

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

AD-A026 544

SPECIAL DATA COLLECTION SYSTEM (SDCS) EVENT REPORT,
NEW MADRID, MISSOURI REGION, 25 MARCH 1976

TELEDYNE GEOTECH

PREPARED FOR
AIR FORCE TECHNICAL APPLICATIONS CENTER

MAY 1976

195119

SDCS-ER-76-95

DT

(C)

ADA 026544

**SPECIAL DATA COLLECTION SYSTEM EVENT REPORT
New Madrid, Missouri Region, 25 March 1976**

**K.J. Hill, M.S. Dawkins, and M.D. Gillispie
Alexandrie Laboratories**

Teledyne Geotech, 314 Montgomery Street, Alexandria, Virginia 22314

MAY 1976

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

Sponsored By

**The Defense Advanced Research Projects Agency
Nuclear Monitoring Research Office**

1400 Wilson Boulevard, Arlington, Virginia 22209

ARPA Order No. 2897

DDC
RECEIVED
MAY 6 1976
REGULATED

DT

Monitored By

VELA Seismological Center

312 Montgomery Street, Alexandria, Virginia 22314

REPRODUCED BY
**NATIONAL TECHNICAL
INFORMATION SERVICE**
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

ADDITIONAL FOR	
NTIS	<input checked="" type="checkbox"/>
DOC	<input type="checkbox"/>
ORIGINATOR	<input type="checkbox"/>
ADDITIONAL FOR	<input type="checkbox"/>
BY	
DATE	
A	

Disclaimer: Neither the Defense Advanced Research Projects Agency nor the Air Force Technical Applications Center will be responsible for information contained herein which has been supplied by other organizations or contractors, and this document is subject to later revision as may be necessary. The views and conclusions presented are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Defense Advanced Research Projects Agency, the Air Force Technical Applications Center, or the US Government.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1 REPORT NUMBER SDCS-ER-76-95	2 GOVT ACCESSION NO.	3 RECIPIENT'S CATALOG NUMBER
4 TITLE (and Subtitle) SPECIAL DATA COLLECTION SYSTEM (SDCS) New Madrid, Missouri Region, 25 March 1976		5 TYPE OF REPORT & PERIOD COVERED Technical
		6 PERFORMING ORG. REPORT NUMBER
7 AUTHOR(s) Hill, K. J., Dawkins, M. S., and Gillispie, M. D.		8 CONTRACT OR GRANT NUMBER(s) F08606-74-C-0013
9 PERFORMING ORGANIZATION NAME AND ADDRESS Teledyne Geotech 314 Montgomery Street Alexandria, Virginia 22314		10 PROGRAM ELEMENT PROJECT TASK AREA & WORK UNIT NUMBERS T/4703
11 CONTROLLING OFFICE NAME AND ADDRESS Defense Advanced Research Projects Agency Nuclear Monitoring Research Office 1400 Wilson Blvd.-Arlington, Virginia 22209		12 REPORT DATE May 28, 1976
		13 NUMBER OF PAGES 16
14 MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) VELA Seismological Center 312 Montgomery Street Alexandria, Virginia 22314		15 SECURITY CLASS (of this report) Unclassified
		15a DECLASSIFICATION DOWNGRADING SCHEDULE
16 DISTRIBUTION STATEMENT (of this Report) APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.		
17 DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18 SUPPLEMENTARY NOTES		
19 KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20 ABSTRACT (Continue on reverse side if necessary and identify by block number)		

1.

SDCS EVENT REPORT NO. 95

New Madrid, Missouri Region, 25 March 1976

This event report contains seismic data from the Special Data Collection System (SDCS), and other sources for the above event. Published epicenter information from seismic observations is:

	"P" Arrival	Origin Time	Lat.	Long.	m_b	M_s
NORSAR	00:52:01.4	00:41:45	38 N	089 W	4.2	N/A

Using SDCS stations, LASA and NORSAR, the epicenter location and magnitudes become

00:41:20.7 35.8N 090.5W 4.5 4.2

The programs used for LASA, NORSAR and ALPA data recovery are presently undergoing modifications. Information for LASA short-period is reported from their Teleseism Event Report; NORSAR short-period data is obtained from their bulletin. The long-period array beam recovery for these stations will be resumed upon completion of these modifications.

