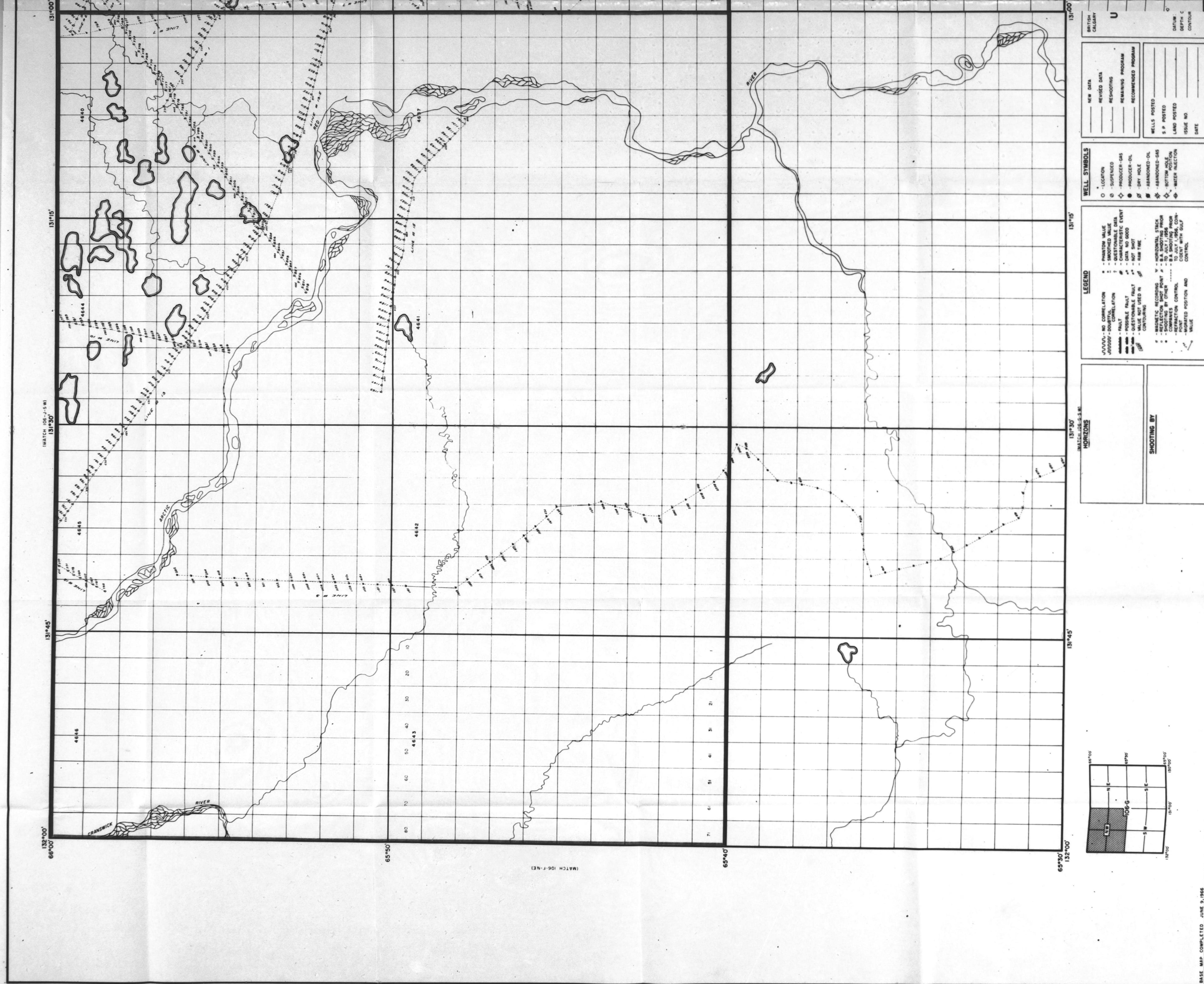




LEGEND

--- NO CORRELATION
--- DISCONTINUITY
--- FAULT
--- POSSIBLE FAULT
--- MAGNETIC RECORDING
--- REFLECTION SHOT POINT
--- SHOOTING PRIOR TO
--- SHOOTING AFTER
--- SHOOTING CONTROL
--- SHOOTING POSITION AND
--- VALUE

