FORT SIMPSON SEISMIC PROGRAM

PROJECT NO. 57-6-4-68-4

PROPERTY OF THE STATE OF NEW YORK
PROPERTY NOT TO BE REMOVED

Reflection Seismograph Survey

FORT SIMPSON AREA

NORTHWEST TERRITORIES

for

MOBIL OIL CANADA, LIMITED



RAY GEOPHYSICAL LIMITED
DIVISION OF
MANDREL INDUSTRIES, INC.
CALGARY, ALBERTA
CANADA

I N D E X

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FIGURES 1 - 9

4 ENCLOSURES: HUME FORMATION

Map Areas: Martin River

Trail River

Lone Mountain

Sibbeston Lake

OPERATING CONDITIONS

The prospect area was located in Northwest Territories, approximately 35 miles west of Fort Simpson. (Figure 1).

The area is covered entirely with forest and muskeg. Three bulldozers were used for clearing lines for seismic operations. Access to the prospect area was along a bulldozed trail from Fort Simpson.

South portion of the prospect was located in the Martin Hills while northern portion was situated on gently sloping terrain along the Mackenzie River.

The weather was extremely cold.

The camp was located approximately at Sp. 286, Line 25 - 10.

SURVEYING

Two Wild T1A Theodolites were in use at the crew for maintaining vertical and horizontal control.

The entire survey has been based on the Monument 63 - A - 195, Topographical Survey, Department of Mines and Technical Surveys, Map Sheet 95 - G - 16 (Martin River), Zone 10.

Elevations were double-run and vertical control was kept within less than three feet.

Observation of Polaris was carried out on January 14, February 10, and February 12, 1969. Average Grid Bearing from the three observations was calculated to be 359^{o} 11.8' for Line 25 - 10.

Shotpoint locations were computed by Latitude and Departure Method and plotted on the base maps supplied by Mobil Oil Canada, Limited. Map scale was 2 inches to 1 mile.

Geophone stations at 220 and 110-foot intervals were laid out with a 110-foot long metal chain.

Highest elevation surveyed in the area was 2311.7 feet at Sps. 214 and 216, Line 25 - 10. Lowest elevation was 384.5 feet at Sp. 525, Line 25 - 5.

DRILLING

Single holes were drilled to a depth of 60 feet on Line 25 - 10 and on the eastern end of Line 25 - 5. Hole depth was decreased to 50 feet on the western part of Line 25 - 5 and on Line 25 - 23. Holes were preloaded with 2½ pounds of Geo-Gel.

Drilling conditions were very hard and slow. Clay and rocks, boulders or gravel were encountered near the surface (about 0 to 30 feet), below which shale and layers of hard sandstone were found. Auger drills could not drill in the hills and these were moved to the lower ground near the river. Even there the augers had to pick the locations where they could drill.

It was noticed that five drills were insufficient to keep the recording unit fully occupied. It is estimated that about ten drills should be employed for maximum efficiency.

RECORDING

Split spread shooting and Common Depth Point (CDP) recording method was employed throughout the prospect. Spread length was 2640 feet on Line 25 - 10, from Sp. 188 - 326 with a shotpoint interval of 660 feet and traces at 220 feet (Figure 2). From Sp. 320 to Sp. 523, Line 25 - 10, and from Sp. 524 to 545, Line 25 - 5, the spread length was 1320 feet and shotpoint interval 330 feet, trace interval 110 feet (Figure 3). CDP coverage for the above mentioned lines was 400% (4 - fold) (Figure 4). Shotpoint interval was increased to 440 feet, starting at Sp. 545, Line 25 - 5 and all of Line 25 - 23. Trace interval remained at 110 feet (Figure 5). CDP coverage for these lines was 300% (3 - fold) (Figure 6).

The Instruments used were a 24 Trace Set of TI-10,000 Portable Digital Recording Instruments with one inch tape.

Recording filter was 21 - 92. Record length was 2 seconds, sample rate 0.002 seconds.

18 geophones per trace were employed with a total geophone spread of 170 feet (Figure 2).

Record quality was generally fair to very good.

In order to obtain good first breaks for weathering control,

extra weathering shots were taken every ½ of a mile. Spread length was 2640 feet. Weathering shots started at Sp. 422, Line 25 - 10 on Jan. 24.

Two Noise Spreads were shot on Line 25 - 10, at Sp. 200 and Sp. 502 (Figure 7). Trace interval was 44 feet, total spread length 3 x 24 stations (3168 feet). Two shots were taken into each group of 24 stations. One shot was recorded with 18 phones per trace, filter 21 - 92. The second shot was recorded with a single refraction phone (7 cps) per trace, filter OUT-OUT.

Normal noise pattern was present on the records and there does not seem to exist any major noise problem in the area.

COMPUTING

Writing up of Tape Data Sheets, Tape Data Header Sheets, Stacking Diagrams, Tape Lists, Computing of Weathering, and Plotting of Shot-points on the maps were done according to the instructions from the Geophysical Department of Mobil Oil Canada, Limited.

A combination of measured uphole and linear refraction theory was used to correct for the effects of the low velocity surface layers. A delay time in the low velocity layer was then used as the weathering correction.

The following formulae were used to obtain total corrections to Datum Plane :

$$Tc \text{ (Total Correction)} = Wx \pm Ec + Tuh$$

$$Wx \text{ (Weathering Correction)} = \left(- Tuh + \frac{Ds}{Vc} \right) - k \left(\frac{To}{2} - Tuh \right),$$

$$Ec \text{ (Datum Correction)} = \frac{El - DP}{Vc} \text{ , where}$$

El - Surface Elevation

Tuh - Uphole Time of the Shotpoint

Ds - Depth of Charge from Surface

Vc - Datum Correction Velocity (11,000 ft./sec.)

To - Intercept Time of the High-Speed Layer

Vw - Velocity of the Near-Surface Layer (Weathering)

DP - Datum Plane = 1000 feet above sea level

$$k \text{ (Delay Factor)} = \sqrt{\frac{Vc - Vw}{Vc + Vw}}$$

It was observed from the first arrival plots that Vw (near-surface velocity) increased toward the Mackenzie River from average Vw = 6250 feet/sec. at the south portion of Line 25 - 10 to approximately Vw = 7600 feet/sec. at the north end. Delay factor (k) = 0.5 was used on Line 25 - 10. However, due to the increase of Vw, k = 0.4 was used on Lines 25 - 5 and 25 - 23. Constant Vc = 11,000 feet/sec. was used throughout the prospect.

One part of the Weathering Correction (Wx) was included on the Tape Data Sheets, namely $\left[- k \left(\frac{To}{2} - Tuh \right) \right]$, written in columns 44 to 47. The sum of $\left[- Tuh - k \left(\frac{To}{2} - Tuh \right) \right]$ was written in columns 61 and 62 (without the sign).

Two Uphole surveys were completed on Line 25 - 10, at Sp. 188 (Figure 8) and at Sp. 503 (Figure 9) respectively. The first survey at Sp. 188 could only be drilled to 170 feet and it showed Vw = 6400 ft./sec., but it did not penetrate the high-speed layer. The second Uphole survey at Sp. 503 was drilled to a total depth of 290 feet. Depth of weathering was found to be 130 feet, average weathering velocity being 5000 ft./sec. and sub-weathering velocity 9300 feet/sec.

INTERPRETATION AND RESULTS

One horizon map, designated Hume Formation is submitted with this report. Horizon values with total corrections applied have been picked from the seismic records. Contour interval is 0.010 sec.

The reflection of the Hume Formation is the main strong event on the records. There appeared to be other reflections deeper in the section which could be mapped after Normal Move-Out, stacking and filtering have been applied to the data.

At two locations on Line 25 - 10 the strong character of the Hume reflection disappeared, which, in the opinion of the writer, could be associated with either faulting or some weathering problem. Possible graben is indicated on the map between Sps. 325 - 335 and down to the north fault at Sp. 393, Line 25 - 10.

The character of the Hume reflection was also very poor to questionable at the east end of Line 25 - 5. It might be due to faulting or, as the horizon is very shallow, interference from the first breaks.

Due to limited amount of shooting in the area the interpretation can only be conjectural.

The maps as contoured at present show the strike of the Hume

Formation in approximately north-south direction and dip in west to north-west direction. Three high noses have been delineated on the maps, all striking in approximately east-west direction. Possible high closure exists on the southern most nose at Sp. 895, Line 25 - 23. A postulated high is seen at Sp. 190, Line 25 - 10. A major synclinal entry is noticed between Lines 25 - 5 and 25 - 23 and another low enters at the intersection of Lines 25 - 10 and 25 - 5.

RECOMMENDATIONS AND CONCLUSIONS

From the three lines completed it is difficult to evaluate the area, but certain promising leads could be observed. Therefore further geophysical work is warranted in the area.

However, due to difficult and slow drilling conditions in the area, it is recommended that the use of surface geophysical tools, like Thumper or Vibroseis, be seriously considered. These methods will eliminate the dependance on drill power, operation will be considerably less expensive and the results comparable, if not better, to the conventional seismic method.

Respectfully submitted:



Hillar Anton
RAY GEOPHYSICAL LIMITED

APPENDIX A

STATISTICAL SUMMARY

Crew	MOC # 25 (Ray # 117)
Period of Survey	January 14, 1969 to February 11, 1969

Recording

Profiles Shot	494
Number of Shots	640
Miles of Traverse	39.3125
Recording Hours	213.5
Driving Hours (Field)	66.0
Days Shooting	24

Shooting

Dynamite Used	2115.0 lbs.
Caps Used	751
Dynamite per Shot	3.3 lbs.

Drilling

Holes Drilled	527
Footage	29,303
Average Hole Depth	55.6 feet

Location: Approximately 35 miles west of Fort Simpson, Northwest Territories.

APPENDIX B

EQUIPMENT

Basic Crew

RECORDING INSTRUMENTS

Amplifiers - TI 10,000
Tape System - TI 10,000
Camera - Mandrel Model SDW 100 Dry Write; Camera speed was 10 inch/sec.
Blaster - S.I.E. Model PCB - 11 M
Motrac Radios, Mandrel OPC and SPC remote firing units
Geophones - 65 strings of 18 geophones each, type EV-208, 14 cps.
Cables - 13 Tesco cables, 27 - pair conductors

VEHICLE EQUIPMENT

1	Recording Truck	-	Dodge 4 x 4
1	Shooting Truck	-	Dodge 4 x 4
2	Reel Trucks	-	Dodge 4 x 4
2	Survey Trucks	-	Dodge 4 x 4, GMC
1	Supply Truck	-	Mercury 350
1	Party Manager's Car	-	GMC Personnel Carrier 4 x 4

DRILLING EQUIPMENT

2 Mayhew 1000, C T & T Drilling Co.
1 Mayhew 1000, Raffa Drilling
1 Northern Auger Drill, Top Drive - Convertible Drilling and Tanker Service
1 Sewell Wet Auger Drill - Ray Geophysical Limited
3 Water Trucks - tank capacities 1000 - 1800 gallons

BULLDOZING EQUIPMENT

3 D7E Caterpillars - Ardills Construction Ltd., Fort St. John

APPENDIX C

TRANSMITTAL OF DATA

All digital tapes, seismic records, records of Uphole Surveys and Noise Spreads, Cross Sections of Lines 25 - 5, 25 - 10, 25 - 23, OB reports, Shooters reports, Drill logs, Survey Notes, Horizontal Traverse Computations, 3 Observations of Polaris, all base maps and all blank sepia maps in our possession, Well logs of wells D-50 and J-70 in the area, Contoured map " Hume Formation " and Surface Elevation map have been submitted to the Geophysical Department of Mobil Oil Canada, Limited.

