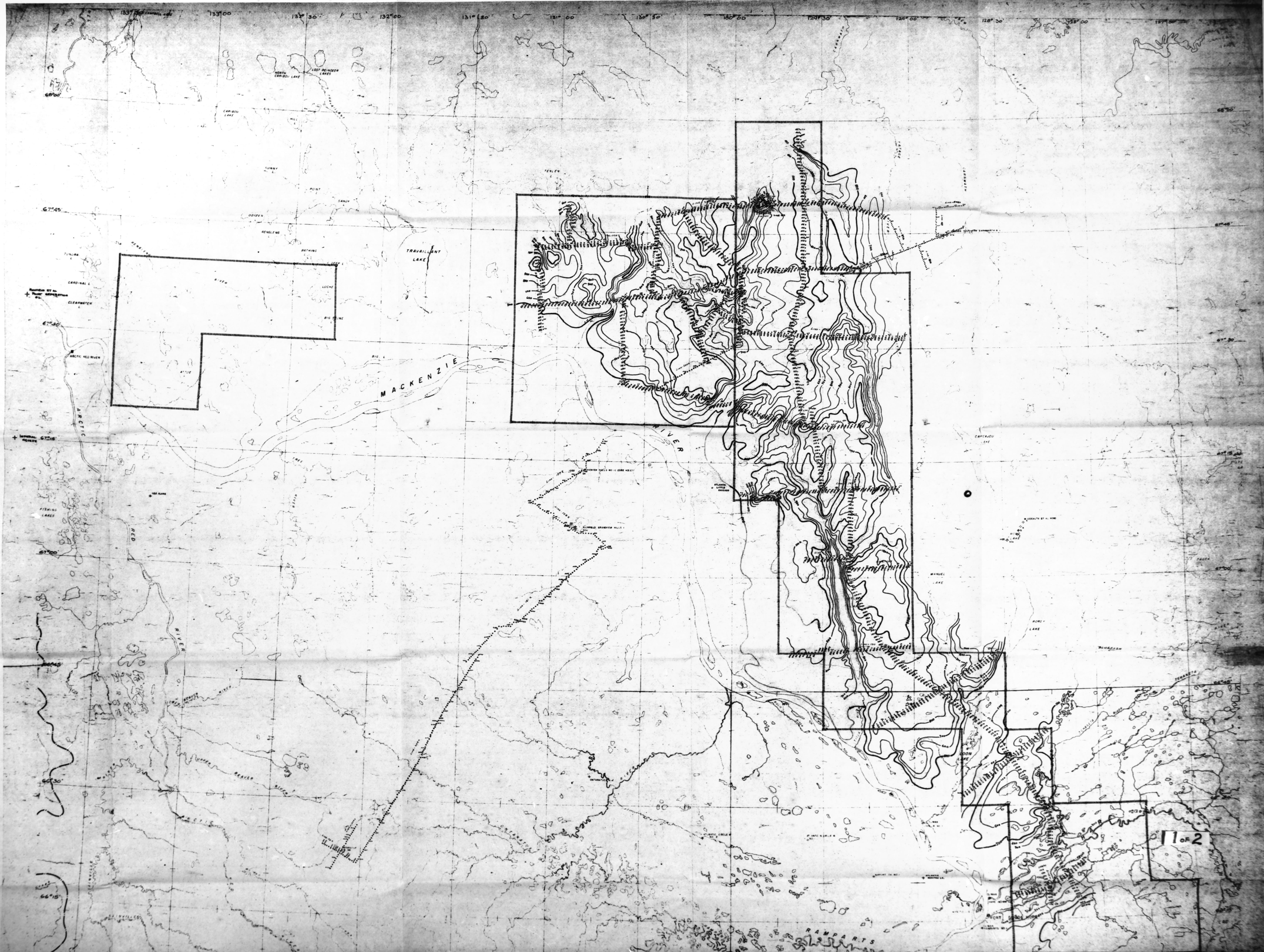
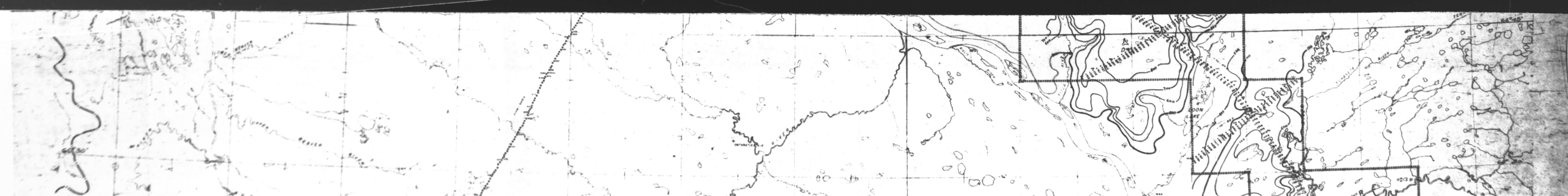


133°00
132°00
131°00
130°00
67°45
67°30
67°00
66°30
66°15
TRAVAILLANT LAKE
MACKENZIE
RIVER
ARCTIC RED RIVER
ARCTIC
RED
RIVER
RAMPARTS
1 OF 2

RAMPARTS
RIVER
FORT GOOD HOPE
REVISIONS
July 1, 1966
CHEVRON STANDARD LIMITED
FORT GOOD HOPE
BOUGUER GRAVITY ANOMALY
DATUM, SEA LEVEL
CONTOURED BY
SCALE
DATE
DRAWN
1" = 4 Miles
F-11244-2
2 of 2



66°30'
66°15'
66°00'
133°00'
132°30'
132°00'
131°30'
131°00'
130°30'
130°00'
129°30'
129°00'
128°30'
UPPER BEAVER RIVER
ARCTIC
RAMPARTS
RIVER
TSINTH
FORT GOOD HOPE
ATLANTIC BEAVERTAIL
REVISIONS
July 1, 1966
CHEVRON STANDARD LIMITED
FORT GOOD HOPE
SURFACE ELEVATIONS
2 of 2
SCALE
DATE

NORTH CARIBOU LAKE
LOST REINDEER LAKES
TRAVAILLANT LAKE
MACKENZIE
RIVER
ARCTIC
RED
RIVER
CARCAJOU LAKE
MANUEL LAKE
FORT GOOD HOPE
1 OF 2

CONFIDENTIAL

THUNDER RIVER NTS 106-O

Covering Permits
3669 to 3677 incl.
3704 to 3706 incl.
4442 to 4447 incl.

Project 45-6-4-66-1

Final Report on Gravity Survey Conducted by
Chevron Standard Limited
from February to April 1966

by
E. W. Jones

April 15, 1968

Maps in attached folder
1. Station Location and Elevation Map.
2. Bouguer Anomaly Map (1 copy only).

Geophysical Data for a Gravity Survey

Project 45-6-4-66-1

Company: Chevron Standard Limited

Location:

Area and Province - Thunder River, NWT, NTS 106-0
Longitude and Latitude - Lat. 67°30' to 68°00' N,
Long. 130°00' to 131°00' W.

Permit Numbers: 3669 to 3677 incl., 3704 to 3706 incl., 4442 to 4447 incl.

Type of Survey:

Traverse Lines - Along Seismic lines
Direction - Various
Systematic areal coverage - None

Average Station Spacing: ¼ mile

Number of Observations in Survey: 620

Year of Observation: 1966

Observer's Name: Robert H. Ray Company

Form of Data

1. Original Traverse Data

Gravimeters Used	Serial Nos.	Calibration Constant (mgal/div.)
Romberg	#70	.1106

Method of calibration - Unknown
Estimated accuracy of reading in divisions - ± .1 Dial Divisions

2. Values of Observed Gravity

Units in which observed gravity value is given - milligals
Average time interval drift checks - 120 min. maximum.

3. Values of Bouguer Anomaly

Formula used for calculation of theoretical gravity (International Formula, or specify) International Formula

<u>Geophysical Data for a Gravity Survey</u>

<u>Project 45-6-4-66-1</u>

Company: Chevron Standard Limited

Location:

Area and Province	-	Thunder River, NWT, NTS 106-O
Longitude and Latitude	-	Lat. 67°30' to 68°00' N, Long. 130°00' to 131°00' W.

Permit Numbers: 3669 to 3677 incl., 3704 to 3706 incl., 4442 to 4447 incl.

Type of Survey:

Traverse Lines	-	Along Seismic lines
Direction	-	Various
Systematic areal coverage	-	None

Average Station Spacing: ¼ mile

Number of Observations in Survey: 620

Year of Observation: 1966

Observer's Name: Robert H. Ray Company

<u>Form of Data</u>

1. Original Traverse Data

Gravimeters Used	Serial Nos.	Calibration Constant (mgal/div.)
Romberg	#70	.1106

Method of calibration - Unknown
Estimated accuracy of reading in divisions - ± .1 Dial Divisions

2. Values of Observed Gravity

Units in which observed gravity value is given - milligals
Average time interval drift checks - 120 min. maximum.