WELL SYMBOLS

○ LOCATION
○ SUSPENDED
○ PRODUCER-GAS
○ PRODUCER-OIL
○ DRY HOLE
○ ABANDONED-OIL
○ ABANDONED-GAS
○ BOTTOM HOLE
○ WEEK INJECTION

WELLS POSTED

S.P. POSTED
LAND POSTED
ISSUE NO.
DATE

BRITISH COLUMBIA

NEW DATA
REVISED DATA
RESHOOTING
REMAINING PROGRAM
RECOMMENDED PROGRAM

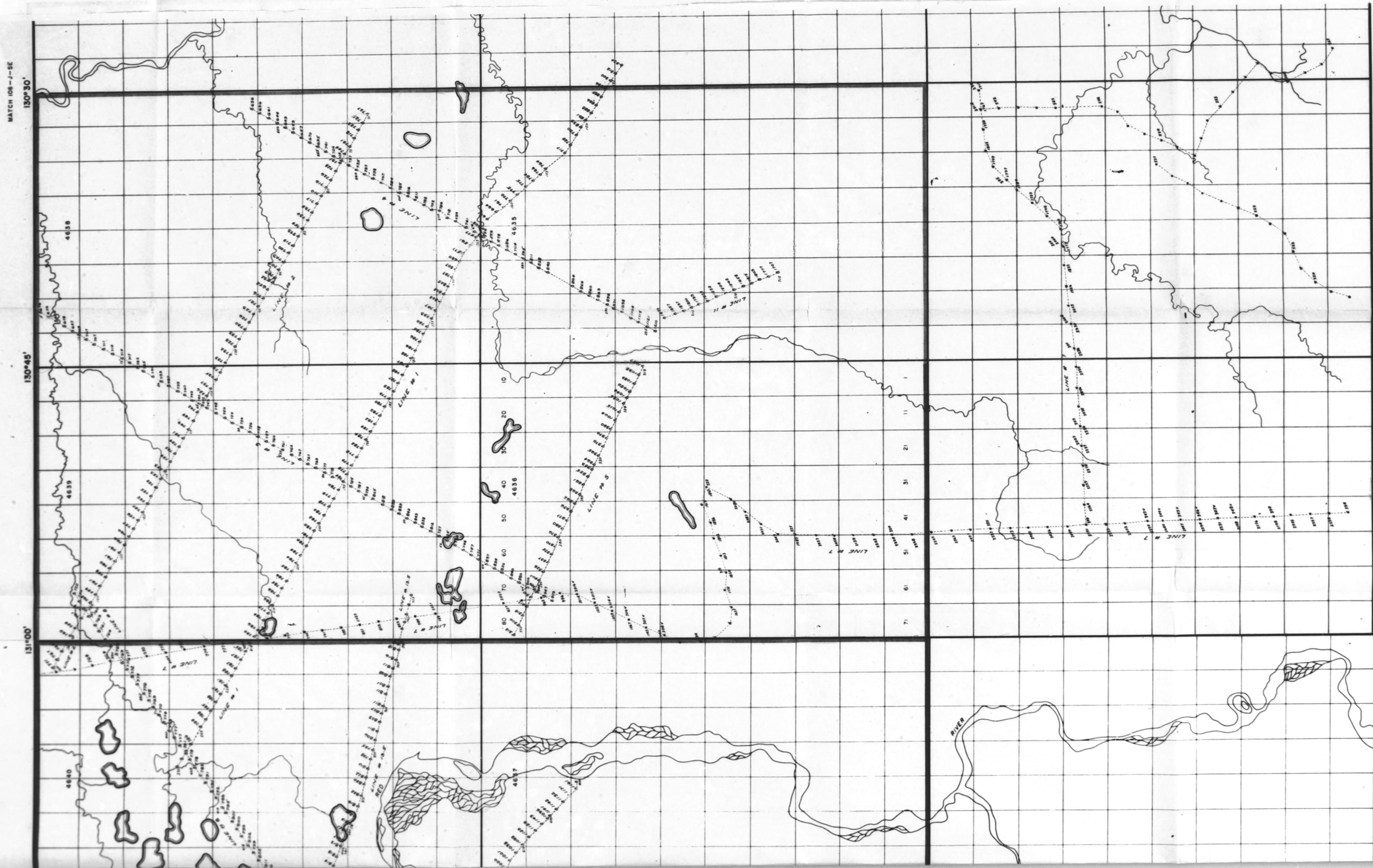
DATE



30x

West Canadian Graphic Industries Ltd.

BASE MAP COMPLETED - JUNE 9, 1966



UNIT MAP
SEISMOGRAPH INTERPRETATION
FINAL GEOLOGICAL REPORT
BY: [Signature]
DATE: JAN 14 1970

DATE: [Blank]
DEPTH: [Blank]
BY: [Blank]
S.E. INTERPRETING GEOLOGIST
S.E. INTERPRETING GEOLOGIST

BRITISH CALGARY
130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'

SYMBOLS

LOCATION

PRODUCER-GAS

PRODUCER-OIL

WY HOLE

WANDERED-OIL

WANDERED-GAS

PTON

WATER INJECTION

NEW DATA

REVISED DATA

RESHOOTING

REMAINING PROGRAM

RECOMMENDED PROGRAM

WELLS POSTED

S P POSTED

LAND POSTED

ISSUE NO

DATE

BRITISH CALGARY

130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'

130°00' 130°15' 130°30'

50°45' 51°00'



30x

West Canadian Graphic Industries Ltd.

FINAL GEOPHYSICAL REPORT

Reflection Seismic Survey

RAMPARTS PROJECT, N. W. T.

(Project No. 2-6-6-68-3)

Report on work performed on Permits
No. 4635 to 4646 inclusive, during the
period November 20, 1968 to February 15, 1969.

Reflection Seismic program shot for
