

GEOPHYSICAL REPORT

ON

PLACER LEASE #5678

FOR

RALEIGH ENERGY CORPORATION
400-905 WEST FENDER STREET
VANCOUVER, BRITISH COLUMBIA

BY

F.J.R. SYBERG
22313 124th AVENUE
MAPLE RIDGE, BRITISH COLUMBIA.

120058

Part A

GEOPHYSICAL INTERPRETATION

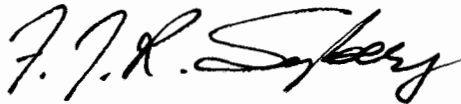
SUMMARY

This report represents the results of the interpretation of a preliminary test refraction survey conducted over the placer lease #5678 during 1981.

The depth of workable gravels are less than 30 meters. Poor sampling of overburden velocities have negated computation of more detailed relief of bedrock .

A high resolution signal enhancement refraction survey for a maximum detection depth of 30 meters is recommended. Further, the details of such a survey are recommended to facilitate wavefront reconstruction interpretation.

Respectfully submitted,



Fred J.R. Syberg, B.Sc.
Geophysicist.

October 22, 1981.

120058

Location, Date of Work, Crew, Instrument.

Location : Placer lease #5678

NTS : 115-P-13

63 deg.45 min. N Lat. by 137 deg.35 min. E Long.

Date of Work :

Field work : Sept. 7 - Sept. 9, 1981

Interpretation : October 16 - October 17, 1981.

Field Crew :

S. Young - Geophysical Operator.
A. Johnngard - Field Assistant.
R. Babchuck - Field Assistant.

Instrument : GeoMetrics Nimbus 125 with hammer.

Length of Survey: 1.4 line km.

120058

F.J.R.S.

INTRODUCTION

Persuant to an agreement between Raleigh Energy Corporation and Donegal Development Ltd. refraction seismic surveying was conducted on a series of test lines during 1981.

The nature of the survey has been targeted towards detecting workable gravels above a bedrock interface below 30 meters in depth. In this respect the spread intervals were preset at 10 meters.

The survey procedure consisted of instrument set-up with signal generation being accomplished by striking a steel plate with a sledge hammer one or more times. A first arrival T-X curve was collected by moving the hammer source in a step-out fashion.

Each line was "shot" unilaterally due to cost-efficiency and only where deemed necessary were the spreads "shot" bilaterally.

The recording method consisted of presetting instrument gain and time delay. The first break, gain and delay time were noted for each step-out.

DATA REDUCTION

The reduction of field observations consisted of:

- 1) Delay time adjustment.
- 2) Dealias of T-X curve on a computer.

INTERPRETATION :

The targeted detection depth of plus 30 meters has shown to be too deep everywhere. These findings, therefore, permit the specification of a detailed refraction survey.

None of the T-X curves indicated gravel velocities in the order of 2500 to 3000 meters per second. In general, these curves depicted for the most part higher refractor velocities.

RECOMMENDATIONS :

A detailed series of refraction seismic survey lines are recommended to be scheduled.

One survey line paralleling the creek approximately at the centre of workable gravels should be shot using a hammer source for short step-outs and electric blasting caps or light 75% Forcite explosive charges at longer step-outs. The spreads should be 180 meters in length and shot bilaterally. The survey of this line should be conducted with half-spread overlaps, 90 meters. The source locations are recommended to be located at the following distances from the instrument:

1.25 m., 2.5 m., 3.75 m., 5 m., 7.5 m., 10 m.
then every 5 meters.

At the end of every second spread, every 180 meters, detail spreads perpendicular to the above line should be shot bilaterally within boundaries of workable gravels. The data gathered in this manner is recommended to be interpreted using the wavefront reconstruction method. This method automatically adjusts for migration. The detail cross-section lines will provide for dip adjustment in the computation of true depth.

The cost of the above work on site is estimated at approximately \$1,200.00 per line km., not including mobilization/demobilization of field crews.

