MAP NO.: **PLACER ASSESSMENT REPORT** X
PROSPECTUS
115 O 07 **CONFIDENTIAL** X
OPEN FILE

DOCUMENT NO: 120139
MINING DISTRICT: Dawson
TYPE OF WORK: Seismic testing

REPORT FILED UNDER: Merced Industries Inc.

DATE PERFORMED: June 16, 1991

DATE FILED: July 12, 1991

LOCATION: **LAT.:** 63°20'N

AREA: Blackhills Creek

LONG.: 138°43'W

VALUE $: 3,250.00

CLAIM NAME & NO.: Placer Lease PL8419

WORK DONE BY: Ted Sandor

WORK DONE FOR: Merced Industries Inc.

DATE TO GOOD STANDING:	

REMARKS: 115 O - Blackhills Creek
A seismic reflection survey consisting of ten test shots was conducted over the claim. The author interpreted the results as showing bedrock occurring at a depth of between 20 and 35 ft..

SEISMIC TESTING REPORT

Blackhills Creek

#PL8419

NTS 1150/7

Prepared for

Merced Industries Inc.
c/o Jack Thompson
Box 138, 1612 Centennial Cres.
Whitehorse, Yukon
Y1A 3ZE

and

Scott Cone
Box 964
Dawson City, Yukon
YOB 1GO

~~~

Prepared by
Ted Sandor
RR1 Site 20 Comp 121
Whitehorse, Yukon
Y1A 4Z6
(Phone/Fax 667-6193 [403])

June 16, 1991
~~~

RECEIVED
JUL 10 1991
MINING
RECORDERS OFFICE
DAWSON, Y.T.

OFFICE OF THE REGIONAL MANAGER
MINERAL RIGHTS
JUL 15 1991
WHITEHORSE
YUKON TERRITORY

120139

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 $ 3250.00.

[signature]

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

TABLE OF CONTENTS

Table of Contents Continued...

ASSESSMENT REPORT

on June 16, 1991

Seismic Survey

Blackhills Creek

PL8419

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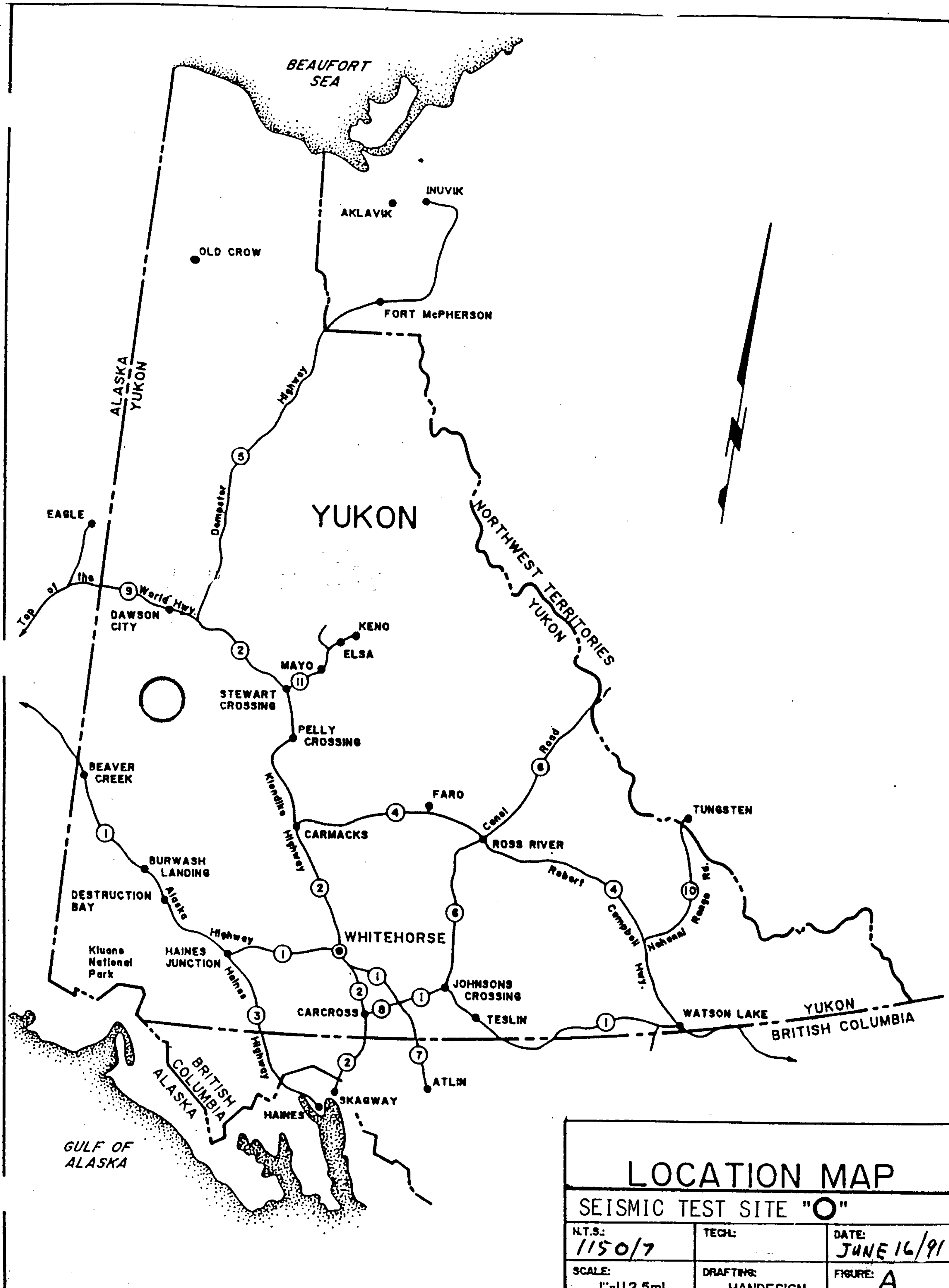
1. INTRODUCTION

On June 16, 1991, a seismic survey was conducted on Blackhills Creek PL8419 for the owner Merced Industries Inc., c/o Jack Thompson, by fieldsman Scott Cone.

Scott Cone, using a compass and hip chain, located ten (10) test sites on Blackhills Creek PL8419 for the owner Merced Industries Inc., c/o Jack Thompson. The test location was marked with flagging and labelled (see Fig. C)

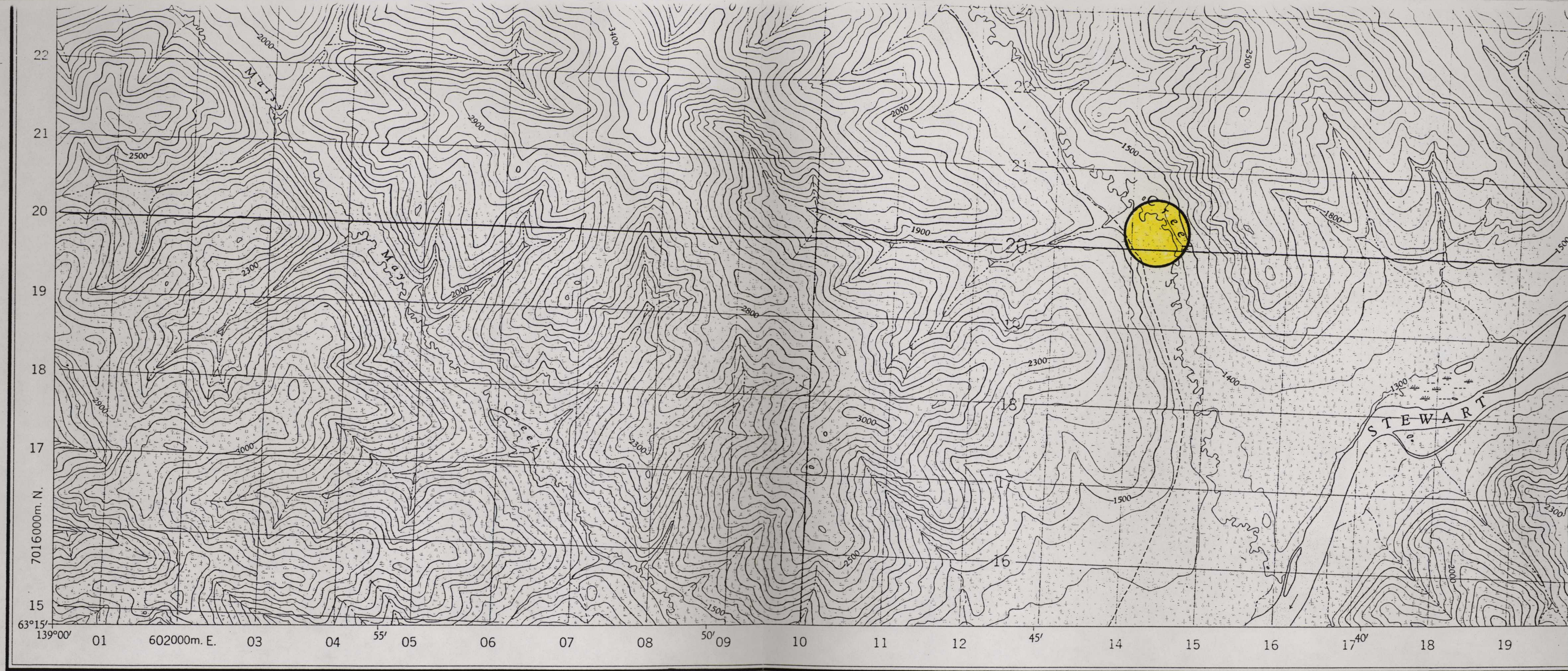
The seismic consultant, Ted Sandor, processed field recordings and interpreted the data received.



LOCATION MAP

SEISMIC TEST SITE "O"

N.T.S.: 115O/7	TECH:	DATE: JUNE 16/91
SCALE: 1"=112.5mi.	DRAFTING: HANDESIGN	FIGURE: A



Produced and printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1960, from air photographs taken in 1944.

LOCATION MAP 115 O/7
SEISMIC TEST SITE "O"
Fig. B June 16, 1991

BLACK HILLS CREEK
YUKON TERRITORY

GRID ZONE DESIGNATION	100,000 M. SQUARE IDENTIFICATION
7V	60 EA FA

TO GIVE A REFERENCE TO NEAREST 100 METRES

EXAMPLE: STREAM JUNCTION

EASTING: Read number on grid line immediately to left of point — 15
Estimate tenths of a square from this line eastward to point — 5
155

NORTHING: Read number on grid line immediately below point — 27
Estimate tenths of a square from this line northward to point — 7
277

MILITARY GRID REFERENCE 155277

ONE THOUSAND METRE
UNIVERSAL TRANSVERSE MERCATOR GRID
ZONE 7

Roads:	Routes:
all weather	toute saison
dry weather	période sèche
cart track	de terre
trail or portage	sentier ou portage
Railway, normal gauge, single track	Chemin de fer, voie unique (écartement normal) — siding / voie d'évitement — station / gare
Power transmission line	Ligne de transport d'énergie
Mine or Open cut	Mine ou fosse à ciel ouvert
Horizontal control point, with elevation	Point géodésique avec cote 454 △
Bench mark, with elevation	Repère de nivellement avec cote BM 157→

SCALE 1:50,000 ÉCHELLE

Miles 1 — 0 — 1 — 2 — 3 Milles
Metres 1000 500 0 1000 2000 3000 4000 Mètres
Yards 1000 500 0 1000 2000 3000 4000 Verges

CONTOUR INTERVAL 100 FEET
Elevations in Feet above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

ÉQUIDISTANCE DES COURBES: 100 PIEDS
Élévations en pieds au-dessus du niveau moyen de la mer
Réseau géodésique nord-americain unifié (1927)
Projection transverse de Mercator

MAGNETIC DECLINATION 31° 45′ EAST
AT CENTRE OF MAP 1960
Annual change (decreasing) 3.5′

DECLINAISON MAGNETIQUE AU CENTRE
DE LA FEUILLE EN 1960 : 31° 45′ EST
Variation annuelle (decroissante) 3.5′