All SDCS stations were operational during this period.

Short-period signals associated with this event were recorded at CPSO, HN-ME, RK-ON, FN-WV, LASA and NORSAR. A possible "P" arrival is indicated on the WH2YK SP plot. All SP channels at HN-ME had polarity reversals; to correct this, mathematical inversions of the data were performed. Horizontal SP channels at HN-ME, RK-ON, FN-WV, and WH2YK were rotated. Signal clipping prevented rotation of the SP horizontal channels at CPSO.

Long-period signals were recorded at all SDCS stations. All LP channels at HN-ME had polarity reversals; to correct this, mathematical inversions of the data were performed. Horizontal LP channels at all SDCS stations were rotated.

Scaling factors on plots are millimicrons at 1 Hz (not corrected for instrument response).

STATION DESCRIPTION

SITE CODE	LOCATION	SITE COORDINATES		ELEVATION METERS	INSTRUMENTATION	
		DEG MN SECS			SHORT-PERIOD	LONG-PERIOD
ALPA	Alaska	65 14 00.0 N 147 44 36.0 W		626	None	31300
CPSO	McMinnville, Tennessee	35 35 41.4 N 085 34 13.5 W		574	6480 V 7515 H	SL210 V SL220 H
FN-WV	Franklin, West Virginia	38 32 58.0 N 079 30 47.0 W		910	KS36000	KS36000
LASA	Billings, Montana	46 41 19.0 N 106 13 20.0 W		744	HS10	7505A V 8700C H
HN-ME	Houlton, Maine	46 09 43.0 N 067 59 09.0 W		213	KS36000	KS36000
NORSAR	Kjeller, Norway	60 49 25.4 N 010 49 56.5 E		379	HS10	7505A V 8700C H
RK-ON	Red Lake, Ontario	50 50 20.0 N 093 40 20.0 W		366	18300	SL210 V SL220 H
WH2YK	White Horse, Yukon	60 41 41.0 N 134 58 02.0 W		853	18300	SL210 V SL220 H

HYPOCENTER DETERMINATION

INPUT FOR EVENT 25 MAR 76
 00:41:16.0 36.000N 90.000W 0KM.

STA.	ARRIVAL	RESIDUALS		DIST.	AZ.
		CALC	REST		
CPSO	00 42 22.5	0.5	-0.6	4.0	91.0
FN-WV	00 43 32.6	-0.5	-1.4	9.2	69.1
RK-ON	00 44 55.3	0.6	-0.0	15.2	352.3
LAO	00 45 04.8	-0.4	-1.3	16.1	317.6
HN-ME	00 45 52.8	-0.4	0.5	19.9	51.6
NAO	00 52 01.4	0.1	2.8	64.6	32.1

67 HERRIN TRAVEL TIME TABLES

ORIGIN	LAT.	LONG.	DEPTH (KM)	SDV	IT	STA
00:41:08.9	35.719N	90.544W	-90. CALC	0.5	3	6
00:41:20.7	35.762N	90.489W	0. REST	1.6	3	6

CALC			REST		
0	.	0	0	.	0
0	.	1	0	.	1
0	2.2	0	0	2.2	0
.
0	0.1	0	0	0.1	0
0	.	0	0	.	0
0	.	0	0	.	0

CHI2 COVERAGE ELLIPSE; 95 PER CENT CONF..LEVEL, SDV= 2.26
 MAJOR 105.3KM. MINOR 28.9KM. AZ= 24 AREA= 9576 SQ.KM. REST

4.

DATA SUMMARY

INPUT FOR EVENT 25 MAR 76
 00:41:16.0 36.000N 90.000W OKM.

