

PLACER ASSESSMENT REPORT X

DOCUMENT NO: 120149

MAP NO.: PROSPECTUS

MINING DISTRICT: Whitehorse

115 G/5

CONFIDENTIAL X

TYPE OF WORK: Seismic testing

OPEN FILE

REPORT FILED UNDER: Jim Fidel

DATE PERFORMED: December 21, 1991

DATE FILED: March 3, 1992

LOCATION: LAT.: 64°23'N

AREA: Wade Creek

LONG.: 138°23'W

VALUE \$: 1400.00

CLAIM NAME & NO.: Wade Creek Placer Lease #8773

WORK DONE BY: Ted Sandor

WORK DONE FOR: Jim Fidel

DATE TO GOOD STANDING:

REMARKS: 115 - G Wade Creek

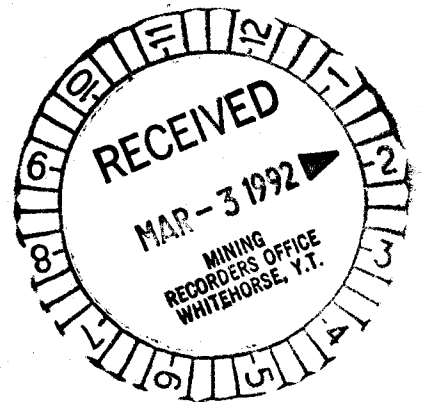
A reconnaissance seismic reflection survey consisting of four test shots was conducted over the claim. The author interpreted the results as showing bedrock occurring at a depth of between 5 and 10 ft..

SEISMIC TESTING REPORT

WADE CREEK PL#8773

120149

Prepared by
TED SANDOR



...has been examined
...the geological foundation
...of the site is shown
...is recommended as
...work in the area

SEISMIC TESTING REPORT

Wade Creek PL#8773

NTS 115G

Prepared for

Owner: Jim Fidel
Site 15, Comp 34, R.R.2
Whitehorse, Yukon
Y1A 5A5
and
Fieldsman: Scott Cone
Box 964
Dawson City, Yukon
YOB 1G0

Prepared by
Ted Sandor
RR1 Site 20 Comp 121
Whitehorse, Yukon
Y1A 4Z6

(Phone/Fax 667-6199 (403))

December 21, 1991

120149

120149

This report has been examined by
the Geological Evaluation Unit under
Section 41 Yukon Placer Mining Act
and is recommended as allowable
representation work in the amount
of \$1,400.00.....

Robert Decker

for Chief Geologist, Exploration and
Geological Services Division, Northern
Affairs Program for Commissioner of
Yukon Territory.

11 11 57
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ASSESSMENT REPORT

on December 21, 1991

Seismic Survey

on Wade Creek

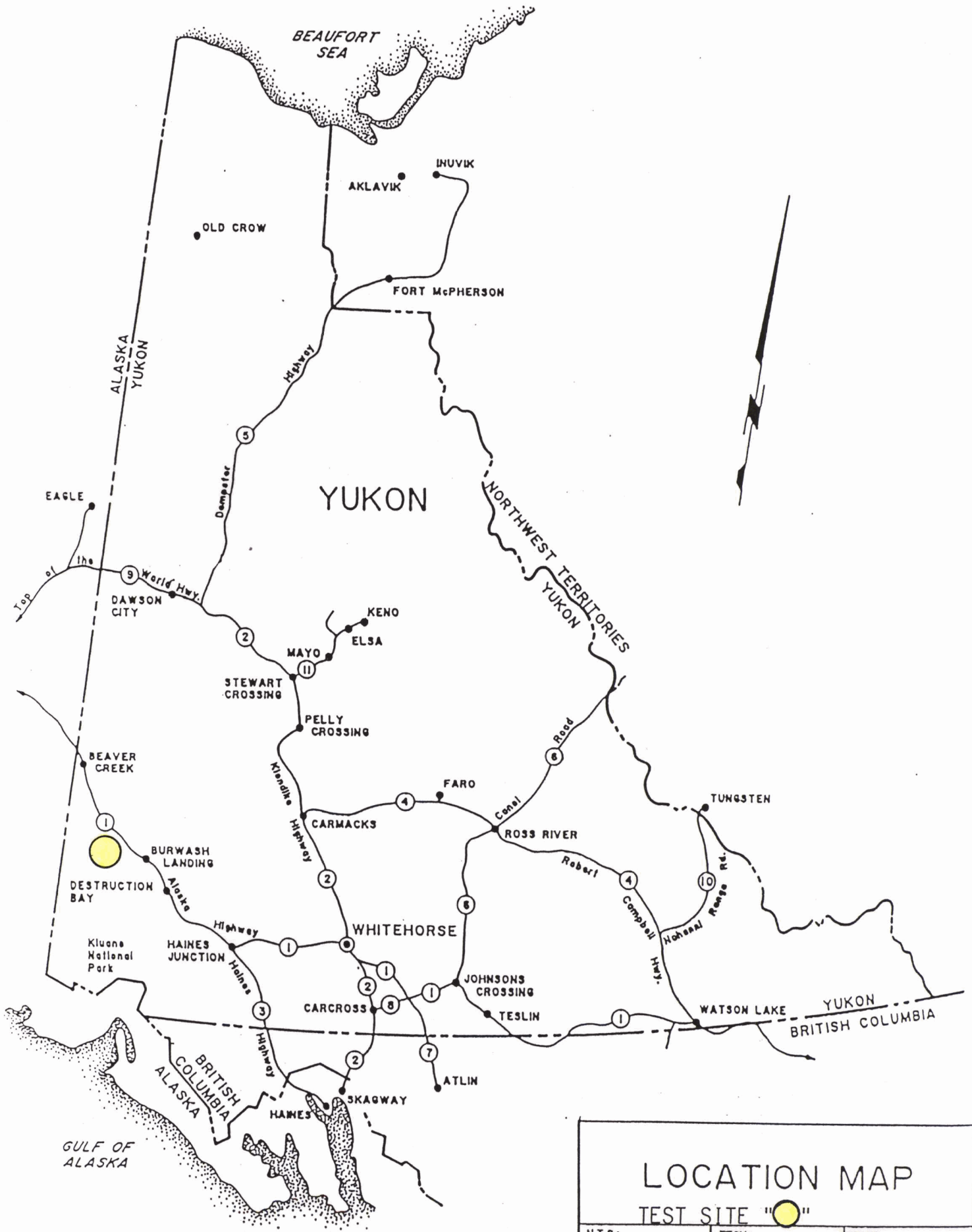
PL#8773

1. INTRODUCTION

On December 21, 1991 a seismic survey was conducted on Wade Creek PL#8773 for the owner Jim Fidel by fieldsman Scott Cone.

Scott Cone, using a compass and hip chain, located four (4) test sites on PL#8773. Test location was marked with flagging and labelled (See Fig.C).

The seismic consultant, Ted Sandor, processed field recordings and interpreted the data received.



LOCATION MAP

TEST SITE "●"

