4479

93L/9E, 16E

GEOPHYSICAL SURVEY DATA

TYPE OF SURVEY:	Time Domain Induced Polarization Survey.
CLAIMS SURVEYED:	Part of TACHI and TAK group, 5 miles south of Topley Landing, lat. 54° 45'N., long. 126° 11'W.
SURVEYED BY:	C.J. Wiles, B.Sc., and J. Lobach, B.Sc., Geoterrex Ltd., Ottawa
SUPERVISION AND REPORT BY:	J. Lloyd, M.Sc., P.Eng., Eagle Geophysics Ltd., Vancouver
CLAIMS HELD BY AND SURVEYED FOR:	Perry, Knox, Kaufman Inc.
SURVEY DATES:	May 7th to May 21st, 1973

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4479 MAP .....

A REPORT ON

A TIME DOMAIN INDUCED POLARIZATION SURVEY

FOR

PERRY, KNOX, KAUFMAN, INC.

SURVEYED BY

GEOTERREX LIMITED
OTTAWA, ONTARIO, CANADA

MAY 1973

A GEOPHYSICAL REPORT ON A TIME DOMAIN INDUCED POLARIZATION SURVEY ON THE TACHI AND TAK CLAIM GROUP NEAR TOPLEY LANDING, BRITISH COLUMBIA, FOR PERRY, KNOX, KAUFMAN, INCORPORATED

by

John Lloyd, M.Sc., P.Eng.
Eagle Geophysics Limited
Vancouver, British Columbia

SUMMARY

During the period May 7th to May 21st, 1973, Geoterrex Limited carried out a time domain Induced Polarization (IP) survey on a part of the TACHI and TAK mineral claim group located near Topley Landing in British Columbia.

Two anomalous zones, worthy of further investigation by diamond drilling, have been established. To evaluate these zones some 4800 feet of drilling has been recommended. The completion of the programme will depend on the results of the first 800 feet of drilling on each zone.

TABLE OF CONTENTS

1. INTRODUCTION

During the period May 7th to May 21st, 1973 an Induced Polarization (IP) Survey was carried out by Geoterrex Limited of Ottawa, Ontario for Perry, Knox, Kaufman, Incorporated on a portion of the TACHI and TAK mineral claim group located near Topley Landing, British Columbia.

The TACHI and TAK claim group comprises eighty-two (82) contiguous full sized and fractional mineral claims identified as follows:-

Claim Name	Record Number	Metal Tag Number
TACHI 1	62181	
TACHI 2	62182	
TACHI 3	62183	
TACHI 4	62184	
TACHI 5	62185	
TACHI 6	62186	
TACHI 7	62187	
TACHI 8	62188	
TACHI 9	62189	
TACHI 10	62190	
TACHI 11	62191	
TACHI 12	62192	
TACHI 13	62193	
TACHI 14	62194	
TACHI 15	62195	
TACHI 16	62196	
TACHI 18	63154	
TACHI 20	63156	
TACHI 47	63183	
TACHI 49	63185	
TACHI 51	63187	

Claim Name	Record Number	Metal Tag Number
TACHI 53	63189	
TACHI 55	63191	
TACHI 57	63193	
TACHI 58	63194	
TACHI 59	63195	
TACHI 60	63196	
TACHI 61	63197	
TACHI 62	63198	
TACHI 63	63199	
TACHI 64	63200	
TAK 10	117777	
TAK 11	117778	
TAK 12	117779	
TAK 13	117780	
TAK 14	117781	
TAK 15	117782	
TAK Fraction 1		75788M
TAK Fraction 2		75789M
TAK Fraction 3		75790M
TAK Fraction 4		75791M
TAK Fraction 5		75798M
TAK Fraction 6		75799M
TAK Fraction 7		75800M
TAK Fraction 8		407050M
TAK Fraction 9		407049M
TAK Fraction 10		407048M
TAK Fraction 11		407047M
TAK Fraction 12		407046M
TAK Fraction 13		407045M
TAK Fraction 14		407044M
TAK Fraction 15		407043M

Claim Name	Record Number	Metal Tag Number
TAK 16		407001M
TAK 17		407002M
TAK 18		407003M
TAK 19		407004M
TAK 20		407005M
TAK 21		407006M
TAK 22		407007M
TAK 23		407008M
TAK 24		407009M
TAK 25		407010M
TAK 26		407011M
TAK 27		407012M
TAK 28		407013M
TAK 29		407014M
TAK 30		407015M
TAK 31		407016M
TAK 32		407017M
TAK 33		407018M
TAK 34		407019M
TAK 35		407020M
TAK 36		407021M
TAK 37		407022M
TAK 38		407023M
TAK 39		407024M
TAK 40		407025M
TAK 41		407026M
TAK 42		407027M
TAK 43		407029M
TAK 44		407030M
TAK Fraction 16		407028M

1.1 Property Location

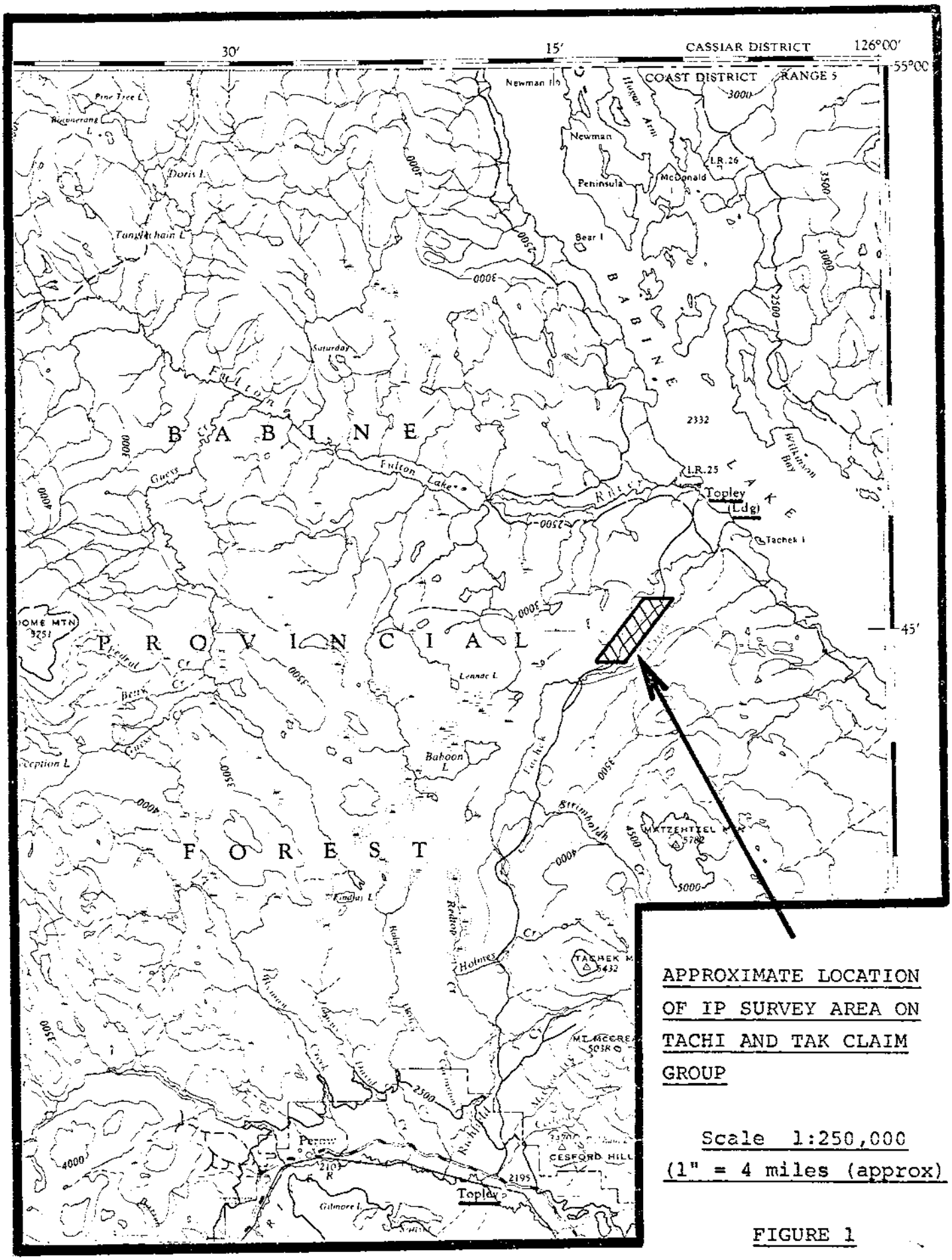
The property is located on Tachek Creek about 4 to 5 miles south of Topley Landing at latitude 54° 45'N., longitude 126° 11'W. The approximate location of the claim group is shown in Figure 1.

1.2 Property Access

The property can be reached by two wheel drive vehicle by travelling approximately 20 miles north northeast of Topley on the Topley-Granisle road.

1.3 Purpose of Survey

The purpose of the present IP survey was to search for economic concentrations of disseminated mineralization which have been predicted to occur beneath approximately 300 feet of glacial till at a geologically interesting contact between basic volcanic rocks and acidic intrusive rocks. This type of geological contact and the rocks immediately adjacent to it have received concentrated exploration efforts in this general area with the view to discovering a low grade porphyry copper deposit.



