

FINAL GEOPHYSICAL REPORT
REFLECTION SEISMIC SURVEY

TROUT RIVER-REDKNIFE PROJECT, N. W. T.

Project No. 7-6-4-68-4
2-6-4-69-4

Report on work performed on Permits No.
4186, 4187, 4188, 4290, 4291, 4292, 4389, 4390
4392, 4394, 4395 and 4396 during the work
period December 3, 1968-January 7, 1970.

Reflection seismic program shot for Gulf
Oil Canada Ltd. by:

1. Teledyne Exploration Seismic Party No. 620
2. Teledyne Exploration Seismic Party No. 627
3. Northern Geophysical Seismic Party No. 33
4. Teledyne Exploration Seismic Party No. 619

R.A. Halvorsen
R.A. Halvorsen, Geophysicist
Northern Division Exploration
Gulf Oil Canada Ltd.

Date: OCT 30 1970

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GEOPHYSICAL STATISTICAL DATA

(Required for operations in B.C., Y.T., and N.W.T.)

PROJECT TROUT RIVER CREW N-33

LOCATION NORTH WEST TERRITORIES BASE CALGARY

DATES OF OPERATION:

1. Mobilization of vessels/aircraft/vehicles Feb. 9/69
2. Recorders left base on Feb. 9/69
3. Recording commenced on Feb. 11/69
4. Recording suspended on
5. Recording recommenced on
6. Recording completed on Feb. 21/69
7. Vessels/aircraft/vehicles released on Feb. 22/69

PRODUCTION:

1. Number of miles shot (or surveyed) 86.78 miles
2. Number of shots taken 1086
3. Number of stations (gravity, magnetics, etc.) 1052
4. Number of recording days 10 + 1 Testing
5. Average daily production:
 - a) miles shot (surveyed) 8.6 mi/day
 - b) stations shot (surveyed) 103/day
6. Days lost due to weather conditions Nil
7. Days lost due to equipment failure Nil

EQUIPMENT:

1. Full description of all vessels/aircraft/vehicles used:

WHEEL MOUNTED

- 1 - Recorder
- 2 - Reel Trucks
- 1 - Shooting Truck
- 2 - Survey Trucks
- 1 - Supply Truck
- 1 - Service Truck
- 1 - Party Manager's Truck
- 3 - Water Trucks
- 2 - Mayhew Top Drives
- 3 - Conventional Drills & Water Trucks
- 3 - Air-Water Drills & Water Trucks
- 4 - Dozers

2. Recording equipment:

a) instruments

S.I.E. PT800 Binary Digital

b) detectors

Mark 14 hz

c) number cables used 10

d) length of each cable 1320

e) number of detector strings 120

f) number of detectors per string 9

g) detector spacing 12 1/2 ft.

h) distance between group centres 110 ft.

PERSONNEL: (numerical list of all field and office personnel assigned to crew, with positions or titles)

- 1 - Party Manager - Ivan Bishko
- 1 - Observer - Tony Burke
- 1 - Jr. Observer
- 2 - Surveyors
- 2 - Rodmen
- 3 - Drill Push
- 1 - Clerk
- 13 - Drillers
- 11 - Helpers (Drill)
- 1 - Shooter
- 1 - Shooters Helper
- 3 - Water Truck Drivers
- 1 - Mechanic
- 7 - Recording Helpers
- 3 - Cooks (1 cat camp cook)
- 2 - Cooks Helpers
- 2 - Camp Attendants
- 8 - Cat Skinners
- 1 - Cat Push

NAVIGATION:

1. Equipment used in surveying:

Transit and Level

2. Method used to locate lines and stations:

Star Shots

Take off from Teledyne lines and shot point locations.

CONDITIONS: (list all pertinent meteorological, bathymetric and other working conditions affecting the survey, radio liaison, etc.)

Deep rolling muskeg - 20 ft. slow driving units falling through muskeg.

Radio communications - Mobile with Hay River, N.W.T.

FIELD PROCEDURES:

1. Type of shooting (reflection, refraction, rollalong, broadside, etc.)
CDP rollalong

2. Deployment of vessels/vehicles

3. Percentage of stack 400%
4. Average charge size 5/8 lb.
5. Distance between stations/flight lines 440 ft.
6. Elevations of aircraft /
7. Gradiometer and/or total field /

GEOPHYSICAL STATISTICAL DATA

(Required for operations in B.C., Y.T., and N.W.T.)

