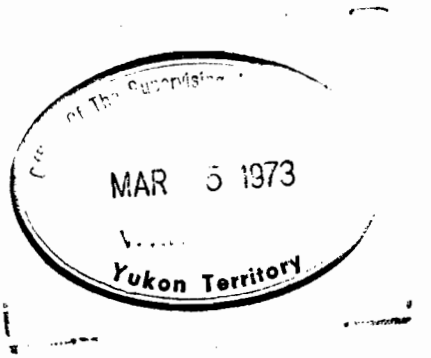

A Geophysical Report
On the
Alberta and Yukon Claim Groups
Mayo M.D. Sheet 105-M-13
Lat. 63° 54'N., Long. 135° 41'W.
June 6 to June 17, 1972
For Canadian Reserve Oil and Gas Limited
By E.R. Rockel, Supervised by R.W. Stemp, P.Eng.
Project No. 72094

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of
$ 3,133.44

D. B. Craig
Resident Geologist or
~~Resident Mining Engineer~~

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

Commissioner of Yukon Territory

SPARTAN AERO LIMITED

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Maps Accompanying this Report:-

S.E. 300 Reconnaissance Survey Profile Presentation and Traverse Plan (Sheet 1 and Sheet 2).

Scale: 1 inch = 200 feet.

Geophysically Detailed Areas Profile Presentation.

Scale: 1 inch = 200 feet.

SUMMARY

This survey was a continuation of a survey initiated in 1971 by E.J. Wilson. It was found in the 1971 survey that the VLF-EM reconnaissance method fails in this area because of the masking effects of conductive overburden. For this reason the Crone Shootback method was employed using conventional vertical loop electromagnetic equipment for reconnaissance purposes.

From the reconnaissance results two additional conductor systems were delineated using the same equipment in the fixed transmitter (vertical loop) mode. Drill hole sites were located for investigation of the conductive material in both systems.

I. INTRODUCTION

A geophysical survey was conducted on behalf of Canadian Reserve Oil and Gas Limited by Spartan Aero Limited on a portion of the Alberta and Yukon Mineral Claim Groups during the period from June 6 to June 17, 1972. These claims appear on the Mt. Haldane Claim Map Sheet 105-M-13.

The object of the survey was to discover areas of bedrock conductivity for subsequent detail follow-up and ultimate investigation by drilling.

In order to penetrate thick conductive overburden present in the area the reconnaissance survey was carried out using SE-300 vertical loop electromagnetic equipment in the Crone Shoot-back mode. This method was used with a coil spacing of 400 feet in order to obtain maximum depth penetration.

Detailed investigations were performed over anomalous areas observed on the Crone Shootback reconnaissance profiles. The same SE-300 equipment was used in the fixed transmitter (vertical loop) mode to obtain detail profiles.

A total of 40.7 miles of survey was performed on the Alberta and Yukon mineral claims. The work involved chainage of pre-cut crawler tractor cleared lines, reconnaissance surveying, and detail surveying. The total mileage for each type of work is as follows:

Chainage of pre-cut lines	-	22.4 miles
Reconnaissance survey	-	14.4 miles
Detail survey	-	3.9 miles

Personnel associated with this project were as follows:

H. Tretwold	Port Moody, B.C.	Geophysical Assistant
P.G. Morgan	North Vancouver, B.C.	Geophysical Assistant
J.C. Barker	Ottawa, Ontario	Geophysicist
E.R. Rockel	Richmond, B.C.	Geophysicist
R.W. Stemp	Ottawa, Ontario	Chief Geophysicist.

II. GEOLOGY

Glacial deposits cover the survey area, increasing in depth toward Haldane Creek. Inferred from Geological Survey of Canada - Memoir 357 - Figure 5, the Alberta - Yukon claims are underlain by Keno Hill Quartzite and Precambrian Upper Schist separated by a thrust fault striking roughly east-west.

Observations made in 1971 by E.J. Wilson reveals thin-bedded quartzite dipping southerly at approximately 30 degrees on Wayne mineral claim number 5.