STA.	PHASE	ARRIVAL		INST	PER	A/T	MAGNITUDE		DIR	DIST
		TIME					MB	MS		
CPSO M	EP	00 42	22.5	SPZ	0.8	312.	5.30			4.0
CPSO	LR	00 43	42.0	LPZ	13.0	525.		4.44		4.0
FN-WV	EP	00 43	32.6	SPZ	99.9	9999.				
FN-WV	LQ	00 46	28.0	LPT	21.0	311.				
FN-WV	LR	00 47	13.0	LPZ	17.0	134.		4.21		9.2
RK-ONM	EP	00 44	55.3	SPZ	0.4	200.	5.20			15.2
RK-ON	LQ	00 49	54.0	LPT	22.0	41.				
RK-ON	LR	00 50	44.0	LPZ	17.0	150.		4.48		15.2
LAO	EP	00 45	04.8	SAB	99.9	9999.				
HN-MEM	EP	00 45	52.8	SPZ	0.7	35.	4.24			19.9
HN-ME	LQ	00 51	59.0	LPT	18.0	35.				
HN-ME	LR	00 53	23.0	LPZ	15.0	136.		4.55		19.9
WH2YK	LQ	01 02	00.0	LPT	18.0	96.				
WH2YK	LR	01 02	42.0	LPZ	23.0	22.		4.04		37.6
NAO	EP	00 52	01.4	AB	1.0	6.	4.48			64.6

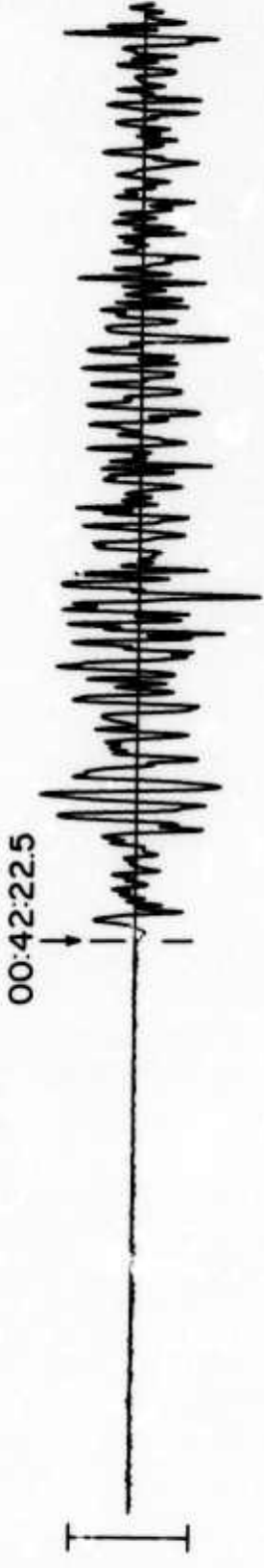
ORIGIN	LAT.	LONG.	DEPTH (KM)	MAG	SDV	STA	LPMAG	LPSDV	LPSTA
00:41:08.9	35.719N	90.544W	0. CALC	4.48*****		1	4.24	0.2	3
00:41:20.7	35.762N	90.489W	0. REST	4.48*****		1	4.24	0.2	3
CPSO NOT USED IN CALC RUN SP AVG. MAG.									
RK-ON NOT USED IN CALC RUN SP AVG. MAG.									
HN-ME NOT USED IN CALC RUN SP AVG. MAG.									
CPSO NOT USED IN REST RUN SP AVG. MAG.									
RK-ON NOT USED IN REST RUN SP AVG. MAG.									
HN-ME NOT USED IN REST RUN SP AVG. MAG.									

Short-period magnitudes (m_b) used in averaging are restricted to those recorded at distances between 20 and 110 degrees from the epicenter.

Average long-period magnitude (M_S) is based on Rayleigh wave observations in the period range of 17 to 23 seconds per cycle.

