

5C

FINAL GEOPHYSICAL REPORT
FOR REFLECTION SEISMIC SURVEY IN THE
FORT GOOD HOPE AREA, 1966-1967, AND FOR THE
1968-1969, 1970-1971, 1972-1973, AND 1974-1975
SEISMIC SURVEYS CONDUCTED BY THE
STATE OF ALASKA

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOPHYSICS

PROJECT ACTION SHEET

RESOURCE EVALUATION BRANCH

PROJECT NUMBER: 9229-CH-IDA

COMPANY: CHEVRON

REPORT TITLE: 1985 REFLECTION SURVEY

The following action has been taken:

Receipt acknowledged MAY 14/86

Reports and maps date-stamped ✓

Memo sent to Land Management ✓

Reports for review list edited ✓

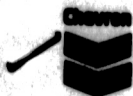
Inventory sheet made ✓

Mylar ✓

REVIEW AND APPROVAL made by:

L. Richards May 24/86

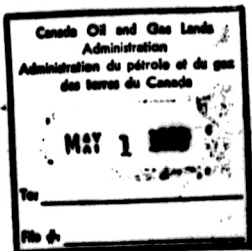
COMMENTS:



Chevron Canada Resources Limited
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

T. M. Dougall
Manager
Land Administration Division

1986-04-30



VIA COURIER

Please reply to the attention
of: Mrs. M. I. Ferraris

1985 MacKenzie Plain Seismic Program
No. 9229-C4-1DA (Fort Good Hope Area)
Our File No. 2710-X-1

Mr. D. F. Sherwin
Director General
Resource Evaluation Branch
Canada Oil and Gas Lands Administration
Department of Indian and Northern Affairs
355 River Road
Ottawa, Ontario
K1A 0E4

Dear Sir:

We enclose in triplicate, the Final Technical Report and supporting detail for the above referenced seismic program.

Please sign and return, to the attention of the writer, one copy of the enclosed transmittal slip, acknowledging receipt of this information.

We trust you will find the attached material satisfactory for your requirements.

Yours very truly,

(Mrs) M. I. Ferraris
T. M. DOUGALL

MIF/dew
Attachments

CHEVRON CANADA RESOURCES LIMITED
500 - 5th AVE. S.W. CALGARY, ALBERTA
T2P 0L7

TRANSMITTAL SHEET

TO Canada Oil & Gas Lands Administration DATE 1986-04-29
ADDRESS 355 River Road Ottawa, Ontario K1A 0E4
ATTENTION Mr. Don P. Sherwin SENT BY Mr. Guy Dalorne

LOCATION OF DATA

AREA Fort Good Hope Area TWP. _____ RGE. _____ W. _____

DESCRIPTION OF DATA

Final Geophysical Report - M.W.T. 1985 Fort Good Hope Area (Program Number 0229-CA-1DA)
Enclosures: Shot Point Base Maps (scale: 1:150 000)
Interpreted Migrated Section Line 58Y (Garcaion)
Theoretical Seismogram for ATL COLGAR MANITOU LK 1.61
66 20' 45" N 128 58' 00" W -90° Wavelet
Theoretical Seismogram for ATL COLGAR MANITOU LK 1.61
66 20' 45" N 128 58' 00" W 0° Wavelet
Paper Copies (2) Line 58Y Migrated
Seisic Copy (1) Line 58Y Migrated
Seisic Copy (1) Shot Point Base Map
Film Copy (1) Theoretical Seismogram -90° Wavelet
Film Copy (1) Theoretical Seismogram 0° Wavelet

RECEIVED BY M. M. Lutz DATE MAY 16/86
PLEASE SIGN AND RETURN ONE COPY TO Chevron Canada Resources Limited

500 - 5th Avenue S.W.
Calgary, Alberta T2P 0L7
Attention: Mrs. M.I. Ferraris

PORT GOOD HOPE AREA

PROGRAM NUMBER: 9229-C4-1DA

YEAR: 1985

Filed under same Project Number YES or

(a) WRITTEN REPORTS:

(1) Operations Report Number: 1
-FINAL GEOPHYSICAL REPORT 1985 SEISMIC REFLECTION SURVEY PORT
GOOD HOPE AREA

(2) Interpretation Reports Number:

(b) MAPS:

(1) Shotpoint Maps Number: 1
-SHOT POINT

(2) Interpretation Maps Number:

(3) Other Maps Number: 1
-THEORETICAL SEISMOGRAM (2)
-LINE 58Y

(c) SEISMIC SECTIONS

LINE 58Y

Number: 1

The information in this report is the property of CHEVRON CANADA RESOURCES LTD. and shall not be disclosed or used for any purpose other than that for which it was prepared. All notices or exceptions in this regard are to be sent to:

Chevron Canada Resources Limited
600 Park Avenue S.W.
Calgary, Alberta
T2P 6L7
Attention: General Counsel
Phone: (403) 264-5555

9229-C4-1DA

FINAL GEOPHYSICAL REPORT

1985 REFLECTION SEISMIC SURVEY
IN THE FORT GOOD HOPE AREA, NORTHWEST TERRITORIES
(PROGRAM NUMBER 9229-C4-1DA)

IDA McManus

Canada 100 and 101 Administration Administration des affaires des Indes
MAY 16 1986
Geological Survey of Canada Bureau de l'Exploration des Ressources
Project #

REPORT SUBMITTED BY CHEVRON CANADA RESOURCES LTD.

SEISMIC SURVEY CONTRACTED TO SIGMA EXPLORATIONS LTD.

BRANCH

GUY DELORME
PROJECT GEOPHYSICIST
APRIL 1986.

G. Delorme

*Revised under
supervision of
W. H. Smith
Div. Geophysics*

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
LOCALITY MAP	2
STATISTICAL SUMMARY	3
DATA ACQUISITION AND FIELD PROCEDURES	4
DATA PROCESSING FLOW	5
DATA INTERPRETATION	6

