

60-6-4-72

Abstracted for  
Geo-Science Data Index

Date \_\_\_\_\_

REPORT OF GEOPHYSICAL AND SEISMOGRAPH  
REFLECTION SURVEY

On and off Federal Permits 4600, 4601 and 3876  
Cameron Hills Area, N.W.T.  
National Topographic Grid 85-C-4, 85-C-5 and  
85-D-1

During April and May, 1968

Prepared By: C. W. Allison  
Exploration Group Supervisor

September 25, 1968

Copy #1  
MAPS ENCLOSED

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rapes.*

REPORT OF GEOPHYSICAL SURVEY

REPORT OF SEISMOGRAPH REFLECTION SURVEY

Conducted by

Northern Geophysical Limited

for

Pan American Petroleum Corporation

During April and May, 1968

On and off Federal Permits 4600, 4601 and 3876  
Cameron Hills Area, N.W.T.  
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C. W. Allison

Exploration Group Supervisor

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Submitted in support of application for credit; see affidavit  
made by \_\_\_\_\_ of \_\_\_\_\_ and in accordance with work obli-  
gations under Section 54(F) of the Territorial Lands Act.

Previous reports submitted by Pan American Petroleum Corporation  
covering the same National Topographic Grid 85-C are dated July  
14, 1967, August 30, 1967 and December 27, 1967.

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| Structure Contour Map.....             | " "              |

## TEXT

### INTRODUCTION

During the months of April and May, 1968 a seismograph reflection survey was conducted in the Cameron Hills Area on and off N.W.T. Permits 4600, 4601 and 3876 by Northern Geophysical Ltd. for Pan American Petroleum Corporation.

Northern Geophysical Party #4 spent 30 calendar days working on seismic lines cut and cleared at the same time as the seismic work was being done. The crew was under the supervision of J. Trotter.

Pan American's interpretative staff located in Calgary spent a total of 120 days on the project. The interpretation was carried on simultaneously with the field work and was completed in September, 1968.

No personnel other than those of the field crew and of the interpretative staff worked directly on this project.

Conventional track mounted recording equipment, consisting of a recorder plus three vibrator units and one cable unit, was used on the operation. The portable camp consisted of three expandable trailer units mounted on tracks, a power-workshop, and a correlator trailer.

The proposed program was not completed due to operational problems encountered because of spring break up. The program lines not completed were dozed.



## SEISMIC TECHNIQUE

The "vibrator" energy source at each shot point consisted of three vibrators positioned inline with 110' separation and each moving a total of 110 feet in 20 sweeps. The pilot signal transmitted into the ground was a 7 to 28 cps sweep lasting 7 seconds. This was decided upon through a test program.

The area was shot with 600% multifold coverage using a spread layout as shown on the enclosed spread diagram.

All data was recorded on Techno type magnetic analogue tapes using Applied Magnetic Amplifiers. The data was correlated using an analogue system at the field camp location.

The reflection method was used to obtain the subsurface data throughout the area.

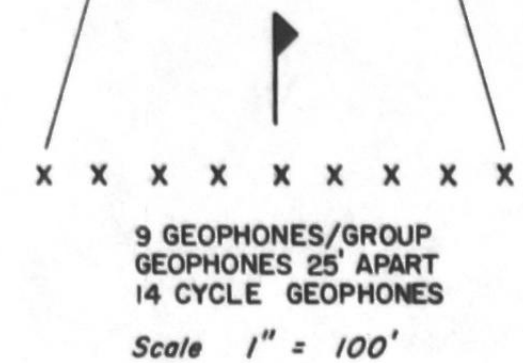
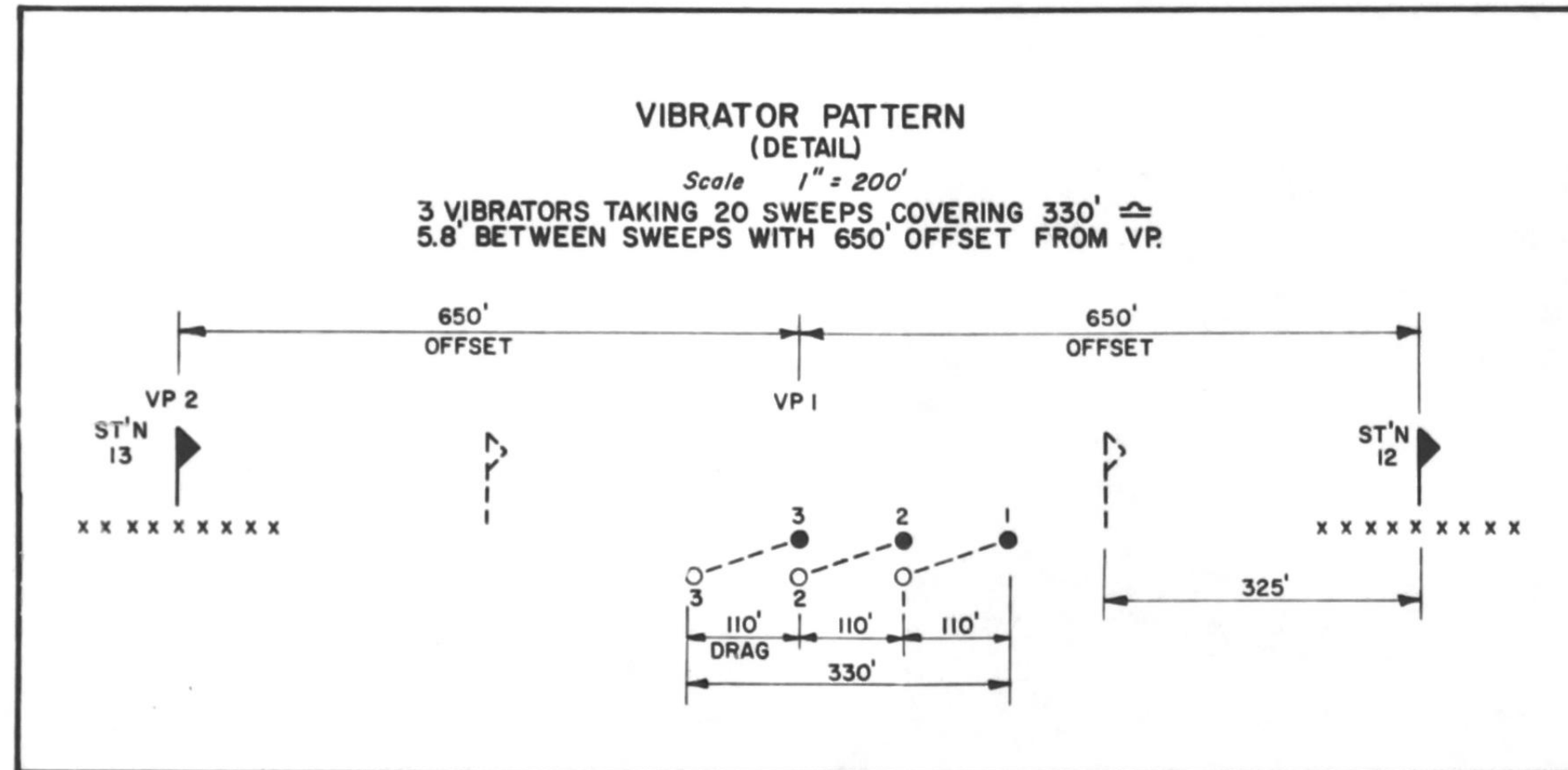
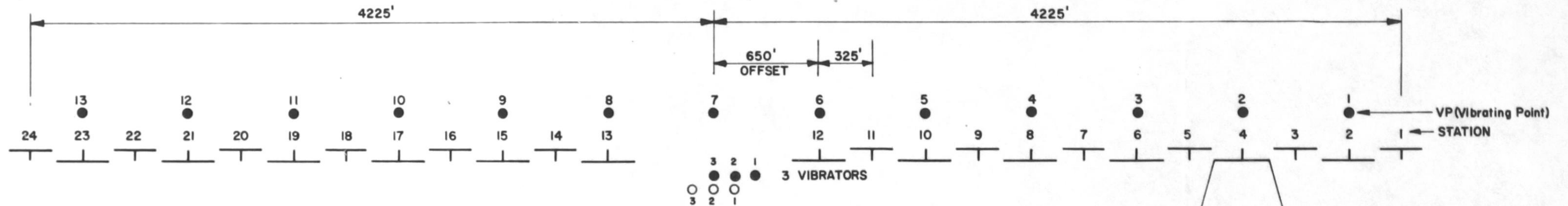
The data that appears on the subsurface map are vertical two-way times between an arbitrary reference plane and the particular horizon mapped.