CPSO 25 MAR 76

SPZ
222.87 MU



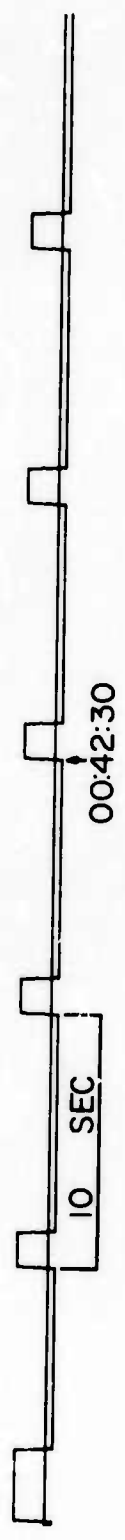
SPN
83.37 MU



SPE
83.29 MU



TIME

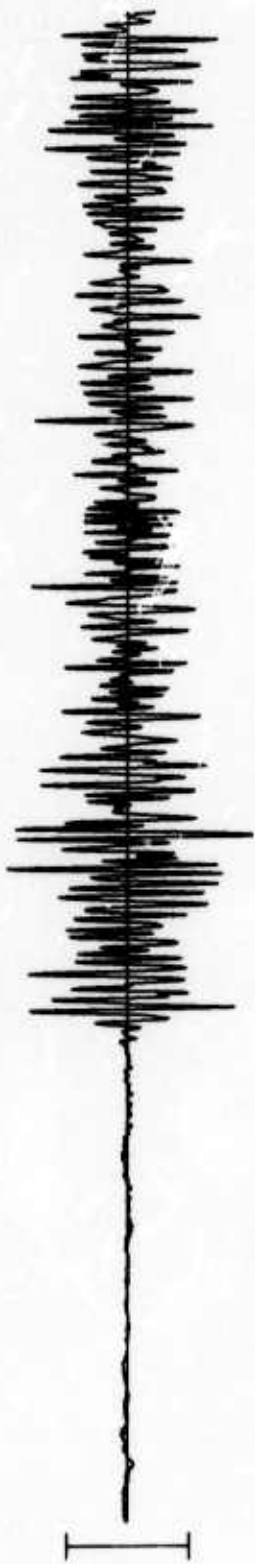


FN-WV 25 MAR 76

SPZ
457.67 MU



SPR
197.65 MU



SPT
344.67 MU



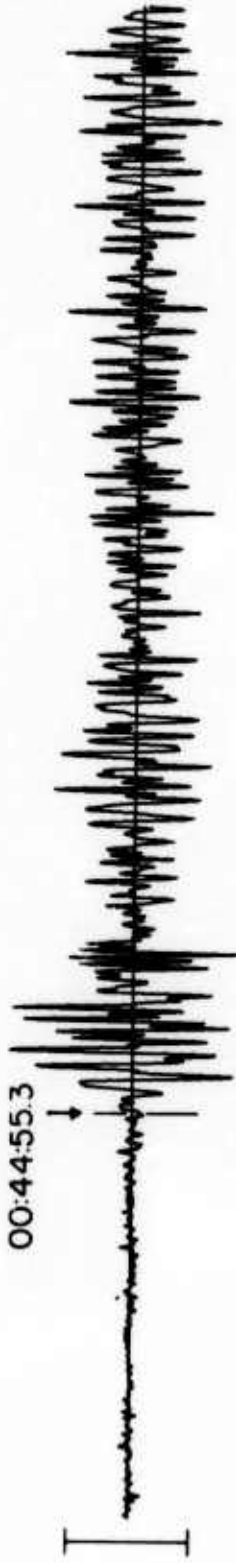
TIME



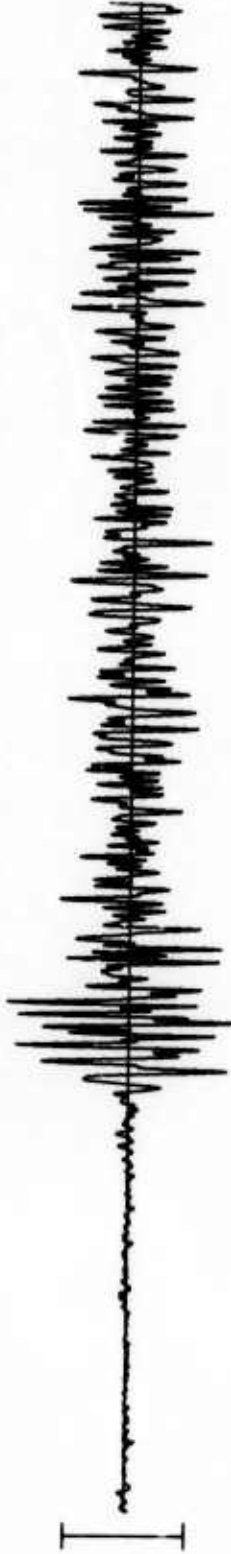
7

RK-QN 25 MAR 76

SPZ
236.20 MU



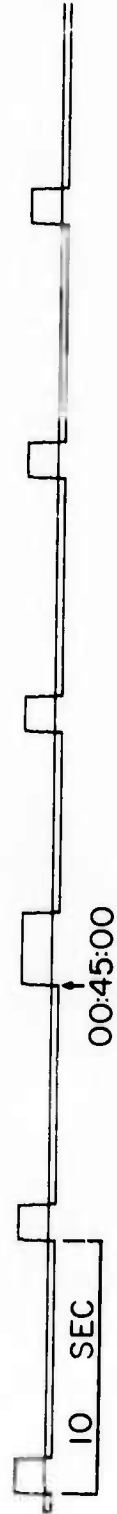
SPR
261.22 MU



SPT
114.21 MU



TIME



∞.

