

SEISMOGRAPH REPORT ON THE PEEL
RIVER AREA, YUKON TERRITORY,
1970 - 71, TO THE GOVERNMENT OF
CANADA.

37-6-6-109

Ott.

Shell Canada Limited,
Frontier Division Onshore Explor-
ation,
Calgary, Alberta. August 1971

SEISMOGRAPH REPORT ON THE PEEL RIVER AREA,
YUKON TERRITORY, 1970-71
TO THE
GOVERNMENT OF CANADA

To accompany Statement of Expenditures
for work conducted during the June 30,
1970 to June 30, 1971 period.



77-1
SHELL CANADA LIMITED
FRONTIER DIVISION EXPLORATION
CALGARY, ALBERTA

AUGUST 1971

CONTENTS

SECTION	PAGE
I. INTRODUCTION	1
II. HISTORY OF PERMITS	1
III. SEISMIC WORK PERFORMED	1
IV. STATISTICAL DATA	1
1. Dates	1
2. Production	1
3. Equipment	2
4. Personnel	2
5. Surveying	3
6. Conditions	3
7. Communications and Transportation	3
V. FIELD PROCEDURES	3
VI. PROCESSING	4
VII. INTERPRETATION	4

FIGURES:

1. Location Plat

ENCLOSURES:

1. Surface Elevation
2. Top Paleozoic Carbonates Time Structure
3. Cambrian/Precambrian Time Structure
4. Top Pal. Carbonates - Camb./Precambrian Isotime
5. Temperature - Production Chart

I. INTRODUCTION

This report is submitted in compliance with the Canada Oil and Gas Regulations on Group No. 181, located in the Peel Area of the Yukon Territory between 67°30' and 68°00' North latitude and 134°30' and 135°30' West longitude.

II. HISTORY OF PERMITS

Permit Nos. 3493, 3494, 3497, 3498, 3611, 3612, 3615, 3616, and 3617 were acquired by Shell on October 10, 1963 for work bonus commitment.

The above permits totalling 278,793 acres are all contained in Group 181.

III. SEISMIC WORK PERFORMED

A seismic survey was carried out by United Geophysical Company Party 2 under contract to Shell Canada Limited. About 66 miles of 600% and some 1200% data of good quality were recorded.

IV. STATISTICAL DATA

1. Dates: The opening of old seismic lines for access from the Glacier Area to the Peel Area started on December 28, 1970. At this time the construction of an ice bridge over the Peel River was started. Camp and equipment move began January 7, 1971 and the crew arrived on first location January 13, 1971. Recording started January 14 and was completed February 8, 1971.

2. Production:

Miles surveyed	--	65.97
Number of shots	--	922
Number of Profiles	--	917
Average Daily Production	--	2.4 miles (This figure includes six days standby waiting on drills.)

Breakdown of Days:

Experimental	--	1/2
Recorder failure	--	none
Production Recording	--	19 1/2
Days moving camp	--	7
Days waiting on drills	--	6
No weather days lost.		

3. Equipment:

Aircraft: F-27 schedule between Edmonton and Inuvik,
Twin Otter and Dornier for camp support.

Geophysical

Vehicles: 7 3/4 ton pick-up truck equipped with four
wheel drive and winches.
5 shot hole drills equipped with air compressors.
2 3/4 ton shift change pick-ups.

Bulldozers: 4 DC6 caterpillar tractors complete with
dozers, winches and two complete sleigh
mounted camps for the personnel.

Camp: 9 wheel mounted commercial trailers which
were converted to sleigh mounted during winter.

Supply

Vehicles: 1 3 ton truck with winch
2 fuel tanker trucks

Recording

Unit: 1 24 channel S.I.E. PT 100

Seismometer: Geospace HSJ LI 14 HZ

4. Personnel:

Geophysical Party:

1 Party Supervisor	1 Shooter's Helper
1 Observer	6 Recording Helpers
1 Jr. Observer	1 Mechanic
2 Surveyors	1 Mechanic's Helper
2 Rodmen	1 Computer
1 Shooter	

Office Staff:

United: Nil

Shell: 2 Geophysicists
2 Computers

Drill Personnel: 1 Supervisor
5 Drillers
5 Drill Helpers

Bulldozing Personnel: 1 Supervisor
2 Foremen
8 Machine Operators
2 Cooks

Camp Staff: 1 Cook
1 Cook's Helper
1 Camp Attendant

5. Surveying:

Three geodetic triangulation points were used for survey control.

6. Conditions:

Cold weather did not cause any appreciable operational difficulties. Please refer to Encl. No. 5, a chart of daily temperatures versus daily shot production. A large snowfall over the winter caused some slowdown of production.

7. Communications and Transportation:

Transportation of personnel and supplies was provided by Shell Fairchild F-27 aircraft between Edmonton and Inuvik, and by Shell Twin Otter and Shell Dornier between Inuvik and the camp.

Communications links were set up as follows:

- (1) Shell Inuvik Base Camp to Edmonton Office:
Single Side Band (SSB), Telex and Telephone
- (2) Shell Inuvik Base Camp to Camp Peel SSB:
The SSB in Peel camp could also be used to contact Edmonton office.
- (3) Radio communication between Shell aircraft and Shell Inuvik Base Camp and Peel Camp.
- (4) In the field: Radio communication between field office, recorder, shooter and geophone trucks.

V. FIELD PROCEDURES

Data were recorded using a roll-along enders, with a station interval of 220'. The near station was at 220' from the shotpoint and the far one at 5,500'. Per station 9 geophones Geospace HSJ L1 14 HZ at 30' interval were used.

The shotpoint interval was 440' to produce six-fold subsurface coverage, the exception to this was on lines 2-157 and 2-158, where the shotpoint interval was 220' to result in a twelve-fold subsurface coverage.

The shot holes were drilled with airdrills and the drill chips used for hole tamping. Fifty pounds of dynamite at 50' top were used.

One 24 channel SIE PT-100 instrument was used and the data recorded on FM tapes and monitor records produced through an electrostatic camera.

VI. PROCESSING

All the data acquired in this prospect were processed entirely through Shell's own processing facilities.

The FM-field tapes were digitized. A special computer program was then run for derivation of static corrections using a datum of 1,000' A.S.L. with a correction velocity of 10,000'/s. Dynamic corrections were derived through a computer program designed for multitrace common subsurface input. This program was supplemented by NMO studies on monitor records and inspection of sonic and density logs of nearby wells. The total corrections were finally applied to the sorted traces and composited to a 600 % stack. Where necessary filtering was applied. After a D/A conversion the data were played out in VAR sections, which formed the base of our interpretation.