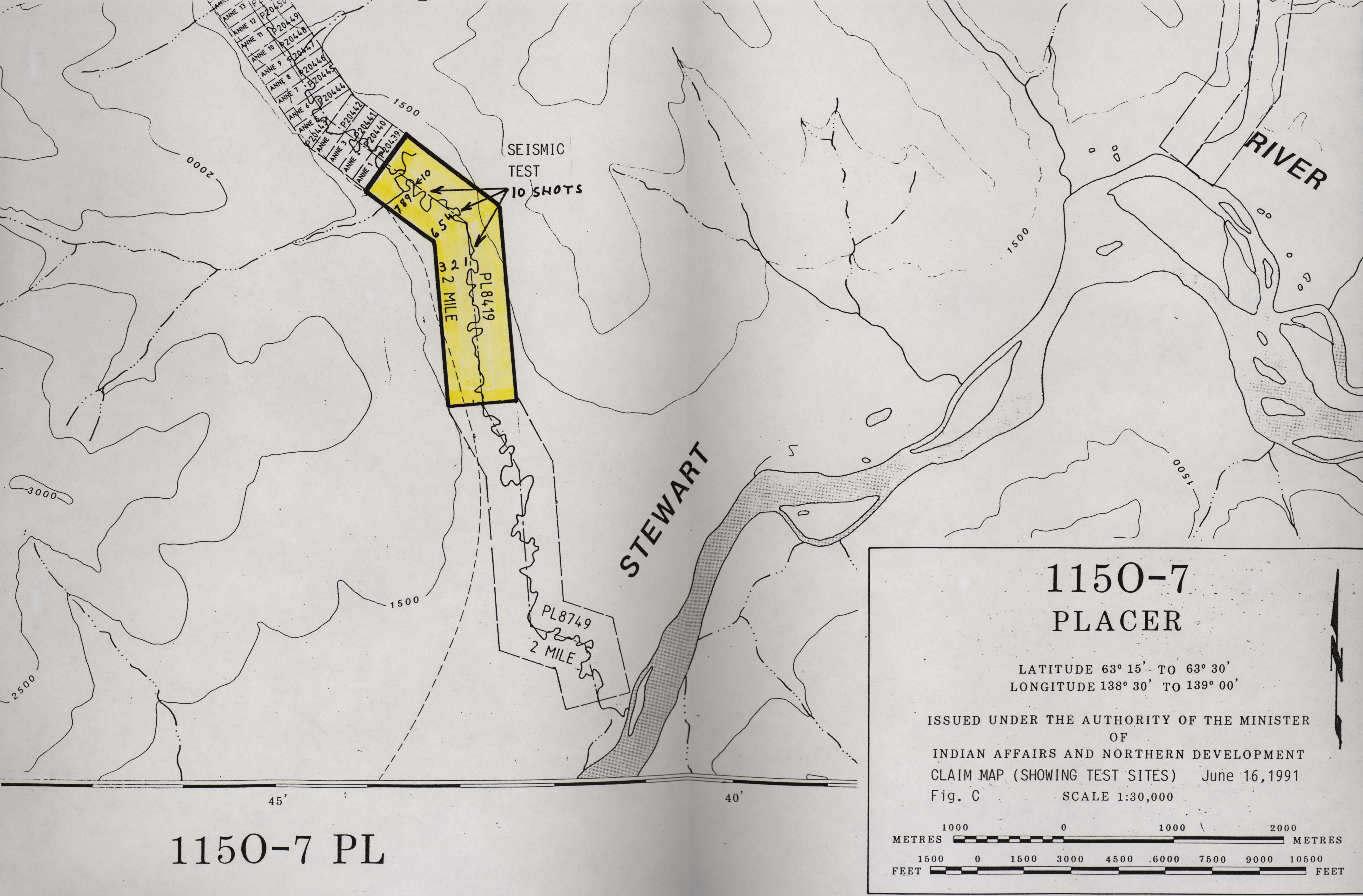
The nomenclature on this map has not been submitted to the Canadian Board on Geographical Names and may be subject to revision. Information on names is invited by the Surveys and Mapping Branch.

La nomenclature de la présente carte n'a pas été soumise à la Commission canadienne des noms géographiques et, par conséquent, elle pourrait faire l'objet d'une revision. Tous renseignements sur les noms seront bien accueillis par la Direction des levés et de la cartographie.

CONVERSION SCALE FOR ELEVATIONS
Metres

Building — Bâtiment	
School — École	
Church — Église	
Lighthouse	Phare
River with bridge	Rivière avec pont
Stream, intermittent or dry	Cours d'eau intermitt
Lake intermittent; indefinite	Lac intermittent; rive
Marsh or Swamp	Marais ou marécage
Depression contours	Courbes de cuvette

SYSTÈME DE RÉFÉR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P20449
P20448
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P20446
P20445
P20444
P20443
P20442
P20441
P20440
P20439
1500
2000
SEISMIC
TEST
10 SHOTS
7 8 9 10
6 5 4
3 2 1
PL8419
32 MILE
PL8749
2 MILE
STEWART
RIVER
1500
1500
1500
3000
2500
45'
40'
115O-7
PLACER
LATITUDE 63° 15' - TO 63° 30'
LONGITUDE 138° 30' TO 139° 00'
ISSUED UNDER THE AUTHORITY OF THE MINISTER
OF
INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
CLAIM MAP (SHOWING TEST SITES) June 16,1991
Fig. C
SCALE 1:30,000
1000 0 1000 2000
METRES METRES
1500 0 1500 3000 4500 6000 7500 9000 10500
FEET FEET

115O-7 PL

2. SURVEY

2.1 Location and Access

From the north, Blackhills Creek flows into the Stewart River 30 miles upstream from where it drains into the Yukon River.

Access to the test site was by 4x4 pickup. Testing was done on foot. (See Access Maps A and B)

2.2 Claim Information

Name	Placer Lease Number	Owner
Blackhills Creek	PL8419	Merced Industries Inc. c/o Jack P. Thompson Box 138, 1612 Centennial Cres. Whitehorse, Yukon Y1A 3ZE

Claim Sheet 1150/7

3. PERSONNEL

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

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

Flora Evans assisted with the word processing.

4. GEOLOGY

This property consists of unconsolidated glacial and alluvial deposits. No geology reports could be found that were up to date on this area. No legible geology maps were available for reproduction.

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

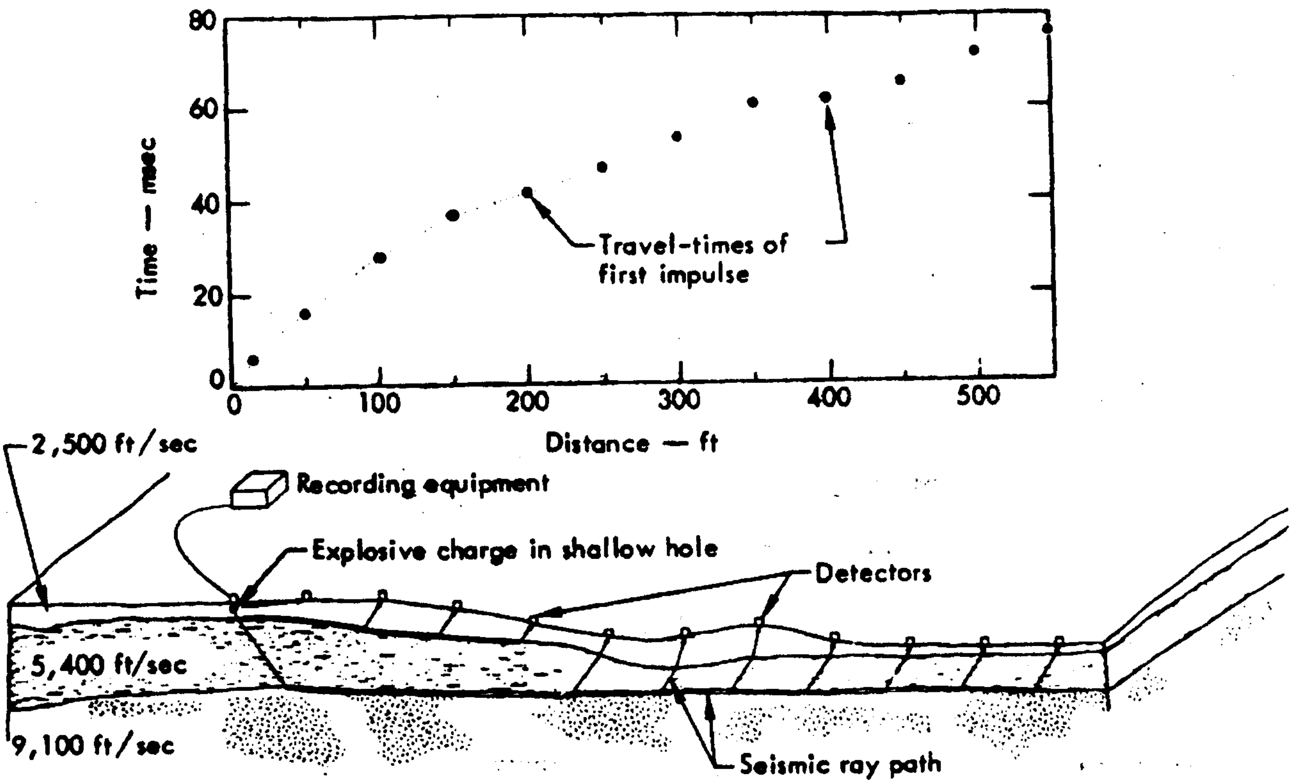


Figure 1. Schematic of seismic refraction survey

Figure 2 represents a 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

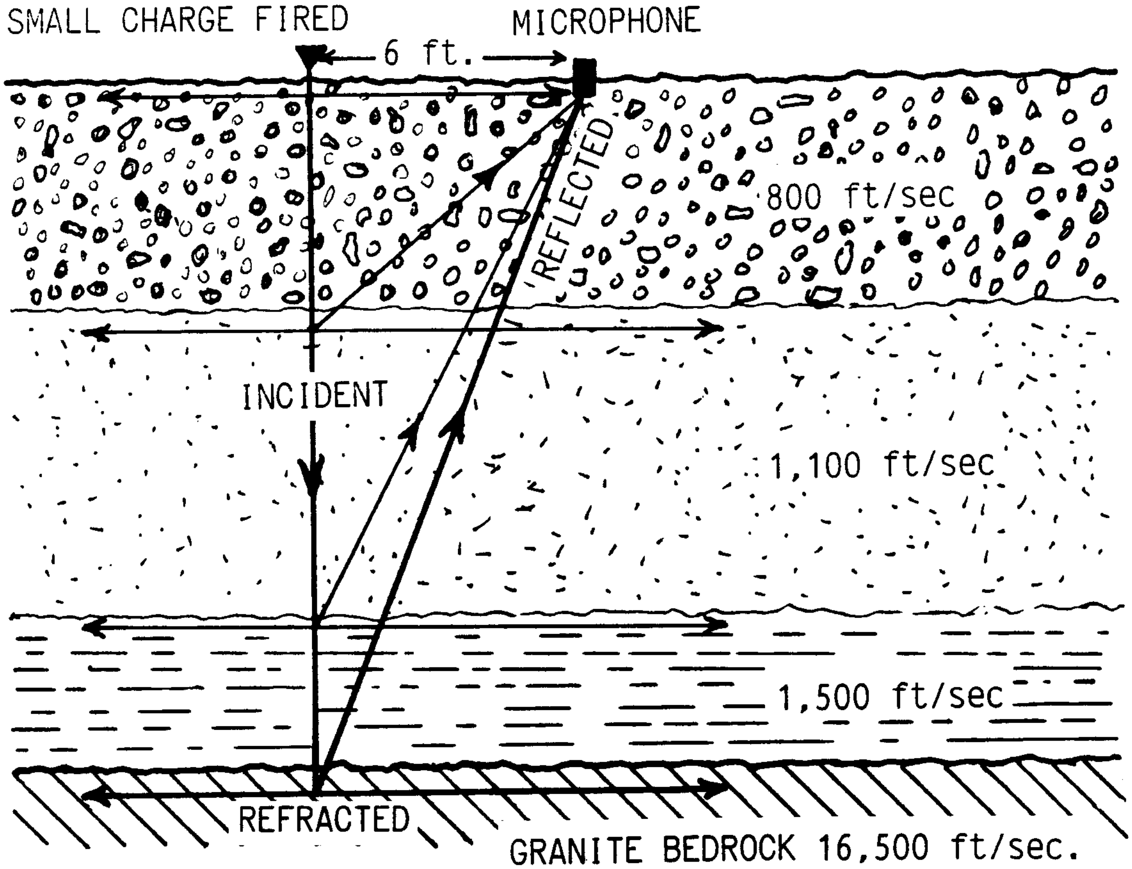


FIG. 2

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.

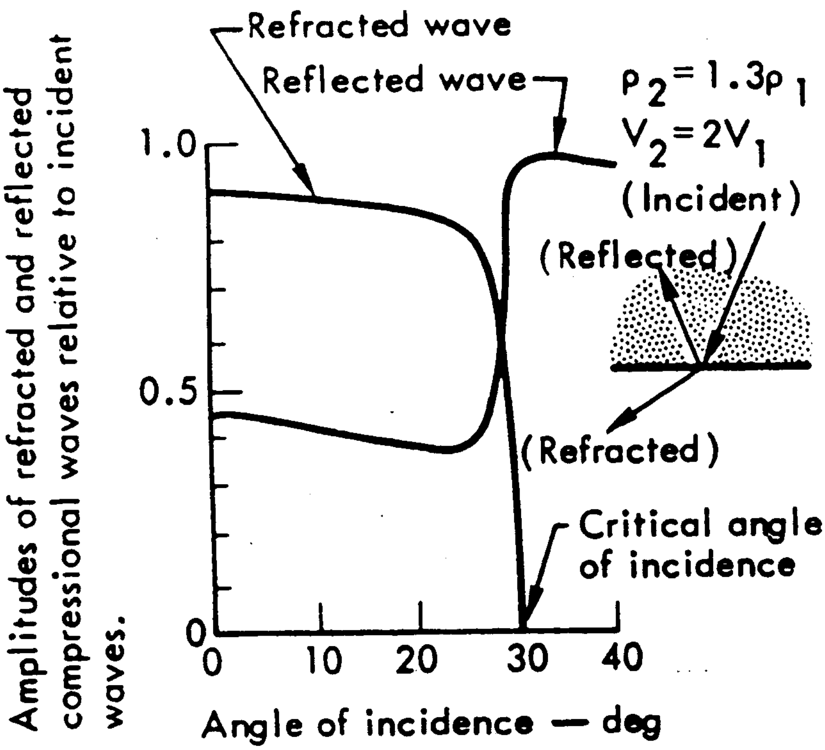


Fig. 2b. Amplitudes of reflected and refracted compressional waves relative to incident waves as a function of angle of incidence.