N.T.S: 115G + 115F	TECH:	DATE: DEC 21/91
SCALE: 1"=12.5ml.	DRAFTING: HANDESIGN	FIGURE: A



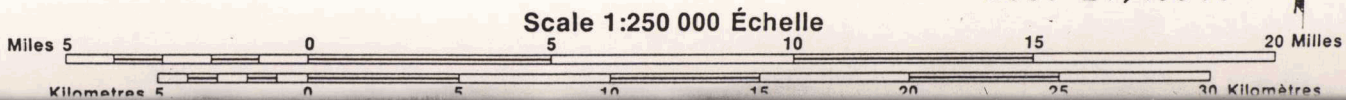
KLUANE LAKE

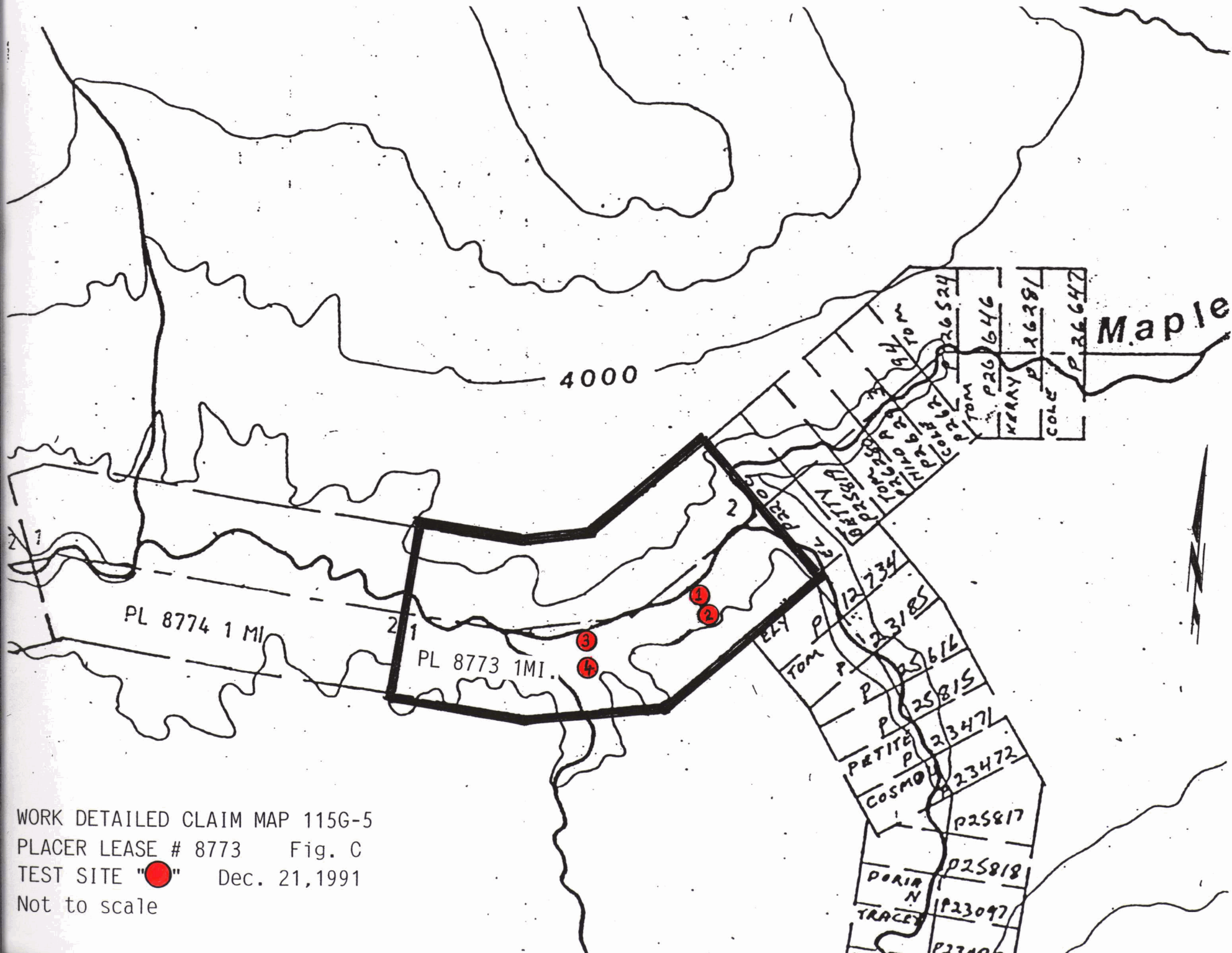
YUKON TERRITORY TERRITOIRE DU YUKON

LOCATION MAP
PL 8773

TEST SITE "●"

Fig. B
Dec. 21, 1991.





Maple

4000

PL 8774 1 MI

PL 8773 1MI.

WORK DETAILED CLAIM MAP 115G-5
 PLACER LEASE # 8773 Fig. C
 TEST SITE "●" Dec. 21, 1991
 Not to scale

2. SURVEY

2.1 Location and Access

Placer Lease #8773 is located 35 miles northwest of Burwash Landing.

Access to the test site was by 4x4 pickup on road. The last 15 miles was done by snowmobile. Testing was done on foot. (See Access Map Fig B)

2.2 Claim Information

<u>Name</u>	<u>Placer Claim Number</u>	<u>Owner</u>
N/A	PL#8773	Jim Fidel

3. PERSONNEL

Scott Cone surveyed, marked, measured, expedited and carried out the field work.

Ted Sandor supervised the quality, directed the data processing and prepared the report.

4. GEOLOGY

Unconsolidated glacial and alluvial deposits. Mineralization is evident with NI., CU., Pt, Au and gyp. to the north, east and south the prospects look excellent. Being between 2 thrust faults anything could be possible.

5. INSTRUMENTATION

Directional Electret Microphone

800 OHMS 30 - 18,000 Hz Response

Panasonic Magnetic Tape Recorder Model #RQ-L335

Frequency Range: 180 - 7,000 Hz

Tape Speed: 4.8 cm/s (1-7/8 I.P.S.)

Track System: 2-track monaural, recording and playback

16 ga. shotgun, 1-1/8 oz. shot, #7-1/2 shot

Software:

Sound Filler St. Visual Sample Editor

Requires TOS in ROM

This manual and the software described herein were copyrighted in 1987 by Drumware Inc., Los Angeles, California, with all rights reserved.

Akai Professional S700 Digital Sampler

12-Bit Sampling

Sampling Frequency: 4KHZ - 40 KHZ

Sampling Time: 8 Sec. - 08 Sec.

Frequency Response: 25 Hz - 16 KHz

Atari 520 St. Computer

Processor: MC6800, 32 Bit Internal,
16-Bit External Architecture
8 MHz clock frequency.

Memory: 524,288 Bytes of RAM; 196,608 Bytes of ROM

Keyboard: 94-key Intelligent keyboard, using 6301 Microprocessor

Storage Medium: 3-1/2 inch, Microfloppy disk;
Single-Side, Double Density;
135 Tracks per inch

Data Transfer

Speed: 250 Kilobits per second

Atari Sc. 1224 RGB Colour Monitor

Seikosha SP-1600 Dot Matrix Printer

Printing Method: Impact Dot Matrix Bidirectional Logic
Seeking Printing

Print Head: 9 Pins

6. THEORY

This report is intended as a guide to the application of seismic refraction and reflection techniques to shallow, subsurface exploration of engineering sites. Many civil engineers and geologists have some acquaintance with this basic geophysical tool, but few apply it frequently. The primary purpose of the report is to provide the reader with a working knowledge of the method, with a convenient reference, and further, with a basis to judge the applicability of the method and the results to his particular exploration problem.

Solid state electronics have improved the portability of engineering-type refraction and reflection instruments, but they operate fundamentally in the same way they did 50 years ago. The basic field practices and methods of interpreting the data have not changed with time, although specialized interpretational techniques have been proposed and developed for some difficult cases.

The conduct of refraction and reflection surveys and the interpretation of the data are well-established and reasonably straight forward, although they are not invariant. The user can change the field layout of his equipment and apply judgement and imagination in his handling of the raw data. In common with other indirect methods of subsurface exploration, there are no rigid inflexible approaches to making sense of the data, nor are there any handbooks that infallibly direct the engineer, geologist or geophysicist to the correct answer. The general case will require thought and care: ambiguities and uncertainties are not uncommon. Some foreknowledge of the site conditions and an understanding of what is geologically plausible will always assist in resolving the raw data into meaningful information.

Figure 1 shows a refraction survey. This method could be quite costly and require complicated data processing should multiple layers of soil and gravels be encountered.

6. THEORY CONTINUED

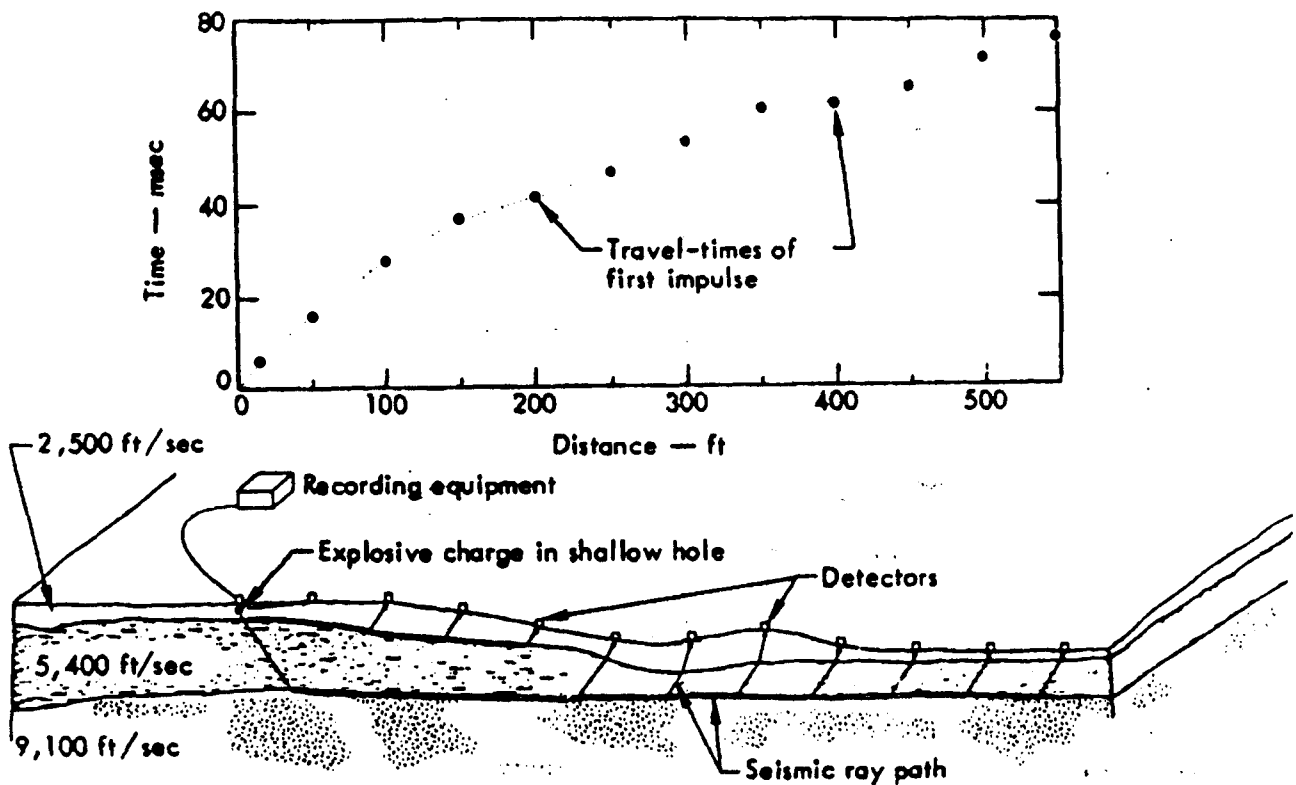


Figure 1. Schematic of Seismic Refraction Survey

There is a definite relation between reflected and refracted energy which could be observed in Figure 2B. Using this principle and Tables A1 and A2 calculation is simplified, for the sound in a reflected survey only has to go down, turn around at point of geophone or microphone without going along the higher velocity layers and then back up. Seismic waves will bounce off of most surface with a lot of amplitude but not necessarily with a wide range of frequencies. The reflected seismic waves returning to the geophone with the strongest amplitude and frequencies should come from the layer with the highest velocity change which, in most cases, should be bedrock (solid rock) or from a gravel layer directly beneath an organic surface cover.