VII. INTERPRETATION

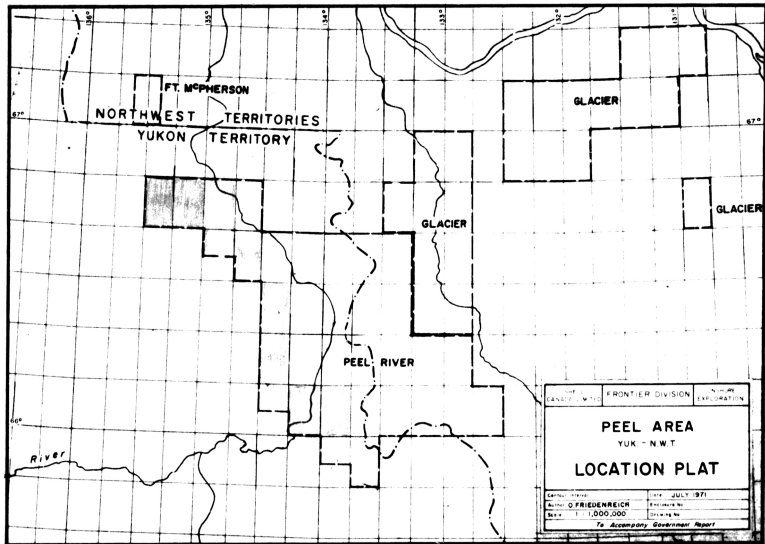
Two seismic events (Top Paleozoic carbonates and Cambrian/Precambrian) were correlated in this area. The quality of these reflections is good.

Maps submitted with this report include:

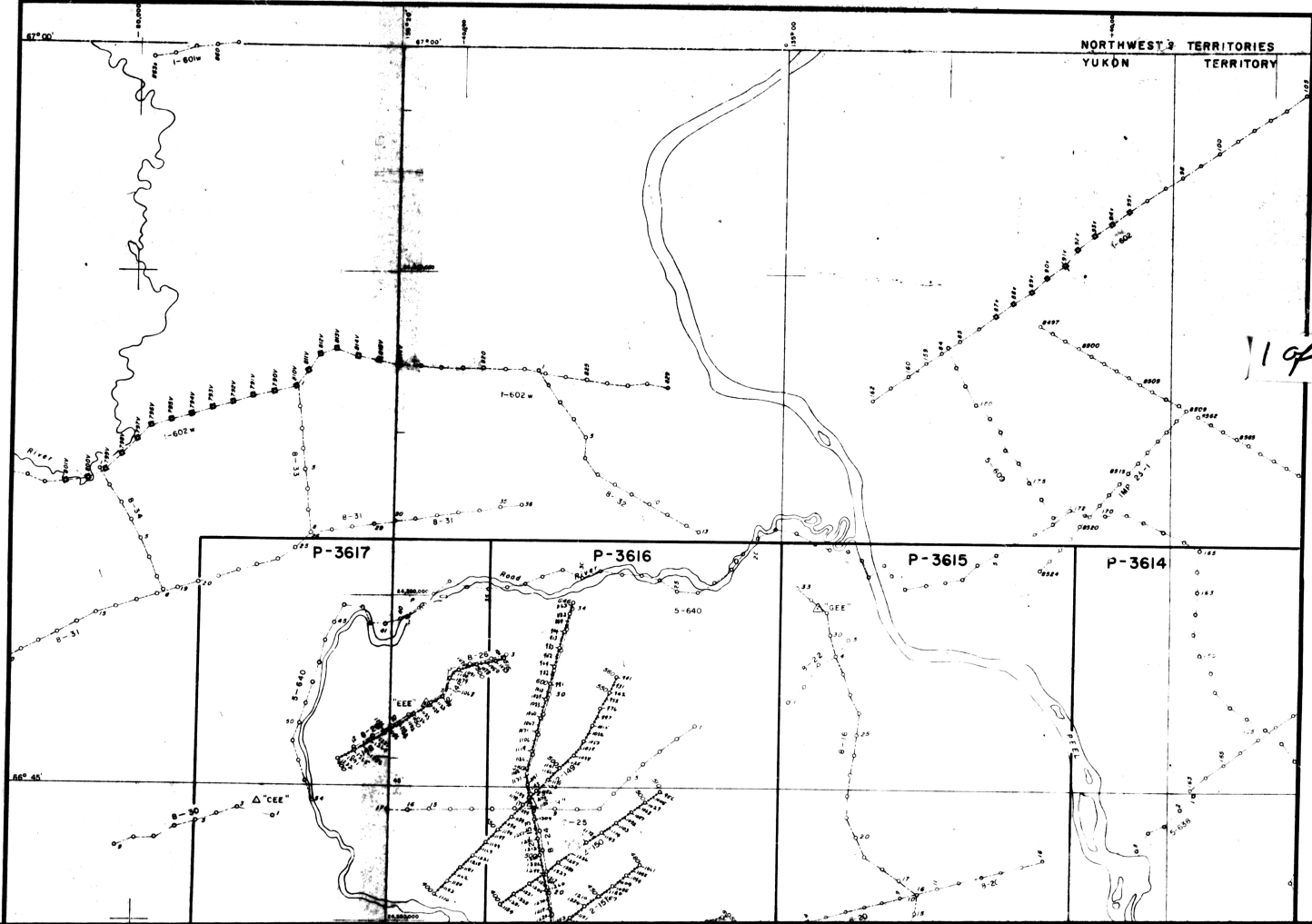
- (1) Surface Elevation
- (2) Top Paleozoic Carbonates Time Structure
- (3) Cambrian/Precambrian Time Structure
- (4) Top Paleozoic Carb. - Camb./Precamb. Isotime.

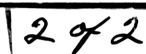
On these horizons an Northeast-southwest dip and a strike in an approximate North-northwest South-southeast direction are apparent.

A Top Paleozoic Carbonate time of 1.6 sec corresponds to a depth of -8,800' (B.S.L.) and a Cambrian/Precambrian time of 2.4 sec to a depth of -16,800' (B.S.L.). An isotime of .7 sec is equivalent of a thickness of about 7,000'.