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.

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 coaxal 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 on the Klondike River we determined that those frozen gravels had a velocity of 1,500 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 to be of interest.

<u>Test 1</u>

Thirty milliseconds shows up best on 3D format indicating bedrock at 22 feet.

<u>Test 2</u>

Twenty-seven to 30 milliseconds on 3D format indicates bedrock at 20 to 22 feet. Looks like course gravel at this site.

<u>Test 3</u>

Forty-seven milliseconds on 3D format show most frequency and highest amplitudes indicating bedrock at 35 feet.

<u>Test 4</u>

Forty milliseconds on 3D format indicates bedrock at 30 feet.

<u>Test 5</u>

Thirty-eight milliseconds on 3D format indicates bedrock at 28 feet.

<u>Test 6</u>

Forty-five milliseconds for the start of the echo coming back indicates bedrock to be 34 feet.

<u>Test 7</u>

Forty milliseconds, strongest amplitude with the widest range of frequency indicates bedrock to be 30 feet.

Test 8

Thirty-seven milliseconds, strongest amplitude with the widest range of frequency indicates bedrock to be 28 feet.

Test 9

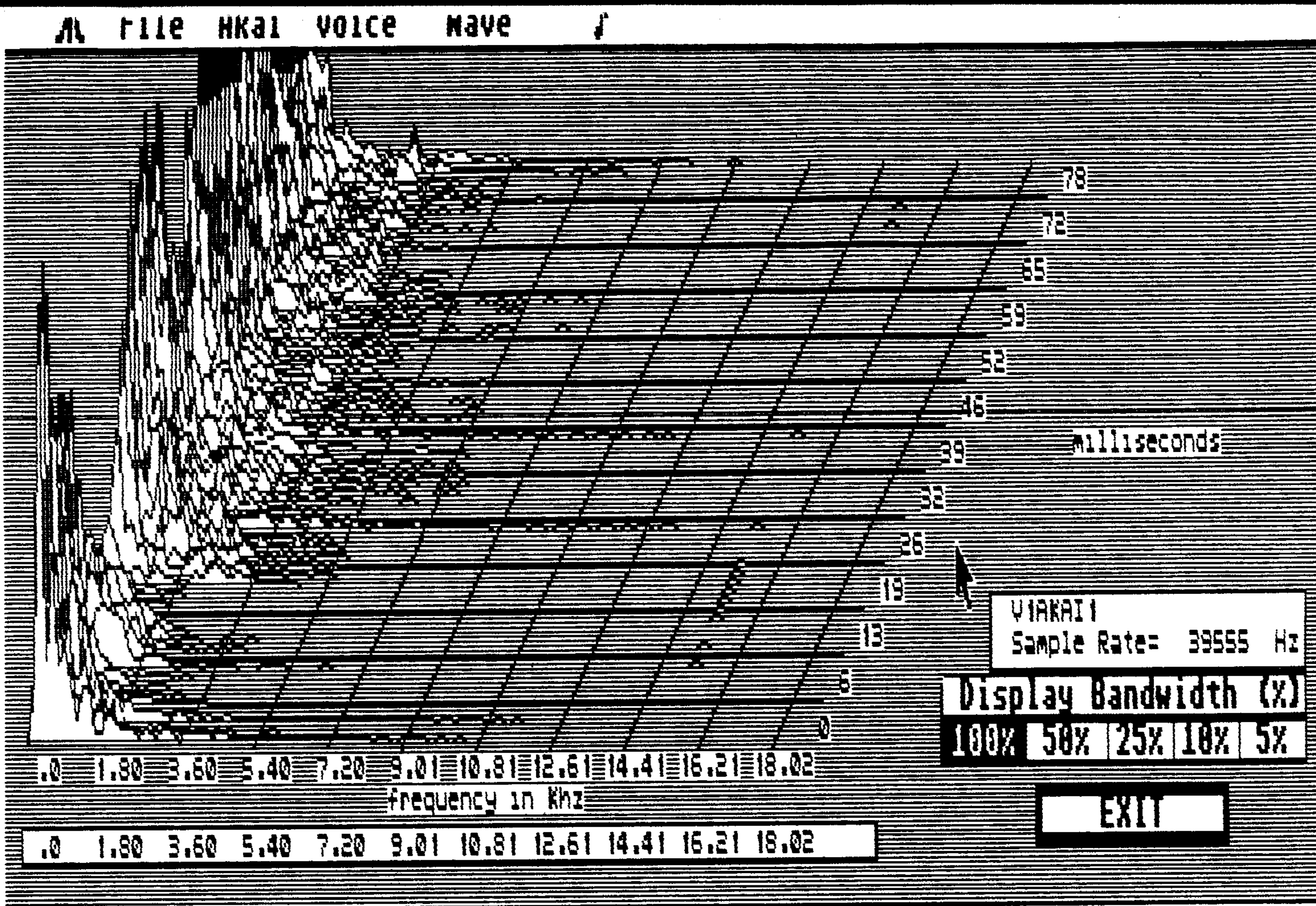
Twenty-six milliseconds to the start of the echo coming back indicates bedrock to be 20 feet.