3. Values of Bouguer Anomaly

Formula used for calculation of theoretical gravity (International Formula, or specify) — International Formula

Elevation datum used in calculation of Bouguer anomaly	- Sea level
Density used in making elevation corrections	- 2.0
Terrain corrections made	- Inner estimated only.

Elevations

Unit (feet or meters)	- feet
Elevations determined by	- stadia
Elevations referred to	- Arbitrary starting pt.
Estimated accuracy of elevations	- ± 25 feet

Position Coordinates

1. Scaled from maps of a scale of - 1:250,000

2. Surveyed

Method of survey	- Transit and stadia board
Units of distance	- feet
Position of origin of survey	- Ramparts area & Fort Good Hope

3. Computed from Decca Coordinates

4. Referenced to - Polyconic projection.

Gravity Control

1. Tied to Dominion Observatory Stations

Number	Location
-	Fort Good Hope

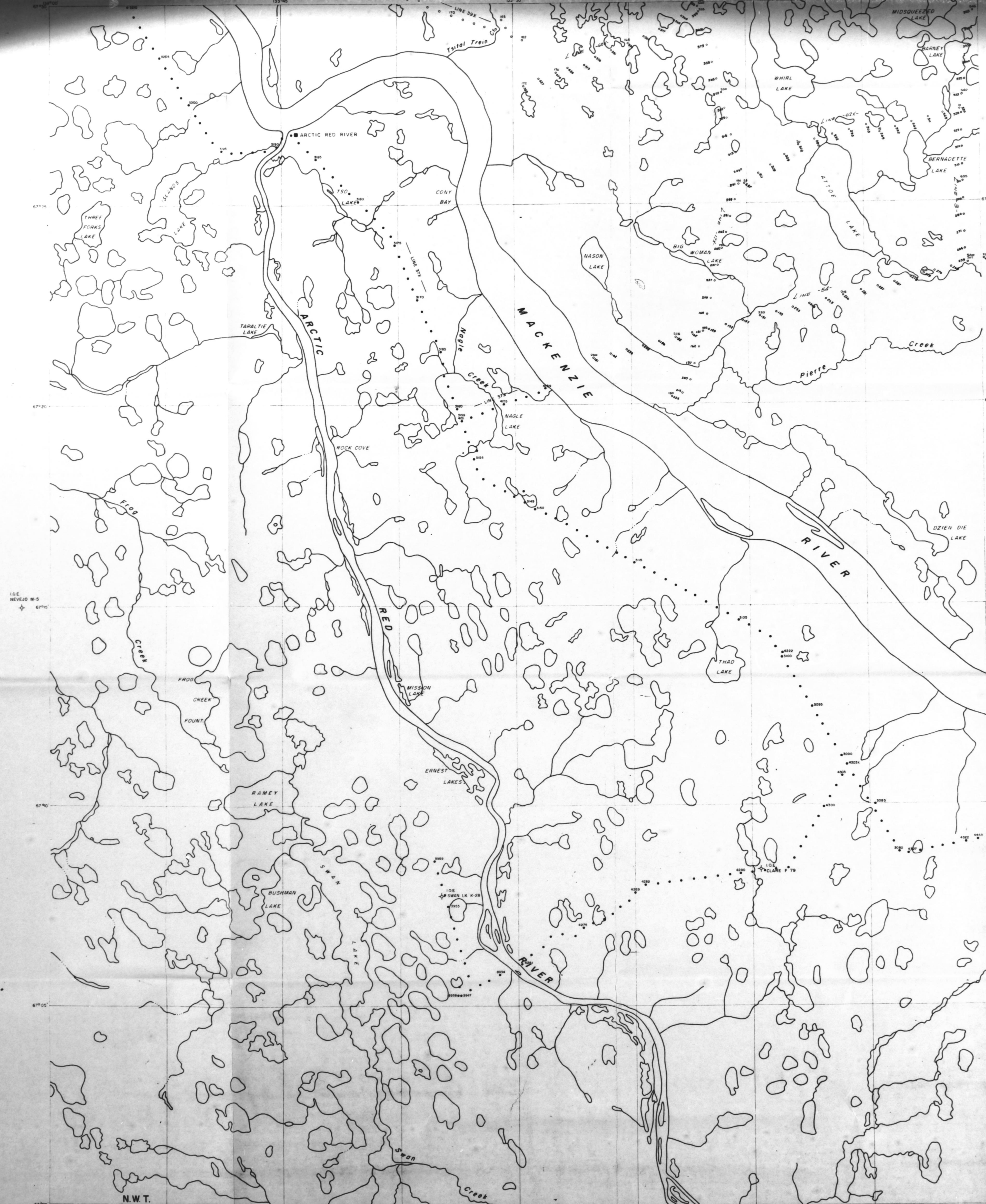
2. Tied to Local System

Location and gravity value of main reference stations

E. W. JONES April 26, 1968
District Geophysicist
Chevron Standard Limited

E W Jones

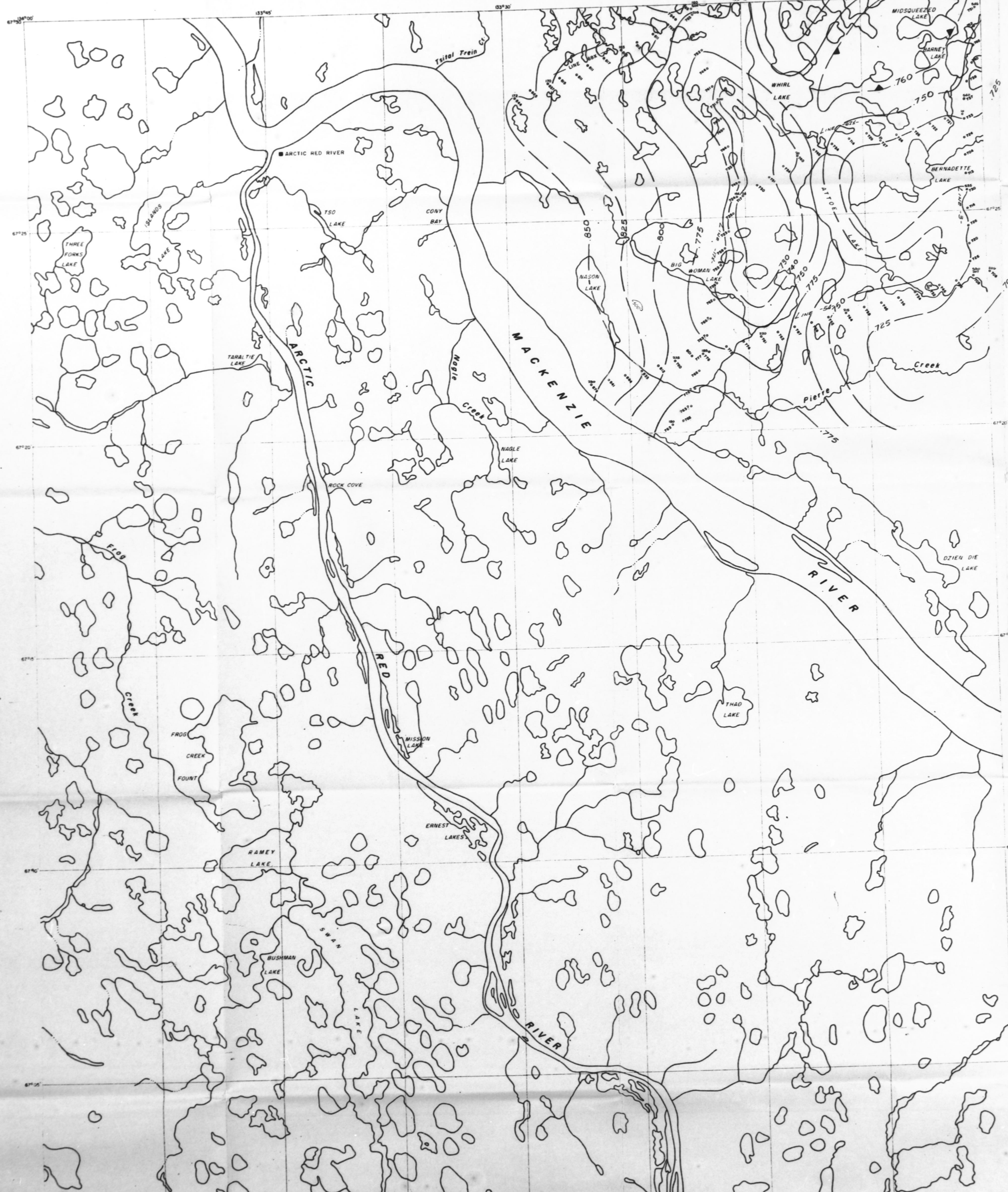
134°00'
133°45'
133°30'
133°15'
133°00'
67°30'
67°25'
67°20'
67°15'
67°10'
67°05'
ARCTIC RED RIVER
MACKENZIE
RIVER
ARCTIC
RED
RIVER
LINE 39X
Tsital Trein Crk
MIDSQUEEZED LAKE
BARNEY LAKE
WHIRL LAKE
BERNADETTE LAKE
TSO LAKE
CONY BAY
THREE FORKS LAKE
ISLANDS LAKE
NASON LAKE
BIG WOMAN LAKE
LINE 37X
LINE 54
TARALTIE LAKE
Nagle Creek
NAGLE LAKE
Pierre Creek
ROCK COVE
Frog Creek
DZIEN DIE LAKE
I.O.E. NEVEJO M-5
THAD LAKE
MISSION LAKE
FROG CREEK FOUNT
ERNEST LAKES
RAMEY LAKE
SWAN LAKE
BUSHMAN LAKE
I.O.E. SWAN LK K-28
NOTE: FOR INDEX MAP SEE F-6797-E-1