APPROXIMATE LOCATION OF IP SURVEY AREA ON TACHI AND TAK CLAIM GROUP

Scale 1:250,000
(1" = 4 miles (approx)

FIGURE 1

4479-M2

2. INSTRUMENT SPECIFICATIONS

The IP equipment used to carry out this work was a time domain measuring system. The transmitter and motor generator were manufactured by Huntec Limited of Toronto, Ontario while the receiver was manufactured by Scintrex Limited also of Toronto, Ontario.

The transmitter, series Mark II, which provides a maximum of 7.5 kw D.C. to the ground, obtains its power from a 7.5 kw, 400 cycle, three phase Leland alternator driven by a two cylinder Onan engine. The total cycle time for the transmitter is 8 seconds and the duty ratio (R) is 1:1. This means the cycling rate of the transmitter is 2.0 seconds current "ON" and 2.0 seconds current "OFF" with the pulses reversing continuously in polarity.

The receiver, model IPR7, measures the apparent chargeability (M_a) by integrating the area under the decay curve for 650 milliseconds with a delay of 450 milliseconds. This delay under most geological conditions largely eliminates the influence of electromagnetic transient effects. Besides the apparent chargeability which is read directly on a meter scale, it is possible to measure the "complement" (L) of the decay curve and thus obtain a curve shape factor. In this fashion it is possible to learn more about the nature of the sources of anomalous chargeability and the influence of electromagnetic transients. Since the signal to noise ratio increases approximately as the square root of the number of readings taken, effective filtering is achieved by the automatic summing of as large a number of readings as necessary.

The receiver is internally calibrated to a standard established by Newmont Mining Company prior to their developing

the present equipment. The internal calibration is such that the receiver sees or measures as if the transmitter timing sequence were a reversing 3 second "ON", 3 second "OFF" series of pulses, with the secondary voltage being the average of the positive and negative integrals for 1 second for each complete cycle.

The primary voltage ($\overline{V_p}$) is read directly on a meter scale. The apparent resistivity (ρ_a) is ohm-metres is obtained by dividing ($\overline{V_p}$) by the measured current (I_g) and multiplying by a factor (K), which is dependent on the geometry of the array used. The absolute value of ($\overline{V_p}$) is obtained by multiplying the meter reading by the scale factor of the input attenuator.

The chargeabilities and resistivities obtained are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous, the calculated apparent chargeabilities and resistivities are functions of the actual chargeabilities and resistivities of the rocks.

The apparent chargeability readings are shown in milliseconds. This is an unfortunate choice of units, since the millisecond as such has never been referred to any specific set of cycling, integrating and delay times in induced polarization terminology. This means the data obtained by different receivers, utilizing different timing parameters, will yield different relative values, although the majority of geophysicists using time domain equipment today, still quote their measurements in units of milliseconds. For example the values obtained with the equipment used on this survey are approximately twice those which would have been obtained using a Mark I IP receiver manufactured by Huntec Limited and having a fixed delay time of 15 milliseconds, a fixed integrating time of 400 milliseconds working in conjunction with a transmitter having a fixed cycling time of 1.5 seconds current "ON" and 0.5 second current "OFF".

3. SURVEY SPECIFICATIONS

The dipole-dipole array was used for this IP survey. With this array the distance between the two current electrodes C_1 and C_2 and the distance between the two potential electrodes P_1 and P_2 were maintained at a constant fixed distance apart; this distance is known as the dipole length (a). The electrode separation (na), that is the distance between C_1 and P_1 is equal to or some multiple of the distance between C_1 and C_2 which in turn is also equal to the distance between P_1 and P_2.

The dipole length (a) determines mainly the sensitivity of the array whereas the electrode separation (na) determines mainly the depth of penetration of the array with respect to the size of the body being sought.

All lines were surveyed with a dipole length (a) equal to 400 feet. Measurements of apparent resistivity and apparent chargeability were made for the first, second, third and fourth electrode separations, that is for n = 1, 2, 3 and 4. Where the signal strength was sufficient to give a meaningful reading measurements for the fifth separation, that is for n = 5, were also recorded. For all separations measurements were taken at 400-foot station intervals.

4. PRESENTATION OF DATA

The data obtained from the survey described in this report are presented in the form of psuedo-sections or data plots.

The values of apparent resistivity and apparent chargeability for each pair of dipole locations are plotted at the intersection of lines which originate from the centre of each transmitting and receiving dipole and are drawn at 45° to the horizontal.

Map number E73176-1M is a geological map of a portion of the property, showing the location of the IP survey lines, along with the location of the claims covered by the IP survey. The scale of this map is 1 inch equals 400 feet.

All the IP data acquired are shown on ten (10) psuedo-sections bound into the back of this report. The line numbers and corresponding pseudo-section or drawing numbers are tabulated below:-

Line Drawing	Drawing Number
1S	E73176-1D
2S	E73176-2D
3S	E73176-3D
4S	E73176-4D
5S	E73176-5D
6S	E73176-6D
7S	E73176-7D
8S	E73176-8D
9S	E73176-9D
10	E73176-10D

The horizontal scale of these psuedo-sections is 1 inch equals 1 dipole length that is 1 inch equals 400 feet.

5. DISCUSSION OF RESULTS

Induced polarization interpretation procedures have been most completely developed in situations of mineralized horizontal layering, where the electrode separations used are small compared with the lateral extent of the mineralized bodies. Geologically, the porphyry coppers of large lateral extent are practical examples where such interpretation procedures can be used to best advantage.

For more confined bodies, where the electrode separations used are often large compared with the lateral extent of the bodies themselves, the complex problem of resolving the combined effects of depth, width, thickness and true chargeability of such bodies together with the physical characteristics of the overburden and country rocks have only recently been studies in detail. The results of much of this work remain as yet unpublished. The interpreter must therefore use empirical solutions, type curves obtained from theoretical investigations, plus experience gained from surveys over known orebodies and the results of both computer and tank model studies.

From a study of a series of type curves for a body of some specific size, true chargeability, shape and depth of burial it is clear that each curve for each particular electrode separation has a definitive shape. By plotting these curves in the form of contoured pseudo-sections or data plots a clearly defined anomaly pattern emerges. However these contoured plots are not sections of the electrical properties of the subsurface strata, and should not be treated as such when attempting to determine the depth, width and thickness of a body which produces an anomalous pattern.

In general a favourable anomaly shows a chargeability high, an associated resistivity low which in turn produces a strong metal factor high. This situation is ideal and applies more specifically to massive sulphide deposits. A chargeability high with little or no change in resistivity produces a metal factor anomaly of similar amplitude. Distinct resistivity lows having little or no chargeability response, but producing moderate amplitude metal factor responses are, in the present geological environment, anomalies of considerably less interest.

Anomalies are classified into three groups: definite, probable and possible. This grouping is based on the relative amplitudes of the apparent chargeability, the apparent resistivity and to a lesser degree the apparent metal factor. Of equal importance in the grouping of these anomalies is the overall anomaly pattern and the degree to which this pattern may be correlated from line to line. Such a correlation, particularly for very weak anomalies, increases considerably their attractiveness as potential drilling targets.

The data plots bound into the back of this report do not show the calculated apparent metal factor data.

5.1 Geology and Mineralisation

The TACHI claim group is characterized by low relief except along the canyon of Tachek Creek where steep bluffs up to 150 feet high are present. Glacial till masks bedrock in most of the prospect area; the few outcrops that are exposed occur along Tachek Creek and other drainages, and on some of the small knolls in the area. Interpretation based on the few outcrops exposed indicates the presence of a NNE (?) trending contact zone between Jurassic (?) basic volcanics and sediments to the

west and Topley intrusive rocks (predominately quartz monzonite-granodiorite) to the east that traverses the western portion of the claim block.

Tachek rhyolitic and andesitic volcanic rocks outcrop along the southern margin of the property, and Sustut sedimentary rocks outcrop on Tachek Creek north of the TACHI claims. Narrow biotite feldspar porphyry dykes have intruded the Topley pluton.

Minor chalcopyrite-molybdenite mineralization occurs in the Topley intrusive rocks and later dyke rocks, and minor sporadic chalcopyrite-bornite mineralization occurs in the Jurassic(?) volcanic rocks.

5.2 Induced Polarization Survey

From a study of the IP data two major anomalous zones have been interpreted. These two zones are indicated on map number E73176-1M as the east and west zones. They differ considerably in overall pattern and amplitude of response; in particular their resistivity responses are quite different.

In the northern part of the survey area the sources of these two zones appear to interfere, it is therefore difficult to interpret their depth and lateral position. They appear to be approximately 1000 feet apart, but since the data was obtained using 400-foot measuring dipoles their resolution is poor.

In the central and southern part of the survey area there is less interference from the two sources, which appear here to be about 1500 to 2000 feet apart. This is well illustrated by the data on line 5S.

The east zone is characterized by a strong chargeability response directly associated with moderate to strong resistivity lows along its entire stike length. It coincides roughly with a weak IP response (mainly a resistivity low) measured during a survey by McPhar Geophysics Limited for Noranda Exploration Company Limited, using frequency domain equipment and 200-foot measuring dipoles.

