Canada Oil and Gas Lands Administration
Administration du pétrole et du gaz des terres du Canada

MAY 2 1985

Resource Evaluation Branch
Direction de l'Evaluation des Ressources

Project # ....

PROJECT ACTION SHEET

RESOURCE EVALUATION BRANCH

PROJECT NUMBER:........9229-P28-3E........................

COMPANY:...........PETRO CANADA..........................

REPORT TITLE:...MAHONEY HIGH.........................

The following action has been taken:

Receipt acknowledged .....YES...........

Reports and maps date-stamped .....YES...........

Memo sent to Land Management ......NO............

Reports for review list edited ....YES...........

Inventory sheet made ......YES...........

Mylar ....YES...........

REVIEW AND APPROVAL made by: John O'Berton
85-05-024

COMMENTS:

PROGRAM NUMBER: 9229-P28-3E

YEAR: 84

Filed under same Project Number YES **or** ______

(a) WRITTEN REPORTS:

(1) Operations Report — COMBINED — Number: 1

(2) Interpretation Reports — Number: ______

(b) MAPS:

(1) **Shotpoint Maps** — Number: 2
96 E, 96F

(2) **Interpretation Maps** — Number: 6
PROTEROZOIC STRUCTURE MAPS (2)
SALT STRUCTURE MAPS (2)
ISOCHRON MAPS (2)

(3) **Other Maps** — Number: ______

(c) SEISMIC SECTIONS — Number: 16

REVERSE	NORMAL
90X	90X
90X EXTENSION	90X EXTENSION
27X	27X
82X	82X
112X EXTENSION	112X EXTENSION
86X	86X
112X	112X
72X	72X

GEOPHYSICAL EXPLORATION REPORT

PROGRAM NO: 9229-P28-3E

MAHONY LAKE SURVEY

in

Tweed Lake/Lac-a-Jacques

Exploration Agreements No's 158 and 163

Northwest Territories

by

Petro- Canada Inc.

April 1985

9229-P28-3E

Land Use Permit No.: N84B065
Data Acquisition: Reflection Seismograph (Vibroseis) by Western Geophysical Company of Canada
Field Work: March - April 1984

Submitted by:

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Project Geophysicist
NWT Region

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Regional Geophysicist
NWT Region

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LIST C. TABLES

LIST OF DATA SENT UNDER SEPARATE COVER

1.	2 Mylar Shotpoint Maps:	96 E, F
2.	6 Seismic Sections:	27X, 72X, 82X, 86X, 90X, 90X, (extension), 112X, 112X (extension)

1 mylar and 2 paper copies of each section
(normal and reverse polarity)

REFERENCES

Applied Geoscience and Technology (AGAT) Consultants Ltd., 1977: Lower Mackenzie Energy Corridor Study - Geological Component Report, Calgary, Alberta.

Bostock, H.S., 1970: Physiographic Regions of Canada; Geol. Surv Can., Map 1254A.

Cook, Donald G., 1983: The Northern Franklin Mountains, Northwest Territories, Canada: a Scale Model of the Wyoming Province; in Lowell, J.D., ed., Field Conference Rocky Mountain Association of Geologists, Vol. 1983, p. 314-338.

van Everdingen, R.O., 1981; Morphology, Hydrology and Hydrochemistry of Karst in Permafrost Terrain near Great Bear Lake, Northwest Territories; National Hydrology Research Institute Inland Directorate, Calgary, Alberta.

SECTION ONE

INTRODUCTION

Petro-Canada Inc. conducted a reflection seismic program in the Mahony Lake area of the Northwest Territories during the 1983-84 winter season. The lands involved were the southern parts of Exploration Agreements 158 and 163, referred to as Tweed Lake and Lac-a-Jacques respectively. See Figure 1.1 for the location.

The objective of the survey was to locate features with hydrocarbon potential. The 1983-84 program was laid out to delineate a possible structure mapped from Petro-Canada's 1981-82 seasons' data and to extend our subsurface evaluation westward into regions with limited control. A total of 204.5 kilometres of seismic was obtained.

This report is submitted to COGLA to partially fulfill the requirements of the Exploration Agreements. Summarized are the procedures for data acquisition, processing, and the results of the interpretation. The interpretation of the survey incorporated the 1981-82 data, and 280 kilometers of seismic released by COGLA. Structure and isochron maps were produced and are enclosed.

Data which has been sent separately from this report includes mylar copies of seismic base maps and seismic sections, as well as paper copies of seismic sections.

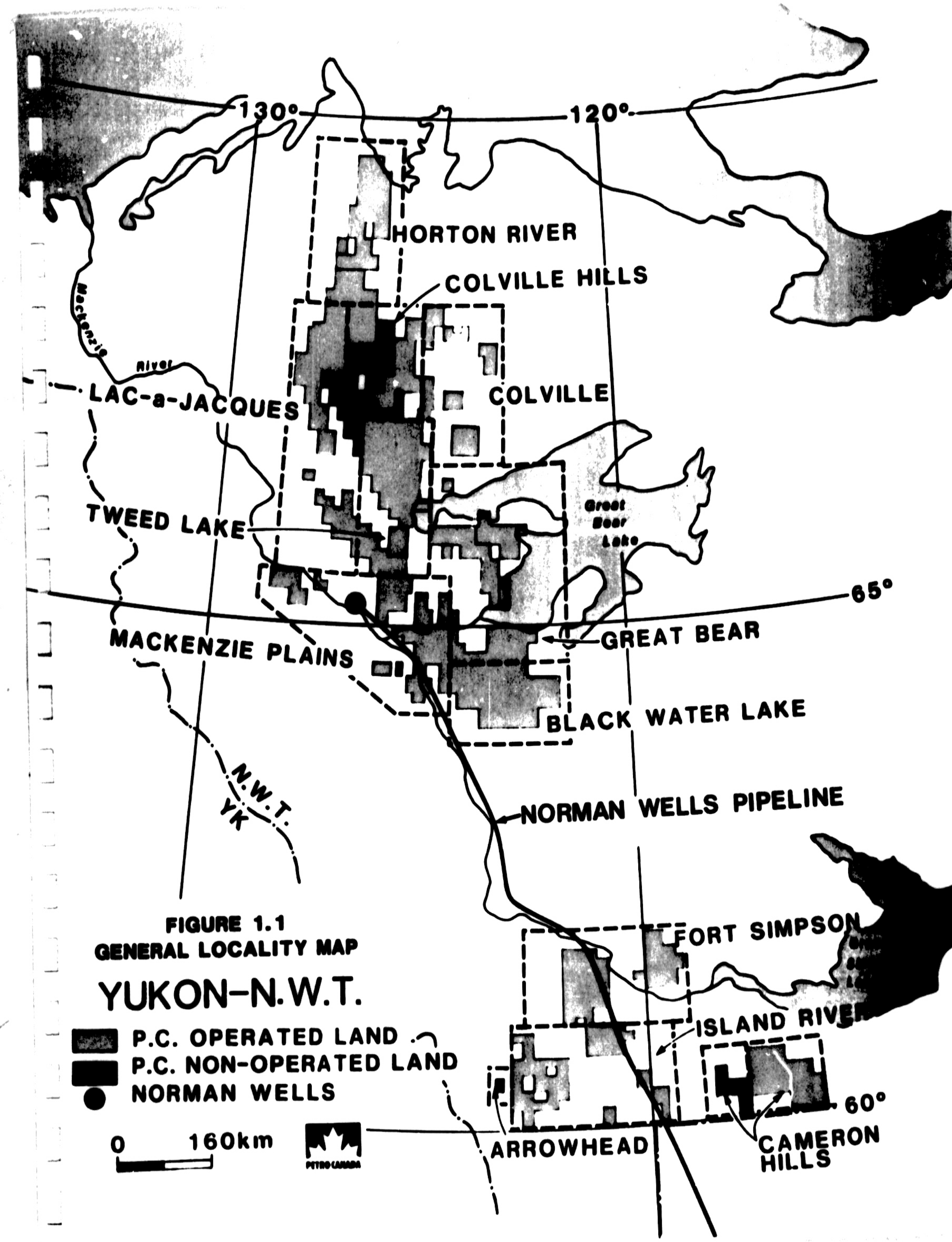


FIGURE 1.1
GENERAL LOCALITY MAP

SECTION TWO

DATA ACQUISITION AND REDUCTION

2.1 FIELD OPERATIONS SUMMARY

2.1.1 Weather Conditions and Terrain

Weather conditions during the course of the program were normal for the region, with tempertures in the -10°C range in March. As the amount of daylight increased into April, temperatures moderated.

