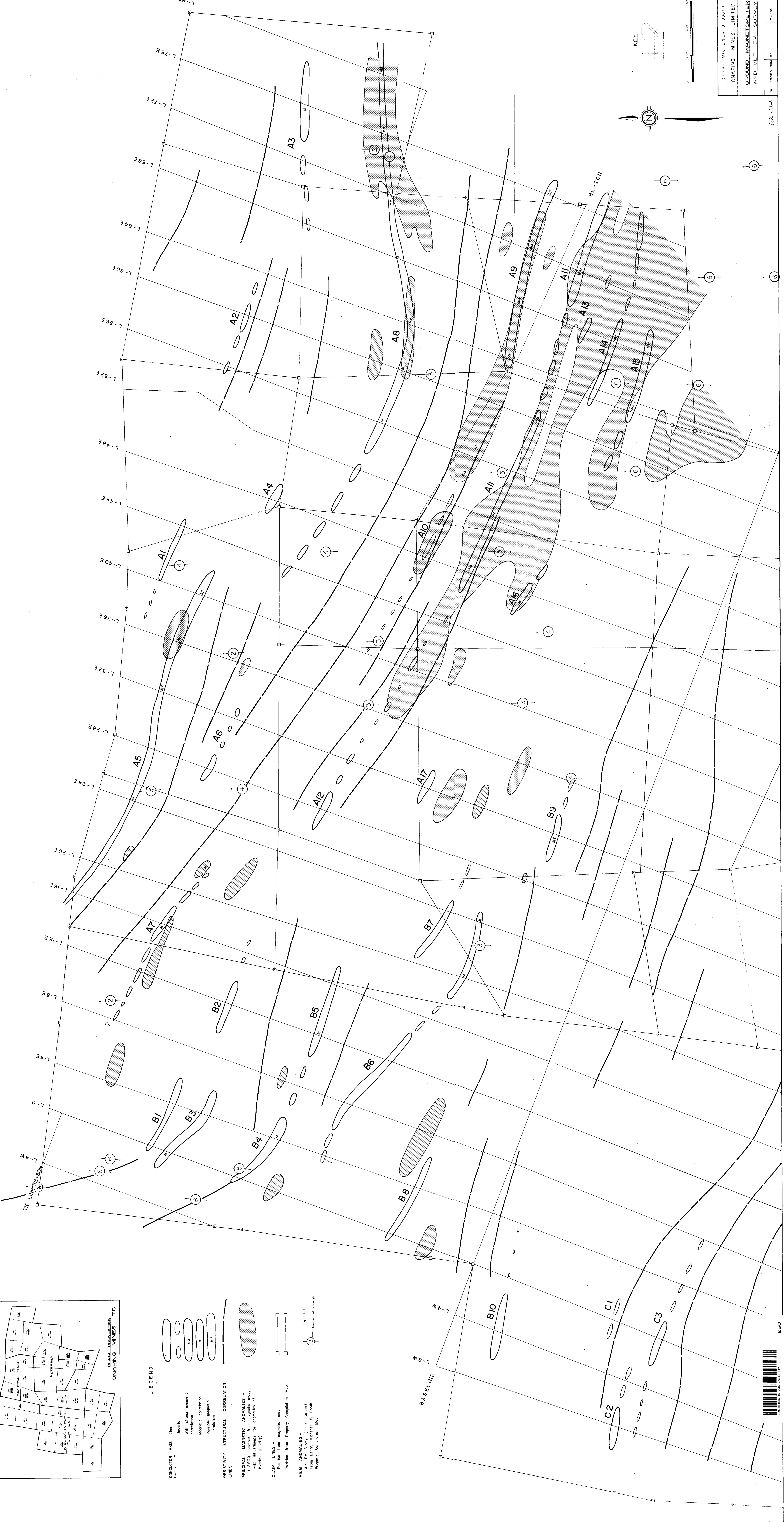
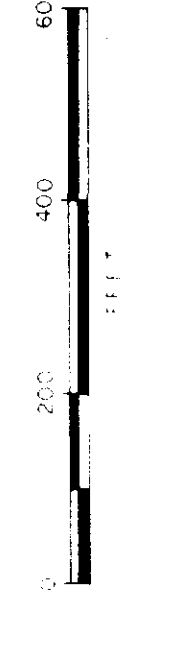
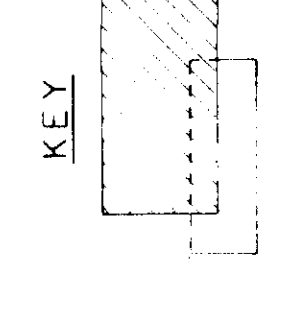