Cut Line

MACKENZIE RIVER

LINE 25-5

LINE 25-10

LINE 25-23

123°00'

62°00'

CAMP

63-A-195

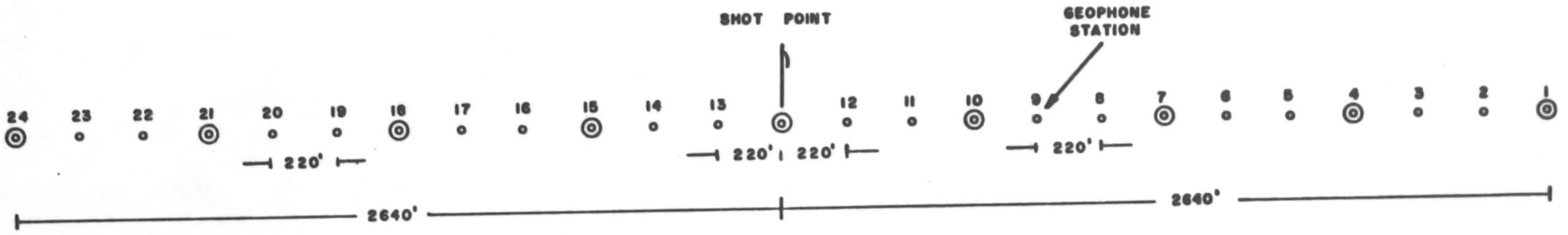
Tsetso Lake

MARTIN HILLS

SIBBESTON LAKE

FIGURE: 1

SPREAD AND GEOPHONE LAYOUT



GEOPHONE STATION

18 GEOPHONES AT 170 ft.

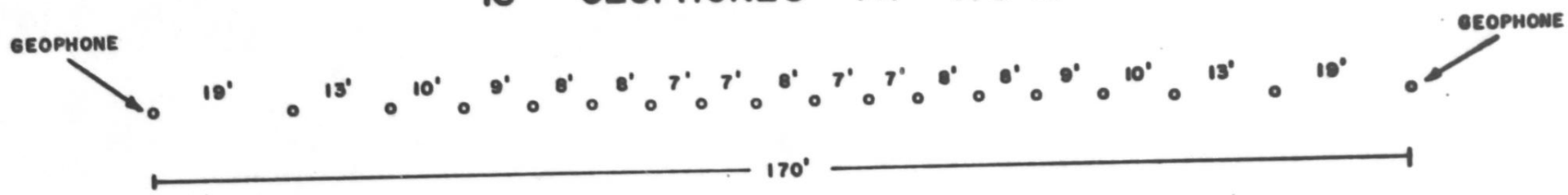
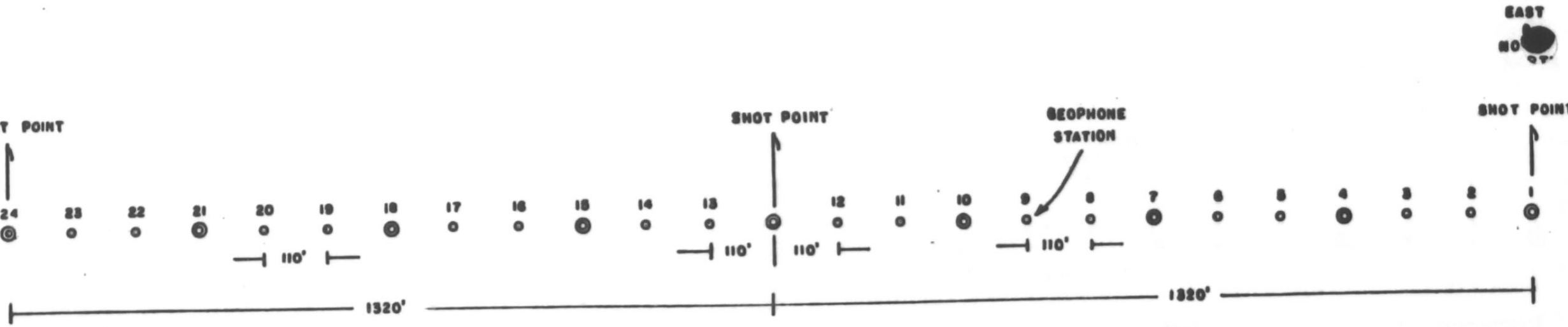


FIGURE: 2

SPREAD AND GEOPHONE LAYOUT



GEOPHONE STATION

18 GEOPHONES AT 170 ft.

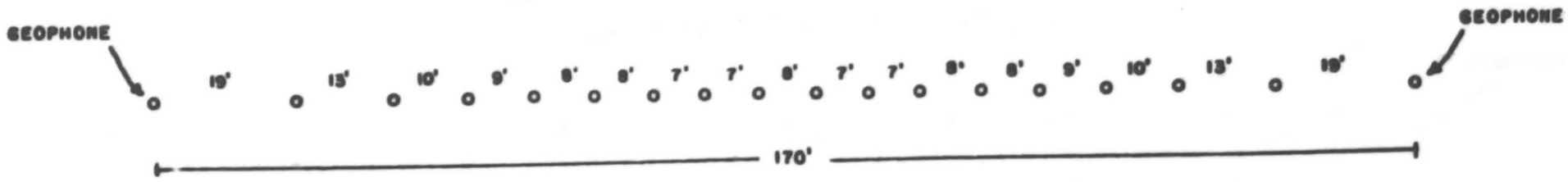


FIGURE: 3

400% CDP COVERAGE

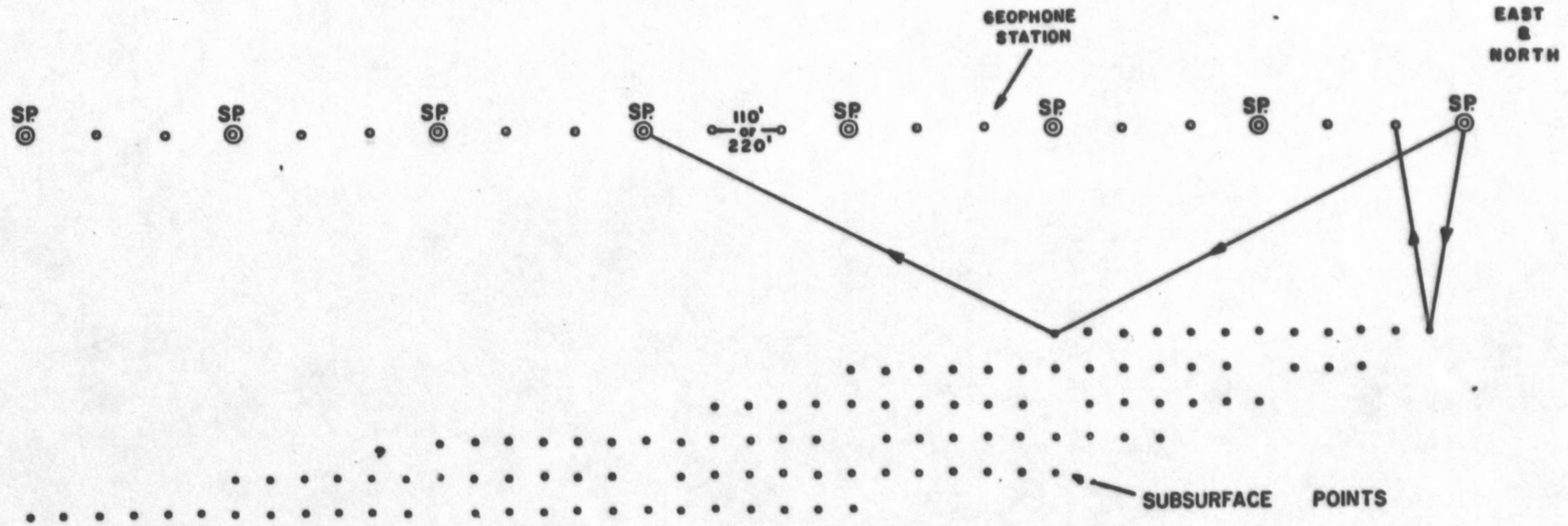
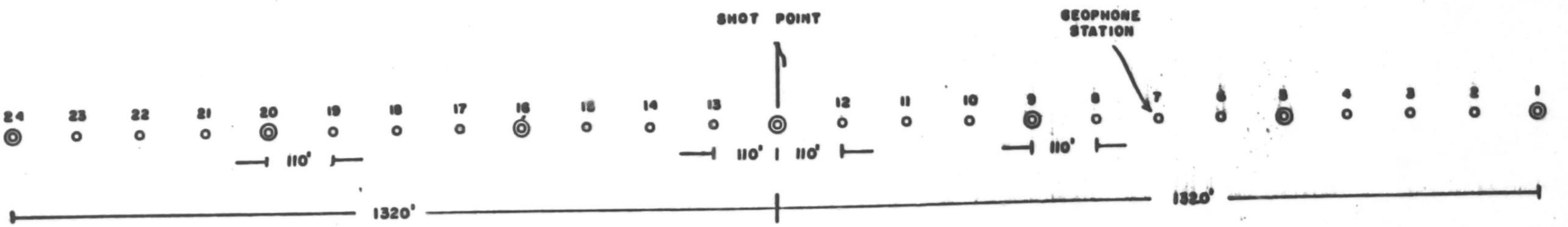


FIGURE: 4

SPREAD AND GEOPHONE LAYOUT



GEOPHONE STATION

18 GEOPHONES AT 170 ft.

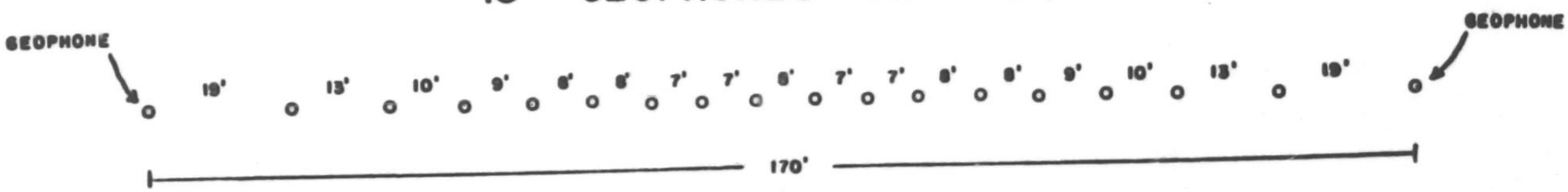


FIGURE: 5

300 % CDP COVERAGE

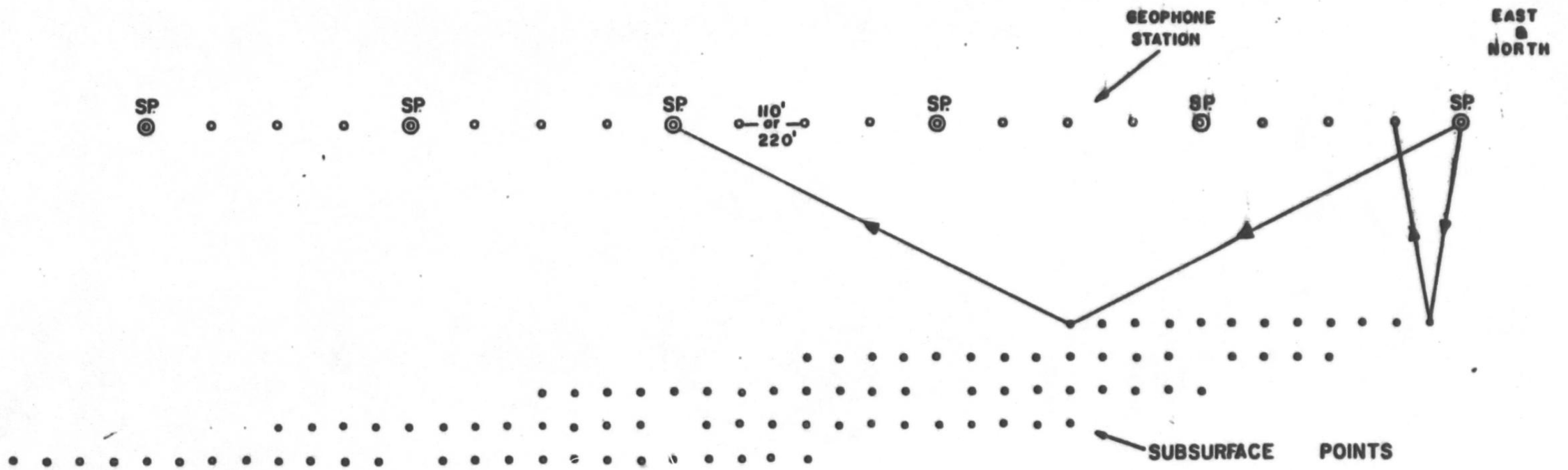
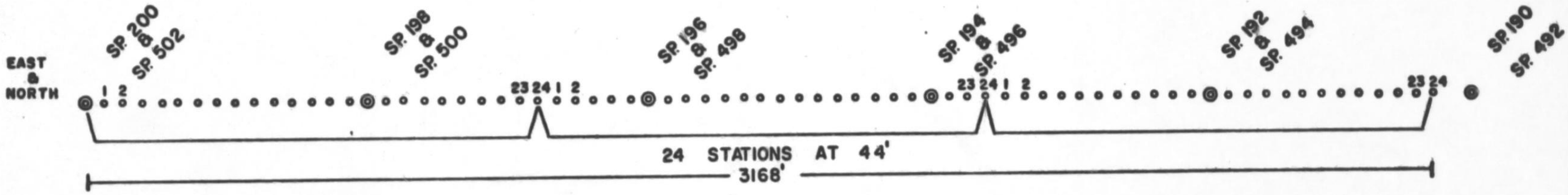