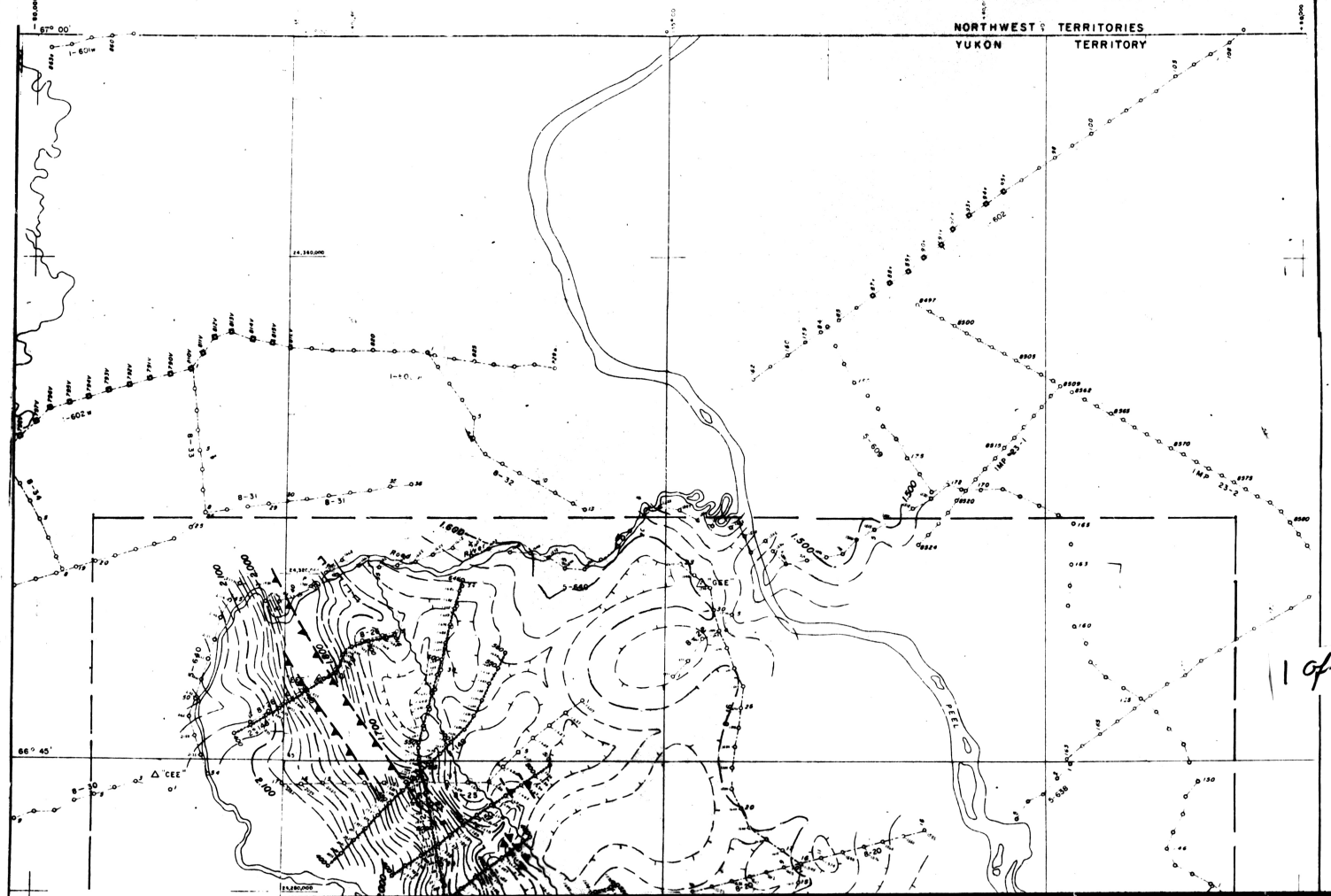


Prepared by Frontier Division Onshore
Exploration -- Northwest Territories
Operations, under the supervision of
R. S. Mahannah, Manager, Frontier
Division Onshore Exploration, Shell
Canada Limited, August, 1971.