In the northern part of the survey area, where this zone is poorly developed, it appears to have two branches. The main response of the zone appears as a gradual build up towards the east end of lines 2S, 3S, 4S, 5S, 6S and 7S. On line 8S the zone is more centrally located and therefore more clearly defined. Here the maximum response is 53 milliseconds, with a background response of generally less than 10 milliseconds.

Line 10S has a response indicative of a very broad zone. This has been interpreted to mean that the line runs approximately parallel to or more probably within the main east zone. Moderate resistivity lows at stations 30SW and 46SW suggest that line 10S may cut very slightly across the zone at these two locations.

If this anomaly is caused by a true increase in bedrock chargeability, there is strong evidence for a cross fault between lines 6S and 7S. A detailed magnetometer survey of the area would be useful in delineating such structural features.

The IP response from this zone may indicate either a barren fault zone, a mineralized fault zone, a barren faulted contact zone, a mineralized faulted contact zone, a well mineralized zone within bedrock or a strong bedrock depression filled with polarizable clays. The latter is much less common, under

these conditions in British Columbia, than in areas of deep weathering and/or present day tropical conditions where such anomalies are relatively common.

The west zone is characterized by strong chargeability responses with little or no associated changes in resistivity. The zone trends approximately north-south and extends for a distance of some 3500 feet from the west end of line 4S to line 7S.

This zone appears more likely than the east zone to represent sulphide mineralization within bedrock. It is most strongly developed on line 5S where it reaches a peak of 34 milliseconds at station 6W. Background readings here are approximately 6 milliseconds.

Although the anomaly shows no evidence of being a shallow source of limited depth extent (in this context shallow means 200 to 300 feet), it is possible however that a topographic ridge within the bedrock could cause such an anomaly. There is little or no evidence in the resistivity data to support this interpretation.

Below is a brief description of the data obtained on each individual line:-

Line 1S. A moderate intensity anomaly centred at station 10W is associated with a moderate resistivity low.

Line 2S. An increase in chargeability appears to be building towards the east end of the line, which should be extended in that direction.

Line 3S. An increase in chargeability, associated with a moderate resistivity low, appears on the east end of the line, which should be extended in that direction.

Line 4S. An increase in chargeability towards the east is associated with a decrease in resistivity, whereas an increase in chargeability towards the west is associated with a slight increase in resistivity.

Line 5S. Two strong anomalies, centred at stations 8W and 14E, are indicated. The resistivity readings on the eastern anomaly are lower in amplitude than those on the western anomaly.

Line 6S. The two anomalies detected on this line correlate well with those detected on line 5S.

Line 7S. Again the data on this line correlates well with that obtained on lines 5S and 6S.

Line 8S. Only one very strong anomaly was detected here. It is associated with a very strong resistivity low and correlates best with the easternmost anomaly on the lines to the north.

Line 9S. Two anomalies were detected here. Both are associated with resistivity lows, and the eastern anomaly is believed to be caused by a relatively small shallow source. Correlation with the data to the north is poor.

Line 10. A strong very wide anomaly was detected here. This line is believed to run parallel to or along the strike of the easternmost anomaly.

6. CONCLUSIONS AND RECOMMENDATIONS

From a study of the IP data obtained on the reconnaissance survey described in this report, along with a study of IP data obtained on a previous survey, and the limited geological information available, it has been concluded that both anomalous zones are worthy of further investigation by diamond drilling.

Based mainly on the IP data the following programme of drilling is recommended:-

Area	Hole No.	Location	Depth	Angle
West Zone	1	at 8W on L5S	800 ft	Vertical
West Zone	2	at 12W on L5S	800 ft	Vertical
West Zone	3	at 4W on L5S	800 ft	Vertical
East Zone	4	at 10E on L8S	800 ft	Vertical
East Zone	5	at 6E on L8S	800 ft	Vertical
East Zone	6	at 14E on L8S	800 ft	Vertical

In each case the recommended drilling is aimed at fully exploring the nature and approximate width of the source of each anomalous zone at some particular strike location. The completion of this drilling programme will depend largely on the success of the initial hole in each zone, that is on holes number 1 and 4. Furthermore the depth of these holes should be governed by the depth to bedrock as determined by the drilling. For example should bedrock be encountered at a depth of 100 feet in hole number 1, then a total hole depth of 500 feet should be sufficient to explore the source of the anomaly at least in the vertical sense.

If the drilling encounters encouraging quantities of economic mineralization, consideration should then be given to obtaining IP survey data on intermediate lines.

Respectfully submitted,
EAGLE GEOPHYSICS LIMITED

John Lloyd, M.Sc., P.Eng.
Geophysicist

June, 1973

A P P E N D I C E S

CERTIFICATION

I, John Lloyd, of 575 Lucerne Place in the District of North Vancouver, in the Province of British Columbia, do hereby certify that:-

1. I graduated from the University of Liverpool, England, in 1960 with a B.Sc. (Hons) in Physics and Geology, Geophysics Option.

2. I obtained the Diploma of the Imperial College of Science and Technology (D.I.C.), in Applied Geophysics from the Royal School of Mines, London University, in 1961.

3. I obtained the degree of M.Sc. in Geophysics from the Royal School of Mines, London University, in 1962.

4. I am a member of the Association of Professional Engineers in the Province of British Columbia, the Society of Exploration Geophysicists of America and the European Association of Exploration Geophysicists.

5. I have been practising my profession for the last ten years.

6. I have no interest or shares in any property or securities of Perry, Knox, Kaufman Incorporated nor do I expect to receive any.

John Lloyd, P.Eng.

Vancouver, B.C.
June, 1973

COST OF SURVEY

Geoterrex Limited provided the geophysical crew and equipment on a per diem basis. The interpretation and report writing were carried out by Eagle Geophysics Limited as an extra cost, so that the total cost of services provided by these two companies for the Induced Polarization (IP) survey alone was $5,683.00.

REFERENCE

Dolan, W.M. and McLaughlin, G. "Considerations Concerning Measurement Standards and Design of Pulsed IP Equipment Parts I and II." Proceedings of the symposium on Induced Electrical Polarization February 18 and 19, 1967, Department of Mineral Technology, University of California, Berkeley.

GEOPHYSICAL SURVEY AND LINE CUTTING

TACHI AND TAK CLAIM GROUP

located

54°126° N.E.

Omineca Mining Division

by

James A. Knox, Geologist

Perry, Knox, Kaufman, Inc.

Compilation and Summmary: June 22, 1973

Period of Fieldwork: May 6-20, 1973

STATEMENT OF COSTS

1. Salaries and Overhead		
M. A. Kaufman 9½ days @ $90.00 May 6-9, 11, 13, 14, 17-19, 1973	$ 855.00	
J. A. Knox ½ day @ $90.00 June 22, 1973	45.00	
Total	$ 900.00	$ 900.00
2. Field Expenses		
M. A. Kaufman 9½ days @ $20.00	$ 190.00	
Vehicle expenses 8 days @ $15.00	120.00	
Rental - 2 days (invoice attached)	75.67	
Plane fares - M. Kaufman Kamloops-Smithers and return	106.00	
Total	$ 491.67	$ 491.67
3. Line Cutting Contract Services (invoices attached)	$1,162.50	$1,162.50
4. Geophysical Survey (invoices attached)		
Geoterrex Limited	$5,365.38	
Eagle Geophysics Limited	317.70	
Total	$5,683.08	$5,683.08
5. General Supervision and Report and Map Preparation	$ 200.00	$ 200.00
TOTAL		$8,437.25

James A. Knox
Vice-President
Perry, Knox, Kaufman, Inc.

TABLE OF CONTENTS

INTRODUCTION

The Tachi and Tak claim group consists of 82 contiguous full-sized and fractional mineral claims which are more fully identified in the attached geophysical report by J. Lloyd. These claims were located and are presently owned by Ralph R. Keefe and W. Harold Thornton of Telkwa, B.C. The claim group is currently under option to Perry, Knox, Kaufman, Inc. of Spokane, Washington.

The center of the Tachi and Tak claim group is approximately 4 miles south-southwest of Topley Landing along the Topley-Babine Lake road. An index map is included in the attached geophysical report.

Perry, Knox, Kaufman, Inc., with the aid of contractors, completed line cutting and an induced polarization geophysical survey during May, 1973. This particular area had previously been shown to contain anomalous copper values as a result of shallow drilling conducted at an earlier date on nearby portions of the property.

FIELDWORK

Line cutting for the geophysical survey totaling 6.3 miles was undertaken by Durack Contracting Company of Smithers during the period May 7-16, 1973; employees of Durack utilized for the job were Ernest Durack and Ted Fox. The work was directly supervised in the field by M. A. Kaufman, geologist and partner in the mineral exploration firm of Perry, Knox, Kaufman, Inc.

A survey grid was established by using compass and tape as shown on the geophysical map accompanying the attached geophysical report. With one exception survey lines were run east-west across the zone of principal interest and flagged and marked at 100 foot intervals. In several instances it was possible to utilize preexisting lines.