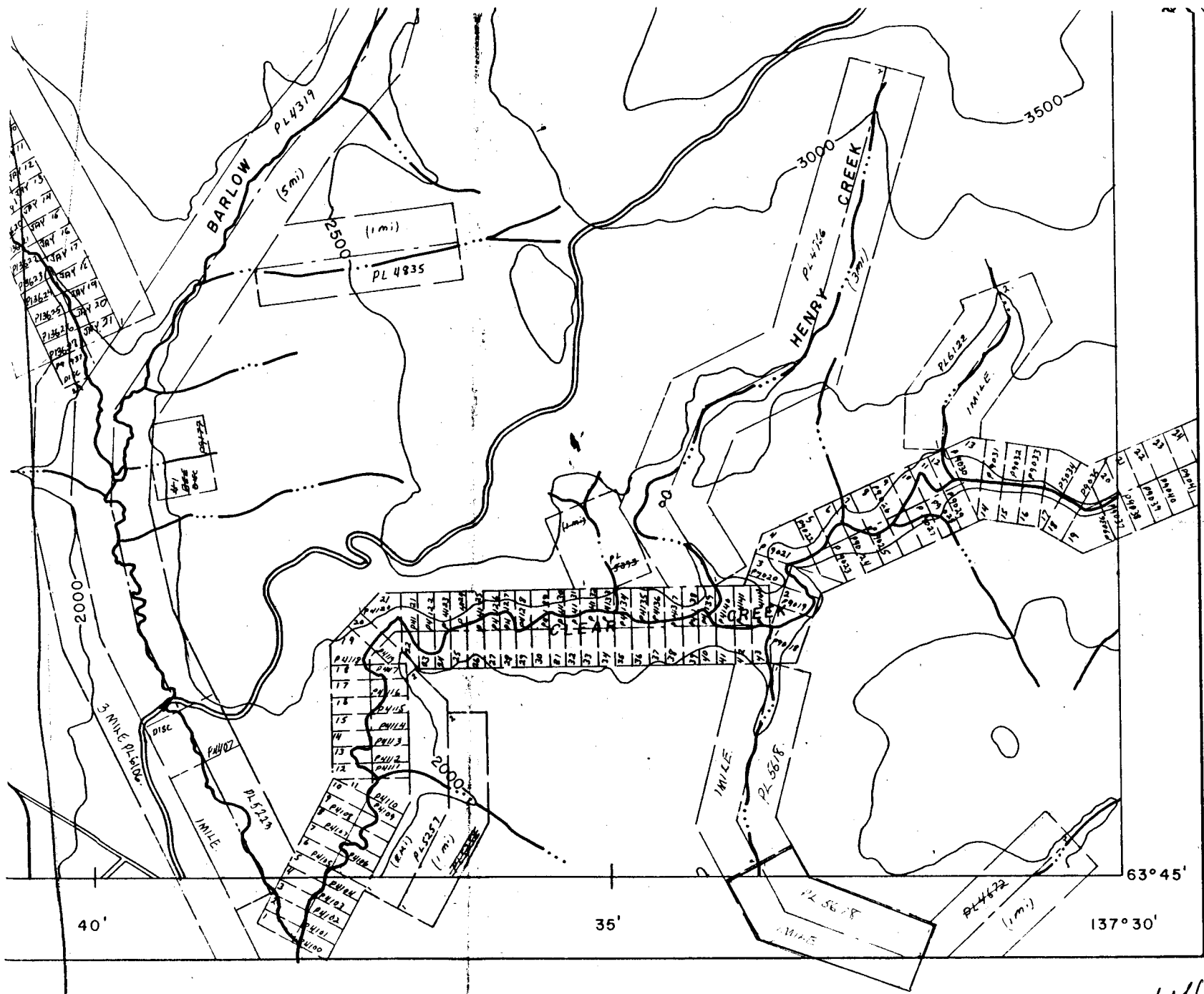
CERTIFICATE OF QUALIFICATIONS

I, Fred J.R. Syberg, do hereby certify that:

- 1) I am a practising geophysicist with offices at 22313 124th Avenue, Maple Ridge, B.C., Canada V2X 4J6.
- 2) I am a graduate of the University of British Columbia where I obtained my B.Sc.(Geophysics) in 1967.
- 3) I am a member in good standing of:
The Society of Exploration Geophysicists.
- 4) I have been engaged in the study, teaching and practice of exploration geophysics continuously for 14 years. I have worked as a consulting geophysicist on numerous projects internationally since 1969.
- 5) The geophysical field work of this report was done by Mr. S. Young, Donegal Development Ltd., 715-475 Howe Street, Vancouver, B.C., and at my recommendation. The interpretation of the results was done by the undersigned.



Fred J.R. Syberg, B.Sc.
Geophysicist.



63° 45'

40'

35'

137° 30'

P.P.R.S.

1 MI

120058

RALEIGH ENERGY CORPORATION

400 - 905 W. Pender Street
Vancouver, B.C.