6. THEORY CONTINUED

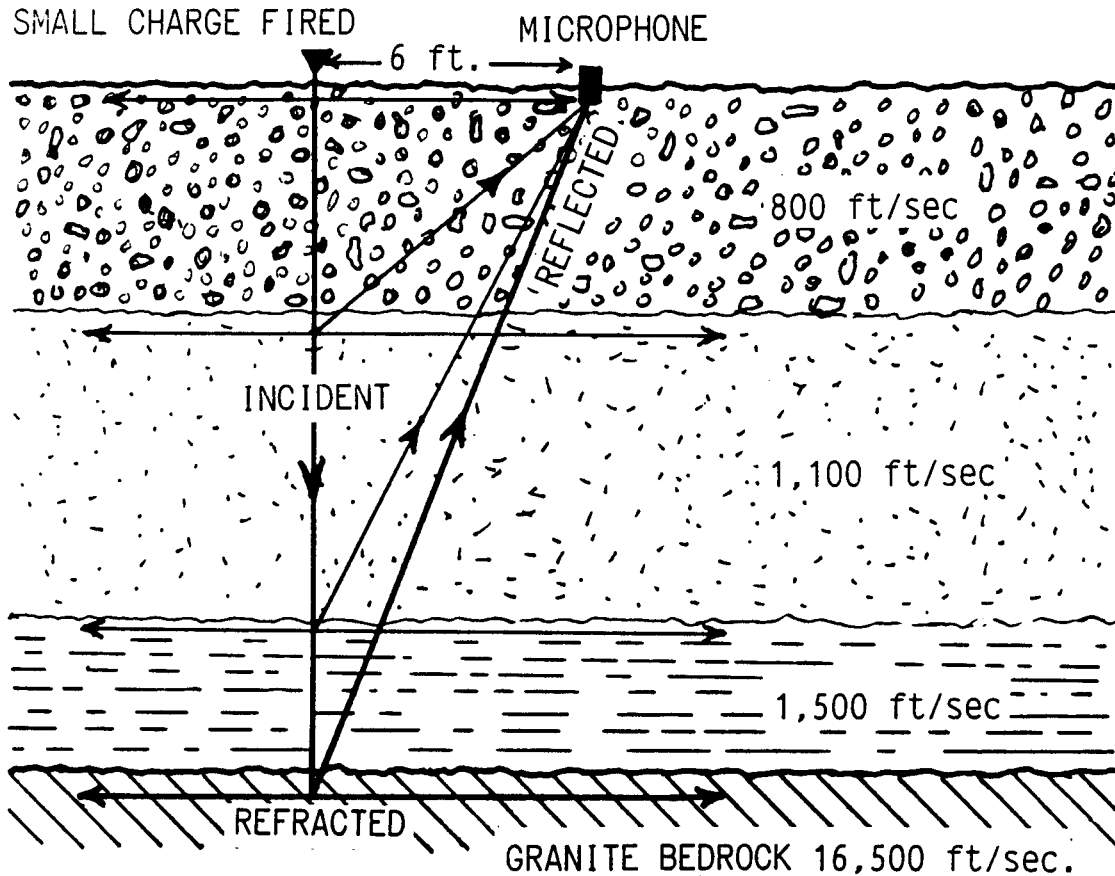


Figure 2. Schematic of Seismic Reflection Survey

The thicker line representing the reflected seismic wave from the bedrock to the microphone should be the wave with the highest amplitudes and the widest range of frequencies in Figure 2. The six foot distance from microphone to charge is to prevent damage to the delicate recording equipment. The error of this footage can usually be made up by averaging the total of the velocities a little higher to simplify interpretation. In this case "1,200 ft/sec." will be close enough.

6. THEORY CONTINUED

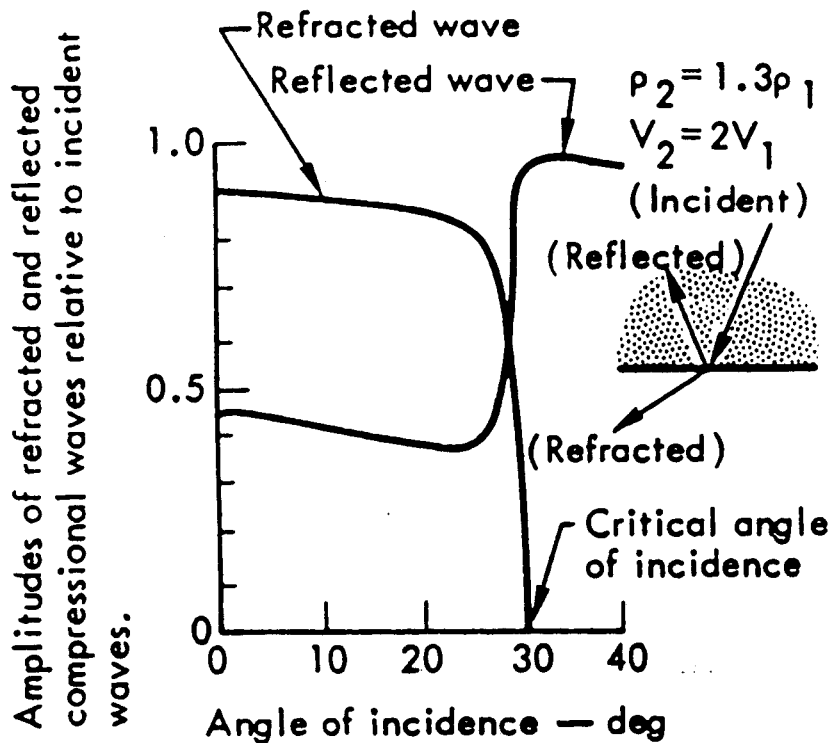


Fig. 2b. Amplitudes of reflected and refracted compressional waves relative to incident waves as a function of angle of incidence.

Figure 2b Amplitudes of Reflected/
Refracted Compressional Waves

It may seem anomalous in Figure 2b that the sum of the amplitudes of the reflected and refracted pulses is greater than that of the incident wave (i.e., greater than 1.0). However, the energy of a pulse is proportional to the square of its amplitude, and the sum of the energies of the reflected and refracted waves is equal to the energy of the incident wave.

Table A1. Speed of propagation of seismic waves in subsurface materials.