Test 10

Thirty-seven milliseconds, strongest amplitude with widest range of frequency indicates bedrock to be 28 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.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milliseconds
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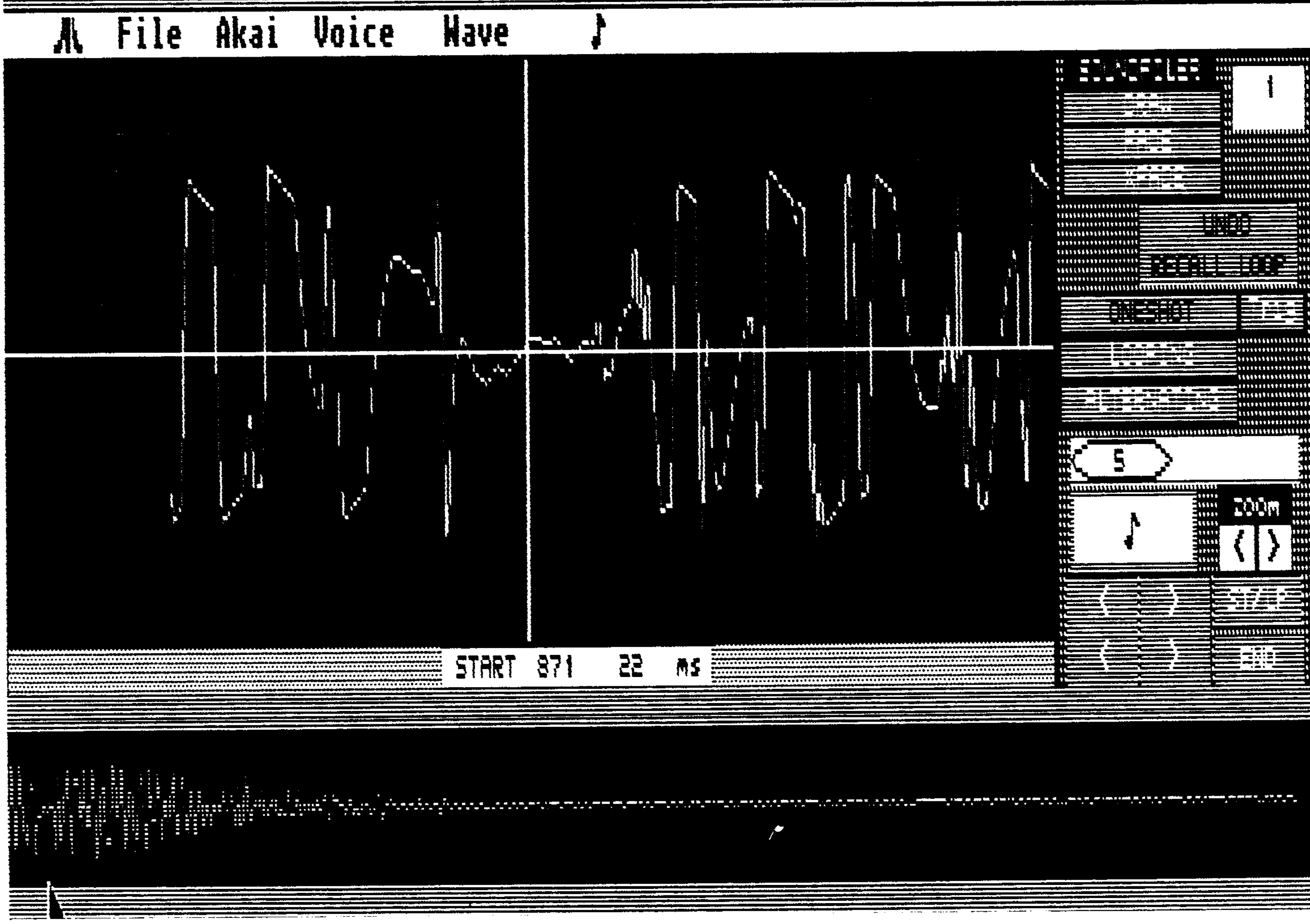
Display Bandwidth (%)
100% 50% 25% 10% 5%
.0 1.80 3.60 5.40 7.20 9.01 10.81 12.61 14.41 16.21 18.02
frequency in Khz
EXIT
.0 1.80 3.60 5.40 7.20 9.01 10.81 12.61 14.41 16.21 18.02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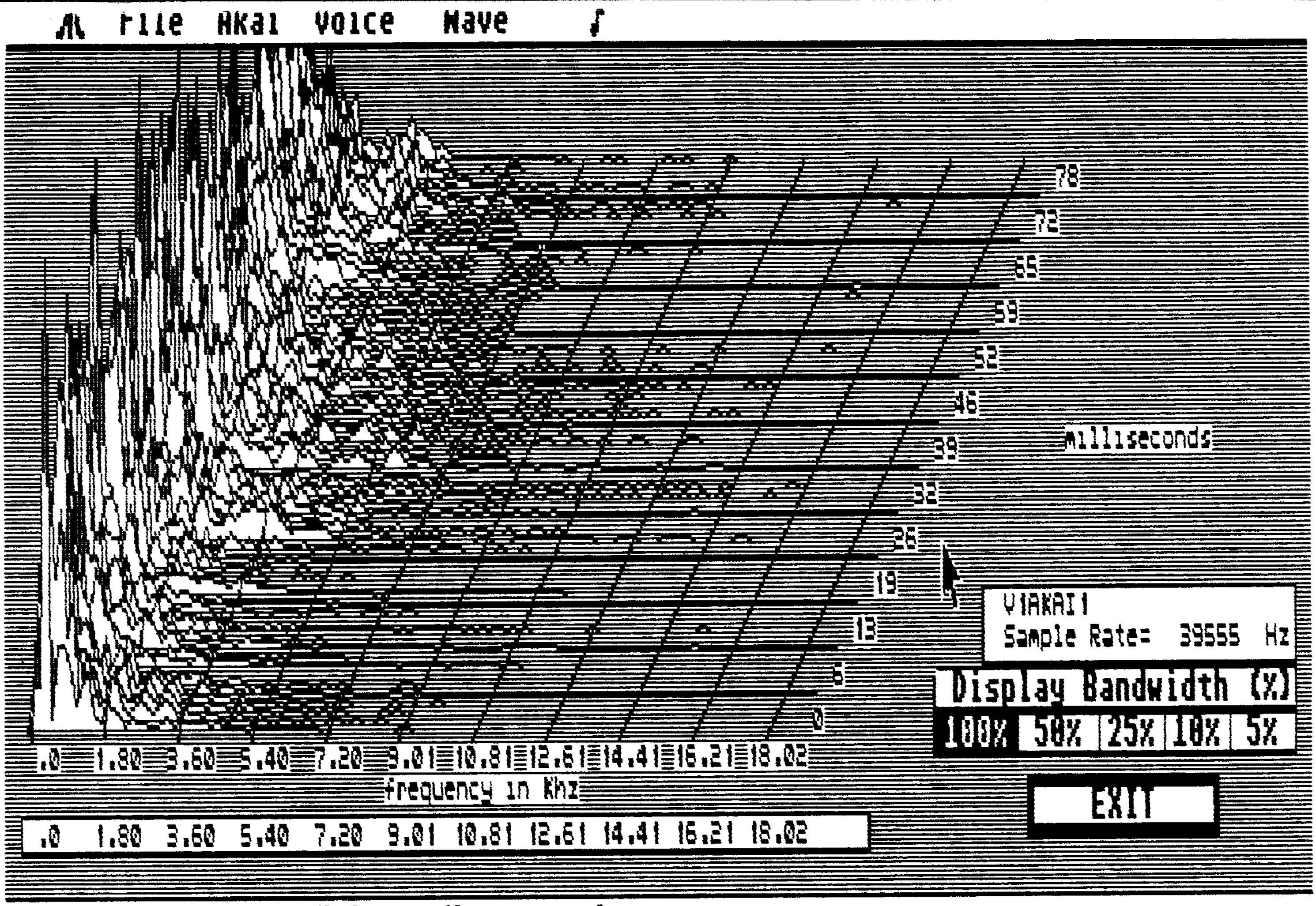
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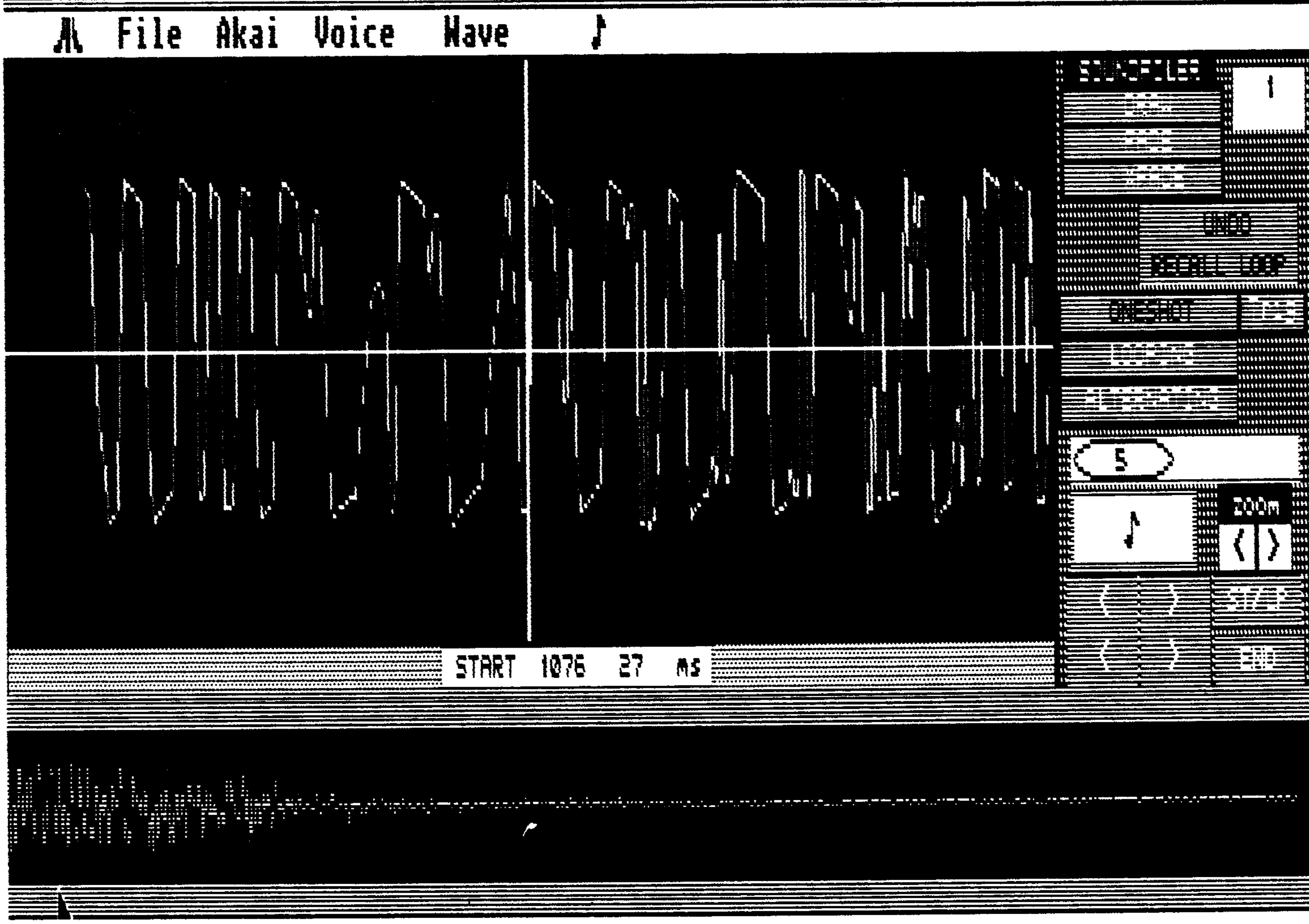
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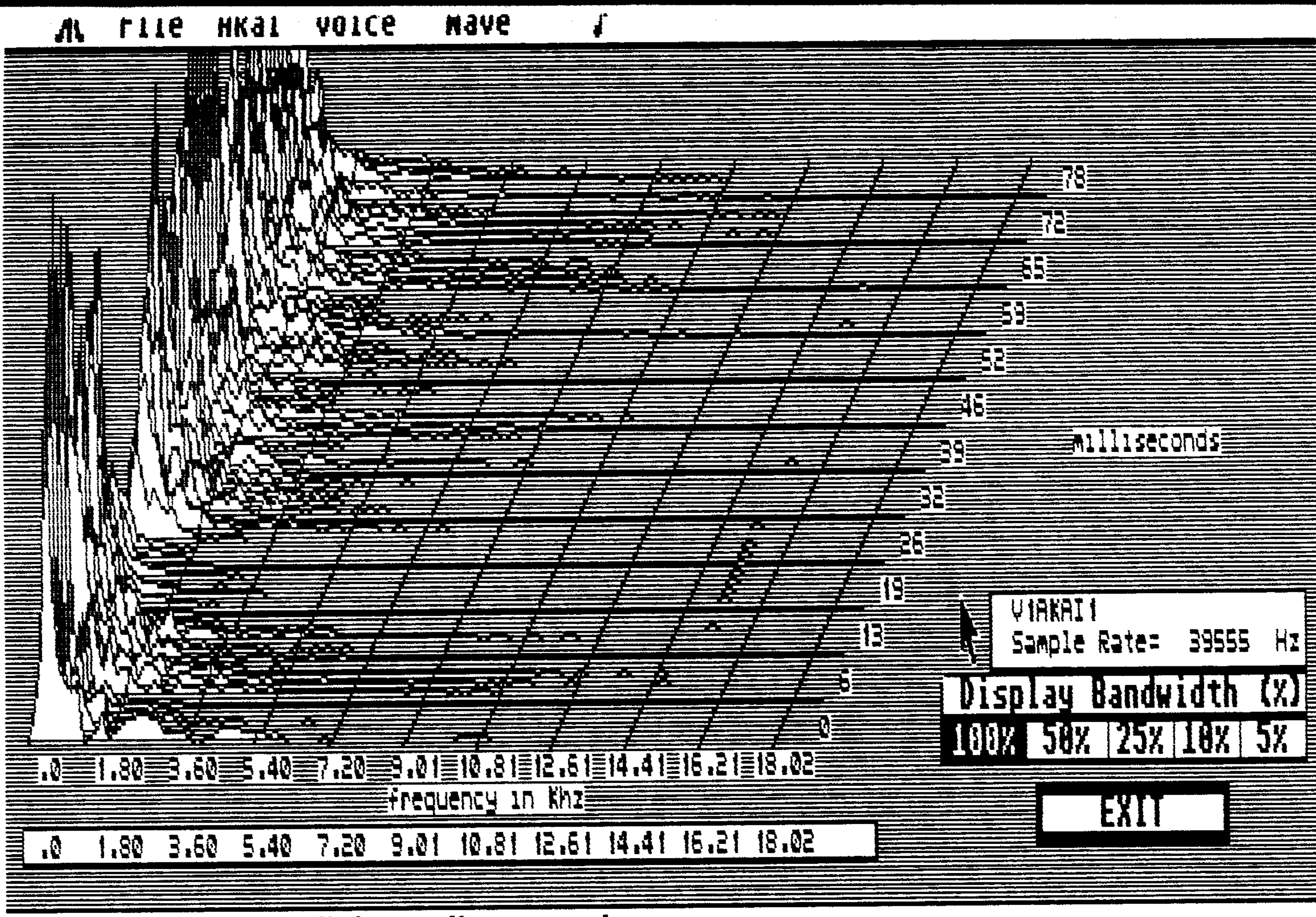
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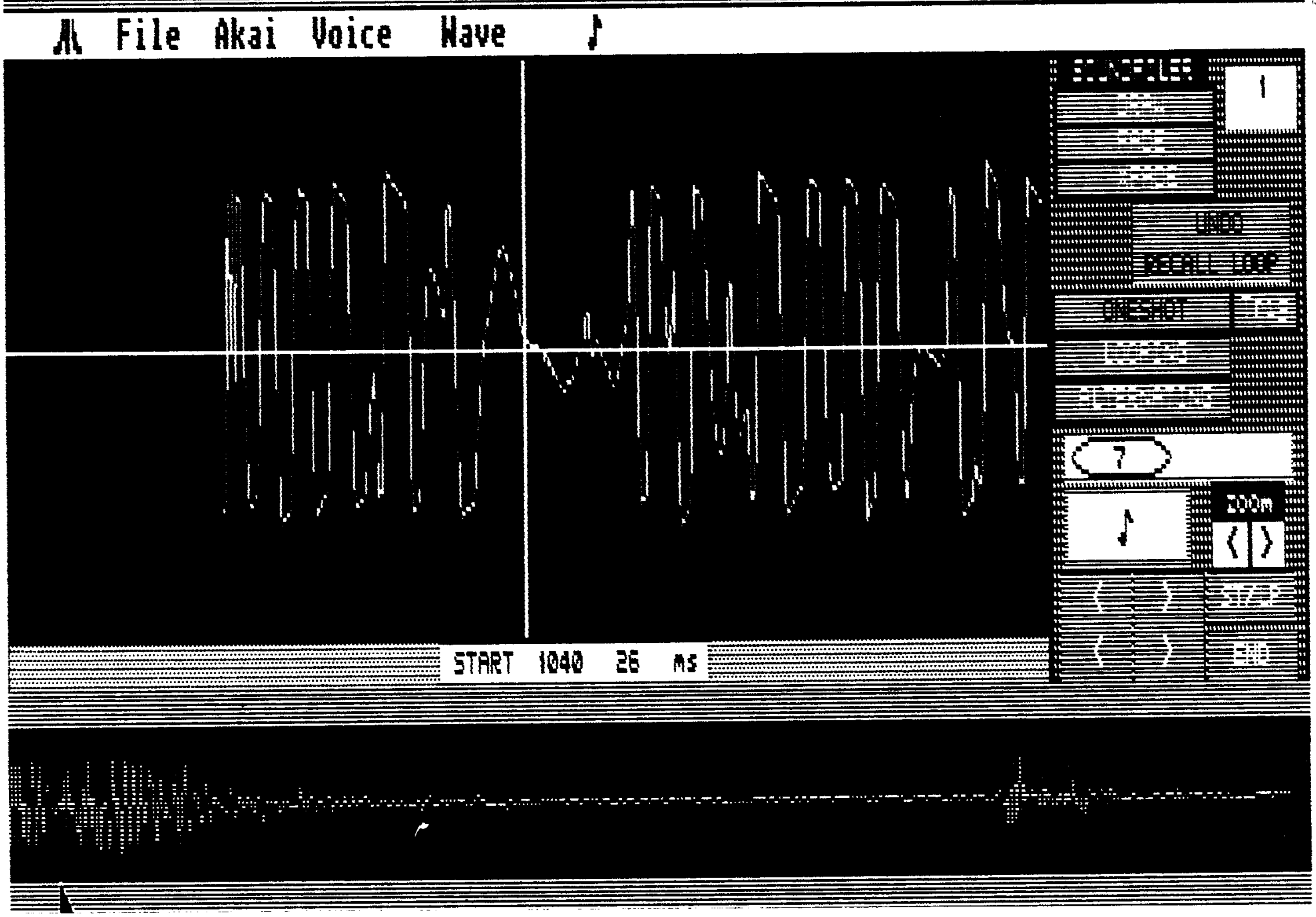
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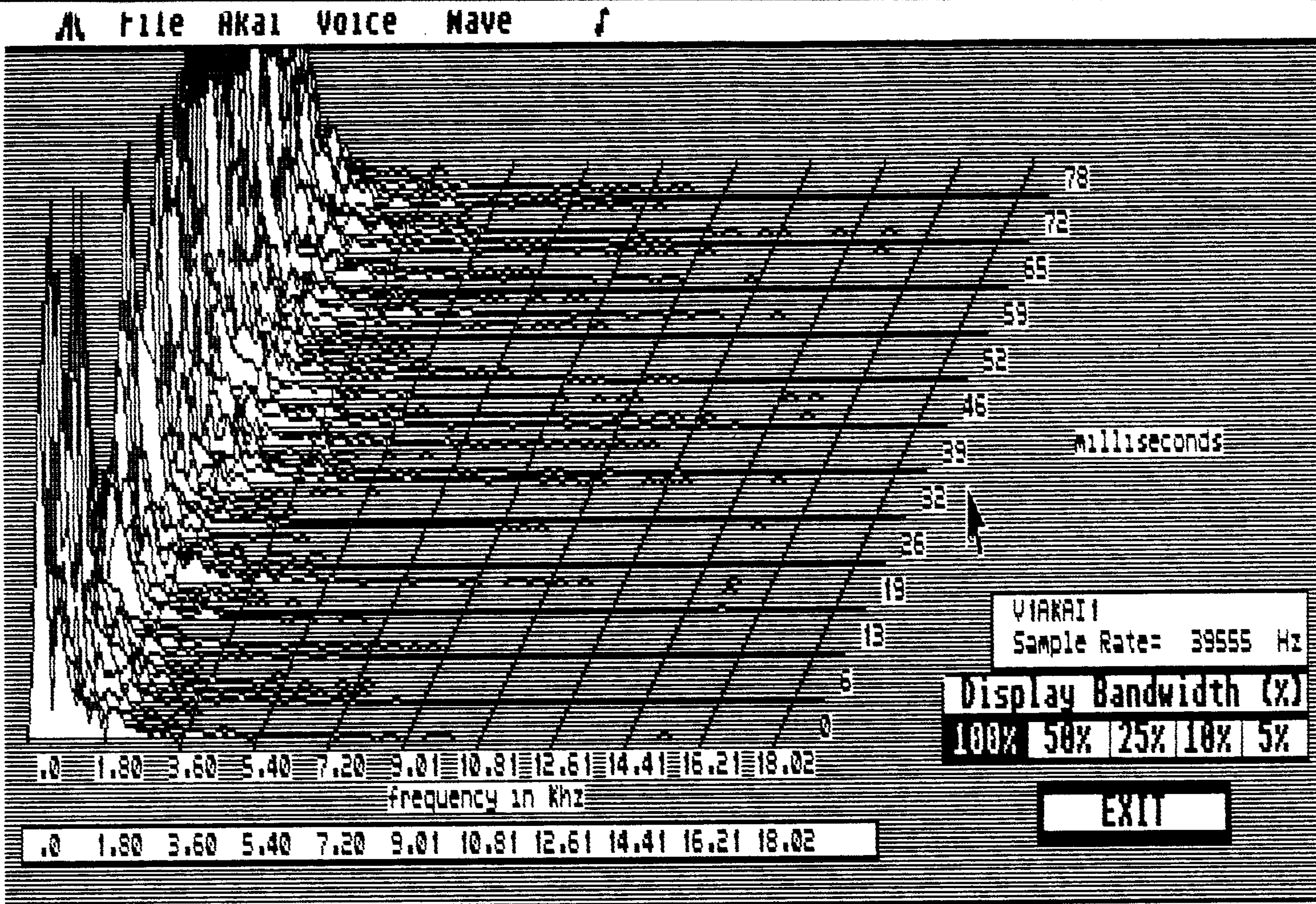