PROJECT TROUT RIVER, N. W. T. CREW Teledyne Party #620
Longitude: Between 119° & 120°15'
Latitude : Between 61°00' & 62°00'
LOCATION _____ BASE Calgary, Alberta

DATES OF OPERATION:

1. Mobilization of vessels/aircraft/vehicles _____
2. Recorders left base on Dec 3, 1968
3. Recording commenced on Dec 8, 1968
4. Recording suspended on Dec 20, 1968
5. Recording recommenced on Jan 3 1970 69 . Suspended Apr 1-12 inclusive.
6. Recording completed on Apr 15 1970 69
7. Vessels/aircraft/vehicles released on Apr 18 1970 69

PRODUCTION:

1. Number of miles shot (or surveyed) 334.5
2. Number of shots taken 2902
3. Number of stations (gravity, magnetics, etc.) 2991
4. Number of recording days 104
5. Average daily production:
 - a) miles shot (surveyed) 3.2
 - b) stations shot (surveyed) 28
6. Days lost due to weather conditions nil
7. Days lost due to equipment failure nil

EQUIPMENT:

1. Full description of all vessels/aircraft/vehicles used:

Truck Equipment

Teledyne #620

- 1-Recording truck, 2T Ford
- 1-Line truck, 1T Ford
- 1-Shooting truck, 1T Ford
- 1-Party Chief's pickup, 1/2T Ford
- 1-Flat deck winch truck/grocery van
- 1-1500 gallon fuel truck
- 2-Survey trucks, 1/2T Ford

Sando Drilling

- 3-Drills
- 3-Water trucks

Mountain Hell Trucking

- 1-Water truck

Esterbrook (Bulldozing)

- 2-Caterpillar tractors.

2. Recording equipment:

a) instruments

SDS-1010 Binary Gain

b) detectors

EVS-2 28 cycles

- c) number cables used 8
- d) length of each cable 1320
- e) number of detector strings
- f) number of detectors per string 9
- g) detector spacing 15'
- h) distance between group centres 160'

PERSONNEL: (numerical list of all field and office personnel assigned to crew, with positions or titles)

Crew same as #627

1-Party Manager	<u>Sando Drilling</u>	<u>Crown Catering</u>
2-Computers	5-Drillers	1-Cook
1-Mechanic	5-Helpers	2-Helpers
1-Surveyor	<u>Mountain Hell Trucking</u>	<u>Esterbrook (Bulldozing)</u>
1-Rodman	1-Water truck Driver	4-Cat Skinners
1-Observer		1-Cook
1-Jr. Observer		1-Foreman
1-Shooter		
4-Helpers		

NAVIGATION:

1. Equipment used in surveying:

1. Theodolite Wild T-1A

2. Method used to locate lines and stations:

Survey tied to base line on south edge of lease.

CONDITIONS: (list all pertinent meteorological, bathymetric and other working conditions affecting the survey, radio liaison, etc.)

No adverse weather conditions.

FIELD PROCEDURES:

1. Type of shooting (reflection, refraction, rollalong, broadside, etc.)

Reflection Rollalong

2. Deployment of vessels/vehicles

3. Percentage of stack 300%
4. Average charge size 1 1/4 #
5. Distance between stations/flight lines n/a
6. Elevations of aircraft n/a
7. Gradiometer and/or total field n/a
8. Hole Depth 60'

GEOPHYSICAL STATISTICAL DATA

(Required for operations in B.C., Y.T., and N.W.T.)

PROJECT THOUT RIVER, N. W. T. CREW Teledyne Party #627
LOCATION Longitude: Between 119°00' & 120°15'
Latitude: Between 61°00' & 62°00' BASE Calgary, Alberta

DATES OF OPERATION:

1. Mobilization of vessels/aircraft/vehicles _____
2. Recorders left base on Dec 10 1968
3. Recording commenced on Dec 14 1968
4. Recording suspended on Dec 21 1968
5. Recording recommenced on Jan 3 1969
6. Recording completed on Feb 27 1969
7. Vessels/aircraft/vehicles released on Feb 28 1969

PRODUCTION:

1. Number of miles shot (or surveyed) 194.33
2. Number of shots taken 1714
3. Number of stations (gravity, magnetics, etc.) 1694
4. Number of recording days 61.29
5. Average daily production:
 - a) miles shot (surveyed) 3.17
 - b) stations shot (surveyed) 28
6. Days lost due to weather conditions nil
7. Days lost due to equipment failure nil

EQUIPMENT:

1. Full description of all vessels/aircraft/vehicles used:

Truck Equipment

Teledyne Party #627

1-Recording truck, 2T Ford

1-Line truck, 1T Ford

1-Shooting truck, 1T Ford

1-Party Manager's pickup, 1/2T Ford

1-Flat deck winch truck/grocery van

1-1500 gallon fuel truck

{ 2-Survey trucks, 1/2T Ford

{ 2-Survey trucks, 1/2T Ford

→ (Same equipment for both

Crews #620 and #627)

Sloan Drilling Company

1-Mayhew 1000 drills

1-Water truck

Hackwell Bulldozing

2-Caterpillar tractors

CT&T Drilling

1-Drill

1-Water truck

Rodeo Drilling

1-Drill

1-Water truck

Baker Drilling

1-Drill

1-Water truck

2. Recording equipment:

a) instruments

SDS - 1010 Binary Gain

b) detectors

EVS-2 - 28 cycles

- c) number cables used 8
- d) length of each cable 1320
- e) number of detector strings
- f) number of detectors per string 9
- g) detector spacing 15'
- h) distance between group centres 160'

PERSONNEL: (numerical list of all field and office personnel assigned to crew, with positions or titles)