MATERIALS	FEET PER SECOND	MATERIALS	FEET PER SECOND
TOP SOILS:		GRANITE:	
LIGHT AND DRY	600 TO 900	SIERRA NEVADA RANGE, CALIFORNIA (IN ROAD CUT)	
MOIST, LOAMY OR SILTY CLAYEY	1,000 TO 1,300	FRIABLE AND HIGHLY DECOMPOSED	1,540
RED CLAY IN COLORADO (A)	1,300 TO 2,000	BADLY FRACTURED AND PARTLY DECOMPOSED	2,200
SEMI-CONSOLIDATED SANDY CLAY (B)	1,250 TO 2,150	SOFTENED AND PARTLY DECOMPOSED BUT SLIGHTLY SEAMED	10,500
WET LOAM (B)	2,500	SOLID AND MONOLITHIC 70 FEET DEEP	18,500
CLAY, DENSE AND WET - DEPENDING ON DEPTH	3,000 TO 5,800	NEW HAMPSHIRE (C) (COMPARISON OF VELOCITIES WITH DRILLING LOGS)	
RUBBLE, OR GRAVEL (B)	1,970 TO 2,800	BADLY BROKEN AND WEATHERED: FREQUENTLY ONLY CHIPS AND FRAGMENTS RECOVERED. SEGMENTS OF CORE LONGER, BUT WEATHERING HAD PENETRATED ABOUT 1/4 INCH ON EACH SIDE OF THE JOINT PLANES ON WHICH A FILM OF RESIDUAL CLAY HAD FORMED	3,000 TO 8,000
CEMENTED SAND (B)	2,800 TO 3,200	JOINT PLANES SHOW BUT LITTLE SIGN OF WEATHERING, EVEN THOUGH THEY ARE OPEN	10,000 TO 13,000
SAND CLAY (B)	3,200 TO 3,800	ENTIRELY UNWEATHERED AND UNSEAMED	16,000 TO 20,000
CEMENTED SAND CLAY (B)	3,800 TO 4,200	GRANODIORITE (B)	15,000
WATER SATURATED SAND (B)	4,600	BASALT-CANAL ZONE-WEATHERED AND FRACTURED	9,000 TO 14,000
SAND (B)	4,600 TO 8,400	LIMESTONE, DOLOMITE, METAMORPHIC ROCKS, MASSIVE ROCKS (B)	16,400 TO 20,200
CLAY, CLAYEY SANDSTONE (B)	5,900	DIABASE, IN BED OF BROAD RIVER, SOUTH CAROLINA	19,700
GLACIAL TILL UPPER SUSQUEHANNA (C)	5,600 TO 7,400	GREENSTONE, TIGHT SEAMED - CALIFORNIA (A)	16,100
GLACIAL MORaine DEPOSIT, DRY-CALIFORNIA (A)	2,500 TO 5,000	GREENSTONE, SLIGHTLY SEAMED - CALIFORNIA	13,300
GLACIAL MORaine DEPOSIT, SATURATED-CALIFORNIA	5,000 TO 7,000		
CEMENTED LAVA AGGLOMERATE, CALIFORNIA (A)	5,000 TO 6,000		
LOOSE ROCK-TALUS	1,250 TO 2,500		
WEATHERED AND FRACTURED ROCK SHALE:	1,500 TO 10,000		
OLENTANGY RIVER, OHIO	9,000 TO 11,000		
UPPER SUSQUEHANNA (C)	10,200 TO 12,800		
PANAMA CANAL ZONE	7,000 TO 8,000		
MANCOS, COLORADO (A)	2,600 TO 2,900		
ROMNEY SHALE-SHENNANDOAH RIVER - WEATHERED	4,000 TO 6,500		
ROMNEY SHALE-SHENNANDOAH RIVER - GOOD	12,000		
JOHN MARSHALL DAM SITE	2,900 TO 4,250		
PHYLITE-YORK, PA. (D)	10,000 TO 11,000		
SANDSTONE: (B)	7,200 TO 7,900		
DEVONIAN-UPPER SUSQUEHANNA (C)	14,000		
CANAL ZONE, PACIFIC END	7,000 TO 9,000		
COLORADO, DENSE, HARD, AND CONTINUOUS WITH FEW SEAMS (A)	7,250		
COLORADO, CONTAINING WEATHERED SEAMS AND SOFT AREAS. (A)	4,725		
SMOKY HILL RIVER KANSAS SANDSTONE CONGLOMERATE (B)	6,000 TO 7,500		
CHALK:	8,000		
FORT RANDALL DAMSITE - ABOVE WATER TABLE	6,300 TO 7,000		
FORT RANDALL DAMSITE - BELOW WATER TABLE	8,000		

NOTE:

(A) Reported by G. H. Williams, U. S. Bureau of Public Roads

(B) From Report of Imperial Geophysical Experimental Survey in Australia

(C) Reported by A. E. Wood, Corps of Engineers

(D) Reported by L. T. Abele, Corps of Engineers

Table A2. Approximate range of velocities of longitudinal waves for representative materials found in the earth's crust.^a

A. Classification According to Material		
Material	Velocity*	
	Ft./Sec.	M./Sec.
Weathered surface material	1,000—2,000	305—610
Gravel, rubble, or sand (dry)	1,500—3,000	468—915
Sand (wet)	2,000—6,000	610—1,830
Clay	3,000—9,000	915—2,750
Water (depending on temperature and salt content)	4,700—5,500	1,430—1,680
Sea water	4,800—5,000	1,460—1,530
Sandstone	6,000—13,000	1,830—3,970
Shale	9,000—14,000	2,750—4,270
Chalk	6,000—13,000	1,830—3,970
Limestone	7,000—20,000	2,140—6,100
Salt	14,000—17,000	4,270—5,190
Granite	15,000—19,000	4,580—5,800
Metamorphic rocks	10,000—23,000	3,050—7,020
Ice	12,050	

B. Classification According to Geologic Age			
Age	Type of Rock	Velocity	
		Ft./Sec.	M./Sec.
Quaternary	Sediments (various degrees of consolidation)	1,000—7,500	305—2,290
Tertiary	Consolidated Sediments ..	5,000—14,000	1,530—4,270
Mesozoic	Consolidated Sediments ..	6,000—19,500	1,830—5,950
Paleozoic	Consolidated Sediments ..	6,500—19,500	1,980—5,950
Archeozoic	Various	12,500—23,000	3,810—7,020

C. Classification According to Depth †			
	0—2000 ft. (0—600 M.)	2000—3000 ft. (600—900 M.)	3000—4000 ft. (900—1200 M.)
	Ft./Sec.	Ft./Sec.	Ft./Sec.
Devonian	13,300	13,400	13,500
Pennsylvanian	9,500	11,200	11,700
Permian	8,500	10,000
Cretaceous	7,400	9,300	10,700
Eocene	7,100	9,000	10,100
Pleistocene-to-Oligocene	6,500	7,200	8,100

* The higher values in a given range are usually obtained at depth.
 † Data from B. B. Weatherby and L. Y. Faust, *Bull. Amer. Assoc. Petrol. Geologists*, 10 (1926) 1.

^a Reprinted from pg. 660 of Jakosky².

7. METHOD

After the grid pattern is established on a given claim by the owner or party in charge, we mark each test with flagging. We clean loose debris to allow firm soil contact with the microphone. We then cover the microphone to lessen the surface noise. A small charge is fired (usually a 16 gauge shotgun) to generate a seismic wave six feet from the microphone. The wave going into the ground and the reflected signal coming out is recorded on a magnetic tape recorder. We also do a field test on a nearby area with similar conditions where bedrock depth is known by drilling or excavation to determine the velocity of the gravels.

8. DATA PROCESSING AND PRESENTATION

The recording is sent back to base camp and is transferred into the Akai S700 Digital Sampler by means of a coaxial cable with 6.3 mm phone plug jack. The Akai is coupled with the Atari 520 St. computer with Midi Interface. Other peripherals are connected with various other interface connections.

The seismic recording is now analyzed in various formats and then the best choice is printed out on a Seikosha SP-1600 Dot Matrix Printer. A report on the testing and the interpretation of the data is made out to finalize the survey, along with copies of the original Fourier Transform for 3-D wave form analysis.

9. INTERPRETATION

In tests conducted in the past on Hunker Creek and the Klondike River, we determined that those frozen gravels had a velocity of 1500 ft/sec. (1.5 ft/ms). Based on this calculation the following formula is used:

Reflected milliseconds x 1.5 divided by 2 = feet to bedrock
or the layer of interest.

TEST 1

12 milliseconds indicate Bedrock at 9 feet.

TEST 2

12 milliseconds indicate Bedrock at 9 feet.

TEST 3

7 milliseconds indicate Bedrock at 5 feet.

TEST 4

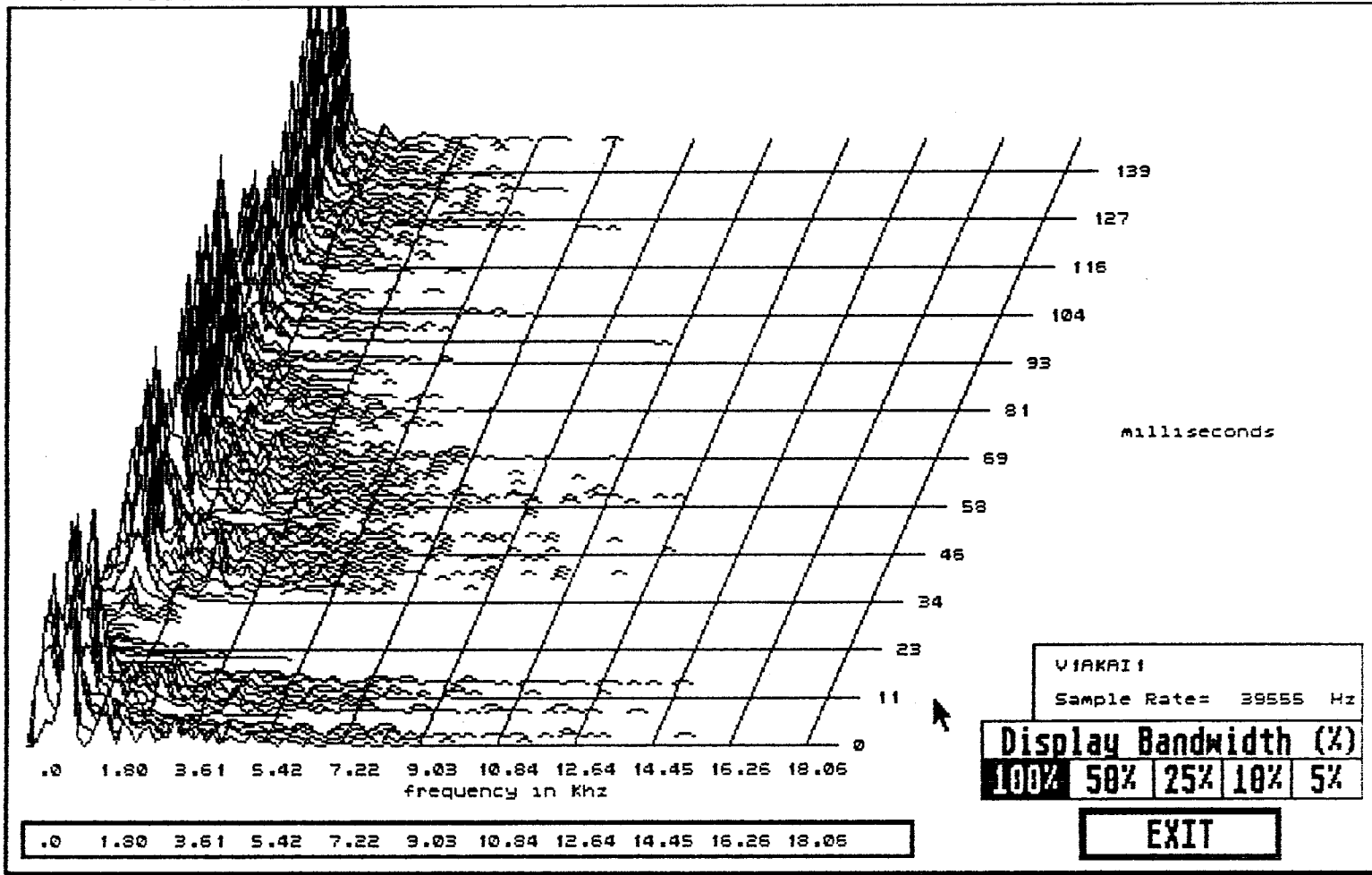
13 milliseconds indicate Bedrock at 10 feet.