HAMMER SEISMIC
REFRACTION SURVEY
DATA

on

Placer Lease: 5678

890021

Part B.

B.L. revrs.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.8	2.8
20	3.7	4.3
30	6.3	6.2
40	8.2	8.0
50	9.6	9.6
60	10.8	11.2

Estimated Refractor Velocity : 5867.
1st Layer Velocity : N/A

B.L. forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.4	2.4
20	4.1	4.1
30	5.6	5.7
40	6.8	7.3
50	10.8	9.7
60	10.2	10.7

Estimated Refractor Velocity : 5863.
1st Layer Velocity : N/A

1E revrs,

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.5	2.5
20	5.2	4.8
30	5.4	6.3
40	7.6	8.4
50	11.1	10.9
60	14.5	13.4
70	16.2	15.3

Estimated Refractor Velocity : 4818.
1st Layer Velocity : N/A

1E forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	1.7	1.7
20	4.2	3.7
30	6.0	5.6
40	7.8	7.4
50	10.2	9.4
60	9.2	10.3
70	12.2	12.5

Estimated Refractor Velocity : 5475.
1st Layer Velocity : N/A

2E revrs.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	1.5	1.5
20	3.3	3.3
30	4.3	4.9
40	7.9	7.2
50	9.4	9.0
60	10.4	10.5
70	10.4	11.8
80	12.9	13.9
90	18.3	16.7
100	18.9	18.2

Estimated Refractor Velocity : 5487.
1st Layer Velocity : N/A

2E forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.2	2.2
20	4.2	4.0
30	5.6	5.6
40	7.6	7.4
50	9.2	9.1
60	10.7	10.7
70	12.9	12.6
80	14.4	14.3
90	15.1	15.7
100	17.2	17.5

Estimated Refractor Velocity : 5828.
1st Layer Velocity : N/A

3E revrs.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	1.8	1.8
20	3.9	3.6
30	4.9	5.2
40	8.2	7.4
50	10.3	9.2
60	9.3	10.1
70	14.3	12.9
80	15.9	14.6
90	15.0	15.5

Estimated Refractor Velocity : 5743.
1st Layer Velocity : N/A

3E forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.4	2.4
20	3.8	4.2
30	5.6	6.2
40	10.2	9.1
50	9.8	10.4
60	12.5	12.6
70	14.4	14.6
80	16.9	16.8
90	16.4	18.1

Estimated Refractor Velocity : 4864.
1st Layer Velocity : N/A

4E revrs.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.2	2.2
20	3.8	4.1
30	5.5	6.1
40	7.2	8.1
50	10.3	10.4
60	12.3	12.5
70	14.9	14.7

Estimated Refractor Velocity : 4829.
1st Layer Velocity : N/A

4E forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	1.7	1.7
20	3.3	3.6
30	5.1	5.5
40	8.2	7.8
50	11.1	10.1
60	10.7	11.3
70	16.0	14.3

Estimated Refractor Velocity : 5038.
1st Layer Velocity : N/A

SE revrs.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.5	2.5
20	4.3	4.5
30	6.8	6.6
40	8.1	8.4
50	12.2	11.0
60	10.8	12.1

Estimated Refractor Velocity : 4963.
1st Layer Velocity : N/A

SE forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.8	2.8
20	5.0	4.6
30	7.0	6.4
40	8.0	7.9
50	8.9	9.3
60	11.0	11.2

Estimated Refractor Velocity : 5937.
1st Layer Velocity : N/A

6E revrs.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	1.8	1.8
20	3.9	3.7
30	5.2	5.4
40	8.3	7.6
50	10.5	9.6
60	9.3	10.5
70	14.8	13.4
80	15.1	14.8

Estimated Refractor Velocity : 5451.
1st Layer Velocity : N/A

6E forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	1.7	1.7
20	3.1	3.3
30	4.9	5.1
40	7.4	7.0
50	7.5	8.2
60	12.0	10.8
70	13.3	12.3
80	13.1	13.5

Estimated Refractor Velocity : 5850.
1st Layer Velocity : N/A

7E revrs.

