92I/13E, 14W
92P/3W, 4E

REPORT ON

GEOPHYSICAL SURVEYS

RANGE, PAW, SAM, G. W., CLAIMS

BONAPARTE VALLEY (50°N, 121°E)

CLINTON AND KAMLOOPS MINING DIVISIONS

BRITISH COLUMBIA FOR

PEYTO OILS LIMITED

BY DOMINION EXPLORATION SERVICES LTD.

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INTRODUCTION

Induced Polarization reconnaissance surveys and a minor amount of check magnetometer work were carried out over the Maggie claim group of Peyto Oils Limited. The property is located, in part, in the Clinton Mining Division and, in part in the Kamloops Mining Division of cental British Columbia. The work was done under the supervision of C. T. Pasieka and J. B. Prendergast.

The results of this work and that done previously by others indicates that the property is essentially underlain by rocks of the Cache Creek Group with some areas of intrusive activity both of medium (diorite) and ultra-basic composition (serpentine). The IP work indicates a number of chargeability anomalies varying in intensity from medium to strong. Previous magnetic work was found to be in error by some factor, probably constant, due no doubt to incomplete reduction of the field data. Good geophysical correlation was found with the showing area in the south central portion of the claims.

Geophysical indications are very encouraging and a number of drill targets have been selected to further evaluate the property. Should this work also prove successful then serious consideration should be given to detailed geophysical and geological work as well as a program of exploration and development drilling. A budget has been set under the Recommendation section of this report for this further program.

PURPOSE

The purpose of the present work program was multifold. In the first instance a property of obvious strategic location to the north of Bethlehem Copper's Maggie property had only had a portion of the usual exploration program performed, that is, some geology some geochemical sampling and magnetic coverage. Further and more sophisticated Induced Polarization work had been recommended by a previous reporter; this was accomplished in the work under discussion here. The magnetometer survey done by other workers appeared to have far too little relief for an area of supposed metamorphic rocks; this fact was further indicated by comparison to the government aeromagnetics for the area. The above survey had therefore to be checked. Finally the property was due for assessment credits and the present effort was designed to fulfill this purpose as well.

Property Description

The mining property to which this report applies consists of 160 located mining claims that may be more particularily described as follows:

GROUP I

Claim Number	Record Number	Mining Division
Sam 5-25 inclusive	91947 - 49	Kamloops
	27598 - 27601	Clinton
	25886 - 25895	Clinton
	27602 - 27604	Clinton

Claim Number	Record Number	Mining Division
Paw 23 and 25	27617 & 27619	Clinton
G. W. 1 - 12 incl.	26098 - 26103	Clinton
	27609 - 27614	Clinton
Ranger 30	25878	Clinton
Ranger 32, 34, & 36	92575, 92577, 92579	Kamloops
Ranger 11	27623	Clinton
GROUP II		
Paw 9 - 22	25844 - 25857	Clinton
Paw 24, 26	27618, 27620	Clinton
Paw 28 - 45	25879, 27621, 28622	Clinton
	25859, 25880, 25860	
	25881, 25861, 25882	
	25962m 25888, 25863	
	25884, 25864, 25885	
	27630, 27632	
Paw 44A	27631	Clinton
Paw 1 Fr, Paw 2 Fr.	27628, 27629	Clinton
Ranger 12 Fr.	27624	Clinton
Ranger 14 Fr.	27626	Clinton
Ranger 28	25877	Clinton
GROUP III		
Paw 2	27616	Clinton
Ranger 11 - 14	91933 - 91936	Kamloops
Ranger 15 - 18	100635 - 100638	Kamloops
Ranger 19 - 26	25896 - 25876	Clinton
Ranger 27 - 31	27606 - 27608	Clinton
Ranger 38 - 43	27638 - 27643	Clinton
Ranger 44	275007	Kamloops
Ranger 49	27633	Kamloops
Ranger 4-8 all Frs.	100179 - 100183	Kamloops
Ranger 13 Fr.	27625	Clinton
Ranger 15 Fr.	27627	Clinton
Ranger 16 - 20 all Frs.	27634 - 27637	Clinton
GROUP IV		
Sam 1 - 4	91943 - 91946	Kamloops
Paw 3 - 8	92524 - 92529	Kamloops
Paw 3 - 5 all Frs.	100190 - 100192	Kamloops
G. W. 13	92158	Kamloops
G. W. 15	92160	Kamloops
G. W. 17	92162	Kamloops
Ranger 45-48	100186 - 100189	Kamloops
Ranger 33	92576	Kamloops
Ranger 35	92578	Kamloops
Ranger 37	92580	Kamloops
Ranger 1 - 10	91923 - 91932	Kamloops
Ranger 1 - 3 all Frs.	100176 - 100178	Kamloops
Ranger 18 Fr.	100193	Kamloops