FIGURE: 6

NOISE SPREAD



STATION INTERVAL 44'
TOTAL SPREAD 3x24 STATIONS

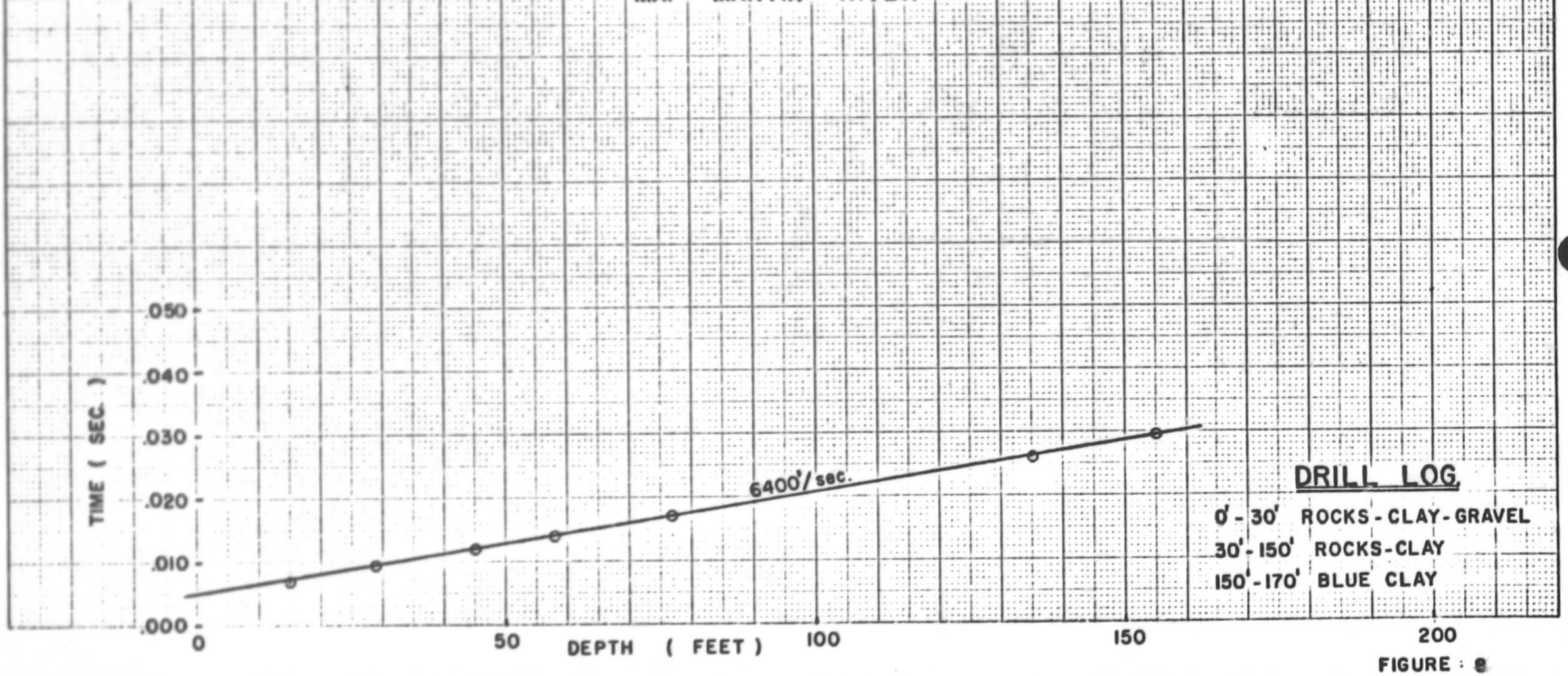
FT. SIMPSON
LINE 25-10

FIGURE: 7

10 X 25 CM.
KEUFFEL & ESSER CO.
MADE IN U.S.A.

UPHOLE SURVEY

LINE - 25 - 10
SP - 188
DEPTH - 155 FEET
ELEVATION - 2163 FEET
DATE: JANUARY 14, 1969
FORT SIMPSON AREA
MAP: MARTIN RIVER



DRILL LOG

0' - 30' ROCKS - CLAY - GRAVEL
30' - 150' ROCKS - CLAY
150' - 170' BLUE CLAY

FIGURE : 8

10 X 10 TO THE CENTIMETER
10 X 25 CM.
KEUFFEL & ESSER CO.
MADE IN U. S. A.

UPHOLE SURVEY

LINE - 25 - 10
SP - 503
DEPTH - 240 FEET
ELEVATION - 557 FEET
DATE: JANUARY 28, 1969

FORT SIMPSON AREA

MAP: TRAIL RIVER

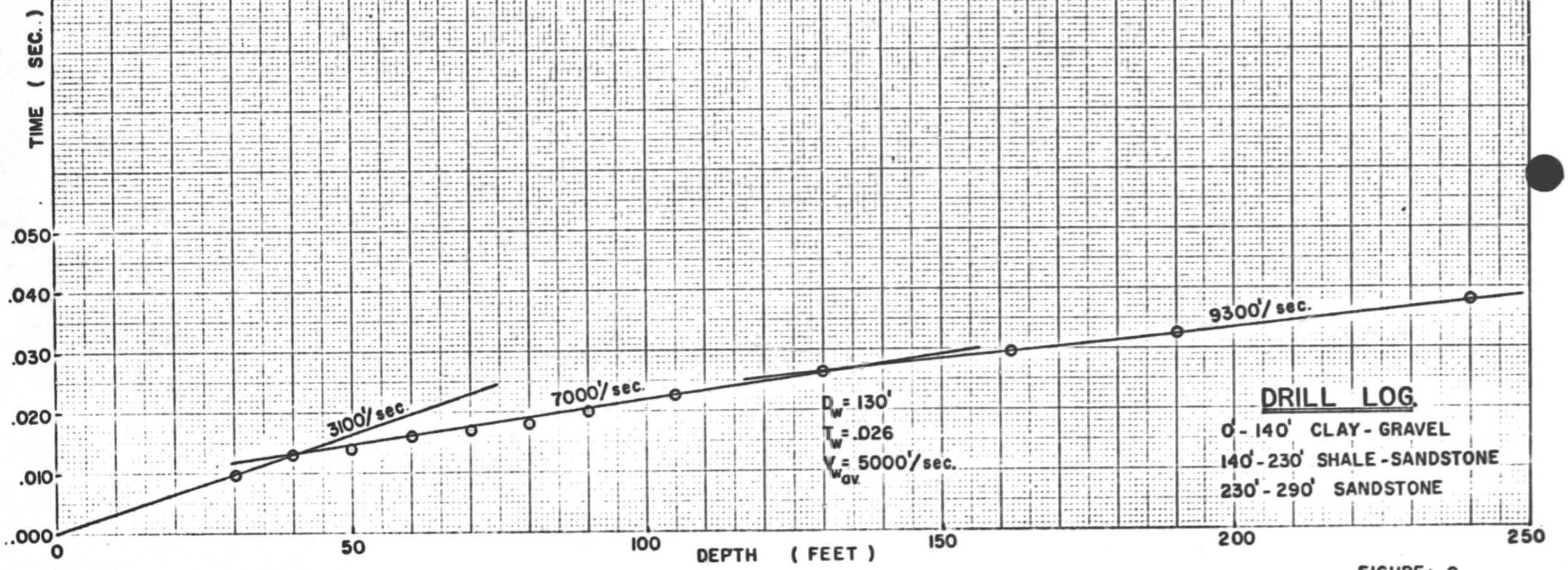


FIGURE: 9

S-17

W
W

REPORT

ON

GEOPHYSICAL EXPLORATION

OF

YUKON TERRITORY OIL AND GAS GROUP #134



BY

SOCONY MOBIL OIL OF CANADA, LTD.

DISTRICT OFFICE

DAWSON CREEK, BRITISH COLUMBIA

REPORT PERIOD NOVEMBER 1, 1962 TO AUGUST 31, 1963

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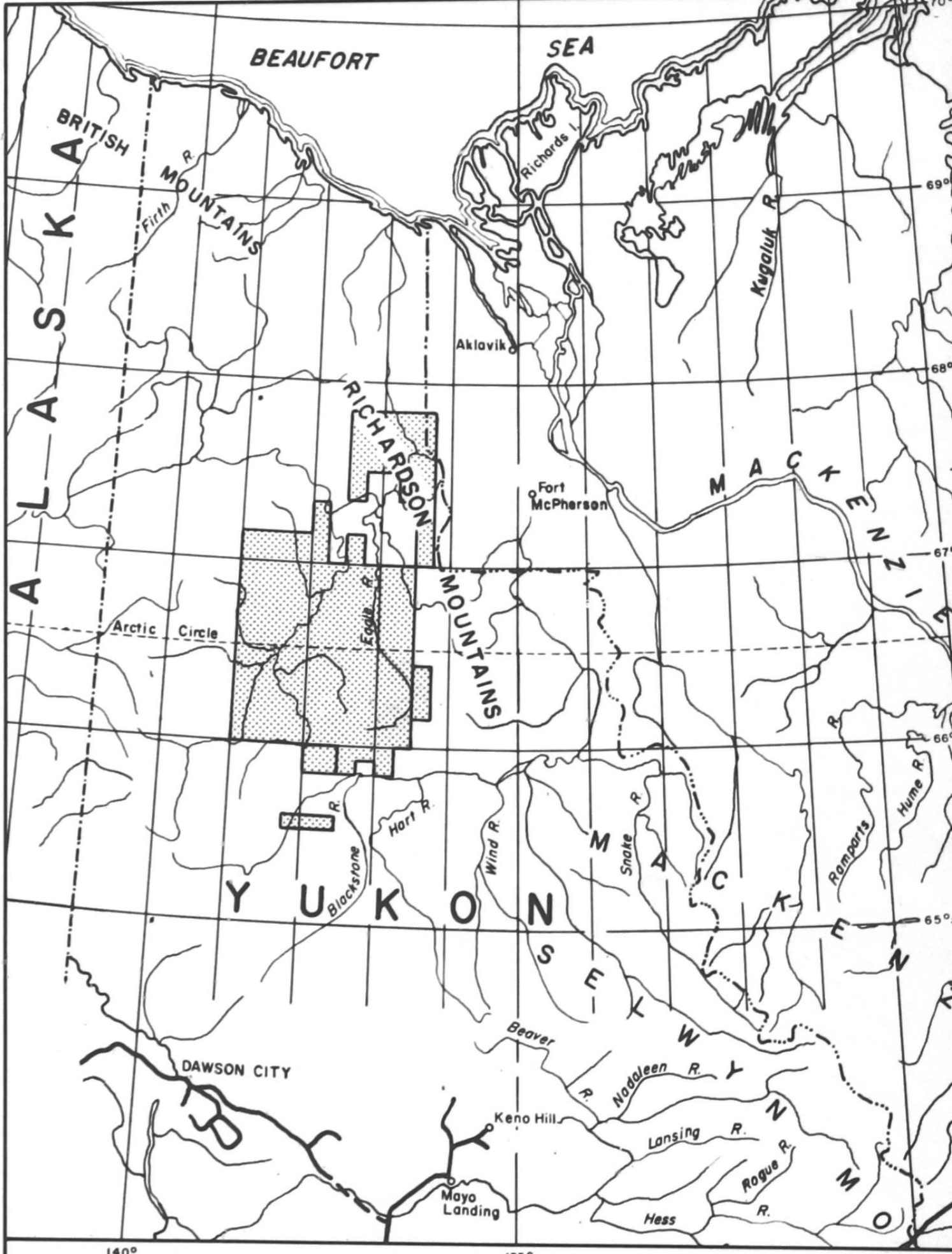
Enclosures: In Attached Pocket

1. Map showing Permits and Areas worked by Socony Mobil Party #53

2. Area #1
   - Shot Point Location Map
   - Surface Elevation Map
   - Structure Time Map of the Mississippian

3. Area #2
   - Shot Point Location Map (Two Map Sheets)
   - Surface Elevation Map (Two Map Sheets)
   - Structure Time Map of the Mississippian (Two Map Sheets)

Total - 10 Maps



INDEX MAP

EAGLE PLAIN AREA

SCALE: 1" = 50 MILES (Approx.)

Report on Geophysical Exploration

of

Yukon Territories Oil and Gas

Group #134

Eagle Plain Area

Report Period

November 1, 1962 to August 31, 1963

I INTRODUCTION

Group #134 consists of 88 permits and is located in the Eagle Plain area of the Yukon Territory approximately 150 miles north of Dawson City, Y.T.

During the period March 16th to June 1st, 1963, Seismograph Service Corporation of Canada, Ltd. Party CA-123D (Socony Mobil Oil of Canada, Ltd. Party 53) conducted a reflection seismograph survey over a number of permits in this group.

The program assignment was divided into two portions. The north program was conducted in the area between 66° 26' and 66° 39' N. Latitude and 137° 40' and 138° 10' W. Longitude on Permits 3331, 3332, 3333, 3341, 3342, and 3343. The crew worked on this portion of the project for approximately one month during which time 59 miles of continuous seismic coverage was obtained. For the purpose of this report, this area shall be called Area #1.

The southern portion of the program assignment was located in the south-east corner of the permit block between 65° 57' and 66° 08' N. Latitude and 136° 42' and 137° 32' W. Longitude on Permits 3363, 3364, 3365, 3366, 3367, 761 and 762. The crew worked here for approximately one and one-

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half months and obtained 92 miles of continuous seismic coverage. This area will be referred to as Area #2 for the purpose of this report.

II GENERAL DISCUSSION OF OPERATIONS

The Eagle Plain is a remote area bounded by the Ogilvie Mountains on the west and south, and the Richardson Mountains on the east. Accessibility is limited. All supplies were freighted in by "cat-train" from Chapman Lake on a winter road, a distance of about 150 miles. All freighting must be done during the three-month period January to March to take advantage of the ice on river crossings. Fixed wing aircraft can be used extensively during the winter since temporary landing strips can be easily constructed. Their use is limited during the summer since there are only two all weather landing strips in the area. Helicopters must be used to carry supplies from the landing strips to the scene of operations.