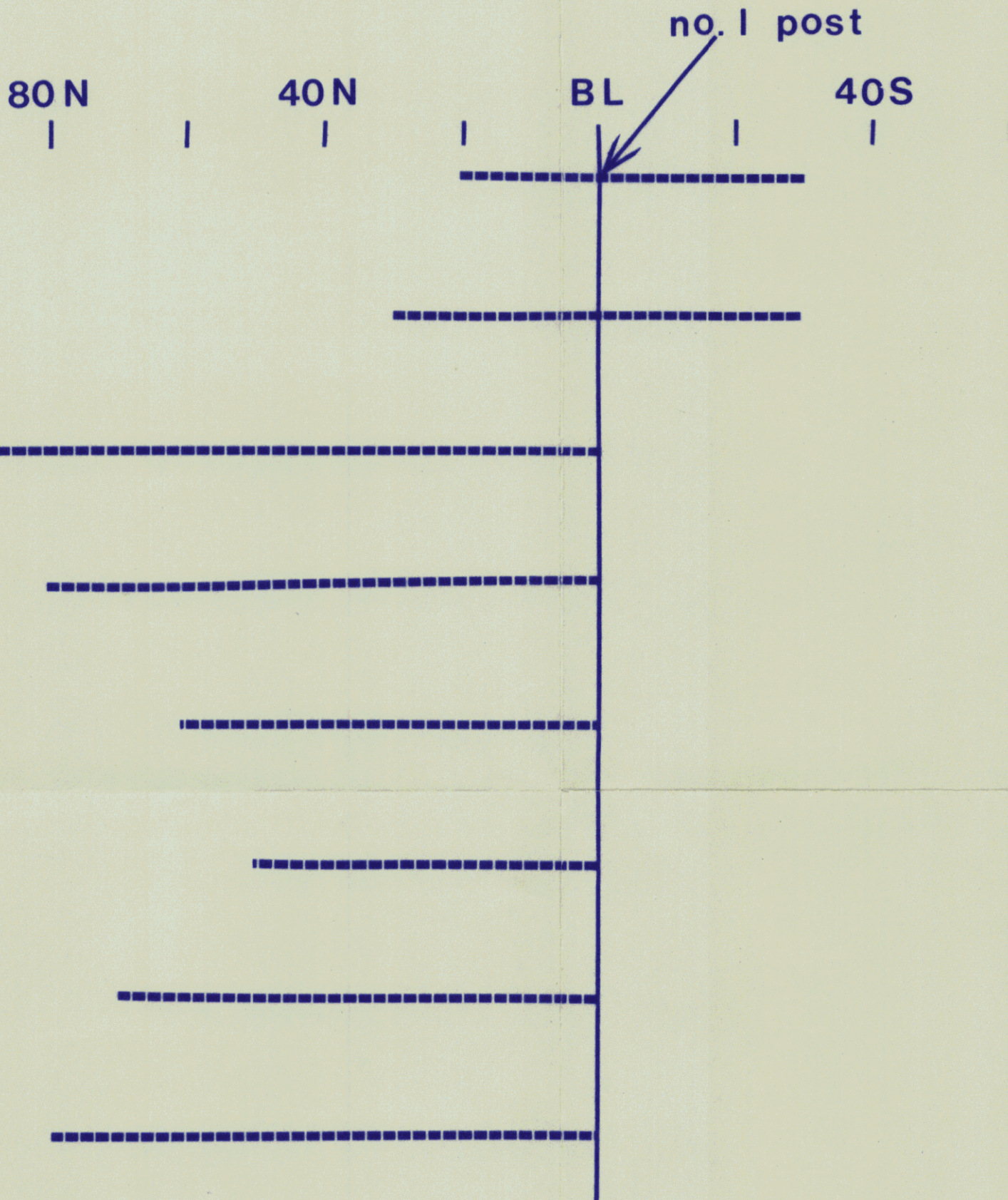
Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.6	2.6
20	3.9	4.4
30	6.5	6.6
40	9.8	8.9
50	10.1	10.4
60	14.9	13.3
70	16.6	15.2
80	17.9	16.9
90	18.4	18.5

Estimated Refractor Velocity : 5022.
1st Layer Velocity : N/A

7E forwd.

Off-set in meters	Observation +Delay msec.	Dealiased Observation msec.
10	2.8	2.8
20	4.5	4.7
30	6.7	6.7
40	8.8	8.8
50	9.1	10.2
60	13.9	13.1
70	12.8	14.1
80	17.1	16.8
90	20.7	19.3

Estimated Refractor Velocity : 5049.
1st Layer Velocity : N/A



Rayleigh Energy Corporation

Location of Hammer Seismic
Refraction Survey

PL 5678

Feb. 1982

F.J.R. Syberg - Consultant

F.J.R. Syberg *F.J.R. Syberg*

120058 PART B

4