GROUP IV

Claim Number	Record Number	Mining Division
Ranger 9, 10 Frs. Paw 1	100184, 100185 27615	Kamloops Clinton

LOCATION AND ACCESS

The property is located some 4.8 miles south of Clinton straddling British Columbia Highway 97. Clinton in turn is about 145 miles directly northeast of Vancouver. The area is served as well by the nearby Trans-Canada Highway and by the Canadian National and Canadian Pacific Railways mainlines to Vancouver and the British Columbia Railway line from the north. Several flights daily from Vancouver, Calgary, and Edmonton arrive and depart from the Kamloops airport about 75 miles by paved road from the property.

The property itself may be reached by means of British Columbia Highway 97 and secondary, logging and ranch road, giving reasonable access to all parts of the group.

WATER, TIMBER AND TOPOGRAPHY

The Bonaparte River runs through the east portion of the group while Mainden Creek runs along the southwest side of the claims. At certain time of the year there would be water in at least parts of the subsidiary drainage systems to these two water courses. Water should therefore, be obtainable for drilling without great difficulty.

The usual mixture of coniferous trees with minor poplar and birch as normally found in the central part of British Columbia are present on this property. Underbrush is variable, thick in places and "parkland" in other locations.

The claims lie in the "V" formed by the junction of the drainage systems of Maiden Creek and the Bonaparte River. The banks of these systems are quite steep while the central portion of the property is less precipitous and and more plateau-like. Elevations vary from a low of 1900 feet ASL in the river valley to a maximum of 4000 feet ASL in the northeast corner of the claims.

GEOLOGY

The geology of the area has been discussed by Mr. O. Gietz, P. Geol., in his report to Peyto dated July, 1971. This dissertation is repeated herein.

"The area in which the claims are located is situated on the western side of the Quesnel Trough lying between the Omineca Geanticline to the east and the Pinchi Geanticline to the west. The trough, which extends in a NNW-SSE direction from the border south of Princeton to northern British Columbia (Campbell, A. B. and Tipper H. W. Mineral Exploration in British Bolumbia CIM Bull. July, 1970, page 785) is characterized by a thick sequence of Upper Triassic and Permian Sedimentary and Volcanic rocks. Two major episodes of granitic intrusion took place following the deformation and partial erosion of the Triassic and Permian beds. One period of granitic intrusion

resulted in the emplacement of the Guichon Creek batholith in Lower Jurassic time (200M Y ago).

Tertiary volcanics and sediments, consisting of a lower unit of fragmented and volcanic rocks, faulted and tilted, with a thickness of several thousand feet, and an upper unit of plateau lavas, usually less than 500 feet thick, except where lavas filled in ancient valleys, overlie the Mesozoic sediments."

LOCAL GEOLOGY

The local geology of the Peyto claims has also been discussed by Gietz in the report referred to above. He notes that the claims are underlain by the Cache Creek Group consisting of a rather thick assemblage of argillites, cherts and minor quartzites. These rocks are highly deformed, broken and sheared with in places considerable alteration. Thicknesses of this sequence of rocks in the Maggie area may reach 15,000 feet. The Cache Creek Group is uncomforably overlain by Tertiary volcanics and clastic sediments. However, no Tertiary rocks were found on the claims by Gietz.

The Permian rocks have been intruded locally by ultra basic, serpentinized stocks several of which have been mapped on the Peyto property. The age of this intrusive activity is apparently pre-Jurassic. The line of occurrences is roughly north-south with an offset to the east at the northern end. This linearity may represent the trend of a zone of weakness. The large Guichon Creek Bathqlith,

with which the mineralization of the Highland Valley is associated outcrops well to the south of the Peyto property where erosion has removed the Cache Creek cover. This lower Jurassic activity has probably been the source of mineralizing solutions that have resulted in replacement copper sulphide zones such as the Maggie ore body.