III SEISMIC SURVEY

A. Topography:

In Area 1, the major surface feature is a large north-south trending ridge located on the west side of the area worked. Elevations vary from 2,263 feet on top of the ridge to 1,054 feet in the northeast portion of the area giving an elevation range of 1,200 feet. Topography is fairly rugged with 300 to 500 feet of local relief not uncommon. This is shown on the attached map entitled "Surface Elevation". The area is in the permafrost zone. Creeks are deeply downcut and generally have very steep banks. All creek crossings require fills before any equipment can be moved from one side to the other. Tree cover is light consisting mainly of stunted spruce, hence bulldozing of the seismic lines is no problem. In this area a

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typical hole log would be: 0 - 20 - clay and ice; 20 - 60 - shale and sandstone.

In the area southeast of Chance #1, that is, Area 2, the topography is again quite rugged. The area worked is bisected by a fairly large stream which is flanked by high ridges to the north and south. The extreme east and southeast portion of the program is on extremely rugged topography. Elevation changes of 500 to 600 feet per mile are common, and, in some cases, these changes occur very abruptly. The range of elevations in Area 2 is 800 feet. Stream crossings again cause some difficulties since the streams are deeply down-cut. Tree cover is predominantly spruce and is somewhat heavier than in Area 1 to the north. Line cutting is still no problem. Near surface conditions are similar to those encountered in Area 1, except that there is an increase in the amount and hardness of the sandstone in Area 2. This is especially true on the ridges. A typical hole log would be: 0 - 10' - clay and ice; 10 - 60 - hard sandstone and shale.

B. Operations:

The seismic survey was conducted using track vehicles. The recording, shooting and surveying units are mounted on Bombardiers. The camp is mounted on larger Nodwell track carriers and is moved at least once a week. Drilling was done with a Winter-Weiss drill mounted on a sleigh and towed by a TD-14 bulldozer. One Nodwell mounted Mayhew 1,000 was also used for drilling for a part of the season. All drilling was done very successfully with air. Two TD-24 bulldozers were used for seismic line cutting, snow ploughing, and clearing campsites and landing strips. One other TD-24 bulldozer was required to haul fuel from previously established fuel caches. During the winter the operation was supported by a Company-

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owned Beaver aircraft landing on temporary strips constructed proximate to every campsite. During the late spring when the snow was gone, satisfactory landing strips could not be readily constructed. A helicopter was then employed to carry supplies from the Blackstone River or Porcupine River airstrips to the seismic camp. This machine was also used to carry personnel from the seismic camp to the field operation when the weather become warm enough to leave the recording, drilling and line cutting equipment in the field.

C. Record & Surveying:

Recording instruments were S.S.C. - I.M.I. equipped with a 50 trace camera and Techno magnetic tape recorder with 26 fixed heads. Geophones used were S.S.C. - G.D.C. 25 cycle phones. Three geophones per trace were spaced 30 feet apart along the line of profile. Shot point locations were spaced one-quarter mile apart and the straddle spread, continuous profiling method was employed. Shot holes were drilled to an average depth of 60 feet and were loaded with 20 pounds of dynamite to bottom.

Surveying was carried out by chaining horizontal distances and measuring horizontal angles and elevations with a Wild Model T-1 Theodolite. Control for the survey was based on previous seismic work in the area. Old shot points could usually be located and ties were generally satisfactory. The survey was tied to Government Triangulation Stations wherever possible.

IV RESULTS

A. Area No. 1:

Record quality on this project was fair to good. The structure time map of the Mississippian surface is included with the report and shows the structural configuration in this area.

...../5

Regional strike and dip is exhibited only on the southern portion of the new shooting. Here strike is north northwest-south southeast and dip is approximately 150 feet per mile to the west-southwest.

The north portion of the project is dominated by a structurally high area located in the northwest corner toward the Porcupine River. This is flanked to the southeast by a strong synclinal trend. A smaller anomalous area is located in the north central area of shooting. This feature is a part of poorly defined northwest-southeast anticlinal trend which dies out to the southeast.

B. Area No. 2:

Record quality in this area is generally fair to good. Some deterioration of data quality was noted during and immediately after spring "run-off" which was probably due to changing ground conditions.

The structure contour map of the Mississippian is included with this report. Regional strike is indicated to be west northwest - east southeast. Regional dip is fairly strong at about 300 feet per mile to the south - southwest over the western portion of the area worked. On the east side of the area of interest regional dip has increased somewhat to approximately 400 - 500 feet per mile.

A weak east-west trending syncline is located on the western portion of the area worked. This syncline forms the north flank of a small high area shown on one seismic line in the southwest corner of the control. Little else of any significance is shown on this structural time map.

E. H. Kohse

E. H. Kohse - Senior Geophysicist
Dawson Creek District
Socony Mobil Oil of Canada, Ltd.

123°00'

122°45'

122°30'

62°30'

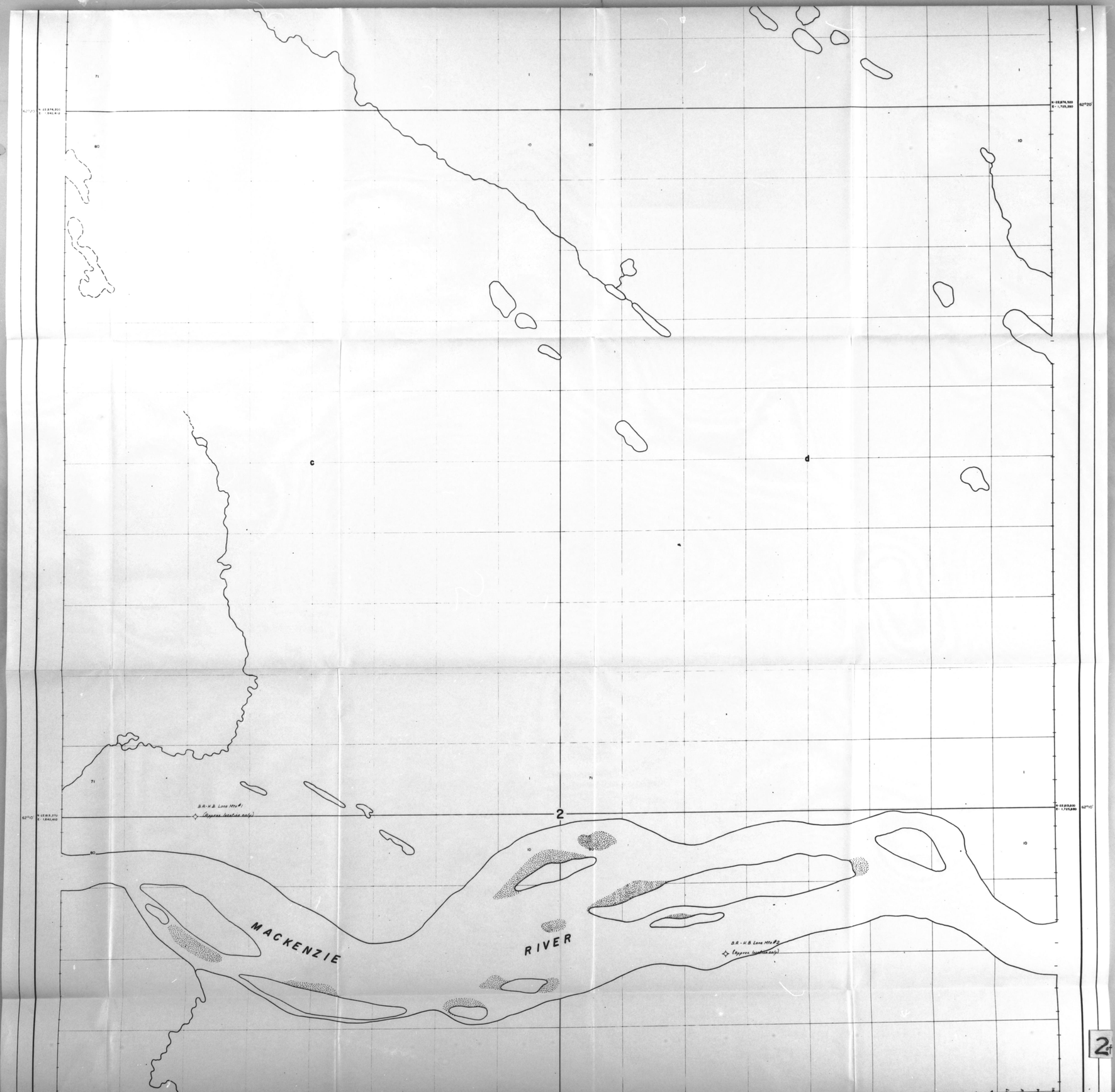
62°20'

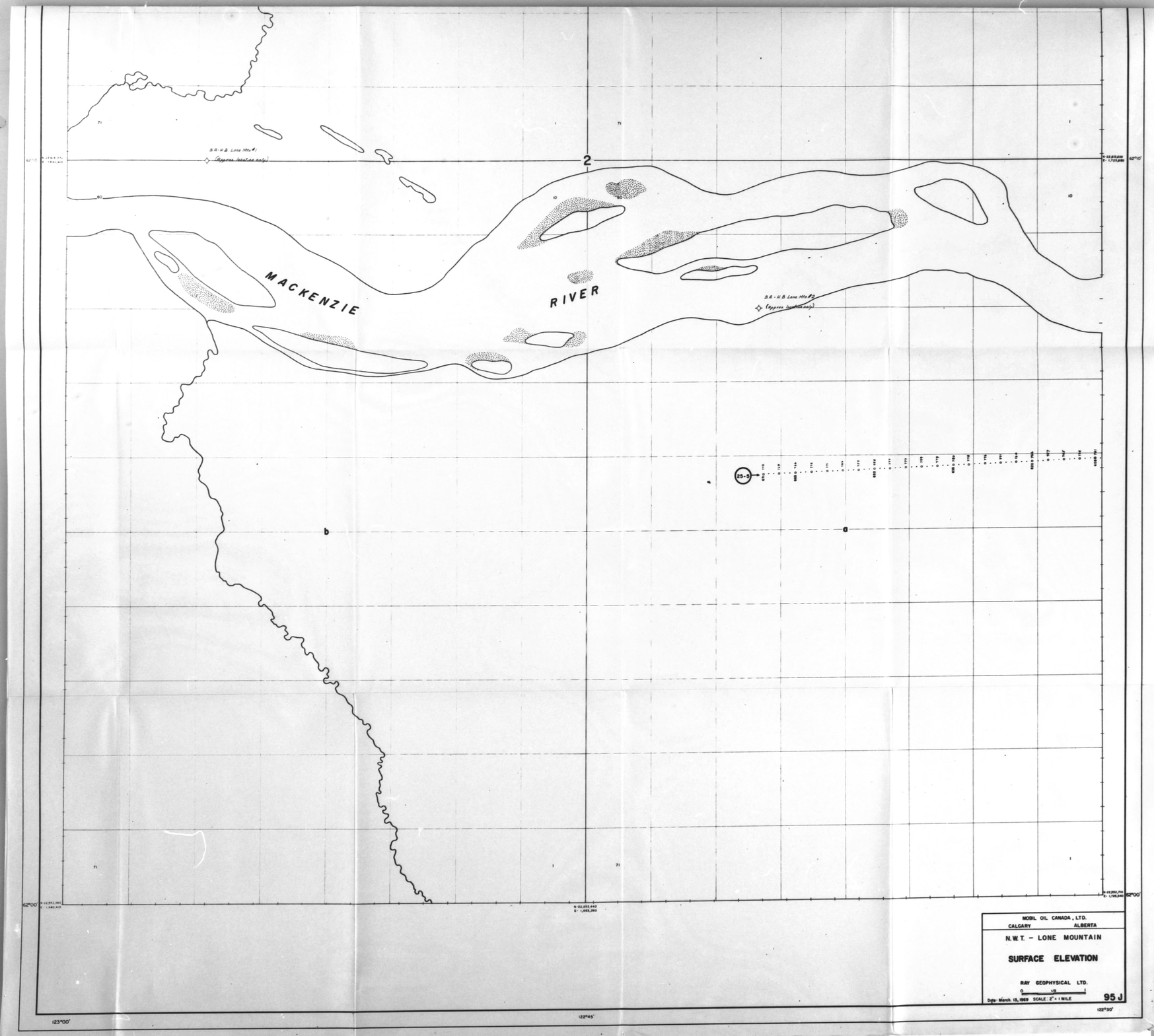
7

b

a

1


71
80
10
c
d
62°20'
62°10'
2
B.R.-H.B. Lane Hfts #1
(approx. location only)
B.R.-H.B. Lane Hfts #2
(approx. location only)
MACKENZIE
RIVER



MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. – LONE MOUNTAIN

SURFACE ELEVATION

RAY GEOPHYSICAL LTD.

