2-10-7-34

GULF OIL CANADA LIMITED

Northwest Territories Oil & Gas Permits

Nos. 4622-4627 Inclusive - North Nahanni

Nos. 4616-4621 Inclusive, 4697 - South Nahanni

FINAL GEOPHYSICAL REPORT

By: N. M. Cherniwchan
Geophysicist, Northern Division Exploration

Date: MAR. 27, 1969

FINAL GEOPHYSICAL REPORT

Located in the attached envelope are the following maps:

Figure No. 1 - Composite Map - Portions of 95-G,J
Contours on Fort Simpson Shale

Figure No. 2 - Composite Map - Portions of 95-G,J
Contours on Middle Devonian Horizon

Figure No. 3 - Composite Map - Portions of 95-G,J
Contours on Deep Devonian Horizon

Figure No. 4 - Composite Map - Portions of 95-G,J
Contours on Interval Between Fort Simpson and Middle Devonian Horizon

Figure No. 5 - Composite Map - Portion of 95-G,J
Contours on Interval Between Middle Devonian and Deep Devonian Horizons

Figure No. 6 - Composite Map - Portion of 95-G,J
Shot Point Locations and Elevations

Also located in the attached envelope is a copy of a Seismic Survey Report - Nahanni Project, by Mr. P.J.R. Prudholme, Party Chief.

The following information is listed in addition to Mr. Prudholme's report:

Personnel

1 Party Chief
1 Geophysicist
1 Party Foreman
2 Operators
2 Surveyors
3 Shooters
2 Mechanics
9 Helper grade employees

Field Equipment

3 Drills - capable of air or water drilling
1 Instrument Unit - Muskeg Tractor
1 Line laying unit - Muskeg Tractor
1 Survey unit - Muskeg Tractor
2 Shooting units - Muskeg Tractor
2 Utility units - Muskeg Tractor
1 Dodge W-200, 4-wheel drive
1 Dodge W-300, 4-wheel drive
1 Flatbed transport truck (used to transport muskeg tractors and supplies)

Camp Accomodations

1 Kitchen trailer
1 Dining trailer
1 Washroom trailer
1 Utility- storeroom trailer
3 8-man Sleeper trailers
1 Bolt shed
1 Power Plant trailer (2 power plants)
1 Garage

Transport was mostly by Muskeg tractor equipment, the Dodge trucks being used wherever feasible. A Beaver aircraft was chartered to provide regular mail and supply service. A helicopter was occassionally employed but was not extensively used.

Radio communications was established through Fort Nelson Radio but was not reliable. Northern Mountain Air Service provided an invaluable communication link between the field crew and Calgary operations centre.

The field crew operated on a continuous basis and personnel were rotated to provide for normal time-off. Air transportation was provided to and from Edmonton, Alberta on commercial airlines.

Access to the program laid out to the east and west of the Nahanni Range presented no particular difficulty. The Nahanni Range however, was a barrier which necessitated long supply routes, time consuming camp moves and abnormal travel time.

A total of approximately 200 miles of 300% CDP seismic reflection control was shot on these permits. The data quality varied from good to poor across the project area. Reflection quality also varied with depth.

SEISMIC SURVEY REPORT

on the

NAHANNI AREA

on

Permit Nos.

Province of THE NORTHWEST TERRITORIES

Date Start: NOVEMBER 1, 1967

Date Finish: MAY 8, 1968

Date of Report: JUNE 15, 1968

Author: P.J.R. PRUDHOLME

PROSPECT: NAHANNI

PARTY: Company/Number THE BRITISH AMERICAN OIL COMPANY LIMITED
SEISMIC PARTY 2

PARTY CHIEF: P.J.R. PRUDHOLME

ROUTE OF ACCESS: By River Barge from Hay River, N.W.T., to Mile 273 on MacKenzie River.

DATES:

Start Move:	November 1, 1967
Arrive Prospect:	
1st Shot:	November 2, 1967
Last Shot:	May 7, 1968
Move Out (Start/Fin.):	May 8, 1968

EXPERIMENTAL WORK:

Expanded Spread(s) (Location):

North end of Profile R 123-03

Center of Profile R 123-37D

Noise Spread (Location):

North end of Profile R 123-03

Center of Profile R 123-37D

Other (Location):

Weathering hole - intersection of R 123-03 and T 62-07

SURVEYING:

Instrument: K & E Paragon Transit

Tied to Control:

Horizontal: Take off point was S.P. #11, R 123-03 from original Amerada data.

Vertical: Take off point was S.P. #11, R 123-03 from original Amerada data.

Closures: Horizontal control was adjusted to tie with lakes and creeks throughout the project.

Problems:

PRODUCTION SHOOTING:

Date Start:

Spread:

Geophones:	Make/Model:	Gulf Model 59
	Groups in Spread:	24
	No./Spacing per Group:	4 - 40
	Natural Frequency:	30 cycle

Shotpoints: Interval/Percent Coverage: 960 ft. - 300%

Shotholes: No./Pattern & Spacing: 1

Average Depth: 40 feet

RECORDING:

Amplifiers:

Make & Model:	Gulf Model 65
Analog or Digital:	Analog
A.M. or F.M.:	A.M.
Filters:	
Monitor:	Open
Playback:	38-4
Proportion of Playbacks:	
Percent mix if any:	50%

Tape System:

Make & Model:	S.I.E. PMR-7
Tape Specifications:	S.I.E. A.M. Format

Cables:

Number & Length:	2 Cables 1760 feet
Portable or Land:	Land
Takeouts/Trace:	4 per trace

Explosives - Average Charge: $2\frac{1}{2}$ - 5#

DOZING:

Contractor: K. Borek

Equipment:

No. of Machines: 3

Size: D7E

Grid:

New Cut: 467

Old Line: 165

Remarks & Problems:

SUMMARY OF SHOTHOLE DRILL PERFORMANCE

NAHANNI Prospect

CONTRACTOR: GARRITTY & BAKER DRILLER: _____

Mo.	Yr.	Hours Drill	Hol.& Trav.	Holes	Feet Drilled	Av.Hole Depth	Total Cost Drill 1 W.T.	Total Cost Extra H2O	Ft/Hr	$/Hr
Nov.	67	624	300	497	19,915	40'			32	
Dec.	67	416	100	339	13,560	40'			32	
Jan.	68	607	124	739	29,560	40'			48	
Feb.	68	394	240	706	28,230	40'			74	
Mar.	68	546	488	777	31,110	40'			57	
Apr.	68	683	289	748	29,910	40'			44	
May	68	133	85	144	5,750	40'			43	
TOTAL										

DATA PROCESSING

BY WHOM: THE BRITISH AMERICAN OIL COMPANY LIMITED

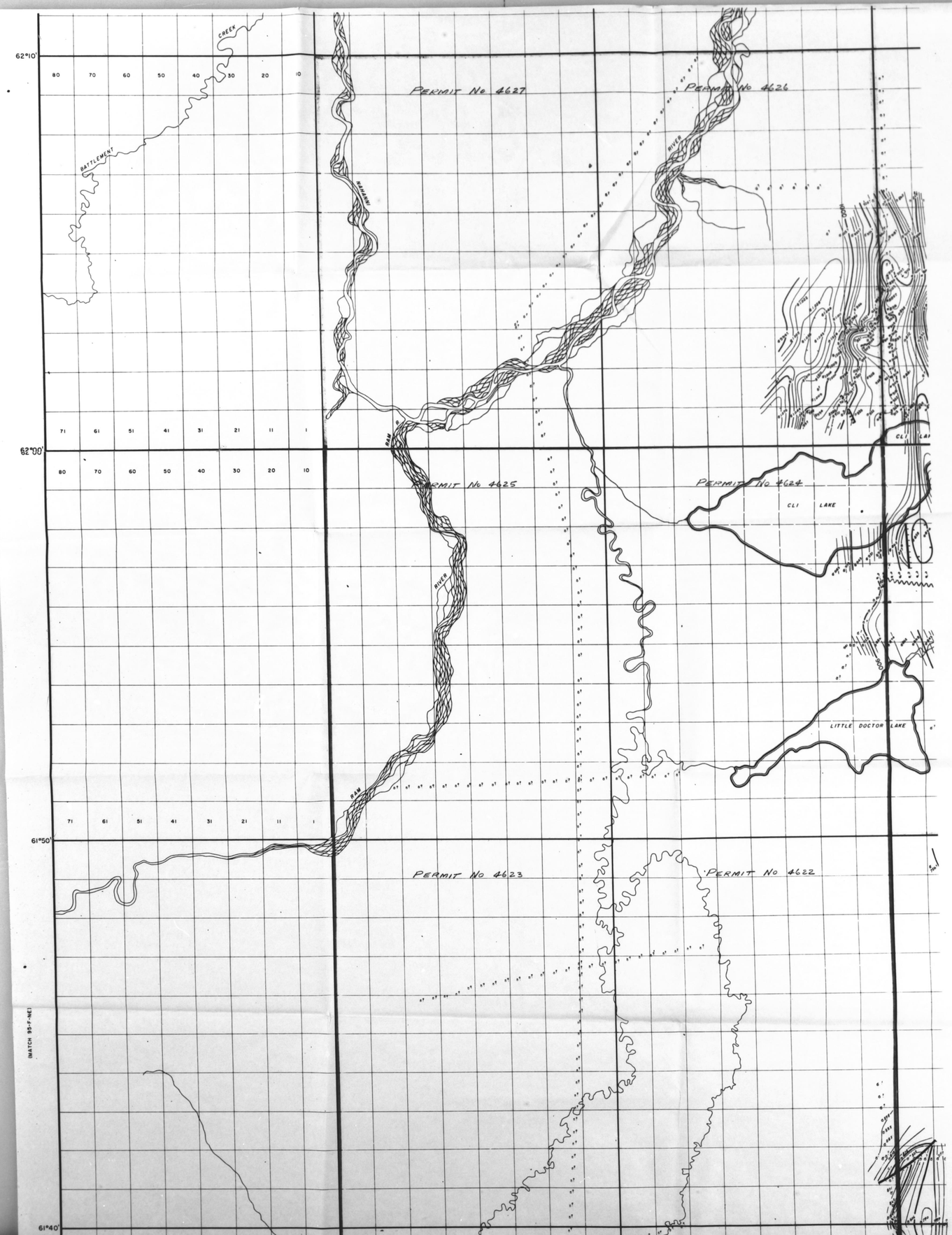
ADDRESS: 707 Seventh Avenue S.W., Calgary, Alberta