Respectfully submitted,

PAN AMERICAN PETROLEUM CORPORATION

By: C. W. Allison  
Exploration Group Supervisor

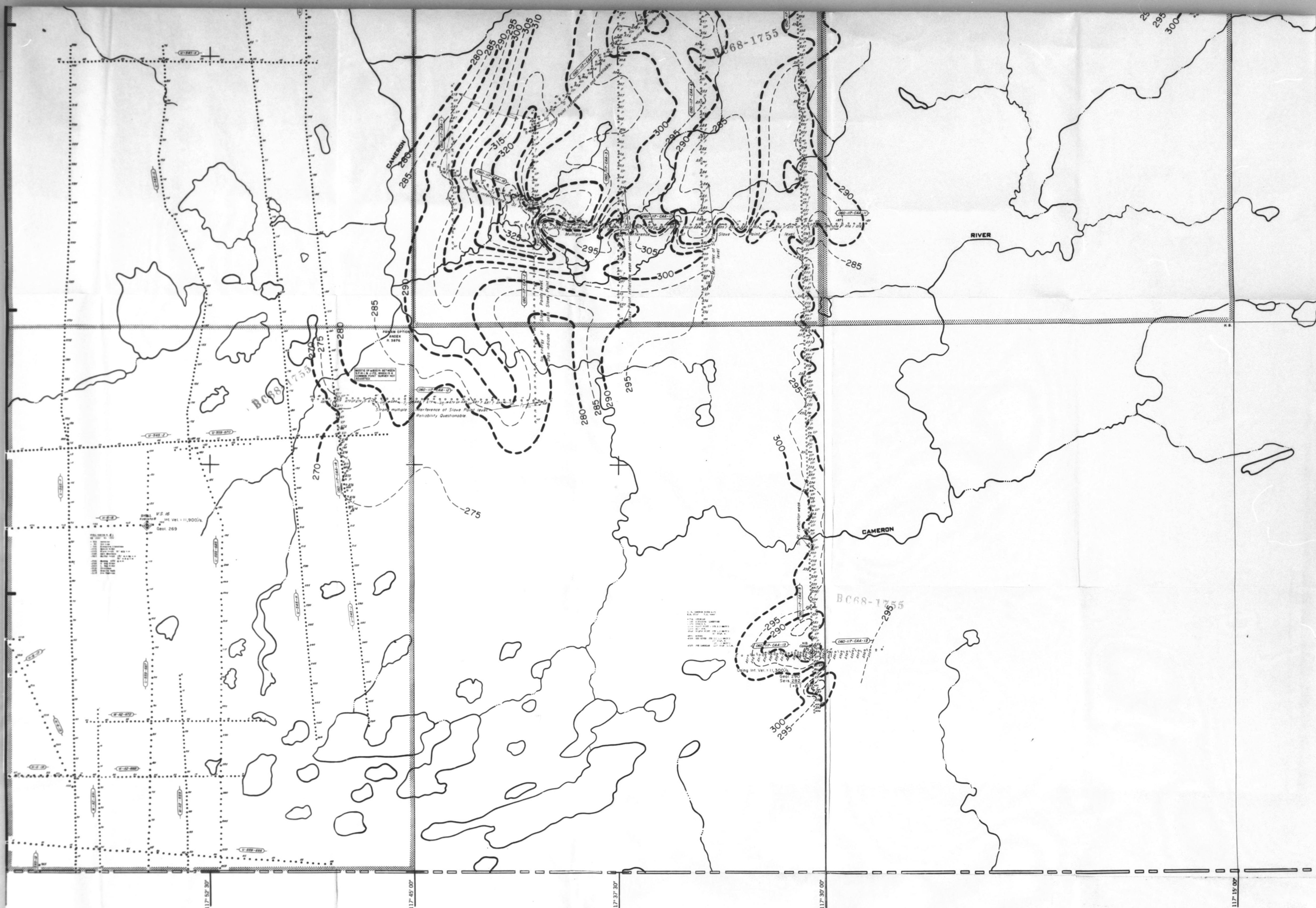
**CAMERON HILLS**  
**NORTHERN-4 VIBROSEIS**  
**SPRING OF 1968**  
**600% SYMMETRICAL SPREADS**  
*Scale 1" = 650'*