The aeromagnetic map for the area (72176) suggests a change in rock type along a line roughly parallel to Highway 97, with a more magnetic unit (probably Tertiary volcanics) lying to the east and a less magnetic unit (probably Cache Creek sediments) lying to the west. The property under discussion is located in the latter environment. Within the western unit there are isolated zones of higher magnetic susceptibility (more magnetic content) as for example near the Maggie ore zone and in the south part of the Peyto claims. In the first case this may represent a thinning of the Cache Creek over the intrusive body and in the second instance the effect may be due to the observed ultrabasic material, although the ground magnetic anomaly associated with these bodies is not as large as one would expect.

Mineralization has been noted on the Peyto claims in a shear zone extending NNW fromthe south end of the claims near Maiden Creek (Gietz). It consists in a malachite smear along the shear planes in the Cache Creek rocks. The zone varies in thickness from under one foot to 12 feet, strikes N20°W and dips from vertical to 60°SW. Two old exploration pits were noted in the area of Line 48S station 5W, a medium grained diorite with disseminated pyrite

was seen along with considerable evidence of quartz carbonate veining. Kennco in their examination noted anomalous values of copper, zinc, and molybdenum in the soils. (Letter to Peyto by Charles Ney, April 18, 1972) in this area but do not attribute the cause to porphyry type mineralization.

FIELD MEASUREMENTS

A grid of picket lines running in an east-west direction had been cut previously to carry out the magnetometer and geochemical work in early 1971. These lines are at 400 foot spacings from north to south and have stations chained along them at 100 foot intervals. A swath of Induced Polarization work was done along some of these lines north from the old shaft area at 48S, SW. For the first part of this work a Huntec Mark 3 receiver was used in combination with a 7.5 kw transmitter and for the latter part of the work a McPhar frequency IP unit was employed. Because of extreme low surface conductivities the heavier power unit was necessary, unfortunately this transmitter was subject to frequent breakdown and had to be returned to Toronto for repair no less than three times. Because of the press of time to complete the work in time to qualify for assessment credits it was necessary to make use of the McPhar unit. This is not good or normal survey practice but because of the reason noted could not be avoided. The results of the two techniques may be directly related from a mathematical-physical point of view. However, in practice they are best correlated by direct field comparison. In the present instance

an empirical factor of 1:1 to compare the Percent Frequency Effect with the numerical value of the Chargeability in milliseconds has been used. The parameters of both survey techniques are recorded on the profiles.

A line of magnetic data was run to check the work previously carried out. The data was acquired using a Scintrex MF 1 fluxgate magnetometer. This unit has a sensitivity of 10 gammas on its lowest scale. The values were not corrected for diurnal variation since only a single day's work was carried out.

DISCUSSION OF RESULTS

There are some 20 chargeability features of varying strength and size. Some of these may represent extensions or intermediate parts of continuous zones. Each is discussed below.

Zone A

In this case a long strong zone extends right across the IP grid from north to south or over 10,400 feet. Its strength varies from a high of 18 units of Percent Frequency Effect (PFE) to 8 milliseconds of chargeability. This type of zone represents fair to good polarizability and therefore above normal content of metallic or other conductive material in the underlying formation. Sulphides or graphite would be the most likely causes.

Zone J-B-C-D

Again a long zone of conductive material has been disclosed. However, the continuity is not as obvious as in

Zone A. Strengths vary from 14 units of PFE to 4 millisecond of chargeability. The J Zone has a strength of 17 milliseconds.

Topographically J is below Zone B. In appearance it is a separate feature, especially since there is no information to confirm its strike or continuing intensity. Zone B extends from an area of known mineralization northward and must therefore, be considered as one of the most important features. Anomaly C and D may represent the same source as B with folding or faulting causing the interruption of strike. This feature has an intensity that may well be due to conductive material in the rocks such as sulphides or graphite. Its extension north from a showing area adds merit to its potential.

Zone E

This feature is apparently a single line twin-peaked anomaly. The intensity of its southern peak is 10 milliseconds and of the northern one 15 milliseconds. The direction of the IP traverse does not allow a full definition of the feature in respect to strike, length, etc. The intensity indicates potential value as it is probably due to sulphide or graphite.