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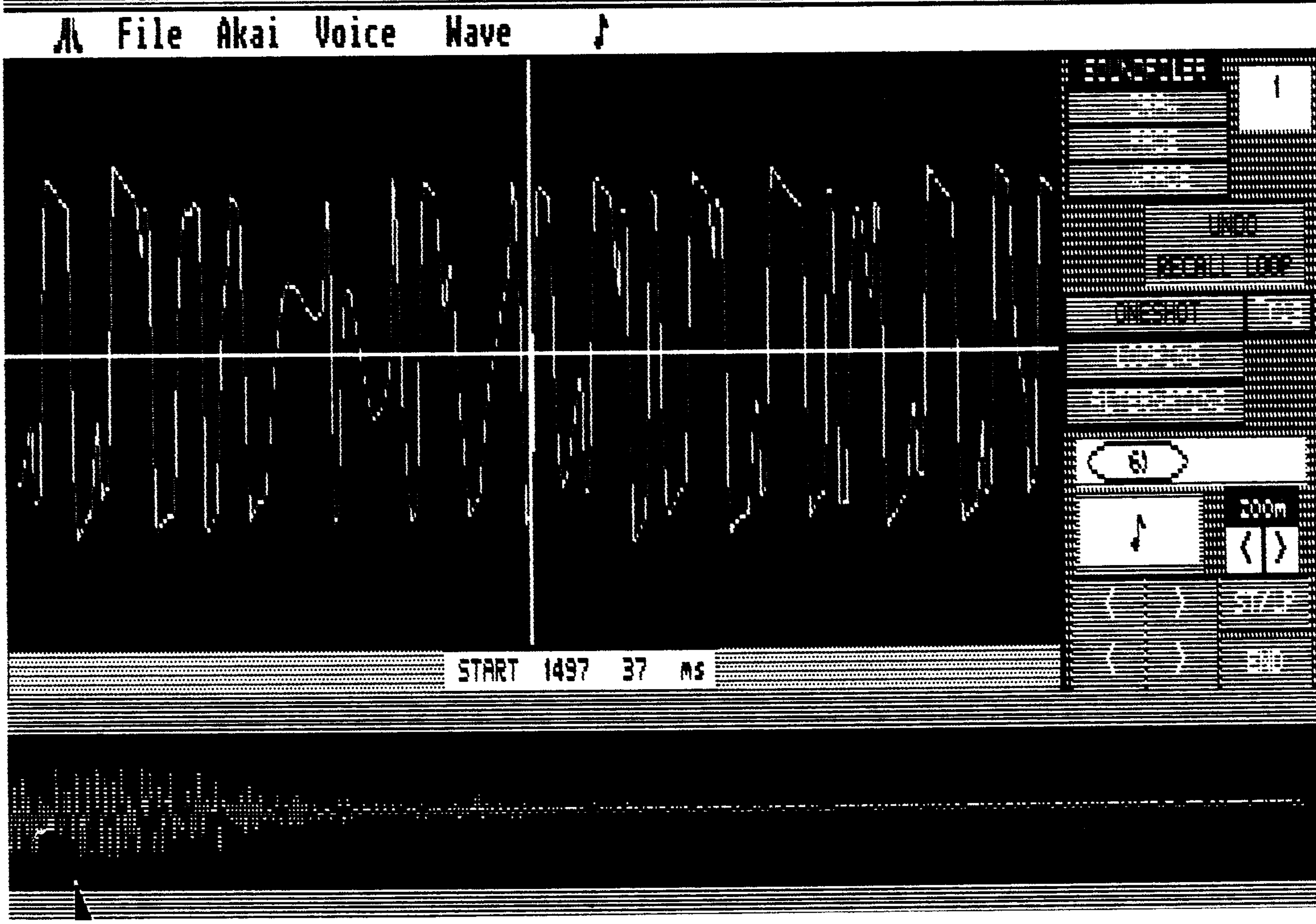