The British American Oil Company Ltd.
(Gulf Oil Canada Ltd.)

by
Heiland Exploration Seismic Party No. 3.

R. A. Halvorsen

R. A. Halvorsen, Geophysicist
Gulf Oil Canada Ltd.

Date: JAN 14 1970

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A: MAPS:

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

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Figure No. 2 - Composite Map - Portions of Unit Maps 106-G-NE, NW
Contours on Intermediate Horizons
(Imperial Shale Marker)

Figure No. 3 - Composite Map - Portions of Unit Map 106-G-NE, NW
Contours on Deep Horizons
(Approximately Top of Hume)

Figure No. 4 - Composite Map - Portions of Unit Map 106-G-NE, NW
Contours on Interval Between Intermediate and Deep
Horizons
(Imperial Shale marker to approximately Top of Hume)

Figure No. 5 - Composite Map - Portions of Unit Map 106-G-NE, NW
S. P. Location and Elevation Map

B: STATISTICAL DATA:

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B: STATISTICAL DATA

1. Dates:

- (a) Mobilization of vessels, aircraft and vehicles -
November 20, 1968
- (b) Recorders left base on November 22, 1968
- (c) Recording commenced on December 6, 1968
- (d) Recording suspended on December 19, 1968
- (e) Recording recommenced on January 2, 1969
- (f) Recording completed on February 15, 1969
- (g) Vessels, aircraft and vehicles release on -
February 15, 1969.