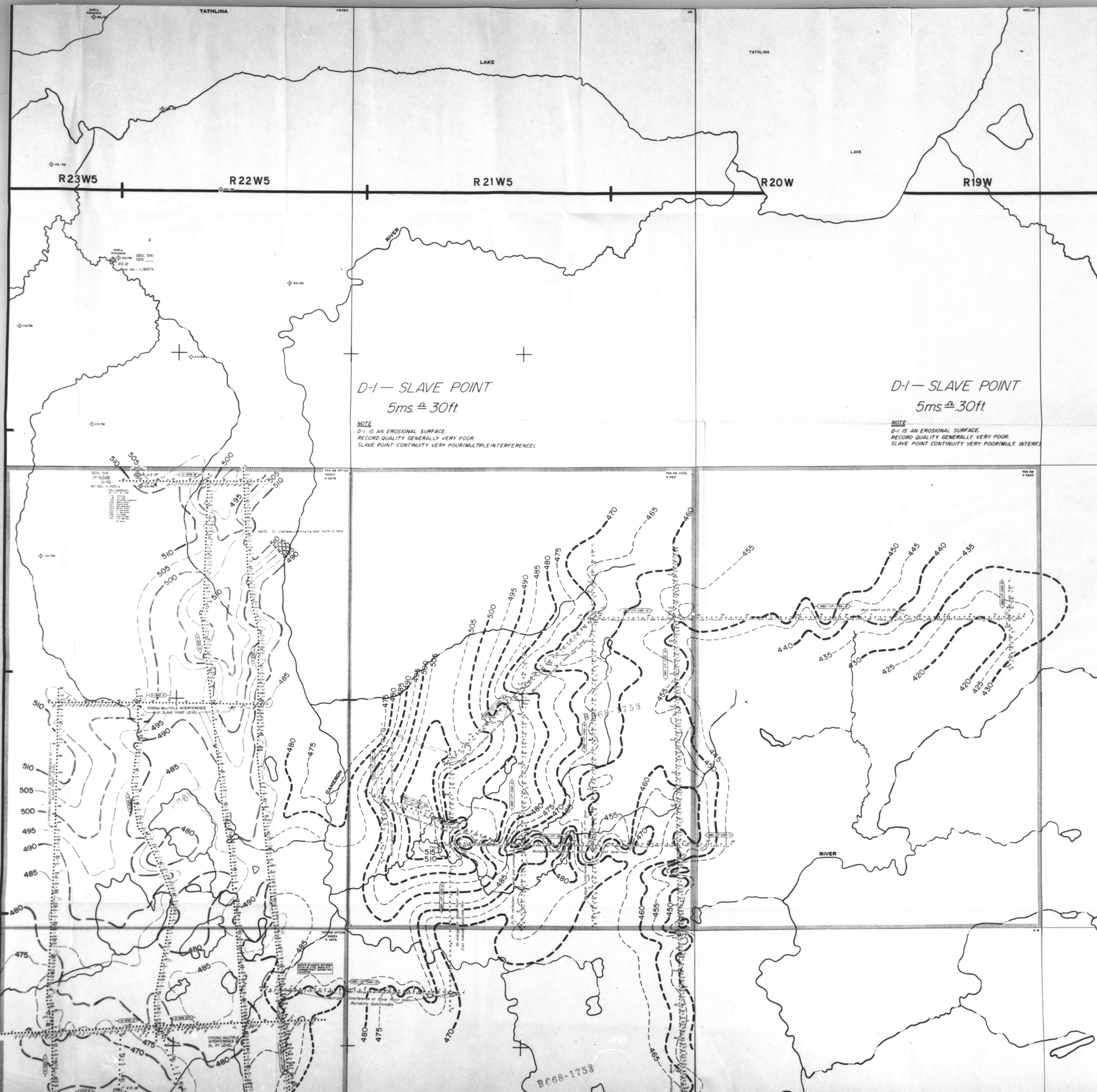




[illegible]

| MAP EVALUATION                                                                                                                                                                                                                                                                                                                                       |  | SHOOTING HISTORY (Not in detail) |          |                        |                     | INTERPRETIVE HISTORY |            |           |                      |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|----------|------------------------|---------------------|----------------------|------------|-----------|----------------------|--|
| INCL. DATES                                                                                                                                                                                                                                                                                                                                          |  | SHOT BY                          | SHOT FOR | S.P AND/OR<br>LINE NOS | FINAL<br>REPORT NO. | DATE                 | INTERP.    | CO AFFIL. | APPROX. LOCATION MAP |  |
| APRIL 1968                                                                                                                                                                                                                                                                                                                                           |  | NORTHERN 4                       | PAN AM   | LINES 8, 9, 10, 11     | 6887                | NOV 27, 1968         | N. S. BEAN | PAN AM    | WEST HALF            |  |
| <p>Qualification considers type of map or photo, amount of detail considered critical, suitability of notes and density of control, (geophysical or geological)</p> <p>_____ = Geological data</p> <p>_____ = Reliable Geophysical Data</p> <p>_____ = Questionably Reliable Geophysical data</p> <p>___ - - - - - = Unreliable Geophysical Data</p> |  |                                  |          |                        |                     |                      |            |           |                      |  |
| UNRELIABLE                                                                                                                                                                                                                                                                                                                                           |  |                                  |          |                        |                     |                      |            |           |                      |  |









| MAP EVALUATION                        |            | SHOOTING HISTORY (Not in detail) |                     | INTERPRETIVE HISTORY |              |
|---------------------------------------|------------|----------------------------------|---------------------|----------------------|--------------|
| INCL DATES                            | SHOT BY    | SHOT FOR                         | SP AND/OR LINE NO'S | FINAL REPORT NO.     | DATE         |
| APRIL 1968                            | NORTHERN 4 | PAN AM                           | LINE 8, 9, 10, 11   | 6887                 | NOV 27, 1968 |
| <p>UNRELIABLE (East half of grid)</p> |            |                                  |                     |                      |              |

| SHOOTING HISTORY (Not in detail) |            | INTERPRETIVE HISTORY |                     |
|----------------------------------|------------|----------------------|---------------------|
| INCL DATES                       | SHOT BY    | SHOT FOR             | SP AND/OR LINE NO'S |
| APRIL 1968                       | NORTHERN 4 | PAN AM               | LINE 8, 9, 10, 11   |