The induced polarization geophysical survey was run by Geoterrex Ltd. during the period May 8-20, 1973, and a report prepared by J. Lloyd (Eagle Geophysics Ltd). This report describes in detail the survey and results and is attached. Approximately 7 line miles were run, plus additional experimental work to determine depth to bedrock.

GEOPHYSICAL RESULTS AND CONCLUSIONS

The results of the geophysical work and recommendations are stated in the accompanying geophysical report.

"Two anomalous zones, worthy of further investigation by diamond drilling, have been established. To evaluate these zones, some 4800 feet of drilling has been recommended. The completion of the programme will depend on the results of the first 800 feet of drilling on each zone."

Thomas A. Knox

STATEMENT OF QUALIFICATIONS

I, James A. Knox, do hereby certify:

1. That I am a Consulting Geologist and Vice-President of the geological consulting and mineral exploration firm of Perry, Knox, Kaufman, Inc. with offices at Suite 21, North 20 Pines Road, Spokane, Washington.

2. That I am a graduate of Dartmouth College, 1955, with a Bachelor of Arts Degree, major in geology.

3. That I am a graduate of the University of Minnesota, 1957, with a Master of Science Degree, major in geology.

4. That I have practiced my profession for fifteen years.

5. That this report dated June 22, 1973 is based on line cutting and a geophysical survey conducted under my supervision at the property on May 6-20, 1973.

DATED at Spokane, Washington, this 22nd day of June, 1973.

James A. Knox
Consulting Geologist
PERRY, KNOX, KAUFMAN, INC.

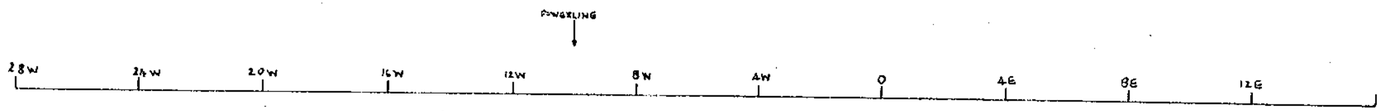
PERSONNEL EMPLOYED ON SURVEY

For the duration of the Induced Polarization (IP) survey Geoterrex Limited provided the personnel listed below. Eagle Geophysics Limited provided the supervision and report writing.

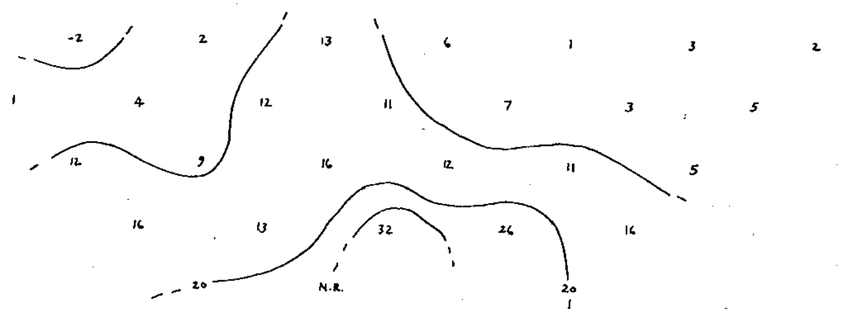
Name	Occupation	Address	Dates
Mr. C.J. Wiles	Geophysicist	Geoterrex Ltd 2060 Walkley Rd Ottawa, Ontario	May 7th to May 21st, 1973
Mr. J. Loback	Geophysicist	"	"
Mr. T. Herrod	Helper	71 Windsor St Chilliwack, B.C.	"
Mr. G. Inglis	Helper	25 North Woodbine Chilliwack, B.C.	"
Mr. J. Lloyd	Geophysicist	Eagle Geophysics Ltd 575 Lucerne Place North Vancouver, B.C.	May 31st June 1st, 1973
Mr. A. Fife	Typing	"	June 4th, 1973

DWG NO: E73176-ID

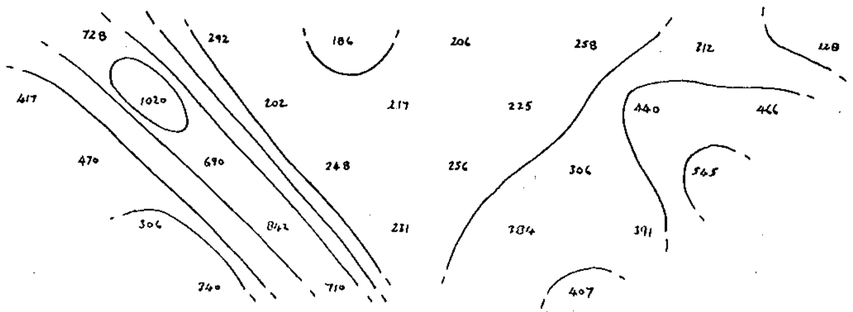
LINE 1S.



M_a (MILLISECONDS)



ρ_a (OHM-METERS)



DIPOLE LENGTH

DWG NO: E73176-ID

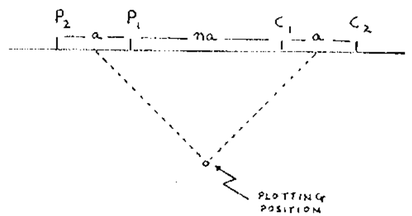
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTGR.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 1S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

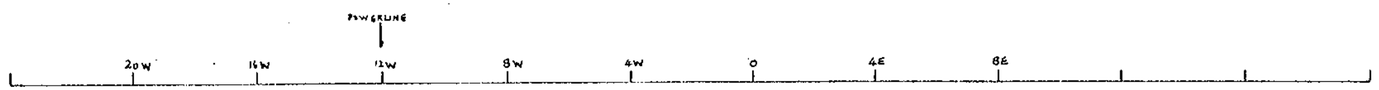
308 85-264
(FIELD PLOTS ONLY) 4479

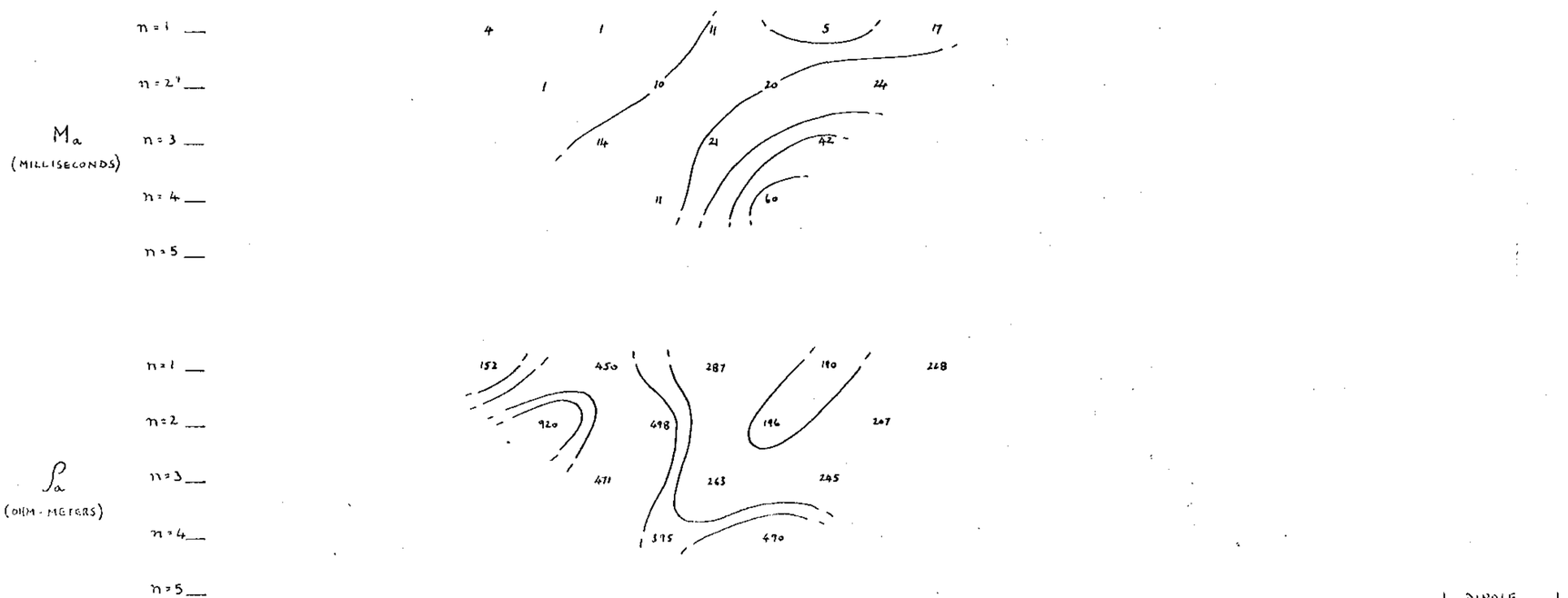
TO ACCOMPANY REPORT BY
JOHN LLOYD
John Lloyd P. Eng.

MAY 1973

DWG NO: E73176-2D

LINE 2 S.