2. Production:

Number of miles shot (or surveyed)	- 144
Number of shots taken	- 724
Number of stations (gravity, magnetics, etc.)	- 576
Number of recording days	- 52
Average daily production:	
a) miles shot (surveyed)	- 2.77
b) stations shot (surveyed)	- 11.08
Days lost due to weather conditions	- Nil
Days lost due to equipment failure	- 4

3. Equipment:

- (a) Transport and mounted equipment -

7 Bombardier tracked units as follows: 1 Instrument unit
 2 Survey units
 1 Shooting unit
 2 Line laying units
 1 Mechanics unit

1 Four wheel drive - Personnel carrier
2 Four wheel drive - Supply trucks
1 Four wheel drive - Shooting truck
3 Mayhew 500 Air Drills mounted on Nodwells

1 D7 Bulldozer
2 D6 Bulldozers

1 DC-3 Aircraft

(b) Recording Equipment

Instruments -

Recorder - SIE PT 100
Tape System PMR-20

Detectors -

Electro-Tech EVS-2

Number of cables used	- 12
Length of each cable	- 960'
Number of detector strings	- 72
Detector spacing	- 15'
Distance between group centres	- 160'

4. Personnel:

- 1 Party manager
- 2 Surveyors
- 2 Rodmen
- 1 Observer
- 1 Assistant observer
- 1 Shooter
- 2 Line truck drivers
- 3 Recording helpers
- 2 Computers
- 1 Mechanic
- 3 Drillers
- 3 Drill helpers

5. Navigation:

(a) Equipment -

2 Wild T-1A Theodolites

(b) Method -

The magnetic compass was not used. Horizontal control was carried by readings in azimuth.

Star shots established original line bearings.

6. Conditions:

- Radio reception was variable, mostly poor.
- Perma frost and wind noise affected record quality.
- Aircraft were occasionally grounded by ice crystals and fog conditions.

C: FIELD PROCEDURES

1. Type of shooting -

Reflection seismic recording using a rollalong procedure.

- 2. Percentage of stack - 300%
- 3. Average charge size - 20 lbs.
- 4. Distance between stations - 1280 feet

D: DATA PROCESSING

The basic data was shipped from the field office to the Calgary, Alberta processing centre of Gulf Canada. Weathering and elevation corrections were computed and the data presented in record section form. Typical processing parameters are listed below:

Ve - 10,000 ft/sec.
Datum - 1700 ft/AMSL
Type of profile - Reflection
 - 3-fold stack
 - structure
Gain - 16-8, 14-4
AVC - 1-1
Filter - 49-4
Mix - 25-50-25
Plat - smoothed electrical, smoothed optical

The mapped values were picked directly from the record sections.

E: RESULTS AND INTERPRETATION

The primary prospects for hydrocarbons in this area exist in the Ronning and Gossache formations. A secondary prospect is related to the Key Scarp reef development.



Two events were mapped on this project. An identification of the lower event, the approximate Top of Hume, was made from a synthetic seismogram of the Atlantic Columbia Carbon Arctic Circle Ontaratue H-34 well. This well is located approximately 25 miles north of the project at 66°23'N Latitude, 132°06'W Longitude. The second event, a shallower marker, was identified from regional geological control as originating within the Imperial Shale section. This event provides a mapping above the secondary prospect, the Key Scarp reef.

Fragments of a third event were observed on the records about 70 milli-seconds above the Hume marker. This event was too irregular to be mapped and appeared to be extensively eroded.

Sporadic events appear below the Imperial Shale marker. These events show thinning towards the upper event and may be associated with Key Scarp reef development.

Possible delineated prospects include the high areas mapped on the horizon maps and the faulted zones mapped on the lower event.

132°

131°

130°

66°00'

4646

4645

4644

4640

4637

4638

4643

4642

4641

4637

4636

4635

RED RIVER

River

65°50'

65°40'

Ramparts

Gulf Oil Canada Ltd.
Northern Division Exploration

Calgary, Alberta

Final Geophysical Report

RAMPARTS PROJECT, N. W. T.