10. CONCLUSION

For the many varying soil conditions in different geographical locations could alter the final results. For this fact, an actual excavation on one of the test sites is strongly recommended. The most shallow reading test site is the best suited for this purpose. More accurate results can be achieved in this manner.

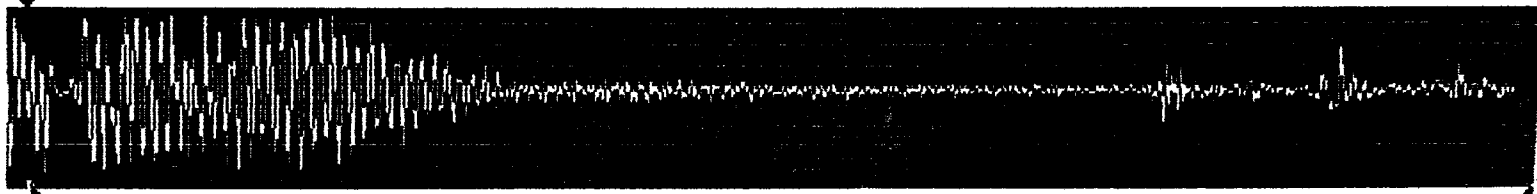
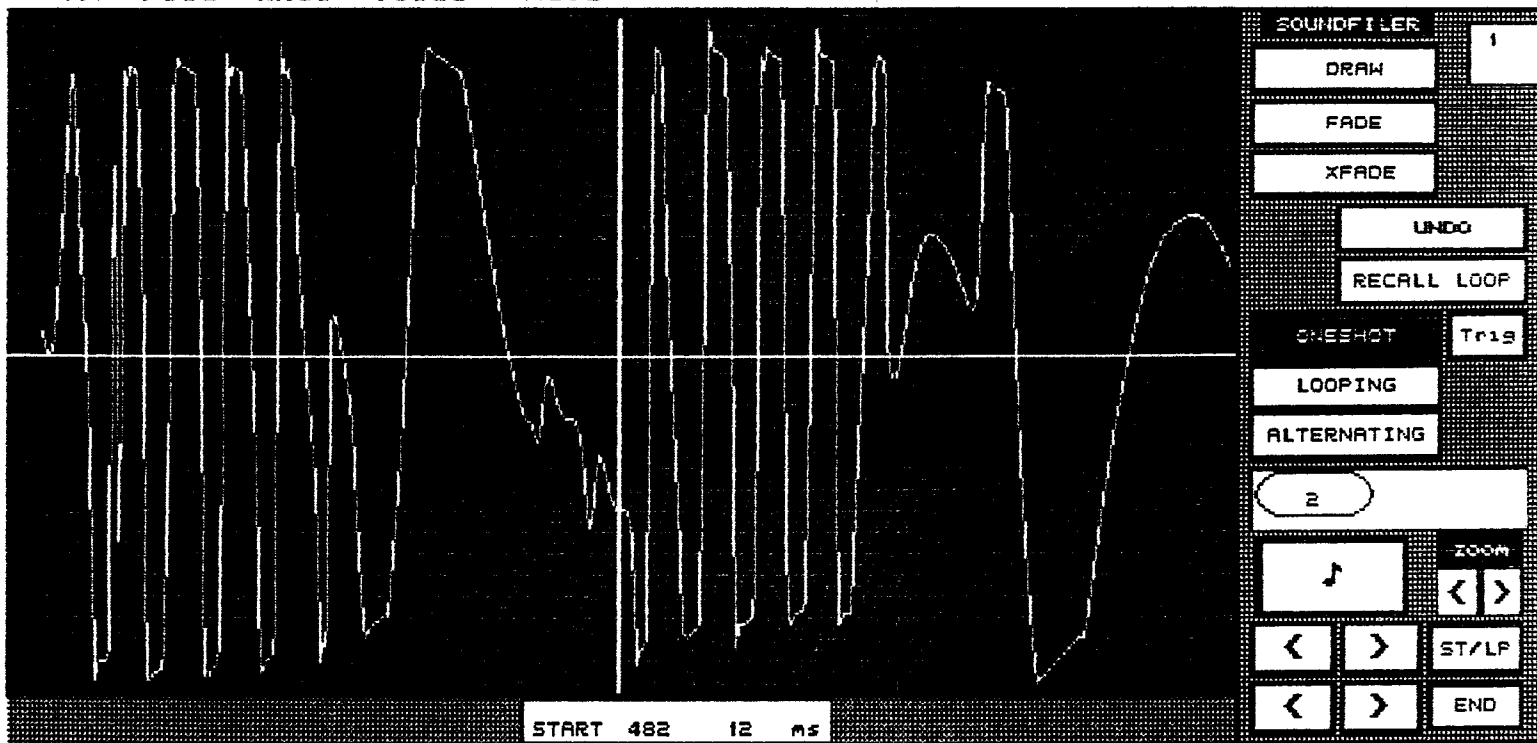
11. RECOMMENDATION

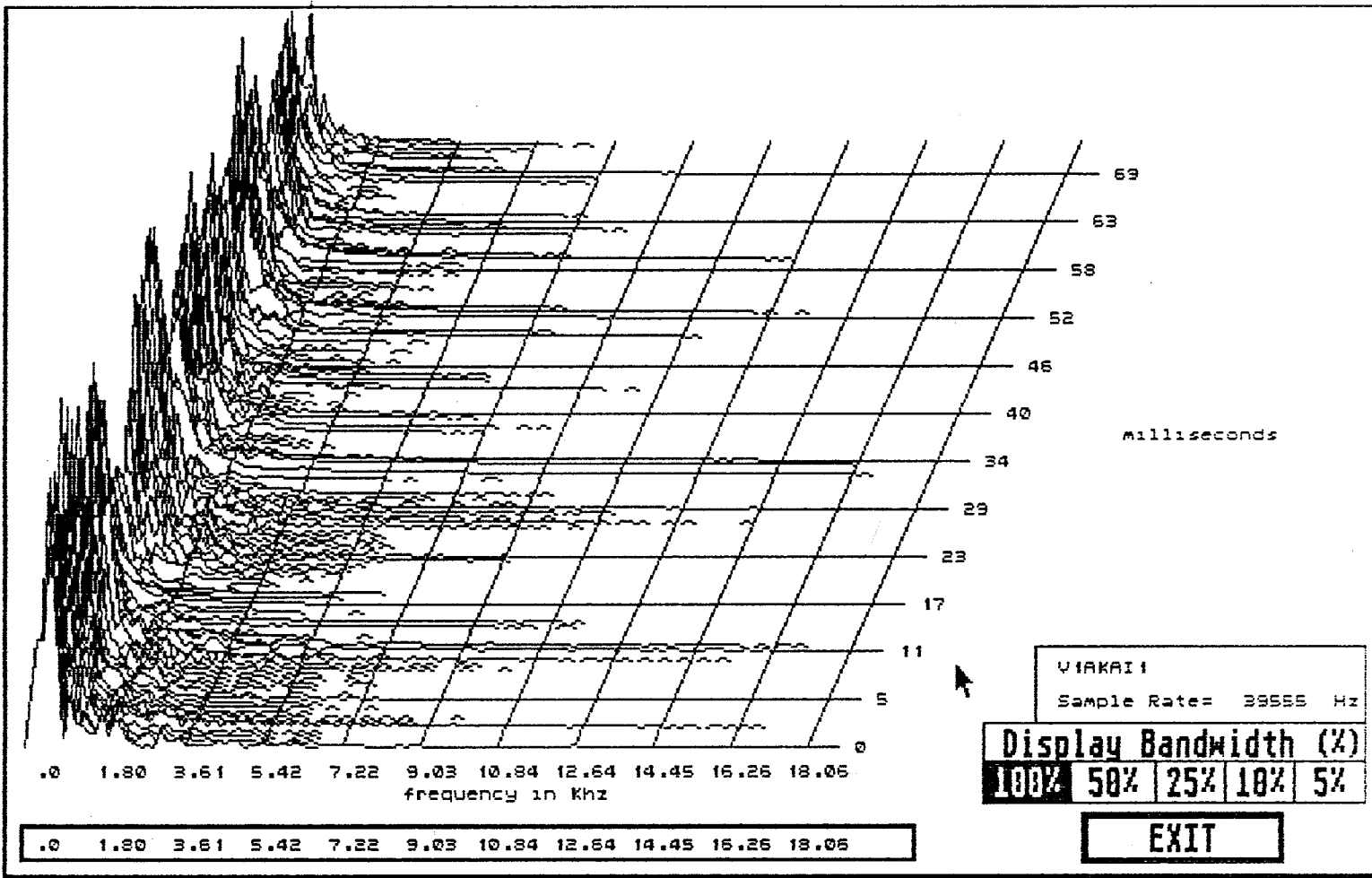
This type of reflected seismic testing is ideal in shallow placer ground. Without drilling or excavating near the test sites to establish velocity, the contour of the subsurface profile could still be charted in a cross test of a given valley. Old stream beds are possible to locate this way, giving a target area for a drill. A re-analysis of the seismic data after a drill log can make these tests surprisingly accurate. A tighter grid pattern in the future may be of great value in a drilling or mining strategy program.



