

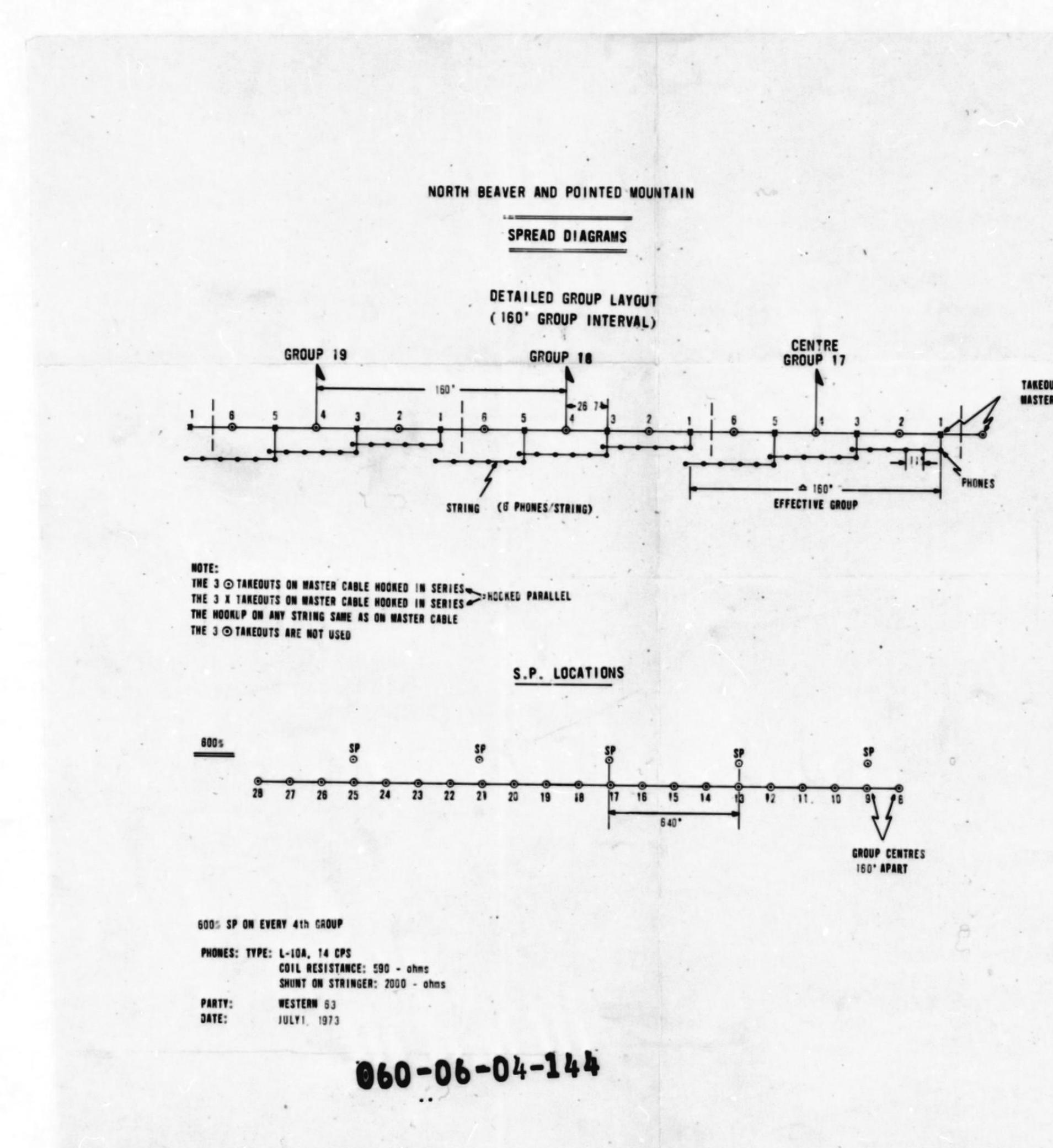
WEST CANADIAN GRAPHIC INDUSTRIES LTD.
810 - 35th Avenue S. W. CALGARY 1, ALBERTA
Phone 263-2555