1-Party Manager	<u>Sloan Drilling</u>	<u>CT&T Drilling</u>
2-Computers	2-Drillers	1-Driller
1-Mechanic	3-Helpers	1-Helper
1-Surveyor		
1-Rodman	<u>Rodeo Drilling</u>	<u>Baker Drilling</u>
1-Observer	1-Driller	1-Driller
1-Jr. Observer	1-Helper	1-Helper
1-Shooter		
4-Helpers	<u>Crown Catering</u>	<u>Hackwell (Bulldozing)</u>
	1-Cook	4-Cat Skinners
1-Surveyor (worked for both)	2-Helpers	1-Cook
1-Rodman [Crews 620 & 627]		1-Foreman

NAVIGATION:

1. Equipment used in surveying:

1. Theodolite Wild T-1A

2. Method used to locate lines and stations:

Survey tied to Base Line on south edge of lease.

CONDITIONS: (list all pertinent meteorological, bathymetric and other working conditions affecting the survey, radio liaison, etc.)

No adverse weather conditions.

FIELD PROCEDURES:

1. Type of shooting (reflection, refraction, rollalong, broadside, etc.)

Reflection Rollalong

2. Deployment of vessels/vehicles

3. Percentage of stack 300%
4. Average charge size 1 1/4#
5. Distance between stations/flight lines
6. Elevations of aircraft
7. Gradiometer and/or total field
8. Hole depth 60'

10

DATES OF OPERATION:

- PRODUCTION:**

- EQUIPMENT:**

1. Full description of all vessels/aircraft/vehicles used:

Teledyne Party #619

Sando Drilling Company

Sloan Drilling Company

2-Mayhew 1000 drills
1-1100 gallon water truck
1-1800 gallon water truck

Borek Construction

3-D7 Caterpillar tractors
2-D6 Caterpillar tractors

2. Recording equipment:

a) instruments

Model SDS 1010, Binary Gain

b) detectors

Model EVS 2-14

c) number cables used 13

d) length of each cable 825'

e) number of detector strings 75

f) number of detectors per string 9

g) detector spacing 20'

h) distance between group centres 160'

PERSONNEL: (numerical list of all field and office personnel assigned to crew, with positions or titles)

Teledyne Party #619

1-Party Chief
2-Field Computers
1-Observer
1-Shooter
2-Surveyors
2-Rodmen
8-Line crew Helpers
1-Mechanic
1-Supply Driver
1-Fuel Transport Driver

Sando Drilling Company

1-Drill Supervisor
3-Drillers
3-Waterjacks
2-Waterhaulers

Sloan Drilling Company

2-Drillers
2-Toolpushers
2-Waterjacks

Borek Construction Co.

2-Cat Foremen
10-Cat Skinners

Crown Catering Company

2-Cooks
1-Camp Attendant

NAVIGATION:

1. Equipment used in surveying:

Theodolite Wild T-1A

2. Method used to locate lines and stations:

Tied to previous seismic survey.

- 3 -

CONDITIONS: (list all pertinent meteorological, bathymetric and other working conditions affecting the survey, radio liaison, etc.)

^{No}
~~in~~ adverse weather conditions.

FIELD PROCEDURES:

1. Type of shooting (reflection, refraction, rollalong, broadside, etc.)
Reflection rollalong.

2. Deployment of vessels/vehicles

3. Percentage of stack 300%
4. Average charge size 1 1/4 lb.
5. Distance between stations/flight lines n/a
6. Elevations of aircraft n/a
7. Gradiometer and/or total field n/a
8. Average Hole Depth 60'

D: DATA PROCESSING

Near surface low velocity layers were removed and replaced with 12,000 feet/second layer. Datum was chosen at 500 feet above sea level and all elevation corrections were calculated to this datum at a velocity of 11,500 feet/second.

Data obtained by Northern Geophysical Party No. 33 were processed digitally by Century Geophysical Corp. of Canada (Cendac) as follows:

1. Normal Moveout
2. Digital Filter 23-52 C.p.s.
3. Trace Equalization
4. Statics
5. Re-static
6. Stack
7. Structural Display (output)

Data obtained by other geophysical crews were processed by the Interpretation Center of Gulf Oil Canada, Calgary, Alberta. Gulf's analog equipment was used to process TXL 620 and 627 control. The following sequence of operations were used in data processing:

1. Normal moveout
2. Statics
3. Filter 38-4
4. Re-statics
5. Stack; mix 25-50-25%; filter 38-4
6. Structural Display

Gulf's digital equipment was used to process TXL 619 control. The following sequence of operations were used in data processing:

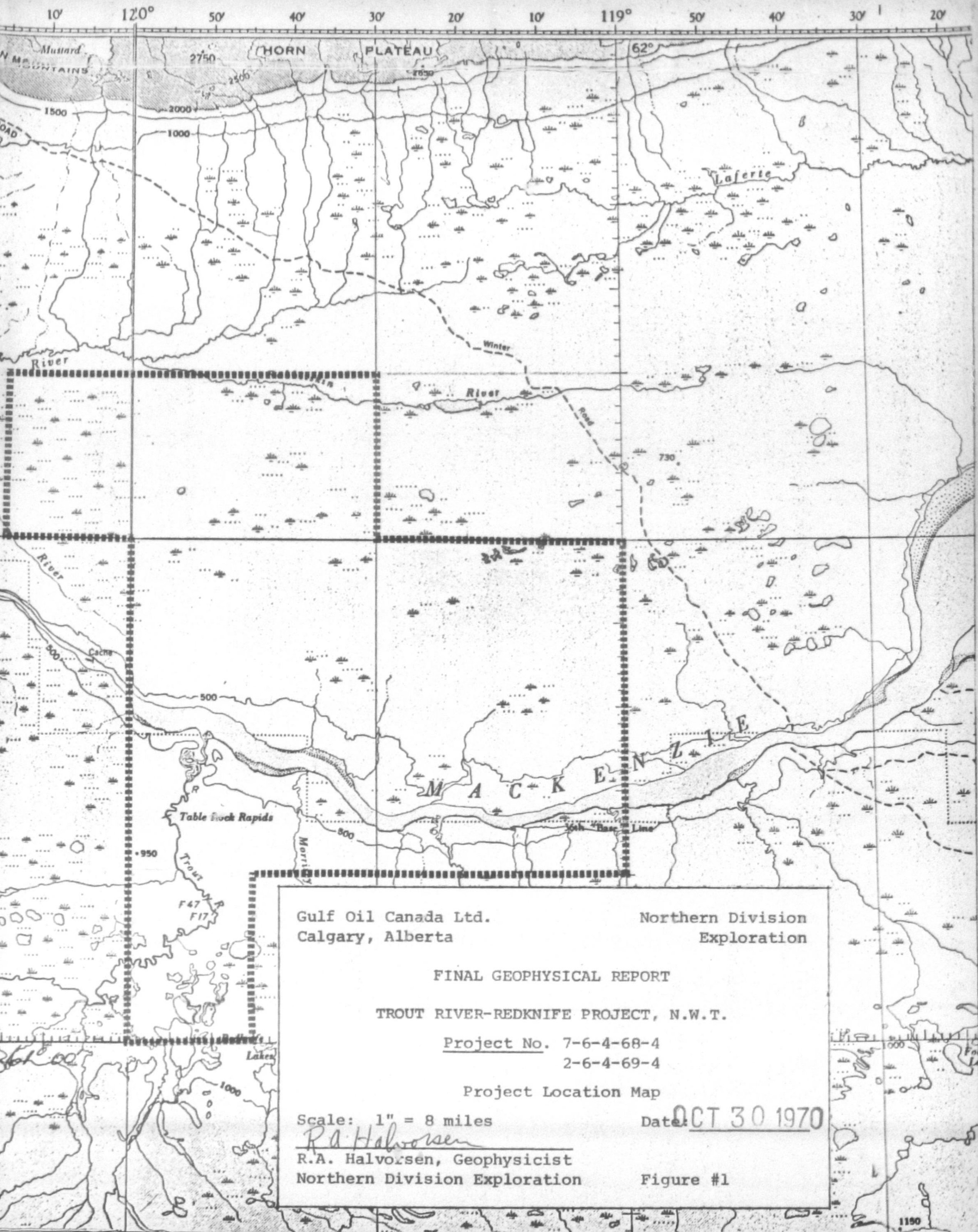
1. Normal moveout
2. Statics
3. Filter
4. Re-statics
5. Stack, filter 25-36-60-36 c.p.s.
6. Structural display

E: RESULTS AND INTERPRETATION

This report presents the interpretation of 615.61 miles of control shot by TXL #620,627 and N-33 during the first four months of 1969. In addition, TXL #619 shot 40.9 miles of detailed control during December 1969 and January 1970. Shot point locations shown on the maps in solid circles indicate control obtained from other company's shooting.

The majority of data varies in quality from good to fair, although occasionally the data deteriorates to poor quality. We believe that the events mapped represent very closely the assigned geological names.

Both structural maps (Horn River Shale and Lonely Bay Limestone) show gentle dip to the south-southwest at 30-40 feet/mile. The structural closures mapped are believed to be associated with Horn River reef development.



Gulf Oil Canada Ltd.
Calgary, Alberta

Northern Division
Exploration

FINAL GEOPHYSICAL REPORT

TROUT RIVER-REDKNIFE PROJECT, N.W.T.