File Akai Voice Wave

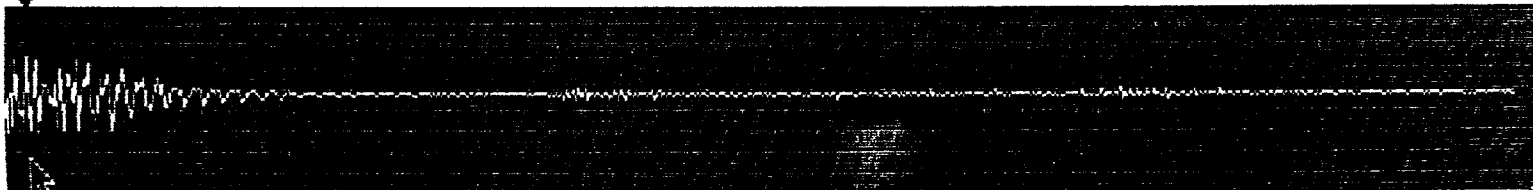
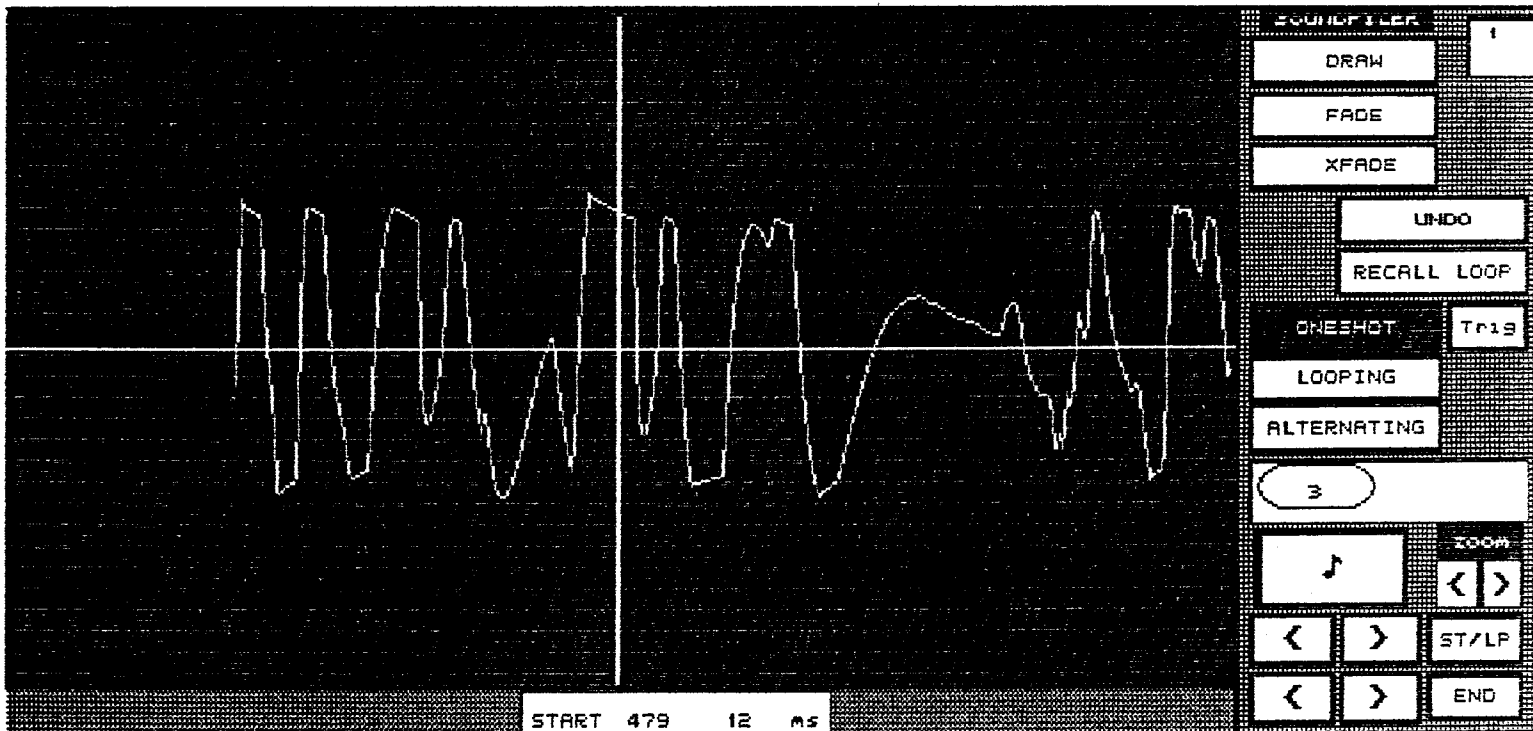
PL 8773 Test 1