NOTE FOR INDEX MAP SEE F-6797-E-1

REVISIONS	CHEVRON STANDARD LIMITED			
	106 - N - S.W. SWAN LAKE AREA			
	SCALE	DATE	DRAWN	F-9818A
	1 INCH = 1 MILE	MARCH 12, 1965	R. L. S.	

2 of 2

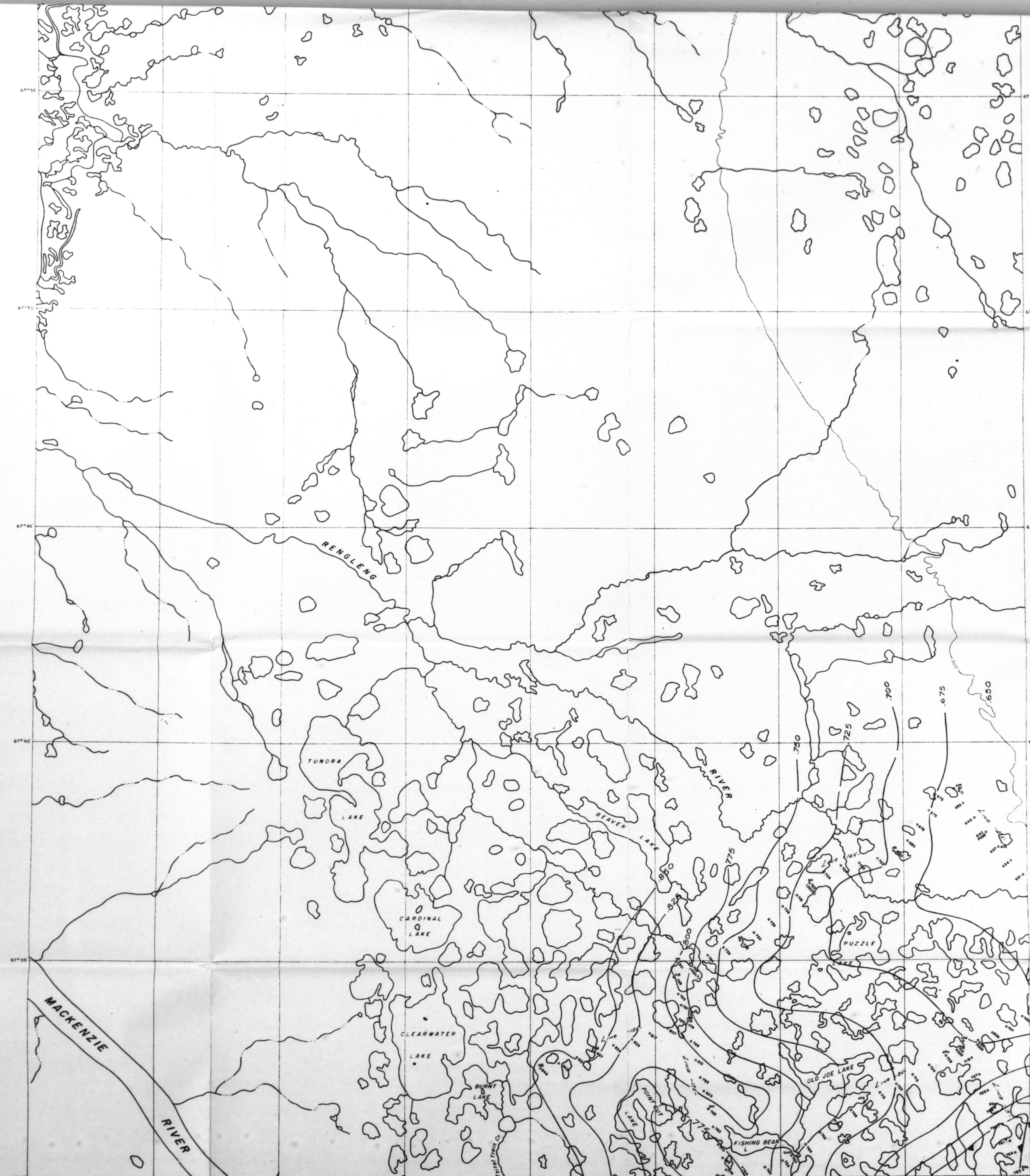


NOTE FOR INDEX MAP SEE F-6797-E-1

CHEVRON STANDARD LIMITED

RENGLENG
RIVER
TUNDRA
LAKE
CARDINAL
LAKE
CLEARWATER
LAKE
MACKENZIE
PUZZLE
750
725
700
675
650

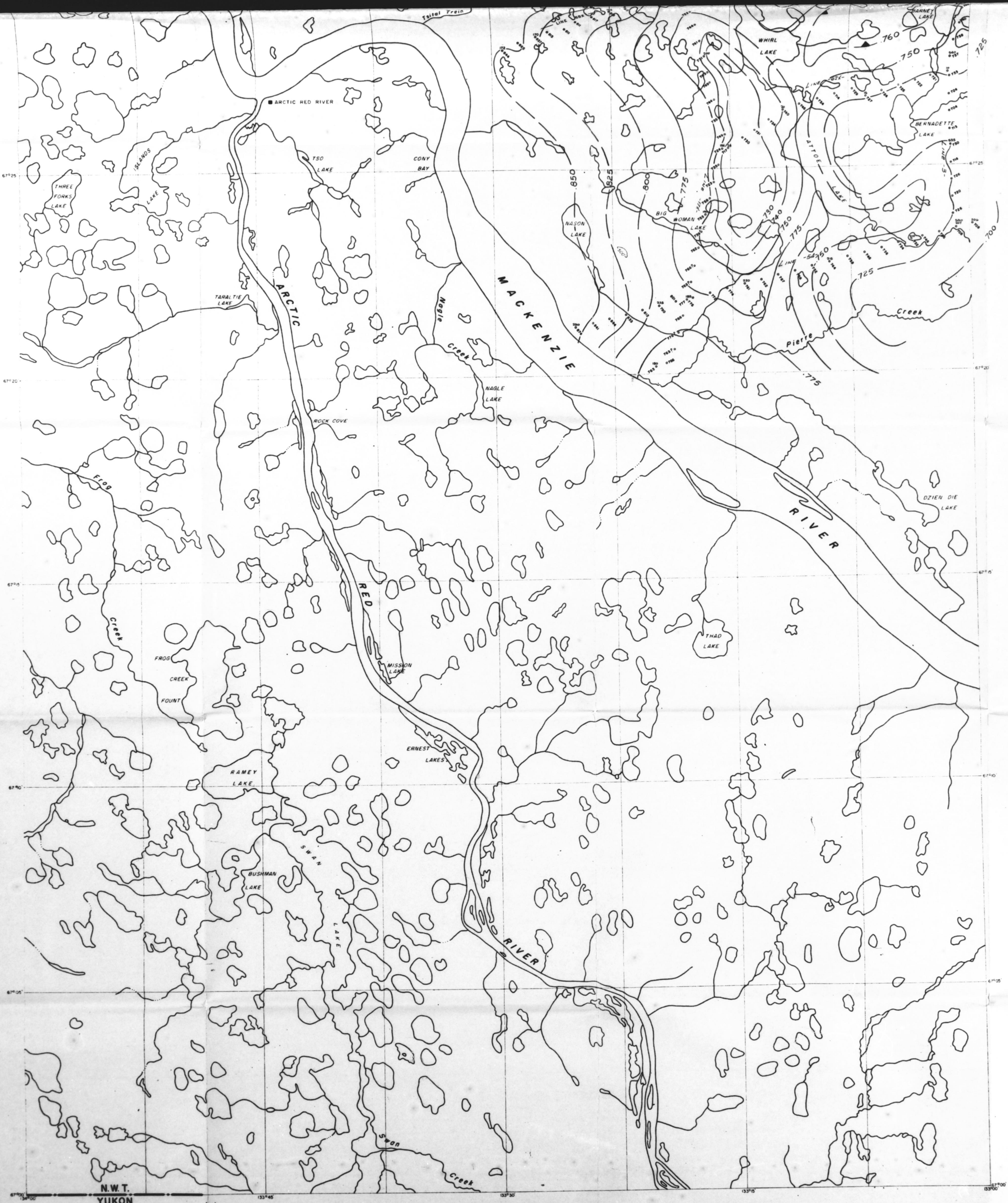
1 of 2



NOTE FOR INDEX MAP SEE F-6797-E-1

REVISIONS	CHEVRON STANDARD LIMITED			
	RENGLENG RIVER AREA TIME STRUCTURE CONTOURS NEAR TOP BEAR ROCK - LANDRY			
	C.I. = .025 Sec.	BY K. VANCE	MARCH 1967	
	SCALE	DATE	DRAWN	F-9820A-2
	1 INCH = 1 MILE	MARCH 12, 1965	R. L. S.	