Project No. 7-6-4-68-4
2-6-4-69-4

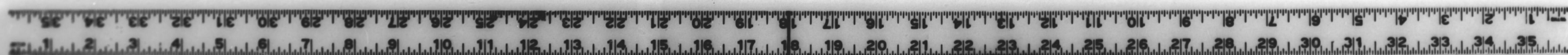
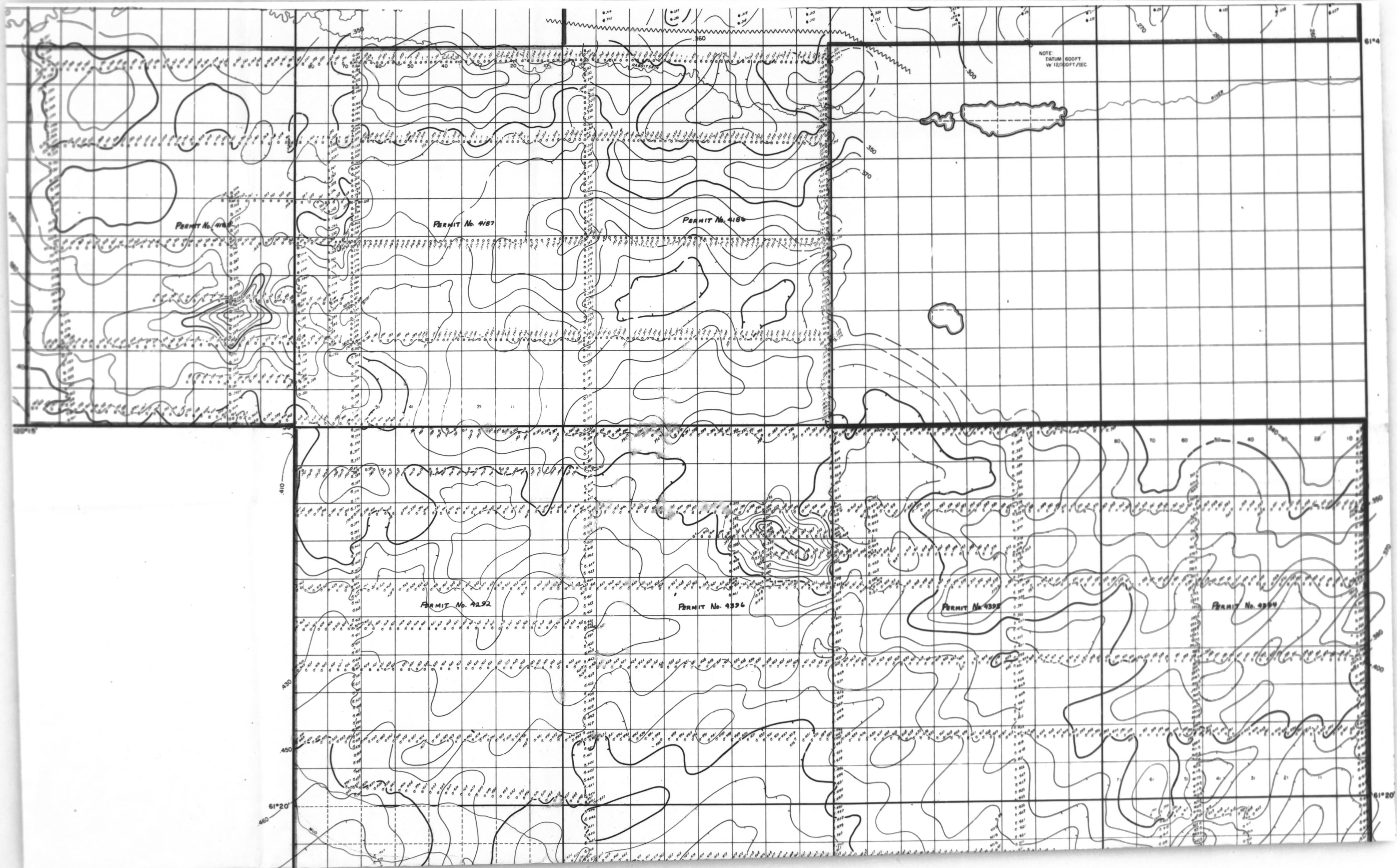
Project Location Map