The project comprised two distinct topographical areas. The west portion of the project is in the Franklin Mountains where elevations vary from 240 to 470 meters above sea level. The remainder of the project, east of the Jacques Range, contains gently rolling hills with elevations varying from 370 to 430 meters above sea level. The majority of the timber in both areas is spruce and pine, much of it being of substantial size.

2.1.2 Field Operations

The contractor was Western Geophysical Company of Canada. A total of 37 people were employed with 8 of them being residents of the Northwest Territories.

Tables 2.1, 2.2, and 2.3 summarize the project chronology, production, and organization.

1.	Surveyors commenced	March 9, 1984.
2.	Drills commenced	N/A.
3.	Recorders left base	March 14, 1984.
4.	Recording commenced	March 17, 1984.
5.	Recording completed	April 11, 1984.
6.	Vehicles released	April 13, 1984.

Table 2.1 Project Chronology

1.	Number of kilometers shot	204.48
2.	Number of shots taken	1791
3.	Number of stations	7164
4.	Number of recording days	26
5.	Average daily production:	
	a. Kilometers shot	7.86
	b. S.P./V.P. recorded	1791
6.	Days lost due to poor weather conditions	N/A
7.	Days lost due to equipment failure	N/A

Table 2.2 Production

Misc. Personnel	Data Acquisition
1 - Party Manager	1 - Monitor
1 - Field Clerk	1 - Observer
1 - Water Truck Driver	1 - Junior Observer
1 - Mechanic	4 - Cable Truck Drivers
	8 - Recording Helpers
	4 - Vibrator Operators
Surveying	**Line Cutting**
1 - Surveyor	6 - Cat Operators
1 - Survey Helper	1 - Cat Push
2 - Chainman	
Catering	**NWT Residents**
1 - Cook	8
1 - Assistant Cook	
1 - Camp Attendant	

Table 2.3 Project Organization

2.2 SEISMIC DATA ACQUISITION

2.2.1 Instrumentation

Table 2.4 summarizes equipment used for recording, detection, and for the seismic source.

Amplifiers, Tape System	Texas Instruments DFS-V - ADDIT 1V
Geophone Strings	Geospace 20 D 10Hz
Energy Source	4 Y-900 MERTZ Vibrators mounted on buggies

Table 2.4 Instrumentation

2.2.2 Parameters

A 90 metre gap on each side of the vibrator point was used. There was a move-up of 12 metres between each sweep resulting in a total drag of 60 metres per vibrator point. The first vibrator was located on the v.p. for the first sweep and the last vibrator was on the v.p. for the sixth sweep, giving a tapered array centered on the v.p.

Refraction seismic work for weathering corrections was not done for two reasons. First, carbonate rocks were close to surface and the weathering layer was usually negligable. Secondly, the multiplicity of fold allowed good statistical first break picks from the vibroseis data.

Table 2.5 lists the recording parameters used.

Sample Rate	2 milliseconds
Record Length	9 seconds
Recording Filter	Low Cut - Out Alias - 128 Hz
Number of Traces	96
C.D.P. Coverage	1200% 2400% for 90X and 112X (extensions)
No. of Geophones per Group	9
Group Interval	30 metres
Geophone Array	9 over 60 metres
Distance between Vibrator Points	120 metres
Vibrator Array	4 over 60 metres
Drag Length	60 metres
Spread Length	1500-90-x-90-1500 split
Number of Sweeps	6
Sweep Frequency	14-90 Hz up-sweep
Sweep Length	4 seconds

Table 2.5 Recording Parameters

2.2.3 Survey System

Shot point and station intervals were measured using a chain and rod. New cut lines were set in using topographic features and sun shots. Elevations were computed by stadia and horizontal locations by latitudes and departures. The survey was tied with loops to a maximum of 10 metres error in horizontal distance and 1 metre error iu elevation. Table 2.6 lists the surveying instruments used.

2	Wilde T-16 Theodolite
1	Sokkisha II E.D.M.
1	Agageodimeter E.D.M.

Table 2.6 Surveying Instruments

2.3 GEOPHYSICAL DATA PROCESSING

The seismic data recorded was processed by Western Geophysical. The processing sequence was as follows:

1. Edit/Demultiplex - 2 msec sample rate
2. Vibroseis ® Correlation
3. Phase Compensation
   - Geophone
4. Statics
   - Datum - 305 metres
   - Replacement velocity - 6000 metres/sec.
5. Amplitude Compensation
   - T square function
6. Pre-Processor
   -CDF sort (equivalent to CDP sort)
7. Pre-Filter
   -24/24-125/90 HZ/DB/OCT
8. Deconvolution Before Stack
   - 2 msec minimum prediction distance
   - (equivalent to a spiking deconvolution)
   - 120 msec maximum prediction distance
   - 2% whitening
9. F-K Noise Attenuation
10. Automatic Statics (Miser®)
    - Surface consistent 350-2000 msec model window
11. Velocity Analysis (Velan®)
12. NMO Correction
13. Mute

Distance (metre)	Time (msec)
660	0
780	100
1500	200
3000	400

14. CDF Correlation Trim statics

15. Stack

16. Time Variant Filter

Time Zone (sec)	Low Cutoff Hz/DB/OCT	High Cutoff Hz/DB/OCT
0-1.0	24/160	90/190
1.1-2.0	20/60	70/90
2.1-5.0	20/60	50/90

17. RMS Gain
    - 5 overlapping windows
    - 0 - 400 msec
    - 200 - 800 msec
    - 600 - 1600 msec
    - 1000 - 3000 msec
    - 2000 - 5000 msec

18. Film at 14 DB
    - 48 traces per inch
    - 3.75 inches per second

The amplitude compensation was a T-square function meaning each amplitude was multiplied by the square of its time of arrival. The velocity functions were obtained from the study of a contour semblance map with time versus velocity as x and y axis. The average distance between velocity panels was 2.5 kilometers.

SECTION 3

INTERPRETATION OF RESULTS

3.1 REGIONAL GEOLOGY

3.1.1 Structural Geology

The Mahony Lake project is bounded on the southwest by the main body of the Franklin Mountains and on the east by Great Bear Plain, Figure 3.1. Linear north to northwest trending faulted ridges and thrusts, are evident on the surface, with structural deformation increasing westward. The most prominent feature is the Jacques Range separating the two Exploration Agreements of southern Lac-a-Jacques and Tweed Lake, as shown in Figure 3.2.

In Proterozoic time, a massive sequence was deposited in a wedge thickening to the southwest. These units were uplifed and eroded prior to deposition of Phanerozoic sediments. Various uplifts and movements occurred during Paleozoic time with major uplift and erosional cycles in the post Devonian periods, the Laramide Orogeny being the most severe.

3.1.2 Stratigraphy

The stratigraphic succession ranges from Precambrian to Recent, Figure 3.3. Thick Proterozoic sediments composed of sandstone, shale, dolomites, and gypsum lie beneath the pre-Paleozoic unconformity.