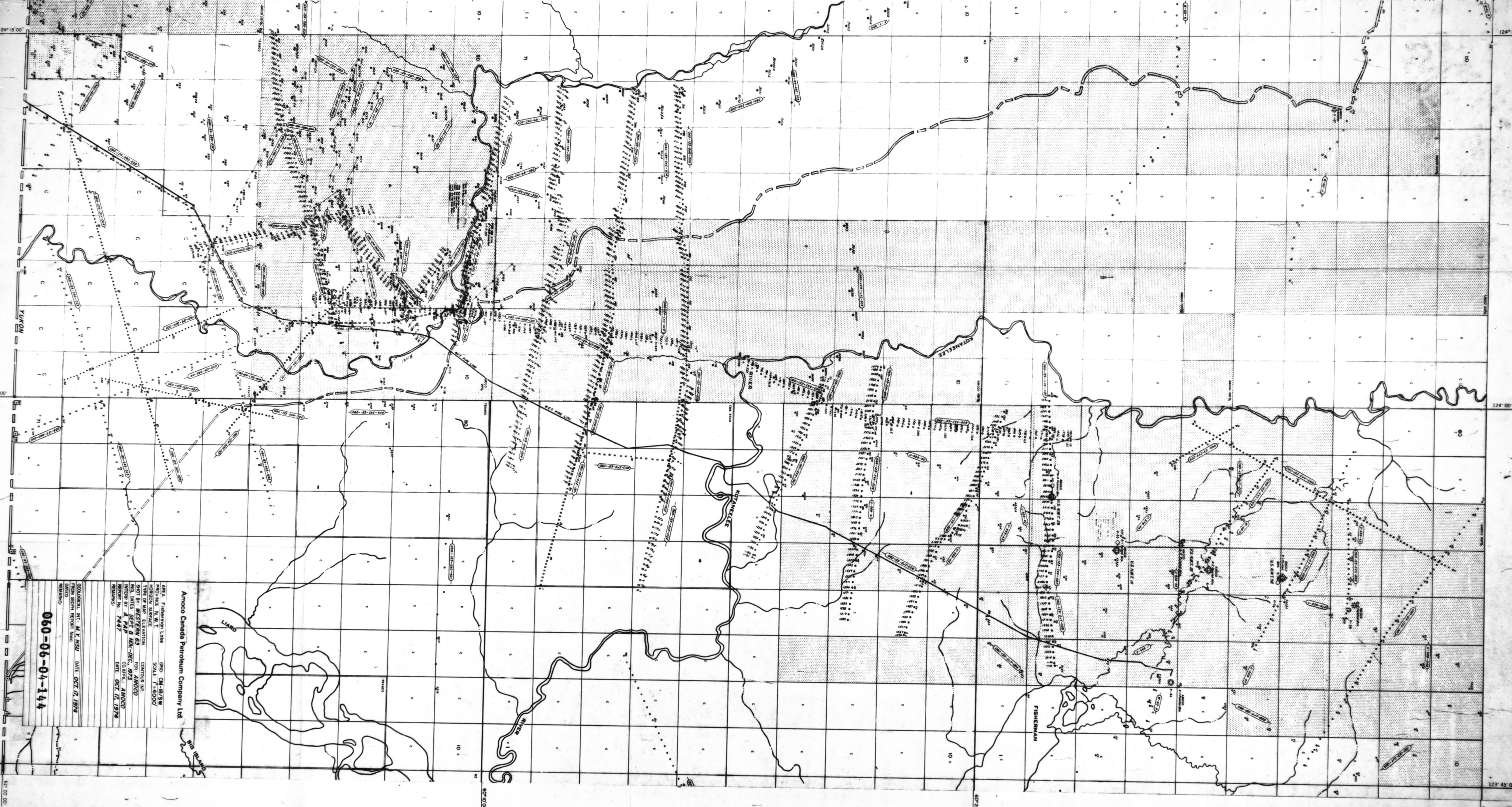
MICROMAT

10x

January 1975

060-06-04-14





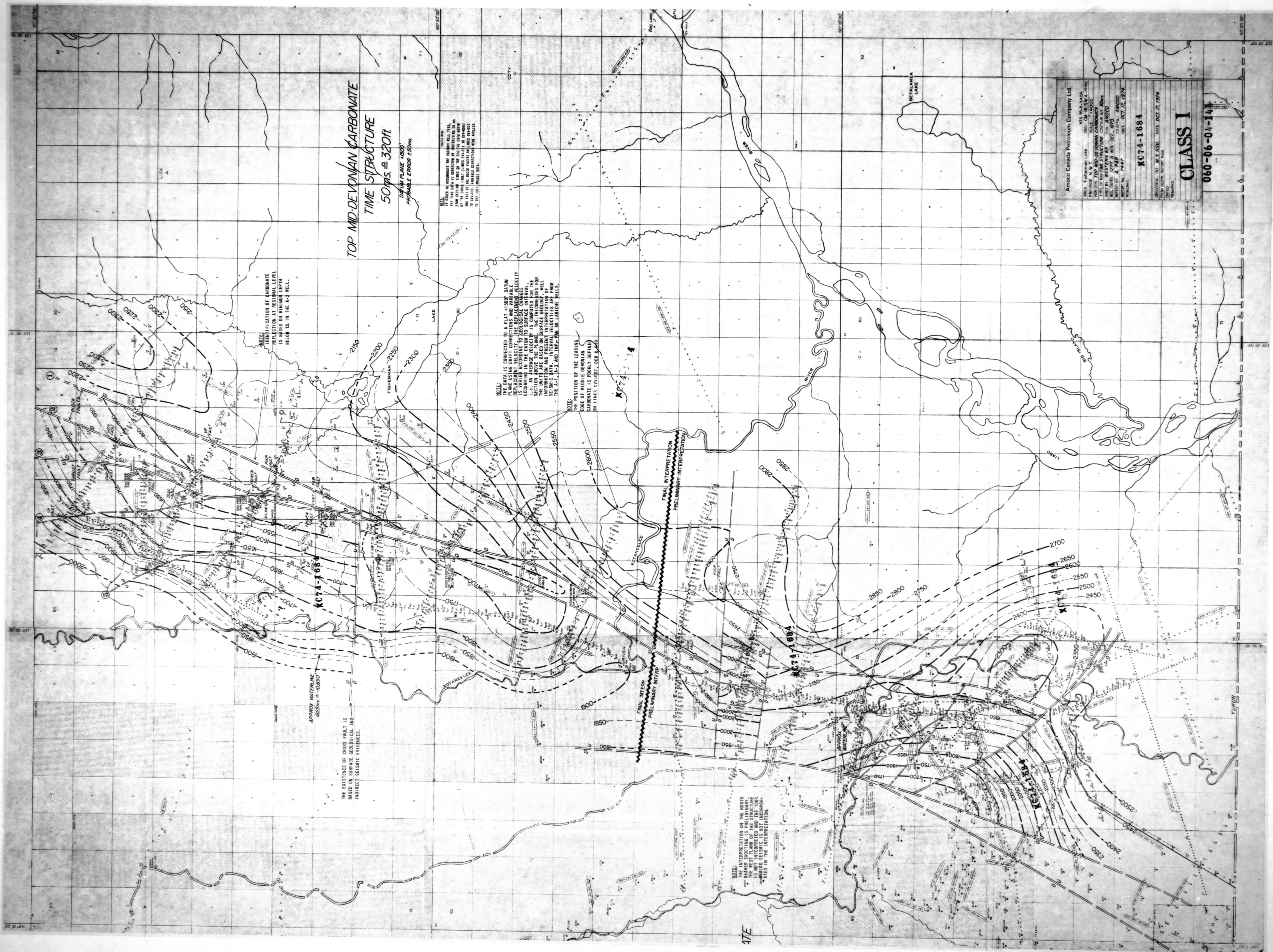
060-04-144

WEST CANADIAN GRAPHIC INDUSTRIES LTD.
810 - 5th Avenue S. W. CALGARY 1, ALBERTA

MICROMAT

201

1972



060-06-04-144



REPORT OF GEOPHYSICAL SURVEY

REPORT OF SEISMOGRAPH REFLECTION SURVEY

Conducted by

Western Geophysical Company of Canada Ltd.

for

Amoco Canada Petroleum Company Ltd.

July 8, 1973 to December 8, 1973

On and off Federal Leases (N.W.T.) 411, 412, 442,
443, 444, 523, 526, 527, 529, 702, 703, 707, 708, 838

Prepared by

D. E. Birnie
District Geophysicist

December 31, 1974

Submitted in support of application for credit; see affidavit made
by Amoco Canada of _____, 197 _____ and in
accordance with work obligations under Section 54, Subsection 1(f)
of the Regulations.

Project 60-6-4-73-6 # 853,629.70 submitted October 2, 1974 (Final)

Project 60-6-4-73-7 # 345,612.53 submitted June 11, 1974 (Interim)

TABLE OF CONTENTS

	<u>Page</u>
Title Page	1
Table of Contents	2
Introduction	3
Locality Map	5
Statistical Data	6
Field Procedure	12
Data Processing	12
Results and Interpretation	13

Enclosures in Pocket: Surface Elevations
 Spread Diagram

Top Mid Dev. Carbonate S.C. Map:
Registration No. *XC 74-1687*

Top Mid. Dev. Carbonate Time Structure:
Registration No. *XC 74-1686*

Introduction

During the summer and fall of 1973, a seismic survey was conducted by Western Geophysical Party F-63 for Amoco Canada Petroleum Company Ltd. in the North Beaver River and Pointed Mountain areas in the Northwest Territories (Topographic Grids 95-B-4, 5 and 95-C-1, 8).