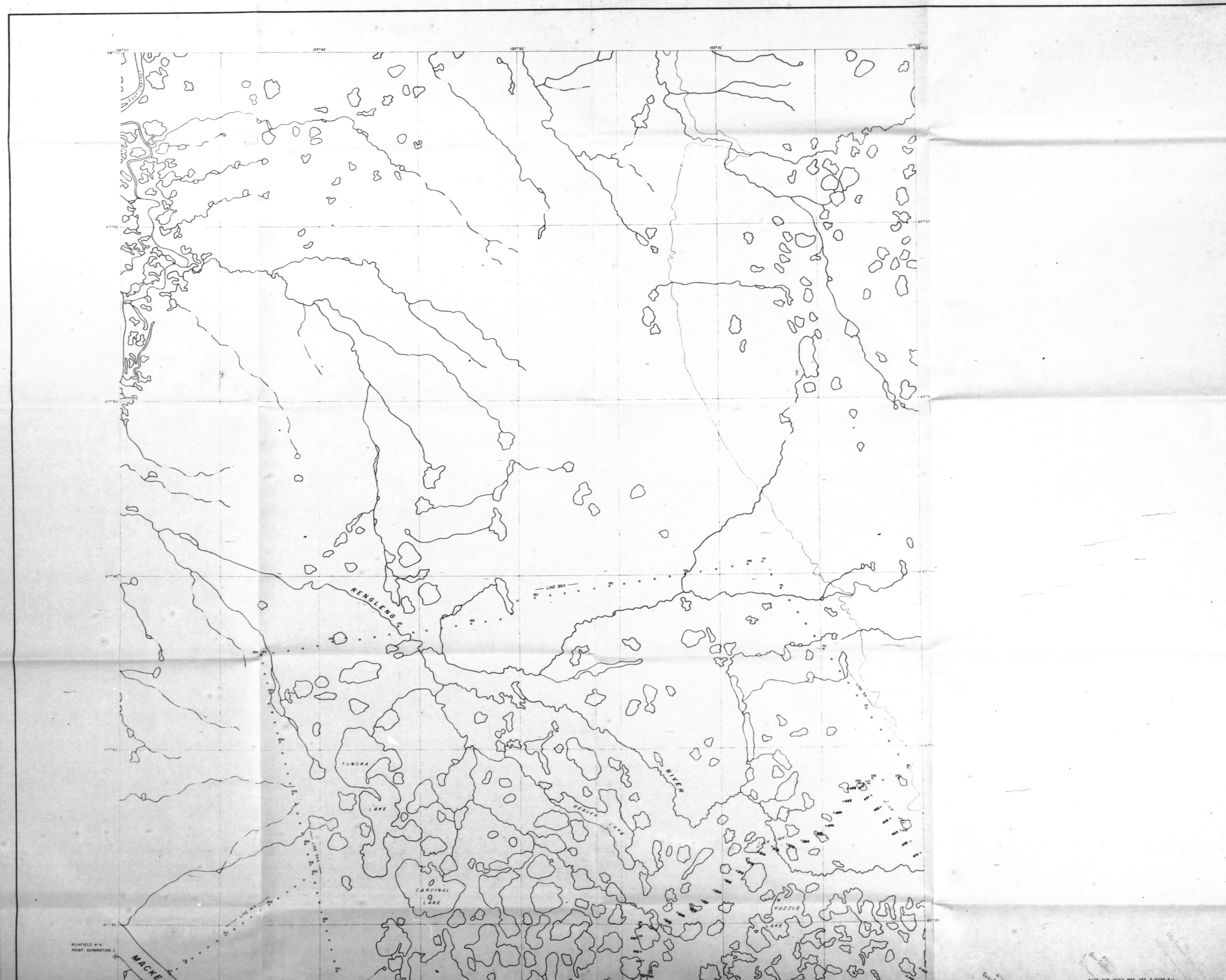
2 of 2



NOTE FOR INDEX MAP SEE F-6797-E-1

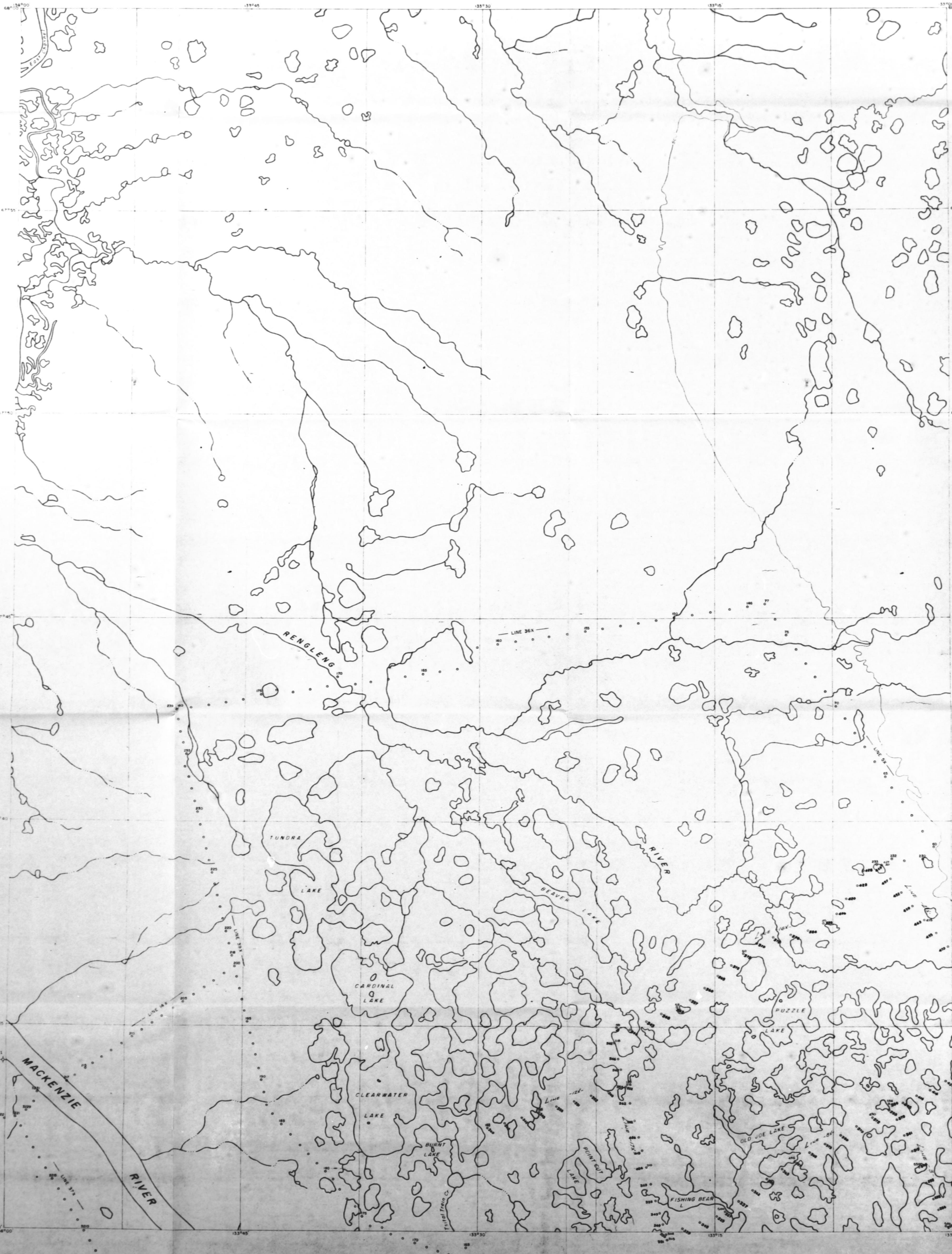
REVISIONS	CHEVRON STANDARD LIMITED			
	SWAN LAKE AREA TIME STRUCTURE CONTOURS NEAR TOP BEAR ROCK - LANDRY			
	C.I. = .025 Sec.	BY K. VANCE	MARCH 1967	
	SCALE	DATE	DRAWN	F-9818A-2
	1 INCH = 1 MILE	MARCH 12, 1965	R. L. S.	