SUPERVISED BY: C. B. Cooper and P.J.R. Prudholme

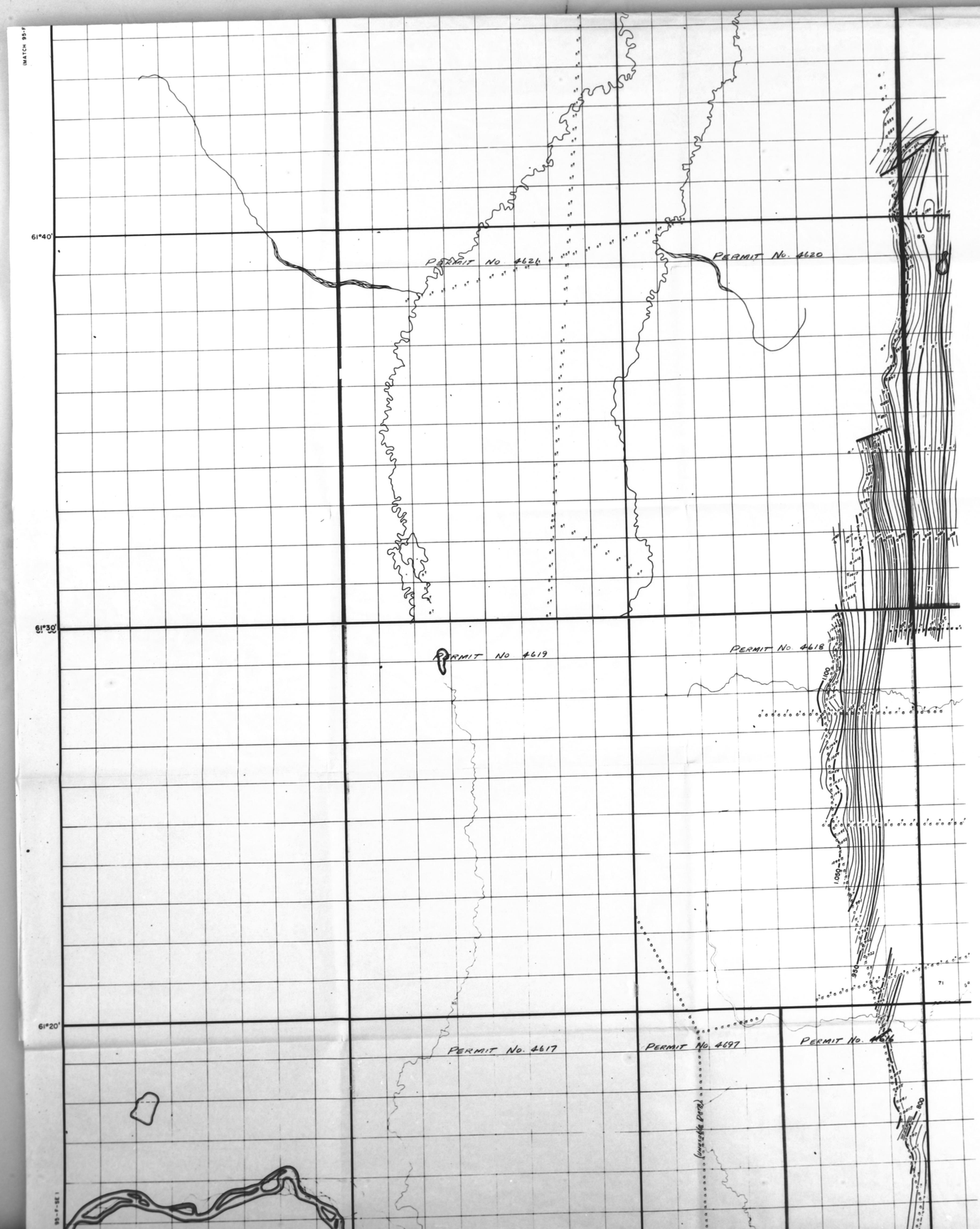
PROCEDURE:

Weathering and elevation corrections for the data processing centre were made using The British American Oil Company's refraction method from first arrival plots. The reflection times were reduced to a datum plane of 500 feet above sea level using an elevation correction velocity of 11,500 feet per second.

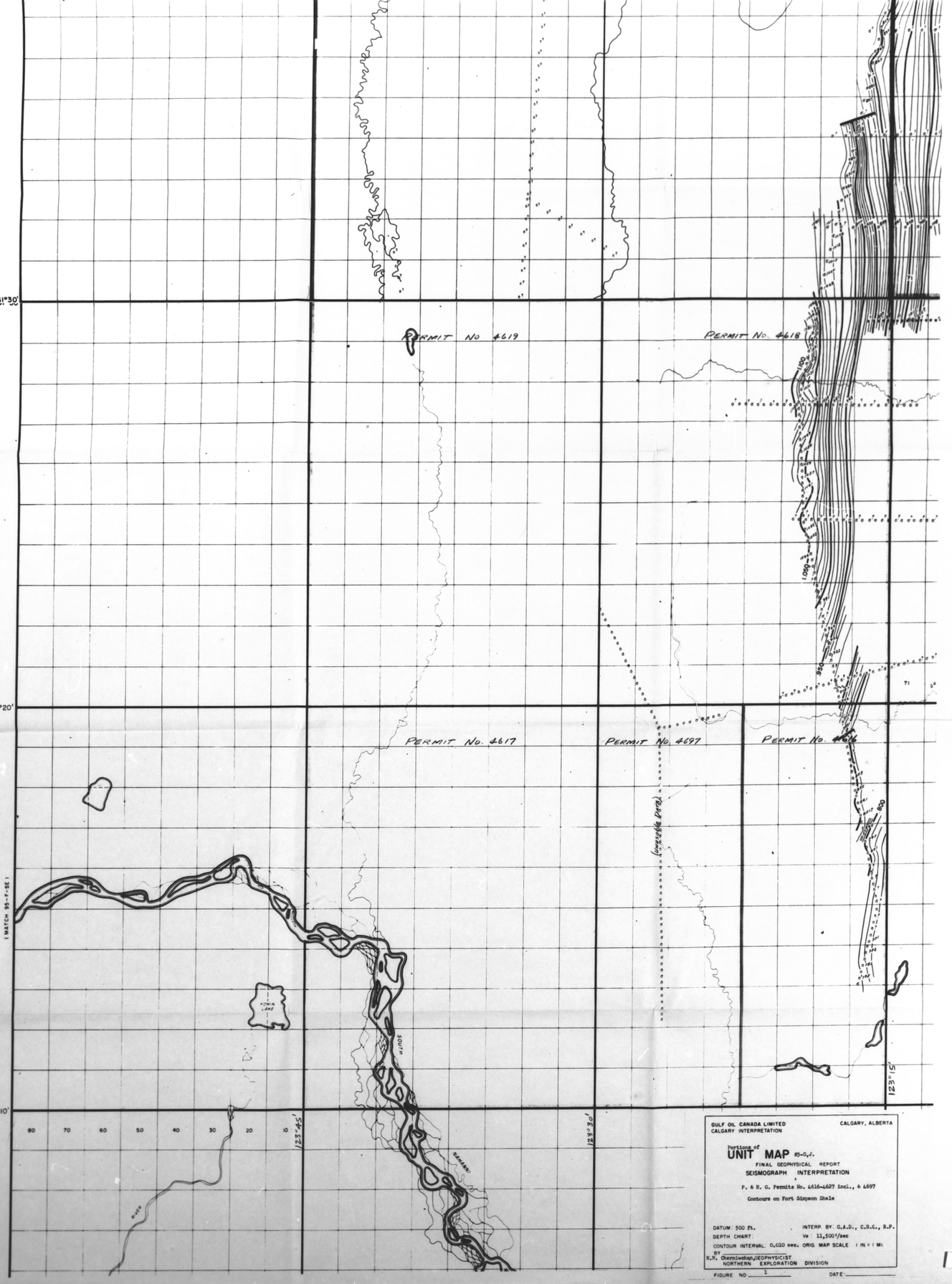
TIME REQUIRED:


62°10'
62°00'
61°50'
61°40'
80 70 60 50 40 30 20 10
71 61 51 41 31 21 11 1
CREEK
BATTLEMENT
KESHAWNI
RIVER
RAM R.
PERMIT No 4627
PERMIT No 4626
PERMIT No 4625
PERMIT No 4624
PERMIT No 4623
PERMIT No 4622
CLI LAKE
LITTLE DOCTOR LAKE
(MATCH 95-F-NE)

1


61°40'
61°30'
61°20'
PERMIT No 4626
PERMIT No 4620
PERMIT No 4619
PERMIT No. 4618
PERMIT No. 4617
PERMIT No. 4697
PERMIT No. 4616
(road alignment)
100
1,000
950
850

2



GULF OIL CANADA LIMITED
CALGARY INTERPRETATION

CALGARY, ALBERTA

Portions of
UNIT MAP 85-G,F.

FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION

P. & N. G. Permits No. 4616-4627 incl., & 4697

Contours on Fort Simpson Shale

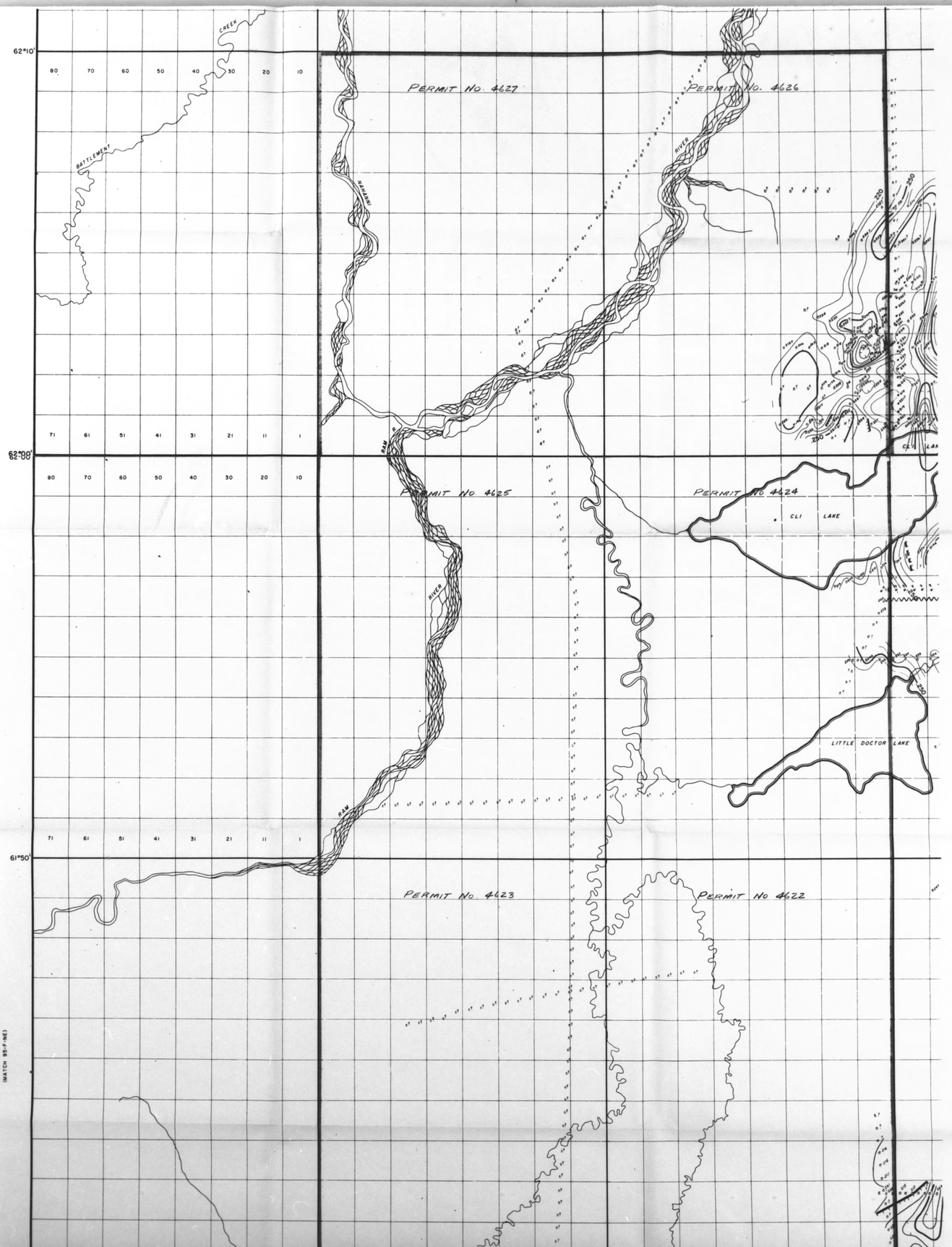
DATUM: 500 ft.
DEPTH CHART: Vs: 11,500'/sec
CONTOUR INTERVAL: 0.010 sec.
INTERP. BY: G.A.D., C.B.C., B.F.
ORIG. MAP SCALE 1 IN = 1 MI.

BY
N.N. Chernichan, GEOPHYSICIST
NORTHERN EXPLORATION DIVISION

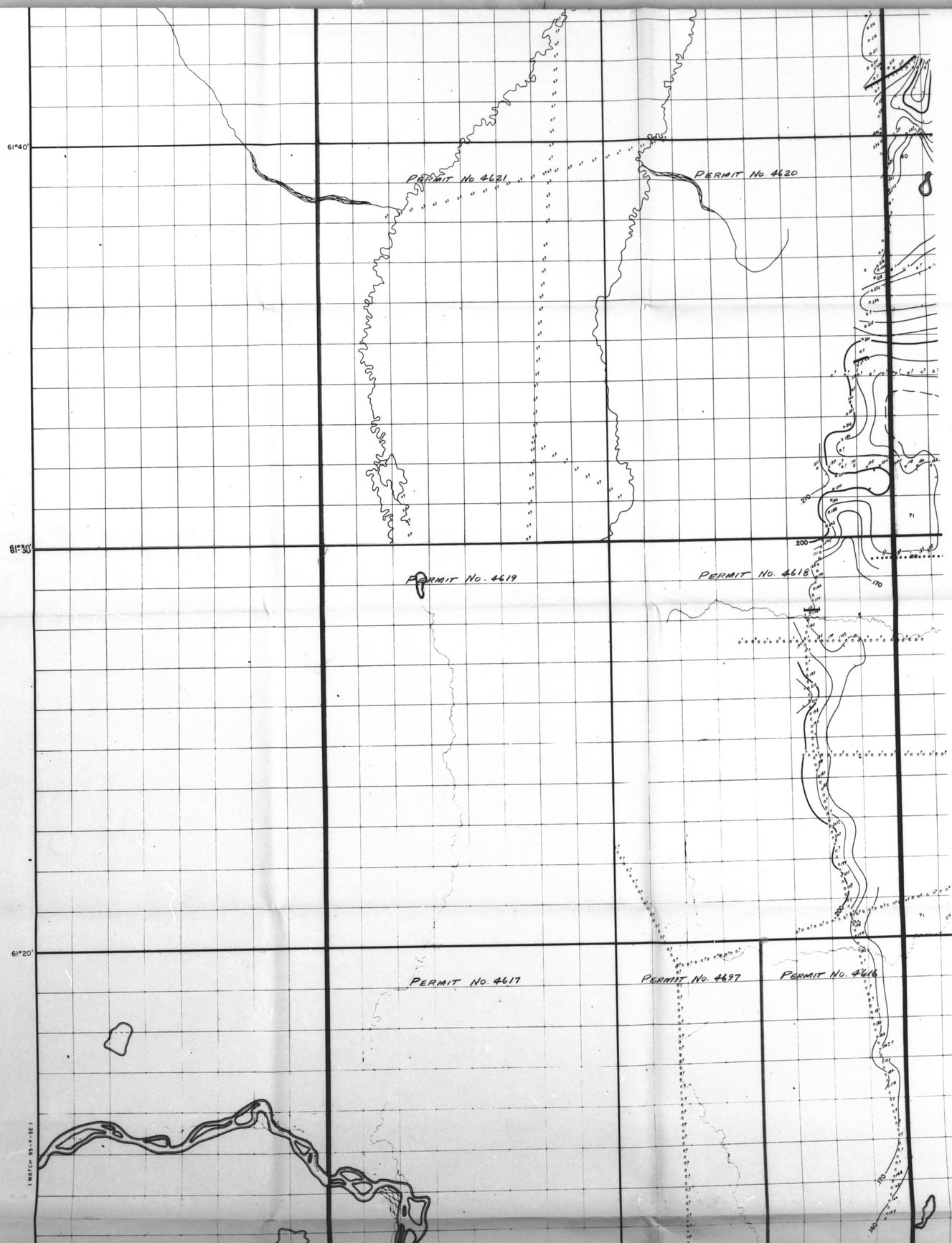
FIGURE NO. 1

DATE

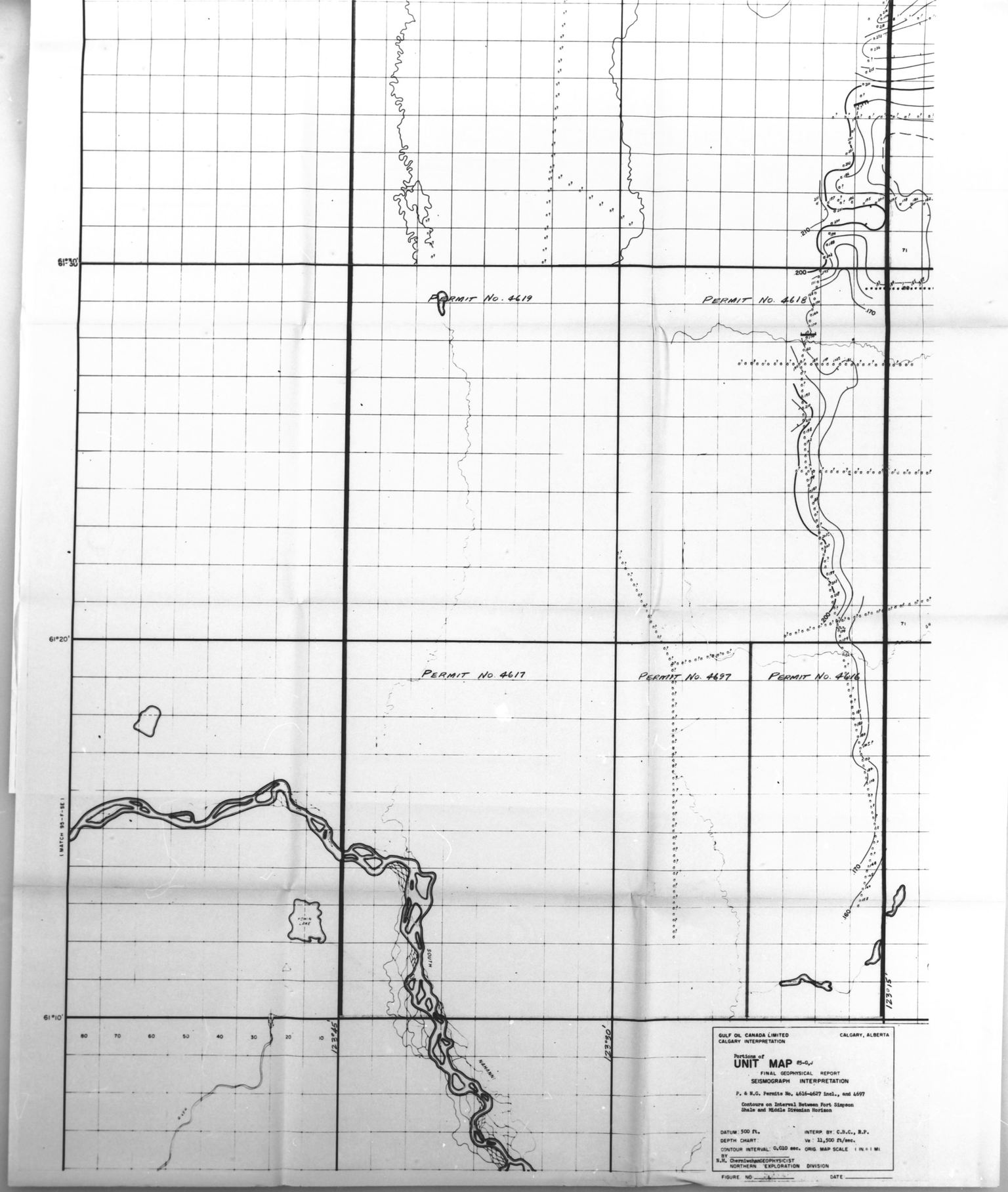
3 of 3


62°10'
62°00'
61°50'
80 70 60 50 40 30 20 10
71 61 51 41 31 21 11 1
CREEK
BATTLEMENT
PERMIT NO. 4627
PERMIT NO. 4626
PERMIT NO 4625
PERMIT NO 4624
PERMIT NO 4623
PERMIT NO 4622
RIVER
DAM
CLI LAKE
LITTLE DOCTOR LAKE
230
(MATCH 95-F-NE)