The area covered was on and off Federal Leases (N.W.T.) 411, 412, 442, 443, 444, 523, 526, 527 (North Beaver River) and 529, 702, 703, 707, 708, 838 (Pointed Mountain). These leases are presently held by Amoco Canada Petroleum Company Ltd. and partners.

A total of 97 days (July 8, 1973 to October 13, 1973) at North Beaver River, plus an additional 69 days (October 1, 1973 to December 8, 1973) at Pointed Mountain were spent by the crew gathering data. This data was processed and interpreted in Calgary over an estimated period of nine months.

Western Geophysical Party F-63 was operating under the supervision of C.M. Larson, Party Manager.

Track mounted equipment was used throughout the operation both for technical vehicles and support facilities. Supplies and equipment for the North Beaver program had been stockpiled at two locations during January and February (1973).

Unforeseen operational problems were not encountered. However, the extreme topographical conditions at North Beaver River necessitated the use of helicopter support for moving the portable drill, laying cable, and hauling supplies.



Statistical Data

A. Personnel

(1) Recording:

1 Observer
1 Junior Observer
1 Shooter
1 Shooter's Helper
2 Cable Truck Drivers
4 Helpers
2 Surveyors
2 Rodmen

Total 14 Men

(2) Drilling:

5 Drillers
6 Waterjacks

Total 11 Men

(3) Line Cutting:

3 Bulldozer Operators

(4) Camp:

1 Party Manager
1 Clerk
1 Supplyman
1 Cook
1 Cook's Helper
1 Camp Attendant
1 Mechanic

Total 7 Men

GRAND TOTAL = 35 MEN

B. Equipment

- 1 Recorder Mounted on RN-110 Knodwell
- 1 Shooting Unit RN-110
- 2 Cable Unit RN-110
- 1 Survey Unit RN-75
- 1 Supply Unit RN-110
- 1 Drill TD RN-110
- 2 Drill A/W FN-160
- 1 Drill Conv. RN-110
- 1 Drill (Helicopter)
- 3 Water Trucks RN-110
- 1 Foldout Utility (Track)
- 1 Foldout Kitchen (Track)
- 2 Sleeper Trailer (Track)
- 1 Power Plant RN-110 Powered
- 1 Workshop RN-110 Powered
- 1 Fuel Sloop RN-110 Trailer
- 2 D-6C (Wide Pad) Bulldozers
- 1 D-7F Bulldozer
- 1 Sikorsky 55T Helicopter (North Beaver only)

The T.I DFS-III 48 channel digital instruments were used for recording the information on Tape. 24 segments of 104 conductor cables were used (6 takeouts/group and 5 groups/segment) together with 400 strings of Mark L-10 geophones (6 phones/string and 3 strings/group). For details see diagram in pocket.

C. Stockpiles

The following materials were stockpiled at two locations (shown on the attached Location Map) in the winter of 1973-74.

STOCKPILE #1

DOME STRIP NORTH BEAVER

<u>ITEM</u>		<u>TOTAL</u>
GAS		16,000 Gal.
DIESEL		12,000 Gal.
Oil	Essolube XD-3 30 Essolub SD-3 30 Esso Aviation Oil 100 Arcan 1 Esso gear oil GX 90 Esso extra motor oil 10W/30 ATF	60 Pail 12 24 x 1 Qt. 60 Pail 10 30 x 14 oz. 10 Pail 30 24 x 1 Qt. 30 Pails
POWDER	2-1/4 x 5 lbs. 3 x 10 lbs.	25,000 19,980
CAPS		
1 Mag. #54	Seismocaps 100' HDP 60/cs Seismocaps 80' HDP 70/cs Polygelmud 50#/bg Bran 50#/bg Trojan Hole Plugs 25/cs Viro Padlocks No Trespassing Signs Brass cpld. Log Poles Brass Butt End Poles 2-1/4	420 420 40 40 200 6 2 20 5
J.P. 4	134 drums (45 gal. barrels)	
PROPANE	15 - 100 lbs.	
	Drums for fuel 30	