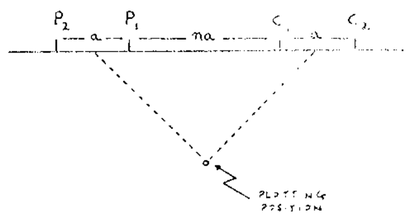
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTER.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 2S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 85-264
(FIELD PLOTS ONLY)

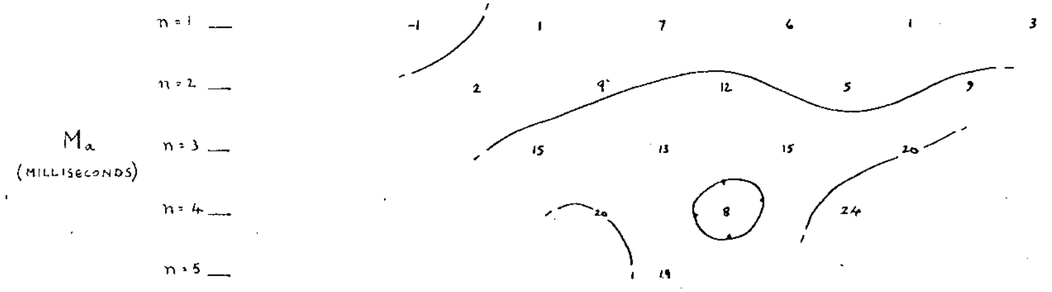
TO ACCOMPANY REPORT
BY JOHN LLOYD
John Lloyd P.Eng.

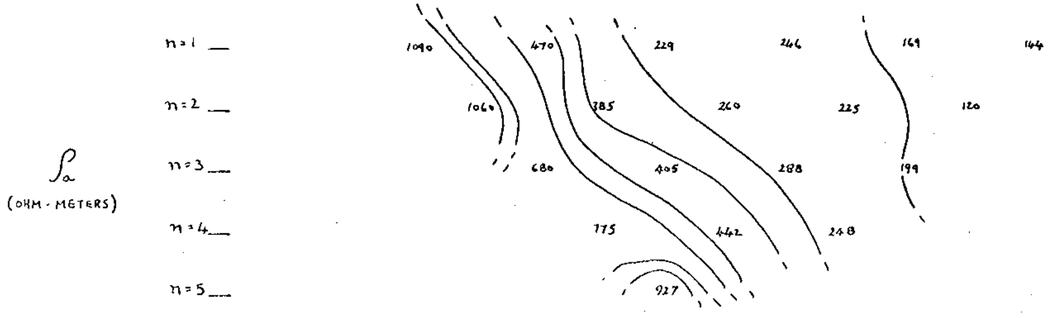
4479

MAY 1913

DWG. NO: E73176-3D

LINE 3S.





|—DIPOLE LENGTH—|

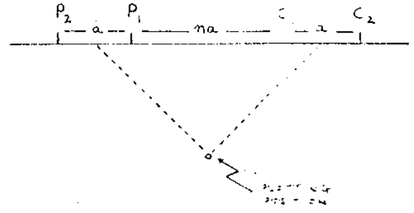
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTGR.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 3S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 83-2??
(FIELD PLOTS ONLY)

4479

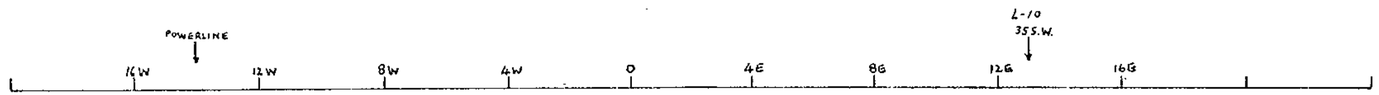
TO ACCOMPANY REPORT
BY JOHN LLOYD

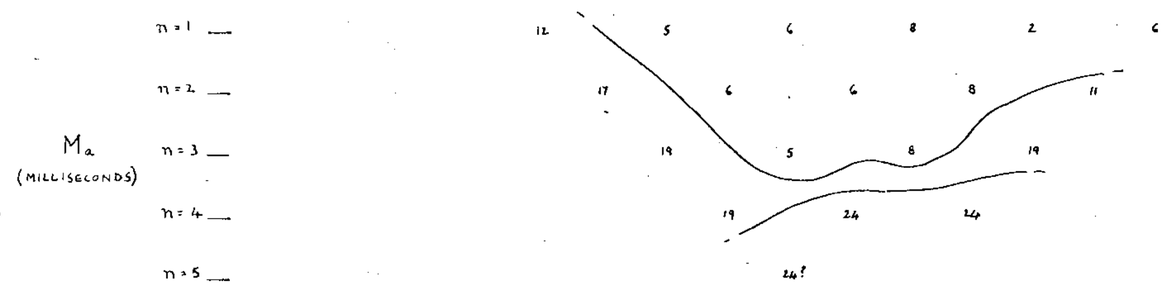
John Lloyd P.Eng.

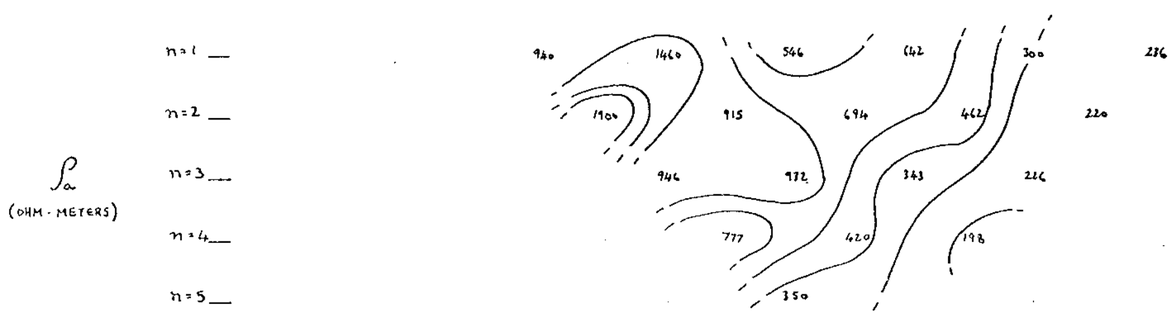
MAY 1973

DWG. NO: E73176 - 4D

LINE 4S







|—DIPOLE LENGTH—|

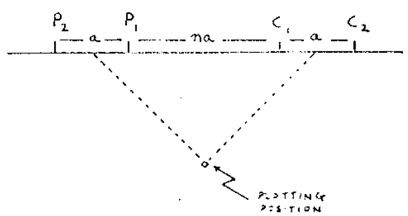
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.
EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTGR.
CHARGEABILITIES FOR COMPLETE CYCLE

LINE 4S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

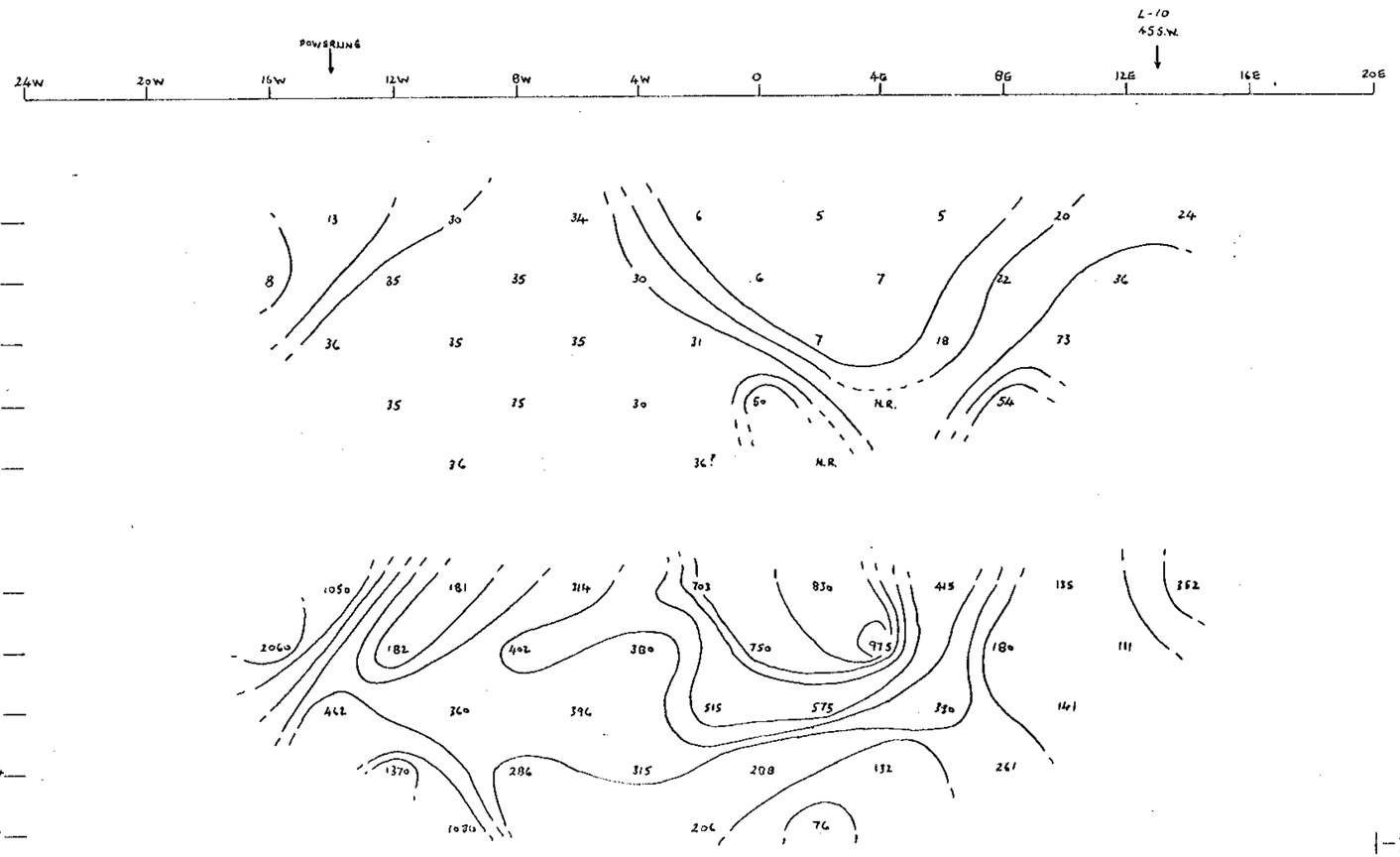
JOB 85-264
(FIELD PLOTS ONLY)