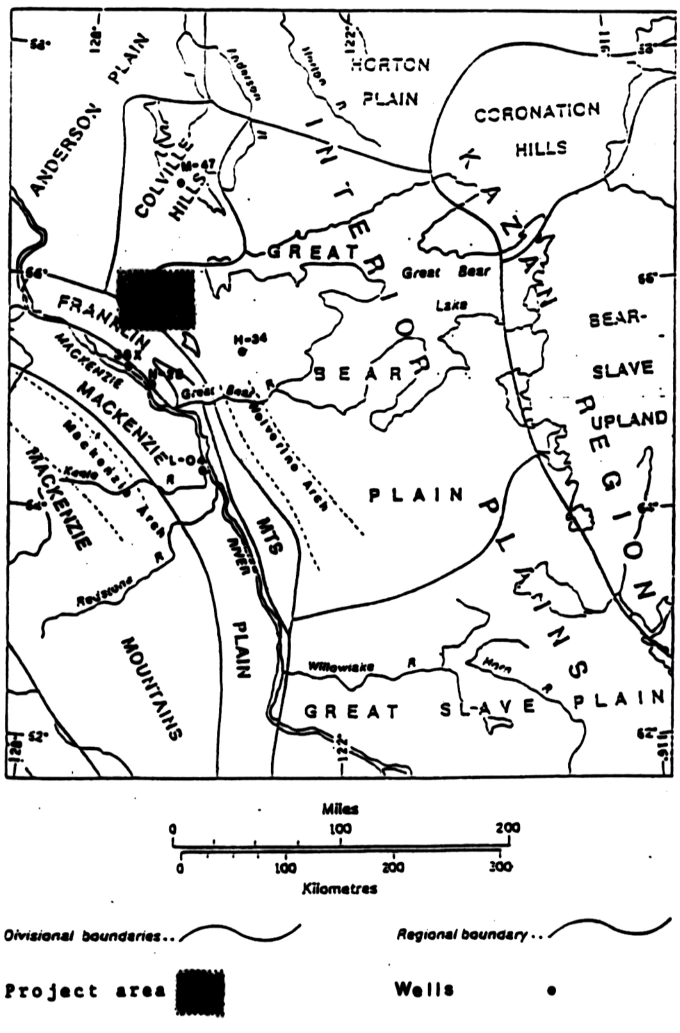


Figure 3.1 Map of the physiographic provinces of the Mahony Lake area showing the Mackenzie and Wolverine Arch (modified from Bostock, 1970).

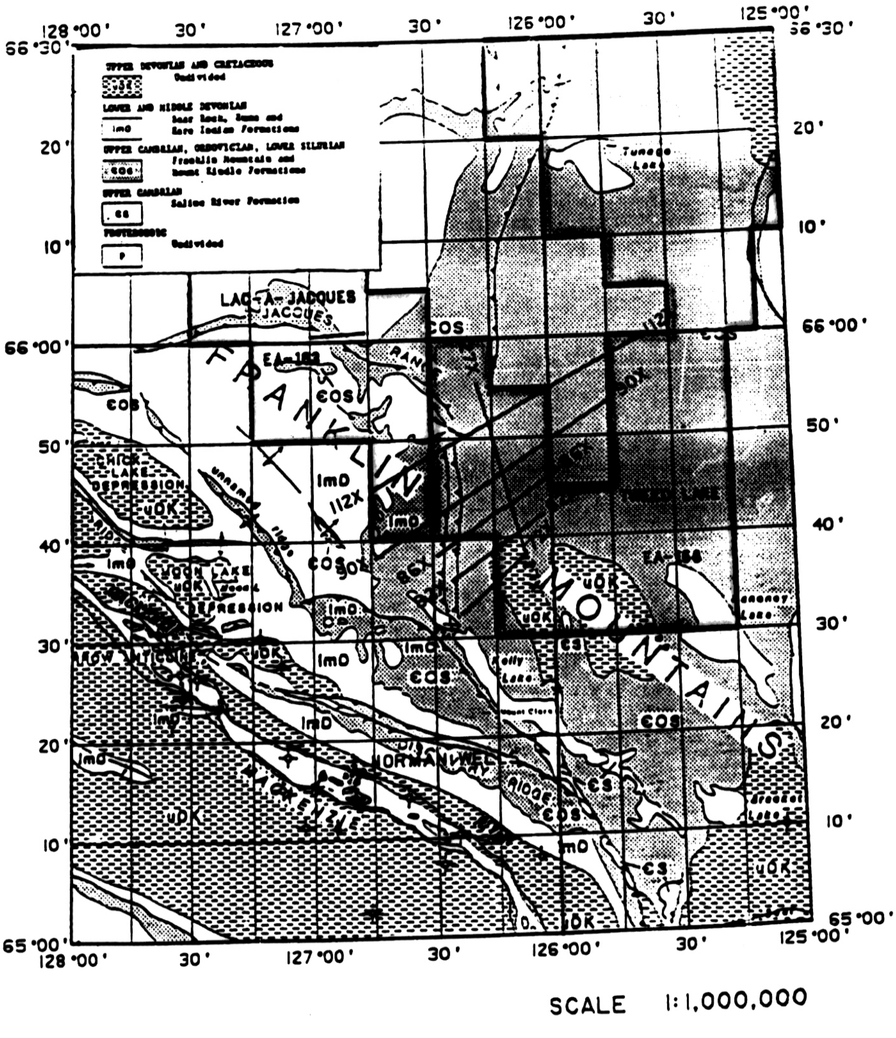


Figure 3.2 Location map of the 1983/84 geophysical program in the Mahony Lake area showing major structural features and surface geology (modified from Cook, 1983).

Paleozoic sediments are representative of marine deposition in an epicontinental basin. Post-Devonian, pre-Cretaceous, and post Cretaceous erosional cycles truncate successively older rocks eastward.

Lying unconformably on the Proterozoic strata is the basal Cambrian Mount Clark sandstone derived primarily from the Canadian Shield to the east. The Mount Clark Formation is succeeded conformably by the Mount Cap Formation, a unit expected to consist of interbedded glauconitic sands, shales, and dolomite. Above the Mount Cap Formation is the Saline River Formation, composed primarily of shale, dolomite, and evaporites.

Siluro-Ordovician carbonates of the Franklin Mountain and Mount Kindle Formations cap the Saline River Formation. In the exteme western part of the project area, these carbonates are overlain by Devonian carbonates and clastics. In a region west of Mahony Lake, a Cretaceous/Tertiary pocket is present.

3.1.3 The Prospect

The primary hydrocarbon reservoir in the area is in the Mount Clark Formation. A thrusted outcrop of the formation, 40 kilometres to the south above Kelly Lake, appears to be a relatively thick porous marine sandstone (U. Wissner, p. comm., 1985). The absolute thickness of the Mount Clark Formation is unknown in this region; however, at least 54 metres are present at the outcrop location. Traps may be formed by blanket sands on structural highs. Submarine fan complexes may exist and form stratigraphic traps.

Although the lithology is quite uncertain in this area, a secondary target could be sands within the Mount Cap Formation.