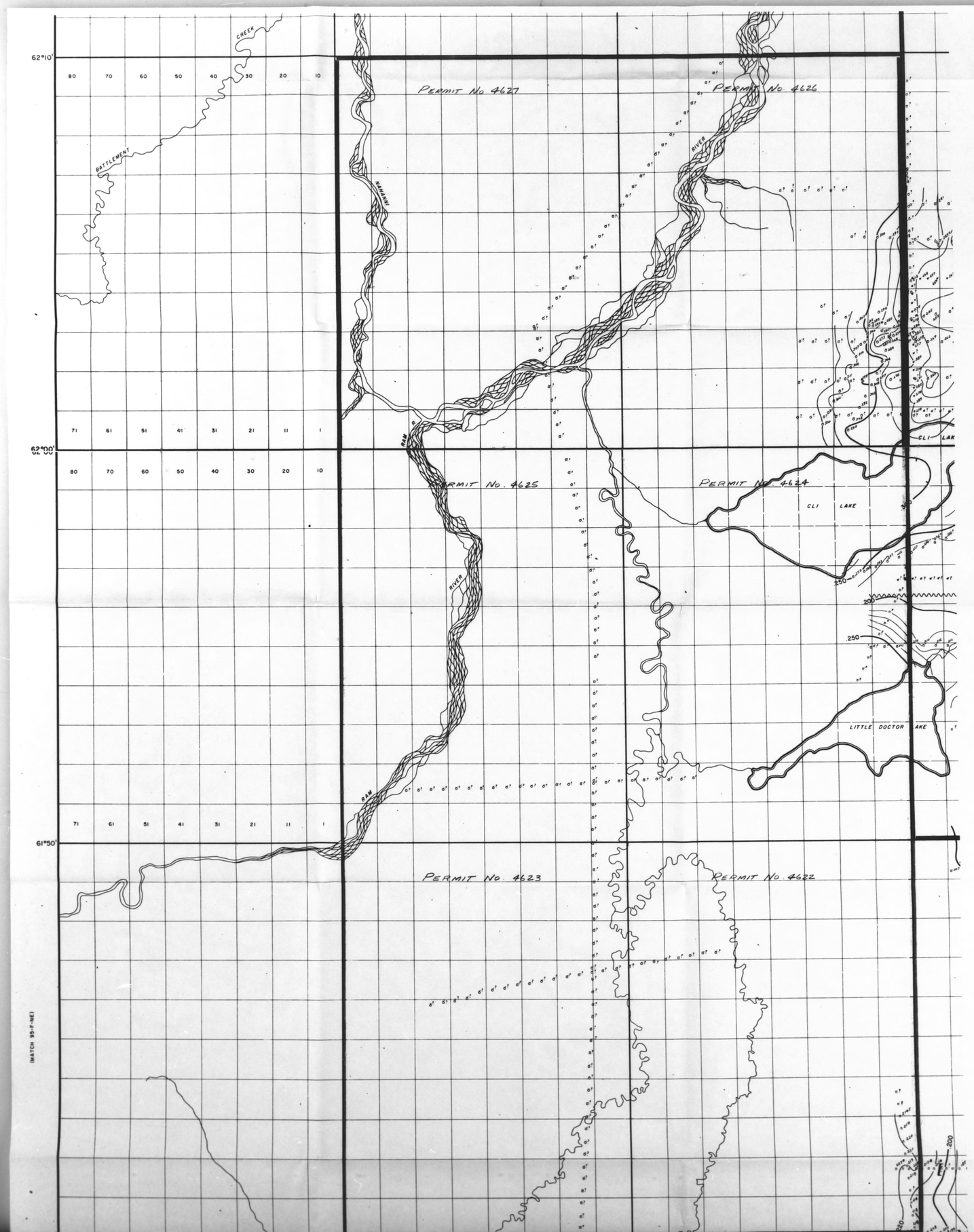
1


61°40'
61°30'
61°20'
PERMIT No. 4621
PERMIT No. 4620
PERMIT No. 4619
PERMIT No. 4618
PERMIT No. 4617
PERMIT No. 4697
PERMIT No. 4616
200
170
160
(MATCH 95-F-SE)

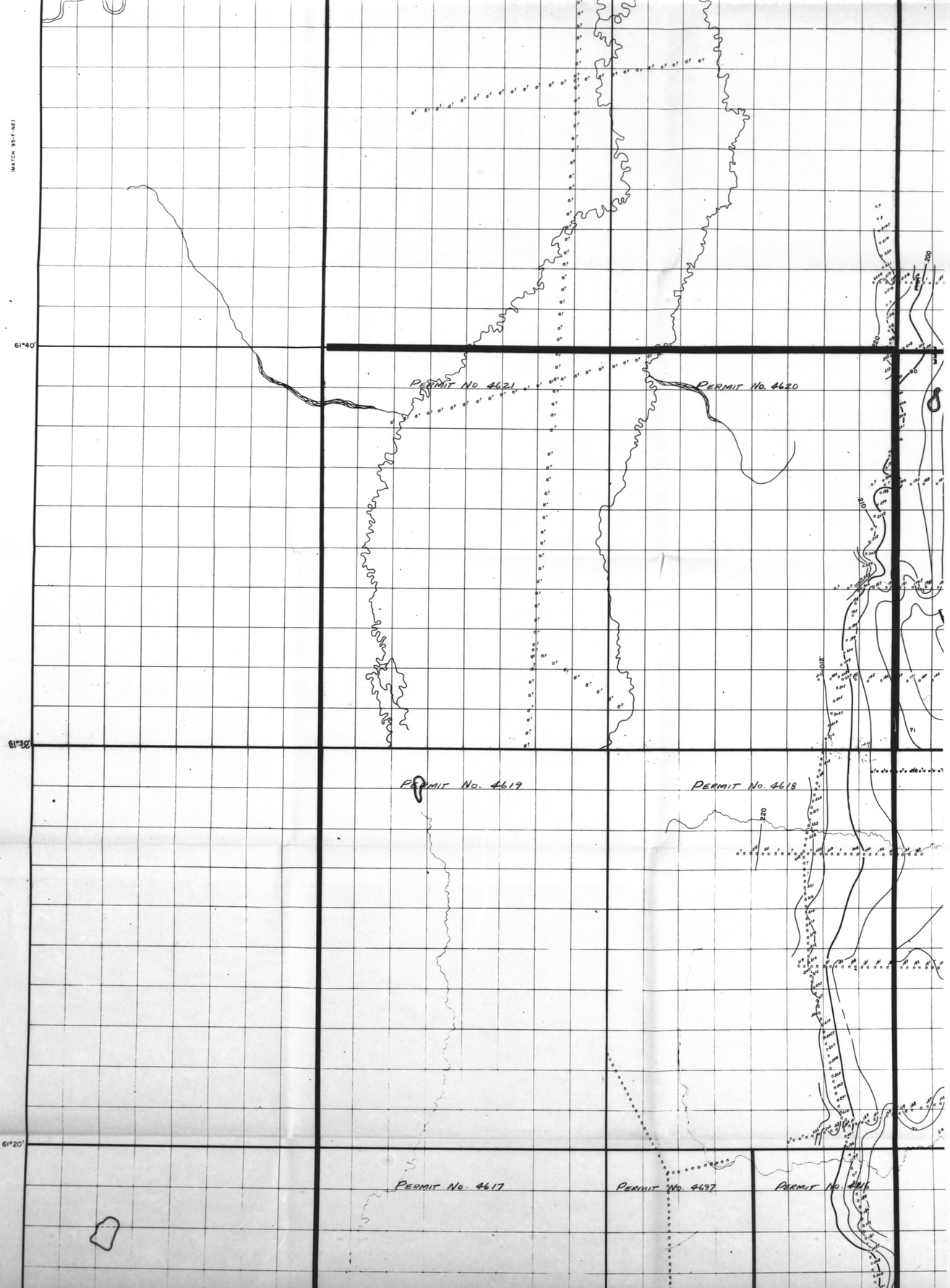
2


61°30'
61°20'
61°10'
123°45'
123°30'
123°15'
PERMIT No. 4619
PERMIT No. 4618
PERMIT No. 4617
PERMIT No. 4697
PERMIT No. 4616
210
200
170
300
180
170
80
70
60
50
40
30
20
10
SOUTH
NAHANI
RIVER
GULF OIL CANADA LIMITED
CALGARY INTERPRETATION
CALGARY, ALBERTA
Portions of
UNIT MAP 85-G,J
FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION
P. & N.G. Permits No. 4616-4627 incl., and 4697
Contours on Interval Between Fort Simpson Shale and Middle Devonian Horizon
DATUM: 500 ft.
INTERP. BY: C.B.C., R.P.
DEPTH CHART:
Ve: 11,500 ft/sec.
CONTOUR INTERVAL: 0.010 sec.
ORIG. MAP SCALE 1 IN. = 1 MI.
BY
N.N. Chernichan GEOPHYSICIST
NORTHERN EXPLORATION DIVISION
FIGURE NO.
DATE