Zone F - G

"F" is a linear north-south feature of medium to high intensity and "G" a high amplitude feature of undetermined physical dimensions due to lack of IP data to the north.

Right handed stike faulting similar to the J-B-C-D relationship may account for the offset. The nature and amplitude again indicates graphite or sulphides as the cause.

Zone H, I

The chargeability closures here are of minor relative amplitude (2-4 milliseconds above background). As offset peaks from major trend they may be important as far as sulphide mineralization is concerned, since graphite zones are generally long and straight by nature.

Zones K, L, M, N, O, P

The six closures are only just recognizable and are poorly defined due to lack of data. They depend on readings from two survey lines and may or may not be connected. More work would be required before intelligent comment can be made.

Zone Q, R, S, T

An almost similar reasoning may be advanced in the discussion of their four features as compared to the previous K, L, M, N, O, and P. Lack of data limits their definition. Amplitudes are similar (3 to 5 units of PFE). Their strike is roughly parallel to the strike of the stronger more definite zone to the south and therefore conformable with the geological trends for the area.

SUMMARY AND CONCLUSIONS

The geophysical surveys carried out have fulfilled the several purposes defined previously. In the first instance the recommendations for IP surveying of a previous writer have in fact been carried out and have shown a picture of positive merit. Twenty anomalous chargeability zones have been outlined. All of these are of a strength that is commonly associated with metallic sulphides and/or graphite. The new magnetics indicate a definite descrepancy in the previous work. The assessment requirements to keep the property in good standing have been accomplished. The "trendiness" of the results are compatible with the nature of the suspected geology, that is, bedded (sedimentary) or banded (volcanics) Cache Creek formation. It is unlikely that all anomalies are due to sulphide mineralization. Some such as B, C, D, H and I show more promise and should be further evaluated.

RECOMMENDATION

Those features of most importance, B, C, D, E, H and I, should be drill tested and those lacking in definition should be more completely studied by geophysical (IP) methods. Considering the geological environment, economic sulphides as a cause of some of the zones is a definite possibility.

Primary evaluation should therefore be by drilling the above six anomalies and if encouraging, a program of further geophysics and sampling must be considered. A phased work program to accomplish this is outlined and budgeted below.

PHASE I

A.	Magnetometer and EM check of target areas 6 x $150 per day----------	$ 900.00
B.	Site preparation 6 x $300.00----------	1,800.00
C.	Percussion Drilling four holes per target of 300 feet each thus 6 x 4 x 300 x $3.00 --	21,600.00
D.	Sampling, geological, assaying for 7200 feet x $1.00 ----------	7,200.00
E.	Supervision 24 days x $150.00 ----------	3,600.00
	Sub total	$35,100.00
	Contingency----------10%	3,510.00
	Total Phase I------	$38,610.00
	Phase II - dependent on the success of Phase I	
F.	Complete IP coverage and detailing-------	$67,620.00
G.	Diamond Drilling, estimate 10,000 feet x $10	100,000.00
H.	Drill Supervision, sampling and assaying 10,000 feet at $1.50 per foot----------	15,000.00
	Sub-total	$182,620.00
	Contingency----------10%	18,262.00
	Total Phase II----	$200,882.00

Respectfully submitted,

DOMINION EXPLORATION SERVICES LIMITED

J. B. Prendergast, M. A. Sc., P. Eng.
President.

PROFESSIONAL ENGINEER
J. B. PRENDERGAST
BRITISH COLUMBIA
Expiry Date: May 28, 1978

STATUATORY DECLARATION

I, JOSEPH BENOIT PRENDERGAST of the City of Calgary, Province of Alberta HEREBY CERTIFY

1. That I am a geophysicist - geologist resident at 1720 - 110th Avenue, S. W., in the City of Calgary, Alberta.

2. That I am a graduate of the University of Toronto with a Bachelor of Arts degree (1950) in Physics and Geology and a Master of Arts degree (1951) in Geophysics.

3. That I have been practising my profession continuously for 21 years in Canada and internationally both in the mineral and petroleum exploration industries.

4. That I am a member of the Associations of Professional Engineers for the Provinces of Ontario, Manitoba, Alberta and British Columbia.

5. That I have no interest either directly or indirectly in the properties or shares of Peyto Oils Limited nor do I expect to receive any such interest.