HN-ME 25 MAR 76

00:45:52.8

SPZ
32.01 MU



SPR
22.97 MU

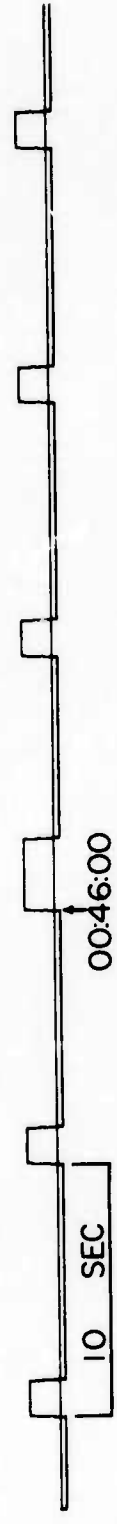


9

SPT
28.04 MU



TIME



WH2YK 25 MAR 76

POSSIBLE "P"
00:48:41.9

SPZ
4.65 MU



SPR
5.17 MU



SPT
5.03 MU



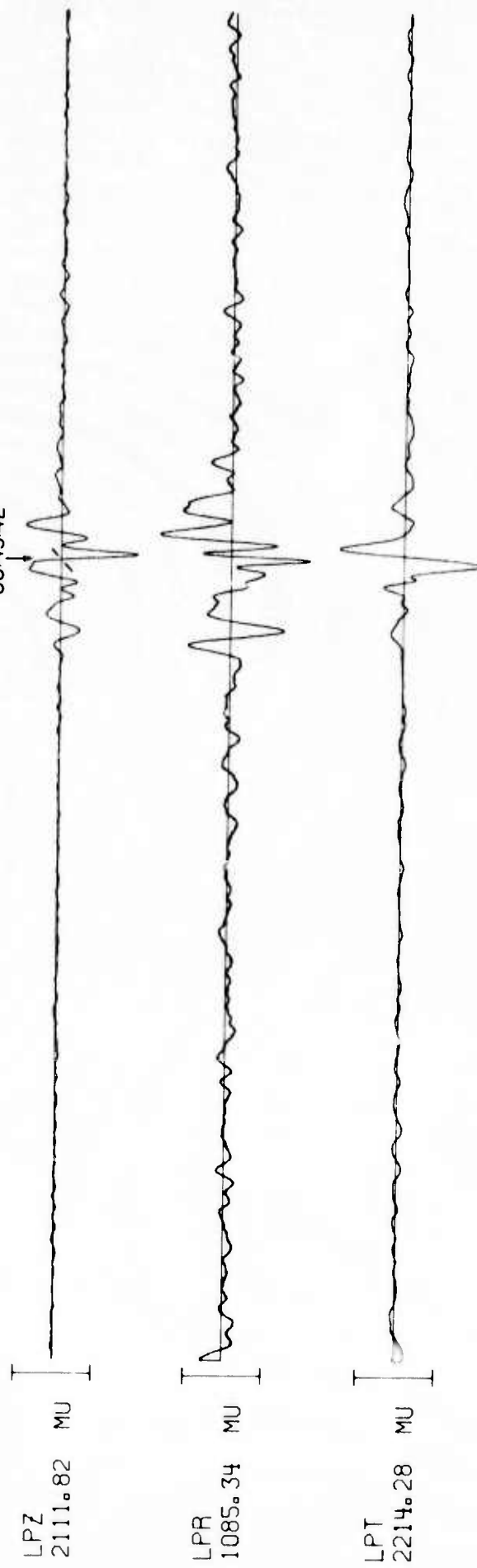
TIME



00:48:50

10.

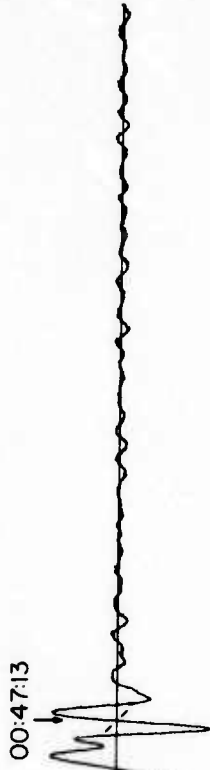