Scale: 1" = 8 miles

Date: OCT 30 1970

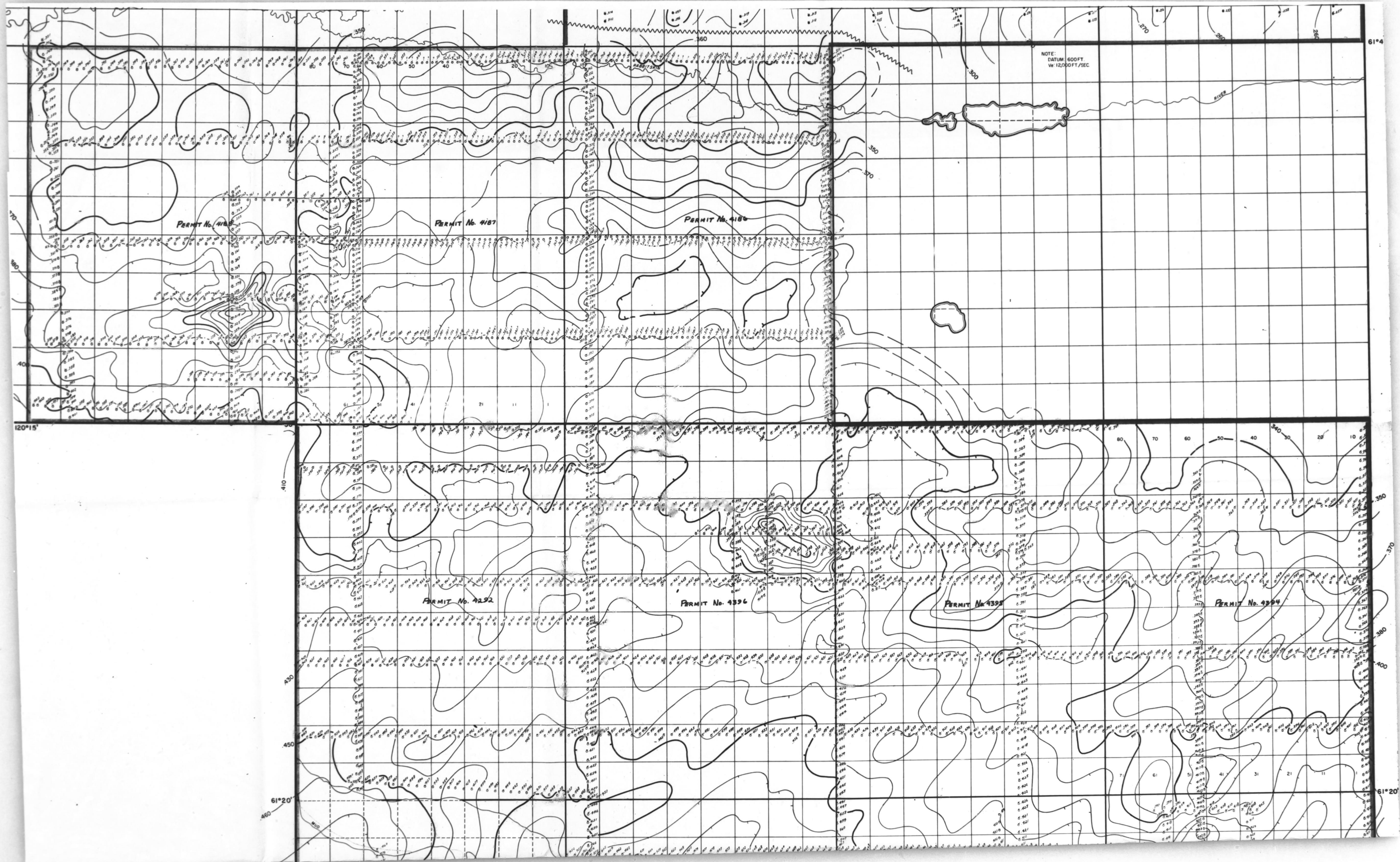
R.A. Halvorsen
R.A. Halvorsen, Geophysicist
Northern Division Exploration

Figure #1



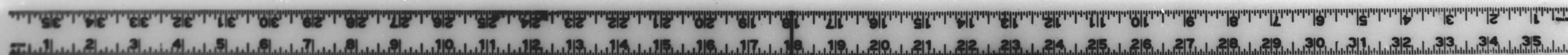
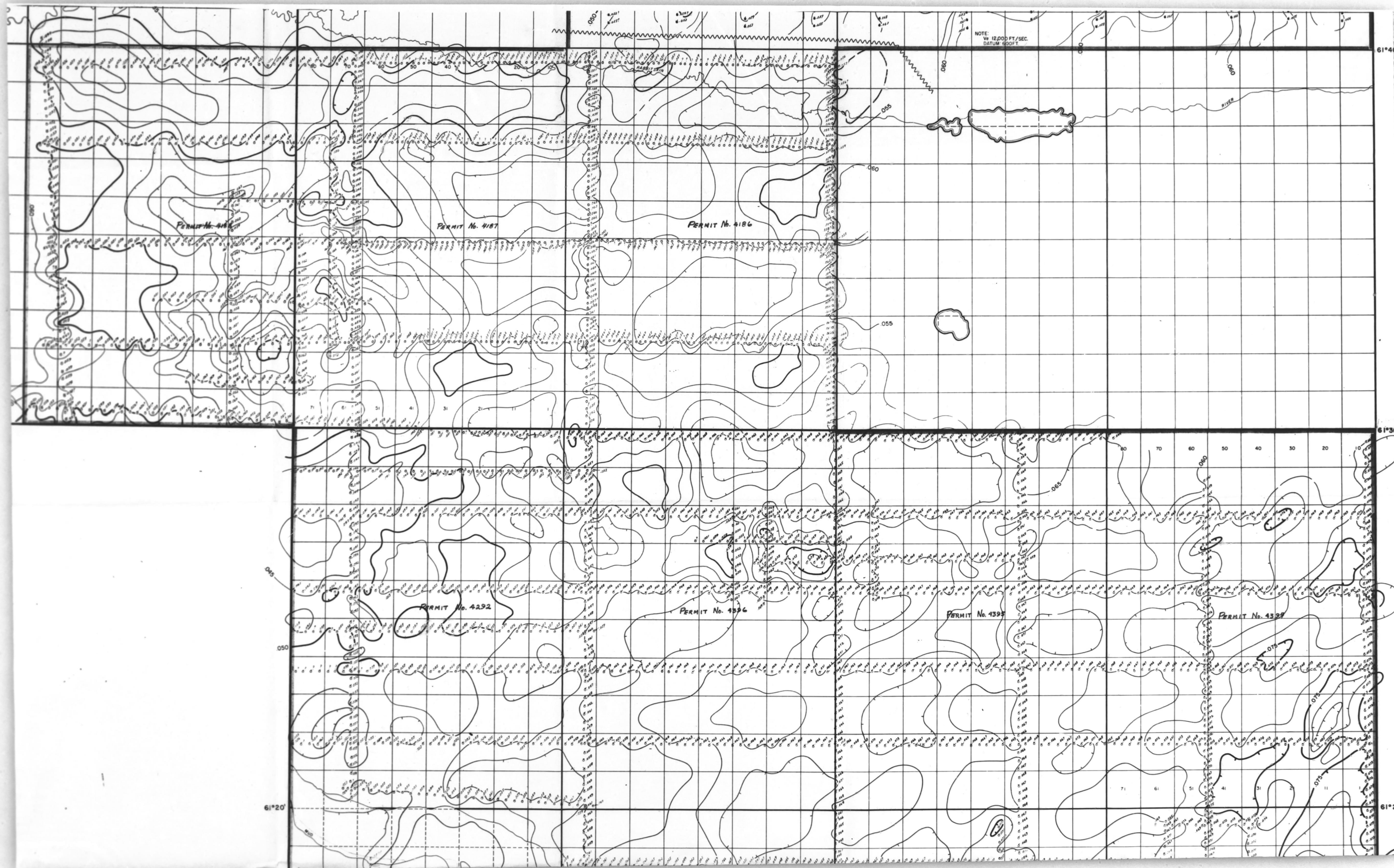
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West Canadian Graphic Industries Ltd.