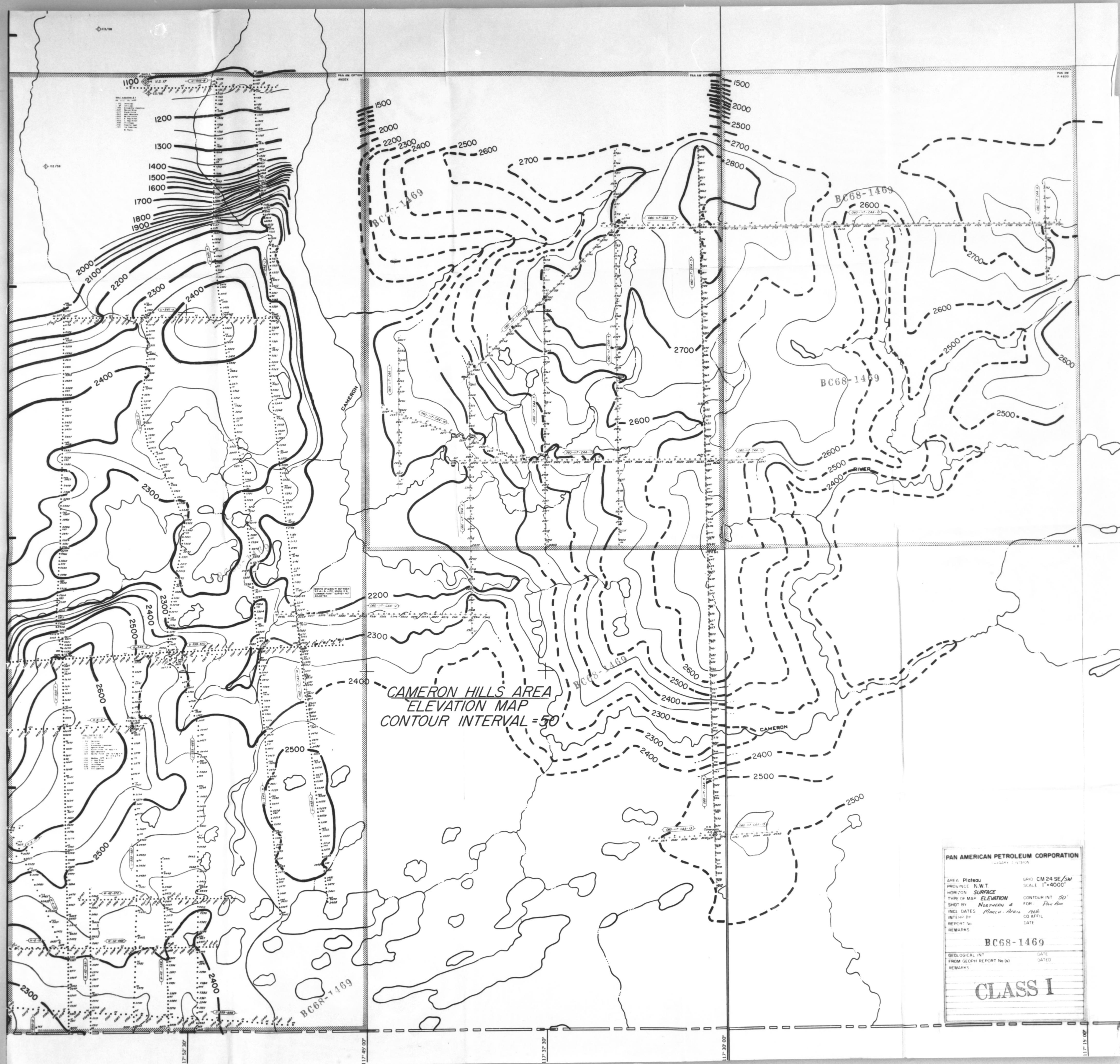
  

| SHOOTING HISTORY (Not in detail) |            | INTERPRETIVE HISTORY |                     |
|----------------------------------|------------|----------------------|---------------------|
| INCL DATES                       | SHOT BY    | SHOT FOR             | SP AND/OR LINE NO'S |
| APRIL 1968                       | NORTHERN 4 | PAN AM               | LINE 8, 9, 10, 11   |

| MAP EVALUATION    |            | SHOOTING HISTORY (Not in detail) |                     | INTERPRETIVE HISTORY |              |
|-------------------|------------|----------------------------------|---------------------|----------------------|--------------|
| INCL DATES        | SHOT BY    | SHOT FOR                         | SP AND/OR LINE NO'S | FINAL REPORT NO.     | DATE         |
| APRIL 1968        | NORTHERN 4 | PAN AM                           | LINE 8, 9, 10, 11   | 6887                 | NOV 27, 1968 |
| <p>UNRELIABLE</p> |            |                                  |                     |                      |              |

242



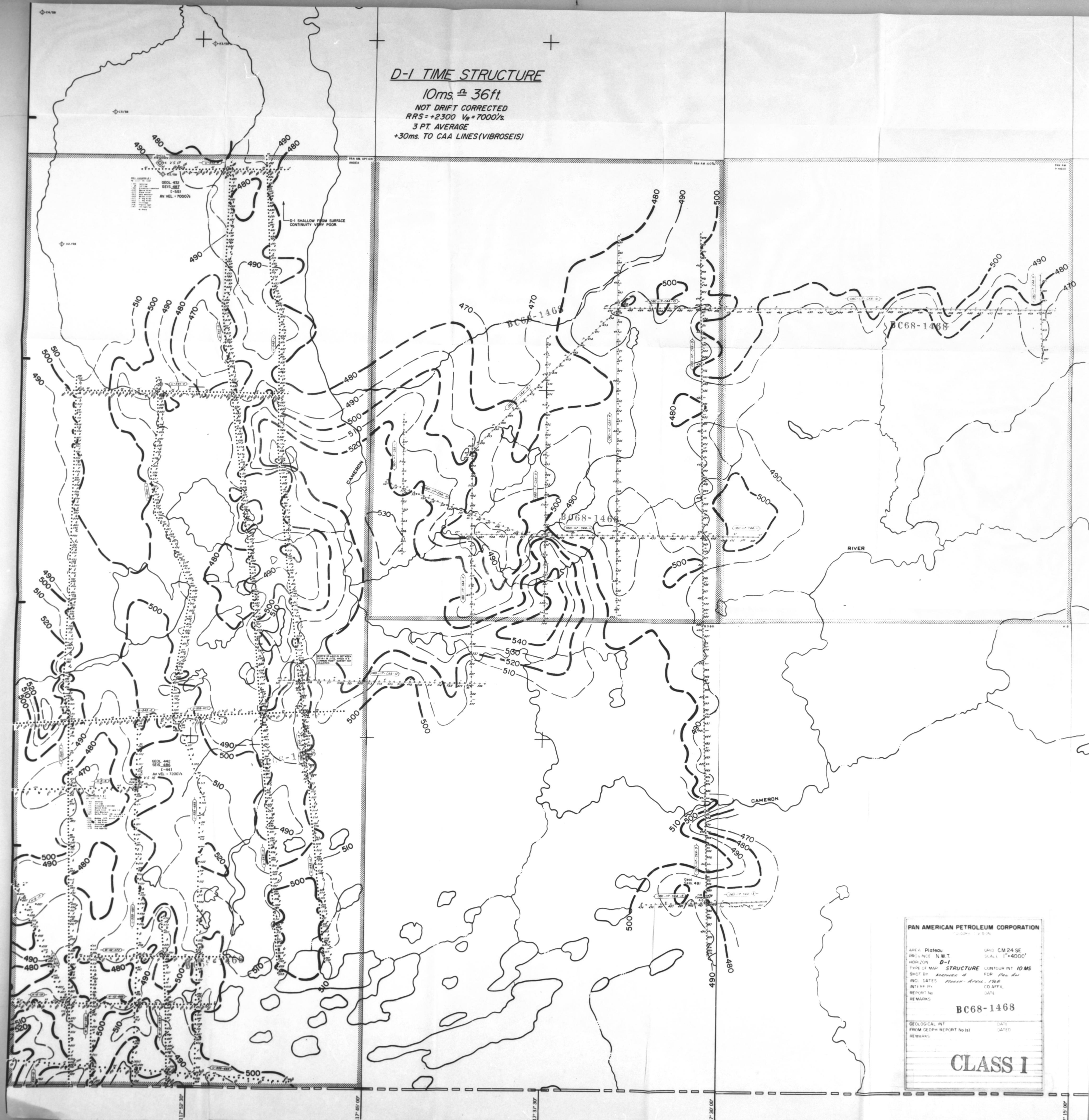


|                                    |                   |
|------------------------------------|-------------------|
| PAN AMERICAN PETROLEUM CORPORATION |                   |
| Geological Division                |                   |
| Area: Plotou                       | GRID: CM 24 SE/SW |
| PROVINCE: N.W.T.                   | SCALE: 1"=4000'   |
| HORIZON: SURFACE                   |                   |
| TYPE OF MAP: ELEVATION             | CONTOUR INT: 50'  |
| DRAWN BY: Neerach, A.              | FOR: The Am.      |
| INCL. DATES: March, April, 1968    | CO. AFFIL:        |
| DATE: 1968                         | DATE:             |
| REPORT NO:                         |                   |
| REMARKS:                           |                   |
| BC68-1469                          |                   |
| GEOLOGICAL INT: DATE:              |                   |
| FROM GEOPH. REPORT NO. (S): DATED: |                   |
| REMARKS:                           |                   |
| CLASS I                            |                   |