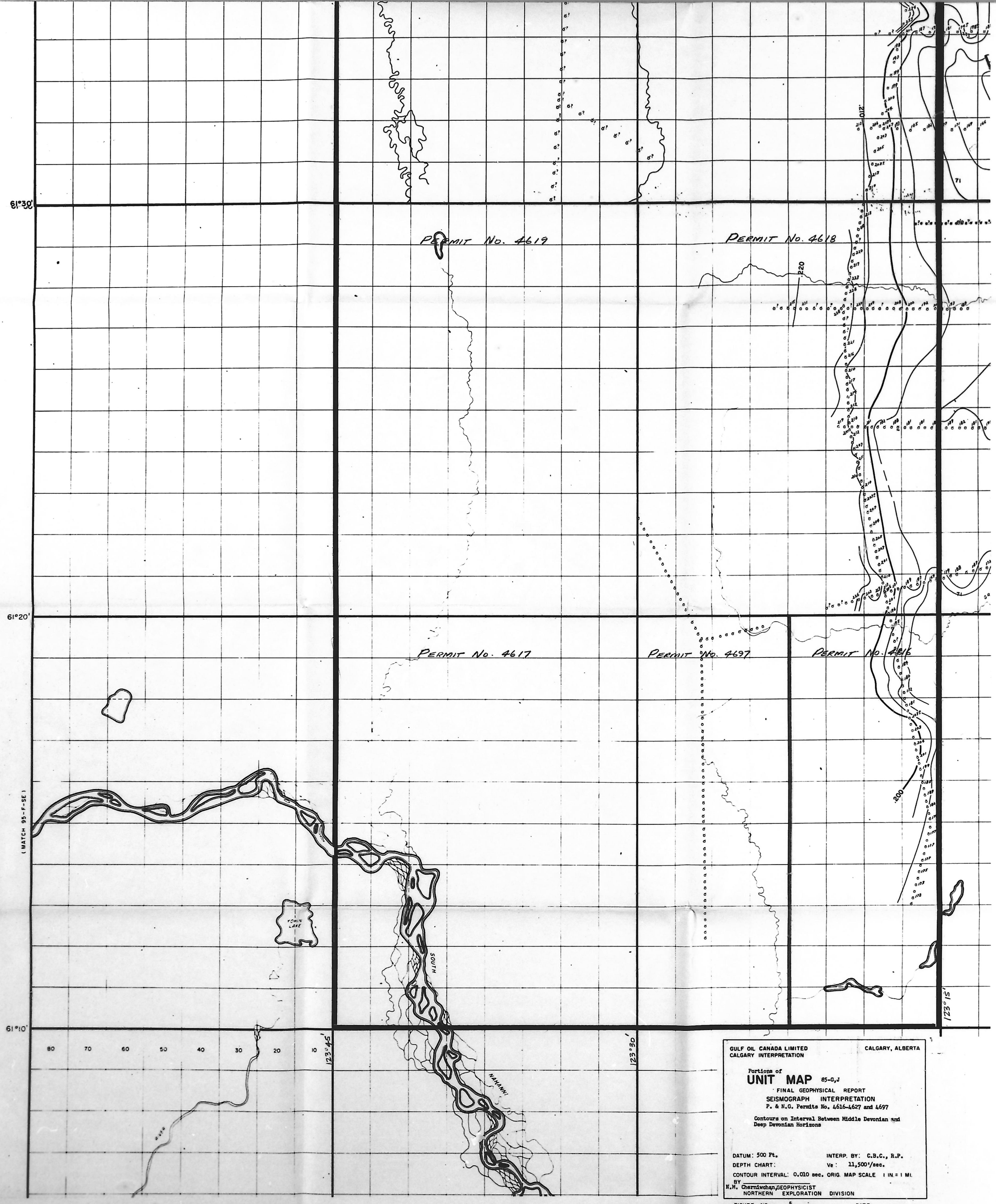
3 of 3


62°10'
62°00'
61°50'
80
70
60
50
40
30
20
10
71
61
51
41
31
21
11
1
BATTLEMENT
CREEK
HAMANNI
RIVER
RAM
PERMIT No. 4627
PERMIT No. 4626
PERMIT No. 4625
PERMIT No. 4624
PERMIT No. 4623
PERMIT No. 4622
CLI
LAKE
LITTLE DOCTOR LAKE
250
200
(MATCH 95-F-NE)

1


(MATCH 95-F-NE)
61°40'
61°30'
61°20'
PERMIT No. 4621
PERMIT No. 4620
PERMIT No. 4619
PERMIT No. 4618
PERMIT No. 4617
PERMIT No. 4697
PERMIT No. 4616
200
220
210
210
220
90
71
220

2



GULF OIL CANADA LIMITED
CALGARY INTERPRETATION

CALGARY, ALBERTA

Portions of
UNIT MAP 85-G,J

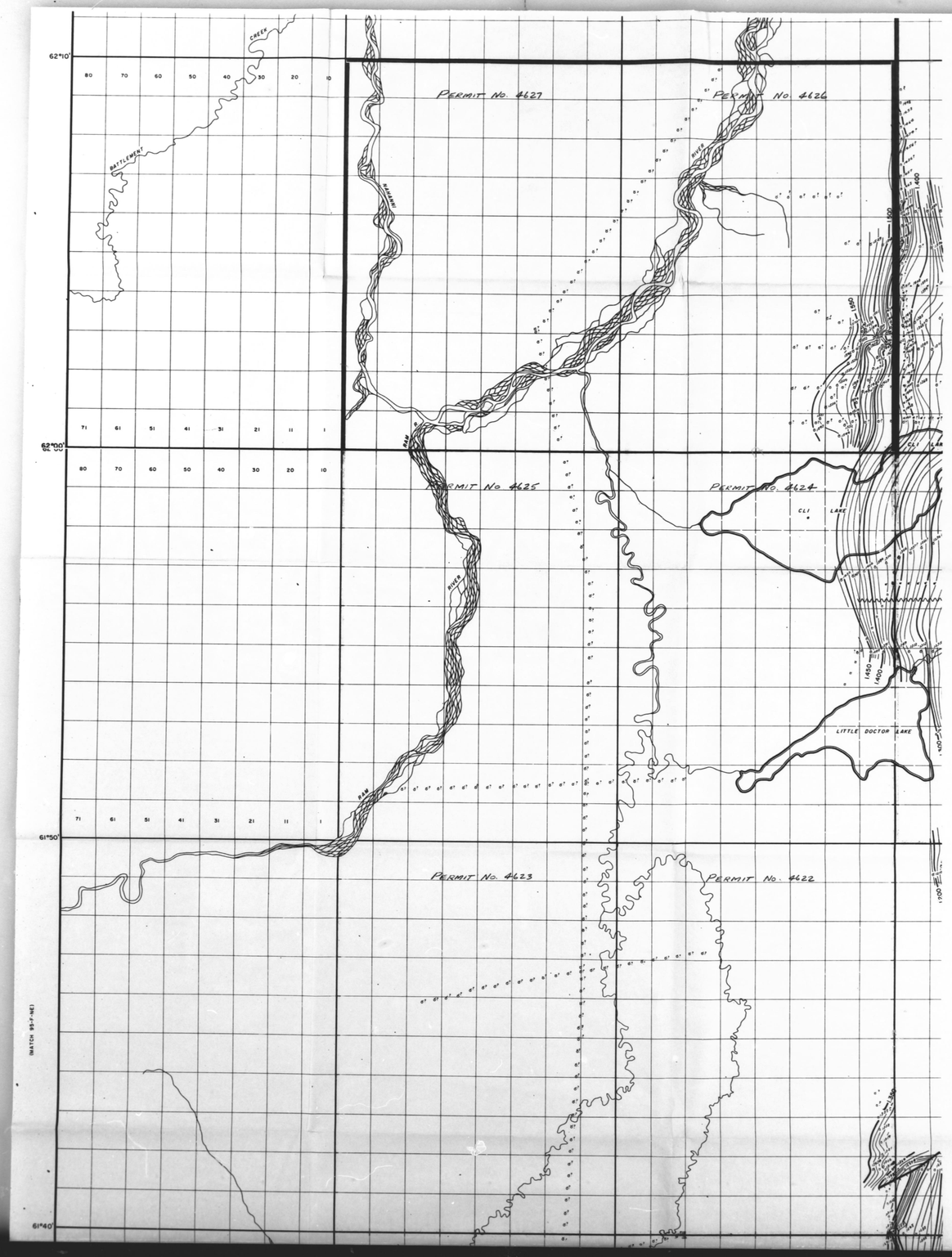
FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION
P. & N.G. Permits No. 4616-4627 and 4697

Contours on Interval Between Middle Devonian and Deep Devonian Horizons

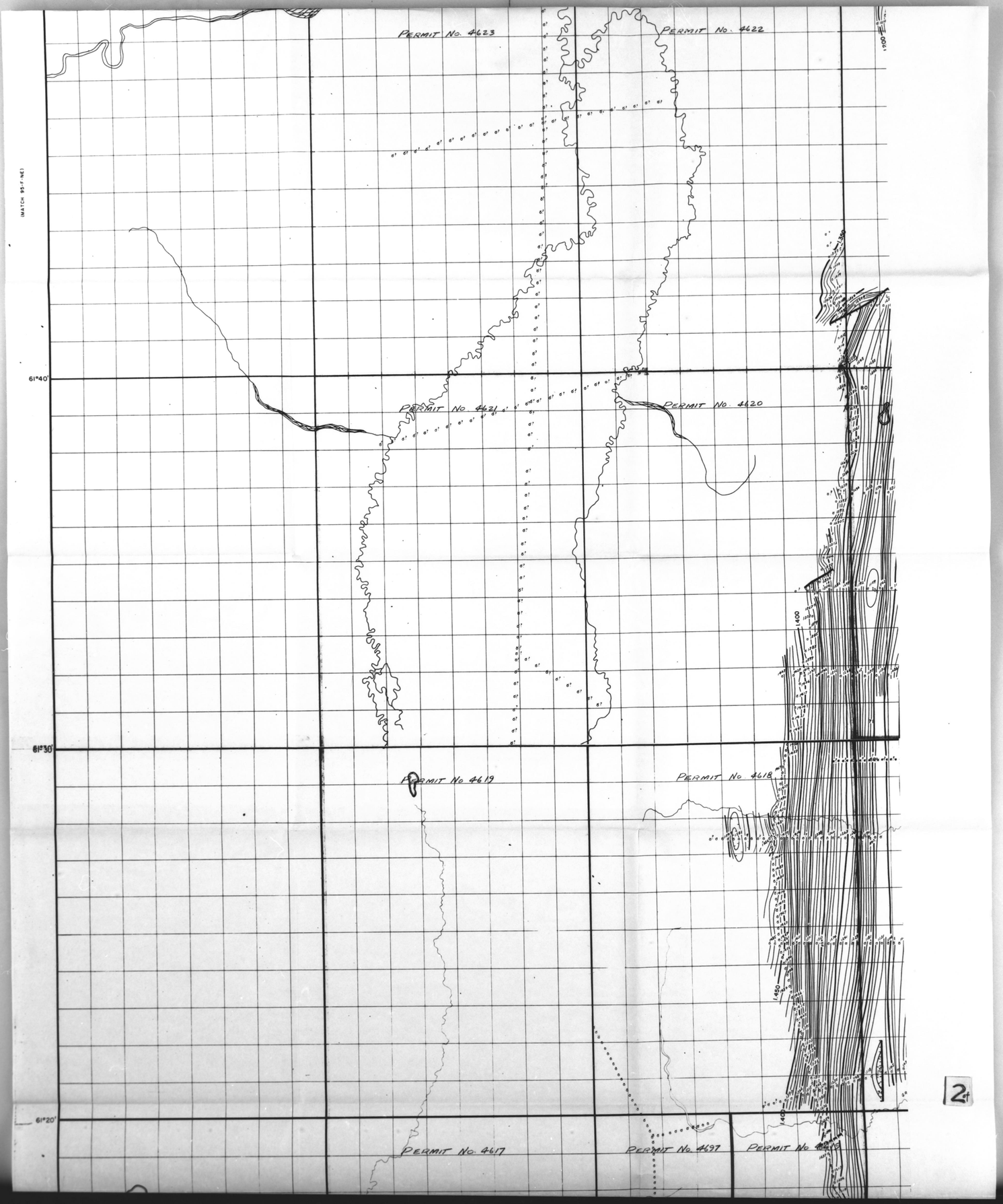
DATUM: 500 Ft. INTERP. BY: C.B.C., R.P.
DEPTH CHART: Ve: 11,500'/sec.
CONTOUR INTERVAL: 0.010 sec. ORIG. MAP SCALE 1 IN. = 1 MI.
BY
N.M. Cherniwchan, GEOPHYSICIST
NORTHERN EXPLORATION DIVISION