System or Series	Map-unit	Lithology
QUARTERNARY	Q (undivided)	Unlithified gravel, sand, silt, clay; till
Unconformity		
LOWER AND UPPER CRETACEOUS	K (undivided)	Partly bentonitic, black and grey, papery shale, blocky mudstone; siltstone; lignite; minor sandstone
Unconformity		
LOWER AND (?) MIDDLE DEVONIAN	BEAR ROCK FORMATION	Brecciated grey-brown dolomite; anhydrite; red and green shale and siltstone at base
Probable Unconformity		
UPPR ORDOVICIAN AND (?) LOWER SILURIAN	RONNING GROUP: MOUNT KINDLE FM.	Medium to dark brownish grey dolomite; silicified fossils; chert
	RONNING GROUP: Unconformity	
LOWER ORDOVICIAN (?), UPPER AND (?) MIDDLE CAMBRIAN	RONNING GROUP: 'Rhythmic unit'	Alternating beds of brownish grey and greyish orange dolomite; indistinct oolitic textures
MIDDLE AND (?) UPPER CAMBRIAN	RONNING GROUP: 'Cyclic unit'	Dolomite: repetitions of laminated, oolitic, conglomeratic, stromatolitic beds; green and maroon shale
(?) LOWER, MIDDLE AND UPPER (?) CAMBRIAN	SALINE RIVER FM.	red and green shale; buff dolomite; pink gypsum
	MOUNT CAP FORMATION	red, green, grey shale and siltstone; glauconitic sandstone; brown dolomite
(?) LOWER AND MIDDLE CAMBRIAN	MOUNT CLARK FORMATION	Grey, white, pink, friable sandstone; minor pebble beds
Unconformity		
(?) HADRYNIAN, HEOHELIKIAN, OR PALEOHELIKIAN	Gabbro sills and dykes	Dark green to black, partly diabasic gabbro
	Large quartz veins	White to pink quartz
Intrusive Contact		
PALEOHELIKIAN	HORNBY BAY GROUP	Upper part: brown stromatolitic dolomite; chert Lower part: white, buff, pink, maroon quartzite
Unconformity		
APHEBIAN	Granite	Pink, equigranular and porphyritic granite
	Intrusive Contact	
	Feldspar porphyries	Pink, brown, black dacite and quartz latite
	Intrusive Contact	
	SNARE, ECHO BAY AND CAMERON BAY GROUPS	Partly to intensely metamorphosed conglomerate, sandstone, argillite, andesite

Figure 3.3 Stratigraphic column for the Mahony Lake area.

The Mount Cap Formation should provide both source and seal for the Mount Clark Formation with the Saline River salt acting as an effective seal for both formations.

3.2 CORRELATION OF GEOLOGY TO GEOPHYSICS

No wells have been drilled within the project area or in the immediate vicinity. Wells that were evaluated for the geophysical interpretation include:

Keele River L-04	165 kilometres southeast
Tweed River M-47	130 kilometres north
Norman Wells 36X	60 kilometres southwest
Vermillion Ridge No. 1 N-28	75 kilometres south
Whitefish River H-34	75 kilometres east

The location of these wells in relation to the program area are shown in Figure 3.1.

The top of the Proterozoic is identifiable by the truncation of reflected events at the pre-Paleozoic unconformity. The angularity is not always apparent, but the character variation is sufficient to allow reasonable confidence in correlation.

The event identified as the top of the Saline River Formation in the 1982 mapping is more likely to be the top of the salt, about 50 metres deeper, as suggested by the sonic logs from the Norman Wells 36X and the Tweed Lake M-47 wells. The top of the Saline River Formation shows a gradational change from the Franklin Mountain carbonates to shale, while the salt produces an abrupt velocity and density contrast, with a consequently large reflection coeffecient.

Another event identified tentatively, although unmapped, is proximal to the top of the Mount Cap Formation.

3.3 PRESENTATION OF RESULTS

3.3.1 Data Quality

Karst development is widespread in the area with subsurface solution collapse presently occurring in the Saline River Formation evaporites. Karst depressions range from a fraction of a square kilometre to several square kilometres. The bottom of these sink holes are often filled with glacial drift (van Everdingen, 1981). Data quality will diminish in these regions due to the difficulty in resolving statics.

Data quality is fair to good in the northern portion of the project area. Very poor quality data was recorded in the south due to the highly disturbed fault zones. See Figure 3.2 for location of the 1984 PCI seismic lines.

The 1984 data is superior to the 1982 Petro-Canada data and to the older data obtained through COGLA. Using vibrators rather than dynamite as a source seems advantageous. The greater resolution and reflection continuity of the former suggests shot generated noise from the dynamite overwhelms any signal originating from the subsurface.

3.3.2 Seismic Maps

About 280 kilometers of 1974 Great Plains Development of Canada Ltd. and 1975 Texaco Canada Ltd seismic data released from COGLA were incorporated into the mapping. Figure 3.4 shows the seismic base maps involved; NTS grids 96E and 96F. All vintages of data were found to be compatible with minimal discrepancies at tie points.

The following maps were made at a 1/100,000 scale.

1) Top of Proterozoic Time Structure - Figure 3.5.
2) Top of Cambrian Salt Time Structure - Figure 3.6.
3) Top of Cambrian Salt - Proterozoic Isochron - Figure 3.7.

High angle faults, both normal and reverse, are designated in a similar manner with rectangular hashers on the down thrown sides. A half moon is shown on the upthrown sides of Cambrian faults to distinguish them from Laramide faults. The former are generally normal faults while the latter are usually high angle reverse faults. Faults believed to be thrusted on a low angle reverse plane are illustrated with triangular hashers on the dip sides.

3.4 DISCUSSION OF RESULTS

3.4.1 Regional Structural Style

The Proterozoic and Cambrian salt seismic structure maps, Figures 3.5 and 3.6, indicate the Mahony Lake program area is highly disturbed. This is particularly evident on the Proterozoic surface. The major fault systems trend from west-east, in the west of the study area, to due north at the Jacques Range, to predominently northeast-southwest at the eastern boundary of the project area. The Lac-a-Jacques Exploration area is structurally higher than the Tweed Lake Exploration area by at least 200 milliseconds on average. Regional dip is to the southeast.

The Cambrian salt to Proterozoic isochron changes rapidly, Figure 3.7. Regionally, the isochron thickens from 240 milliseconds in the west, to over 600 milliseconds in the south, and to about 360 milliseconds in the northeastern part of the program area. Proterozoic highs and lows broadly correspond to isochron thins and thicks.

3.4.2 Depositional History

When compared to regional studies, an anomalously thick Cambrian section was encountered. Thickness variations in the Cambrian salt to Proterozoic isochron map appear to occur as a result of changes within the entire Cambrian section, not just the salt. Examination of Cambrian salt cores of the Vermillion Ridge N-28 well, 60 kilometres south, show no evidence of post-depositional disturbances according to Applied Geoscience and Technology (AGAT) Consultants Ltd (1977). Therefore a Saline River Formation salt section of over 600 metres is probably a depositional feature not a tectonic feature. Combine this isopach with over 600 metres of Mount Cap encountered in the Keele River L-04 well 165 kilometres south and a very thick Cambrian section of about 600 milliseconds or 1500 metres is feasible.

The Mahony Lake project area is interpreted to have been a major graben centered east of Mahony Lake and west of the Jacques Range in Early Cambrian time. The northern extent of this graben is probably near Tunago Lake, 60 kilometres north, as the Cambrian section is considerably thinner in that region. This graben would be an extension of a graben of similar age to the south between the Mackenzie Arch and the Bulmer-Wolverine Arch, Figure 3.1. After the deposition of Early and Middle to Upper Cambrian clastics and evaporites, the graben ceased subsiding and a normal shallow marine carbonate shelf existed until Late Devonian time.