2 of 2



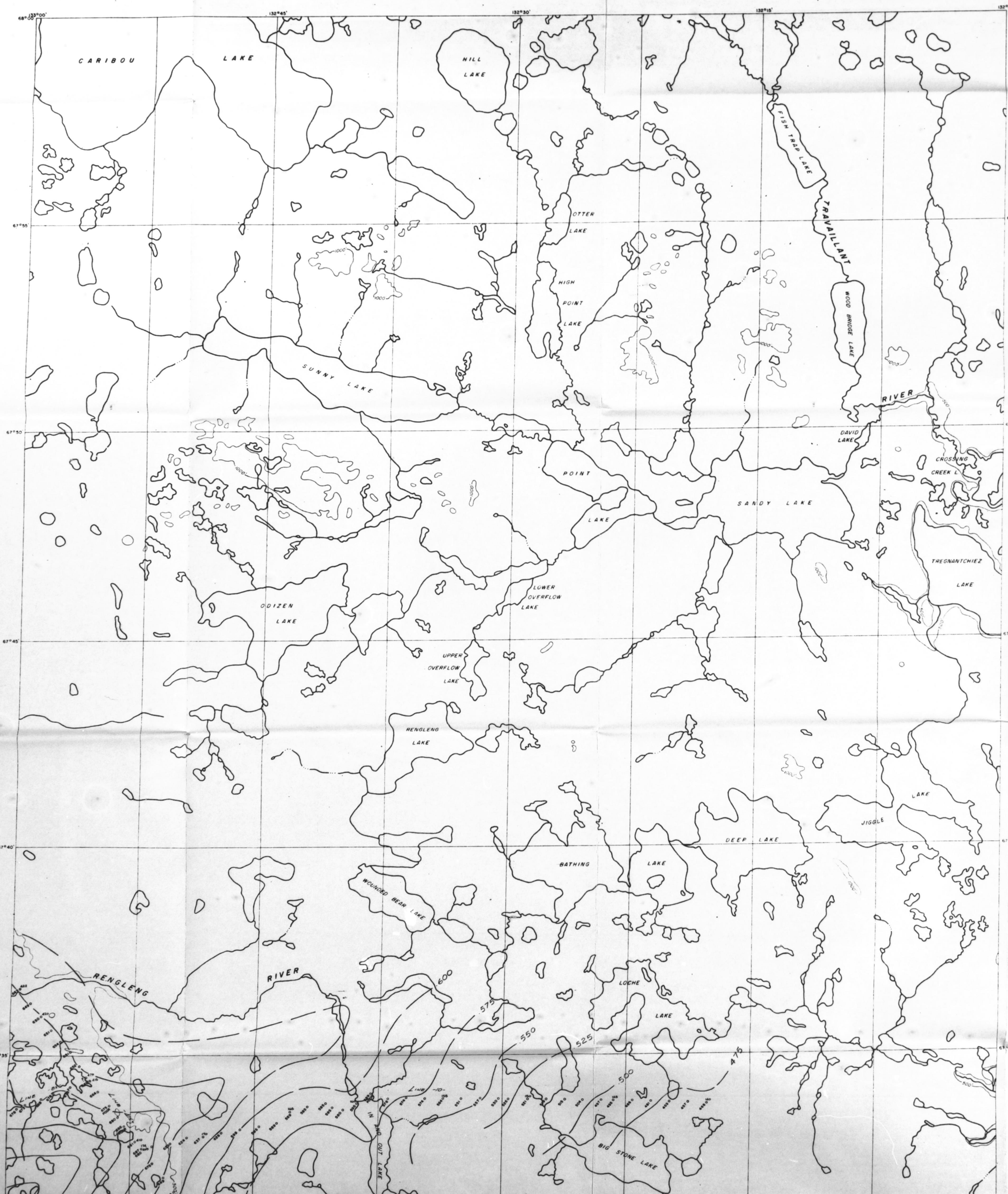
RENGLENG
RIVER
LINE 36X
LINE 39X
LINE 14X
TUNDRA
LAKE
BEAVER
LAKE
CARDINAL
LAKE
PUZZLE
LAKE
RICHFIELD et al
POINT SEPARATION 1
MACKE

1 OF 2



NOTE FOR INDEX MAP SEE F-6797-E-1

REVISIONS	CHEVRON STANDARD LIMITED			
	RENGLENG RIVER AREA			
	SCALE	DATE	DRAWN	F-9820A
	1 INCH = 1 MILE	MARCH 12, 1965	R. L. S.	