DERRY, MICHENER & BOOTH  
 ONAPING MINES LIMITED  
 GROUND MAGNETOMETER  
 AND VLF EM SURVEY  
 DATE REPORT 1980 BY  
 MAP NO



63,362





**LEGEND**

**CONDUCTOR AXIS:** Clear  
 Uncertain  
 With strong magnetic correlation  
 Magnetic correlation  
 Possible magnetic correlation

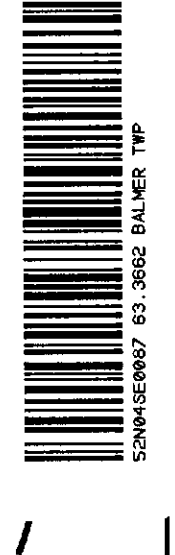
**RESISTIVITY STRUCTURAL CORRELATION LINES:**

**PRINCIPAL MAGNETIC ANOMALIES:** (1500γ contour from magnetic map, with adjustments for anomalies of same polarity)

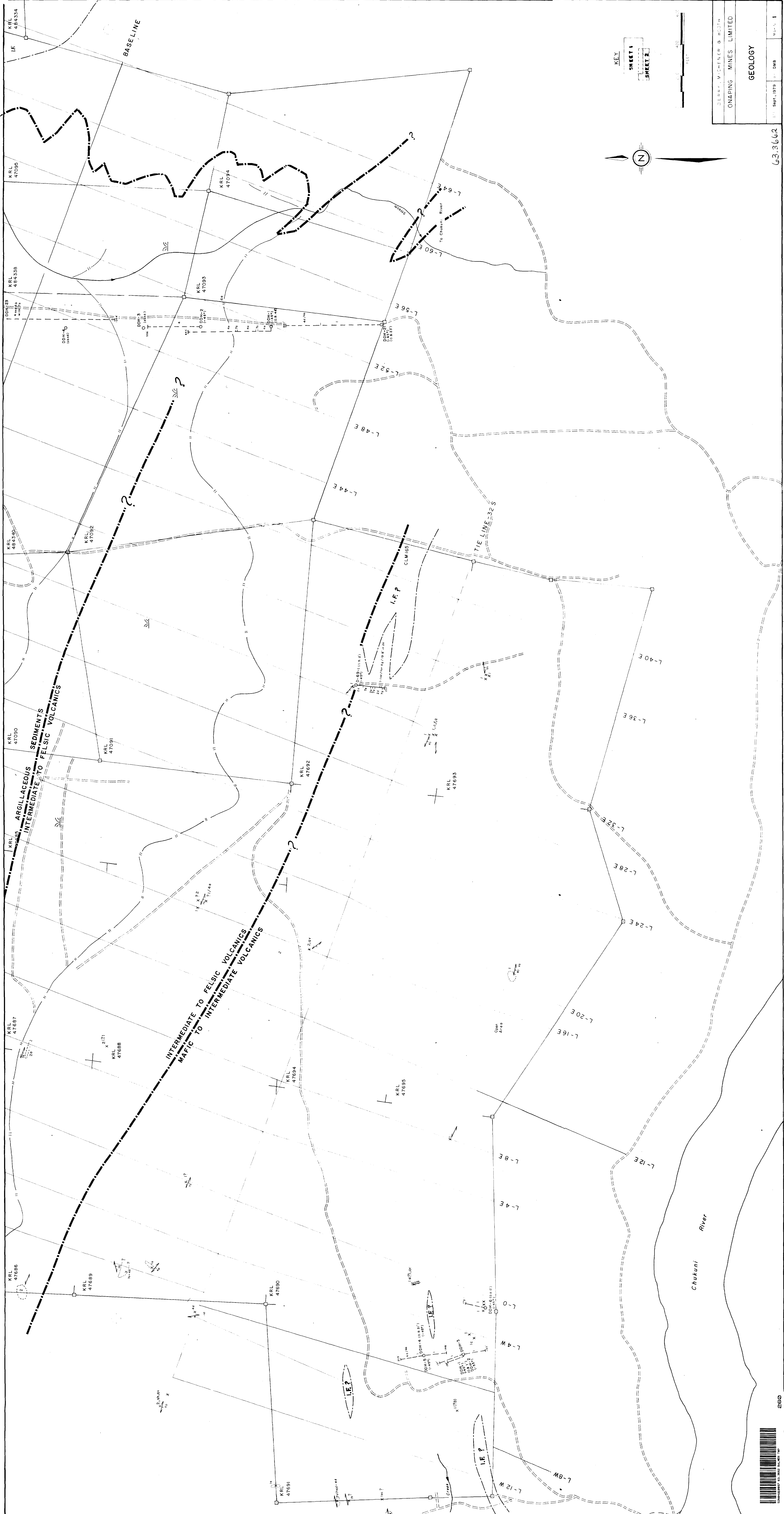
**CLAIM LINES:** Position from magnetic map  
 Position from Property Completion Map