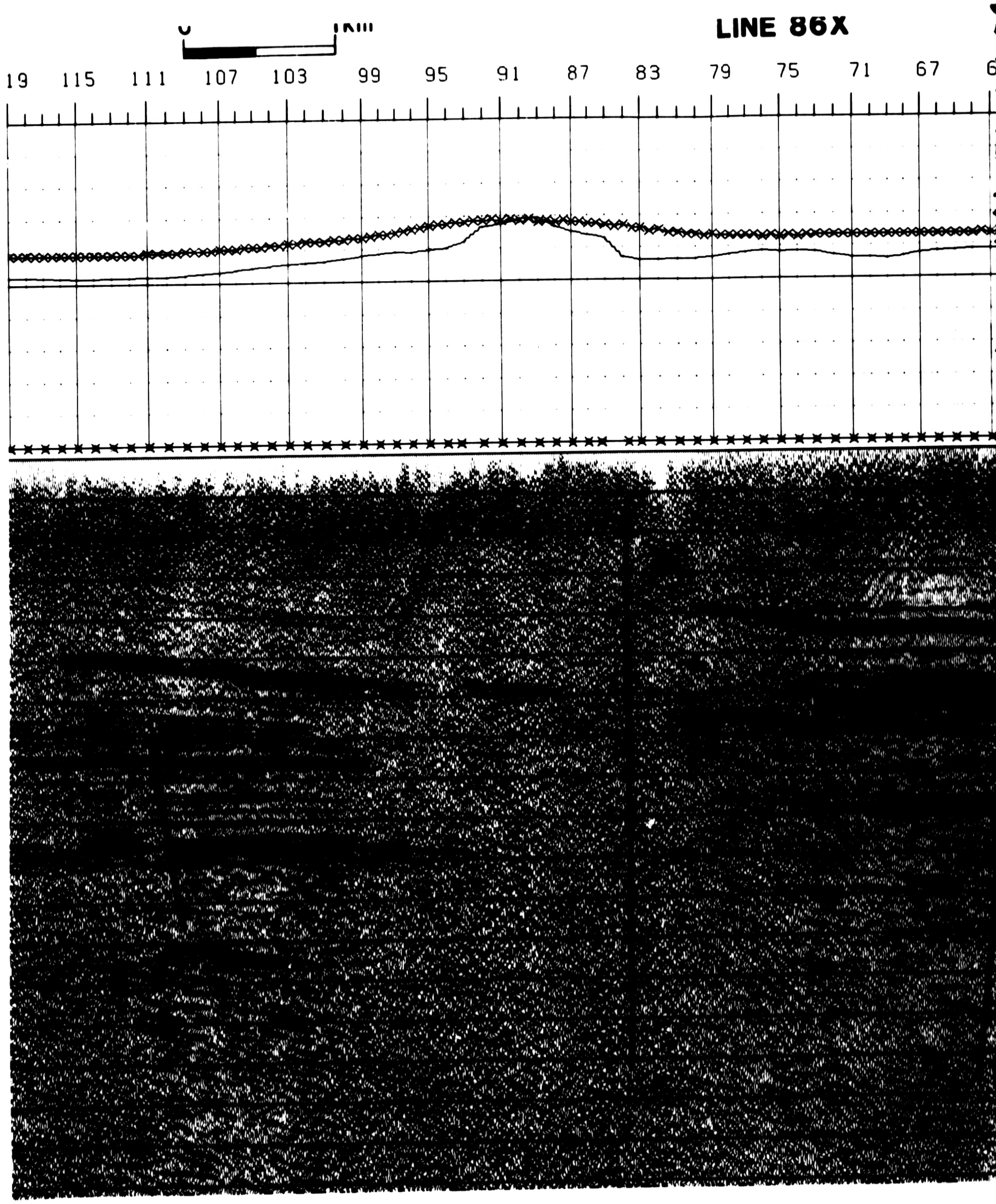
3.4.3 Fault Interpretation

The seismic data demonstrates that the faulting is complex and that activity occurred frequently in geologic history. Normal, high and low angle reverse, and strike-slip faults can be expected (Cook, 1983). Reverse and thrust faults are a result of compression during the Laramide Orogeny. Normal faults may have occurred as a compensating mechanism during the Laramide Orogeny and as block faulting in earlier tectonic movements. Strike-slip faults may also appear as normal faults with alternating fault directions and isochron changes.

The Lac-a-Jacques Exploration Agreement structural mapping shows a south dipping series of small low relief folds, possibly a drag phenomenon, paralleling the Jacques Range. This range appears to be the result of deep seated reverse faulting of uncertain angle, but some strike-slip movement may have occured as well, producing the folds. Rapid reversals of dip occur along the range.

The most prominent feature on the Tweed Lake Exploration Agreement mapping is a southeast trending anticline plunging from the northern part of the Jacques Range between Mahony Lake and Kelly Lake. This structure is highly faulted and on trend with the Mount Clark Formation outcrop north of Kelly Lake.

Thrust and reverse faults definitely involve the entire Paleozoic section. Cambrian salt tectonics do not play a major role in this area. The Camrbian salt to Proterozoic isochron map shows no evidence of unusual thickening across the Jacques Range as would be expected if thrusting occurred from a decollement within the Cambrian salt. Thrusting from such a zone occurs further west in the Franklin Mountains (Cook, 1983) and is apparent on a secondary basis in this area. See line 86X, Figure 3.8, for examples of both styles of faults. Theoretically thrusting could occur from a glide plane above the salt, but this is not evident from the seismic data.