TO ACCOMPANY REPORT 4479
BY JOHN LLOYD
John Lloyd P.Eng

MAY 1973

DWG. NO: E73176-5D

LINE 5 S.



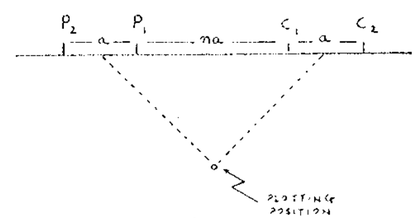
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTEGR.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 5S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 35-264
(FIELD PLOTS ONLY) 4479

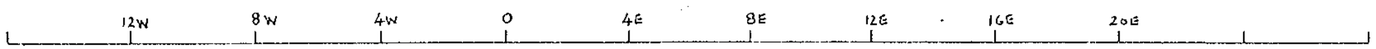
TO ACCOMPANY REPORT
BY JOHN LLOYD

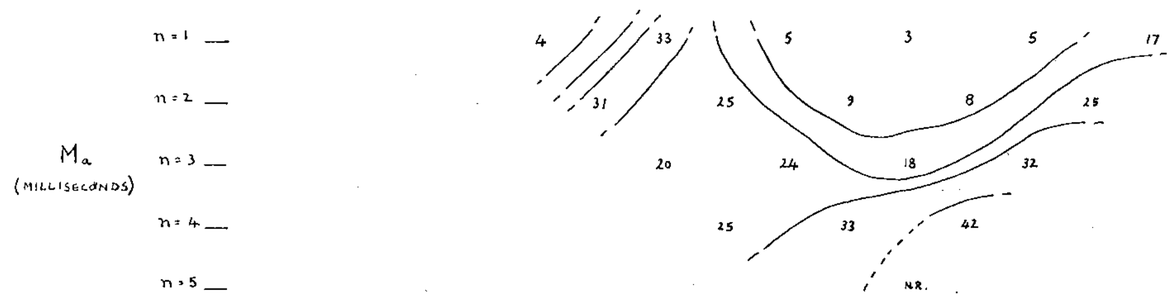
John Lloyd P. Eng.

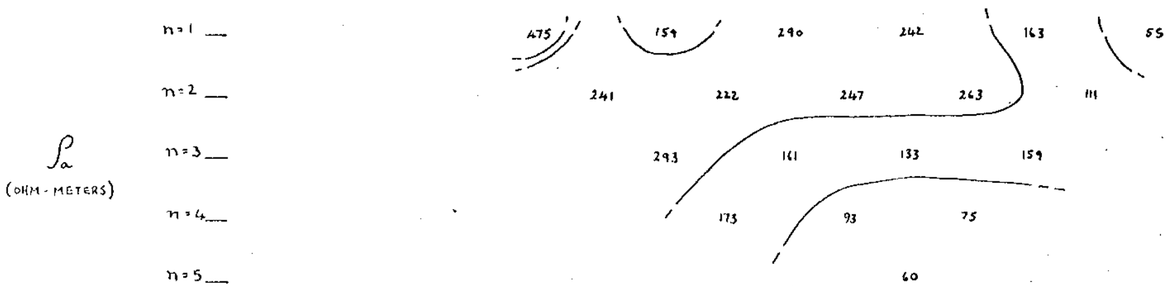
MAY 1973

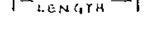
DWG NO: E73176-GD

LINE 6S.









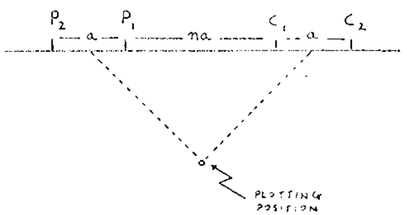
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1 (ON : OFF : INTEGR.)

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 6S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 85-264
(FIELD PLOTS ONLY) 4479

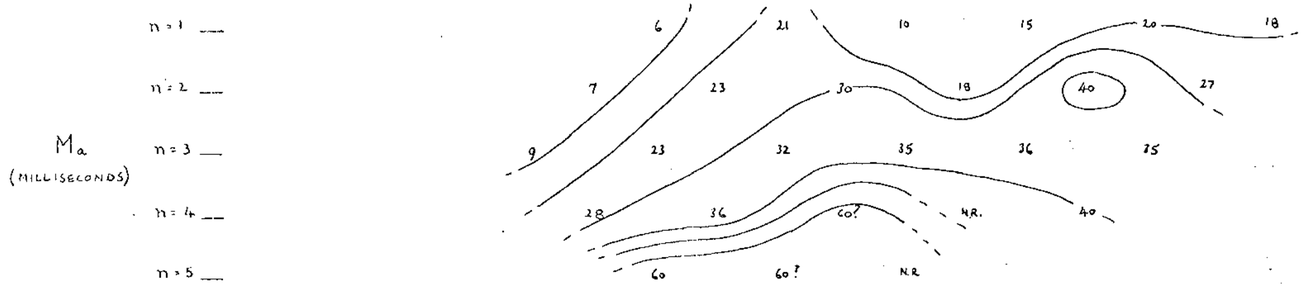
TO ACCOMPANY REPORT
BY JOHN LLOYD

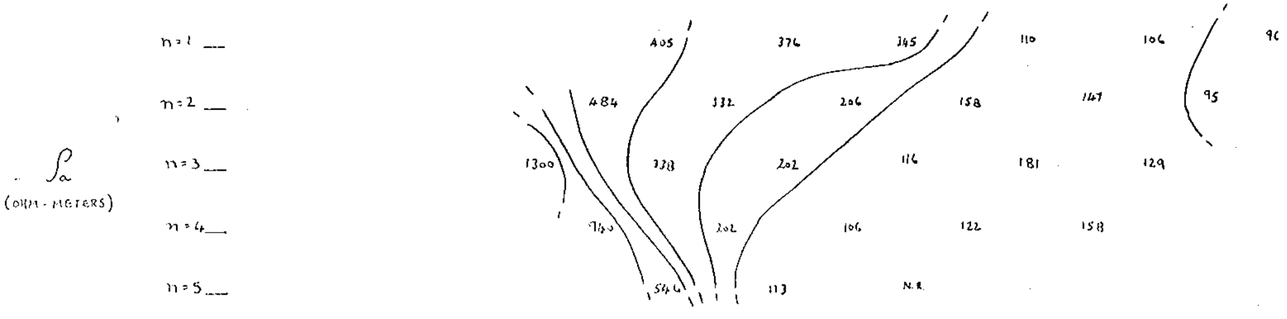
John Lloyd P. Eng.