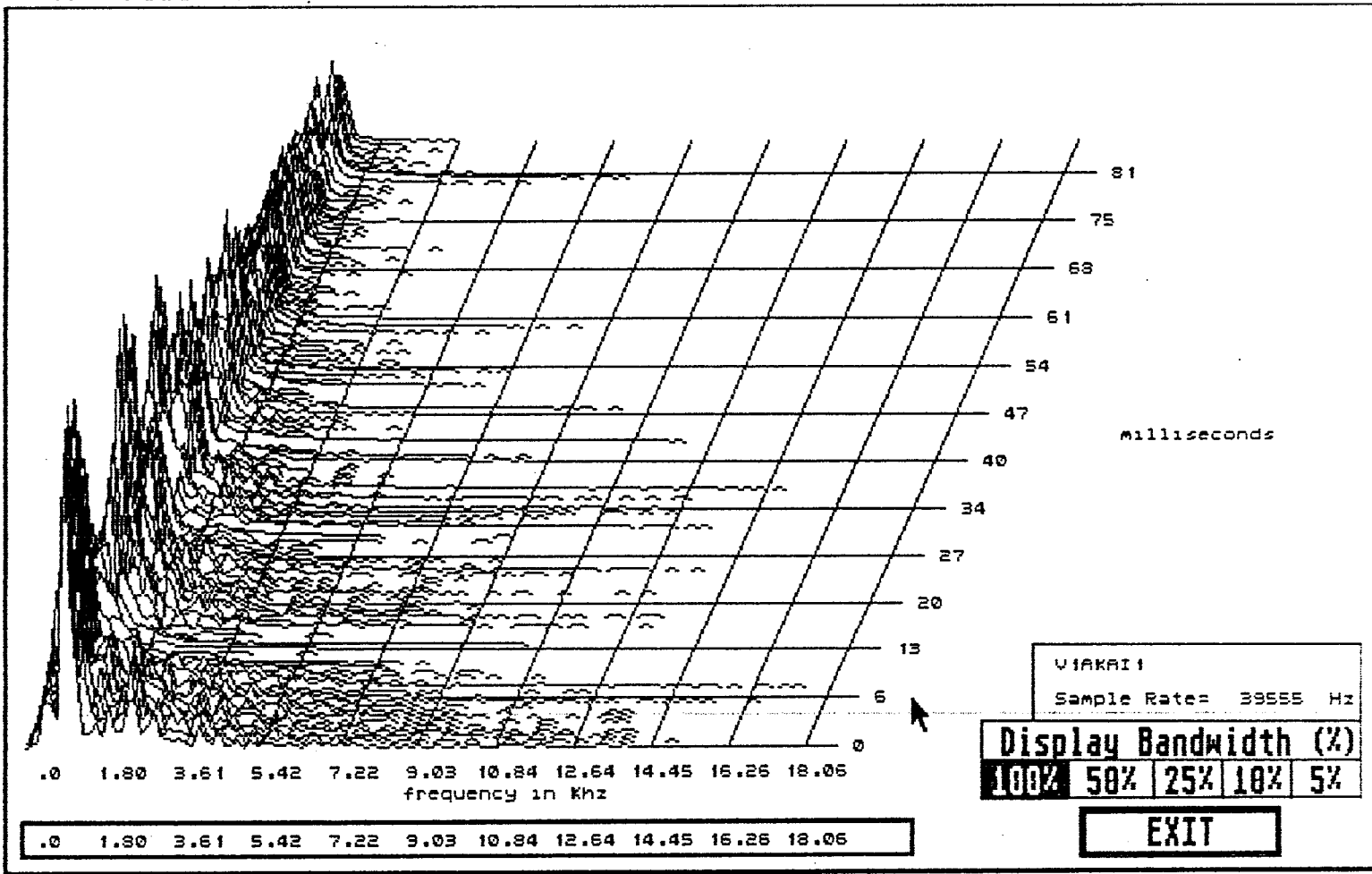




File Akai Voice Wave

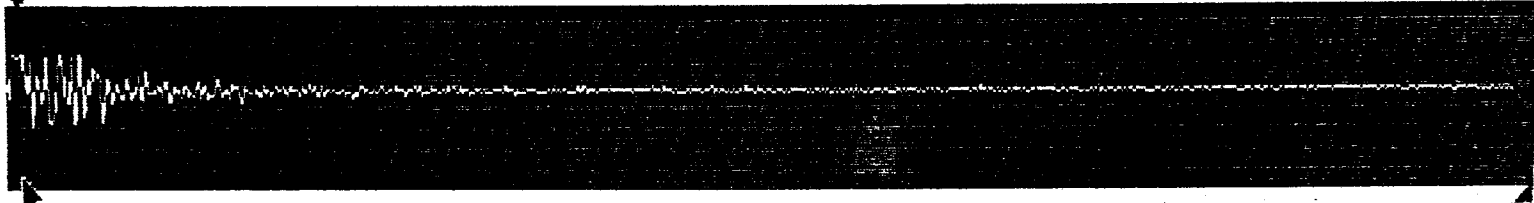
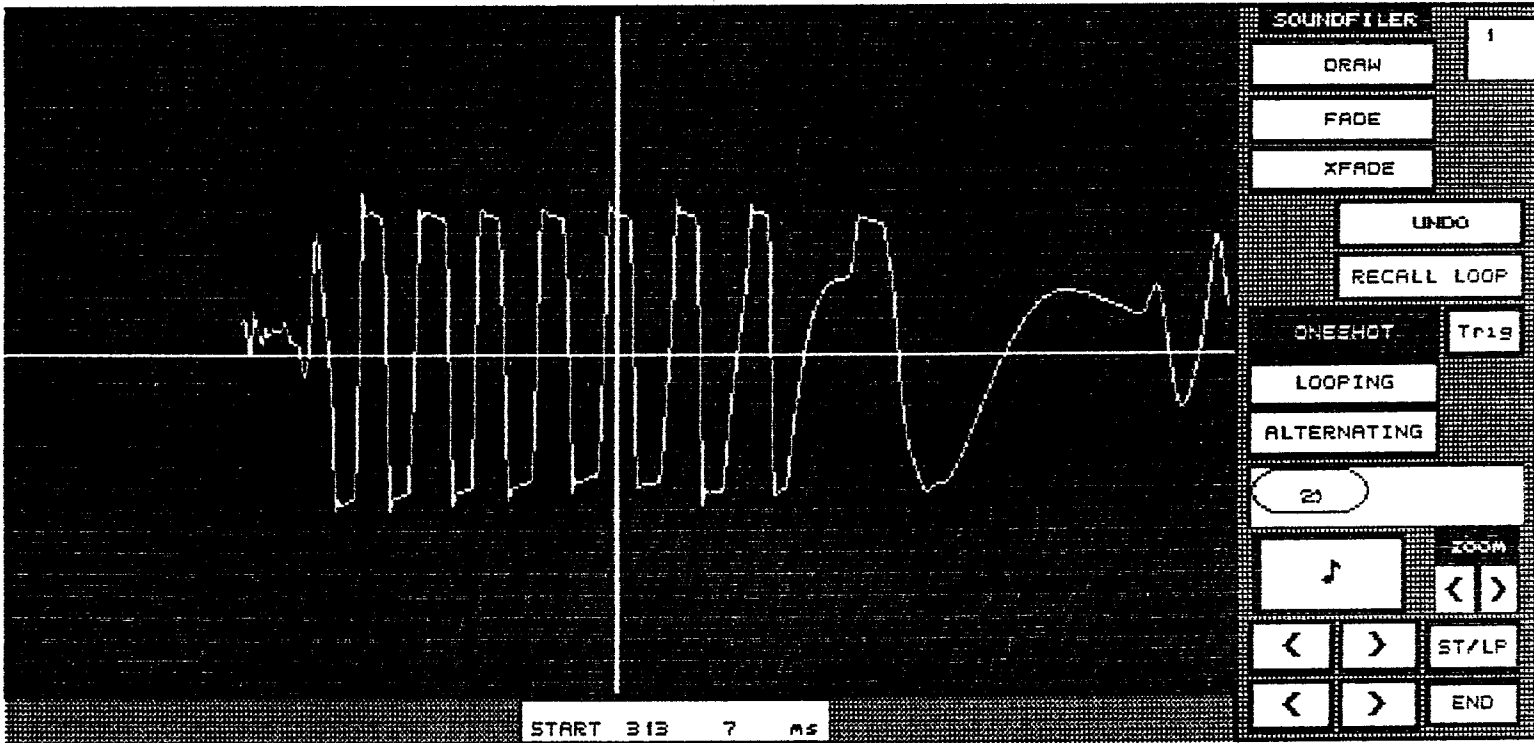
PL 8773 Test 2