Date: March 13, 1969 SCALE: 2" = 1 MILE

95 J

3 of 3

122°30'

122°15'

122°00'

62°30'

62°20'

8

80

10

b

a

71

1

1f

62°20'

62°10'

71 1 71 1

80 10 80 10

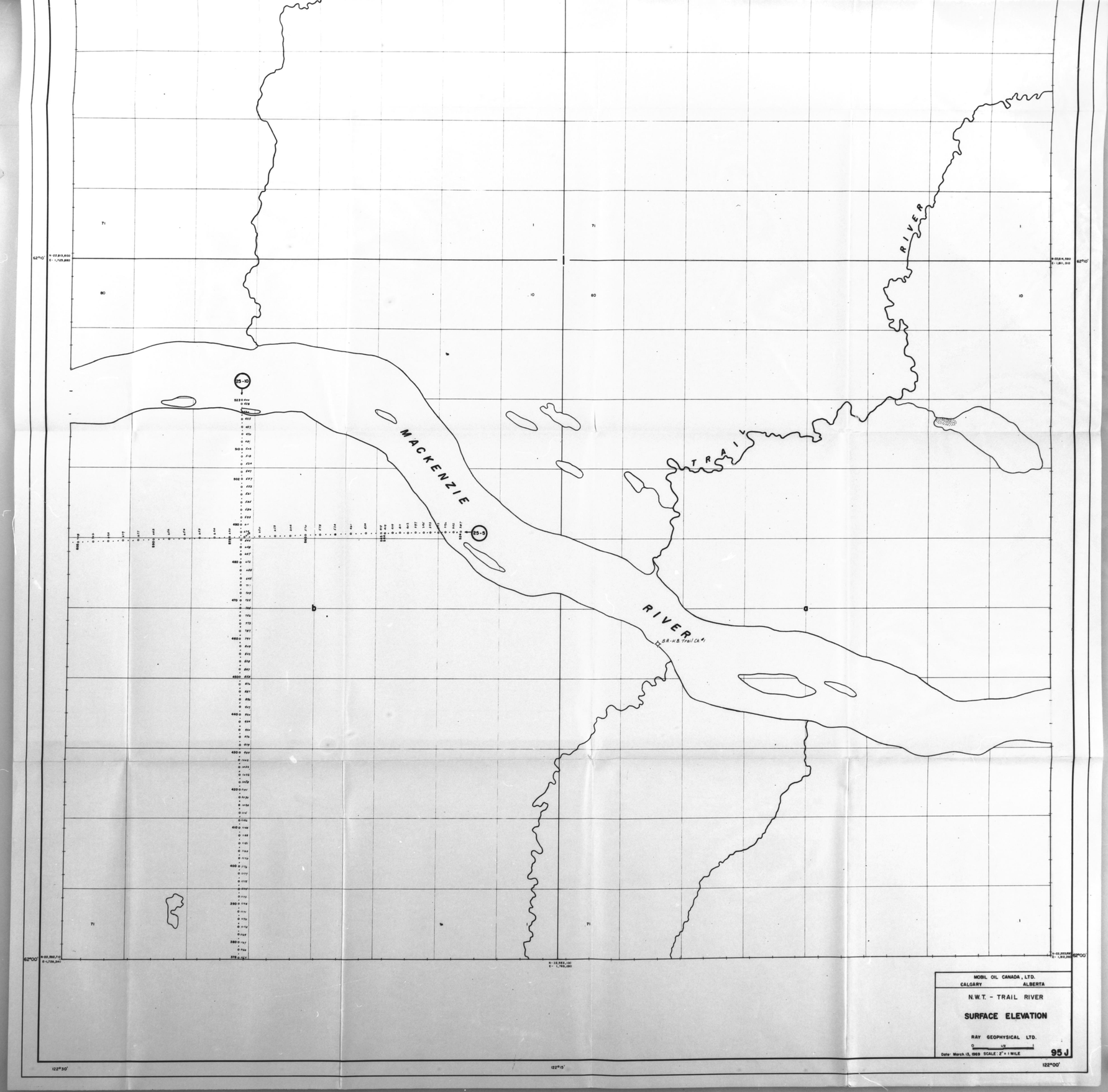
c d

25-10

MACKENZIE

TRAIL RIVER

2



MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. - TRAIL RIVER

SURFACE ELEVATION

RAY GEOPHYSICAL LTD.

0 1/2 1

Date: March 13, 1969 SCALE: 2" = 1 MILE

95 J

123°00'

122°45'

122°30'

62°00'

N-22,552,360
E- 1,640,410

N-22,552,440
E- 1,653,550

N-22,552,710
E- 1,726,340

25-23

TSETSO

LAKE

61°50'

N-22,491,650
E- 1,640,410

N-22,491,780
E- 1,726,800

SIBBESTON

LAKE

1

TSETSO
LAKE

SIBBESTON
LAKE

10

71

80

b

a

2f

MATOU

RIVER

MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. - SIBBESTON LAKE

SURFACE ELEVATION

RAY GEOPHYSICAL LTD.

Date: March 13, 1969 SCALE: 2" = 1 MILE

95 G

3 of 3

122°30'

122°15'

122°00'

62°00'

62°00'

80

80

10

c

d

71

71

9

6°50'

6°50'

80

10

10

80

1

9

25-10

MARTIN

2

MARTIN

RIVER

MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. - MARTIN RIVER

SURFACE ELEVATION

RAY GEOPHYSICAL LTD.

0 ½ 1

Date March 13, 1969 SCALE: 2" = 1 MILE

95 G

122°30' 122°15' 122°00'

6°30'

13 of 13

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'
66°00'

EAGLE RIVER

MOOSE LK.

AREA No. 2

RIVER

MOOSE LK.

AREA No. 2

SHOT BY SSC IN 1963

- SOCONY MOBIL OIL OF CANADA LTD.
CALGARY (Dawson Creek District Area) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET

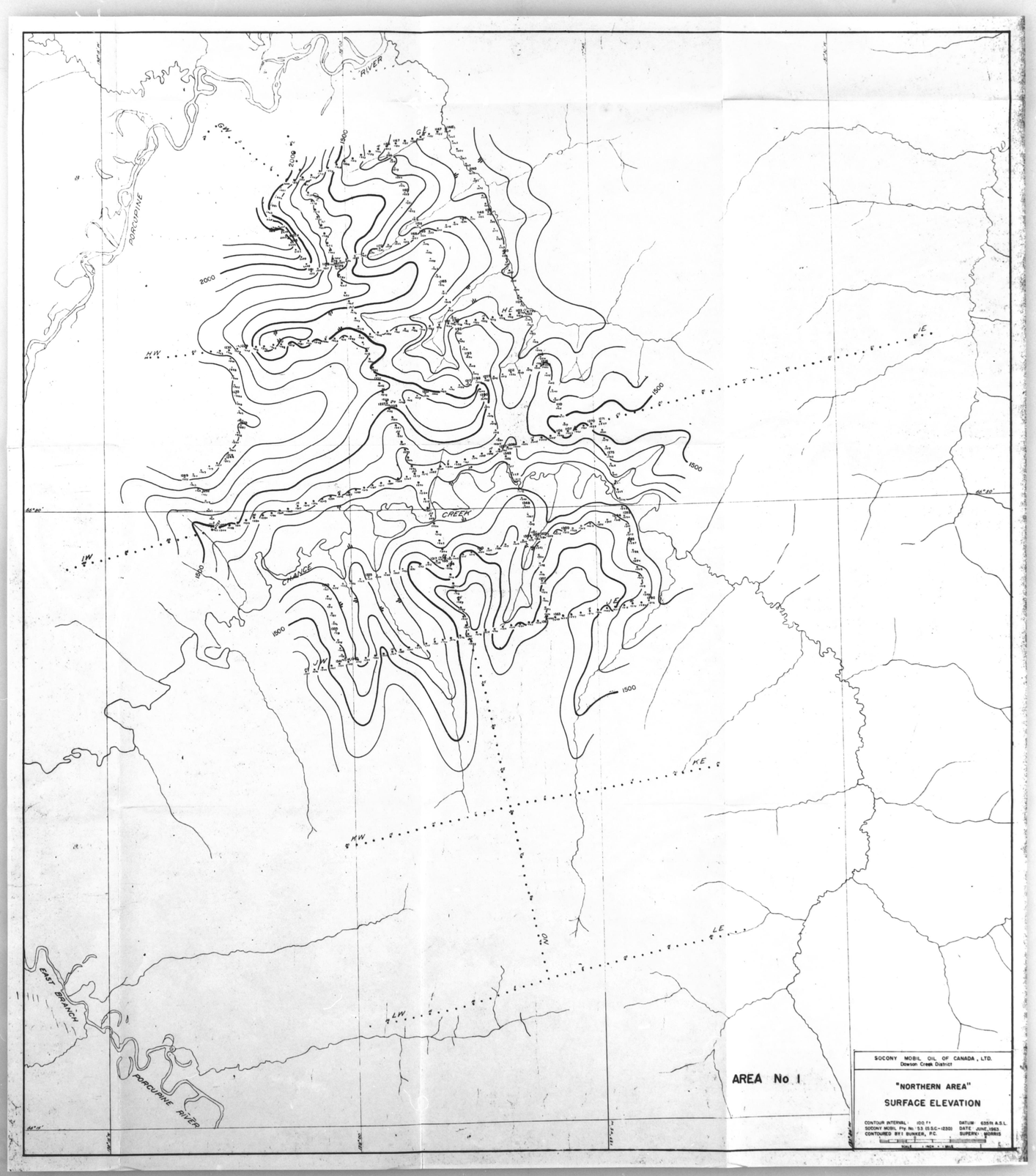
SHOT POINT LOCATION MAP

CONTOUR INTERVAL:
SOCONY MOBIL Pty. No. 53 (S.C.-1233)
CONTOURED BY: SUNKER, ETC.

DATUM: 635 ft. A.S.L.
DATE: JUNE, 1963
SURVEY: NORRIS

137°00'
136°45'
136°30'
136°15'
136°00'
66°20'
66°15'
66°10'
66°00'

Y.T. KIMBERLY LAKE SHEET


PORCUPINE RIVER
CHANCE CREEK
EAST BRANCH
PORCUPINE RIVER
2000
1500
1000
NW
NE
SW
SE
LW
AREA No 1
SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
"NORTHERN AREA"
SURFACE ELEVATION
CONTOUR INTERVAL: 100 Ft
DATUM: 6551ft A.S.L.
SOCONY MOBIL Prj No. 53 (S.S.C.-1230)
DATE: JUNE, 1953
CONTOURED BY: BUNKER, P.C.
SUPERV: MORRIS

Y. T. & L. RIVER SHEET

Y. T. & DAWSON RIVER SHEET

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'
66°00'

EAGLE RIVER

MOOSE LK.

2000
1500

AREA No 2

SUCONY MOBIL OIL OF CANADA, LTD.
CALGARY (Dawson Creek District Area) ALBERTA

1 OF 2

RIVER

MOOSE LK.

2000

1500

AREA No 2

SUCONY MOBIL OIL OF CANADA, LTD
CALGARY (Dawson Creek District Area) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET
SURFACE ELEVATION

CONTOUR INTERVAL: 100 ft. DATUM: 630 ft. A.S.L.
SOCONY MOBIL Pty. No. 53 I.S.C./1230 DATE: JUNE, 1963
CONTOURED BY: BUNKER, P.C. SUPERVISOR: MORRIS

66°20'
66°15'
66°10'
66°00'
137°00'
136°45'
136°30'
136°15'
136°00'

Y.T. KECHINGRY LAKE SHEET

EAGLE PLAIN
&
SURROUNDING AREAS
YUKON TERRITORY

AREAS WORKED
by
SOCONY MOBIL PARTY No. 53
MARCH TO JUNE , 1963

10 MILES

AREA No. 1

AREA No. 2

Y. T. - B.C. ROCK RIVER SHEET

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'

EAGLE RIVER

MOOSE LK.

Y. T. - B.C. CLEAVE RIVER SHEET

1 OF 2

MOOSE LK.