6. That this report is based on data derived from work carried out on the property directly under my supervision, from pertinent published maps and reports and from personal communication with other technical persons conversant with the area.

DATED this 25th day of October, 1972 at the City of Calgary, Province of Alberta.

J. B. PRENDERGAST, M.A.Sc., P.Eng.

PRENDERGAST BRITISH COLUMBIA ENGINEER

Expiry Date: May 28, 1973

DECLARATION OF WORK AND EXPENDITURE

I, JOSEPH BENOIT PRENDERGAST of the City of Calgary, Province of Alberta, HEREBY DECLARE

1. That the following work was carried out on the Paw, Sam Ranger and GW group of claims in the Bonaparte Valley area of the Clinton and Kamloops Mining Divisions of the Province of British Columbia on behalf of Peyto Oils Ltd.

   (a) 34 days of Induced Polarization Surveying with four additional days of crew standby time due to weather

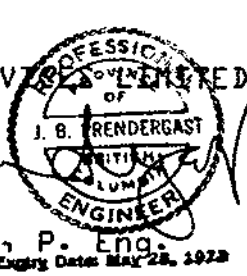
   (b) one day of magnetometer check work

2. That the above work was invoiced to Peyto Oils as follows:

(a) 34 days at $495.00 per day and four days at 50% of $495.00 per day for a total of----------	$ 17,820.00
(b) one day of magnetometer work at $125.00----------	125.00
(c) Travel expense from Kamloops and Calgary----------	300.00
Total charges	$ 18,245.00

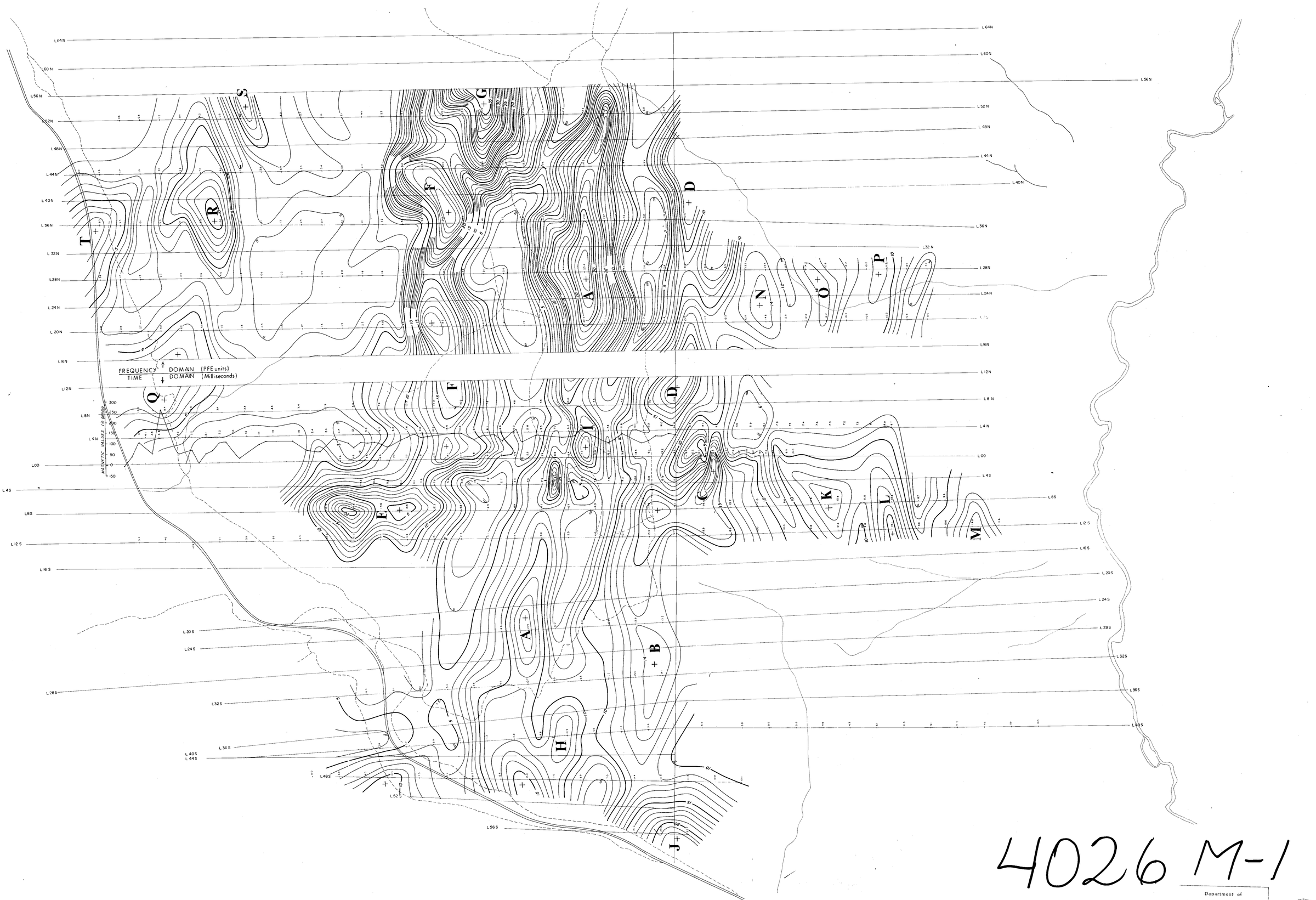
DATED this 25th day of October, 1972 at the City of Calgary, Province of Alberta.