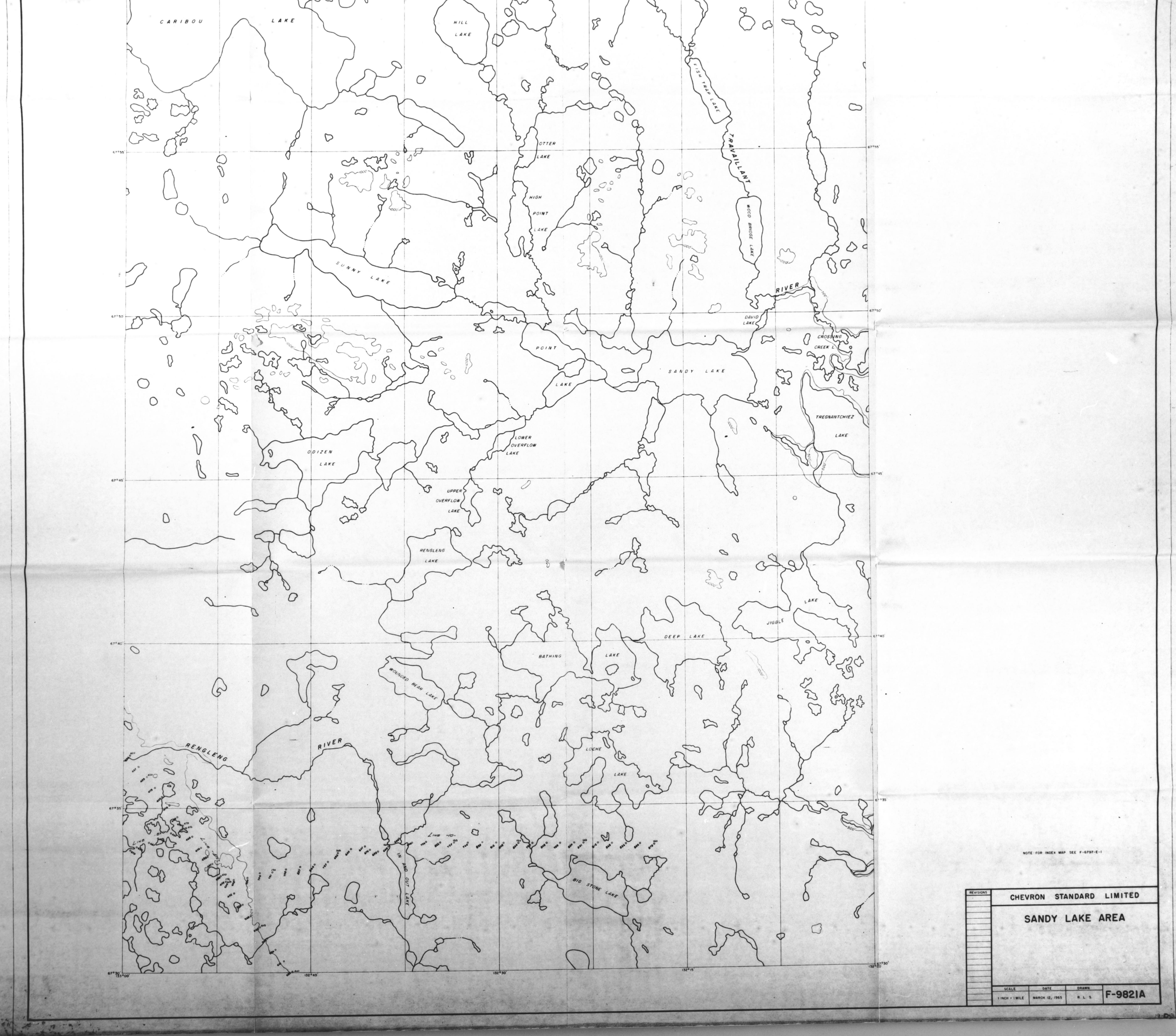
NOTE FOR INDEX MAP SEE F-6797-E-1

REVISIONS	CHEVRON STANDARD LIMITED

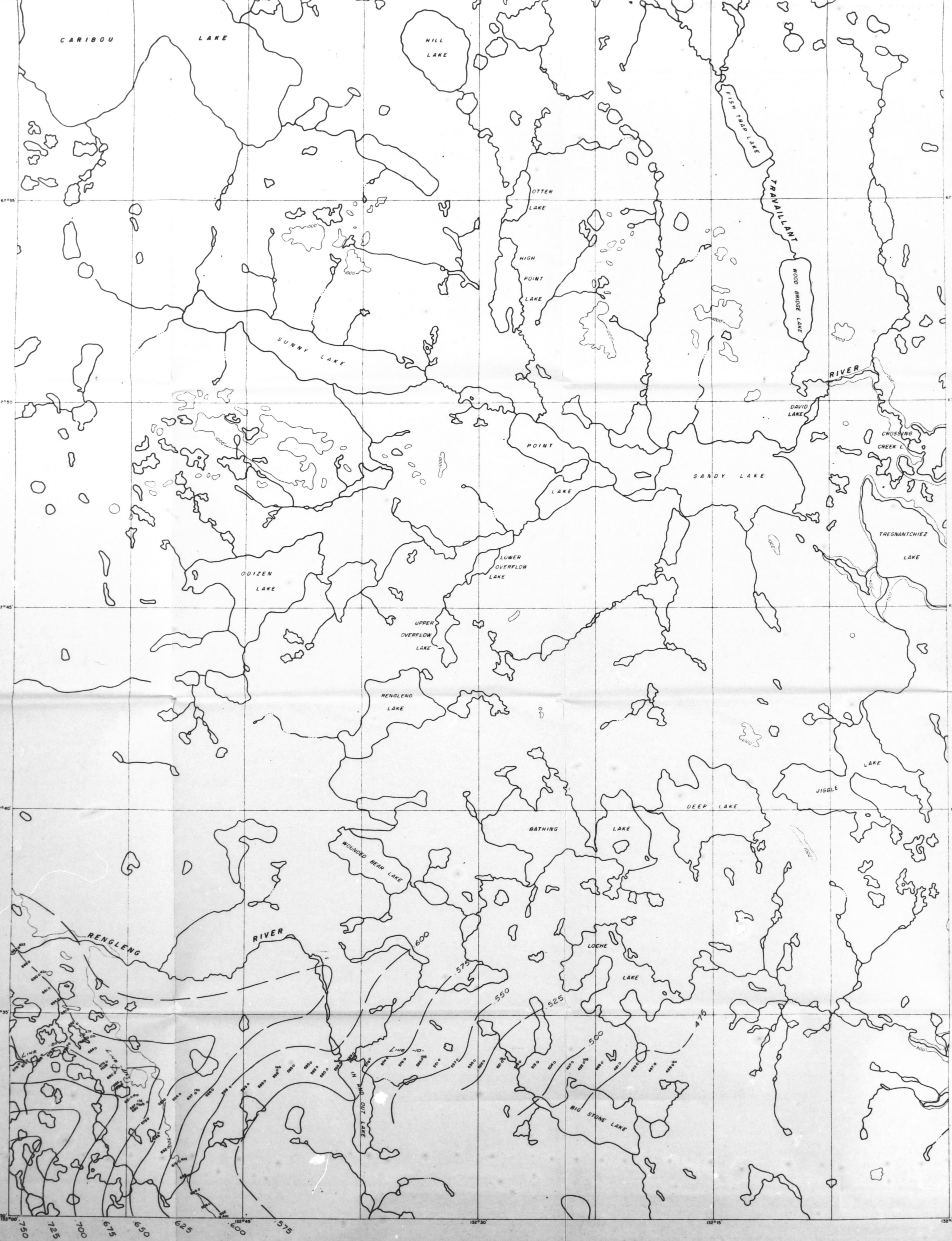
1 OF 2

NOTE FOR INDEX MAP SEE F-6797-E-1

1 OF 2


CARIBOU LAKE
HILL LAKE
FISH TRAP LAKE
TRAVAILLANT RIVER
OTTER LAKE
HIGH POINT LAKE
WOOD BRIDGE LAKE
SUNNY LAKE
DAVID LAKE
CROSSING CREEK L.
POINT LAKE
SANDY LAKE
TREGNANTCHIEZ LAKE
LOWER OVERFLOW LAKE
ODIZEN LAKE
UPPER OVERFLOW LAKE
RENGLENG LAKE
JIGGLE LAKE
DEEP LAKE
BATHING LAKE
WOUNDED MEAN LAKE
RENGLENG RIVER
LOCHE LAKE
BIG STONE LAKE
NOTE: FOR INDEX MAP SEE F-6797-E-1
REVISIONS
CHEVRON STANDARD LIMITED
SANDY LAKE AREA
SCALE
1 INCH = 1 MILE
DATE
MARCH 12, 1965
DRAWN
R. L. S.
F-9821A

2 of 2



NOTE FOR INDEX MAP SEE F-6797-E-1

REVISIONS	CHEVRON STANDARD LIMITED			
	SANDY LAKE AREA TIME STRUCTURE CONTOURS NEAR TOP BEAR ROCK - LANDRY			
	C.I. = .025 Sec.	BY K. VANCE	MARCH 1967	
	SCALE	DATE	DRAWN	F-9821A-2
	1 INCH = 1 MILE	MARCH 12, 1965	R. L. S.	

2 of 2

45-6-6-56

CONFIDENTIAL

RENGLENG RIVER NTS 106-N

Permits 3791 to 3797, inclusive

Project 45-6-6-66-2

Final Report on Seismic Survey Conducted by
Chevron Standard Limited
from December 1966 to April 1967

by
E. W. Jones

April 15, 1968

Maps in attached folder

TABLE OF CONTENTS

GEOPHYSICAL DATA FOR SEISMIC SURVEY

Project 45-6-6-66-2

LOCATION	
Area and Province	Rengleng River, N.W.T.
Longitude and Latitude	67°22' to 67°34', 132°17' to 133°30'
Permit Numbers	3791 to 3797
TYPE OF SURVEY	
Analog or Digital	Analog
Type of Source	Powder and caps
FIELD RECORDING EQUIPMENT	
Seismometer Model	EV-20
Seismometer Frequency	14
Amplifier Model	PT-100
Type of Magnetic Tape	Techno
Land Survey Instrument and Method	Transit and chain traverse
FIELD PROCEDURE AND OPERATIONS	
Refraction	
Inline or Broadside	None
Reflection	
% of Subsurface Coverage	100%
Spread Configuration	2640 - 220 - 0 - 220 - 2640
Number Groups Recorded	24
Group Interval	220
Number Seismometers/Group	12
Seismometer Interval	20'
Array Pattern	Inline

Source Configuration

Number of Holes and Depth	1 to 3 @ 40'
Spacing	100'
Pattern	Linear
Inline or Offset to Spread	Inline
Charge Size and Type	10 - 20# @ 40'

Transportation

Type of Vehicles	Wheeled and cats
Fixed Wing Aircraft	Beaver, Otter, DC-3
Helicopter Support	None

Terrain Conditions

General Terrain Description	General east-west topographic slope toward Mackenzie River. Many lakes and sloughs in area immediately east of the river.

RECORDING FACTORS

Monitor Record

Filter	20-78
AVC	Medium
Gain	20 early - 0 final

Magnetic Tape

Filter	20 - 78
AVC	Medium
Gain	20 early - 0 final

Field Playbacks	
Filter	20 - 60
AVC	Medium
Gain	30 early - 30 final
Mixing	None
PERSONNEL	
Field	28
Office	1
Titleholders	Chevron Standard Limited
Individual Responsibility	Mr. E. W. Jones, District Geophysicist Chevron Standard Limited
Contractors	Ray Geophysical Company Ltd. Sedco Exploration Ltd. Progressive Construction Ltd. Geotechnical Services Ltd.
OFFICE TECHNIQUES	
Datum Computation	+500' Reference Plane, VD = 10,000 ft/sec.
Weathering Sections	Yes - No near surface velocity problems
Record Sections	Yes
Type of Display	VA, WT
Maps	Yes
STATISTICS SUMMARY	
Number of Working Days	35

Source Configuration

Number of Holes and Depth	1 to 3 @ 40'
Spacing	100'
Pattern	Linear
Inline or Offset to Spread	Inline
Charge Size and Type	10 - 20# @ 40'

Transportation

Type of Vehicles	Wheeled and cats
Fixed Wing Aircraft	Beaver, Otter, DC-3
Helicopter Support	None

Terrain Conditions

General Terrain Description	General east-west topographic slope toward Mackenzie River. Many lakes and sloughs in area immediately east of the river.