AREA No.2

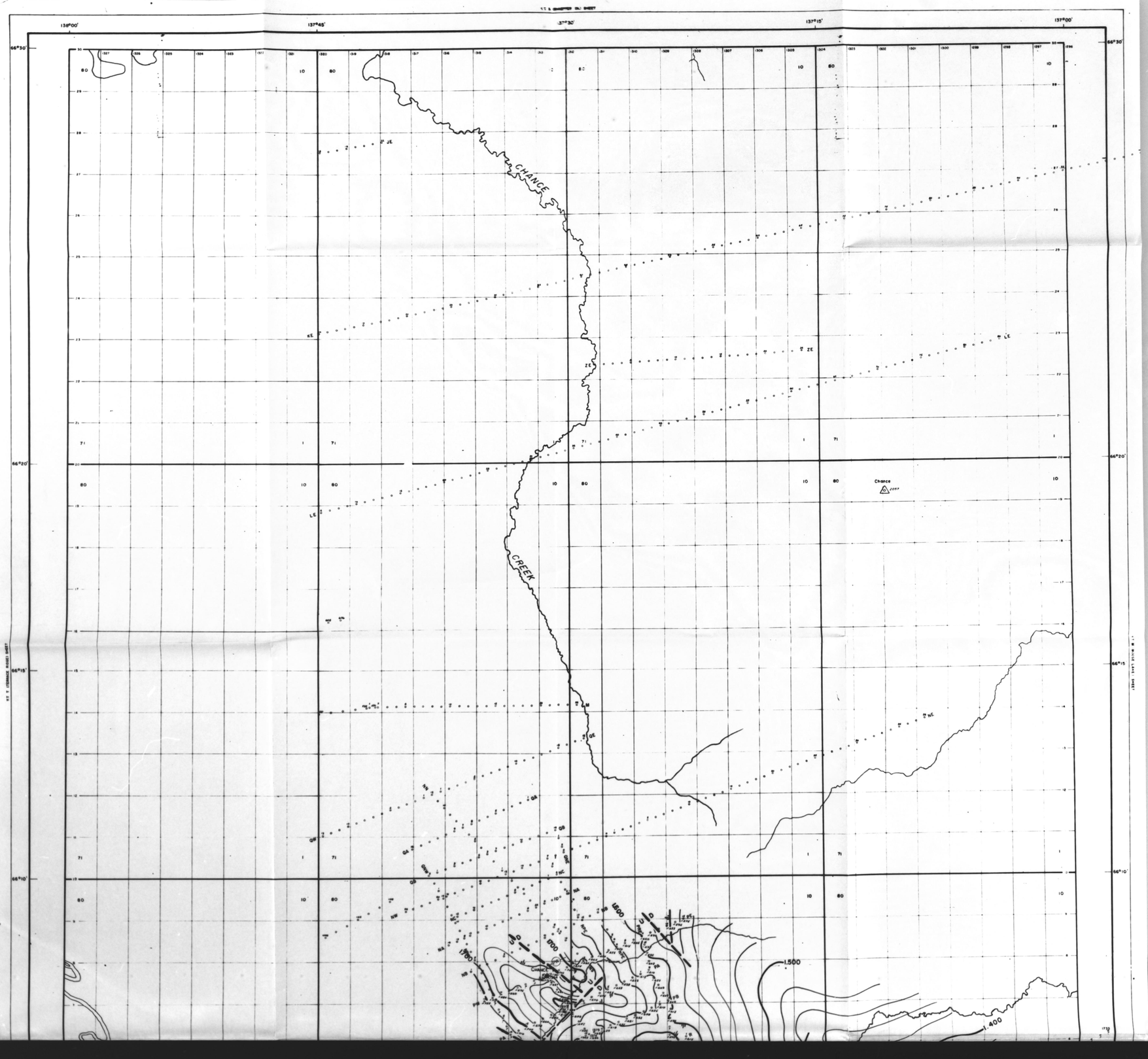
SOCONY MOBIL OIL OF CANADA, LTD
CALGARY (Dawson Creek District - Alta) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET
HORIZON D
TENTATIVE RAMPARTS

CONTOUR INTERVAL: 020 Sec. DATUM: 637 ft. A.S.L.
SOCONY MOBIL Pty No. 53 (S.S.C. 1230) DATE: JUNE, 1963
CONTOURED BY: BUNKER, BC SURVEY: MORRIS

SCALE 1 INCH = 1 MILE

66°20'
66°15'
66°10'
66°00'
137°00'
136°45'
136°30'
136°15'
136°00'

Y.T. CLEARDE HYPO SHEET
Y.T. HAMMONDY LAKE) SHEET


137°00'
137°15'
137°30'
137°45'
138°00'
66°30'
66°20'
66°15'
66°10'
CHANCE
CREEK
Chance
1,500
1,400
1 OF 2



SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District

BY

SEISMOGRAPH SERVICE CORPORATION OF CANADA

Y.T. C.(CHANCE CREEK) SHEET

HORIZON D

TENTATIVE RAMPARTS

CONTOUR INTERVAL 020 Sec
SOCONY MOBIL Pty No. 53 (S.S.C.-230)
CONTOURED BY BUNKER, P.C.

DATUM 635 ft A.S.L.
DATE JUNE, 1963
SUPERV MORRIS

SCALE 1 INCH = 1 MILE

2 OF 2

123°00'

122°45'

122°30'

62°30'

62°20'

J

7

80

10

71

1

71 1 71

62°20' N-22,876,930 E- 1,840,410 — N-22,876,920 E- 1,725,590 — 62°20'

80 10 80 10

c d

B.R.-N.B. Land Hlds.#1 (Approx. location only)

2

62°10' N-22,853,370 E- 1,840,420 — N-22,853,830 E- 1,727,230 — 62°10'

MACKENZIE RIVER

B.R.-N.B. Land Hlds.#2 (Approx. Location only)

100

2f

MACKENZIE RIVER

B.A.-H.B. Lone Mtn. #1
(Approx. location only)

B.A.-H.B. Lone Mtn. #2
(Approx. location only)

25-5

2

480

350

MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. – LONE MOUNTAIN

HUME FORMATION

Contour Interval: 0.010 sec.

RAY GEOPHYSICAL LTD.

Contoured by: C. [illegible] Date: March 13, 1969

H. AVTON SCALE: 2" = 1 MILE 95 J

3 of 3

122°30'

122°15'

122°00'

62°00'

62°00'

61°50'

61°50'

HIGH ?

63-A-85

25-10

c

d

9

1

HIGH P

9

25-10

300

MARTIN

71 80 1 10

b a

2

MARTIN

RIVER

LEGEND

POSSIBLE FAULT

MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. – MARTIN RIVER

HUME FORMATION

Contour Interval: 0.010 sec.

RAY GEOPHYSICAL LTD.

Contoured by: H. ANTON

Date: March 13, 1969

SCALE: 2" = 1 MILE

95 G

3 of 3

N.T.S. ROCK RIVER SHEET

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'

EAGLE RIVER

MOOSE LK.

N.T.S. CLEARWATER RIVER SHEET

RIVER

MOOSE LK.

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
CALGARY (Dawson Creek District-Area) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET

HORIZON K

(PERMIAN SILT)

CONTOUR INTERVAL: .020 Sec.
SOCONY MOBIL Fly No. 53 (G.S.C.1230)
CONTOURED BY: BUNKER, P.C.
DATUM: 635 ft. A.S.L.
DATE: JUNE, 1963
SUPERV.: MORRIS

SCALE 1 INCH = 1 MILE

66°20'
66°15'
66°10'
66°00'
137°00'
136°45'
136°30'
136°15'
136°00'

Y. T. M.(MUSKRAT LAKE) SHEET

Y. T. C.(LAND, RIVER) SHEET

2 OF 2

Y. T. R. ROCK RIVER SHEET

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'

EAGLE RIVER

MOOSE LK.

Y. T. CLEAR RIVER SHEET

1 OF 2

MOOSE LK.

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
CALGARY (Dawson Creek District - Atta) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET
HORIZON E
TENTATIVE TOP ALDER L.S.

CONTOUR INTERVAL: .020 Sec.
SOCONY MOBIL Pty. No. 53 (S.S.C.1230)
CONTOURED BY - BUNKER, P.C.

DATUM: 635 ft. A.S.L.
DATE: JUNE, 1963
SUPERV.: MORRIS

SCALE 1 INCH = 1 MILE

Y.T. CLEARDE RIVER SHEET

Y.T. KENNEDY LAKE SHEET

2 OF 2

Y. T. E. (ROCK RIVER) SHEET

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'

EAGLE RIVER

MOOSE LK.

Y. T. E. (LOUISE RIVER) SHEET

1 OF 2

MOOSE LK.

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
CALGARY (Dawson Creek District - Area) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET
HORIZON F
NEAR TOP MISSISSIPPIAN

CONTOUR INTERVAL : .020 Sec. DATUM: 635 ft. A.S.L.
SOCONY MOBIL Fly No. 33 (S.S.C.1230) DATE: JUNE, 1963
CONTOURED BY: BUNKER, R.C. SUPERV: MORRIS

66°20'
66°15'
66°10'
66°00'
137°00'
136°45'
136°30'
136°15'

Y.T. E. (LOANE RIVER) SHEET
Y.T. E. (HUMPHRY LAKE) SHEET

2 OF 2

138°00' 137°45' 137°30' 137°15' 137°00'

66°30' 66°20' 66°15' 66°10'

CHANCE CREEK

Chance
2057

Chance

CREEK

AREA No2

SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y. T. C. (CHANCE CREEK) SHEET
HORIZON E
TENTATIVE TOP ALDER L.S.

CONTOUR INTERVAL .020 Sec.
SOCONY MOBIL Ply No. 53 (S. S.C. 1230)
CONTOURED BY ISUIKER, P.C.
DATUM 635 ft. A.S.L.
DATE JUNE, 1963
SUPERV. MORRIS
SCALE 1 INCH = 1 MILE

66°20'
66°15'
66°10'
66°00'
138°00'
137°45'
137°30'
137°15'
137°00'

Y.T. B (BLACKSTONE RIVER) SHEET
Y.T. F (TERRACE RIDGE) SHEET
Y.T. B (MOOSE LAKE) SHEET

2 of 2

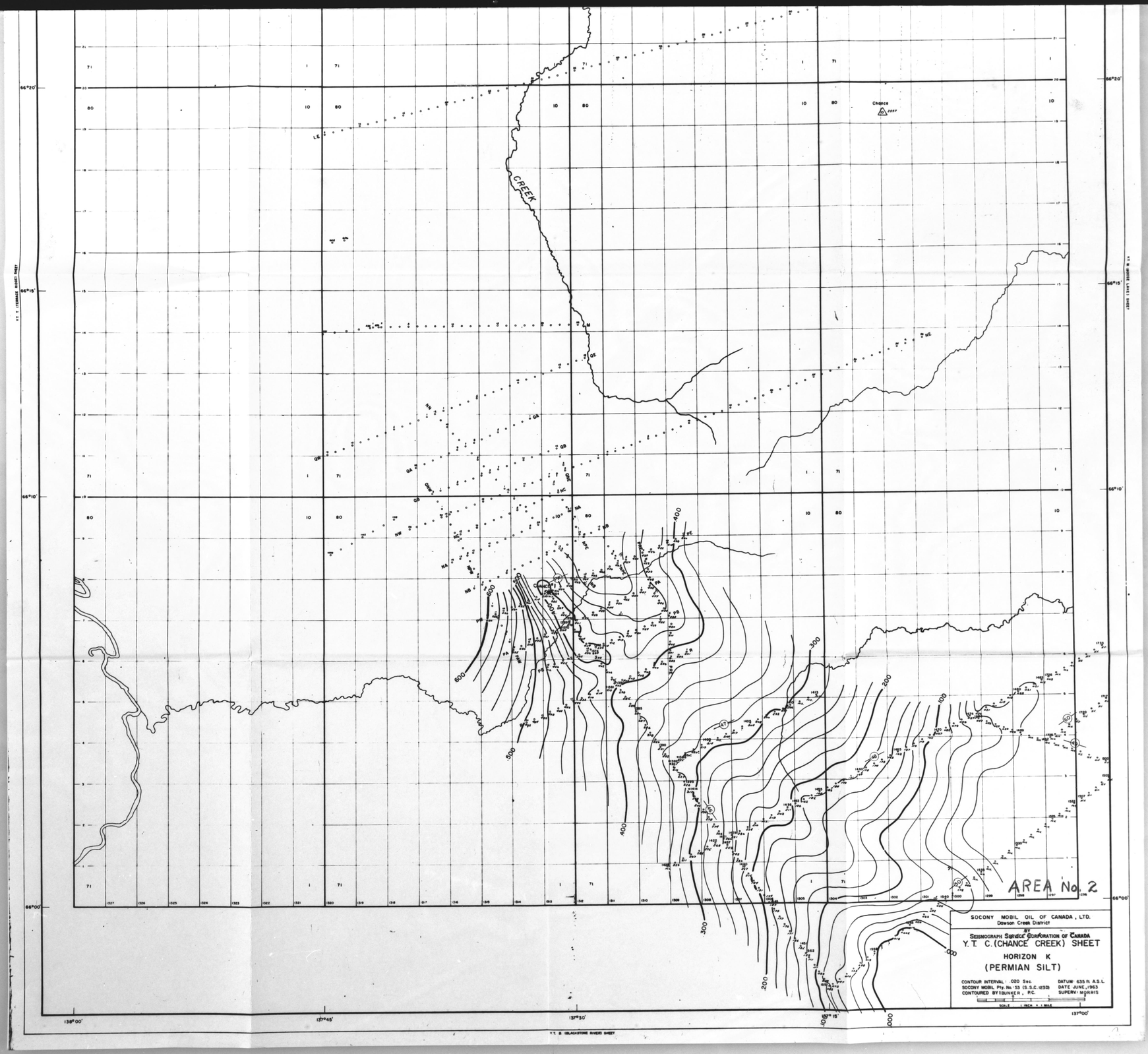
136°00'
137°45'
137°30'
137°15'
137°00'
66°30'
66°20'
66°15'
66°10'

CHANCE CREEK

Chance
2097

U.S. GEOLOGICAL SURVEY

1 OF 2


CREEK
Chance
AREA No. 2
SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y. T. C. (CHANCE CREEK) SHEET
HORIZON K
(PERMIAN SILT)
CONTOUR INTERVAL - 020 Sec.
SOCONY MOBIL Pty. No. 53 (S.S.C. 1230)
CONTOURED BY BUNKER, B.C.
DATUM: 635 ft. A.S.L.
DATE JUNE, 1963
SUPERV. MORRIS
SCALE 1 INCH = 1 MILE
66°20'
66°15'
66°10'
66°00'
138°00'
137°45'
137°30'
137°15'
137°00'

2 OF 2

136°00'
137°45'
137°30'
137°15'
137°00'
66°30'
66°20'
66°15'
66°10'