III. GEOPHYSICAL INSTRUMENTATION AND METHODS

A Sharpe SE-300 electromagnetic unit was used for both the reconnaissance and detail E.M. surveys.

The survey grid used was pre-cut by crawler tractor, and was an extension of the 1971 grid system used by E.J. Wilson.

SE-300 reconnaissance data are profiled such that resultant dip angle measurements consistantly greater than negative 10 degrees constitute anomalous readings. Detail data are profiled in such a way that a conductor found by the fixed transmitter (vertical loop) method will produce a "crossover" response. This response will have its minimum (negative angles) on the left side of the conductor axis and its maximum (positive angles) on the right side. Conductor axes have been drawn on the detail map from line to line where continuation is evident.

IV. DISCUSSION OF RESULTS

The reconnaissance survey revealed conductivity in only one general area. This area, from about station 10S northward on lines 4+00E, 0+00, 4+00W, 8+00W, 12+00W, and 16+00W, contained two major conductive localities. The first locality was an overlap of the survey performed in 1971 by E.J. Wilson. The conductors delineated in that survey were readily observed by the reconnaissance method employed in 1972 thus proving the new method's effectiveness. The second locality was near the northern extremities of lines 4+00W, 8+00W, 12+00W and 16+00W. Subsequent detail search and follow-up indicated two rather wide conductors striking roughly east - west. These conductors are shown as C-1, C-3 and D-1, D-3, D-4 on the Geophysically Detailed Areas Profile Presentation. SE-300 detail profiles indicated that conductor "C" is about 100 feet wide, has a southerly dip (probably shallow), is deeply buried (more than 100 feet), and terminates between line 8+00W and line 12+00W. Conductor "D" is shown to be approximately 50 feet wide on line 8+00W, decreasing in width, changing strike, and becoming more shallow as it extends westward. The depth of conductor "D" probably ranges from about 50 to 100 feet, with its dip also southerly but steeper than conductor "C", perhaps 70^{o}.

Elsewhere in the survey area standard detail profiles were obtained over questionable reconnaissance anomalies to check their validity. Profiles B-1 to B-3 on lines 4+00E, 0+00 and 4+00W plus broadside results on lines 4+00E and 0+00 are examples. A similar test done in the vicinity of station 50-S on lines 0+00 and 4+00W produced a very weak and questionable conductor axis (A-1, A-3).

V. CONCLUSIONS AND RECOMMENDATIONS

Although the Crone Shootback method has proved useful in establishing areas of conductivity for detail follow-up it is evident from the results that conductive overburden has decreased the resolution of the method such that anomalous areas are described by readings consistantly negative 10 degrees rather than 5 degrees as is normally the case.

Profiles obtained from "A" and "B" transmitter points (as shown on the detail map) indicate an absence of significant conductivity beneath questionably anomalous reconnaissance results. In the case of "A" profiles a normal search pattern produced a "migrating crossover" (note A-3 is more than 200 feet south of the original crossover found at A-2) which is typical of a shallow flat lying conductor (conductive overburden), or transmitter mis-alignment. The rather hackly curves plus inexperience of the transmitter operator at this point lead the writer to believe the latter conclusion as being correct.

Conductors "C" and "D" found in the north - eastern part of the survey area appear to possess many of the characteristics of the conductor systems delineated in 1971. This fact plus the consistantly anomalous profile on reconnaissance line 4+00W from the 1971 conductors continuing to conductor axis C-1 suggest geological similarities between the two groups.

Because the strike of conductor axis D-3, D-4 points off-area, and since the conductor was not closed by the survey it is highly probable that the zone continued an appreciable distance onto unclaimed ground. For this reason it was recommended that an additional group of claims be staked to the north contiguous with the northern boundary of the survey area to protect any economically interesting conductivity that may exist there.

Two diamond drill holes were located to determine the source of conductivity beneath axes "C" and "D". Diamond drill hole number 1 (D.D.H. no. 1) is situated on line 8+00W at station 25+50'N. It should be drilled at an angle of 60° north at azimuth 005°T to a depth of approximately 280 feet to completely test the conductor. Diamond drill hole number 2 (D.D.H. no. 2) is situated on line 16+00W at station 33+60'N. It should be drilled at an angle of 60° north at azimuth 021°T to a depth of approximately 220 feet.