RECORDING FACTORS

Monitor Record

Filter	20-78
AVC	Medium
Gain	20 early - 0 final

Magnetic Tape

Filter	20 - 78
AVC	Medium
Gain	20 early - 0 final

Field Playbacks	
Filter	20 - 60
AVC	Medium
Gain	30 early - 30 final
Mixing	None
PERSONNEL	
Field	28
Office	1
Titleholders	Chevron Standard Limited
Individual Responsibility	Mr. E. W. Jones, District Geophysicist Chevron Standard Limited
Contractors	Ray Geophysical Company Ltd. Sedco Exploration Ltd. Progressive Construction Ltd. Geotechnical Services Ltd.
OFFICE TECHNIQUES	
Datum Computation	+500' Reference Plane, VD = 10,000 ft/sec.
Weathering Sections	Yes - No near surface velocity problems
Record Sections	Yes
Type of Display	VA, WT
Maps	Yes
STATISTICS SUMMARY	
Number of Working Days	35

Number of Profiles

Reflection	243
Refraction	None
Miles of Surface Coverage	107
Miles of Subsurface Coverage	107
Number of Shot Holes Drilled	243
Total Footage Drilled	9,720

TRANSMITTAL OF RECORDED DATA

1. Shot Point Map

2. Time Structure Top Nahanni

E W Jones

E. W. JONES
District Geophysicist
Chevron Standard Limited

May 3, 1968

NOTE

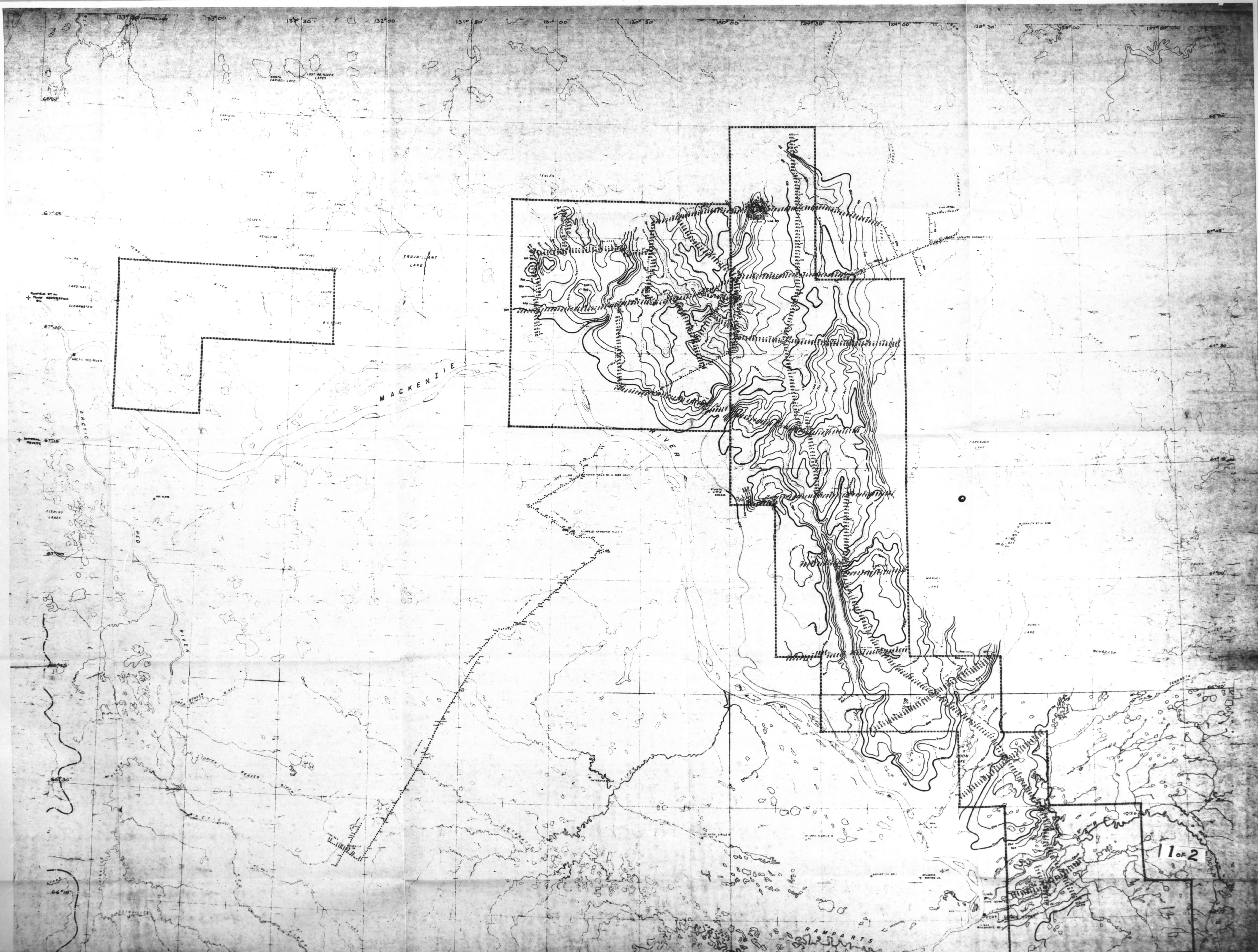
The legibility of this drawing is substandard and may result in poor microfilm reproduction.

RICHFIELD ET AL POINT SEPERATION # 1
-5198 NAHANNI
-5528 CANDRY
67°30'
CARDINAL L
CLEARWATER L
ARCTIC RED RIVER
IMPERIAL NEVEJO 67°15'
-5324 NAHANI .961 12,080'/S
-5636 LANDRY .991 12,350'/S
-3571 NAHANI .679 11,975'/S
-3885 LANDRY .718 12,200'/S
MACKENZIE
RIVER
-292 (.184) 8,880'/S
-601 (.232) 9,500'/S
CHECK SHOTS
10,500'/S (.138) -225
10,900'/S (.187) -524
ATLANTIC LITTLE CHICAGO
-4179 NAHANNI
-4526 LANDRY
UPPER BEAVER RIVER
ARCTIC
11,610'/S
12,140'/S
CHECK SHOTS
NAHANNI (.329)
-1287 10,830'/S
LANDRY (-379) 11,270'/S
-1641
(.282)
-1041 10,930'/S
(.328)
-1383 11,480'/S
(.221) 11,150'/S
-727
(.263) 11,770'/S
-1065
(.233) 10,980'/S
-785
(.282) 11,630'/S
-1140
-529
-483
RAMPARTS
2 of

MACKENZIE
RIVER
RAMPARTS
RIVER
ARCTIC
RED
-5196 NAHANNI
-5529 LANDRY
-5324 NAHANNI -.961 12,080'/S
-5636 LANDRY -.991 12,350'/S
-3571 NAHANNI .679 11,975'/S
-3885 LANDRY .718 12,200'/S
-4179 NAHANNI
-4126 LANDRY
10,500'/S (.138) -229
10,900'/S (.187) -324
-232 (.184) 8,880'/S
-621 (.232) 9,500'/S
CHECK SHOTS
NAHANNI (.329)
-1287 10,630'/S
LANDRY (-.379) 11,370'/S
-1641
11,610'/S
12,160'/S
CHECK SHOTS
(.282)
-1041 10,930'/S
(.328)
-1383 11,480'/S
(.221) 11,150'/S
-727
(.263) 11,770'/S
-1065
(.233) 10,980'/S
-785
(.282) 11,630'/S
-1140
FIGURE 3
July 1, 1966
CONTOURS DEC. 1966
CONTOURS APRIL 1967
CHEVRON STANDARD LIMITED
3
FORT GOOD HOPE
TIME SEISMIC CONTOURS ON
TOP OF NAHANNI
(VALUES IN BRACKETS FROM REFRACTION)
Er = +500'
Vr = 12,000'/sec. E. of River
= 10,000'/sec. W. of River
By J. R. Muir
Contours By K. Vance
P. Verrall
C.I. = .020 sec.
SCALE
DATE
DRAWN
1" = 4 Miles
F-11244