Project Location Map

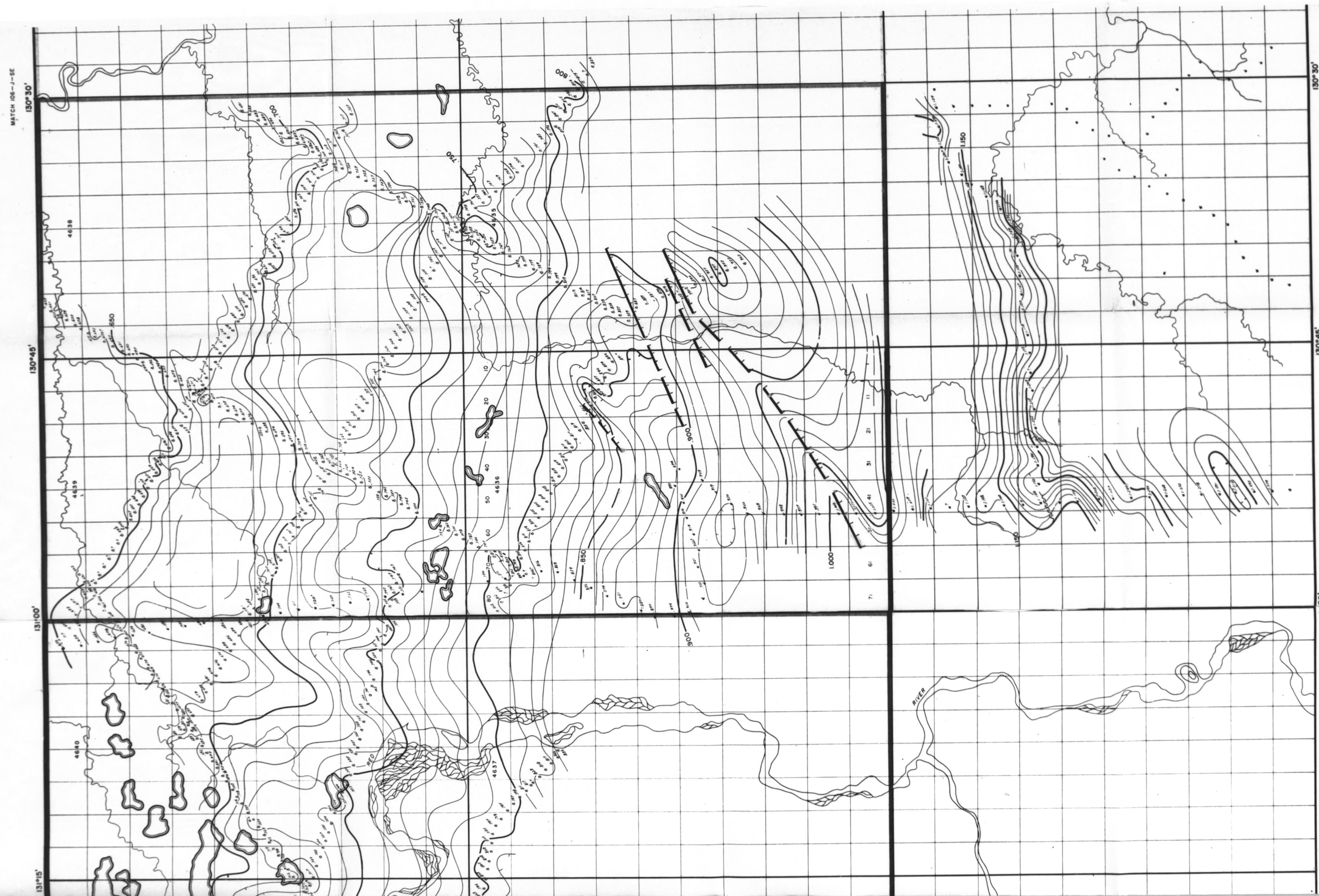
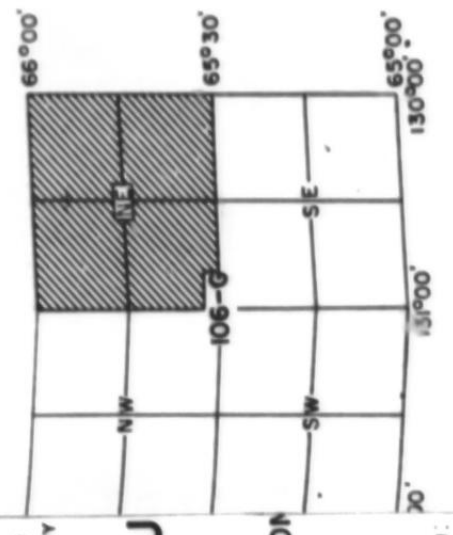
 Outline of Ramparts project.