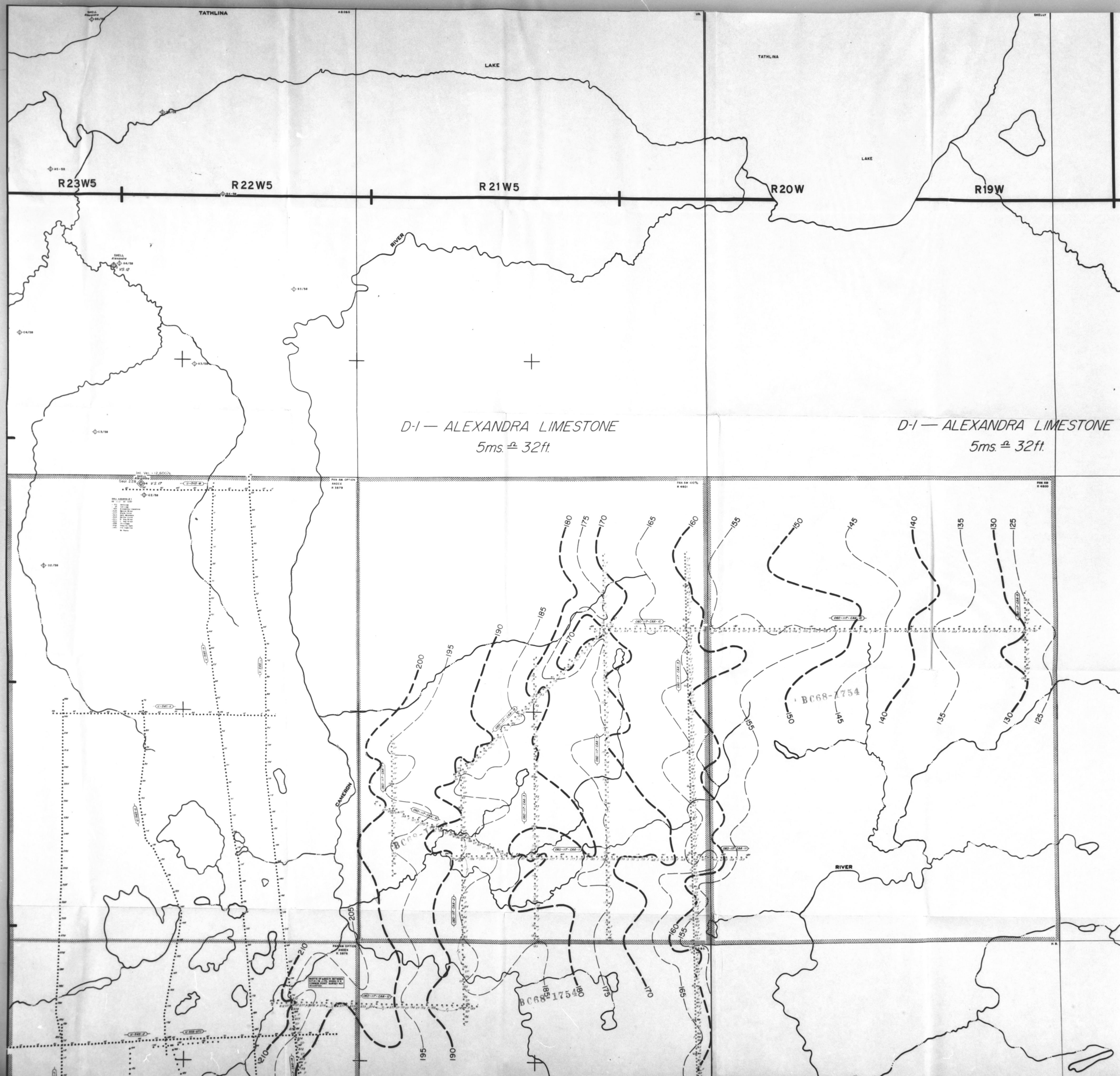
# D-1 TIME STRUCTURE

10ms.  $\pm$  36ft  
 NOT DRIFT CORRECTED  
 RRS = +2300 V<sub>H</sub> = 7000/s  
 3 PT AVERAGE  
 +30ms. TO CAA LINES (VIBROSEIS)