CPS0 25 MAR 76



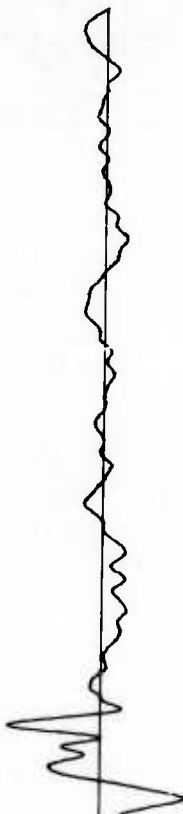
TIME

FN-WV 25 MAR 76

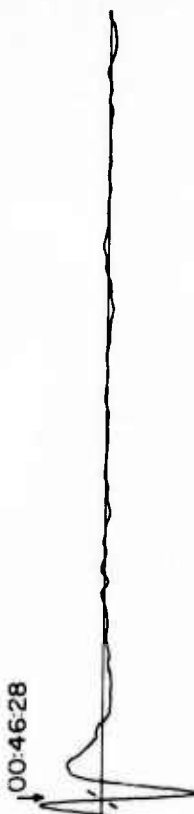
LPZ
968.06 MU



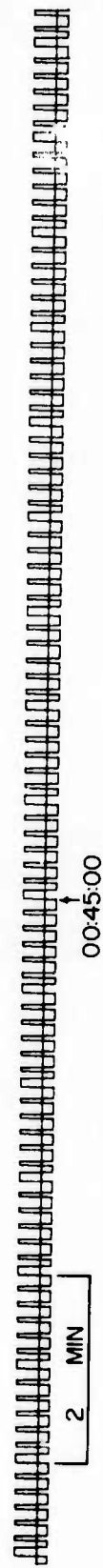
LPR
1125.49 MU



LPT
3632.85 MU

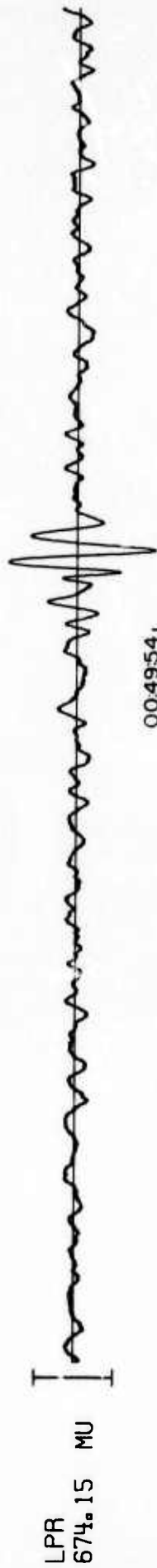
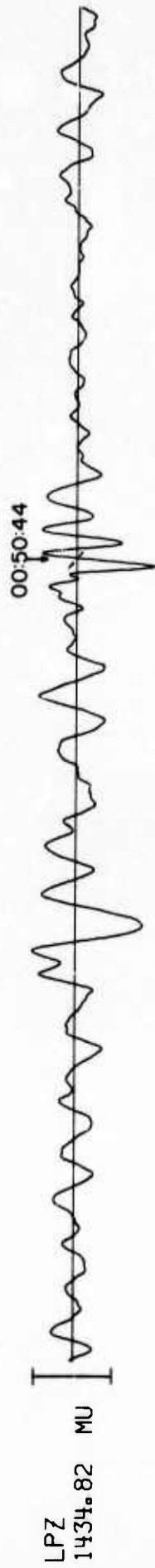