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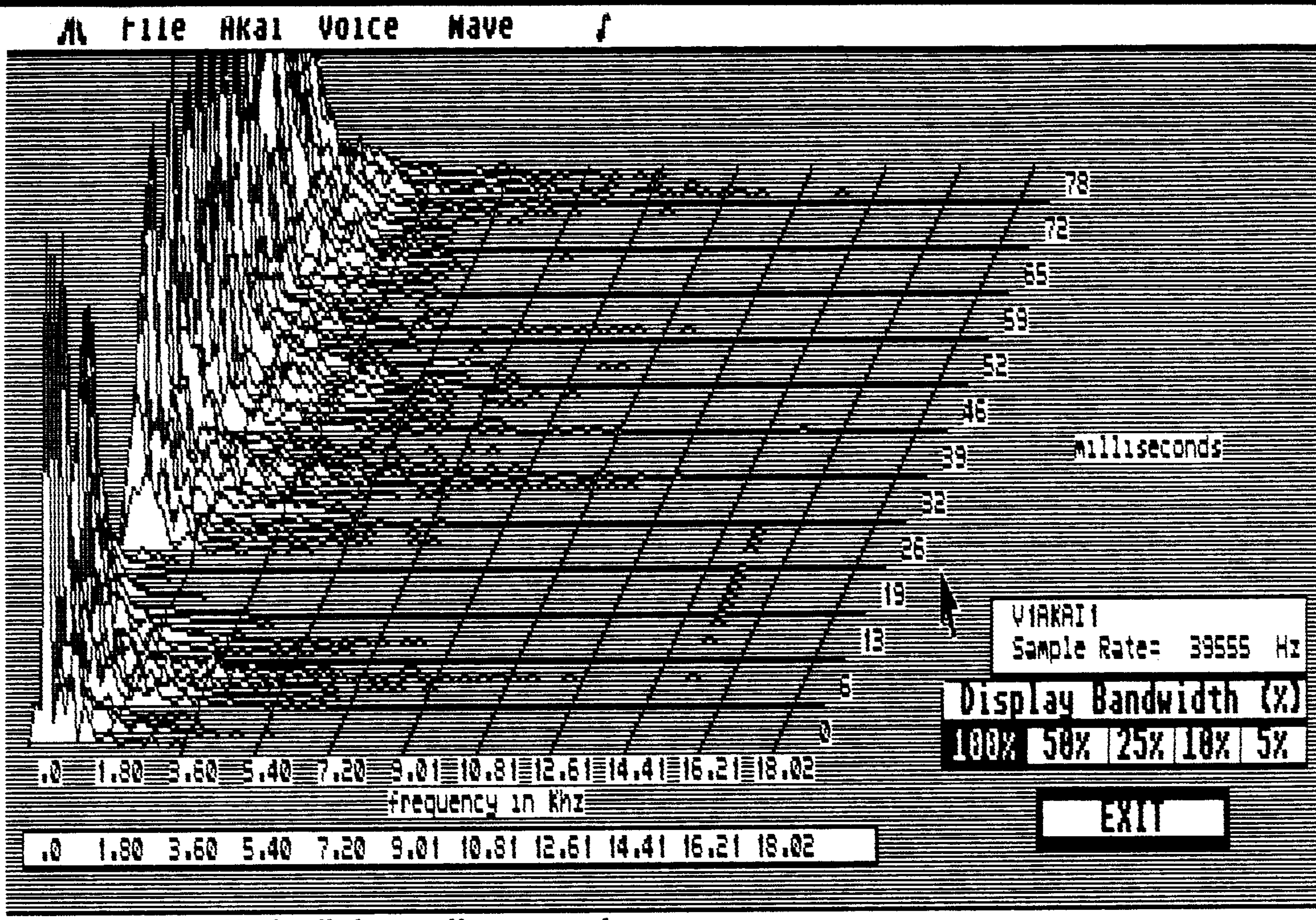
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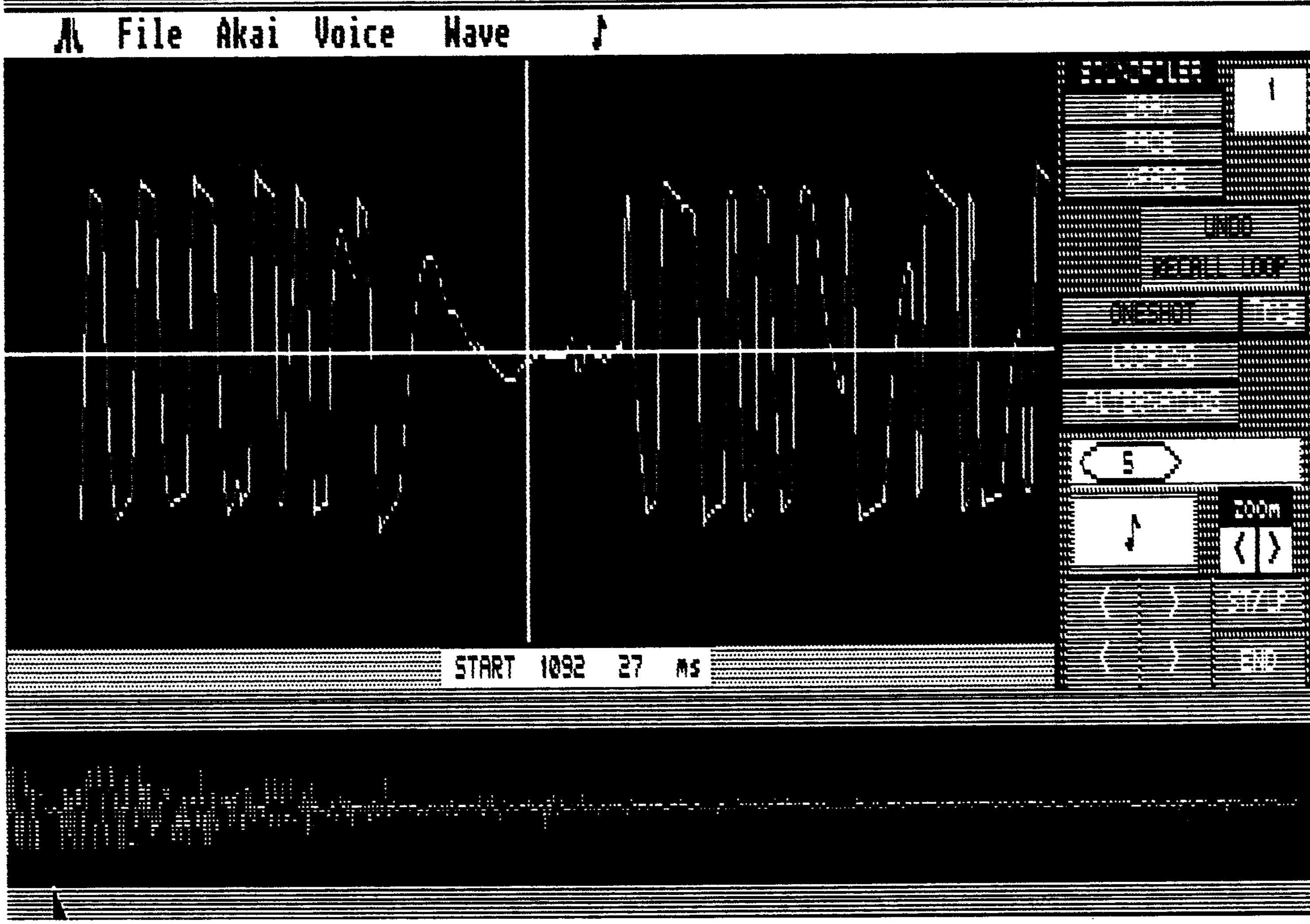
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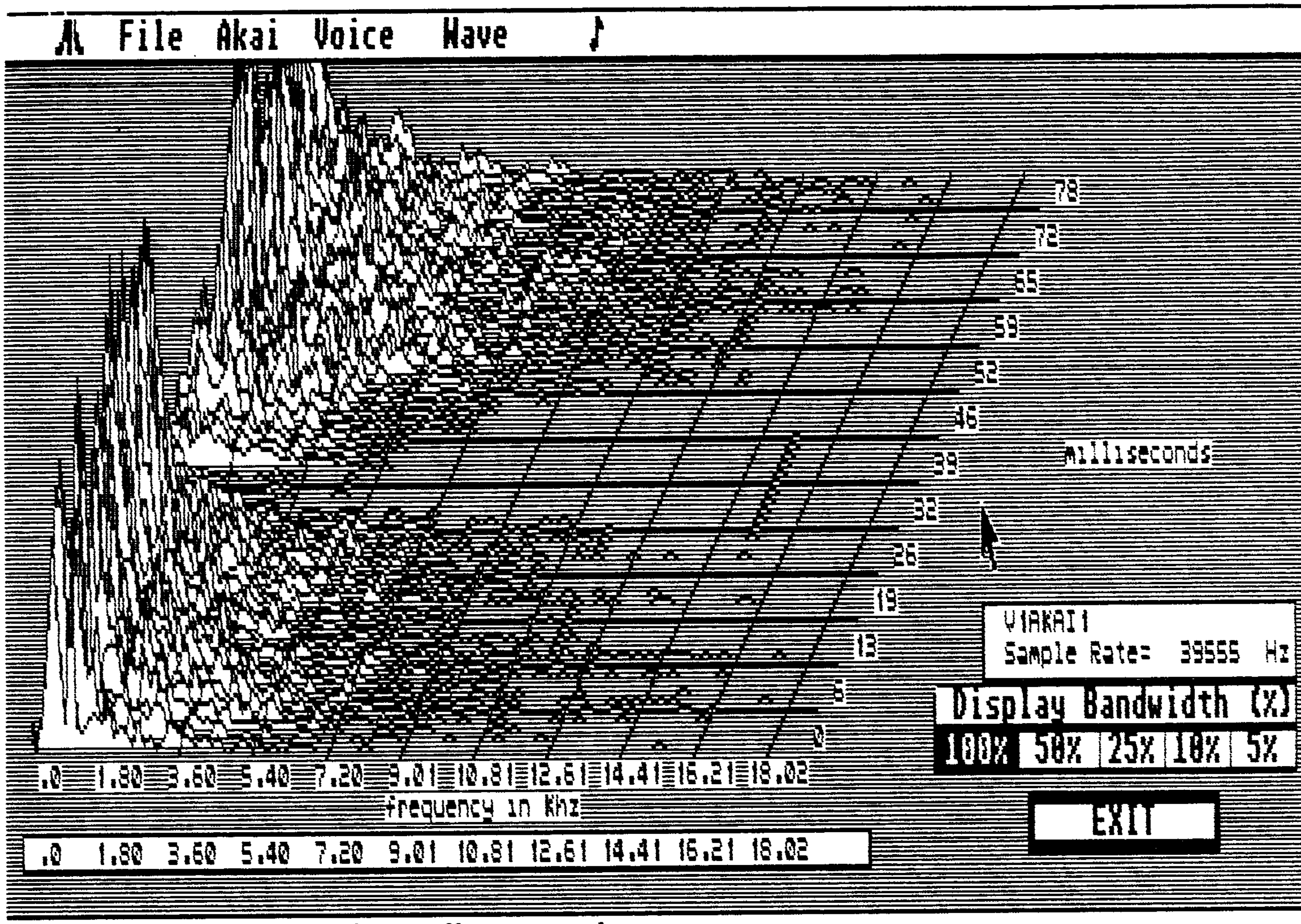
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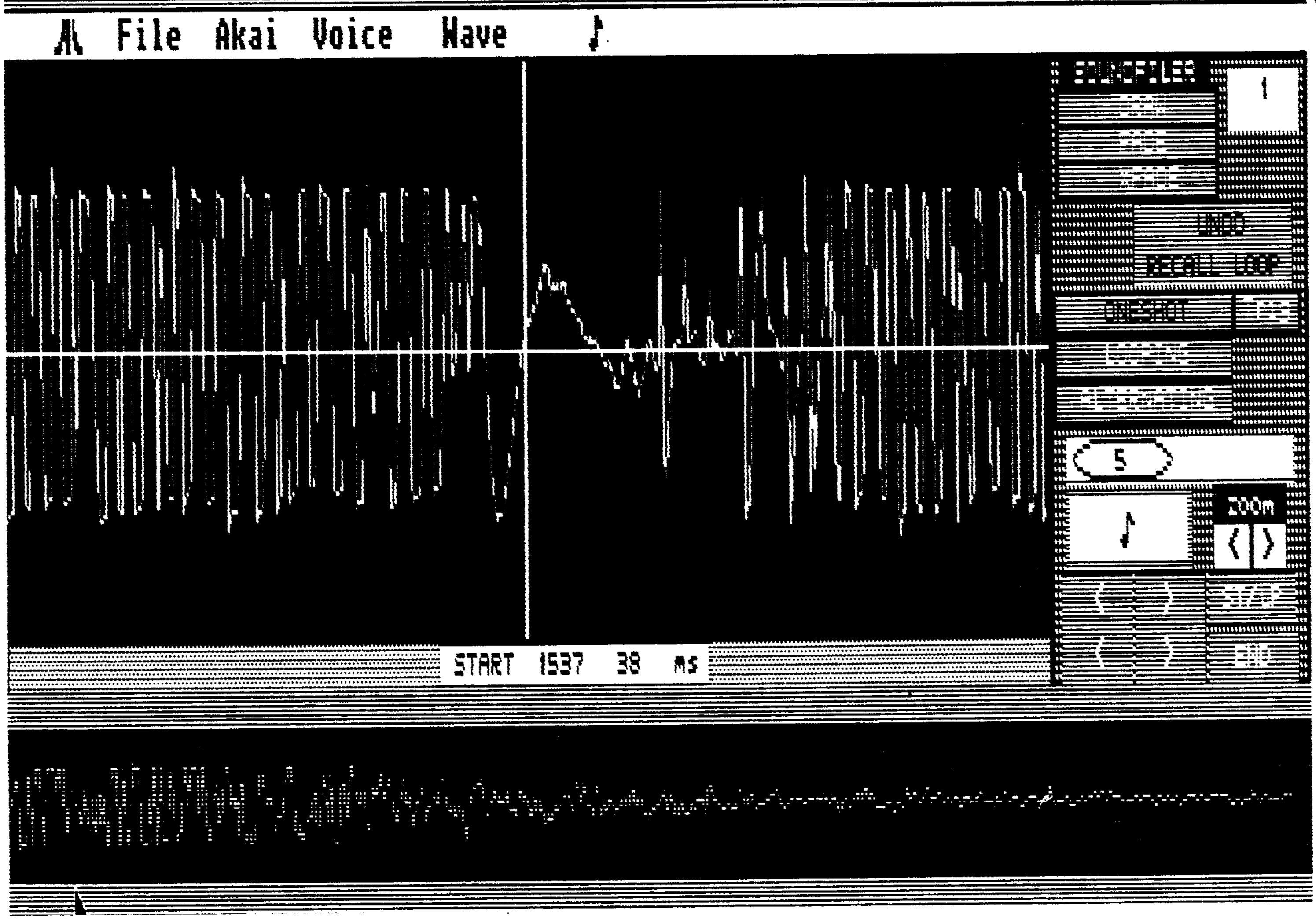
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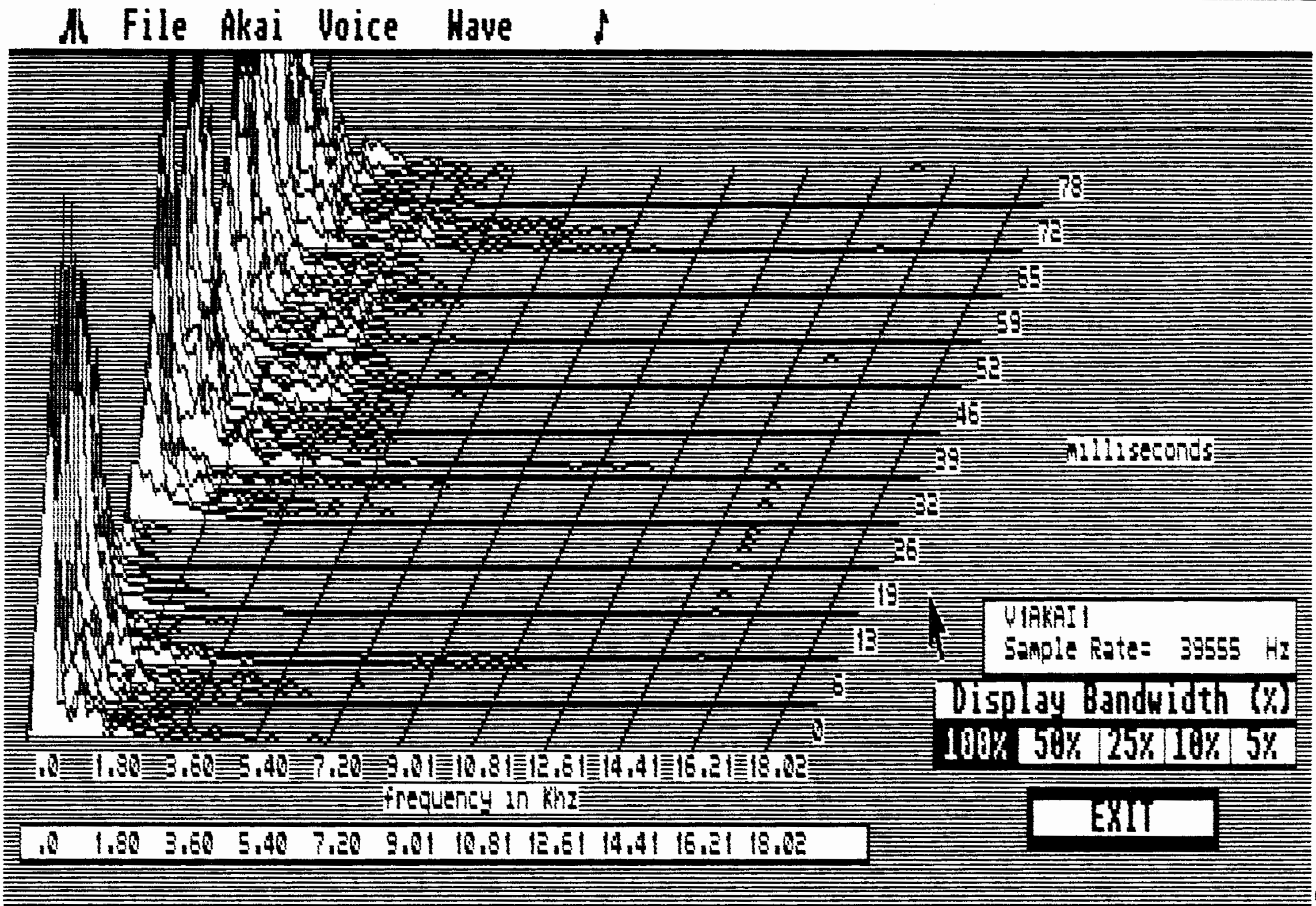
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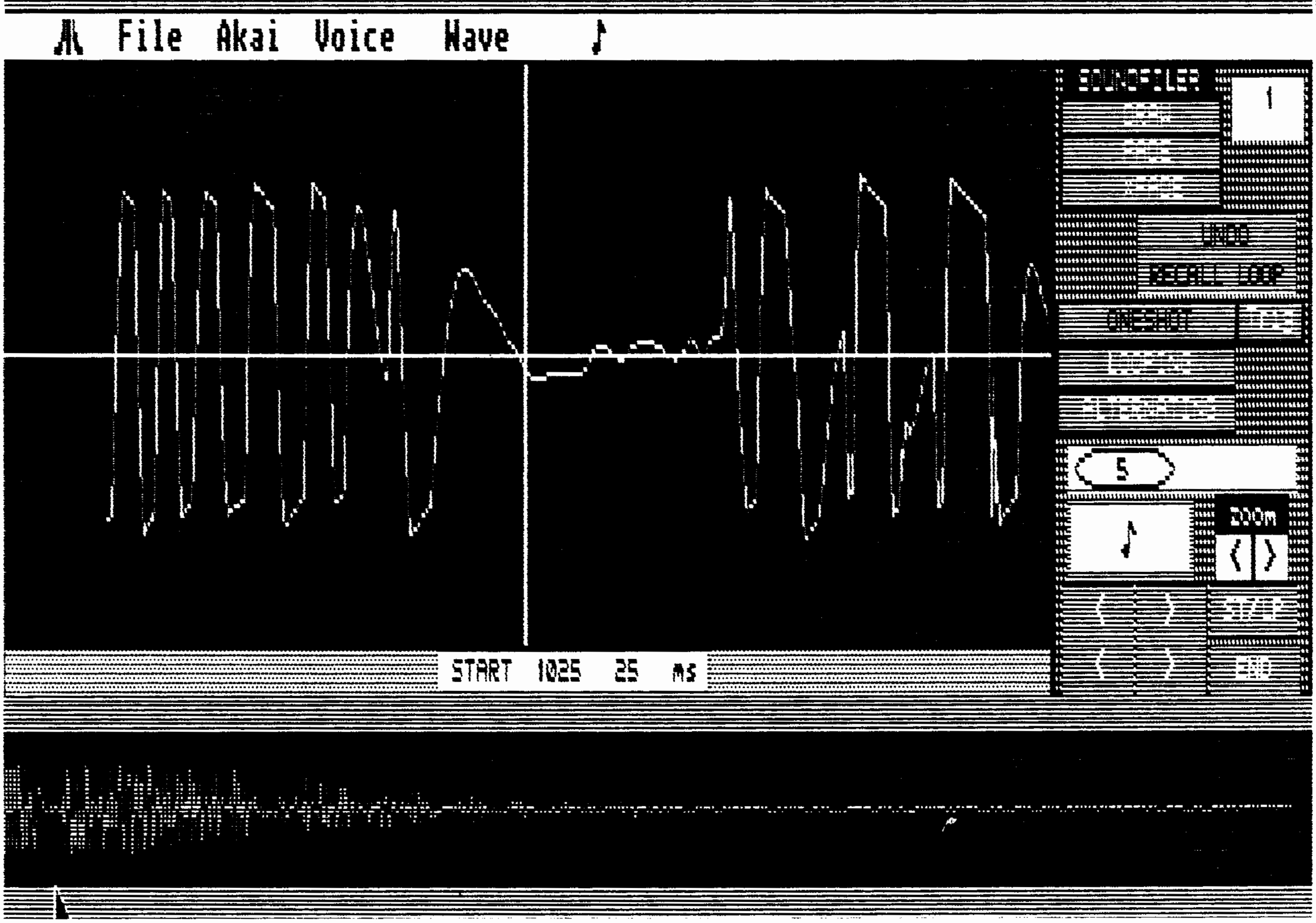
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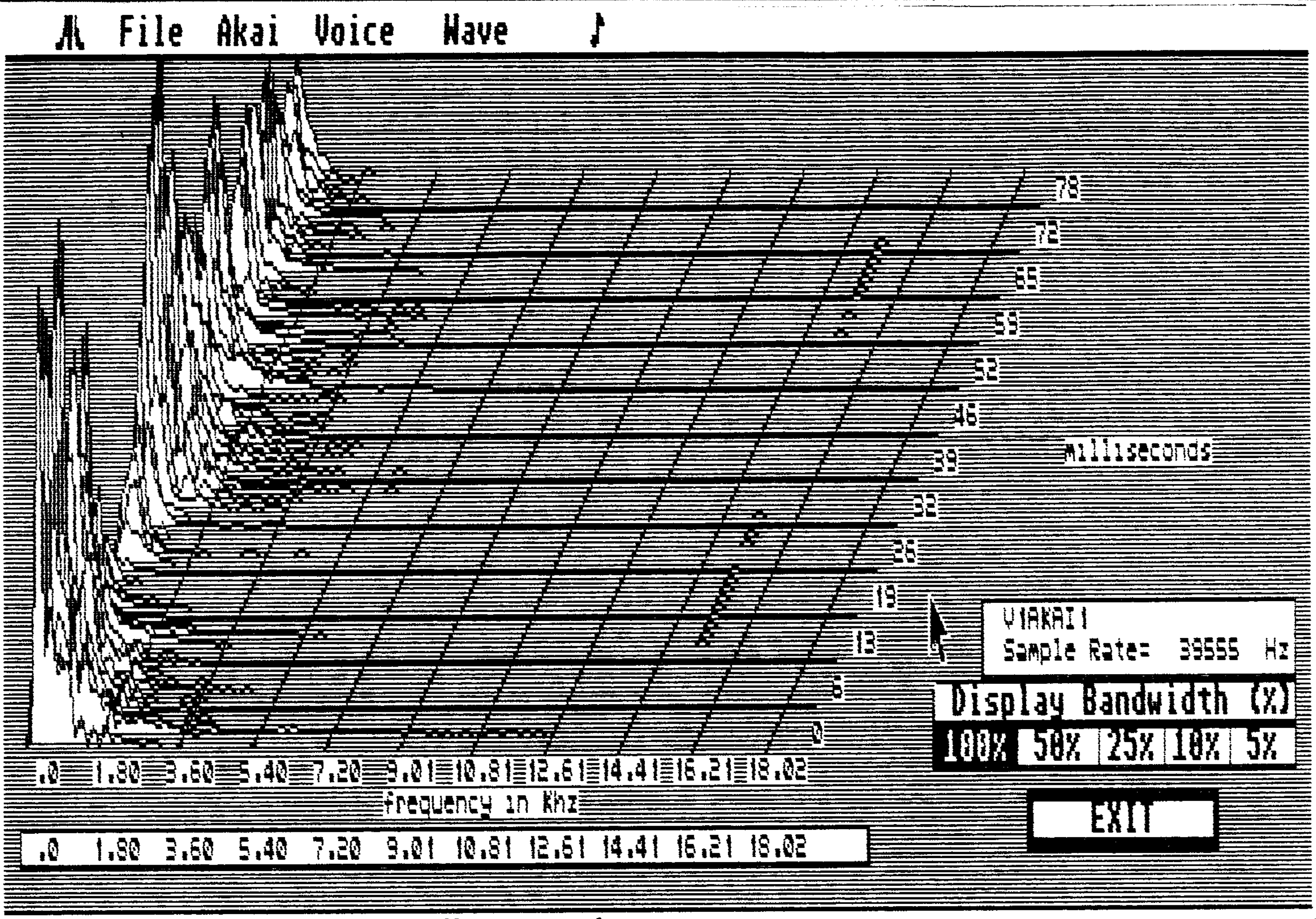
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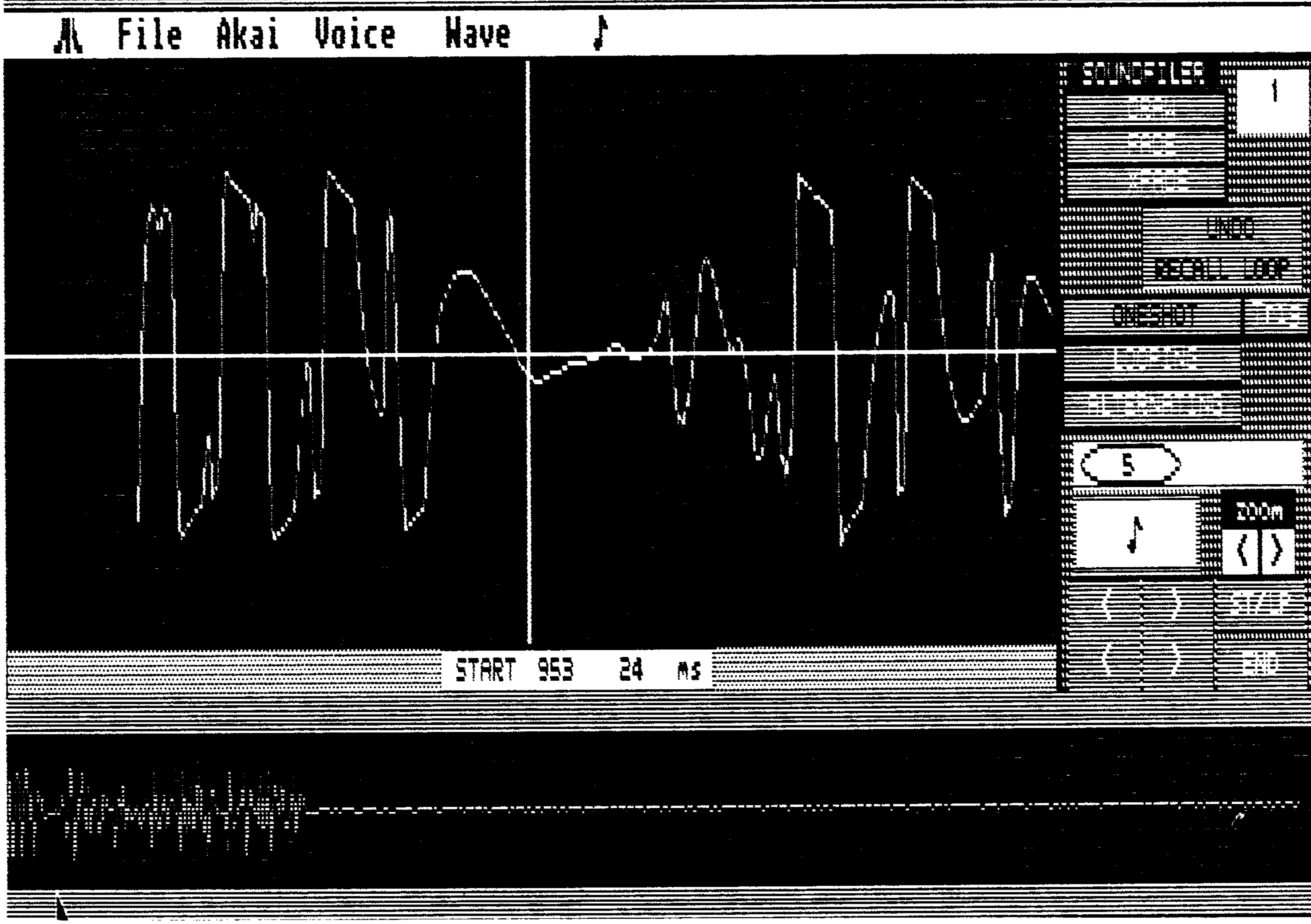