In view of the success experienced when using the SE-300 equipment in the Crone Shootback mode for reconnaissance purposes in the area, it is recommended that the survey be continued using the same techniques. At the completion of electromagnetic reconnaissance work a magnetic survey should be performed over the area to aid in establishing priorities for drilling of any additional detail anomalies observed in subsequent detail follow-up.

Respectfully submitted,

E.R. Rockel, BSc.,
Geophysicist.

R.W. Stemp, P.Eng.,
Chief Geophysicist.

OTTAWA, ONTARIO,
December 7, 1972.

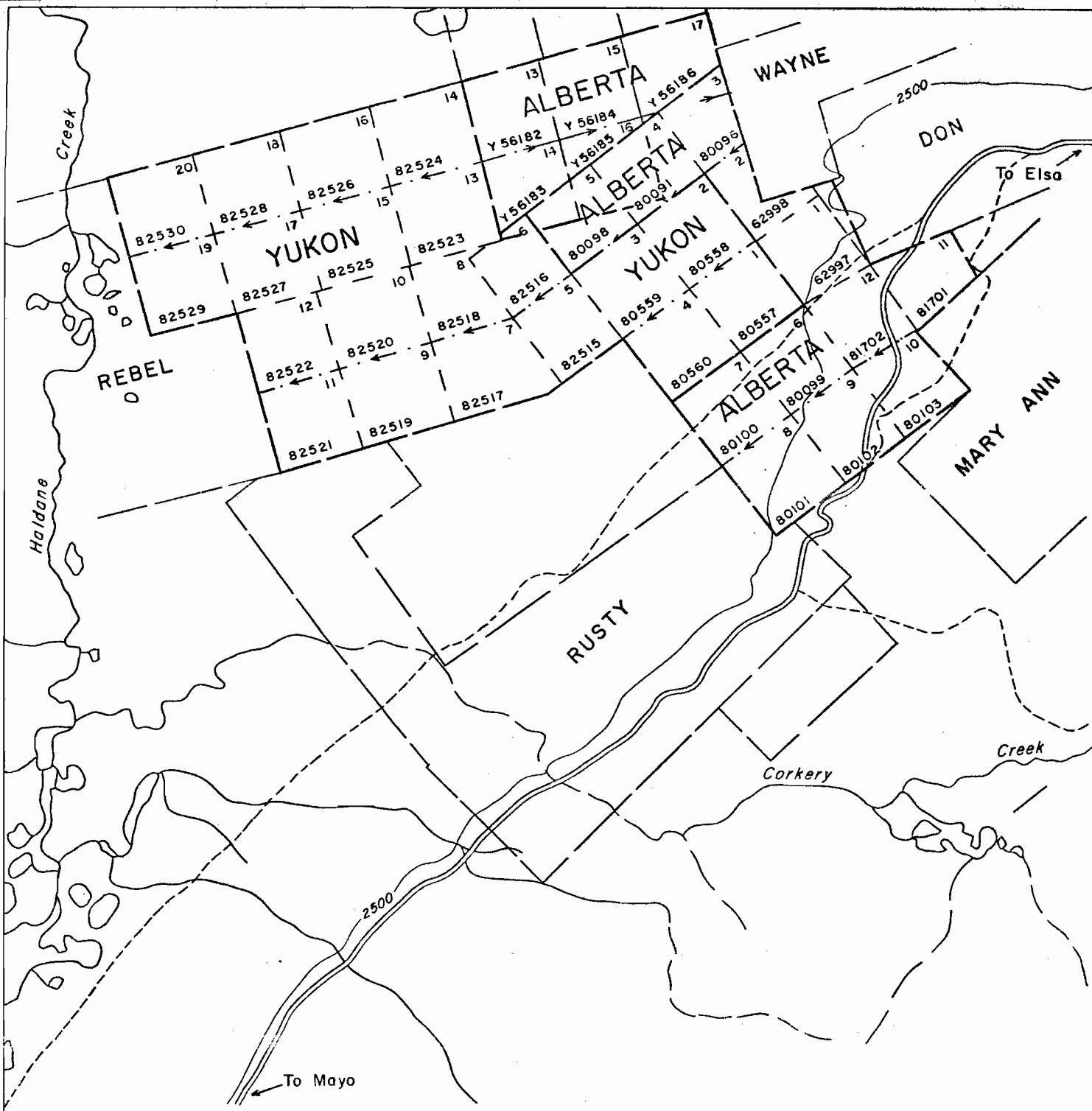
REFERENCES

Green, L.H.