STOCKPILE #2

KOTANEELEE STRIP

<u>ITEM</u>		<u>TOTAL</u>
GAS		24,000 Gal.
DIESEL		18,500 Gal.
<u>POWDER</u>	2-1/2 x 5 lb. 3 x 10 lb.	25,000 29,820
<u>CAPS</u>		
2 Mags #14 & 86	Seismocaps 80' HDP 70/cs Seismocaps 100' HDP 60/cs Polygel Mud 50#/bg Bran 50#/bg Trojan Hole Plugs 9" 25/cs Viro Padlocks No Trespassing Signs Brass Cpld. Log Poles Brass Butt End Poles 2-1/4	630 600 60 60 300 8 2 30 5
<u>J.P. 4</u>	100 by 45 gal. barrels	
<u>PROPANE</u>	15 - 100 lbs.	

D. Mobilization Dates and Production

The survey consisted of nine lines at North Beaver River (DHP-1, 2, 3, 4, 5, 6 and DHQ-2, 3, 4) and five lines at Pointed Mountain (CVV-5, 7, 8, 9, 10). Total mileages were 60 and 32 and total shotpoints numbered 422 and 915 respectively.

The North Beaver River program had been pre-cut the previous winter, and the crew commenced operations on July 8, 1973. The recording crew finished this program on October 13, 1973 for an average daily production of 0.62 miles.

Meanwhile the line cutting and surveying had begun at Pointed Mountain on October 1, 1973; and this program was completed December 8, 1973 for an average daily production of 0.48 miles.

E. Navigation

A horizontal and vertical survey was run on all lines. At North Beaver, the lines tied to the legally surveyed Westcoast Pipeline and the Canada Southern et al North Beaver wellsite, with the addition of independent tellurometer readings. At Pointed Mountain, control was again from the pipeline, plus the Amoco A-3 Pointed Mountain wellsite. Wild T16 theodolites were used throughout.

F. Conditions

The extreme topographic conditions limited the program and necessitated a summer operation for both prospects. No unforeseen operational problems were encountered, although the steep slopes at North Beaver required the use of a portable helicopter drill.

Field Procedure

The area was surveyed by conventional reflection method with 600% and 1200% subsurface coverage. Average hole depths were 60 feet at North Beaver and 45 feet at Pointed Mountain, with single 100 lb. charges standard for both prospects. See spread diagram in pocket for detailed information on cable and shotpoint configurations.

Data Processing

Elevation static corrections were supplied to a +1500 foot datum using a variable replacement velocity and time-delay corrections due to the presence of near-surface low velocity layer. Trace muting, dynamic corrections, amplitude equalization and time filtering were applied prior to stack. All processing was performed either in-house or at GEODIGIT.

Results and Interpretation

Objective (North Beaver):

To better define the Mid-Devonian structure which was identified from previous seismic and the Canada Southern et al well.

Objective (Pointed Mountain):

To obtain better definition of the south part of the Pointed Mountain structure, and relate this to previous control to the north.

Results (North Beaver):

The preliminary interpretation shows that the Mid-Devonian Carbonate anomaly, controlled by two major north-south striking block faults and a number of cross faults (horst type), is located on the east flank of the surface structure. The surface anticline is thought to be the result of imbricate thrusting and hence pileup of the Mississippian-Devonian shale section. The thrusting is from the west and, as the Pan Am Kotaneelee A-1 well indicates, the Mid-Devonian Carbonate is not involved in the thrust faults. The combination of block faulting and thrusting implies two periods of movement: pre-Leramide block faulting and Leramide thrusting. The Mid-Devonian Carbonate structure appears to be small and uneconomical at this time.

Results (Pointed Mountain):

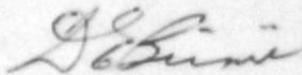
The new reflection survey shows that the southern half of the Mid-Devonian Carbonate structure is probably controlled by block faults on the east side. It appears that the thrust faults involving the Carbonate and superimposed on the uplifted blocks to the north die out in the Mississippian-Devonian Shale south of the cross fault. Hence, the shale section thins to the south over a relatively flat Mid-Devonian Carbonate. As the result of thinning shale section, a larger Mid-Devonian Carbonate anomaly is present in the area of new seismic than previously interpreted or could be predicted from the south plunging surface anticline.

Conclusions

Additional digital seismic, combined with previous knowledge of the structural style, has enabled us to complete the structural trend from Beaver River to Pointed Mountain.

Respectfully submitted,

Amoco Canada Petroleum Company Ltd.



D. E. Birnie
District Geophysicist