TIME



12.

RK-ON 25 MAR 76



13.

HN-ME 25 MAR 76

LPZ
651.77 MU

00:53:23

LPR
419.22 MU

00:51:59

LPT
2554.61 MU

TIME

2 MIN

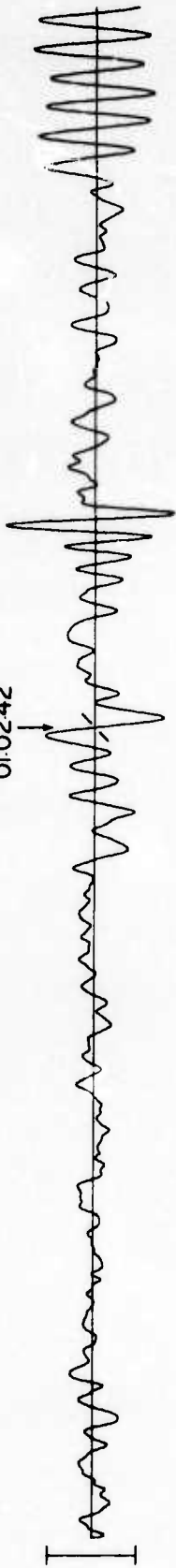
00:50:00

14.

WH2YK 25 MAR 76

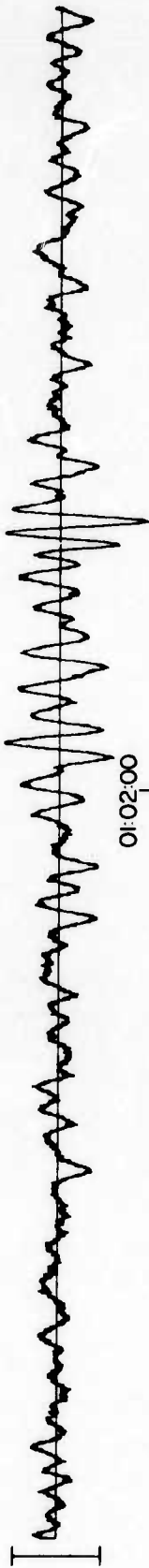
LPZ
401.02 MU

01:02:42

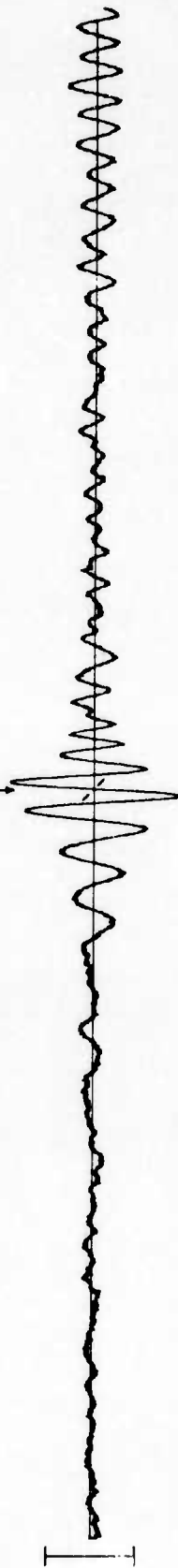


LPR
367.61 MU

01:02:00



LPT
826.51 MU



TIME



5.