1971, Geology of Mayo Lake, Scougale Creek and McQuesten Lake Map - areas, Yukon Territory. Geological Survey of Canada Memoir 357.

Wilson, E.J.

1971, A Geophysical Report on the Alberta and Yukon Claim Groups for Canadian Reserve Oil and Gas Limited (unpub.).



(APPROX.)

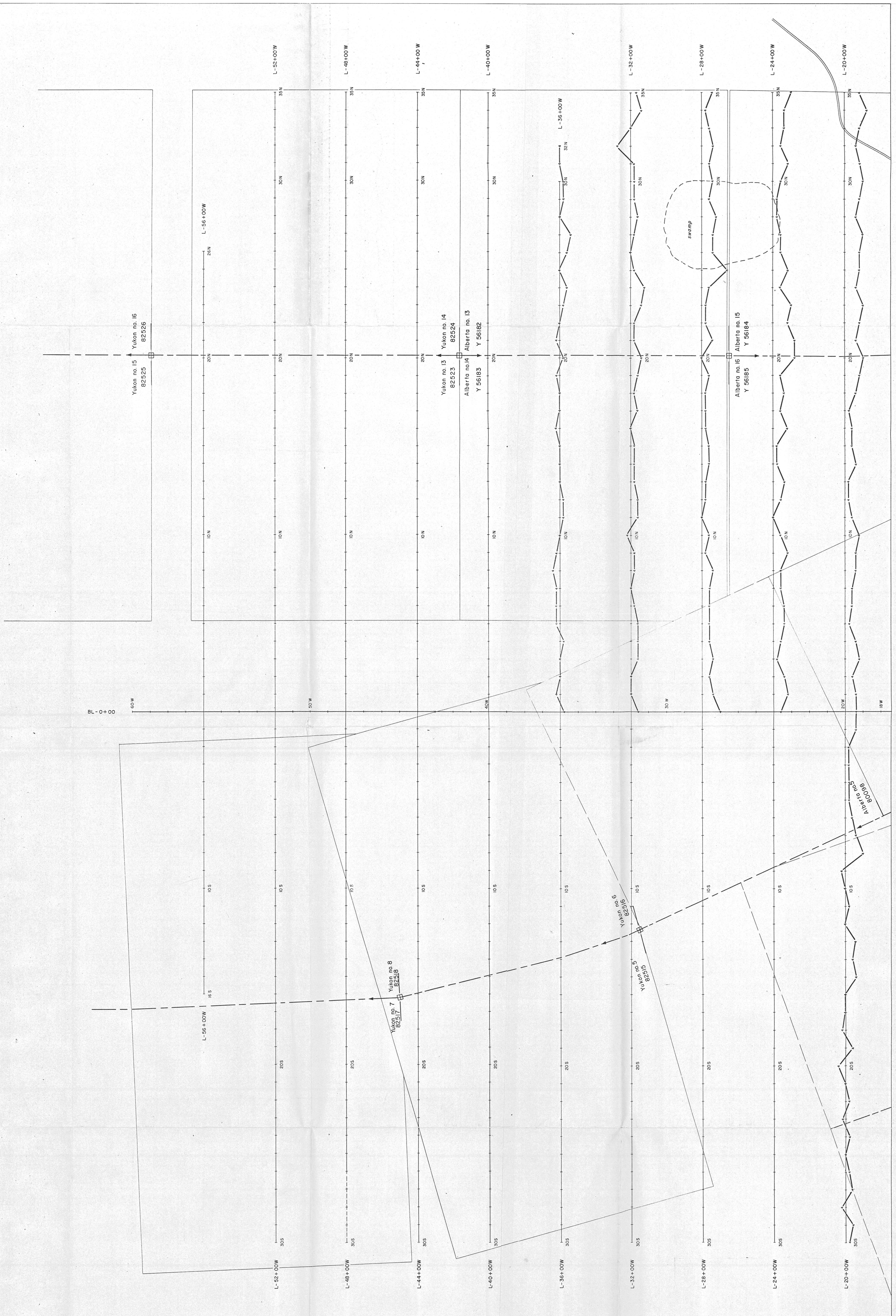
CANADIAN RESERVE OIL AND GAS LIMITED

CLAIM MAP

MAYO M.D. — SHEET 105-M-13

YUKON TERRITORIES

SCALE: 1 INCH = 1/2 MILE



SHEET INDEX

LEGEND

S.E. 300 PROFILES

CRONE SHOOT-BACK MODE
1600 Hz. - 400 ft. COIL SEPARATION
SCALE: 1 INCH=20°

TRAVERSE PLAN

- BULLDOZED, CHAINED AND PICKETED LINE
- COMPASSED, CHAINED AND PICKETED LINE
- PACED AND FLAGGED LINE
- CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM no. 1 POST TO no. 2
- CLAIM BOUNDARY
- ASSUMED CLAIM BOUNDARY
- ROAD
- SWAMP

S.E. 300 RECONNAISSANCE SURVEY

PROFILE PRESENTATION AND TRAVERSE PLAN

ALBERTA AND YUKON CLAIM GROUPS