DOMINION EXPLORATION SERVICES LIMITED



J. B. Prendergast, M. A., P. Eng.
President.

Expiry Date MAY 28, 1973



INDUCED POLARIZATION PARAMETERS

	TIME DOMAIN	FREQUENCY DOMAIN
ARRAY	POLE - DIPOLE	DIPOLE - DIPOLE
SPACING UNIT	200'	300'
N VALUES	2 & 4	1, 2 & 3
FREQUENCIES	——	0.3 & 5.0 cps
DELAY TIME	0.060 seconds	——
INTEGRATION TIME	0.060 seconds	——

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PEYTO OILS LTD
MAGGIE GROUP

CHARGEABILITY — FREQUENCY EFFECT

Scale: 1" = 400' C.I.: As shown Date: July 1972

DOMINION EXPLORATION SERVICES LIMITED
To accompany report by J.B. Prendergast

DOMINION EXPLORATION SERVICES LIMITED

SUITE 1503 - 909 SEVENTH AVENUE S.W.
CALGARY, ALBERTA, CANADA, T2P 1A6
PHONE (403) 265-1329

SUITE 600 - 235 FIRST AVENUE
KAMLOOPS, BRITISH COLUMBIA, CANADA
PHONE (604) 374-0187

INITIAL

1203 London House,
505 - 4th Ave. SW
Calgary, Alberta.

November 27, 1972

DEC 1 [illegible] AM

Mr. E.J. Bowles
Chief Gold Commissioner,
Department of Mines and Petroleum Resources,
VICTORIA, B.C.

DEPT. OF MINES AND PETROLEUM RESOURCES

18545 File No. 166 Clinton and Kamloops

Dear Sir,

We are in receipt of your letter of November 9, 1972 respecting the geophysical work carried out on the RANGER, PAW, SAM and G.W. claims. The answers to your queries are given here in the same order as received.

1. The magnetometer profile on line 0+00 uses the line itself as a base and readings plotted positive to the north at a scale of 1 cm. = 50 gammas. Two sets of the map with the additions on them are included with this letter to replace those presently in your files.

2. The parameters of the IP surveys have also been included on the enclosed maps and are as follows:-

a) the array used was pole-dipole with an "a" value of 200 feet with "n" values = 2 and 4.

b) the current on and off times were 2 seconds and 2 seconds respectively, while the integration time was 60 milliseconds after a delay time of 60 milliseconds.

c) The frequencies used for the frequency domain measurements were 5.0 cps and 0.3 cps.

d) the readings for the McPhar equipment were taken at "n" = 1, 2 and 3 for an "a" value of 300 feet.

In plotting the chargeability - percent frequency effect data on plan form the "m2" values were used for the time domain points and "m" = 1 for the frequency domain points. On the maps included herewith these parameters have been added.

We apologize for the delay in answering your query however I have been out of the country for the last three weeks. Should there be anything further you require please do not hesitate to contact the writer.

Yours very truly,

J.B. Prendergast, M.A.P.Eng.