

DATA REPORT

FISHING BROOK MOUNTAIN EARTHQUAKE

OCTOBER 7, 1983

Four three-component accelerograms were recorded on the Kinematics Model SMA-3 Strong-Motion Accelerograph at Nine Mile Point Nuclear Station near Lycoming, New York, during the Fishing Brook Mountain earthquake. The epicenter was approximately 110 miles East-Northeast of the instrumentation. The SMA-3 is an FM analog tape recording accelerograph with a dynamic range of -40dB. Similar central recording accelerograph systems are installed in many nuclear power plants throughout the world.

Event Information:

$M_L = 5.2$ (National Earthquake Information Center)
Epicenter $43.9^{\circ}N, 74.3^{\circ}W$
Depth 5 Km
Time 10 hrs. 18 min. 45.0 sec. GMT

Station Information:

Nine Mile Point Nuclear Station
Lycoming, New York

Instrument Information:

Kinematics Model SMA-3 FM analog recording accelerograph, Serial No. 105, with four external accelerometers and one external trigger. The electromagnetic accelerometers have a nominal bandwidth of .1 to 25 Hz.

Reviewed by	<u>R. L. K. Miller</u>
Date	<u>11/11/83</u>
Approved by	<u>J. D. Hill</u>
Date	<u>11-14-83</u>

8312120254 831205
PDR ADOCK 05000220
PDR



1954

Channel Calibration Data

Ser. #	Location	Component	Nat. Freq.	Sensitivity Volts/g	Damping % Crit.
105-1	Reactor Build. (Col. H-11) (EL - 198')	L	25.0	2.35	61.0
		T	25.2	2.53	62.0
		V	25.2	2.31	60.0
105-2**	Sewage Treatment plant (EL - 248')	L***	25.1	2.47	60.0
		T***	24.9	2.47	60.0
		V	24.2	2.31	60.0
105-3*	Top of Reactor Vessel Found. (EL - 259')	L	25.3	2.48	63.0
		T	25.0	2.49	61.0
		V	25.2	2.22	56.0
105-4*	Reactor Build. (Col. M-12) (EL - 340')	L	25.0	2.45	61.0
		T	25.0	2.37	61.0
		V	25.1	2.34	63.0

* Calibration data of May 5, 1983

** Calibration data of July of 1971

*** Malfunctioning



Data Processing Notes

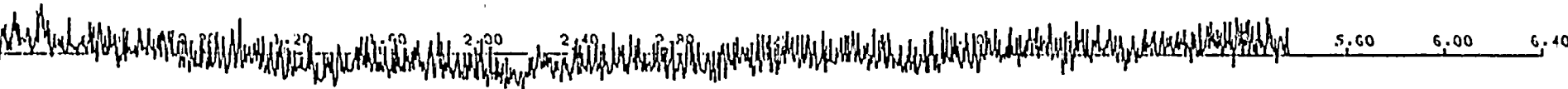
The data recorded on the SMA-3 cassettes was played back using a Kinometrics' Model SMP-1 Playback Unit and digitized using a Kinometrics' Model DDS-1105 Digital Data Acquisition System. Acceleration data were corrected for time base and tape speed errors using the fourth (reference) channel on each cassette prior to digitization.

The digitized data were then transferred to a computer. There they were scaled using the most recent system calibration data and analyzed using Kinometrics' Earthquake Data Reduction Software System. This system is based upon the software developed by Trifunac and Lee in 1973. Uncorrected acceleration time histories were corrected for instrument frequency response and baseline errors. They were then integrated to give velocity and displacement time histories. Response spectra were then calculated and plotted for the corrected accelerograms.

The earthquake motion measured by this instrument was quite small. The maximum measured peak acceleration was .019g (19 cm/sec/sec, measured at 105-4T). The trigger level of the system is 0.01g, and the noise level is approximately 0.01 (0 to peak). It was therefore difficult to locate the earthquake on the tape.

