

**SUMMER 1997 FORT LIARD PROGRAM**

**FINAL PLAN REPORT**

**on the**

**NON-PROPRIETARY HELIPORTABLE DYNAMITE SEISMIC SURVEY  
in  
FORT LIARD AREA  
N.W.T.**

**PROGRAM #9229-B059-006P  
LUP N95B340**

**by**

**B.F.R. GEOPHYSICAL CONSULTANTS LTD.**

**Duration:  
Contractor:  
Author:**

**February through March 1997  
Geco Prakla  
Philip D. Gregory, P. Geoph  
Vice President**

A handwritten signature in dark ink, appearing to read 'Philip D. Gregory', is written over a horizontal line.

**Date:**

**MAY 8, 1998**

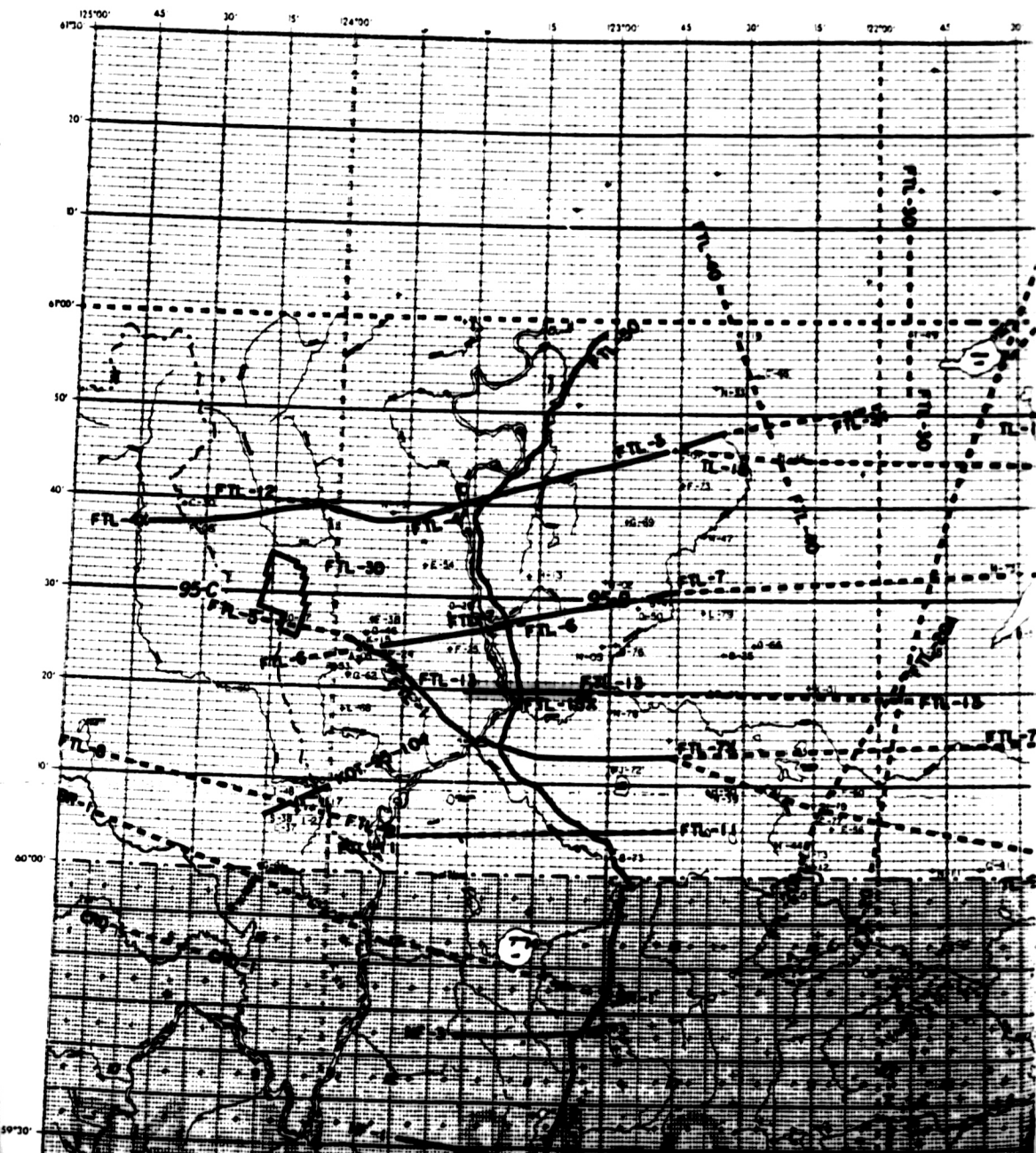
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## **INTRODUCTION**

**B.F.R. Geophysical Consultants Ltd. specializes in speculative seismic programs in foothills and frontier areas of Canada. With the lifting of the exploration moratorium in the Ft. Liard area we perceived an opportunity to establish the beginnings of a modern high quality regional grid of seismic .**