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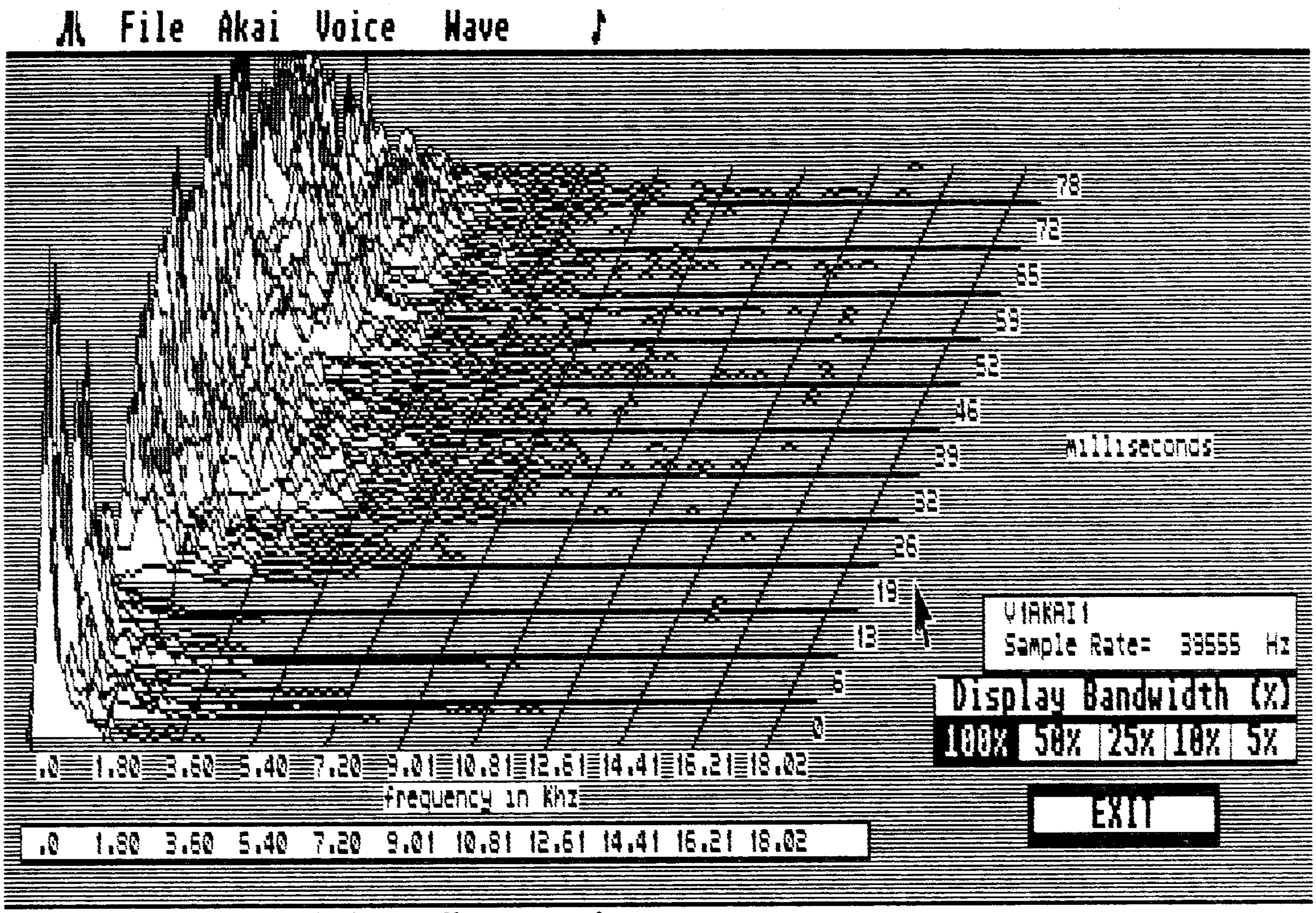
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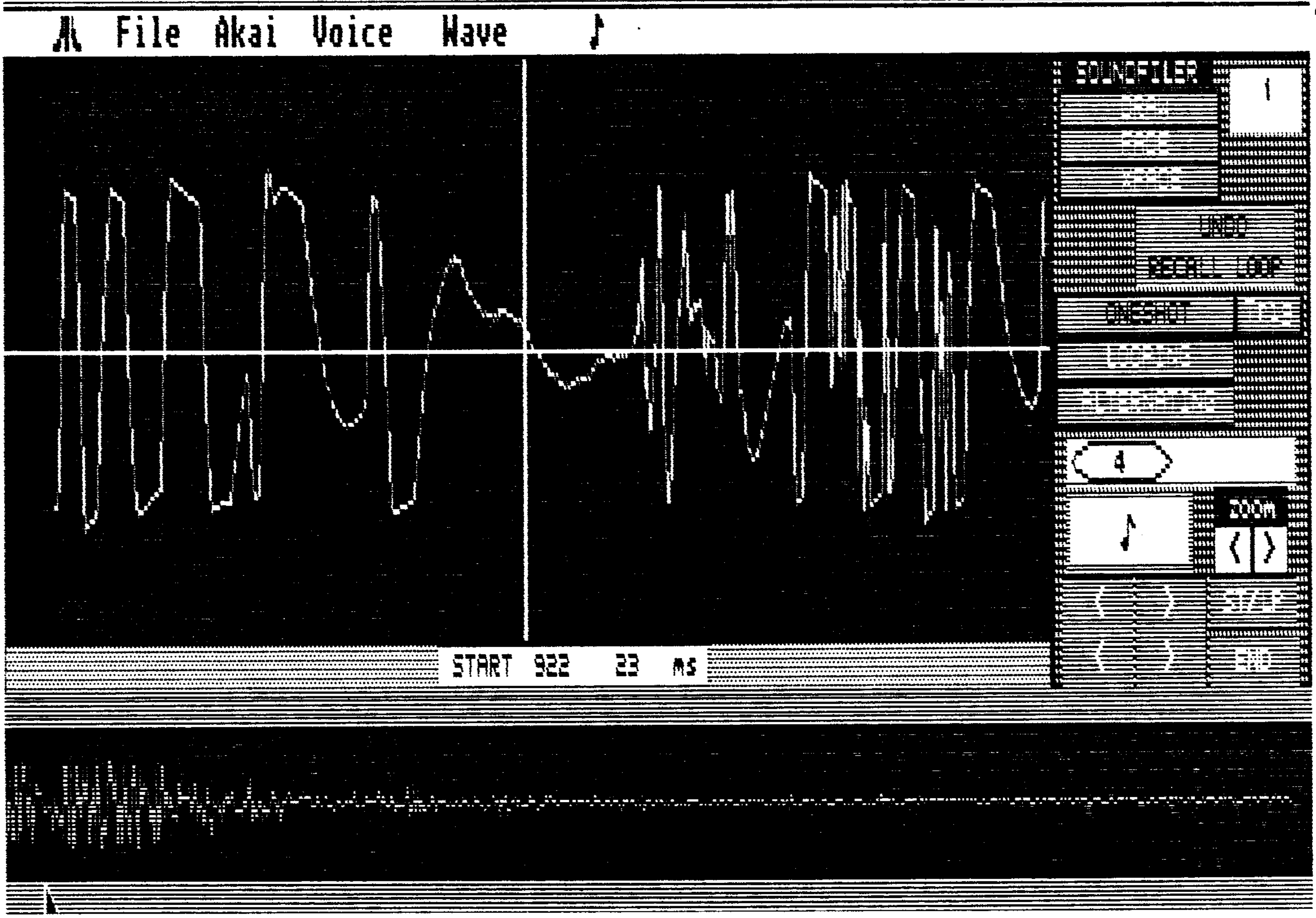
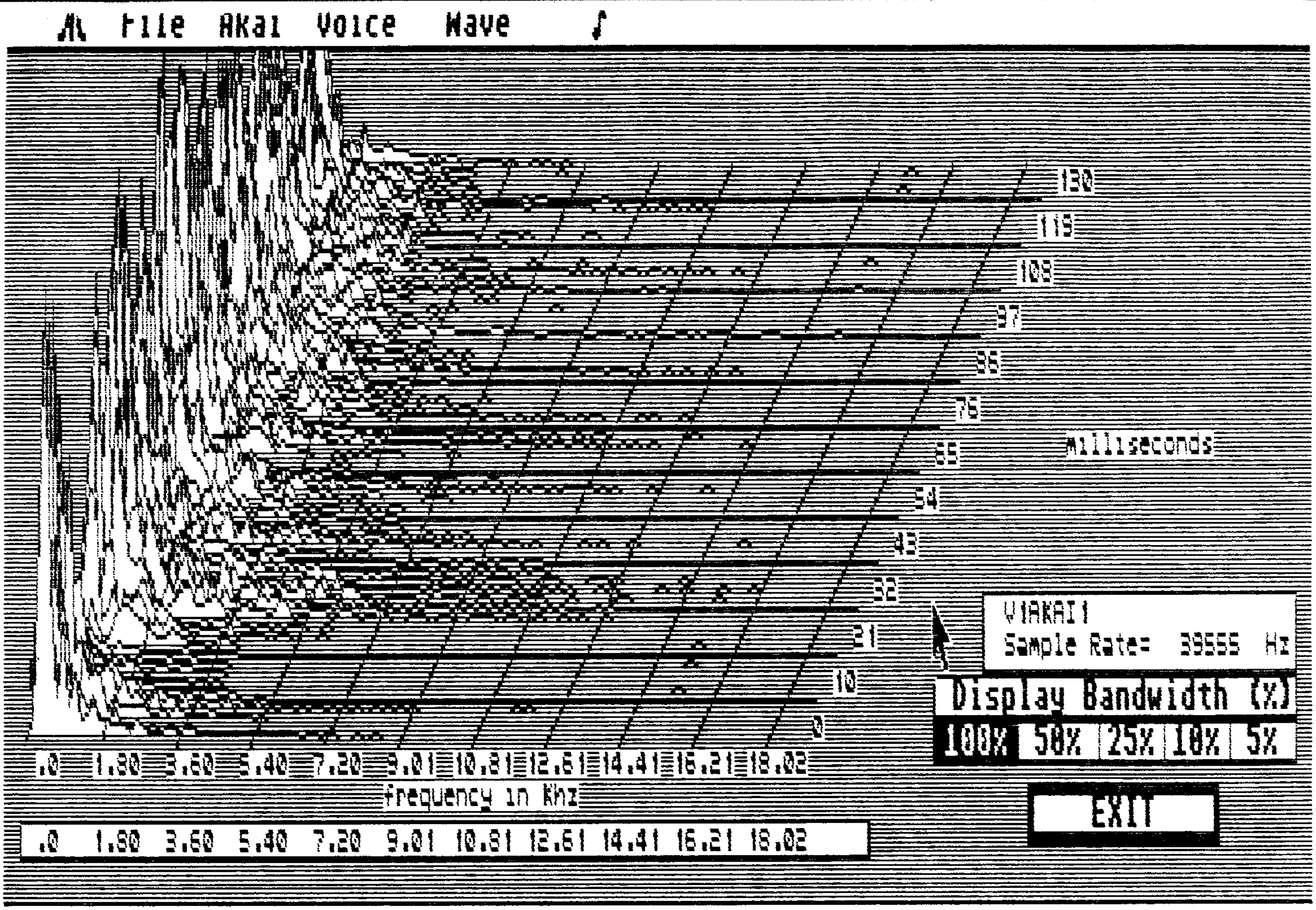
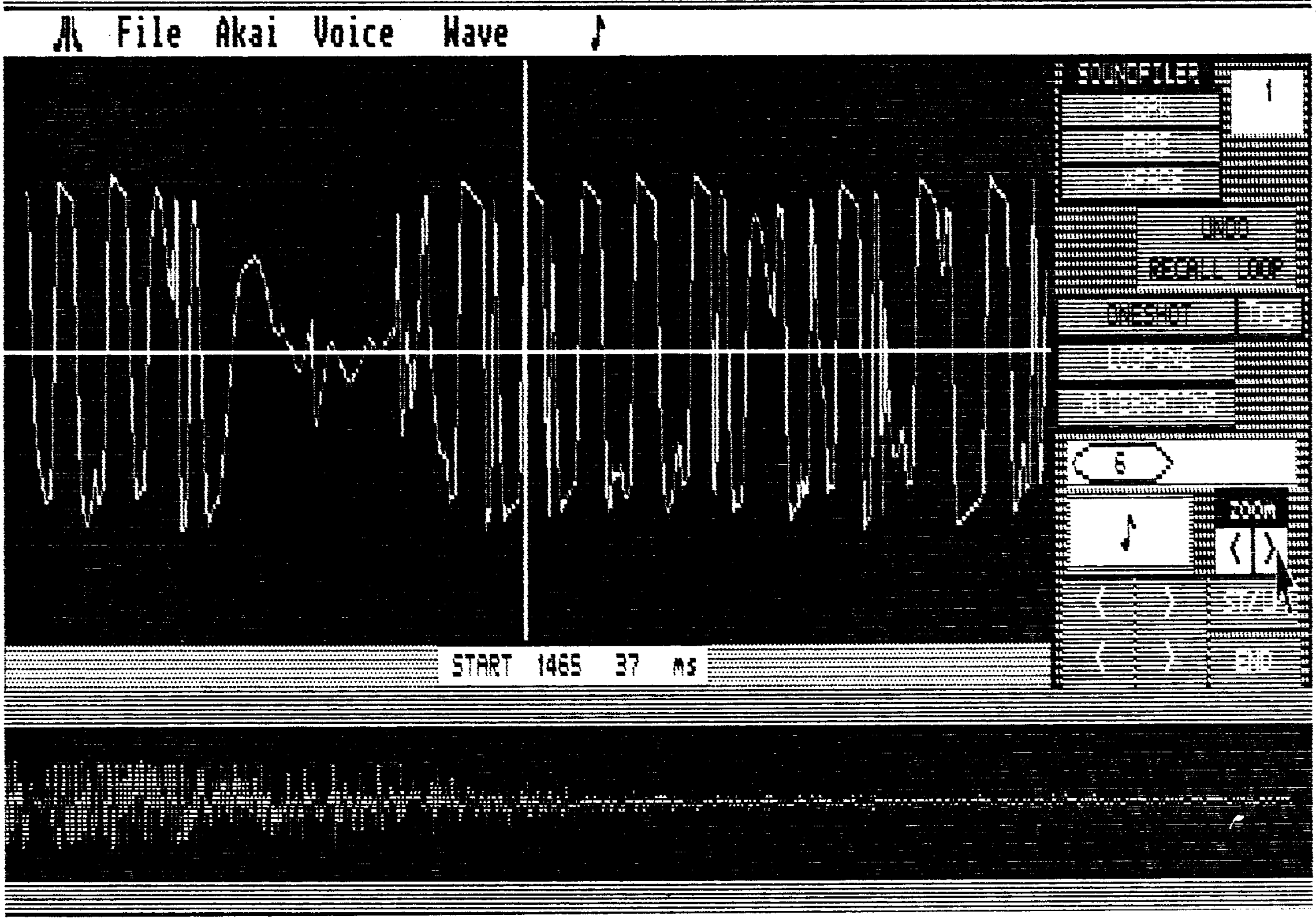
0
milliseconds
V1AKAI1
Sample Rate= 39555 Hz
Display Bandwidth (%)
100% 50% 25% 10% 5%
.0 1.80 3.60 5.40 7.20 9.01 10.81 12.61 14.41 16.21 18.02
frequency in Khz
EXIT
.0 1.80 3.60 5.40 7.20 9.01 10.81 12.61 14.41 16.21 18.02


File Akai Voice Wave
SOUNDFILER
1
UNDO
RECALL LOOP
ONESHOT
4
zoom
END
START 922 23 ms


File Akai Voice Wave
130
119
108
97
86
76
65
54
43
32
21
10
0
milliseconds
V1AKAI1
Sample Rate= 39555 Hz
Display Bandwidth (%)
100% 50% 25% 10% 5%
.0 1.80 3.60 5.40 7.20 9.01 10.81 12.61 14.41 16.21 18.02
Frequency in Khz
EXIT
.0 1.80 3.60 5.40 7.20 9.01 10.81 12.61 14.41 16.21 18.02


File Akai Voice Wave
SOUNDFILER
1
UNDO
RECALL LOOP
ONESHOT
6
ZOOM
START 1465 37 ms
END

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.

12. STATEMENT OF ASSESSMENT COSTS

For seismic survey conducted on Blackhills Creek PL8419.

Seismic Test

$250 per test x 10 shots	= $2,500

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	= $750
Total Cost	$3250

CERTIFICATION

I, Ted Sandor, 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
June 12, 1991

T. Sandor.
Ted Sandor, 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.