MAYO M.D. - YUKON TERRITORIES

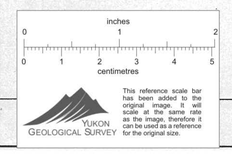
FOR

CANADIAN RESERVE OIL AND GAS LIMITED

BY

SPARTAN AERO LIMITED

SCALE: 1 INCH = 200 FEET



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LEGEND

S.E. 300 PROFILES

CRONE SHOOT-BACK MODE
1600 Hz - 400 ft. COIL SEPARATION
SCALE: 1 INCH=20"

TRAVERSE PLAN

BULLDOZED, CHAINED AND PICKETED LINE
COMPASSED, CHAINED AND PICKETED LINE
PACED AND FLAGGED LINE
CLAIM LOCATION LINE AND POSTS WITH DIRECTION FROM no.1 POST TO no.2
CLAIM BOUNDARY
ASSUMED CLAIM BOUNDARY
ROAD
SWAMP

S.E. 300 RECONNAISSANCE SURVEY

PROFILE PRESENTATION AND TRAVERSE PLAN

ALBERTA AND YUKON CLAIM GROUPS

MAYO M.D. – YUKON TERRITORIES

FOR

CANADIAN RESERVE OIL AND GAS LIMITED

BY

SPARTAN AERO LIMITED

SCALE: 1 INCH = 200 FEET

The reference scale bar should be used to check the scale of the map as the map may have been reduced or enlarged from the original size.