FIGURE NO. 5 DATE

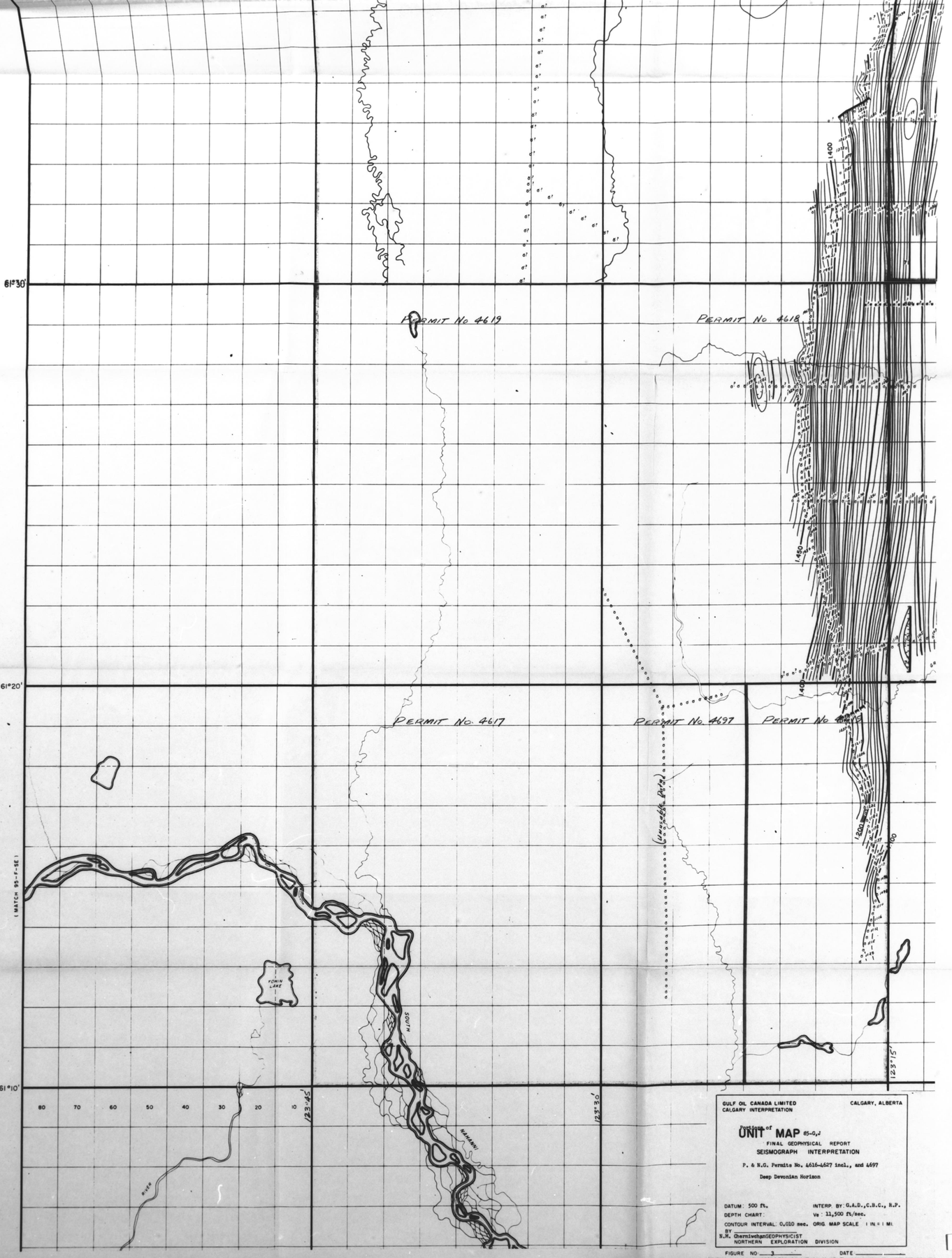
3 of 3


62°10'
62°00'
61°50'
61°40'
80 70 60 50 40 30 20 10
71 61 51 41 31 21 11 1
CREEK
BATTLEMENT
NAKONI
RIVER
PERMIT No. 4627
PERMIT No. 4626
PERMIT No. 4625
PERMIT No. 4624
PERMIT No. 4623
PERMIT No. 4622
CLI
LAKE
1450
1400
LITTLE DOCTOR LAKE
(MATCH 95-F-NE)

1


(MATCH 95-F-NE)
PERMIT No. 4623
PERMIT No. 4622
PERMIT No. 4621
PERMIT No. 4620
PERMIT No. 4619
PERMIT No. 4618
PERMIT No. 4617
PERMIT No. 4637
61°40'
61°30'
61°20'
1400
1450
1400

2



GULF OIL CANADA LIMITED
CALGARY INTERPRETATION

CALGARY, ALBERTA

Portions of
UNIT MAP 85-O,J

FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION

P. & N.G. Permits No. 4616-4627 incl., and 4697

Deep Devonian Horizon

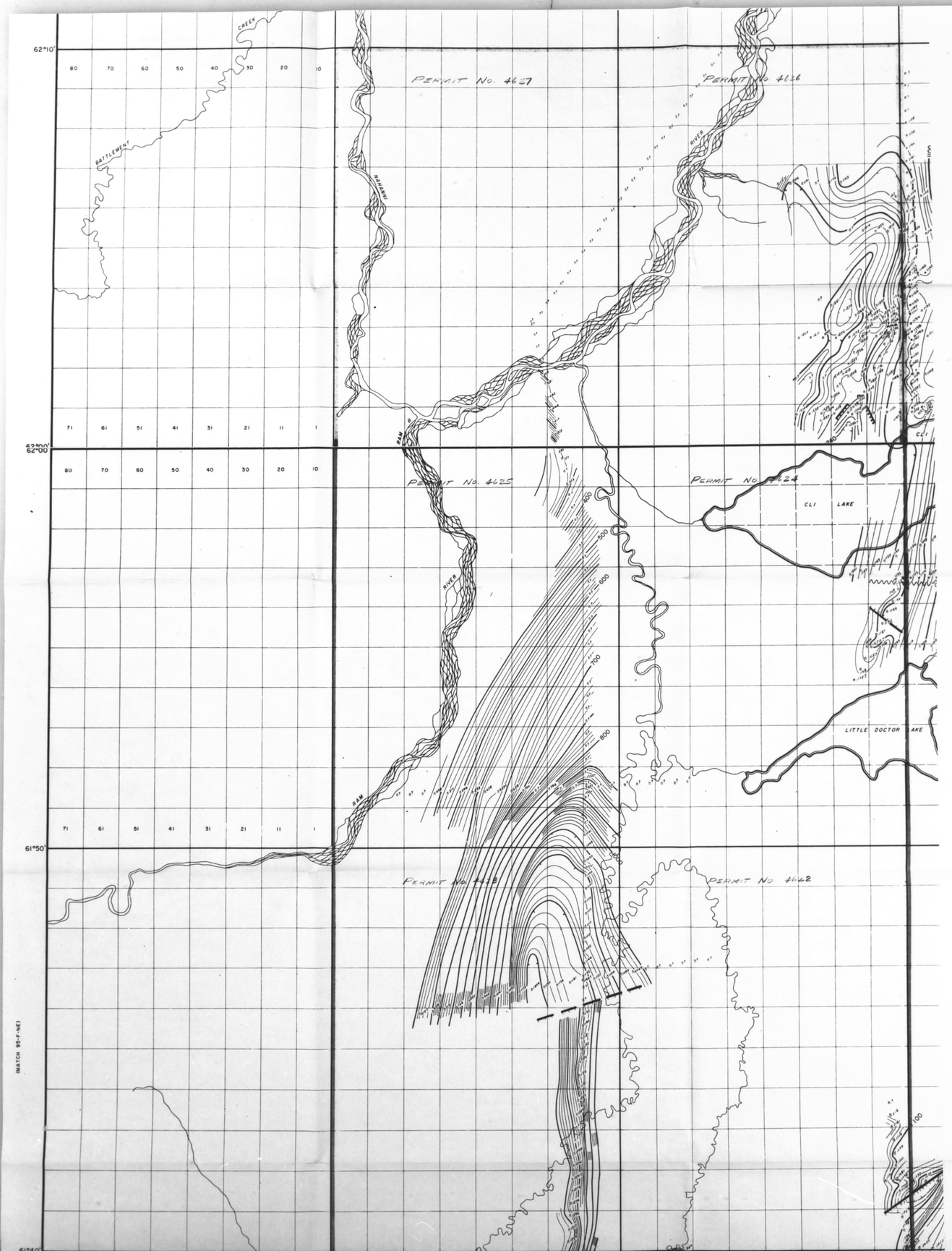
DATUM: 500 ft.
DEPTH CHART:
CONTOUR INTERVAL: 0.010 sec.
ORIG. MAP SCALE 1 IN = 1 MI.

INTERP. BY: G.A.D., C.B.C., R.P.
Vo: 11,500 ft/sec.