**AEM ANOMALIES:** (loop system)  
 Air EM Survey (loop system)  
 Ground Magnetometer (Both)  
 Property Completion Map

(2) Flight line  
 (2) Number of channels







IF  
KRL 47095  
KRL 47094

DDM-3  
KRL 4814338  
KRL 47093

KRL 484350  
KRL 47092

KRL 47090  
KRL 47091

KRL 47687  
KRL 47688  
KRL 47689

KRL 47686  
KRL 47689

KRL 47691  
KRL 47690

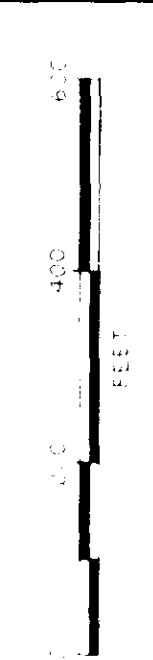
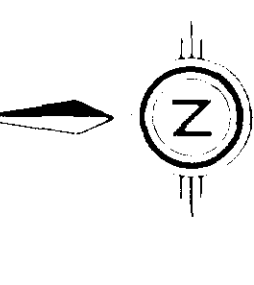
BASELINE

INTERMEDIATE TO FELSIC VOLCANICS  
MAGIC TO INTERMEDIATE VOLCANICS

ARGILLACEOUS  
INTERMEDIATE TO FELSIC VOLCANICS

L-44E  
L-48E  
L-52E  
L-56E  
L-60E  
L-64E

TIE LINE-32 S



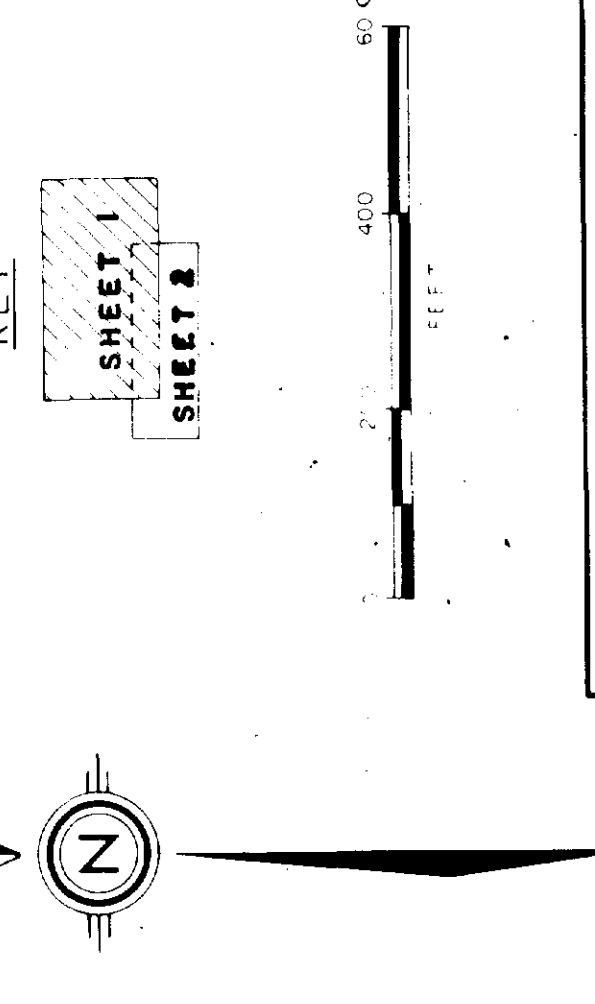
KEY  
SHEET 1  
SHEET 2

DERRY, W. CHENER & BODIN	
ONAPING MINES LIMITED	
GEOLOGY	
SEP. 1975	D.M.B.
PAGE 1	



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**MINERALIZATION**

- q - quartz blebs
- sp - sphalerite
- cp - chalcopyrite
- asp - arsenopyrite
- f - fluorite
- l - flow top

**Geological Symbols**

- - area of outcrop
- x - small outcrop
- - foliation, with strike and dip (if measured)
- - geological boundary; observed, inferred
- - old drill hole collar, located in field, with number, azimuth, (D.R. "overburden thickness)
- - old drill hole collar, not located in field
- - outcrop(s)
- B - boulder, float
- sh - sheared
- br - brecciated
- f.g. - fine grained
- pillow - pillow