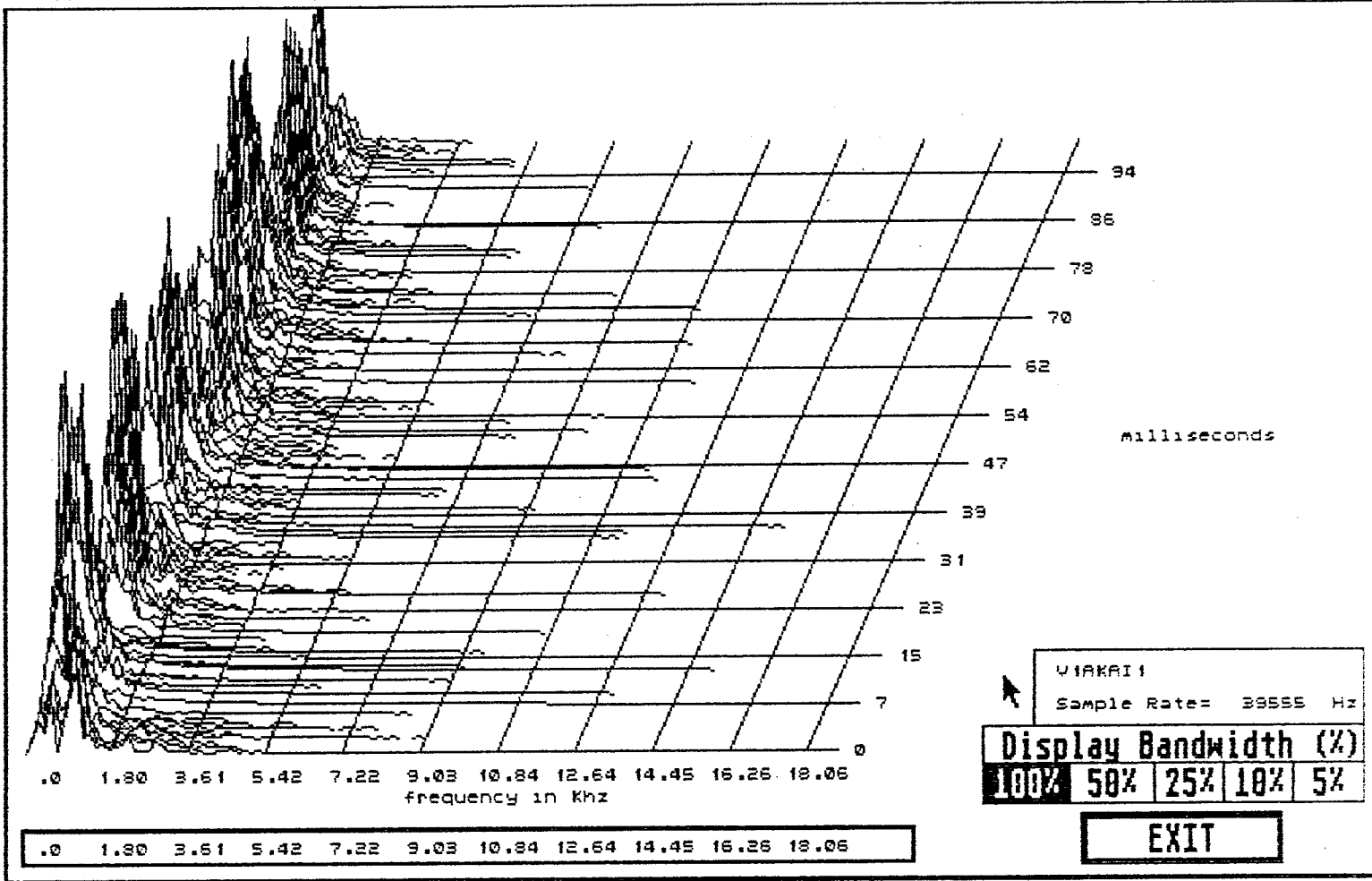




File Akai Voice Wave

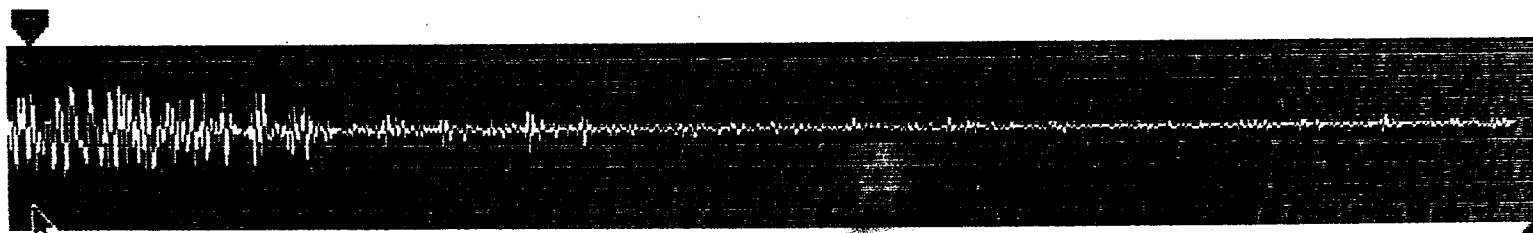
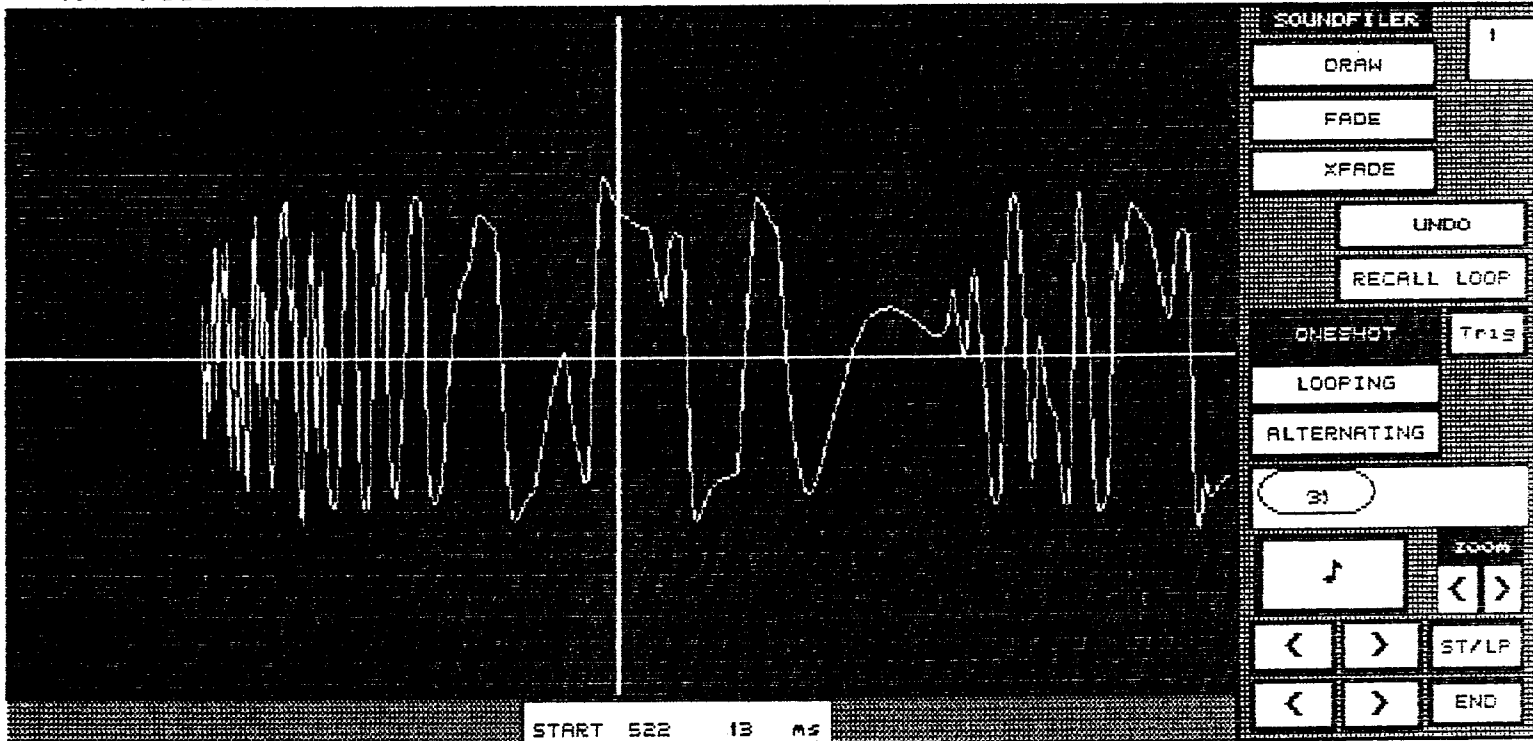
PL 8773 Test3





File Akai Voice Wave

PL 8773 Test 4



12. STATEMENT OF ASSESSMENT COSTS

For seismic survey conducted on PL#8773.

Seismic Test

\$250 per test x 4 shots = \$1,000

Includes:

Seismic consultant
Assistant for field and expediting
Computer and printer time
Computer and program time
Computer down-loading (off-loading/data dumping)
Seismic interpretation
Equipment - ATV, axe, hip chain with thread,
flagging tape, marker etc.
Transportation
Food and camping supplies
Accommodations (hotel, tent or camper)
Test shots where applicable (for calibration)

Report Preparation

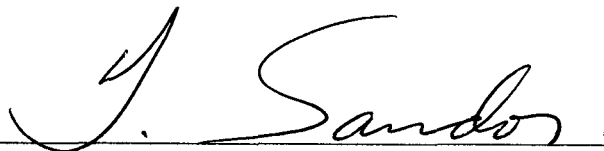
Report writing, drafting,
map and figure preparation,
photocopying and binding = 400

Total Cost = \$1,400

Certification

I, Ted Sandoz, of Whitehorse, Yukon Territory certify that:

1. I hold a Gas and Arc Welding diploma from Northern Alberta Institute of Technology, Edmonton, Alberta, and have been practising continuously since mid seventies in ArdcO Industries on oil field and seismic related equipment.
2. I am a journeyman welder, licensed to practise in Alberta. The geophysical technology came from extensive field work in the oil patch, and the very need to satisfy my own mining strategy since 1978.
3. The geophysical field work was conducted with assistance that may change from test to test. The report preparation and interpretation is done by me personally to keep up the highest quality of this report.
4. I have based conclusions and recommendations contained in this report on my knowledge of geophysics, my previous experience and the results of the field work conducted on the property.
5. Directly or indirectly I hold no interest in this property other than professional fees, nor do I expect any interest in the property or any other of the owner's holdings.
6. The accuracy of the final results depends more on the calibration of the recording device and the computers then on the qualification of the operator.



Whitehorse, Yukon Territory, December 21, 1991

Ted Sandoz, Seismic Consultant

13. REFERENCES

1. M.B. Dobrin, **Introduction to Geophysical Prospecting** (McGraw-Hill, New York. 1960)
2. J.J. Jakosky, **Exploration Geophysics.** (Trija Publishing Co., Newport Beach, California. 1957)
3. Technical Report E-73-4 Seismic Refraction Exploration for Engineering Site Investigations. Bruce B. Redpath (May, 1973)
4. 1984 Open File, R.L. Debicki, **Bedrock Geology and Mineralization of the Klondike Area** (West), 1150/14,15 and 116B/2,3.
5. J.K. Mortensen, **Geochemistry of the Klondike District**, West Central, Revised, 1990.

December 2, 1991



To: Bob Whittingham
Mining Recorder, Whitehorse

From: Robert Deklerk
Staff Geologist

Re: Approval For Mr. Fedell and Mr. Joseph To Conduct a Seismic Survey Near Kluane National Park.

Mr. Jim Fedell and Mr. Paul Joseph visited our office last Thursday in regards to conducting a Ted Sandor Seismic Survey on some claims they hold near Kluane National Park. I discussed this matter with Steve Morison and we have agreed to allow this request subject to the normal conditions (i.e. report meets standards set out in the Yukon Placer Mining Act). I have examined several of Mr. Sandor's reports in the past and I have found them to meet the standards of the Yukon Placer Mining Act, thus I believe there will not be any problems approving this work.

Mr. Fedell and Mr. Joseph said that they will be mining this property next season and would be able to inform us on the accuracy of the survey results. I would appreciate it very much if they would at some point in the future provide us with these results.

Sincerely,

A handwritten signature in cursive script that reads "Robert Deklerk".

Robert Deklerk
Staff Geologist
Exploration and Geological Services

cc Roland Ronaghan
Mineral Rights