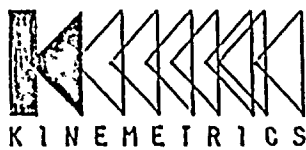
The relative noise level in the data is high, as the recorded accelerations are very small. Additional noise was introduced during the first 0.4 seconds of data after the trigger on units 105-3 and 4 due probably to tape slippage. This section of data was skipped in the processing. It was observed that the tapes in these two units were quite old and were wrinkled in some areas. To insure reliable data in the future the data tapes should be replaced once per year.

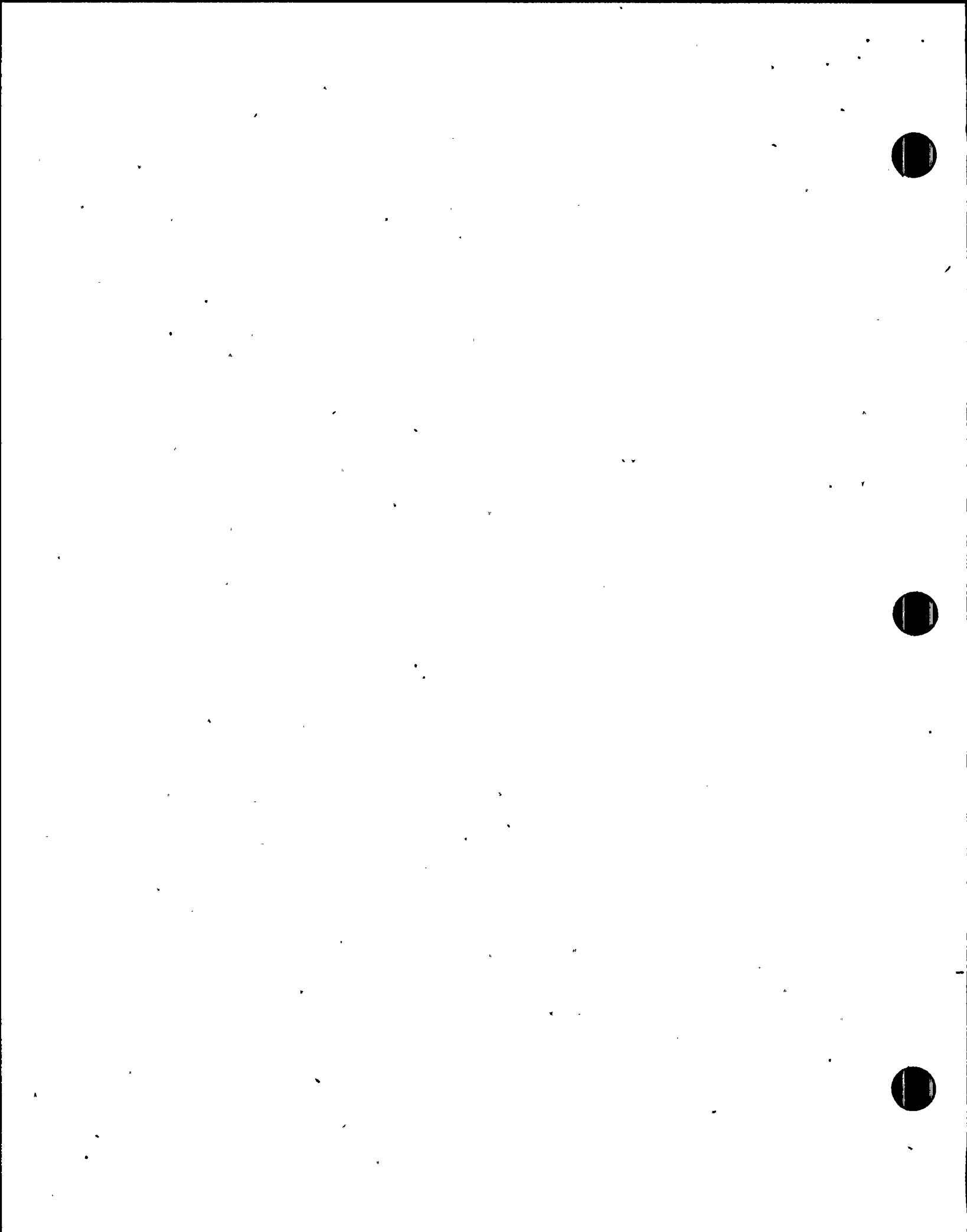




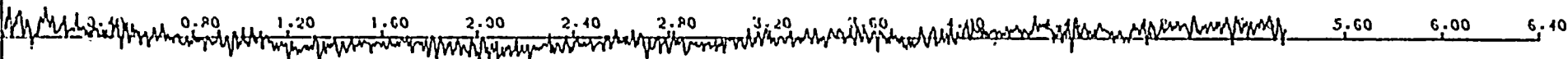
TIME IN SECONDS

FISHING BROOK MTN EQ
DQT. 7. 1983 EVENT
SMA3. S/N. 105-1 L



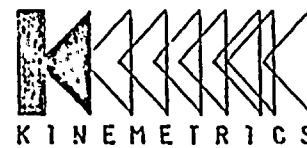


302 01 02



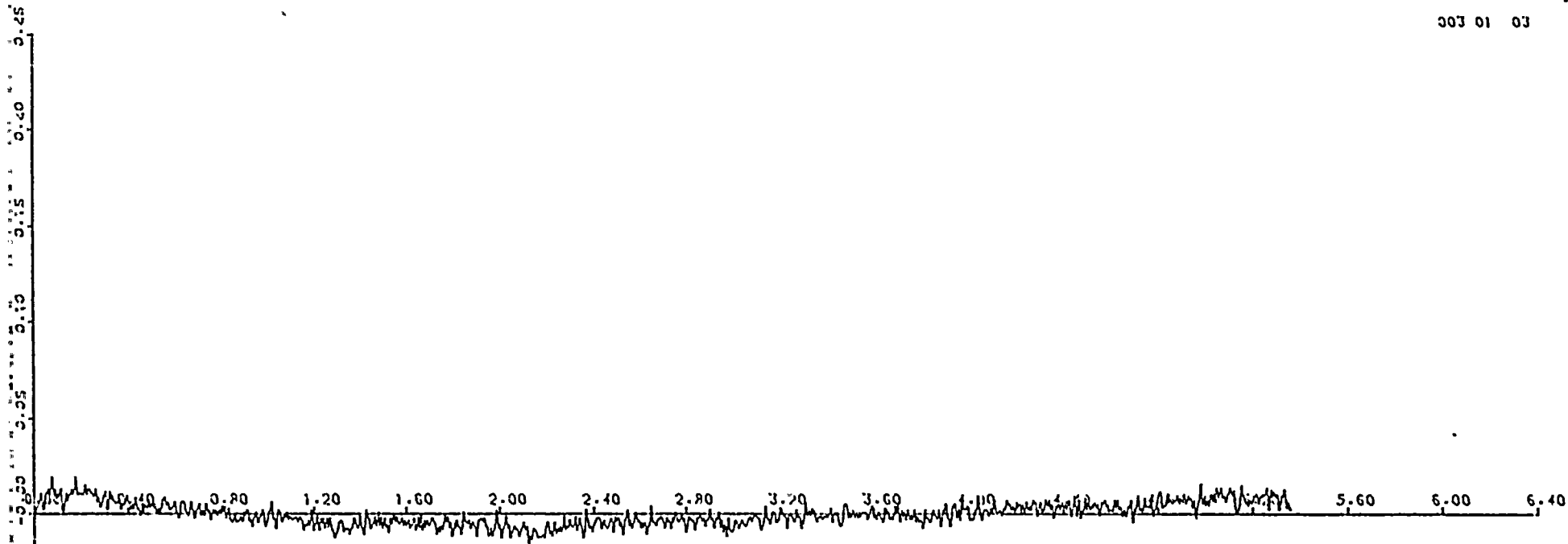
TIME IN SECONDS

FISHING BROOK MTN EQ