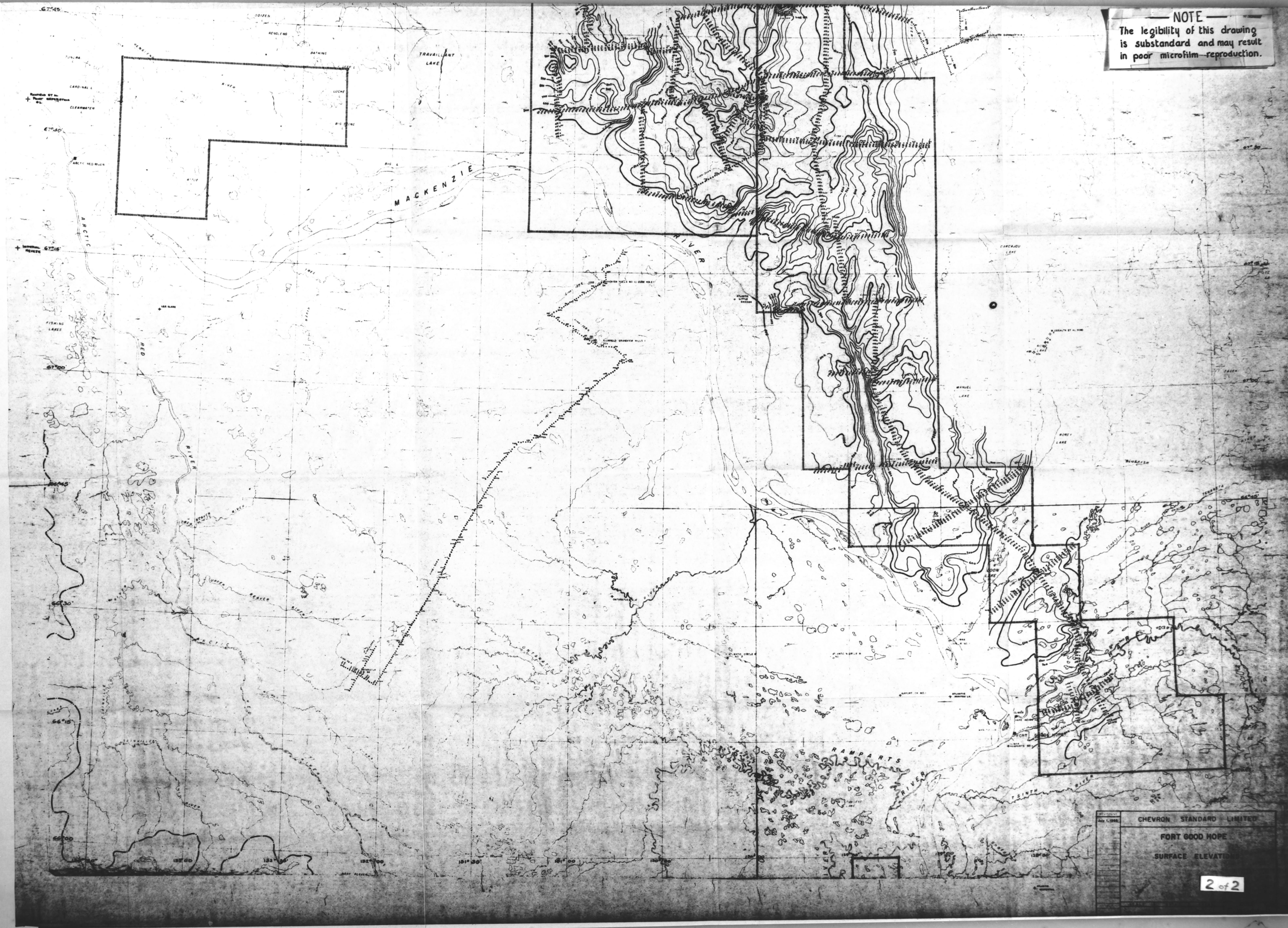
— NOTE —
The legibility of this drawing is substandard and may result in poor microfilm reproduction.

4 of 4



132°00
131°00
130°00
TRAVAILLANT LAKE
MACKENZIE
RIVER
ARCTIC
RED
RIVER
RAMPARTS
1 OF 2

—NOTE—
The legibility of this drawing is substandard and may result in poor microfilm reproduction.



CONFIDENTIAL

THUNDER RIVER NTS 106-0

Covering Permits
3669 to 3677, incl.
3704 to 3706, incl.
4442 to 4447, incl.

Project 45-6-6-66-2

Final Report on Seismic Survey Conducted by
Chevron Standard Limited
from February to April 1966

by
E. W. Jones

April 15, 1968

Maps in Attached Folder

TABLE OF CONTENTS

ENCLOSURES

TABLE OF CONTENTS

GEOPHYSICAL DATA FOR SEISMIC SURVEY

Project 45-6-6-66-2

LOCATION	
Area and Province	Thunder River N.W.T.
Longitude and Latitude	67°20' to 67°45', 130°00' to 131°15'
Permit Numbers	3669 to 3677 incl., 3704 to 3706 incl., 4442 to 4447 incl.
DATE OF PROGRAM	February to April 1966
TYPE OF SURVEY	
Analog or Digital	Analog
Type of Source	Powder and caps
FIELD RECORDING EQUIPMENT	
Seismometer Model	EV-S2
Seismometer Frequency	20
Seismometer Base	Flat
Amplifier Model	PT-100
Camera Model	Pro 11
Type of Magnetic Tape	Fortune SRS
Land Survey Instrument and Method	Theodolite and chain traverse
Cables	Vector and Tesco (2 sections per ½ mile)
FIELD PROCEDURE AND OPERATIONS	
Refraction	
Inline or Broadside	Inline end on
Reflection	
% of Subsurface Coverage	100%

<u>Spread Configuration</u>	2640 - 220 - S.P. - 220 - 2640
Number Groups Recorded	24
Group Interval	220'
Number Seismometers/Group	6
Seismometer Interval	20
Array Pattern	Linear
<u>Source Configuration</u>	
Number of Holes and Depth	1 x 60'
Inline or Offset to Spread	Inline
Charge Size and Type	10# reflection, 50# refraction
<u>Transportation</u>	
Type of Vehicles	Wheeled and cats
Fixed Wing Aircraft	DC-3 and Beaver
Helicopter Support	None
<u>Terrain Conditions</u>	
General Terrain Description	1300 feet of relief, but generally gently sloping and incised by steep river valleys.

RECORDING FACTORS

<u>Monitor Record</u>	
Filter	20 - 100
AVC	
Gain	Medium

<u>Magnetic Tape</u>	
Filter	20 - 100
AVC	
Gain	Medium
<u>Field Playbacks</u>	
Filter	20 - 60
AVC	
Gain	Fixed
Mixing	None
PERSONNEL	
Field	40 - 45
Office	Infield
Titleholders	Chevron Standard Limited
Individual Responsibility	H.E. Engman, District Geophysicist, Chevron Standard Limited
Contractors	Ray Geophysical Company Ltd. Sedco Exploration Company Ltd. Progressive Construction Ltd.
OFFICE TECHNIQUES	
Datum Computation	+ 1500' Reference plane, VR = 12,000'/S
Weathering Sections	Yes - plotted in field
Record Sections	Yes
Type of Display	VA-WT
Maps	Yes - Based on composite of refraction and reflection data.

Spread Configuration	2640 - 220 - S.P. - 220 - 2640
Number Groups Recorded	24
Group Interval	220'
Number Seismometers/Group	6
Seismometer Interval	20
Array Pattern	Linear
Source Configuration	
Number of Holes and Depth	1 x 60'
Inline or Offset to Spread	Inline
Charge Size and Type	10# reflection, 50# refraction
Transportation	
Type of Vehicles	Wheeled and cats
Fixed Wing Aircraft	DC-3 and Beaver
Helicopter Support	None
Terrain Conditions	
General Terrain Description	1300 feet of relief, but generally gently sloping and incised by steep river valleys.

RECORDING FACTORS

Monitor Record	
Filter	20 - 100
AVC	
Gain	Medium

<u>Magnetic Tape</u>

Filter	20 - 100
AVC	
Gain	Medium

<u>Field Playbacks</u>

Filter	20 - 60
AVC	
Gain	Fixed
Mixing	None

PERSONNEL

Field	40 - 45
Office	Infield
Titleholders	Chevron Standard Limited
Individual Responsibility	H.E. Engman, District Geophysicist, Chevron Standard Limited
Contractors	Ray Geophysical Company Ltd. Sedco Exploration Company Ltd. Progressive Construction Ltd.

OFFICE TECHNIQUES

Datum Computation	+ 1500' Reference plane, VR = 12,000'/S
Weathering Sections	Yes - plotted in field
Record Sections	Yes
Type of Display	VA-WT
Maps	Yes - Based on composite of refraction and reflection data.

STATISTICS SUMMARY

Number of Recording Days	38
<u>Number of Profiles</u>	
Reflection	324
Refraction	401
Total Production	
Miles of Surface Coverage	155.5
Miles of Subsurface Coverage	155.5
Number of Shot Holes Drilled	405
Total Footage Drilled	24,335

TRANSMITTAL OF RECORDED DATA

1. Shot Point Location Map
2. Time Structure Top Nahanni

E. W. Jones

E. W. JONES
District Geophysicist
Chevron Standard Limited

May 3, 1968