LINE 86X
0
1KM
19 115 111 107 103 99 95 91 87 83 79 75 71 67

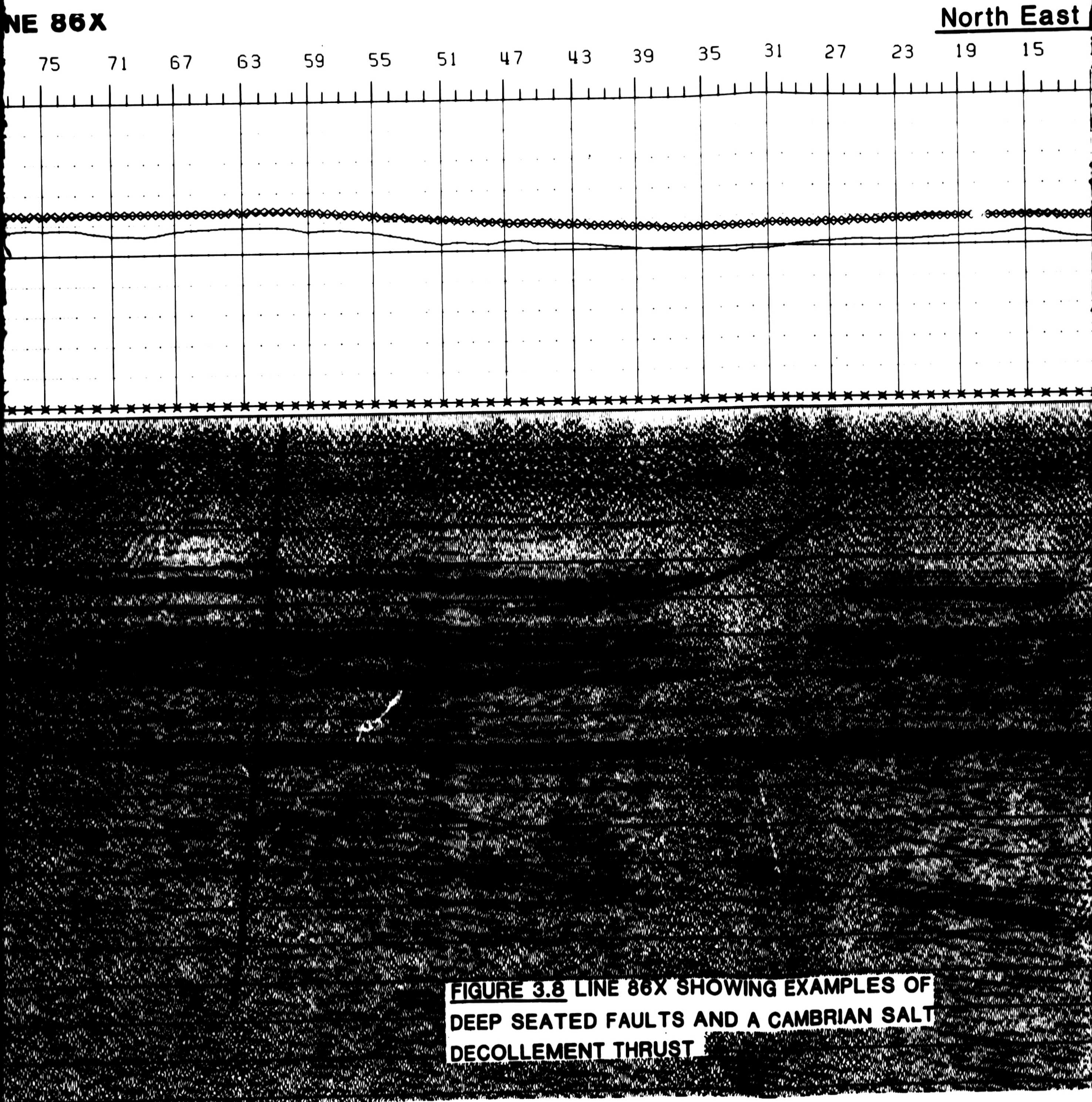
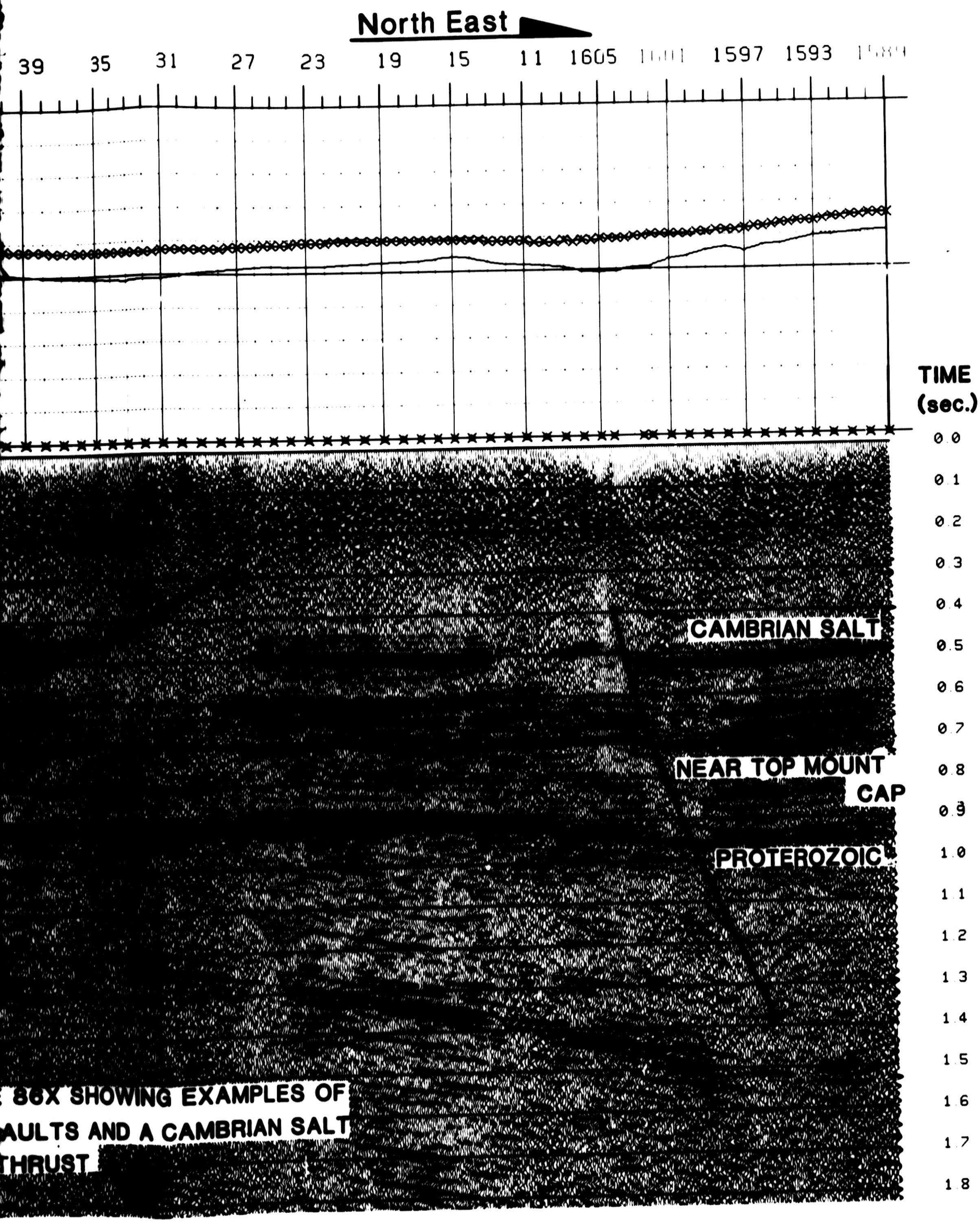
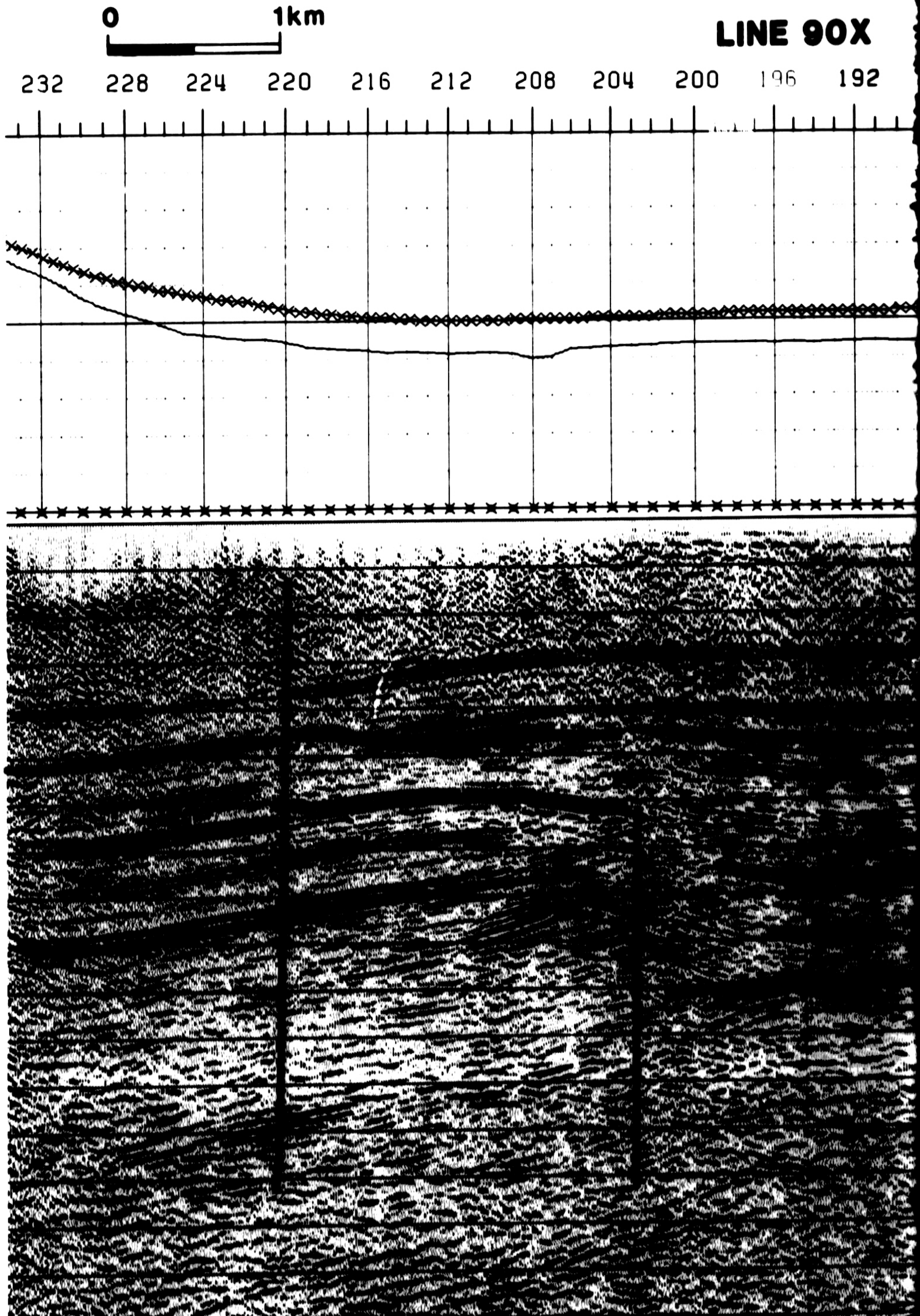


