

Rec'd: July 21/70

FINAL GEOPHYSICAL REPORT

REFLECTION SEISMIC SURVEY

ANTOINE LAKE PROJECT, N. W. T.

(Project No. 2-6-4-70-3)

Report on work performed on Permits
No. 4397 to 4400 inclusive during the
work period February 1, 1970
to March 31, 1970.

Reflection Seismic program shot for
Gulf Oil Canada Ltd. by Teledyne
Exploration Seismic Party No. 619.


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Northern Division Exploration
Gulf Oil Canada Ltd.

Date: JUN 30 1970

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A: MAPS

The following maps are included in this report and are located in the attached expanding envelope:

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Contours on Middle Devonian Horizon
- Figure No. 3 - Composite Map - Portions of Unit Map 95-G-NE and 95-H-NW
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B: STATISTICAL DATA

1. Dates of Operation

Mobilization of crew	February 1, 1970
Recording commenced	February 4, 1970
Recording terminated	March 28, 1970
Crew released	March 31, 1970

2. Production

Miles Shot	151
Shots taken	1361
Stations surveyed	1224
Recording days	63.45
Average daily production	
(a) Miles Shot	2.38
(b) Stations Shot	19.3
Days lost due to weather conditions	0
Days lost due to equipment failure	0

3. Equipment

Teledyne Party No. 619

- 1 - Recording truck, 2 ton Ford
- 1 - Line truck, 1 ton Ford
- 1 - Shooting truck, 1 ton Ford
- 2 - Survey trucks, 1/2 ton Ford
- 1 - Party Chief's pickup a 1/2 ton Ford
- 1 - Flat deck winch truck with grocery van
- 1 - 1500 gallon fuel truck

Recording Equipment

- (a) Instruments
 - Model SDS 1010, Binary gain
- (b) Detectors
 - Model EUS 2-14
- (c) Number of cables 13
- (d) Length of cable 825'
- (e) Detector strings 75
- (f) Detectors per string 9
- (g) Detector spacing 20'
- (h) Group centre spacing 160'

Sando Drilling Company

- 1 - Air-water combination drill
- 3 - Top drive Auger drills
- 2 - 500 gallon water trucks

Sloan Drilling Company

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

Borak Construction

3 - D7 Caterpillar tractors
2 - D6 Caterpillar tractors

4. Personnel

Teledyne Party No. 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

Borak Construction Company

2 - Cat Foremen
10 - Cat Skinners

Crown Catering Company

2 - Cooks
1 - Camp Attendant

5. Navigation

- (a) Equipment - Theodolite Wild T-1A
- (b) Method used to locate stations - Tied to previous seismic survey and three government triangulation stations.

6. Conditions

The northwest portion of the project is located on the Martin Hills formation which rises about 1500 feet above the surrounding area. Steep erosional gulleys cut the slopes of this formation, making access difficult. Stands of large trees cover the eastern slopes.

Weather conditions were cold but stable.

Radio reception by single sideband through Fort Nelson, B.C. was good.

C: FIELD PROCEDURES

- 1. Type of control - Reflection, roll-along
- 2. Percentage of stack - 300%
- 3. Average hole depth - 40-50 feet
- 4. Average charge size - 3 3/4 lb dynamite

The program was shot using portable lines and a roll-along switch to reduce demands on shooting time and total shot points required. All shots were located on the detector line and were either "inline" or "split" array records.

D: PROCESSING TECHNIQUES

All basic data was assembled at the field camp office. The field computers plotted the first arrival breaks and completed the field data sheets (elevations and first arrival distances were inserted from survey data).

In the Interpretation Centre of Gulf Canada, Calgary, Alberta, the weathering and elevation corrections were computed. The following velocity functions and processing parameters were applied to produce record sections:

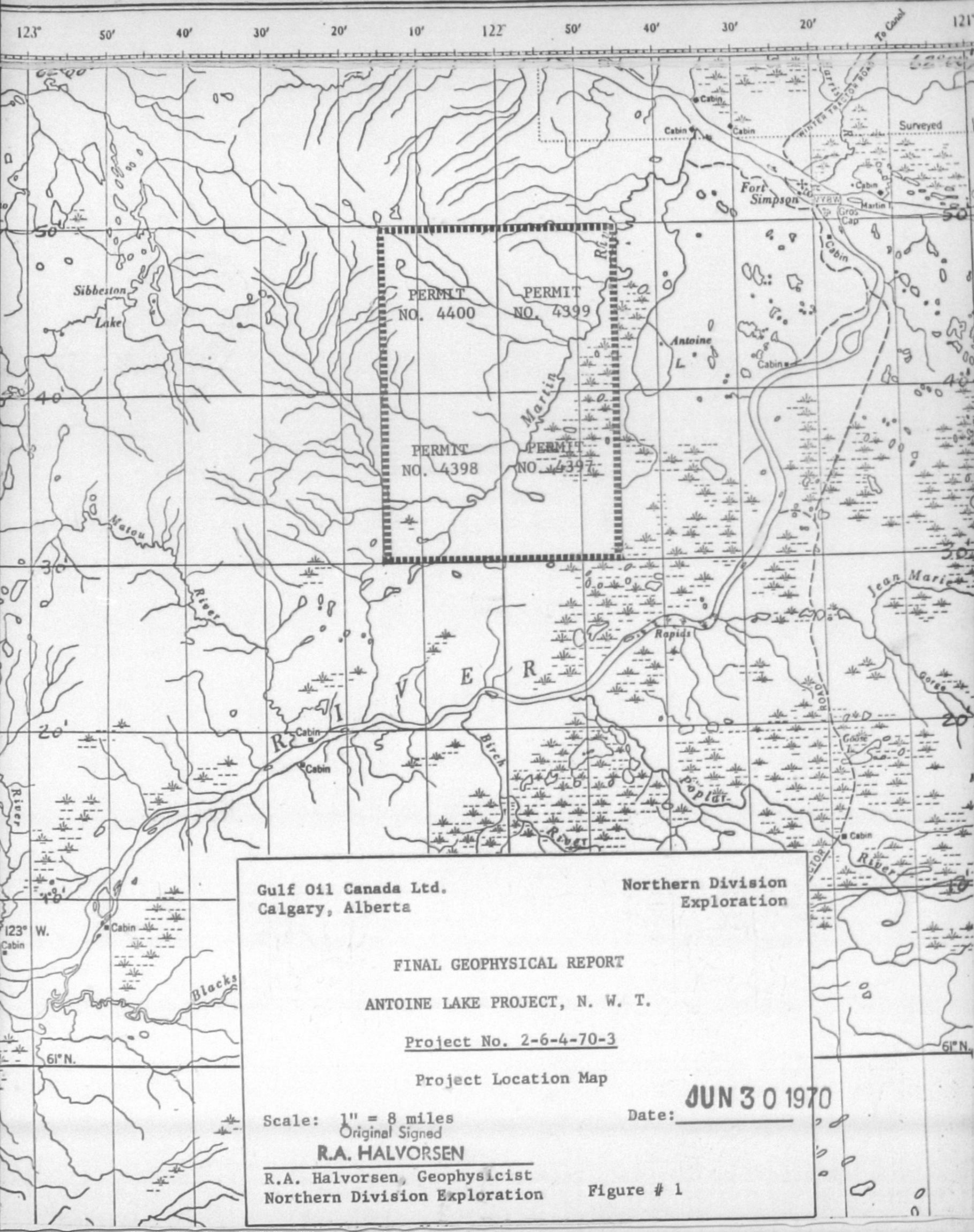


Velocity - 10,000 ft./sec.
Datum - 1000 feet
Stack - four fold
Structural presentation
Filter - FLFC 5, 20, 60, 75
Plot - Electrical
Mix - 25, 50, 25

E: RESULTS AND INTERPRETATION

The enclosed maps are based on 148 miles of reflection seismic control shot by Teledyne. Trade data (78 miles) from Banff Oil has not yet been integrated with the new data. Difficulty has been experienced in tying the two sets of data. Examination of the Banff sections reveals the occurrence of dip segments at Horn River Shale level. It is believed, however, that these anomalous dip patterns are related to an unusually thick weathered layer and the characteristically low velocities.

Regional dip is southwest. Several southwest trending high noses are mapped across the project area. These features lack up dip closure and are not good prospects for hydrocarbon placement in a structural sense.



Gulf Oil Canada Ltd.
Calgary, Alberta

Northern Division
Exploration

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Project Location Map

Scale: 1" = 8 miles
Original Signed

R.A. HALVORSEN

R.A. Halvorsen, Geophysicist
Northern Division Exploration

Date:

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Figure # 1