CHANCE CREEK

Chance
2057

700

CREEK

Chance

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District

BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA

Y.T. C. (CHANCE CREEK) SHEET

HORIZON F

NEAR TOP MISSISSIPPIAN

CONTOUR INTERVAL .020 Sec. DATUM 635 ft. A.S.L.
SOCONY MOBIL Pty. No. 53 (S.S.C. 1230) DATE JUNE, 1963
CONTOURED BY BUNKER, P.C. SUPERV. MORRIS

SCALE INCH = MILE

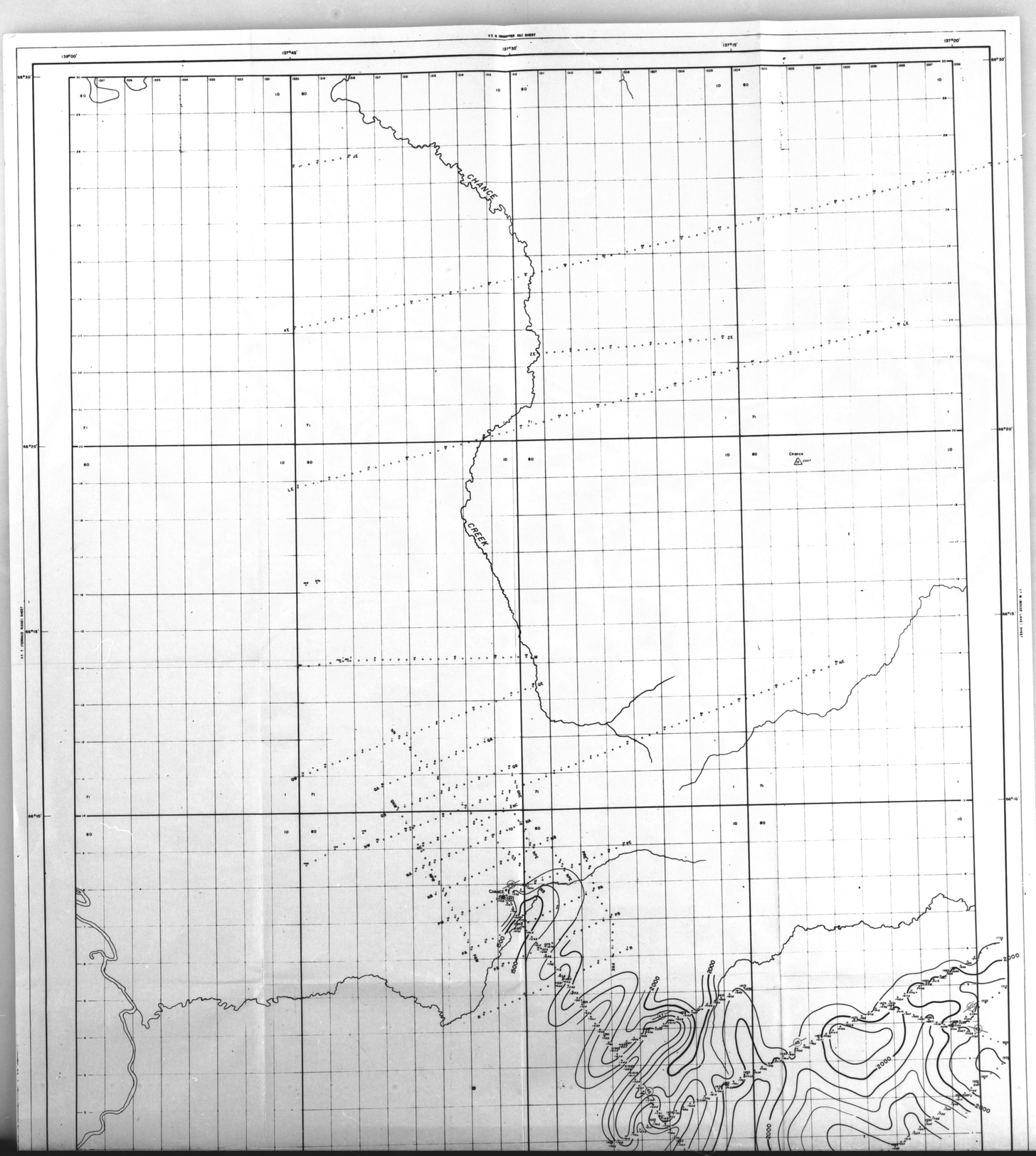
Y.T. 7 (TERMACK ROAD) SHEET

Y.T. 8 (BLACKSTONE RIVER) SHEET

Y.T. 6 (MOOSE LAKE) SHEET

2 OF 2


RIVER
PORCUPINE
CHANCE
CREEK
EAST BRANCH
PORCUPINE RIVER
200
300
400
500
550
138°15'
138°00'
137°45'
137°30'
66°30'
66°15'
AREA No. 1
SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
EAGLE PLAIN AREA
TIME INTERVAL
B to C
Mississippian To UNIDENTIFIED
CONTOUR INTERVAL: .025 Sec. W DATUM: 600 ft. A.S.L.
SOCONY MOBIL Permit No: 53 (S.G.C. 1230) DATE: JUNE, 1960
CONTOURED BY: BUNKER P.C. BUNKER SUPERV: MORRIS
SCALE: 1 INCH = 1 MILE


137°00'
137°45'
137°30'
137°15'
137°00'
66°30'
66°20'
66°10'
CHANCE
CREEK
Chance
Chance
2000
2000
2000
2000

CHANCE CREEK

Chance

AREA No 2

SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
for
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y. T. C. (CHANCE CREEK) SHEET
SURFACE ELEVATION

CONTOUR INTERVAL: 100 ft
SOCONY MOBIL Prj. No.: 53 (S.S.C. 1253)
CONTOURED BY: ISAACS n , P.C.

DATUM: 635 ft A.S.L.
DATE: JUNE, 1963
SUPERVISOR:

66°20'
66°15'
66°10'
66°00'
137°00'
137°15'
137°30'
137°45'
138°00'

Y.T. S. (BLACKSTONE RIVER) SHEET

1" = 1 STATUTE MILE SHEET

1" = 1 NAUTICAL MILE SHEET

2 OF 2

N.T. 1:50,000 MAP SHEET

N.T. CLARKE RIVER SHEET

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'

EAGLE RIVER

MOOSE LK.

THICK

THICK

300

400

400

1 OF 2

RIVER

MOOSE LK.

THICK

THICK

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
CALGARY (Dawson Creek District - Area) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET
TIME INTERVAL
E to F
(ALDER TO MISS.)
CONTOUR INTERVAL - .020 Sec. DATUM: 635 ft. A.S.L.
SOCONY MOBIL Pty No. 58 (S.S.C.-1230) DATE: JUNE, 1963
CONTOURED BY: BUNKER, P.C. SUPERV.: MORRIS

Y. T. KENNEDY LAKE) SHEET

2 OF 2

137°00'
136°45'
136°30'
136°15'
136°00'
66°30'
66°20'
66°15'
66°10'

EAGLE
RIVER
MOOSE LK.

137°00' 136°45' 136°30' 136°15' 136°00'

66°30' 66°20' 66°15' 66°10'

EAGLE RIVER

MOOSE LK.

2514 2763 3049 2667 2973 3107

RIVER

MOOSE LK.

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
CALGARY (Dawson Creek District Area) ALBERTA
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. M.(MOOSE LAKE) SHEET
TIME INTERVAL
K to E
(PERMIAN TO ALDER)
CONTOUR INTERVAL .020 Sec. DATUM: 635 ft. A.S.L.
SOCONY MOBIL Pty No. 53 (S.S.C.-1233) DATE: JUNE, 1963
CONTOURED BY BUNKER, P.C. SUPERV.: MORRIS

66°20'
66°15'
66°10'
66°00'
137°00'
136°45'
136°30'
136°15'
136°00'

138°00'
137°45'
137°30'
137°15'
137°00'
66°30'
66°20'
66°15'
66°10'

CHANCE CREEK

Chance
2057

CHANCE #1
PWR
2364

200
300

CREEK

Chance

THICK

440

300

400

AREA No. 2

SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
Y.T. C.(CHANCE CREEK) SHEET
TIME INTERVAL
E to F
(ALDER TO MISS.)
CONTOUR INTERVAL .020 Sec. DATUM 635 ft A.S.L.
SOCONY MOBIL Pty No. 55 (S.S.C.1230) DATE JUNE, 1965
CONTOURED BY BURKE R., P.C. SUPERV. MORRIS
SCALE 1 INCH = 1 MILE

66°20'
66°15'
66°10'
66°00'
138°00'
137°45'
137°30'
137°15'
137°00'

Y.T. C (CHANCE CREEK) SHEET
Y.T. B (BLACKSTONE RIVER) SHEET

2 OF 2

CREEK

Chance

AREA No 2

SOCONY MOBIL OIL OF CANADA, LTD
Dawson Creek District

BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA

Y.T. C.(CHANCE CREEK) SHEET
TIME INTERVAL
K to E
(PERMIAN TO ALDER)

CONTOUR INTERVAL .020 Sec
SOCONY MOBIL Plg No. 53 (S.S.C. 1233)
CONTOURED BY BUNKER, P.C.

DATUM 635 ft A.S.L.
DATE JUNE, 1963
SUPERVI MORRIS

SCALE 1 INCH = 1 MILE

66°20'
66°15'
66°10'
66°05'
66°00'
136°00'
135°45'
135°30'
135°15'
135°00'

2 OF 2

138°15'
138°00'
137°45'
137°30'
66°30'
66°15'
PORCUPINE RIVER
CHANCE CREEK
EAST BRANCH PORCUPINE RIVER
AREA No 1
SHOT BY SSC IN 1963
SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
EAGLE PLAIN AREA
SHOT POINT LOCATION MAP
CONTOUR INTERVAL: VD: DATUM: 635 ft. A.S.L.
SOCONY MOBIL Party No: 53 (S.S.C. 1230) DATE: JUNE, 1963
CONTOURED BY: BUNKER P.C. BUNKER SUPERV: MORRIS
SCALE: 1 INCH = 1 MILE

138°00'
137°45'
137°30'
137°15'
137°00'
66°30'
66°20'
66°15'
66°10'
66°00'
CHANCE
CREEK
Chance
AREA No. 2
1 OF 2

CHANCE

CREEK

Chance

AREA No. 2

SHOT BY SSC IN 1963

SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SURVEY CORPORATION OF CANADA
Y.T. C. (CHANCE CREEK) SHEET

SHOT POINT LOCATION MAP

CONTOUR INTERVAL:
SOCONY MOBIL Pfg. No. 53 (S.S.C.-230)
CONTOURED BY SURVEY & P.C.
DATUM: 635 ft. A.S.L.
DATE: JUNE, 1963
SUPERV.: [illegible]

SCALE 1 INCH = 1 MILE

66°20'
66°15'
66°10'
66°00'
138°00'
137°45'
137°30'
137°15'
137°00'

Y.T. & BLACKSTONE RIVER SHEET

2 OF 2

138°15'
138°00'
137°45'
137°30'
66°30'
66°15'

RIVER
PORCUPINE
CHANCE
CREEK
EAST BRANCH PORCUPINE RIVER

400 450 500 550 600 650 700 750 800 850 900

AREA No. 1

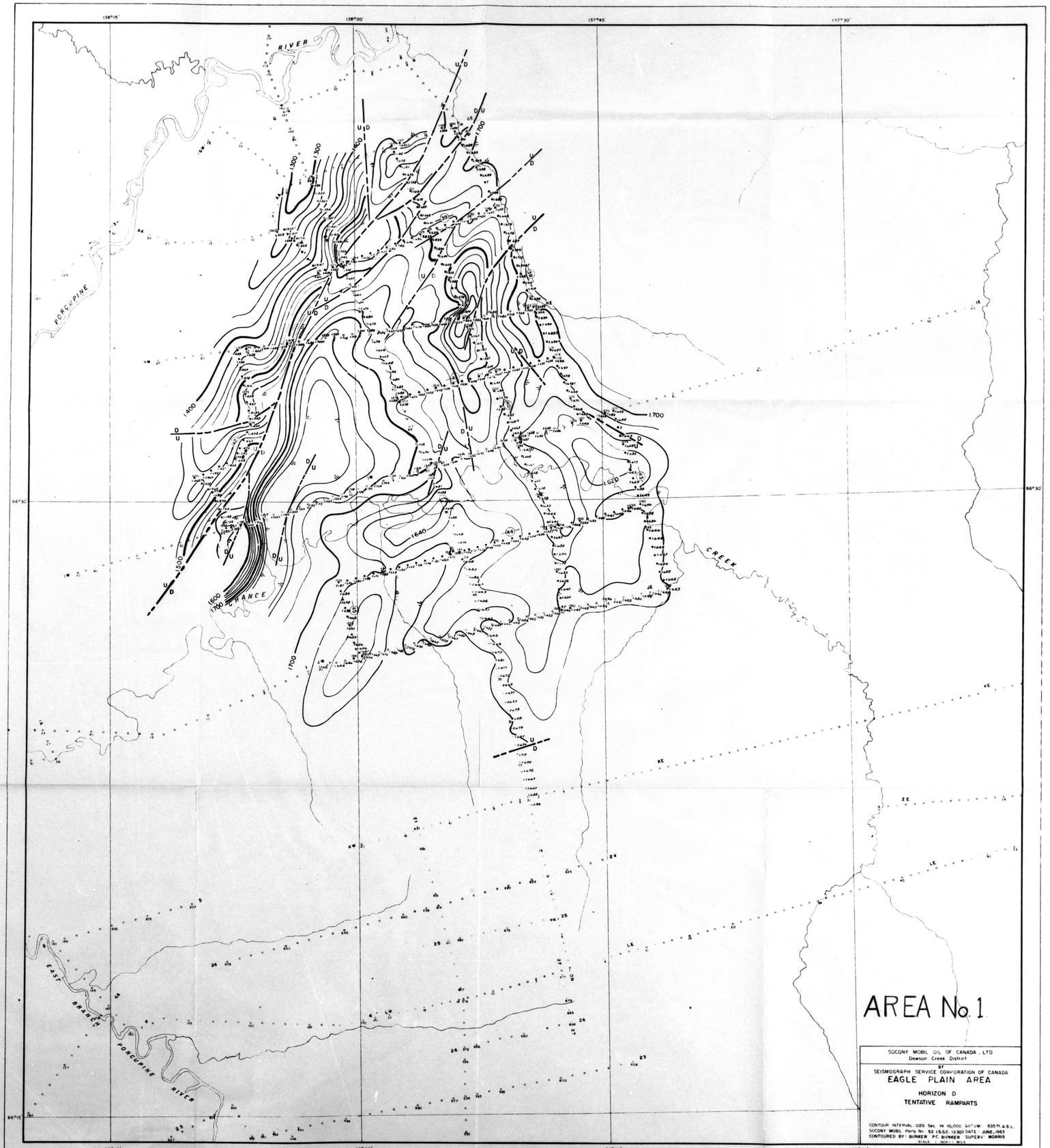
SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District