FIGURE 3.8 LINE 86X SHOWING EXAMPLES OF DEEP SEATED FAULTS AND A CAMBRIAN SALT DECOLLEMENT THRUST


North East
39
35
31
27
23
19
15
11
1605
1597
1593
TIME
(sec.)
0.0
0.1
0.2
0.3
0.4
CAMBRIAN SALT
0.5
0.6
0.7
NEAR TOP MOUNT
CAP
0.8
0.9
PROTEROZOIC
1.0
1.1
1.2
1.3
1.4
1.5
86X SHOWING EXAMPLES OF
AULTS AND A CAMBRIAN SALT
THRUST
1.6
1.7
1.8


0
1km
LINE 90X
232 228 224 220 216 212 208 204 200 196 192

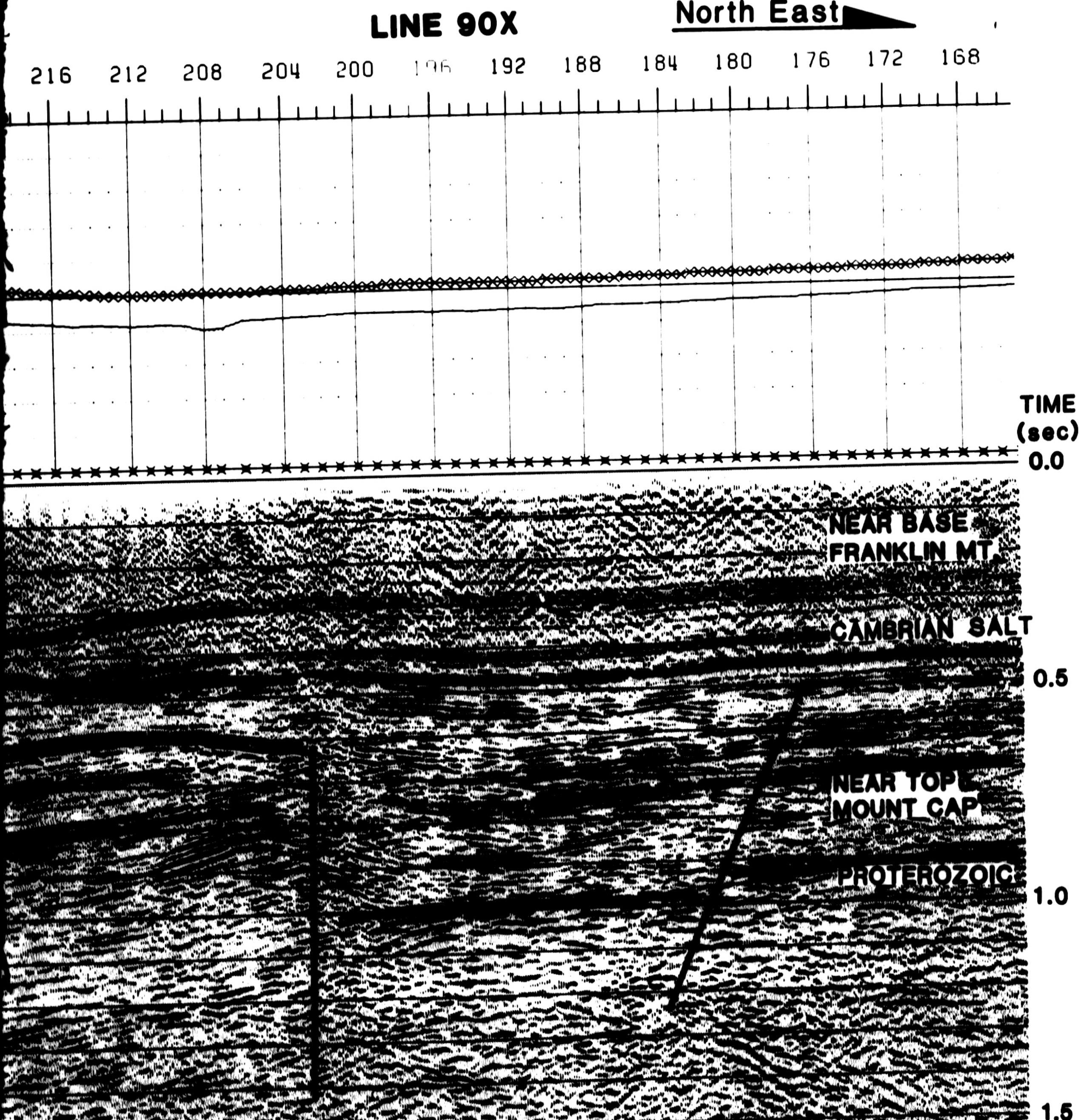


FIGURE 3.9 LINE 90X SHOWING A MAJOR MIDDLE CAMBRIAN FAULT

Faults penetrating the entire sedimentary section appear to be a result of, or underwent reactivation, during the Laramide Orogeny. Numerous faults appear to be Cambrian in age. The best example is shown on line 90X, Figure 3.9, where a major down-to-the-east throw of 260 milliseconds does not penetrate the top of the Cambrian salt. The Cambrian salt to Proterozoic isochron map shows a substantial thick to the east, paralleling this north trending feature. Some thinning of the ischron occurs on the upthrown side in the interval interpreted to be near top Mount Cap Formation to Proterozoic, suggesting this fault originated before the final deposition of the Mount Cap Formation. The Saline River Formation appears to drape over this escarpment. Onlapping is evident above the Cambrian salt marker also.

Line 90X (extension), Figure 3.10, shows intra-Cambrian mounding which may be indicative salt flowage. Salt tectonics does not appear to be a major mode of deformation, as previously noted.

3.4.4 Future Exploration

Additional seismic data to delineate the Mahony Lake area was not undertaken in the 1984-85 winter season.

Structures are of small areal extent, about 25 square kilometres. However, expected Mount Clark sand thickness of over 50 metres will allow for sizeable reservoirs.

Paleoenvironmental reconstruction based on geologic data and seismic evidence suggests submarine fans or turbidites may be present. These can probably be expected to occur in the Mount Clark Formation, however, the Mount Cap Formation should not be disregarded.