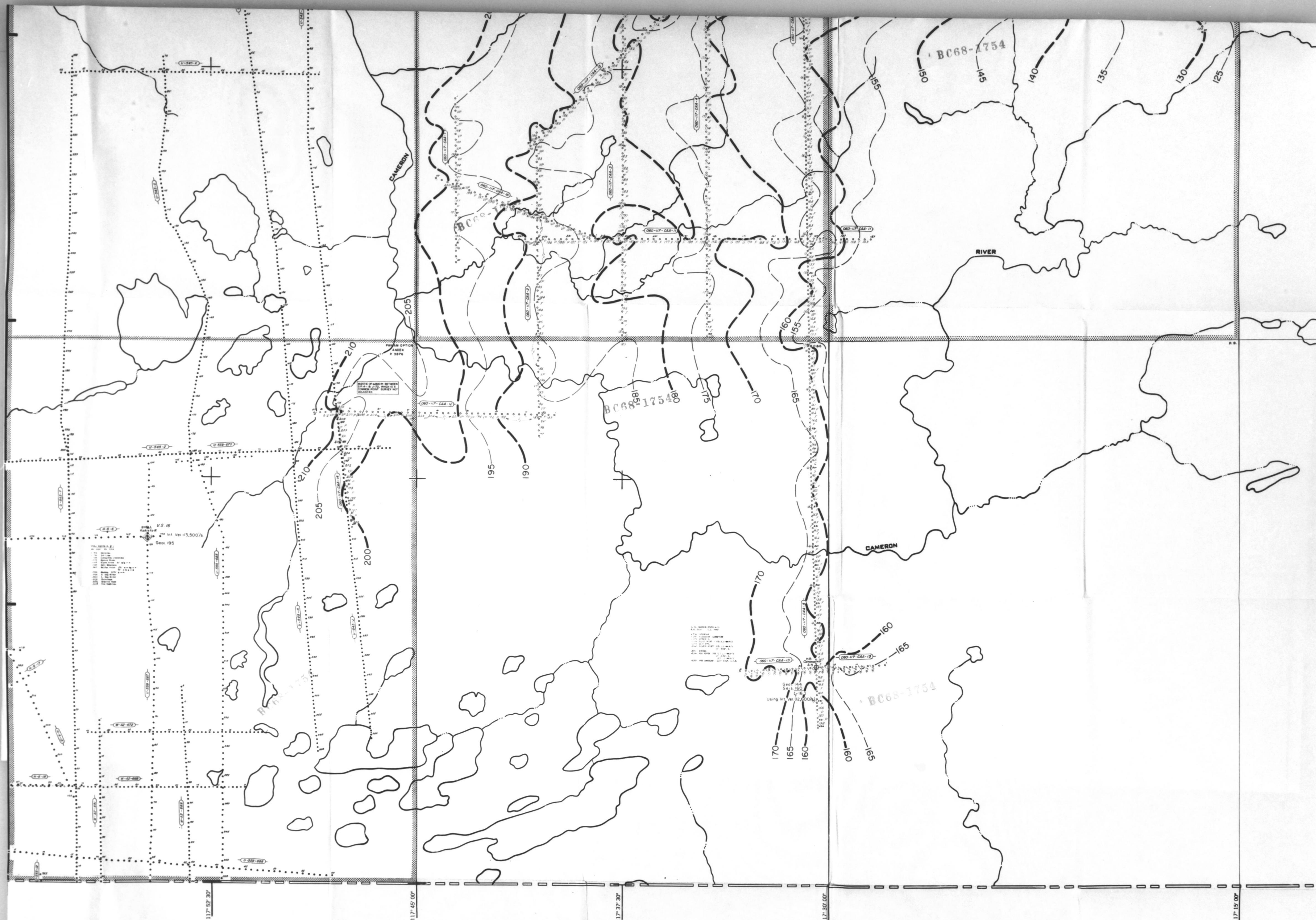


|                                       |                       |
|---------------------------------------|-----------------------|
| PAN AMERICAN PETROLEUM CORPORATION    |                       |
| AREA: Plateau                         | GRID: CM24SE          |
| PRODUCED IN W.T.                      | SCALE: 1"=4000'       |
| HORIZON: D-1                          |                       |
| TYPE OF MAP: STRUCTURE                | CONTOUR INT: 10MS     |
| DRAWN BY: [illegible]                 | FOR: [illegible]      |
| DATE: [illegible]                     | CO AFFIL: [illegible] |
| REPORT NO: [illegible]                | DATE: [illegible]     |
| REMARKS:                              |                       |
| BC68-1468                             |                       |
| GEOLOGICAL INT: [illegible]           |                       |
| FROM GEOH. REPORT NO (S): [illegible] |                       |
| REMARKS: [illegible]                  |                       |
| CLASS I                               |                       |









| MAP EVALUATION                                                                                                                                                                                                                                                                                 |  | SHOOTING HISTORY (Not in detail)                                                     |  | INTERPRETIVE HISTORY                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------|--|
| <p>Qualification considers type of map or data, amount of relief considered, contour, quality of data and density of control, (geophysical or geological)</p> <p>Geological data</p> <p>Geophysical data</p> <p>Qualitatively Reliable Geophysical data</p> <p>Unreliable Geophysical data</p> |  | <p>INCL DATES</p> <p>SHOT BY</p> <p>SHOT FOR</p> <p>S.P. AND/OR LINE NO.</p>         |  | <p>FINAL REPORT NO.</p> <p>DATE</p> <p>INTERP</p> <p>CO AFFIL</p> <p>APPROX LOC ON MAP</p> |  |
| <p>QUAL RELIABLE</p>                                                                                                                                                                                                                                                                           |  | <p>APRIL 1968</p> <p>NORTHERN 4</p> <p>PAN AM</p> <p>LINE NO. 10, 11, 12, 13, 14</p> |  | <p>6887</p> <p>NOV 27, 1968</p> <p>R. S. RYAN</p> <p>PAN AM</p> <p>EAST HALF</p>           |  |

**PAN AMERICAN PETROLEUM CORPORATION**  
CALGARY DIVISION

AREA: South Tathina Lake GRID: CM 24/SW  
PROVINCE: N.W.T. SCALE: 1"=4000'  
HORIZON: D-1 - ALEXANDRA Limestone  
TYPE OF MAP: ISOCHRON CONTOUR INT. 5ms  
SHOT BY: NORTHERN 4 FOR: PAN AM

INCL DATES: APRIL 1968  
INTERP BY: R.S. RYAN CO AFFIL: PAN AM  
REPORT NO. 6887 DATE: NOV 27, 1968

REMARKS:

**BC68-1754**

GEOLOGICAL INT: R.L. PEMBERTON DATE: NOV 27, 1968  
FROM GEOPH REPORT NO. 6887 DATED:

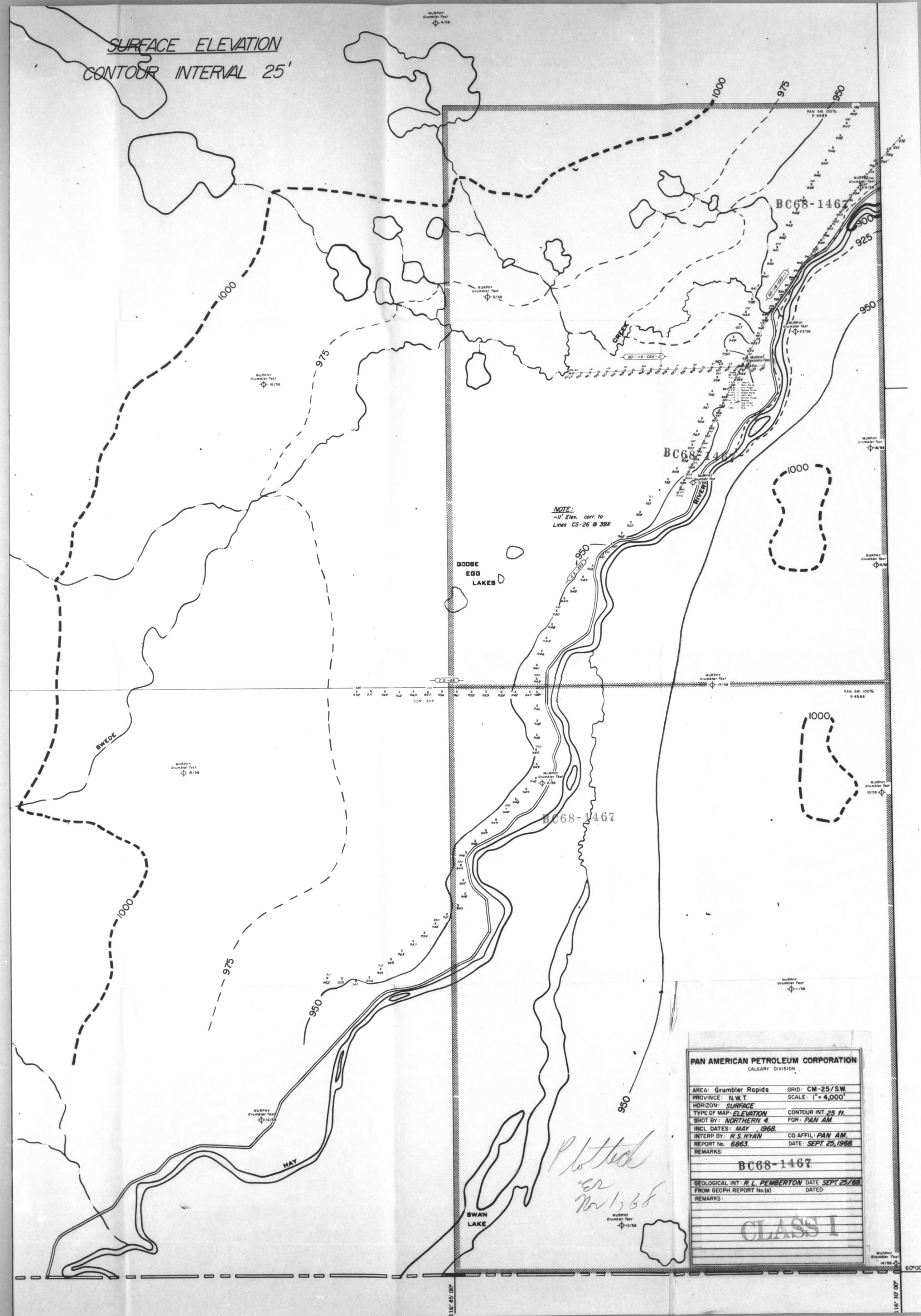
REMARKS:

**CLASS I**

| MAP EVALUATION                                                                                                                                                                                                                                                                                 |  | SHOOTING HISTORY (Not in detail)                                                     |  | INTERPRETIVE HISTORY                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------|--|
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| <p>QUAL RELIABLE</p>                                                                                                                                                                                                                                                                           |  | <p>APRIL 1968</p> <p>NORTHERN 4</p> <p>PAN AM</p> <p>LINE NO. 10, 11, 12, 13, 14</p> |  | <p>6887</p> <p>NOV 27, 1968</p> <p>R. S. RYAN</p> <p>PAN AM</p> <p>EAST HALF</p>           |  |



SURFACE ELEVATION  
CONTOUR INTERVAL 25'

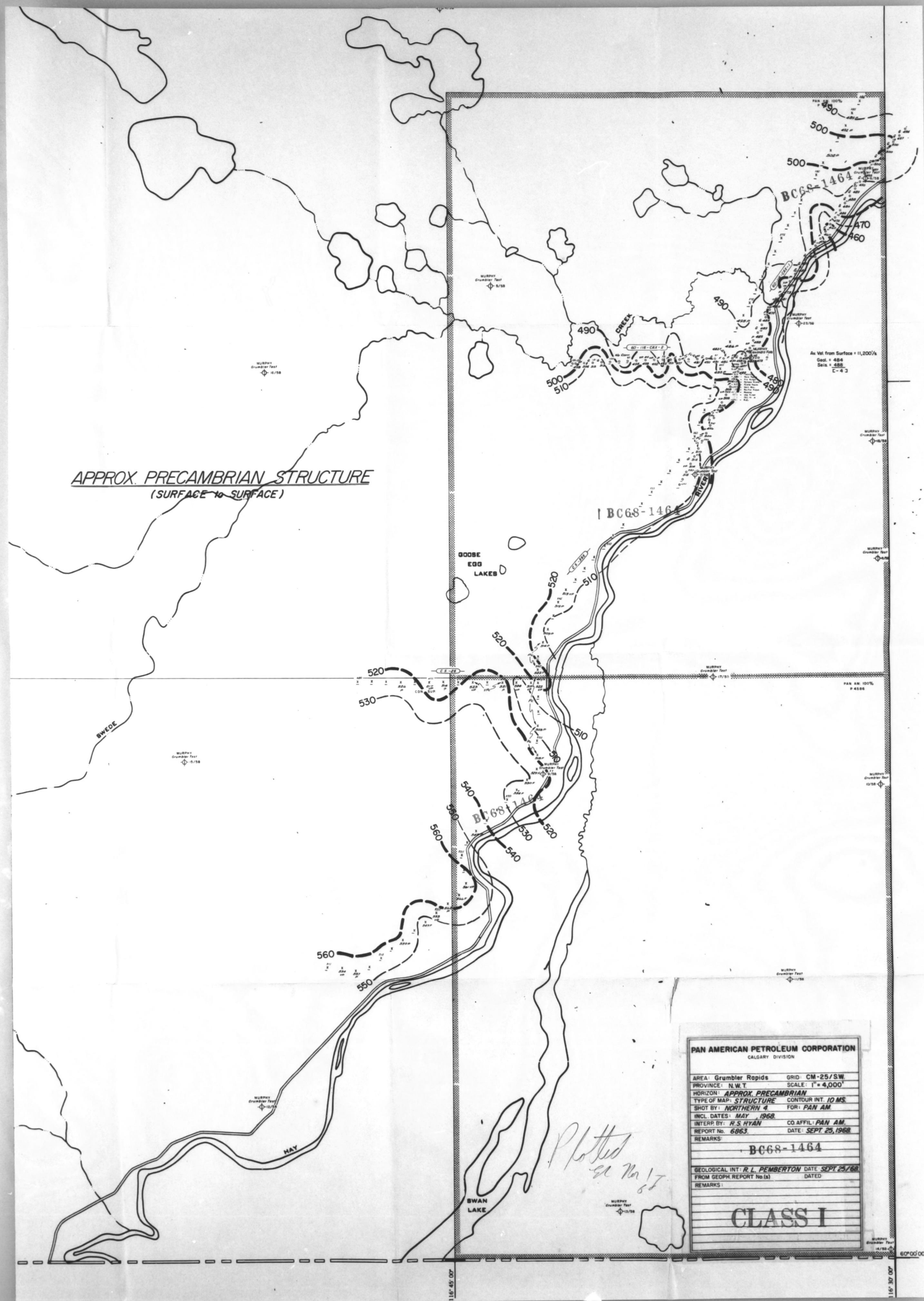


NOTE:  
-11' Elev. cont. to  
Lines CS-26 & 33X

|                                                |                     |
|------------------------------------------------|---------------------|
| PAN AMERICAN PETROLEUM CORPORATION             |                     |
| CALGARY DIVISION                               |                     |
| AREA: Grumbler Rapids                          | GRID: CM-25/SW      |
| PROVINCE: B.W.T.                               | SCALE: 1" = 4,000'  |
| HORIZON: SURFACE                               | CONTOUR INT. 25 ft. |
| TYPE OF MAP: ELEVATION                         | FOR: PAN AM         |
| SHOT BY: NORTHERN A                            |                     |
| INCL. DATES: MAY 1968                          | CO. AFFIL: PAN AM   |
| INTERP. BY: R.S. NYAN                          | DATE: SEPT 25, 1968 |
| REPORT NO. 6863                                |                     |
| REMARKS:                                       |                     |
| BC68-1467                                      |                     |
| GEOLOGICAL INT. R.L. PEMBERTON DATE SEPT 25/68 |                     |
| FROM GEOPH. REPORT NO. (X) DATED               |                     |
| REMARKS:                                       |                     |
| CLASS I                                        |                     |