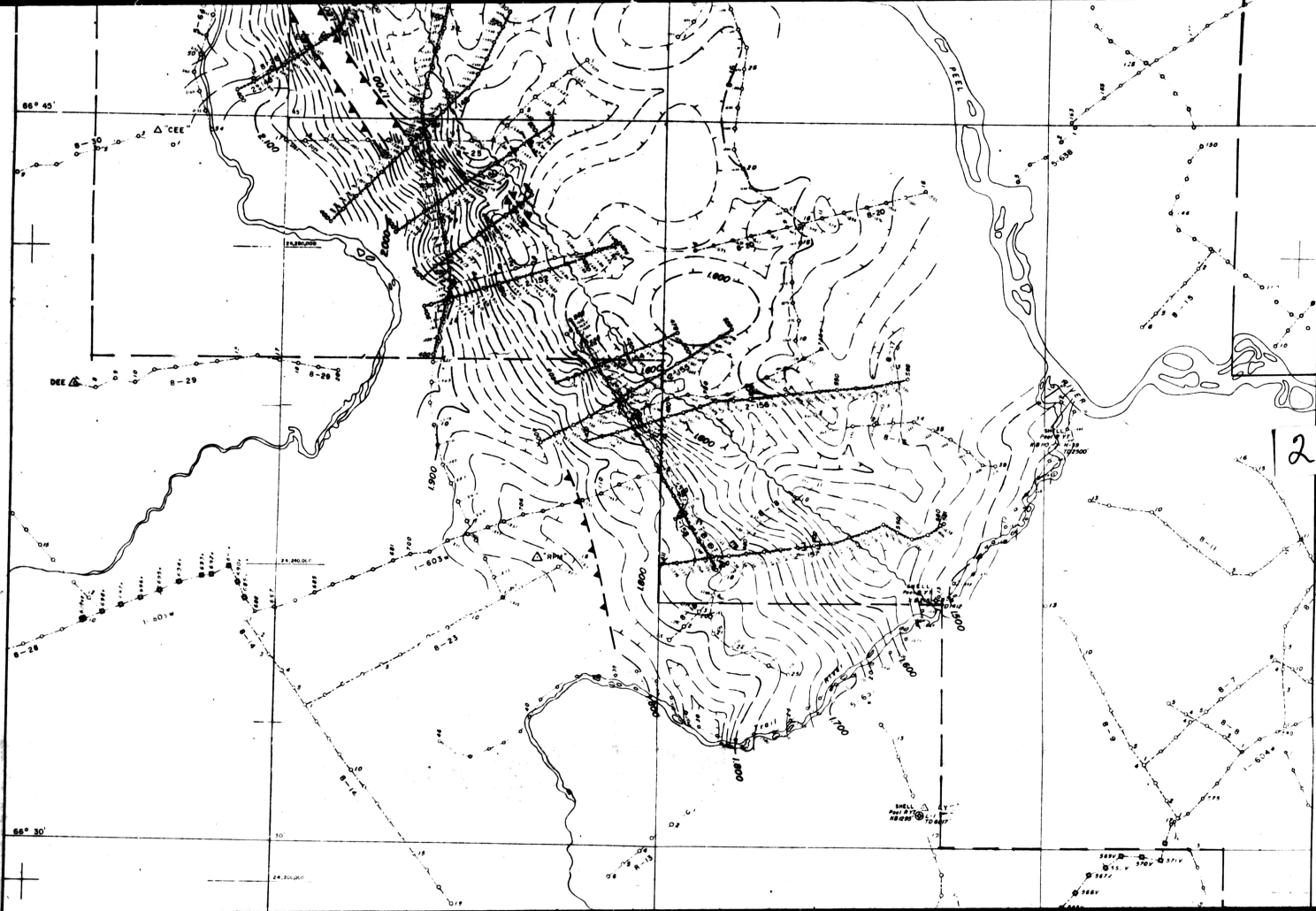




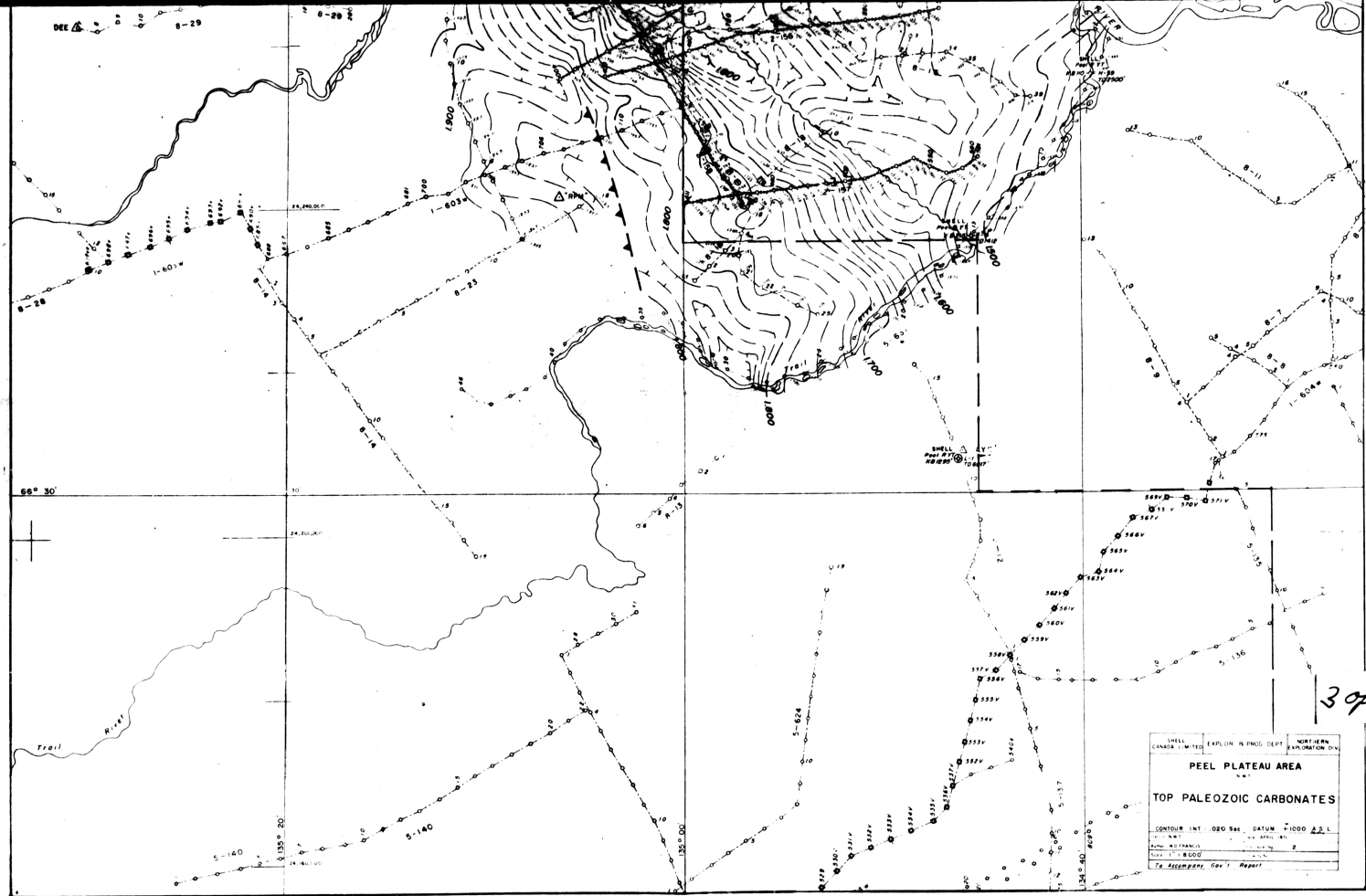
569V 570V

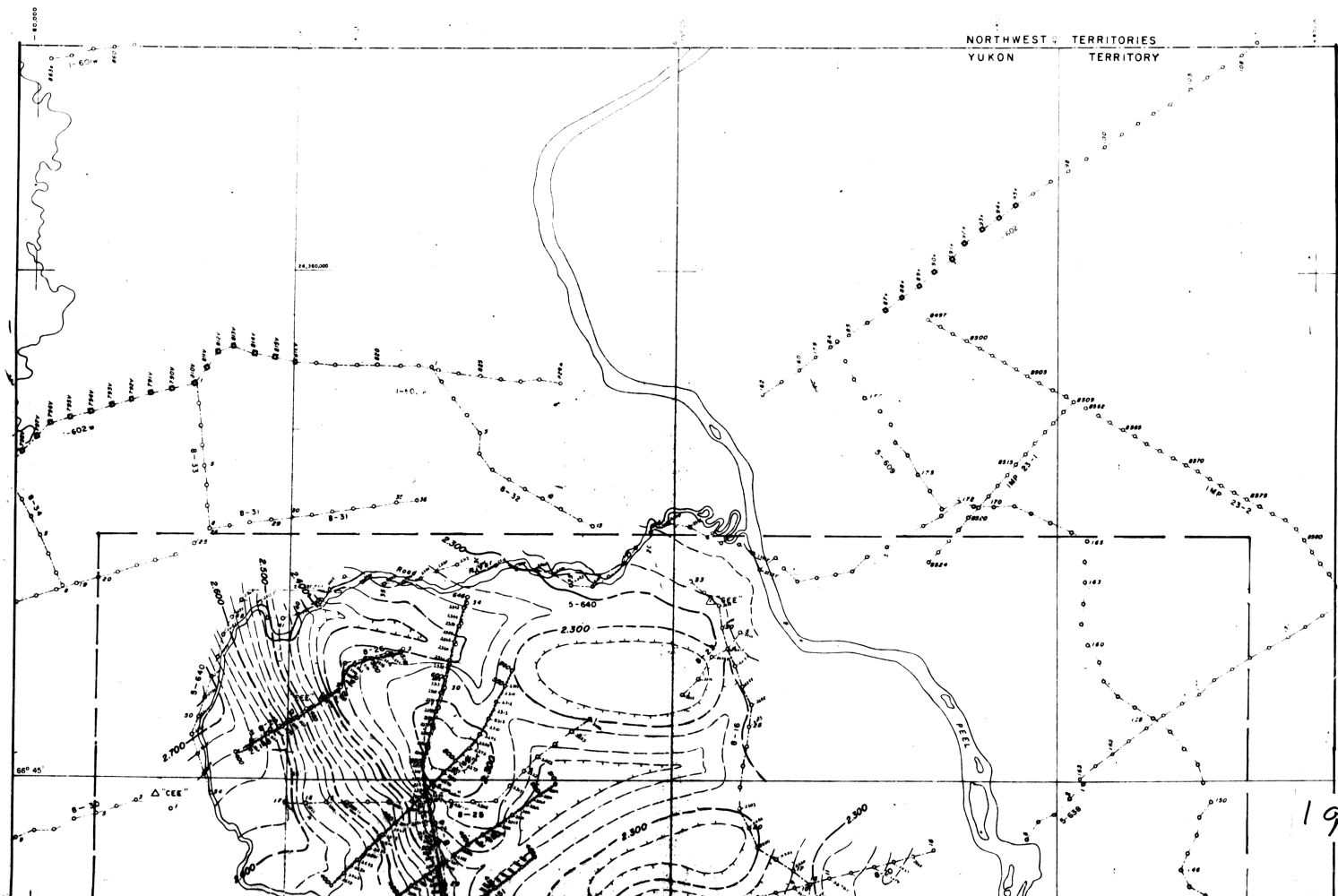


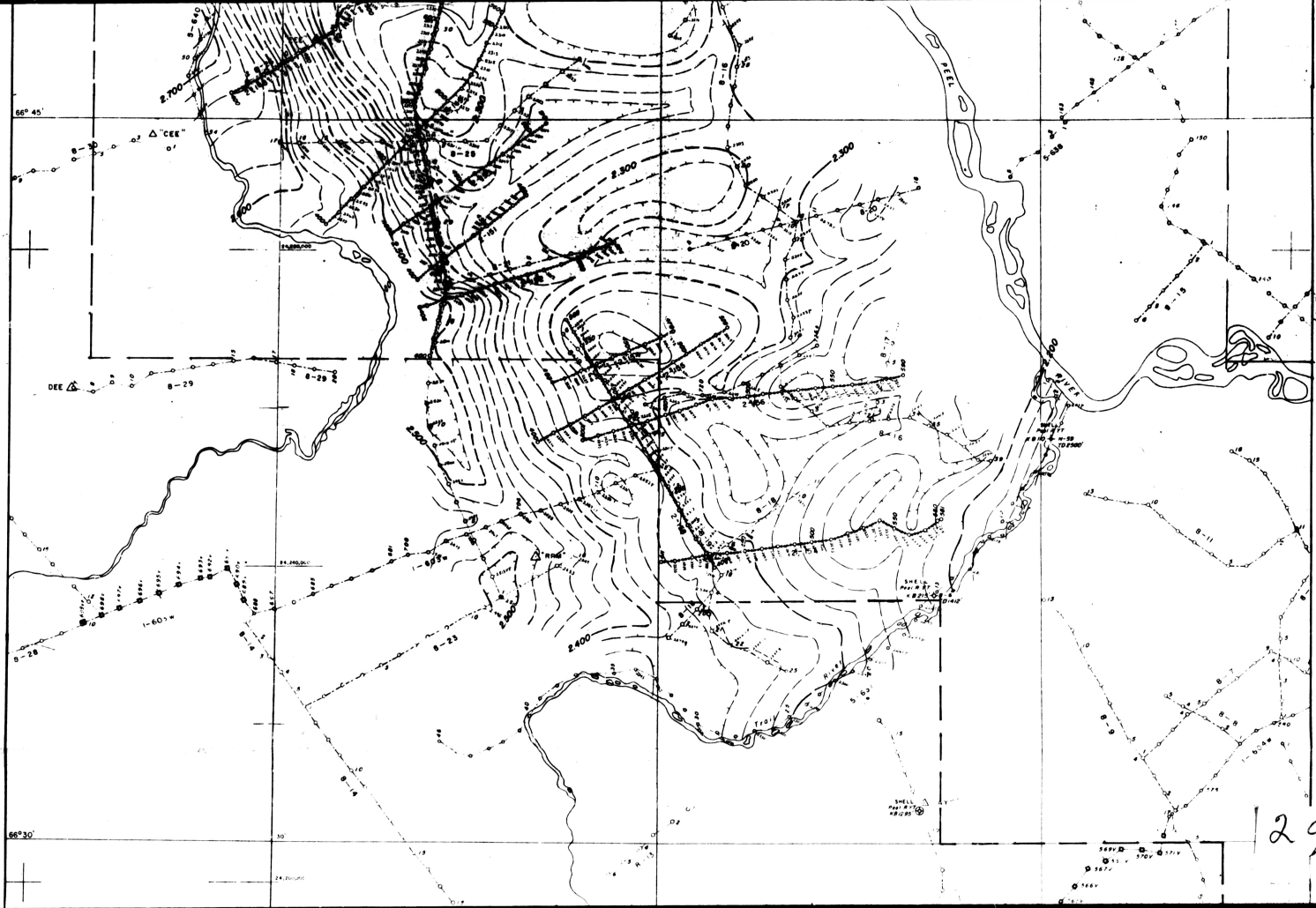