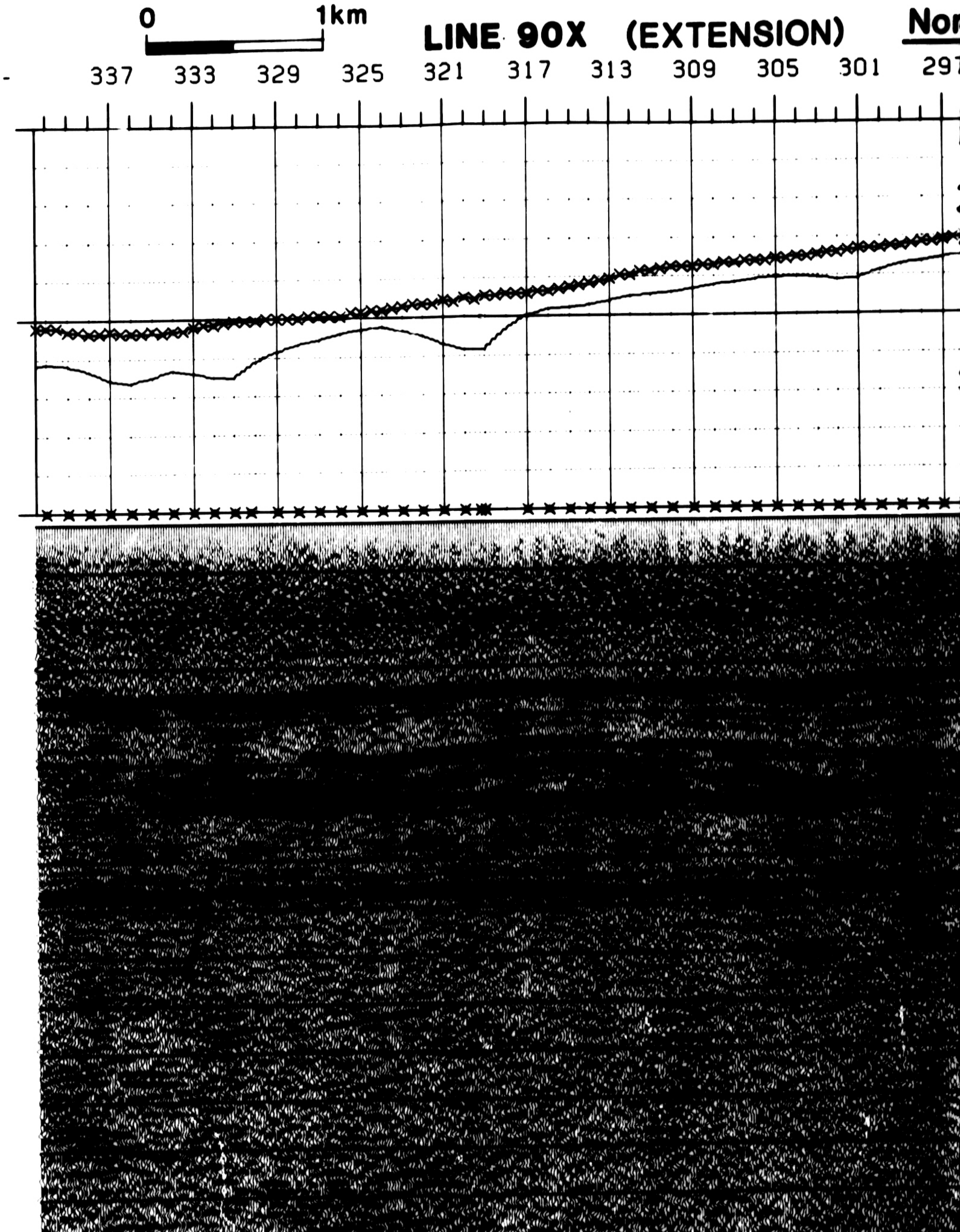


FIGURE 3.10 LINE 90X (
SHOWING AN INTER-CA

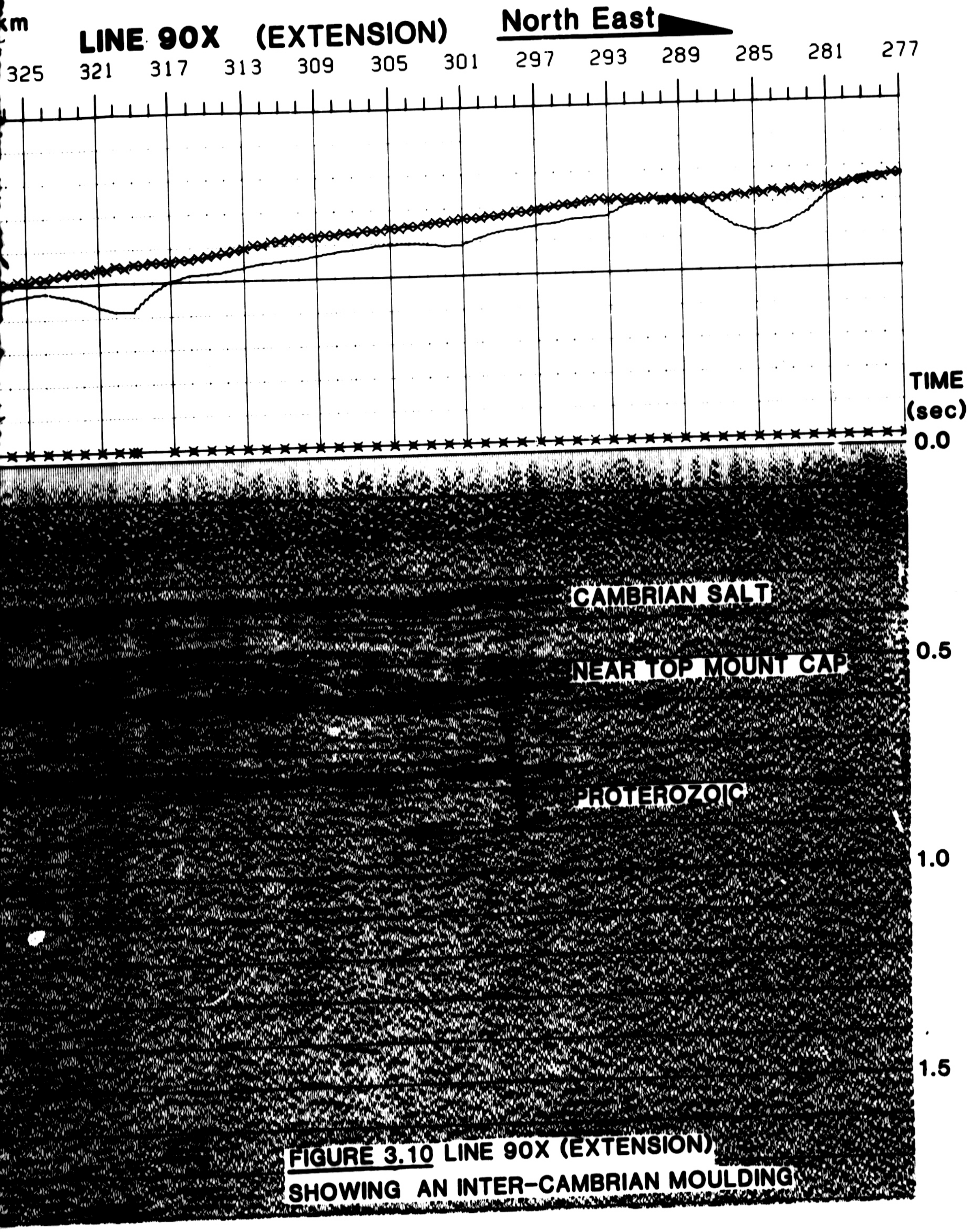


FIGURE 3.10 LINE 90X (EXTENSION)
SHOWING AN INTER-CAMBRIAN MOULDING

The Mount Cap Formation to Proterozoic intervals show a characteristic marine shale signature with chaotic reflectors and mounding. Additional work is required to positively identify the base of Cambrian salt and top of the Mount Cap Formation; allowing differentiation between possible Mount Cap Formation bioherm mounds and salt pillowing in the overlying Saline River Formation. Figure 3.10 illustrates intra-Cambrian mounding of uncertain origin. This mound, near the top of the Mount Cap, exhibits relatively high amplitudes which would be unusual for a salt section. There are also indications of pull-up beneath the moun suggesting it is composed of higher velocity material than its surroundings.