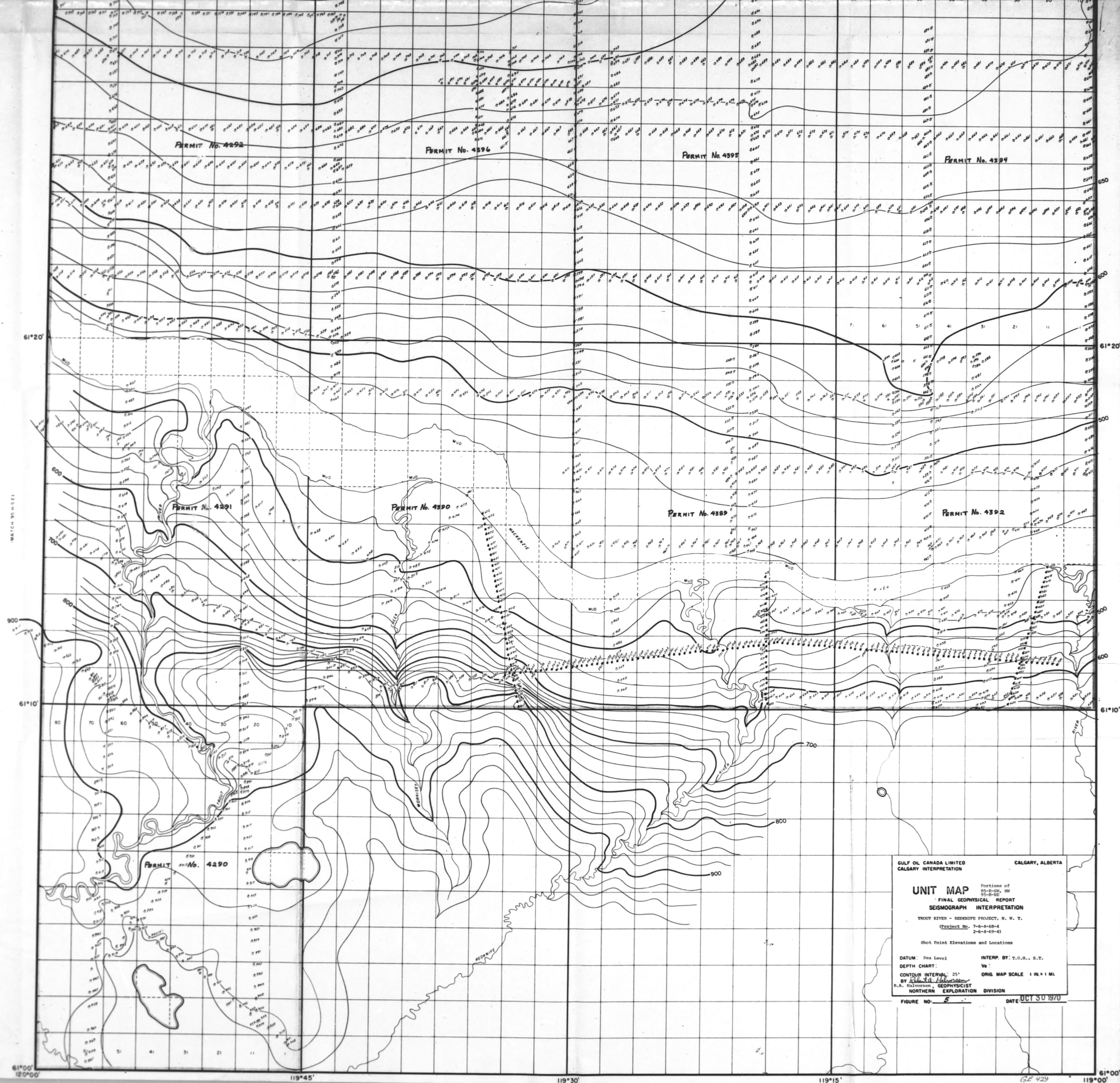
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West Canadian Graphic Industries Ltd.