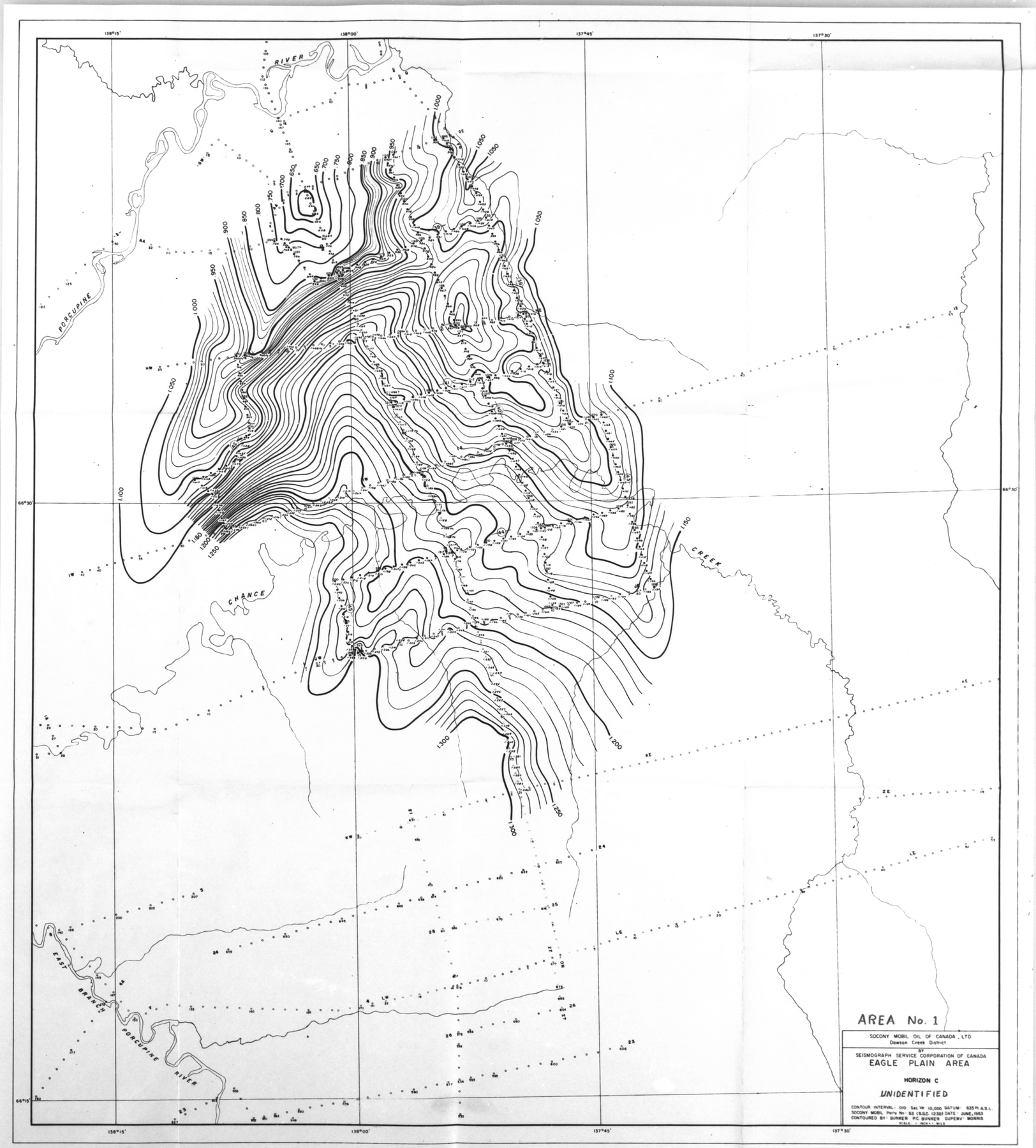
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA

EAGLE PLAIN AREA

HORIZON B
TENTATIVE MISSISSIPPIAN

CONTOUR INTERVAL: 010 Sec. Ve 10,000 DATUM: 635 ft. A.S.L.
SOCONY MOBIL Party No: 53 (S.S.C. 1230) DATE: JUNE, 1963
CONTOURED BY: BUNKER P.C. BUNKER SUPERV: MORRIS
SCALE: 1 INCH = 1 MILE


138°15'
138°00'
137°45'
137°30'
66°30'
66°15'
RIVER
PORCUPINE
CREEK
EAST BRANCH PORCUPINE RIVER
1400
1500
1600
1700
1620
1640
CHANCE
AREA No. 1
SOCONY MOBIL OIL OF CANADA, LTD
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
EAGLE PLAIN AREA
HORIZON D
TENTATIVE RAMPARTS
CONTOUR INTERVAL: 020 Sec. VE 10,000 DATUM: 635 ft. A.S.L.
SOCONY MOBIL Party No. 53 I.S.S.C. 1230 DATE: JUNE, 1963
CONTOURED BY: BUNKER P.C. BUNKER SUPERV: MORRIS
SCALE 1 INCH = 1 MILE


138°15'
138°00'
137°45'
137°30'
66°30'
66°15'
PORCUPINE RIVER
CHANCE CREEK
EAST BRANCH OF PORCUPINE RIVER
AREA No. 1
SOCONY MOBIL OIL OF CANADA, LTD.
Dawson Creek District
BY
SEISMOGRAPH SERVICE CORPORATION OF CANADA
EAGLE PLAIN AREA
HORIZON C
UNIDENTIFIED
CONTOUR INTERVAL: 010 Sec. W 10,000 DATUM 635 Ft. A.S.L.
SOCONY MOBIL Party No. 53 (S.S.C. 13303 DATE: JUNE, 1963
CONTOURED BY: BUNKER P.C. BUNKER SUPERV. MORRIS
SCALE 1 INCH = 1 MILE

AMUNDSEN

GULF

FRANKLIN

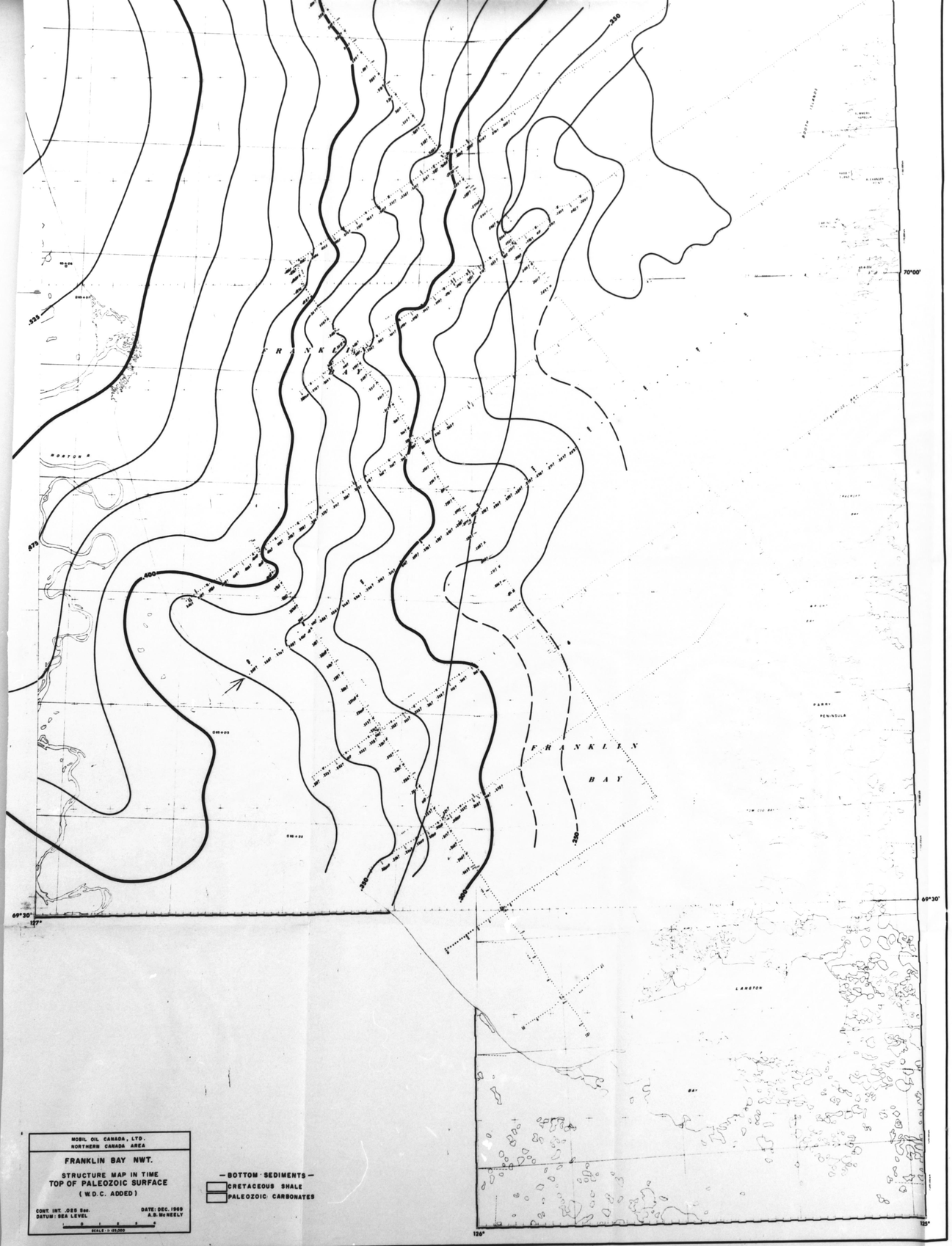
BAY

125°

70° 30'

70°00'

1 OF 2


70°00'
69°30'
127°
126°
125°
FRANKLIN
BAY
PARRY
PENINSULA
LANGTON
BAY
MOBIL OIL CANADA, LTD.
NORTHERN CANADA AREA
FRANKLIN BAY NWT.
STRUCTURE MAP IN TIME
TOP OF PALEOZOIC SURFACE
(W.D.C. ADDED)
CONT. INT. .025 Sec.
DATUM: SEA LEVEL
DATE: DEC. 1969
A.B. McNEELY
SCALE 1:125,000
—BOTTOM SEDIMENTS—
CRETACEOUS SHALE
PALEOZOIC CARBONATES

122°30'

122°15'

122°00'

62°30'

62°20'

8

80

10

71

1

b

a

1

MACKENZIE RIVER

TRAIL RIVER

25-10

25-9

.350

.300

.300

.350

Possible ?

BA-HB Trail CA #1

2

MACKENZIE RIVER

TRAIL RIVER

25-10

25-5

BA-H.B. Trail Ck #1

LEGEND

POSSIBLE FAULT

MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. - TRAIL RIVER

HUME FORMATION

Contour Interval: 0.000 sec.

Contoured by RAY GEOPHYSICAL LTD.

H. ANTON SCALE: 2" = 1 MILE Date March 13 1969

95 J

122°30' 122°15' 122°00'

62°10' 62°00'

3 of 3

123°00'

122°45'

122°30'

62°00'

62°00'

HIGH

35-22

310

ODV.

ODV.

ODC.

TSETSO

LAKE

61°50'

61°50'

10

SIBBESTON

1

SIBBESTON

LAKE

b

a

c

d

71

1

71

80

10

80

10

MATOU

MATOU

RIVER

MOBIL OIL CANADA, LTD.
CALGARY ALBERTA

N.W.T. – SIBBESTON LAKE

HUME FORMATION

Contour Interval- 0.010 sec

RAY GEOPHYSICAL LTD.

Contoured by G. Date: March 13, 1963

H. ANTON SCALE: 2" = 1 MILE

95 G

3 of 3