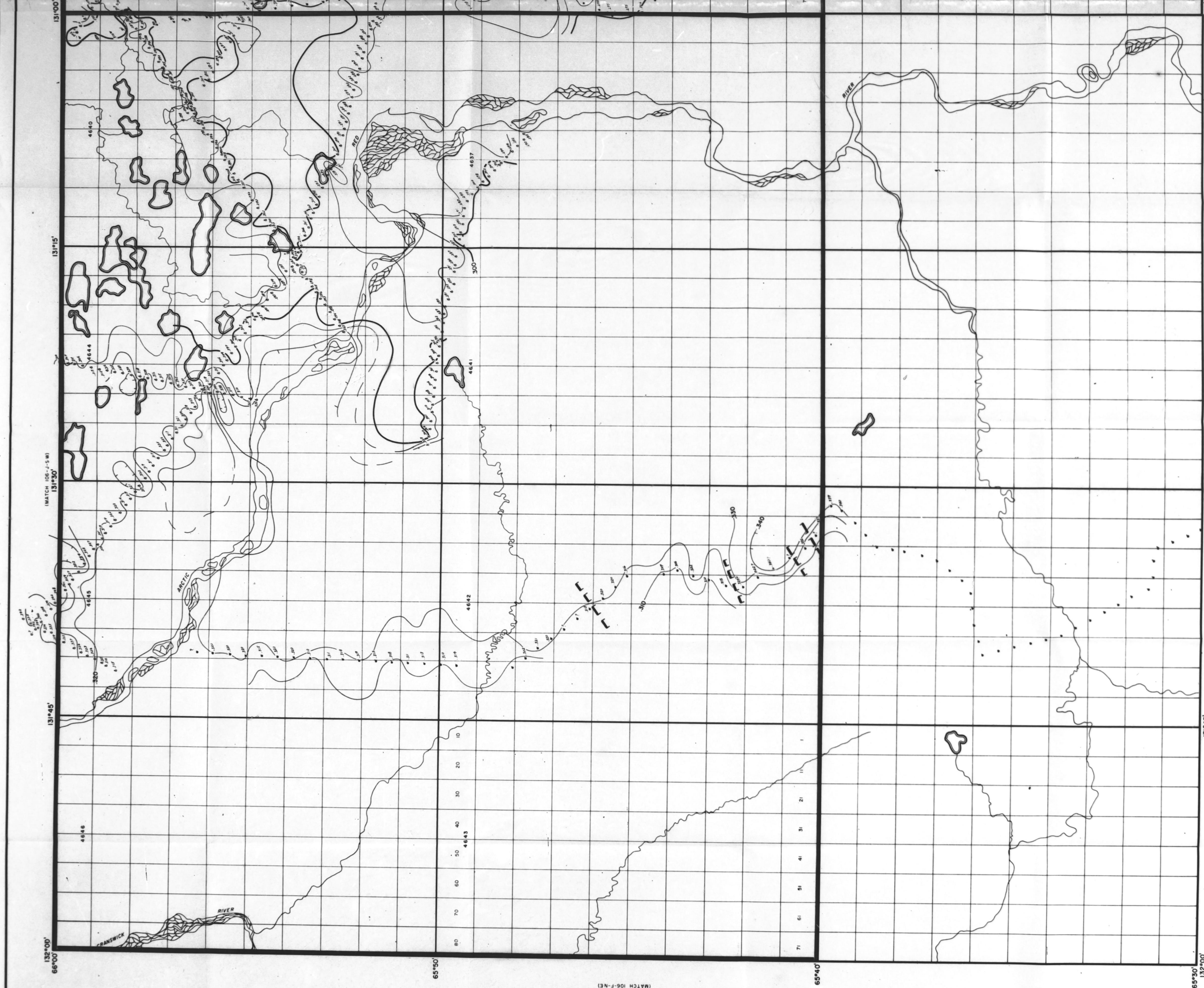
Scale: 1" =

R. A. Halvorsen

R. A. Halvorsen, Geophysicist
Northern Division Exploration

Date: JAN 14 1970

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NEW DATA
REVISED DATA
RE-SHOOTING
REMAINING PROGRAM
RECOMMENDED PROGRAM