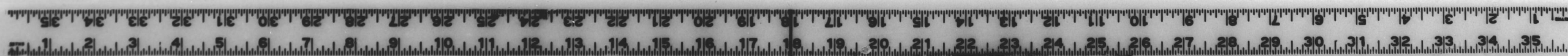
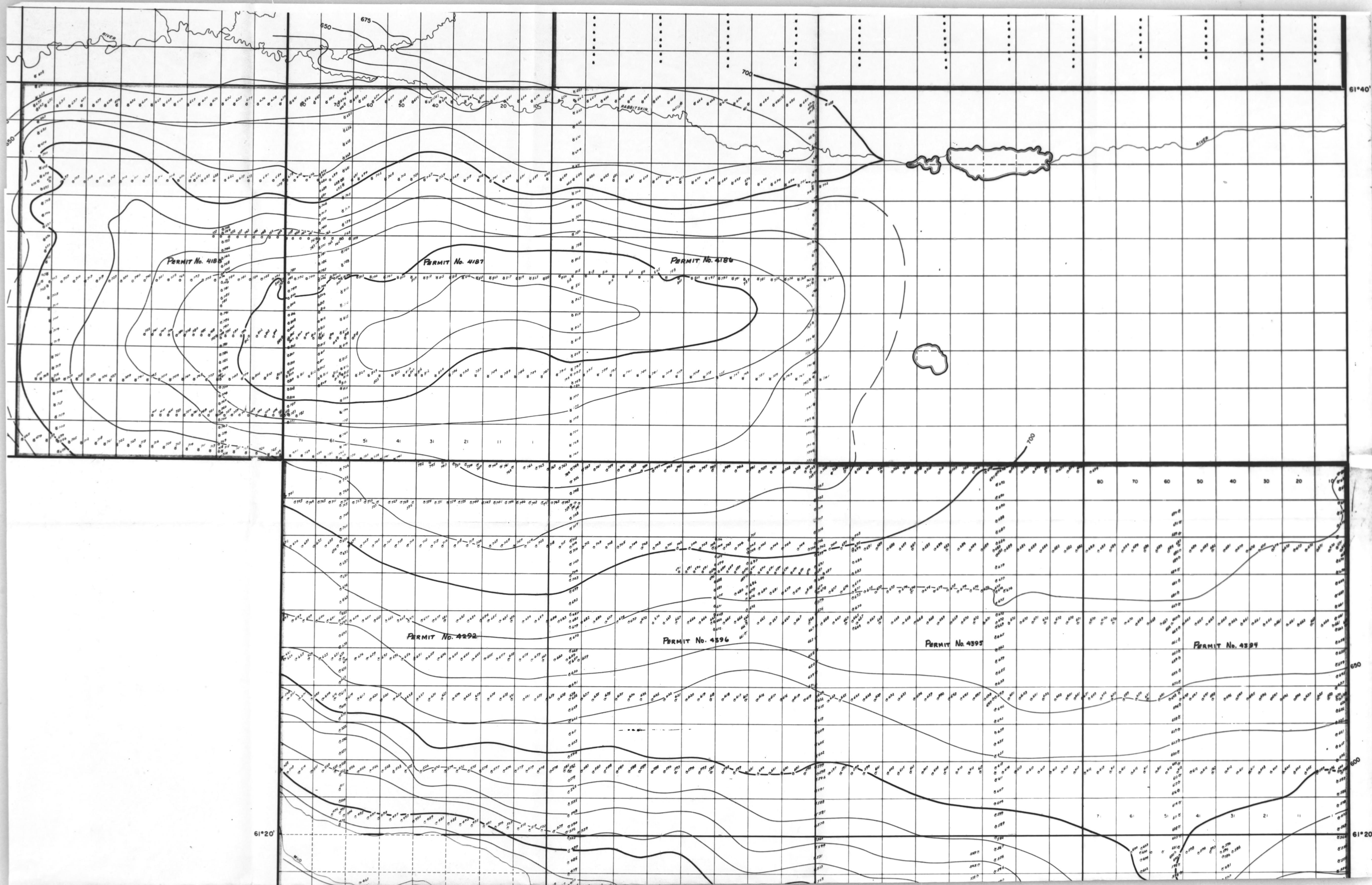
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