GEOLOGICAL SURVEY

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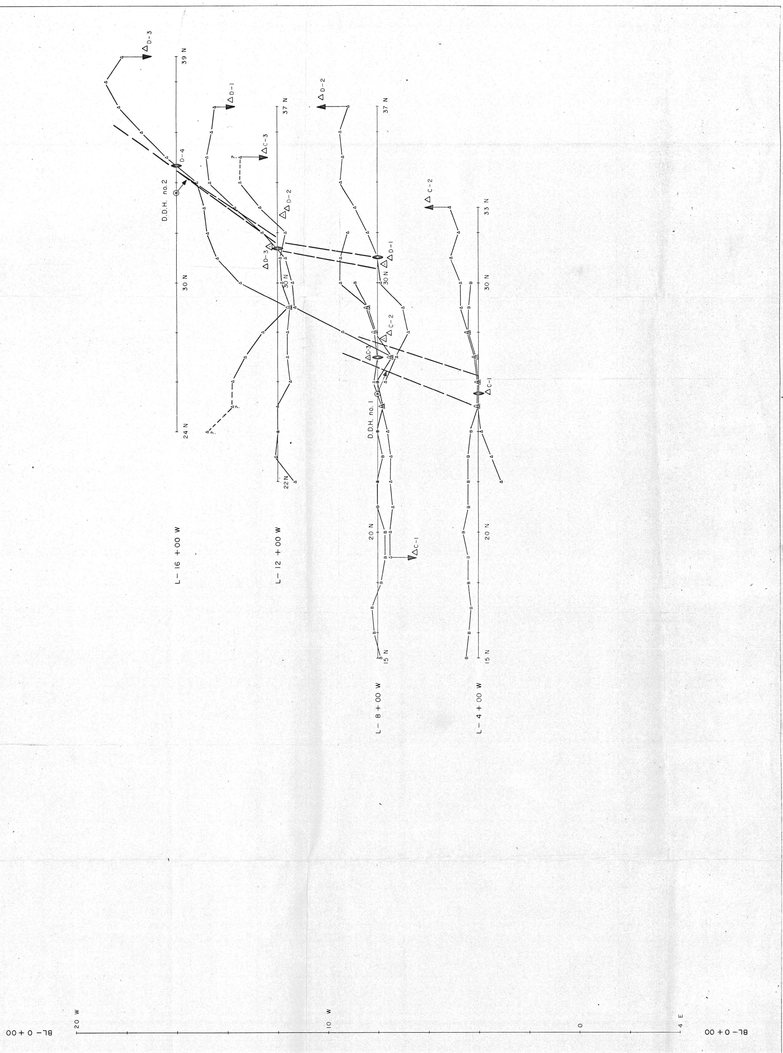
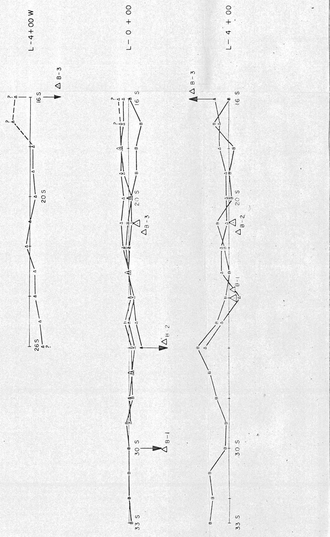
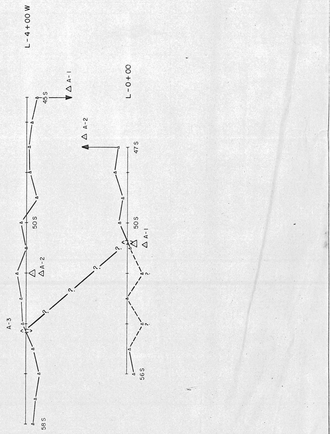
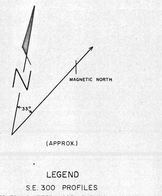








LEGEND

S.E. 300 PROFILES

FIXED TRANSMITTER MODE (VERTICAL LOOP)

1600 Hz. . . . . A

TRANSMITTER LOCATION . . . . . △

TRANSMITTER LOCATION FROM WHICH CURVE WAS DERIVED . . . . . △ A-2

CONDUCTOR AXIS MARKED BY X.O. PICKET . . . . .

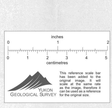
CONDUCTOR AXIS . . . . . B

BROADSIDE MODE (VERTICAL LOOP)

1600 Hz. . . . . B

SCALE 1 INCH = 20^

DIAMOND DRILL HOLE LOCATION . . . . . D.D.H. no. 2



This reference grid has been ruled to fit the original map. It may not be of exact dimensions if the map used as a reference has been photographically reduced or enlarged.

GEOPHYSICALLY DETAILED AREAS

PROFILE PRESENTATION

ALBERTA AND YUKON CLAIM GROUPS

MAYO M.D. — YUKON TERRITORIES

FOR

CANADIAN RESERVE OIL AND GAS LIMITED

BY

SPARTAN AERO LIMITED

SCALE: 1 INCH = 200 FEET

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