WELLS POSTED
S.P. POSTED
LAND POSTED
ISSUE NO.
DATE

WELL SYMBOLS

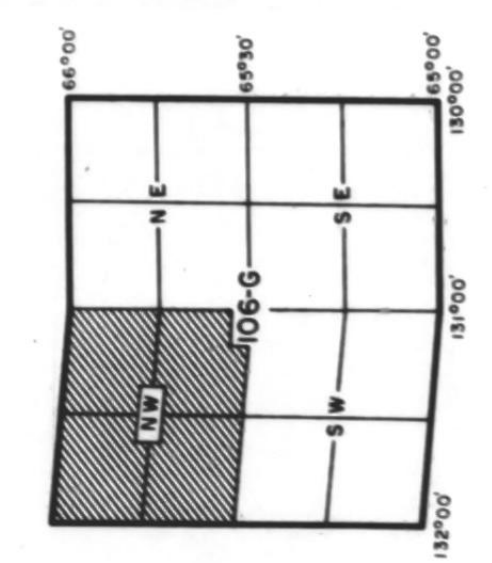
- LOCATION
- SURFACED
- PRODUCER-GAS
- PRODUCER-OIL
- DRY HOLE
- ABANDONED-OIL
- ABANDONED-GAS
- BOTTOM HOLE
- WATER INJECTION

LEGEND

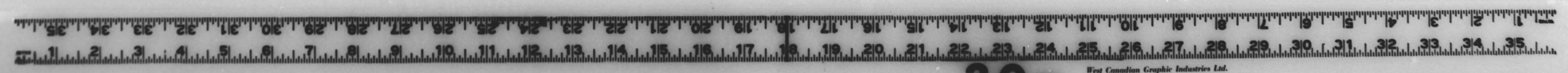
- NO CORRELATION
- DOUBTFUL CORRELATION
- FAULT
- POSSIBLE FAULT
- QUESTIONABLE FAULT
- FAULT USED IN CONTINUING
- SHOOTING BY OTHER
- REFLECTION CONTROL
- REFRACTION CONTROL
- MIGRATED POSITION AND VALUE

HORIZONS

SHOOTING BY
RAUPARTS - TRADE DATA - SHELL



BASE MAP COMPLETED JUNE 9, 1966



30x

West Canadian Graphic Industries Ltd.



UNIT MAP

FINAL GEOPHYSICAL REPORT
SEISMOGRAPH INTERPRETATION
BARRETTES RESERVE, N.W.T.

Contours on Internal Between
Intermediate and Deep Horizons

(Contours: Shallow - 100 ft
INTERP BY: K.J.D., T.G.H., C.R.C.)
DATE: 1, 700 feet
DEPTH CHART: 10,000 ft/sec
CONTOUR INTERVAL: 0.010 sec-orig. MAP SCALE: 1 IN = 1 MI

BY: K.J.D., T.G.H., C.R.C.
N.W.T. GEOPHYSICAL
N.W.T. EXPLORATION DIVISION

FIGURE NO. 4

GULF OIL CANADA LIMITED
CALGARY INTERPRETATION SECTION

196-C-NE, NW
PORTIONS OF

BRITISH COLUMBIA
131°00' 130°45' 130°30'

66°00' 65°30' 65°00'

U NW NE SE
COI SW INT

70 13700 13700 13700

DATUM
DEPTH C
CONTOUR

WELLS POSTED
S P POSTED
LAND POSTED
ISSUE NO.
DATE

SYMBOLS

ION
FENCED
DUCEP-GAS
DUCEP-OIL
HOLE
NOOKED-OIL
NOOKED-GAS
TOP POSITION
BY INJECTION

NEW DATA
REVISED DATA
RESHOOTING
REMAINING PROGRAM
RECOMMENDED PROGRAM