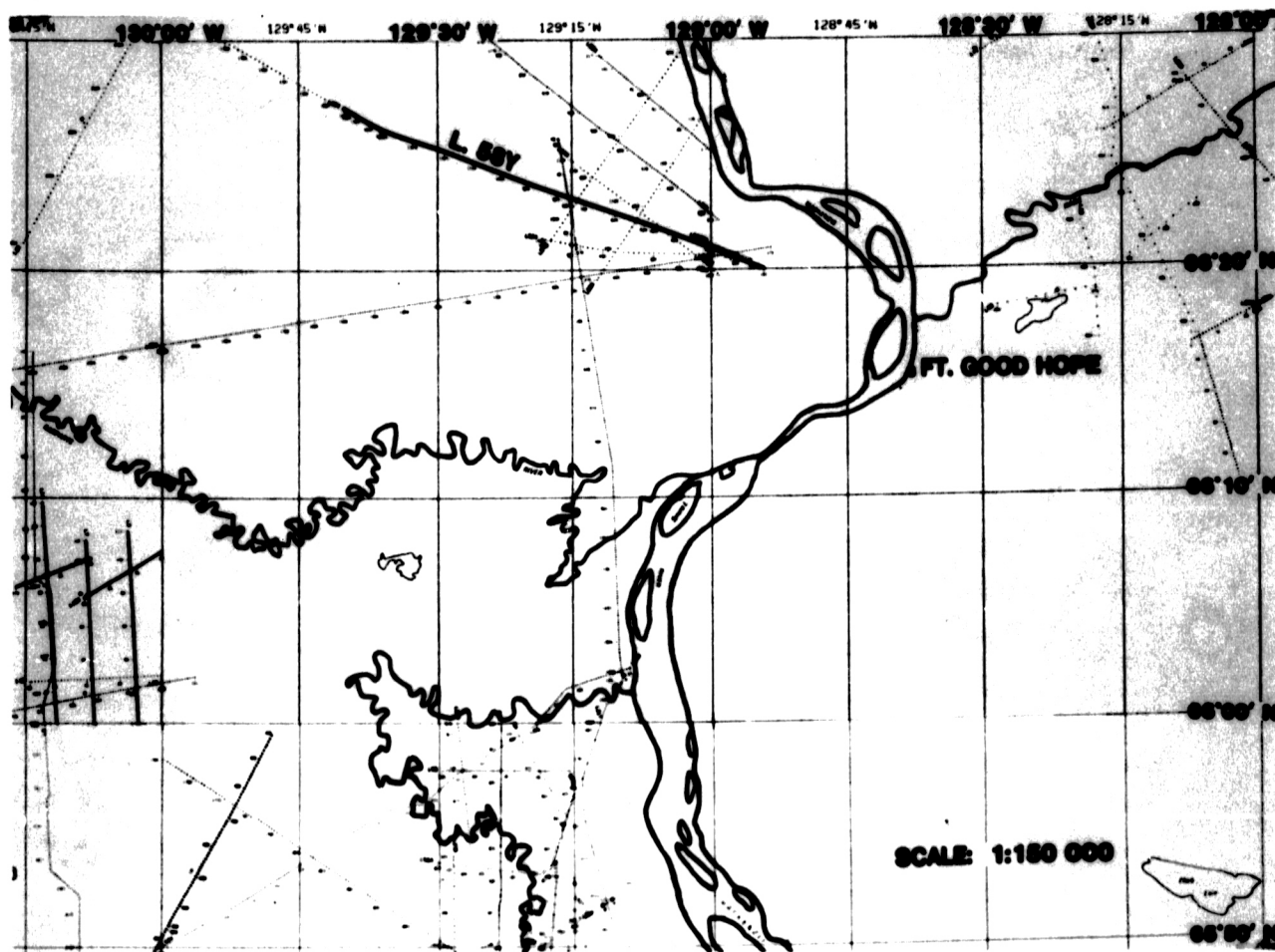
ENCLOSURES

SHOT POINT BASE MAPS
MIGRATED SEISMIC SECTION WITH REEF INTERPRETATION
SYNTHETIC SEISMOGRAM FROM THE ATLANTIC COLCAR MANITOU LAKE L-61 WELL
(66° 20' 45" N, 128° 38' 00" W)

INTRODUCTION

During the 1985 winter season, a 37 km long seismic reflection line was recorded by Sigma Explorations Ltd. for Chevron Canada Resources Ltd. The line was shot through the Atlantic Colcar Manitou Lake L-61 well location (66° 20' 45" N, 128° 20' 45" W). That well penetrated a Middle Devonian Manitou Lake reef.

The line was acquired for two reasons: firstly, as a calibration line that would show how well one could image a reef as shallow (350') as this Manitou Lake reef, and secondly, to locate other possible Manitou Lake reefs.



STATISTICAL SUMMARY

PRODUCTION DATA

Line 58Y, Stations 101 to 1569: 36.65 km.

'Cat' work: March 11 - 13

Drilling: March 12 - 14

Recording: March 13 - 15

PERSONNEL

All Canadian:	Resident	Non-Resident
Recording Crew:	28	17
Survey Crew:		5
Camp Personnel:		5
Cat Crew		9
Drill Crew	—	<u>17</u>
	28	53

DATA ACQUISITION AND FIELD PROCEDURES

SURVEY

Horizontal and vertical control: Wild theodolite
Distances: E.D.M.

RECORDING

Instrumentation:	DFS V, 120 channels
Gain Mode:	I.F.P.
Field Filter:	12-128 Hz, notch out
Geophones:	Mark L-25, 10 Hz
Geophone Layout	9 over 25 metres
Source:	Dynamite, 2 x 1 kg at 9 metres
Source Array	2 holes 25 m on either side of shot point flag.
 Spread:	 1500 m-25 m-shotpoint-25 m-1500 m
 Shot Interval:	 100 m
Group Interval:	25 m
Record Length:	4 sec.
Sample Rate:	2 msec.

DATA PROCESSING FLOW

Gain (Spherical Divergence and Exponential Gain)
Instrument Dephase Filter (replaces the filtering effect of the instruments
by a standard filter).
Spiking Deconvolution
Datum Correction (Floating Datum)
Amplitude Adjustment
Velocity Analysis using Constant Velocity Stacks
Normal Moveout Correction
Residual Statics Correction
Stack
Band Pass Filter
Migration
Datum Correction (to a 400 metres datum)

The key processing parameters are shown on the section label.

DATA INTERPRETATION

A synthetic seismogram was constructed using the Atlantic Colcar Manitou Lake L-61 well sonic log (66° 20' 45" N, 128° 58' 00" W).

Line 58Y ties the well at shotpoint number 229. Because the top of the reef is shallower than the base of the surface casing in the L-61 well, it was necessary to synthesize the upper part of the sonic log. This was done with the help of the strat. log.

Note that the two strong reflectors predicted by the synthetic seismogram at the top of the Mahanni and at the top of the Landry are not visible on the seismic line. This is because the zone below the top of the reef reflection is badly contaminated with surface multiples (bouncing off the top of the reef and then off the ground surface). These multiples are expected with a high velocity carbonate so close to surface.

The high quality of the top of reef reflection on Line 58Y shows that these shallow Manitou Lake reefs are readily detected on seismic reflection data. Moreover, the quality of the Mahanni platform reflection (platform on which the Manitou Lake reefs grow) suggests that lower stage build-ups, hopefully not breached by the pre-Cretaceous unconformity, would also be easily detected.