**Using a combination of existing data, access well and geology, we proposed a program that we felt would provide a grid of seismic that would help establish a new geological framework for the area.**



# STATISTICAL SUMMARY

## Significant Dates:

<b>Commencement:</b>	<b>February 13, 1997</b>
<b>Start Production:</b>	<b>March 26, 1997</b>
<b>Termination:</b>	<b>March 29, 1997</b>

**Number of Technical Personnel:** 48

**Number of Non-Technical Personnel:** 15

## **Type and Number of Equipment Used:**

- 1 Air conditioned Recording Cabin mounted on an F700 4x4. Separate diesel driven 17 kVA generator supplying power for air conditioning and instrumentation.
- 1 Party Manager Unit - F250 4 x 4
- 4 Line Units - F350 4 x 4
- 2 Transport units - F700 4 x 4 (or equivalent)
- 1 Support Unit - F250 4 x 4
- 1 Mechanical Unit - F250 4 x 4
- 2 Personnel Carrier
- 1 Battery Charging Unit
- 2 Snowmobiles/Quads
  - 1 Vibrator Technician Unit
  - 1 Fuel Unit and Spare Parts Trailer
- 4 Mertz M18HD Buggy Vibrators

**Statistical Summary cont.**

**Production Data:**

**Total Distance Surveyed:** 24.680km

**Time Lost:** No time was lost due to weather conditions

**Daily Production:** 24.680 kilometers were shot in 8 days

**Summary of Conditions Pertaining to Weather and Terrain:**

Mostly muskeg with some heavy underbrush. Line crossed the Liard River.

**Summary of Factors Which Caused Down Time:**

N/A as no time was lost.

# **DATA ACQUISITION EQUIPMENT and FIELD PROCEDURES**

## **Positioning & Survey Systems:**

Conventional survey methods were used on all lines. The process involved traversing along the line and surveying in the shot points and receiver stations. Heights were surveyed using trigometric leveling. Error tolerances were within 10m horizontally and 1m vertically. Survey computations were reduced using the Nad 27 datum. UTM values are for Zone 10 using a CM of -123° W longitude.

Control was established using GPS to densify existing Federal government markers.

Repeatability is + or - 10m horizontally and + or - 1m vertically using permit tags to re-establish.

<b>Parameters of Energy Source:</b>	Vibroseis
<b>Source Array:</b>	4 Vibes
<b>Detector Equipment:</b>	Cable - 400 Channels - Split Spread 6 Geophones per Group 2.5m Geophone Spacing Type OYO 10 Hz
<b>Detector Array:</b>	9 Geophones over 20m
<b>Recording System:</b>	I/O System II SEG-D
<b>Recording Parameters:</b>	
<b>Shot Interval:</b>	40/80 m
<b>Station Interval:</b>	20 m
<b>Channels:</b>	400

**Data Acquisition con't**

**Far Offsets:** 3007.5 m

**Near Offsets:** 22.5 m



# GEOPHYSICAL DATA PROCESSING

## FOR SEISMIC REFLECTION DATA:

Gain Recovery:	Spherical Divergence Correction
Bandpass Filter:	12-14-80-90Hz
Mute Pattern:	all offsets
Type of Deconvolution:	Surface Consistent Spiking <ul style="list-style-type: none"><li>- Operator Length : 120 ms</li><li>- Prewhitening : 0.1 PCT</li><li>- Design Window:<ul style="list-style-type: none"><li>* 0250-2800 ms @ 15 m</li><li>* 950 - 2900 ms @ 3200 m</li></ul></li></ul>
Type of Velocity Analysis:	Interactive Velocity Analysis
Distance Between Analysis:	N/A - analysis on whole line velocity panels
Picking Method:	Stack panels

## STATIC CORRECTION METHOD PARAMETERS:

Statics	Refraction
DRM refraction statics	
Datum elevation	500 m
Replacement Velocity:	4000 m/s
Iterations	6

## **Geophysical Data Processing cont'd.**

### **MIGRATION METHOD PARAMETERS:**

Finite Difference Migration  
Using 90% of V6 NMO velocity

### **TIME AMPLITUDE DISPLAY METHOD:**

Time Variant Scaling:

7 Gates

### **DISPLAY PARAMETERS:**

Horizontal:	50 TPI
Vertical:	7.5 IPS

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## **LIST OF LINES AND KILOMETERS SHOT PER LINE**

**FTL - 13**

**24.680 km**

# **ENCLOSURES**

## **LINE FTL-13**

### **MYLARS**

2	Shot Point Map
2	Migration Stack Section
2	Structure Stack Section

### **PAPER**

2	Shot Point Maps
2	Migration Stack Sections
2	Structure Stack Sections

### **DISK**

1	Survey Floppy
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