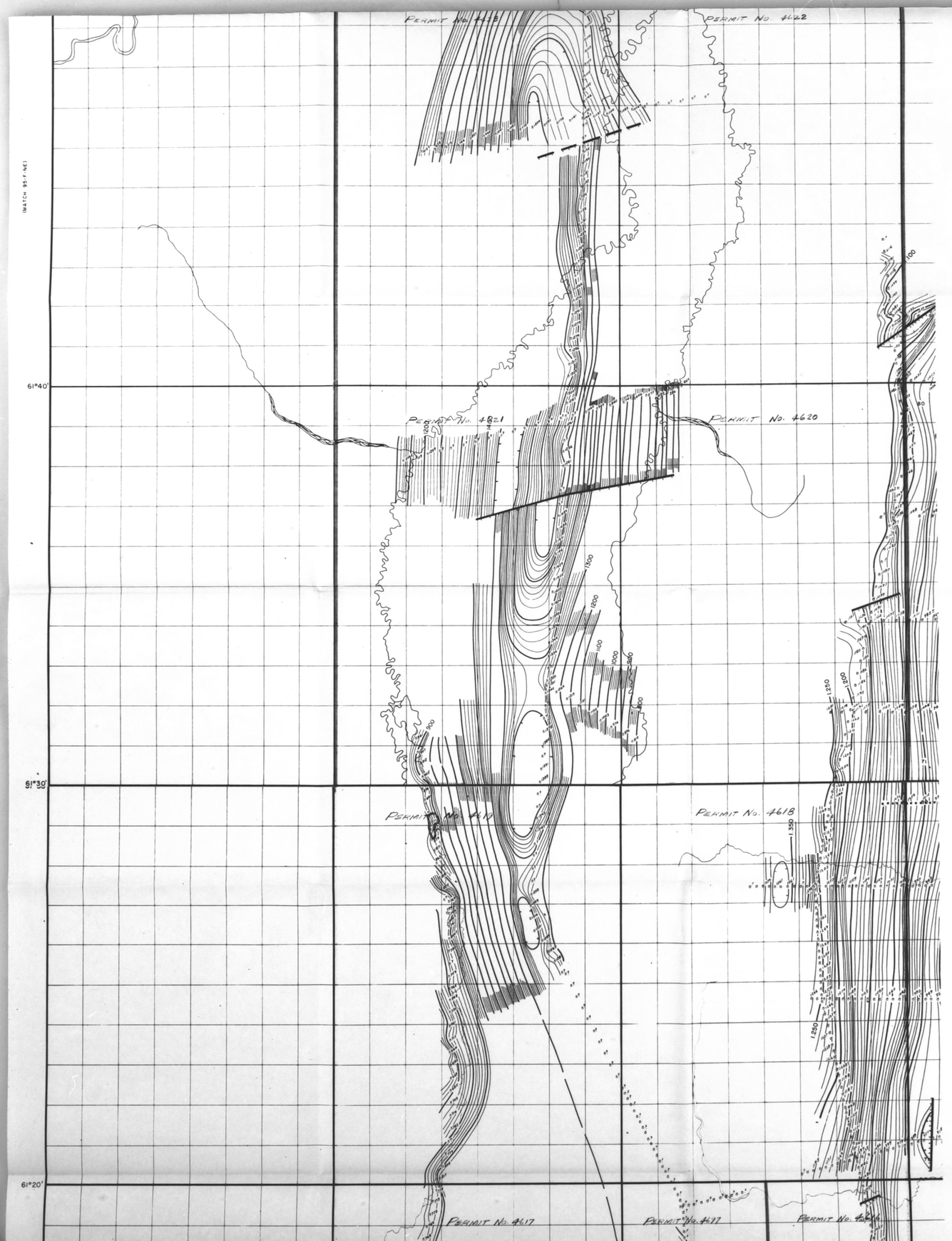
BY
R.M. Chernivehan GEOPHYSICIST
NORTHERN EXPLORATION DIVISION

FIGURE NO. 3 DATE

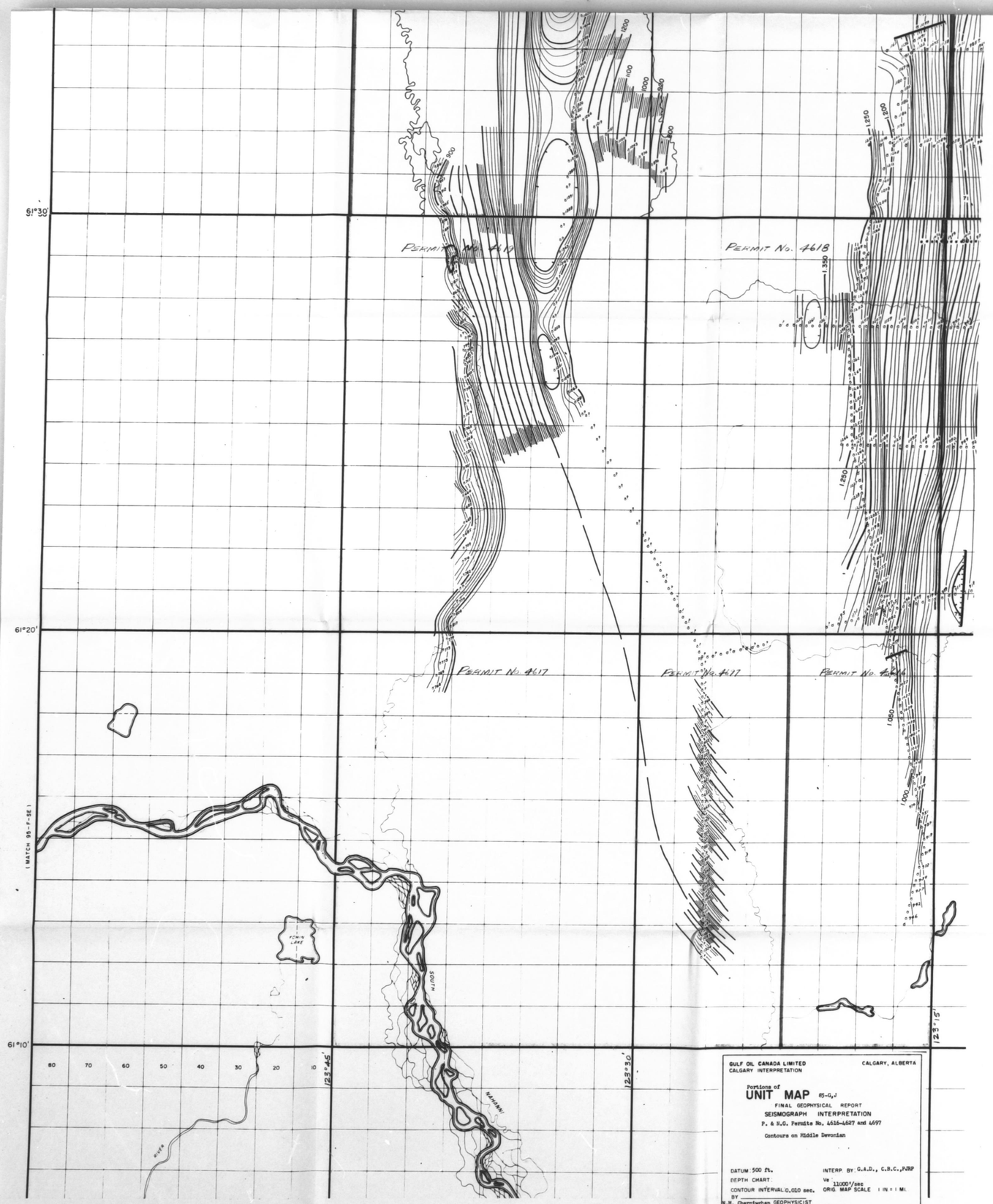
3 of 3


62°10'
62°00'
61°50'
80 70 60 50 40 30 20 10
71 61 51 41 31 21 11 1
CREEK
BATTLEMENT
PERMIT No. 4627
PERMIT No. 4626
PERMIT No. 4625
PERMIT No. 4624
PERMIT No. 4623
PERMIT No. 4622
RIVER
RAM
CLI
CLI LAKE
LITTLE DOCTOR LAKE
500
600
700
800
100
(MATCH 95-F-NE)

1


(MATCH 95-F-NE)
61°40'
61°30'
61°20'
PERMIT No. 4622
PERMIT No. 4621
PERMIT No. 4620
PERMIT No. 4618
PERMIT No. 4617
1300
1200
1100
1000
900
800
1250
1350
100
80

2



GULF OIL CANADA LIMITED
CALGARY INTERPRETATION

CALGARY, ALBERTA

Portions of
UNIT MAP 85-G,J

FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION
P. & N.G. Permits No. 4616-4627 and 4697