1 of

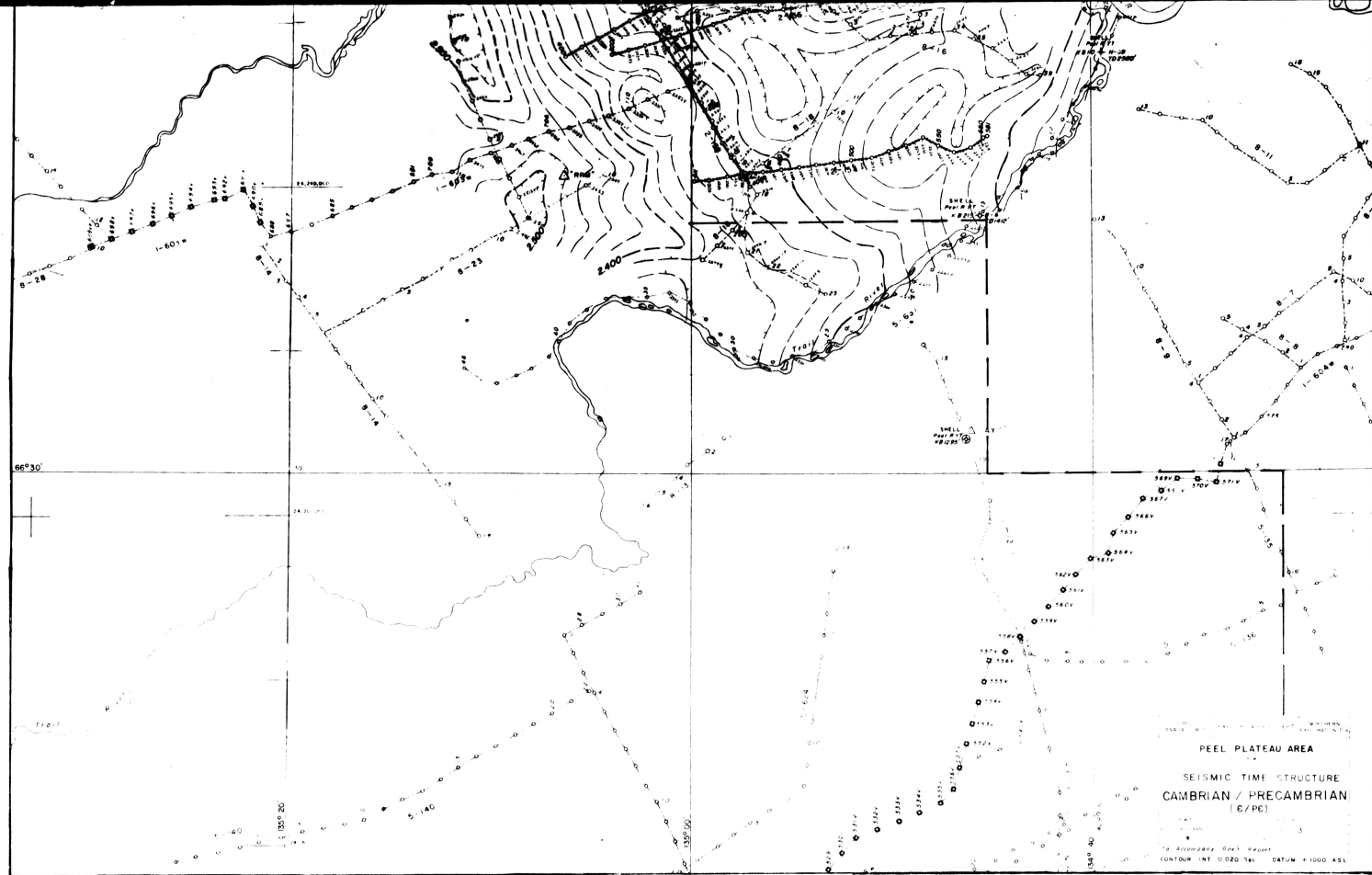


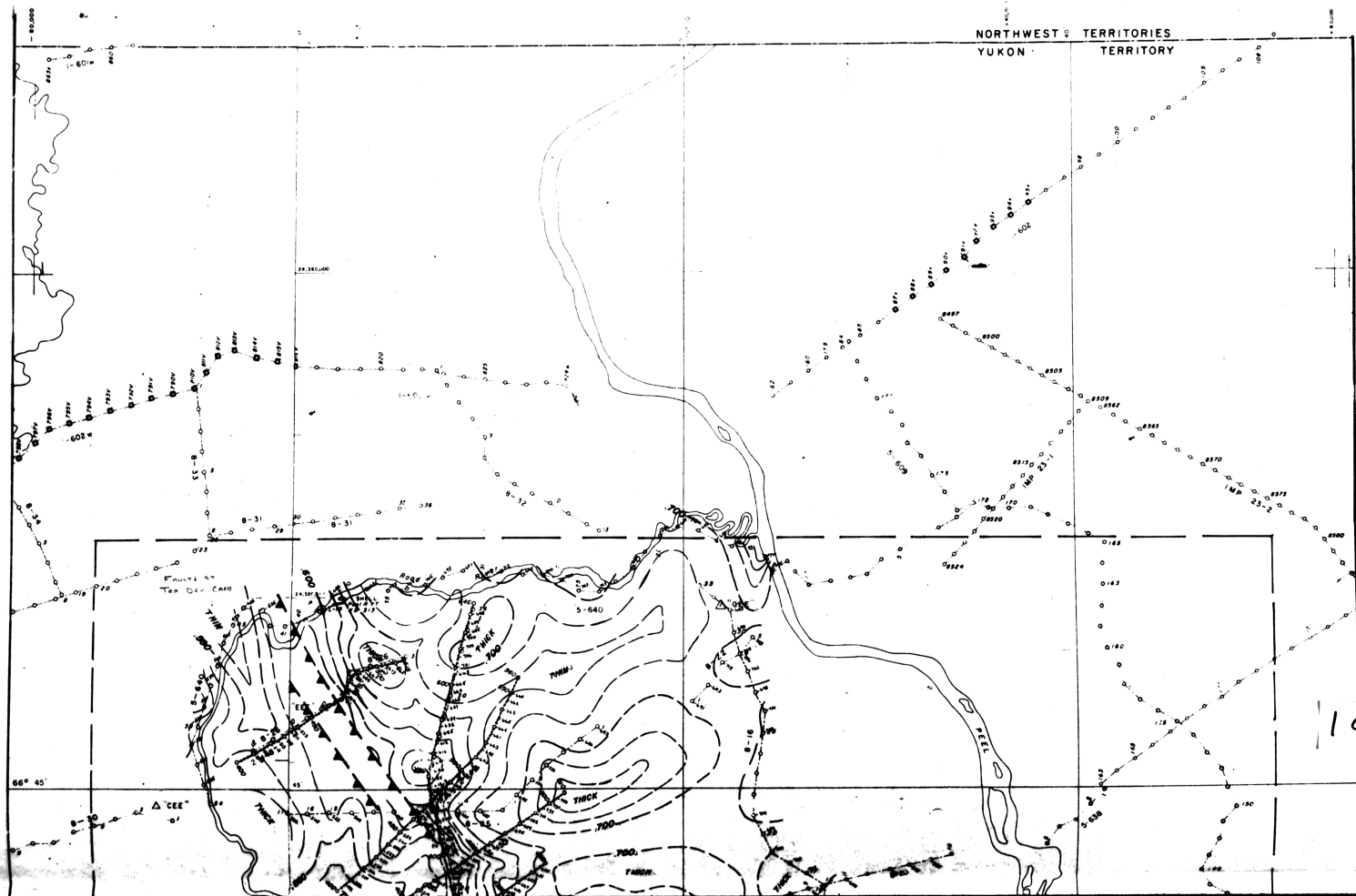
2 of

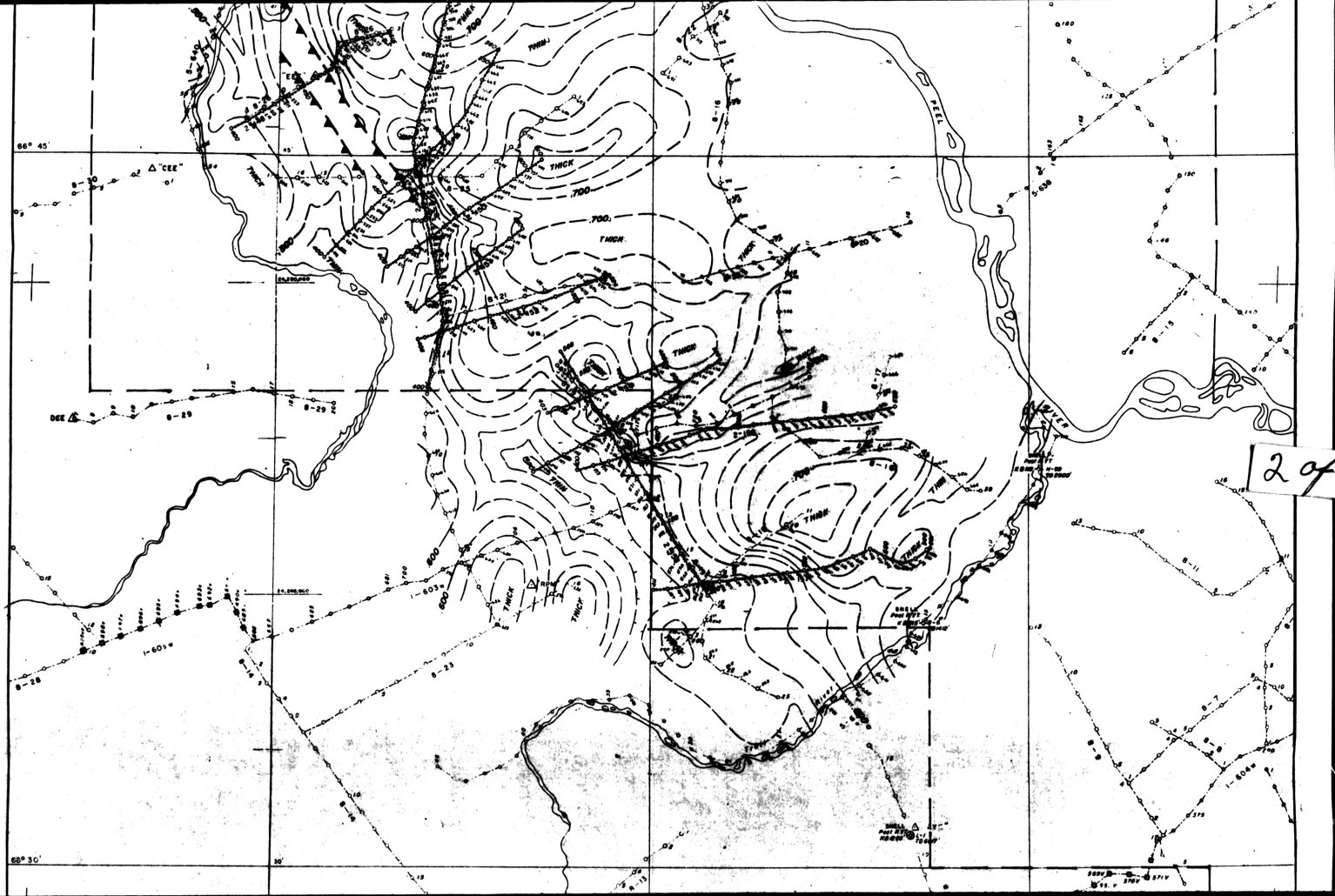


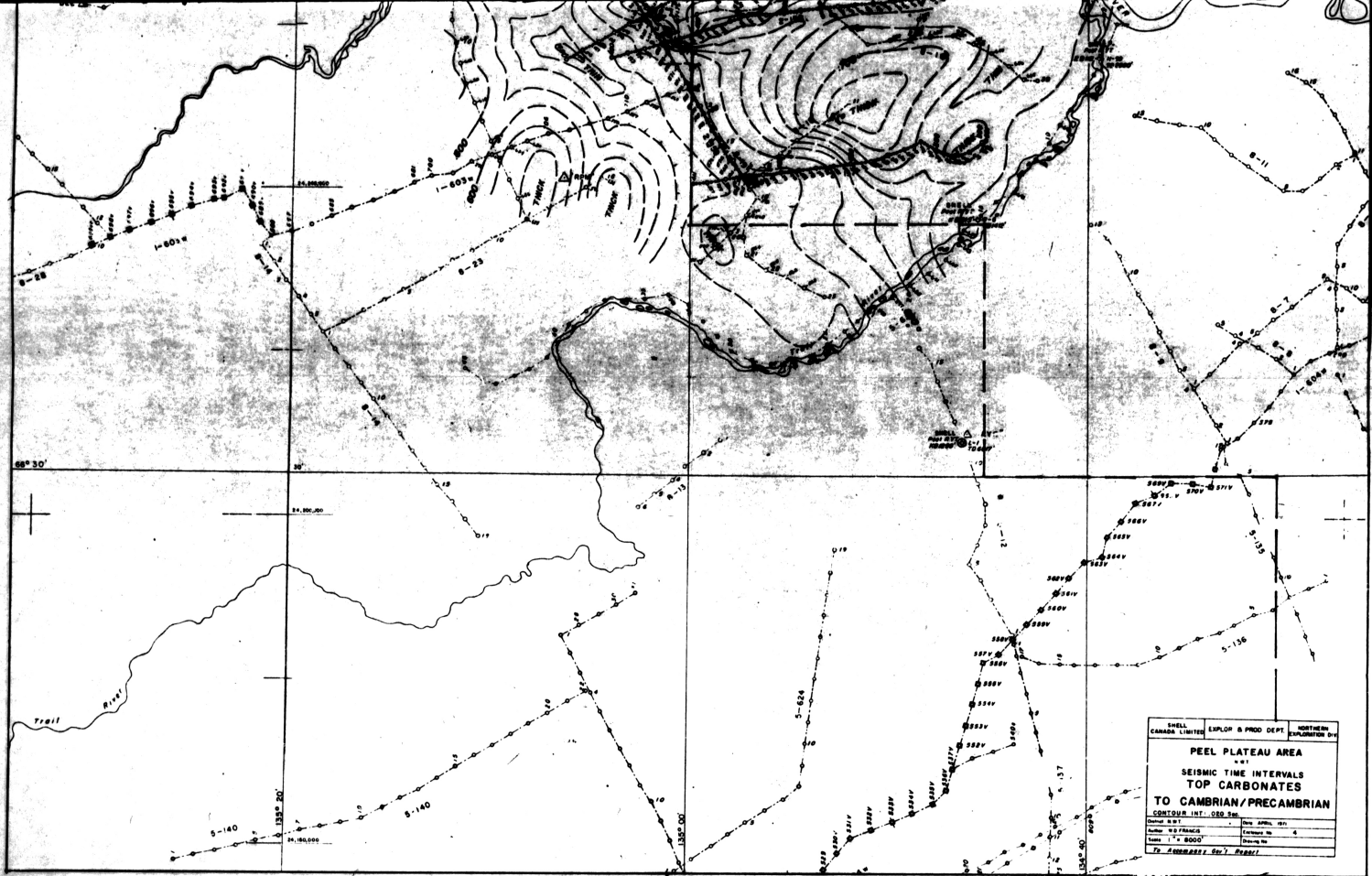