MAY 1973

DWG. NO: E73176-7D

LINE 7S





DIPOLE LENGTH

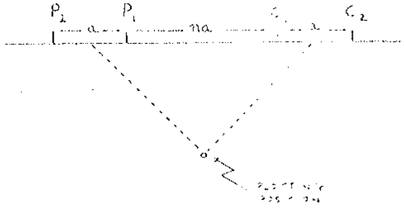
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 ON : 3 OFF : 1 INTEGR.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 7S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 85-26
(FIELD PLOTS ONLY) 4479

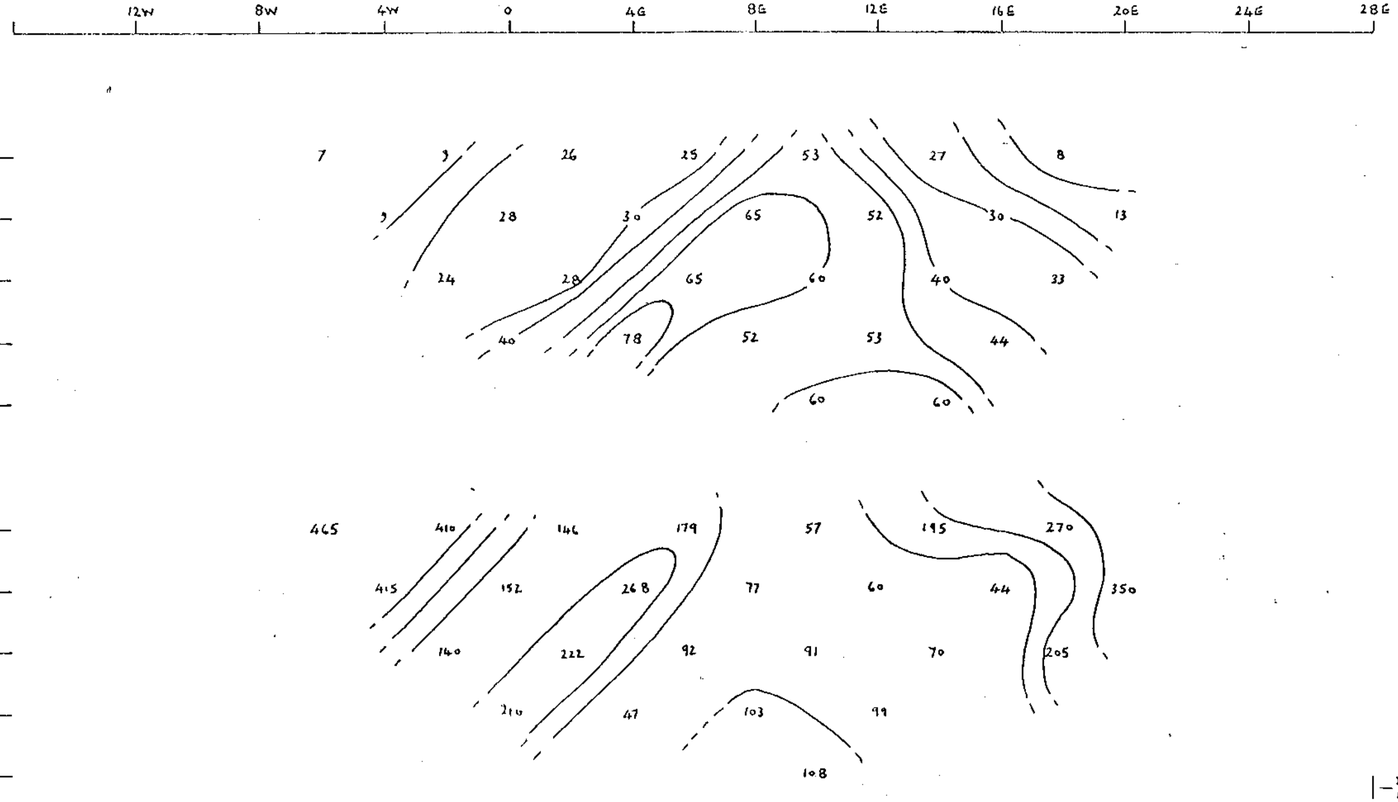
TO ACCOMPANY REPORT
BY JOHN LLOYD

John Lloyd P.Eng.

DATE

DWG. No: E73176 - 8D

LINE 8S.



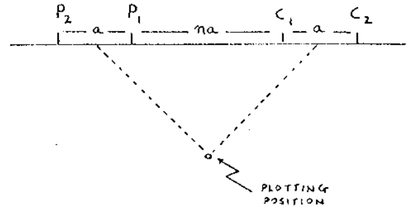
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1 (ON : OFF : INTEGR.)

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 8S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 85-264
(FIELD PLOTS ONLY) 4479

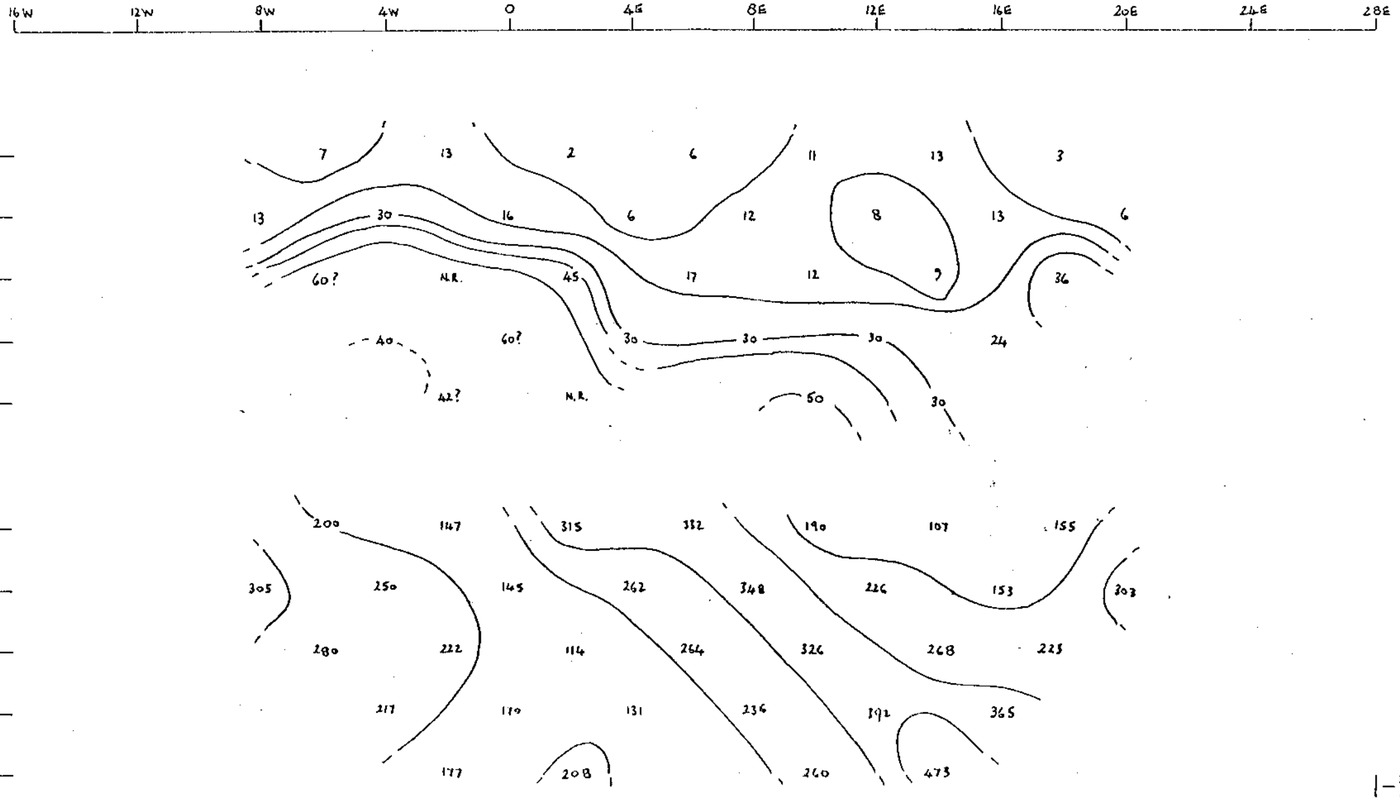
TO ACCOMPANY REPORT
BY JOHN LLOYD

John Lloyd P. Eng.

MAY 1973

DWG. NO: E73176-9D

LINE 9S



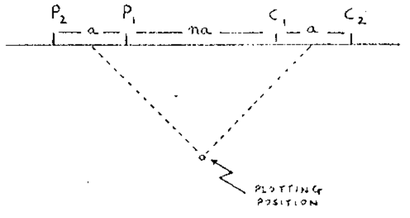
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTGR.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 9S

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

JOB 85-261

(FIELD PLOTS ONLY)