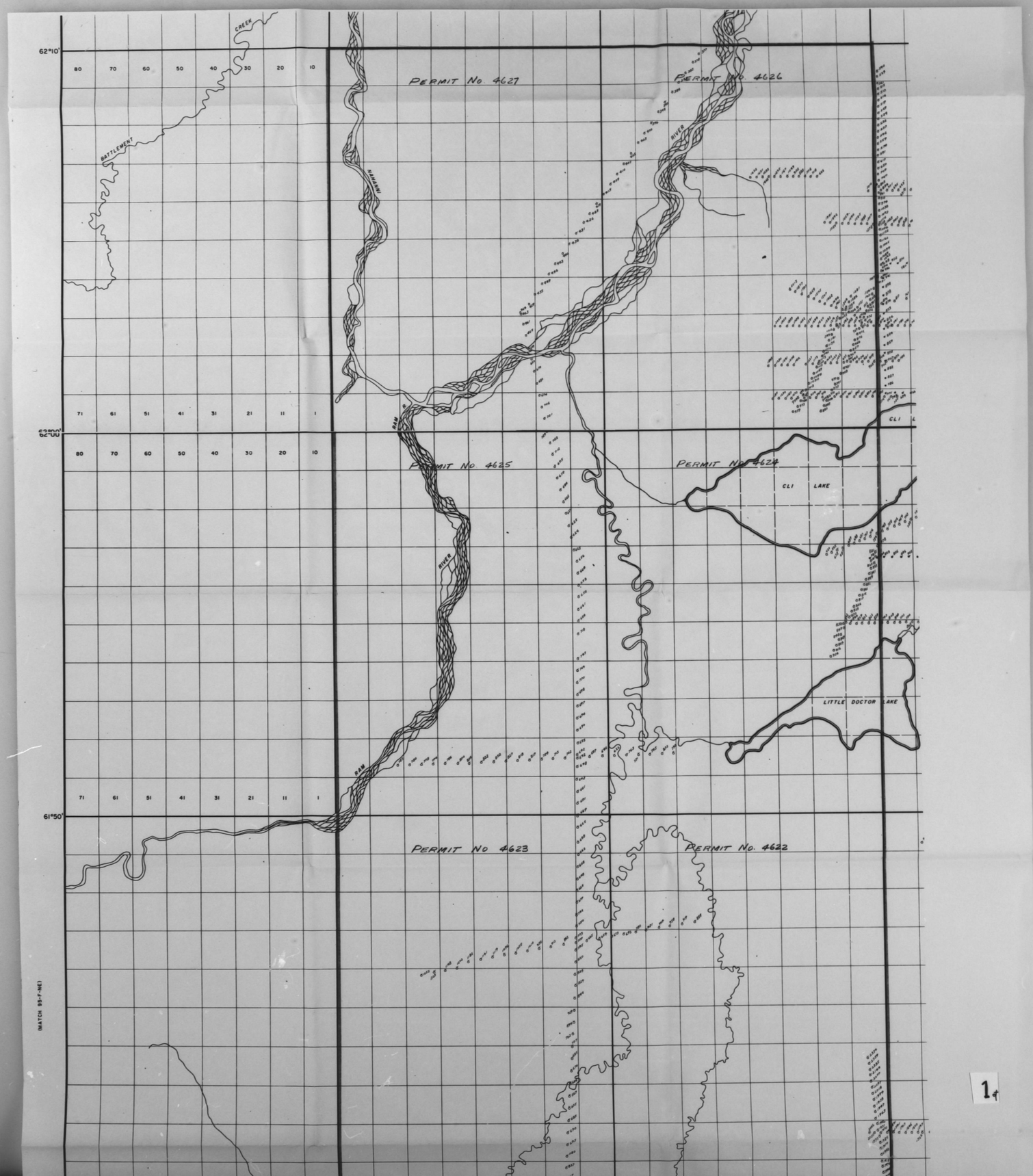
Contours on Middle Devonian

DATUM: 500 ft.
DEPTH CHART:
CONTOUR INTERVAL: 0.010 sec.
BY: W.H. Cherniwchan GEOPHYSICIST
NORTHERN EXPLORATION DIVISION

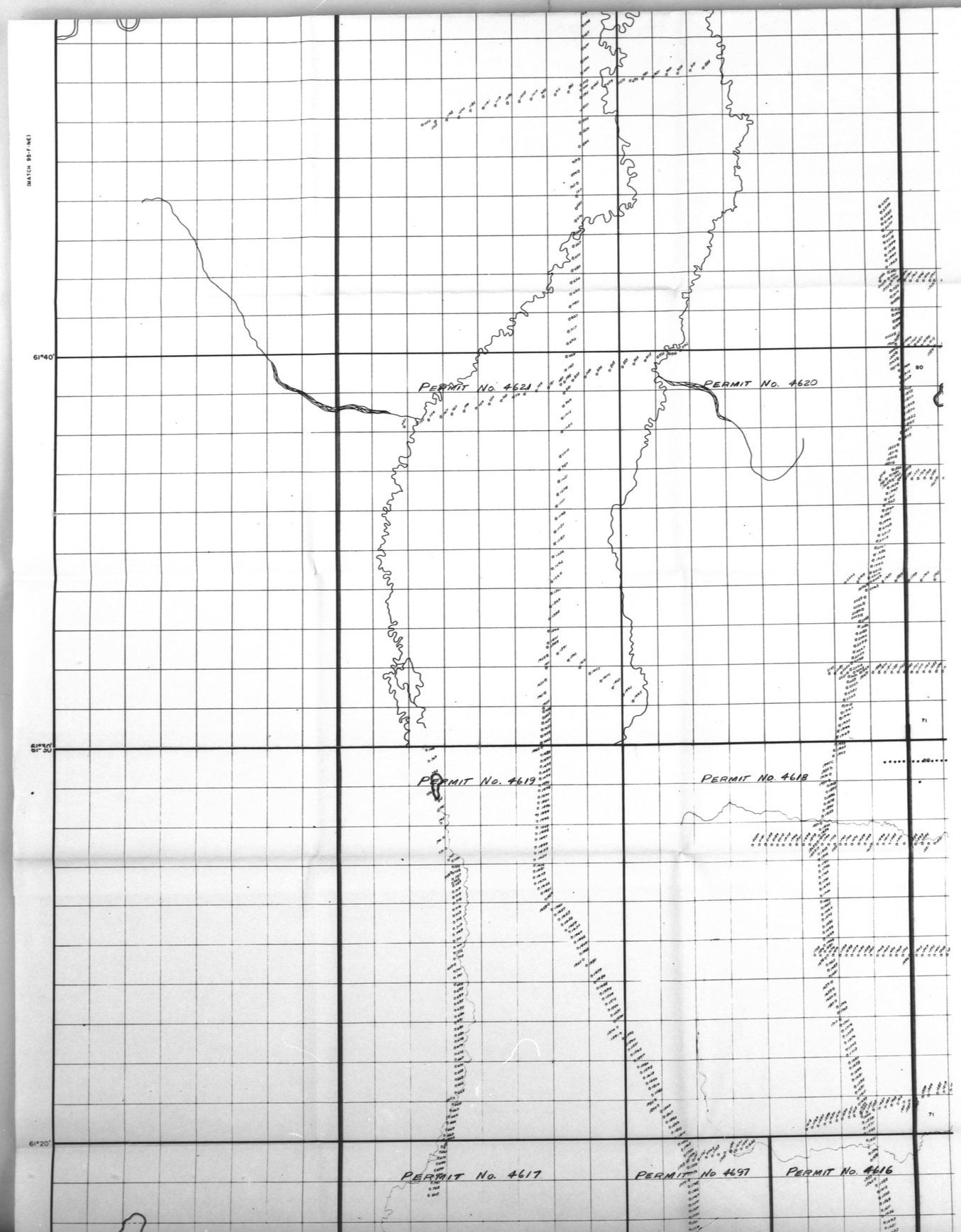
INTERP. BY: G.A.D., C.B.C., P.R.P.
Ve: 11000'/sec
ORIG. MAP SCALE: 1 IN = 1 MI.

FIGURE NO. 2
DATE

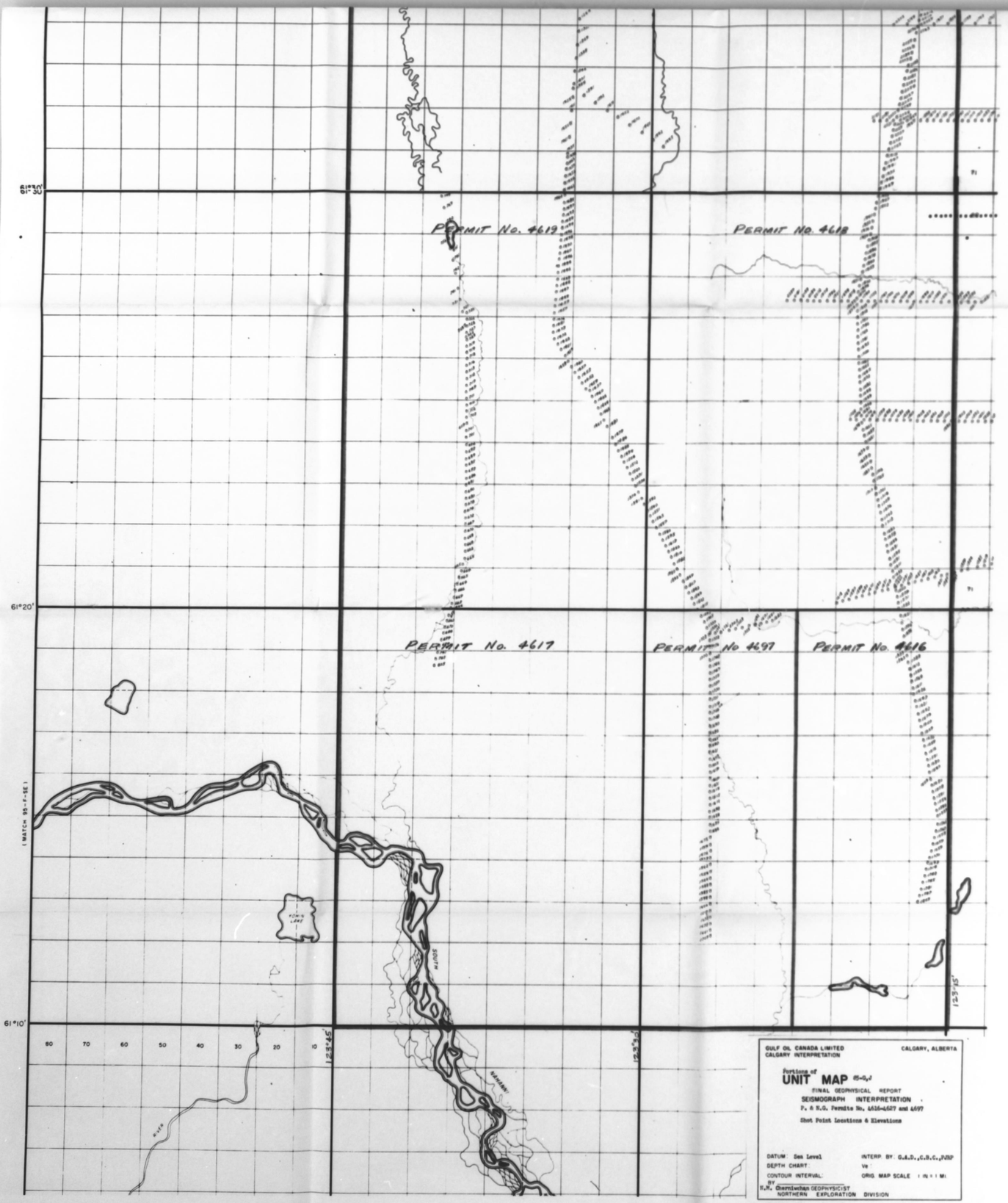
3 of 3


62°10'
62°00'
61°50'
80 70 60 50 40 30 20 10
71 61 51 41 31 21 11 1
CREEK
BATTLEMENT
MAHANNI
RIVER
PERMIT No 4627
PERMIT No. 4626
PERMIT No 4625
PERMIT No 4624
PERMIT No 4623
PERMIT No. 4622
CLI
CLI LAKE
LITTLE DOCTOR LAKE
(MATCH 95-F-NE)

1


(MATCH 95-F-NE)
61°40'
61°30'
61°20'
PERMIT No. 4621
PERMIT No. 4620
PERMIT No. 4619
PERMIT No. 4618
PERMIT No. 4617
PERMIT No. 4697
PERMIT No. 4616

2



GULF OIL CANADA LIMITED
CALGARY INTERPRETATION

CALGARY, ALBERTA

Portions of
UNIT MAP 85-G,J

FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION
P. & N.G. Permits No. 4616-4617 and 4697

Shot Point Locations & Elevations

DATUM: Sea Level
DEPTH CHART
CONTOUR INTERVAL
INTERP. BY: G.A.D., C.B.C., J.D.P.
Vs
ORIG. MAP SCALE 1 IN = 1 MI.

BY
E.M. Chernichan GEOPHYSICIST
NORTHERN EXPLORATION DIVISION

FIGURE NO. 6
DATE

3 of 3