**Other Symbols**

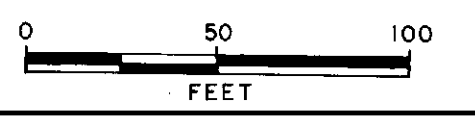
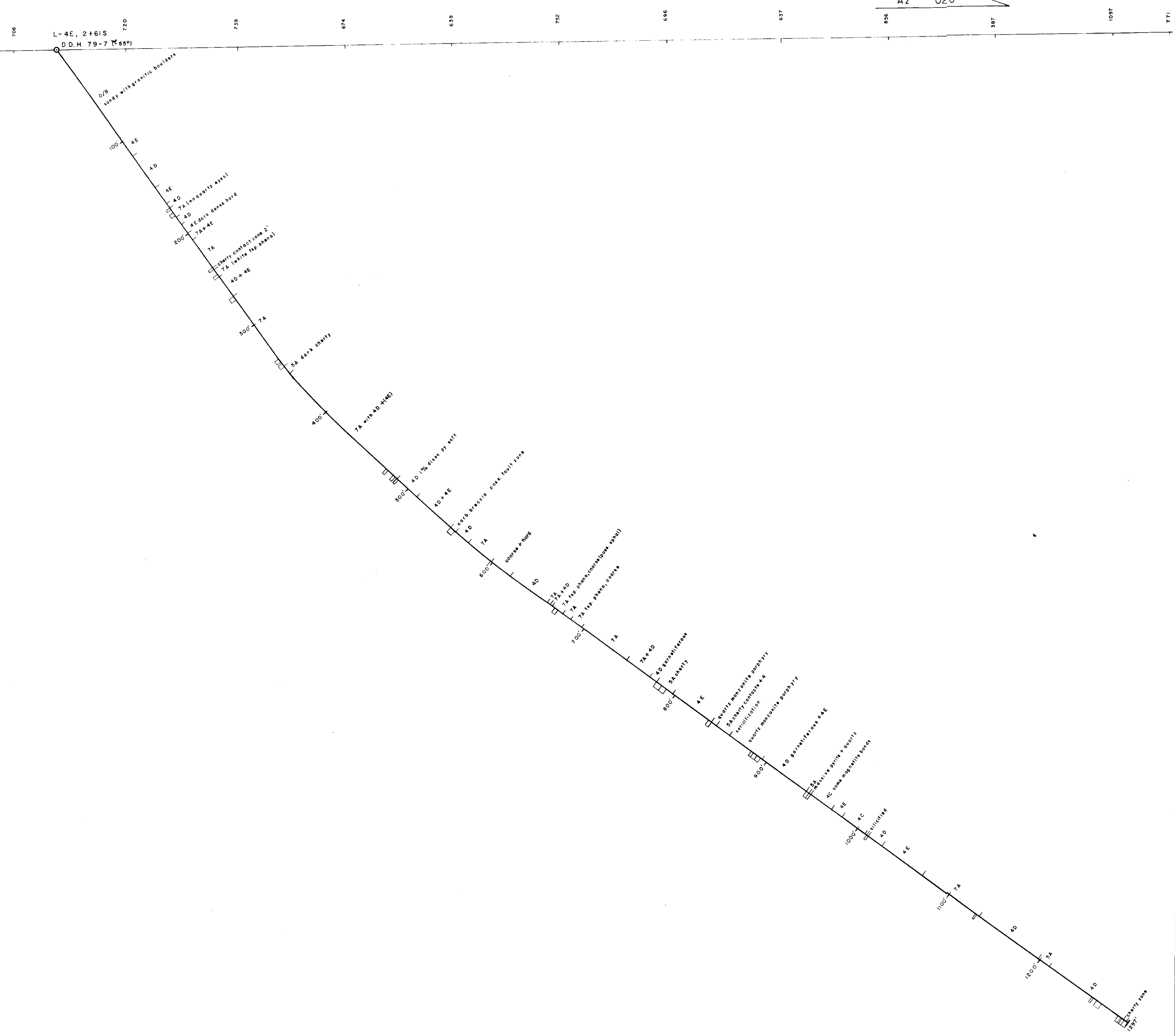
- - claim post; claim boundary; surveyed, unsurveyed
- CLM 155 - internal claim boundaries
- - track; trail
- - hut
- - marshy area
- - stream, creek

(Note: Assays not shown are nil or trace)

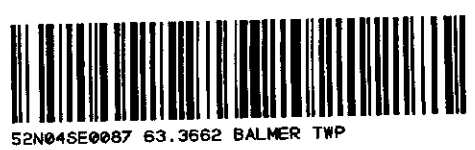


Az 020°

L- 4E, 2+61S  
D.D.H. 79-7 (265°)



DERRY MICHENER & BOOTH		
ONAPING RESOURCES LTD.		
BALMER TWP. RED LAKE, ONT.		
D.D.H. 79-7		
FACING WEST		
Date: Oct. 1979	By: P. Michna	Dwg. No.



52N04SE0087 63.3662 BALMER TWP