*Plotted  
on  
Nov 1, 1968*







60-6-4-104

REPORT OF GEOPHYSICAL SURVEY

REPORT OF SEISMOGRAPH REFLECTION SURVEY

Conducted by

Northern Geophysical Limited

for

Pan American Petroleum Corporation

During May, 1968

on

Alexandra Falls, N.W.T. Permit 4589  
National Topographic Grid 85-C-9

Prepared by

C. W. Allison

Exploration Group Supervisor

September 25, 1968

**Abstracted for  
Geo-Science Data Index**

**Date** \_\_\_\_\_



Submitted in support of application for credit; see affidavit made  
by \_\_\_\_\_ of \_\_\_\_\_ and in accordance with work  
obligations under Section 54(F) of the Territorial Lands Act.



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| Seismic Spread Diagram.....            | In Pocket        |
| Location and Ground Elevation Map..... | " "              |
| Structure Contour Map.....             | " "              |



## TEXT

### INTRODUCTION

During the month of May, 1968 a seismograph reflection survey was conducted on Alexandra Falls, N.W.T. Permit No. 4589 by Northern Geophysical Limited for Pan American Petroleum Corporation.

Northern Geophysical Party #4 spent 5 calendar days working on seismic lines cut and cleared at the same time as the seismic work was being done. The crew was under the supervision of J. Trotter.

Pan American's interpretative staff located in Calgary spent a total of 40 days on the project. The interpretation was carried on simultaneously with the field work and was completed in September, 1968.

No personnel other than those of the field crew and of the interpretative staff worked directly on this project.

Conventional track mounted recording equipment, consisting of a recorder plus three vibrator units and one cable unit, was used on the operation. The portable camp consisted of three expandable trailer units mounted on tracks, a power-workshop and a correlator trailer.

No unusual operating problems were encountered while operating in this area.



## TEXT

### INTRODUCTION

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No unusual operating problems were encountered while operating in this area.



SEISMIC TECHNIQUE

The "vibrator" energy source at each shot point consisted of three vibrators positioned inline with 100' separation and each moving a total of 100 feet in 20 sweeps. The best pilot signal to transmit into the ground was found to be a 65 to 15 cps sweep lasting 7 seconds.

The area was shot with 600% multifold coverage using a spread layout as shown on the enclosed spread diagram.

All data was recorded on Techno type magnetic analogue tapes using Applied Magnetics Amplifiers. The data was correlated using the analogue system at the field camp location.

The reflection method was used to obtain the subsurface data throughout the area.

The data that appears on the subsurface map are vertical two-way times between an arbitrary reference plane and the particular horizon mapped.

Respectfully submitted,

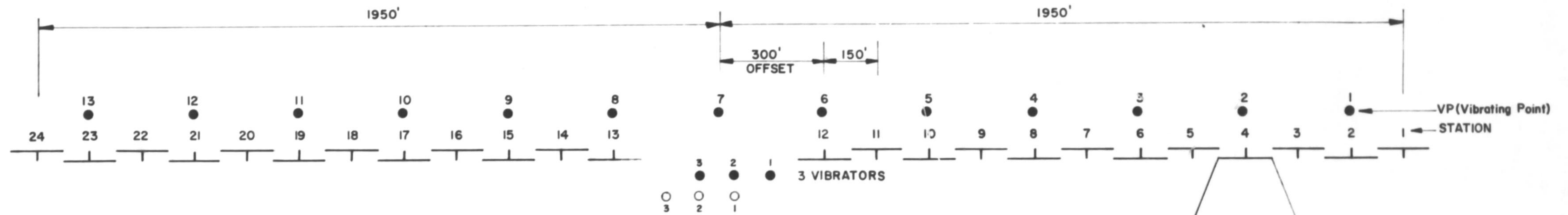
PAN AMERICAN PETROLEUM CORPORATION

By: *C. W. Allison*  
C. W. Allison  
Exploration Group Supervisor



**ALEXANDRA FALLS**  
**NORTHERN-4 VIBROSEIS**  
**MAY OF 1968**  
**600% SYMMETRICAL SPREADS**

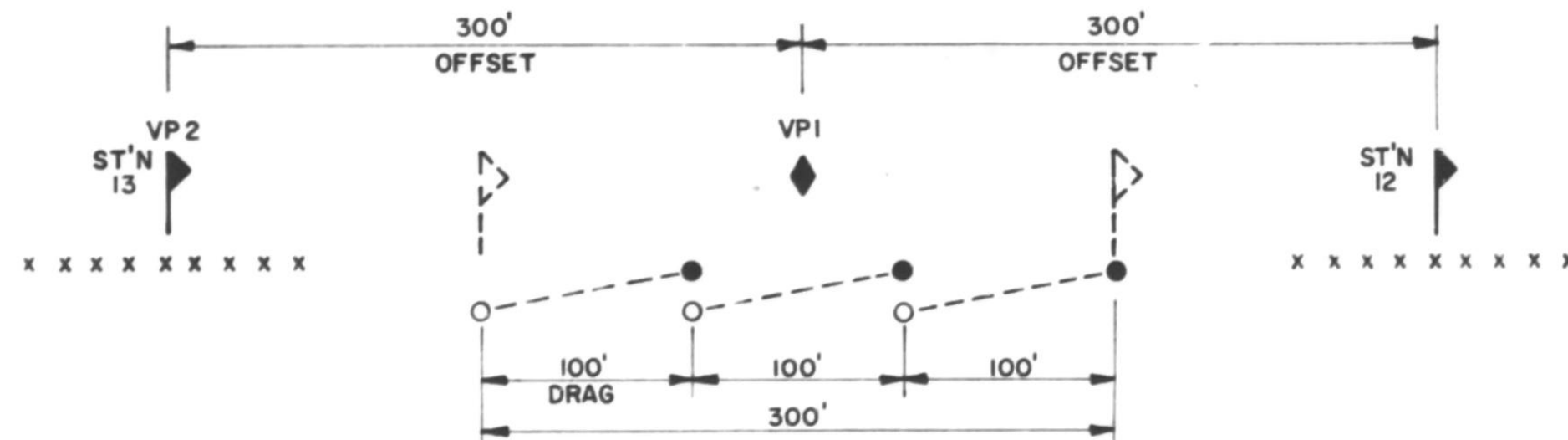
Scale 1" = 300'



**VIBRATOR PATTERN (DETAIL)**

Scale 1" = 100'

3 VIBRATORS TAKING 20 SWEEPS COVERING 300'  $\approx$   
 5' BETWEEN SWEEPS WITH 300' OFFSET (65-15) PILOT



9 GEOPHONES/GROUP  
 GEOPHONES 16' APART  
 14 CYCLE GEOPHONES

Scale 1" = 50'