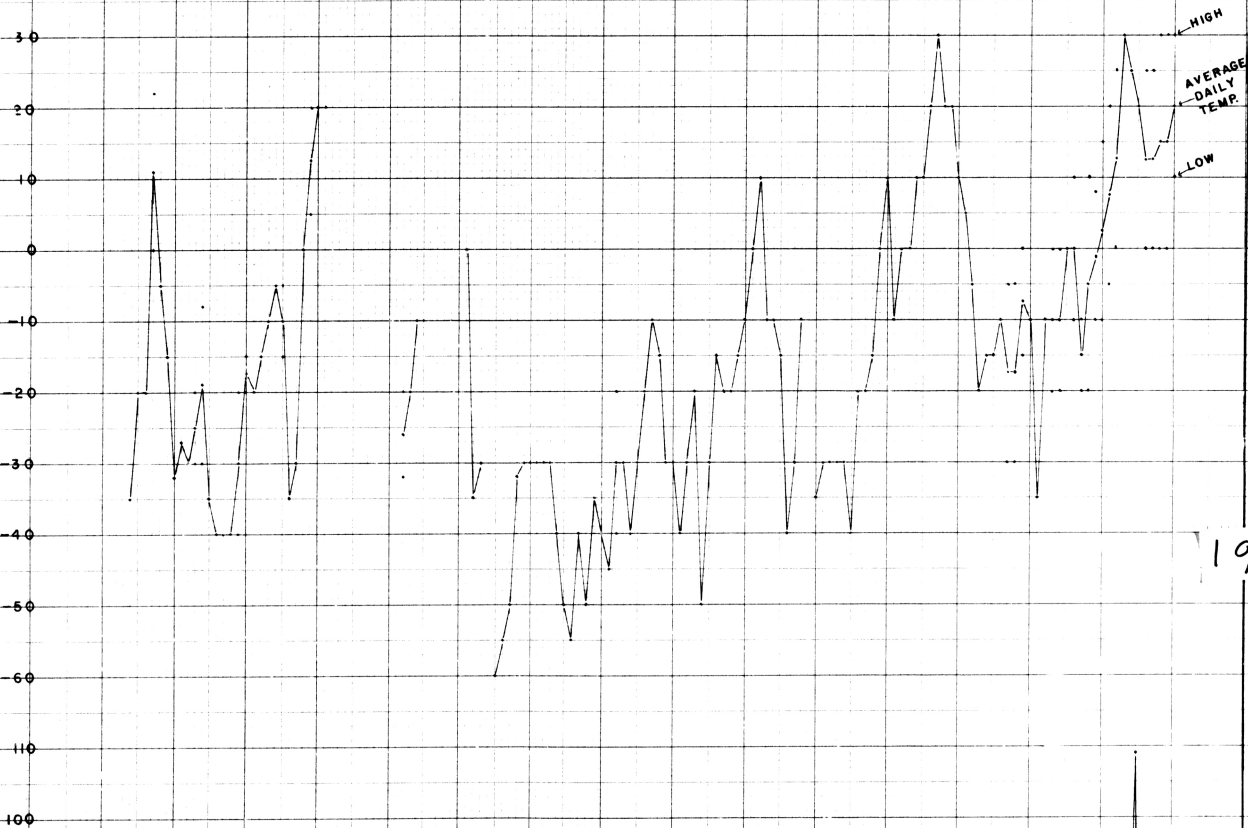




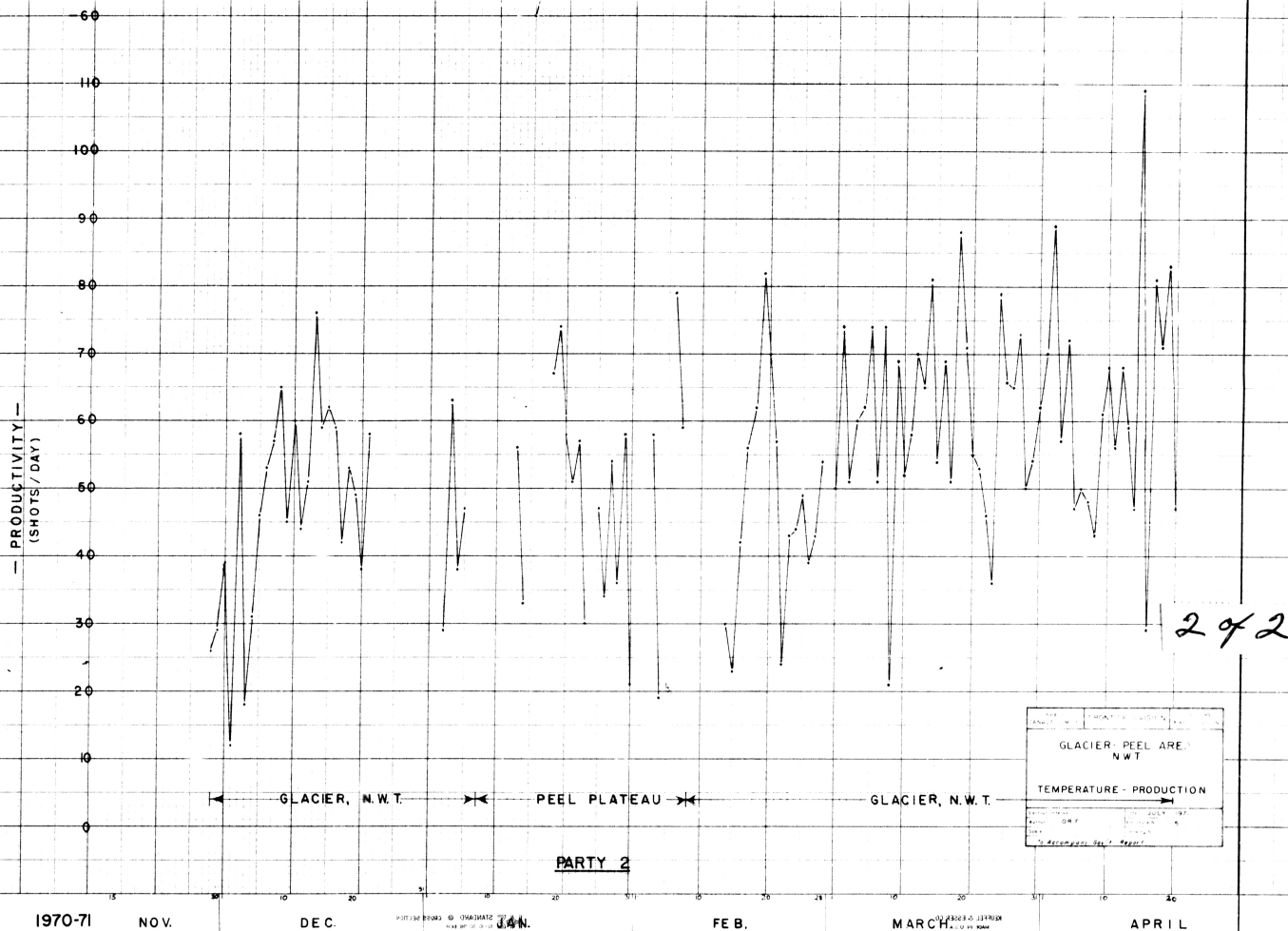
SHELL		EXPLORE & PROD. DEPT.		NORTHWESTERN	
CANADA LIMITED				EXPLORATION DIV.	
PEEL PLATEAU AREA					
SEISMIC TIME INTERVALS					
TOP CARBONATES					
CAMBRIAN/PRECAMBRIAN					
CONTOUR INT. 500'					
Date: 11/1/60		Drawn: 11/1/60		Checked: 11/1/60	
By: 11/1/60		By: 11/1/60		By: 11/1/60	
To: 11/1/60		To: 11/1/60		To: 11/1/60	

— TEMPERATURE — (°F)

50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100



1 of



2 of 2