4479

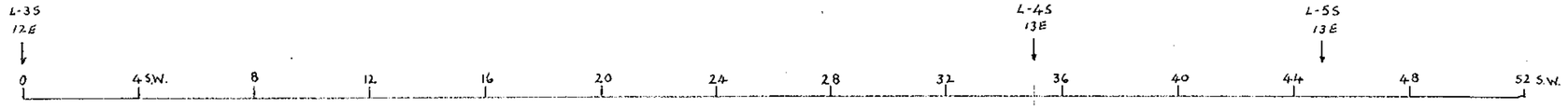
TO ACCOMPANY REPORT
BY JOHN LLOYD

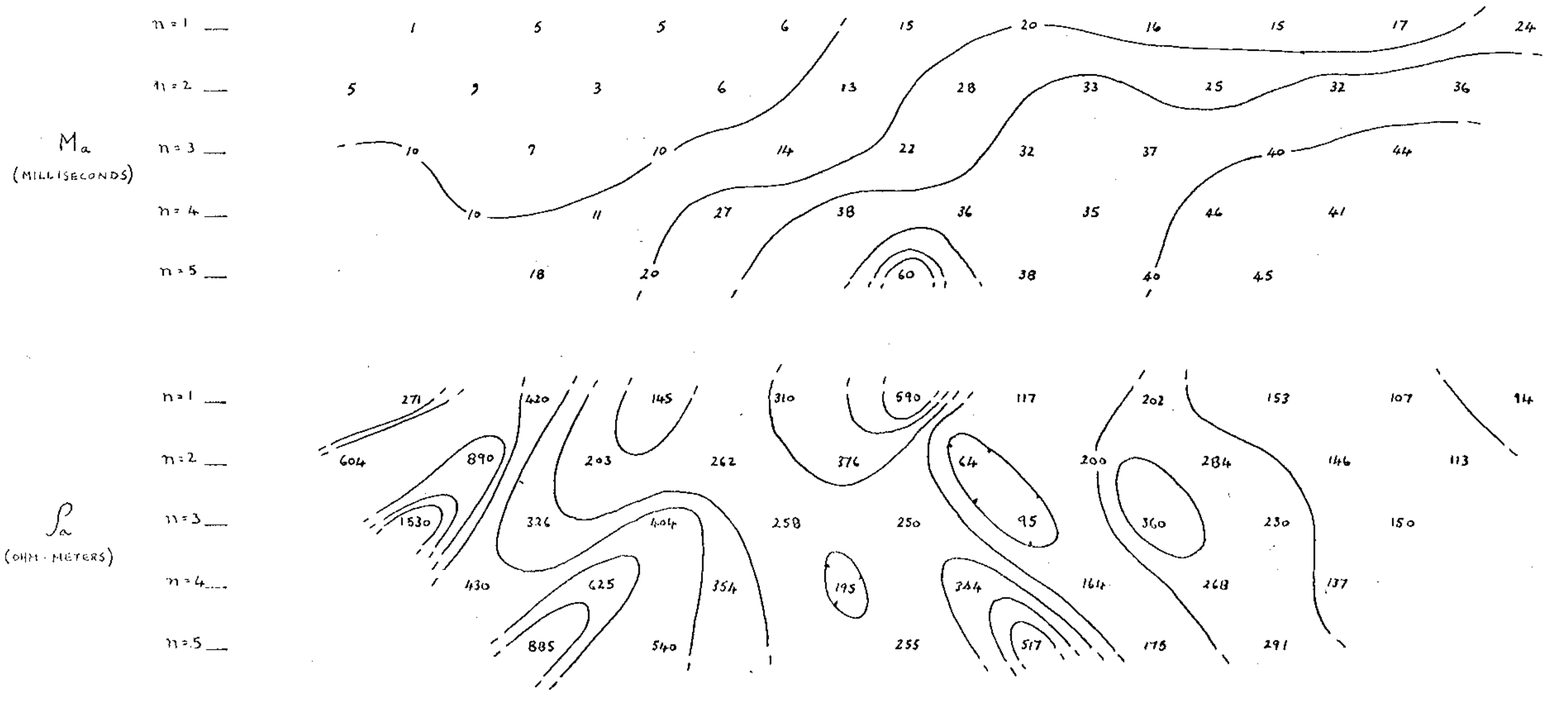
John Lloyd P. Eng.

MAY 1973

DWG. NO: E73176 – 10D

LINE 10





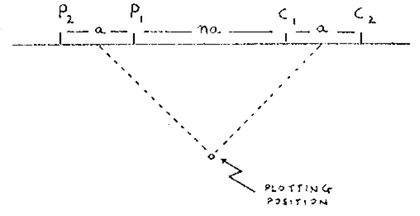
PERRY, KNOX, KAUFMAN, INC.

INDUCED POLARIZATION SURVEY

TACHI PROSPECT
OMINECA MINING DIVISION
TOPLEY LANDING AREA, B.C.

SCALE 1" = 400'

DIPOLE-DIPOLE ARRAY



D.C. PULSE I.P.

EFFECTIVE TIMING SEQUENCE 3 : 3 : 1
ON OFF INTGR.

CHARGEABILITIES FOR COMPLETE CYCLE

LINE 10

SURVEYED AND COMPILED BY

GEOTERREX LIMITED

Job 85-264
(FIELD PLOTS ONLY)

4479

John Lloyd P. Eng.

MAY 1973

TO ACCOMPANY REPORT BY

RECONN. I.P. SURVEY

TACHI PROSPECT

OMINECA MINING DIVISION

TREND OF IP ANOMALY WITH MODERATE RESISTIVITY RESPONSE

TREND OF IP ANOMALY WITH LOW RESISTIVITY RESPONSE

TACHI CLAIM GROUP BOUNDARY

A TAHTSEKWA GROUP VOLCANICS

B TOPLEY INTRUSIVES (w/ TERTIARY ASH DIKES)

C JURASSIC BASIC VOLCANICS AND SEDIMENTS

DDH NORANDA DIAMOND DRILL HOLE

PT NORANDA PERCUSSION HOLE

NORANDA GROUND MAGNETIC LOW

NORANDA I.P. ANOMALY

PROPOSED I.P. LINE

AREA OF PRIME INTEREST

LINE 1 - IP LINE

SCALE: 1" = 400 FEET

PERRY, KUHN, KAUFMAN, INC.
FEB., 1973
MAY 25, 1973

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4479 MAP #1

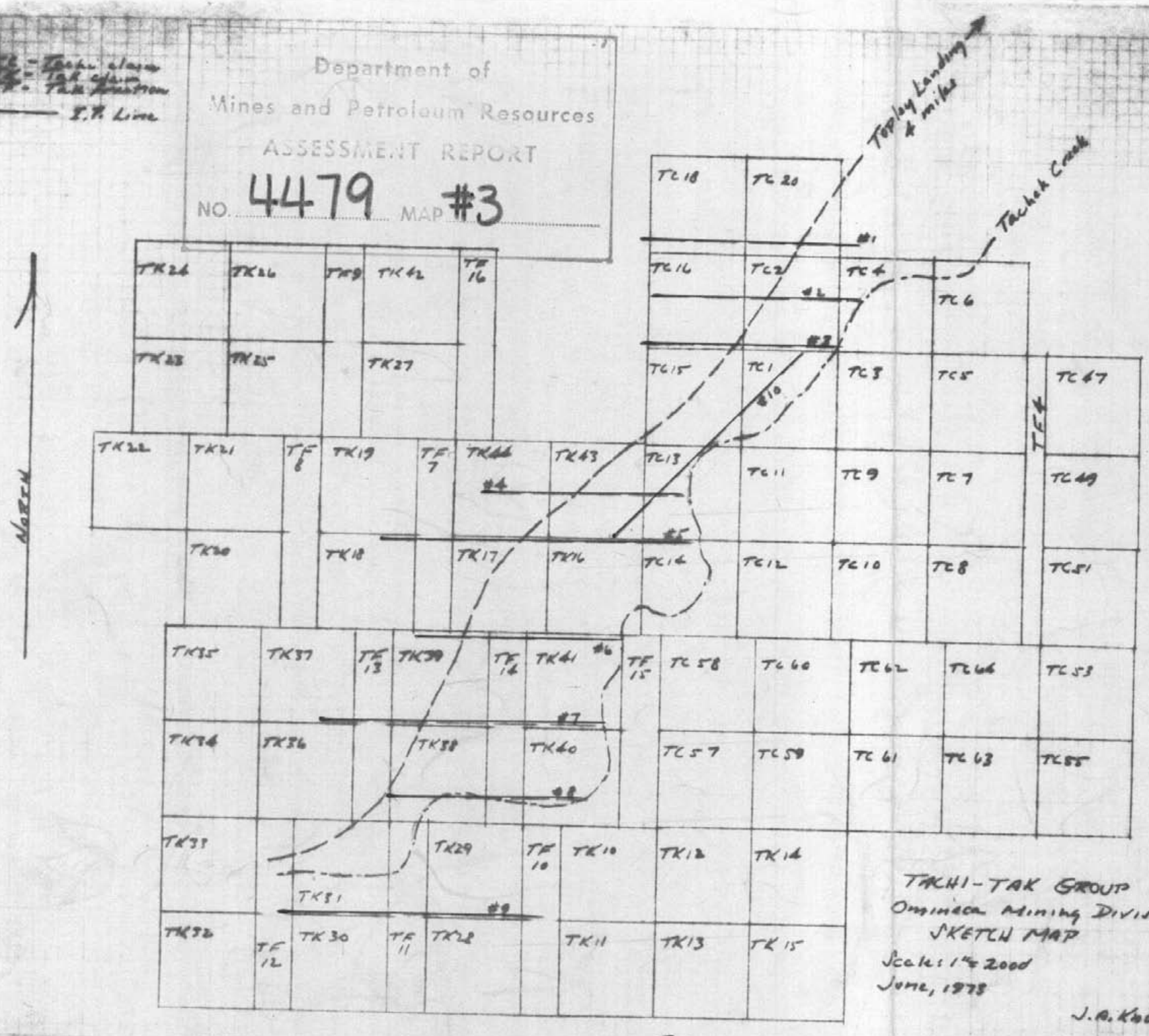
TO ACCOMPANY REPORT BY
JOHN LLOYD
John Lloyd P. Eng.

MAP NO. E 7376-1M

4479-M1

TC - Tachek claim
TK - Tak claim
TF - Tak fraction
#1 —— T.K. Line

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4479 MAP #3



TAKHI-TAK GROUP
Omineca Mining Division
SKETCH MAP
Scale: 1" = 2000'
June, 1973

J. A. Kuhr

J. A. Kuhr