OCT. 7, 1983 EVENT
SMA3 S/N 105-1 T





003 01 03



TIME IN SECONDS

FISHING BROOK MTN EQ
OCT. 7. 1983 EVENT
SMA3 S/N 105-1 V





FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB001

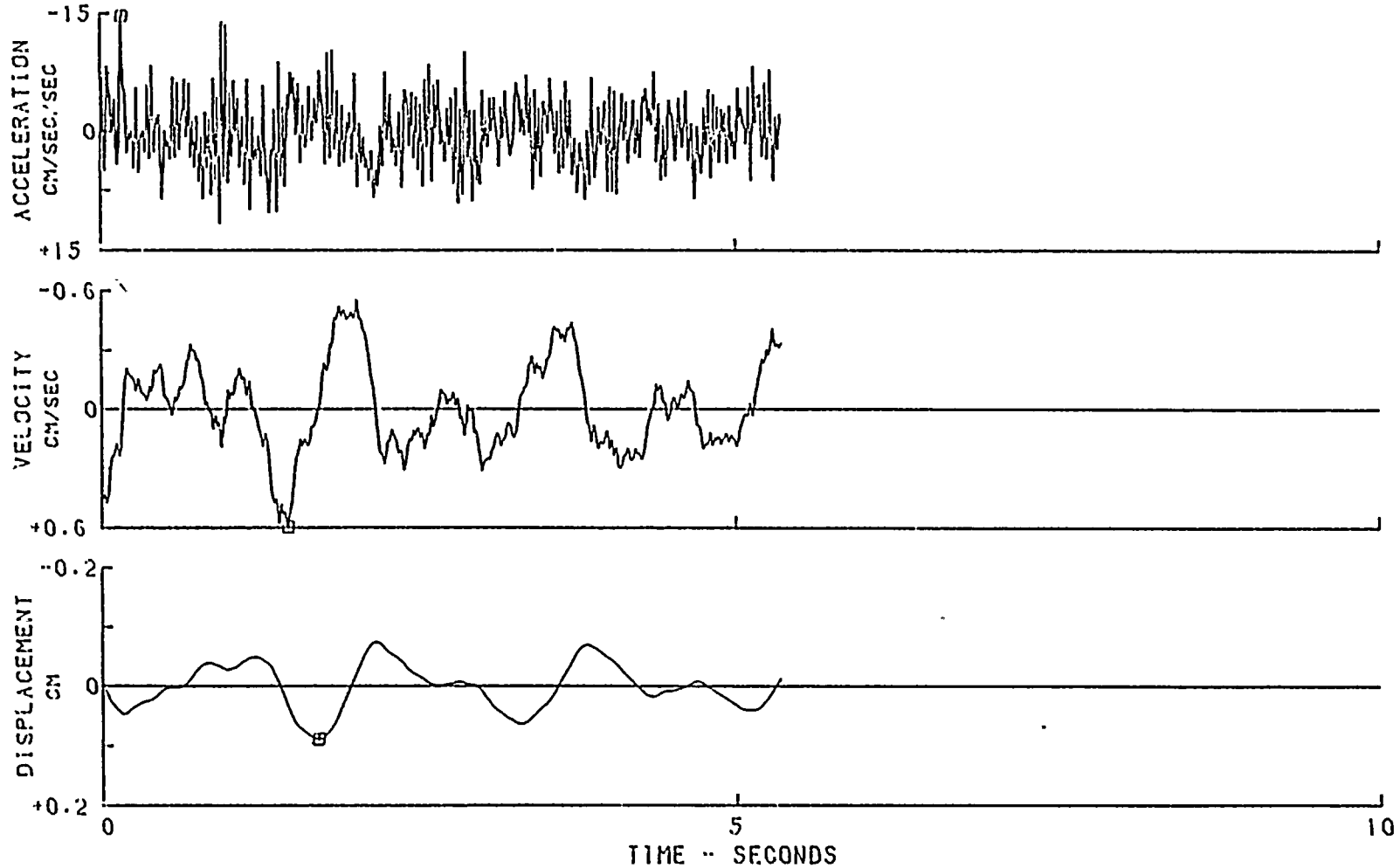
RX BLDG, COL H-11, EL. 198 FT

COMP L

SMA3 S/N105-1 L

ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL= -14.65 CM/SEC/SEC VEL= 0.60 CM/SEC DISPL= 0.09 CM





FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB001

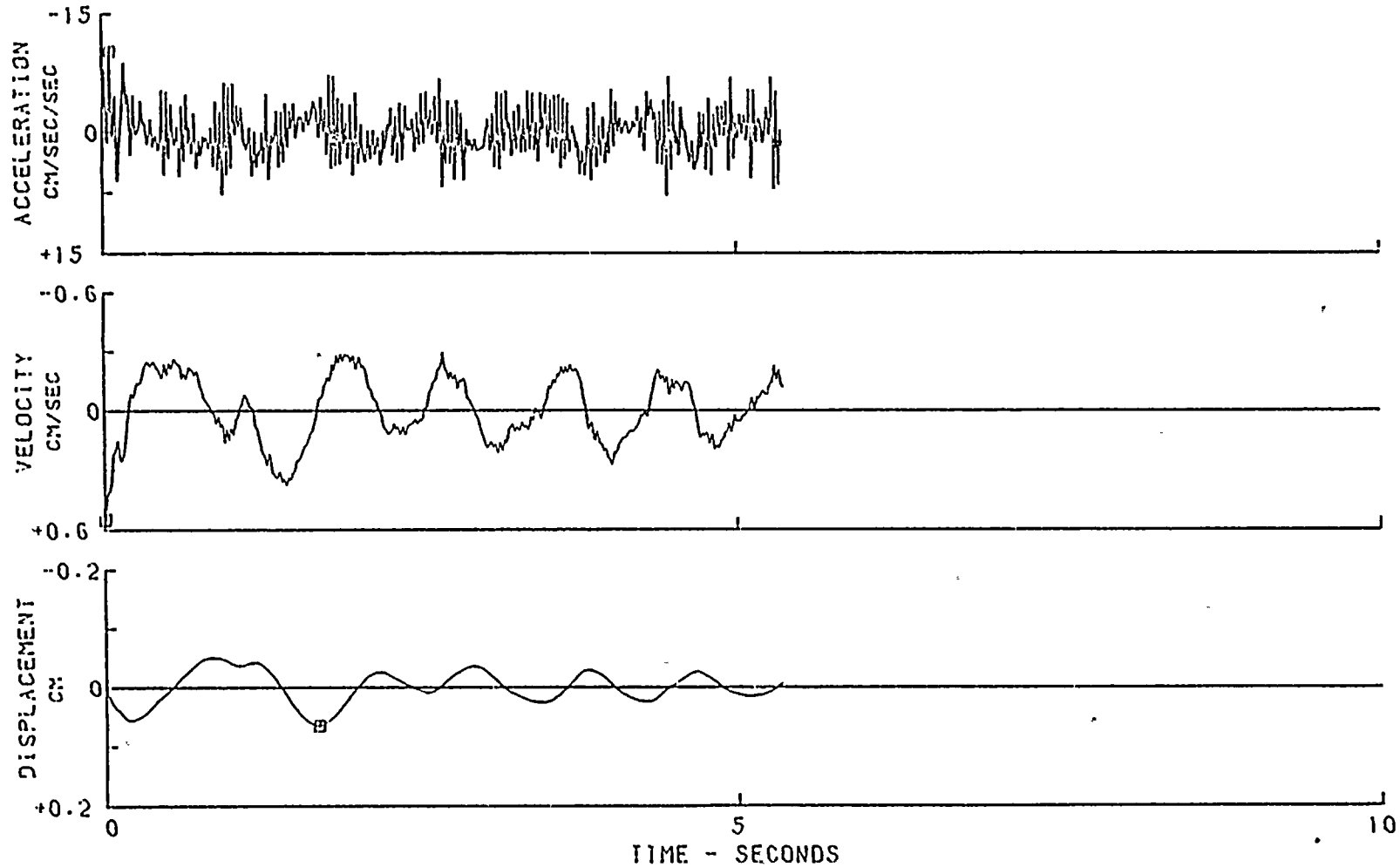
RX BLDG, COL H-11, EL. 198 FT

COMP T

SMA3 S/N105-1 T

ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

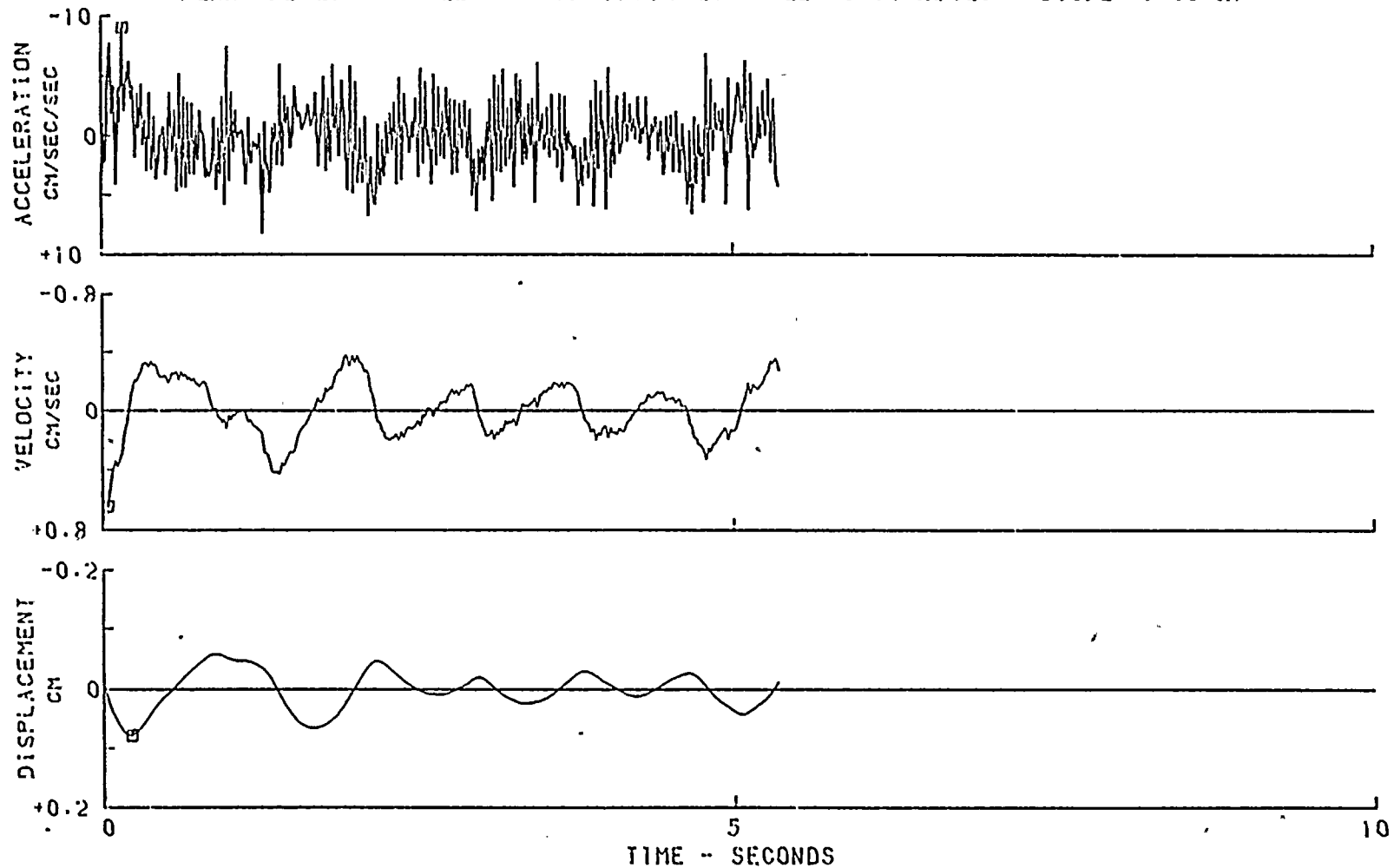
□ PEAK VALUES: ACCEL= -10.25 CM/SEC/SEC VEL= 0.55 CM/SEC DISPL= 0.07 CM





FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB001 RX BLDG, COL H-11, EL. 198 FT COMP V SMA3 S/N105-1 V
 ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ
 □ PEAK VALUES: ACCEL= -9.01 CM/SEC/SEC VEL= 0.64 CM/SEC DISPL= 0.08 CM





FISHING BROOK MTN EVENT, OCT. 7, 1983

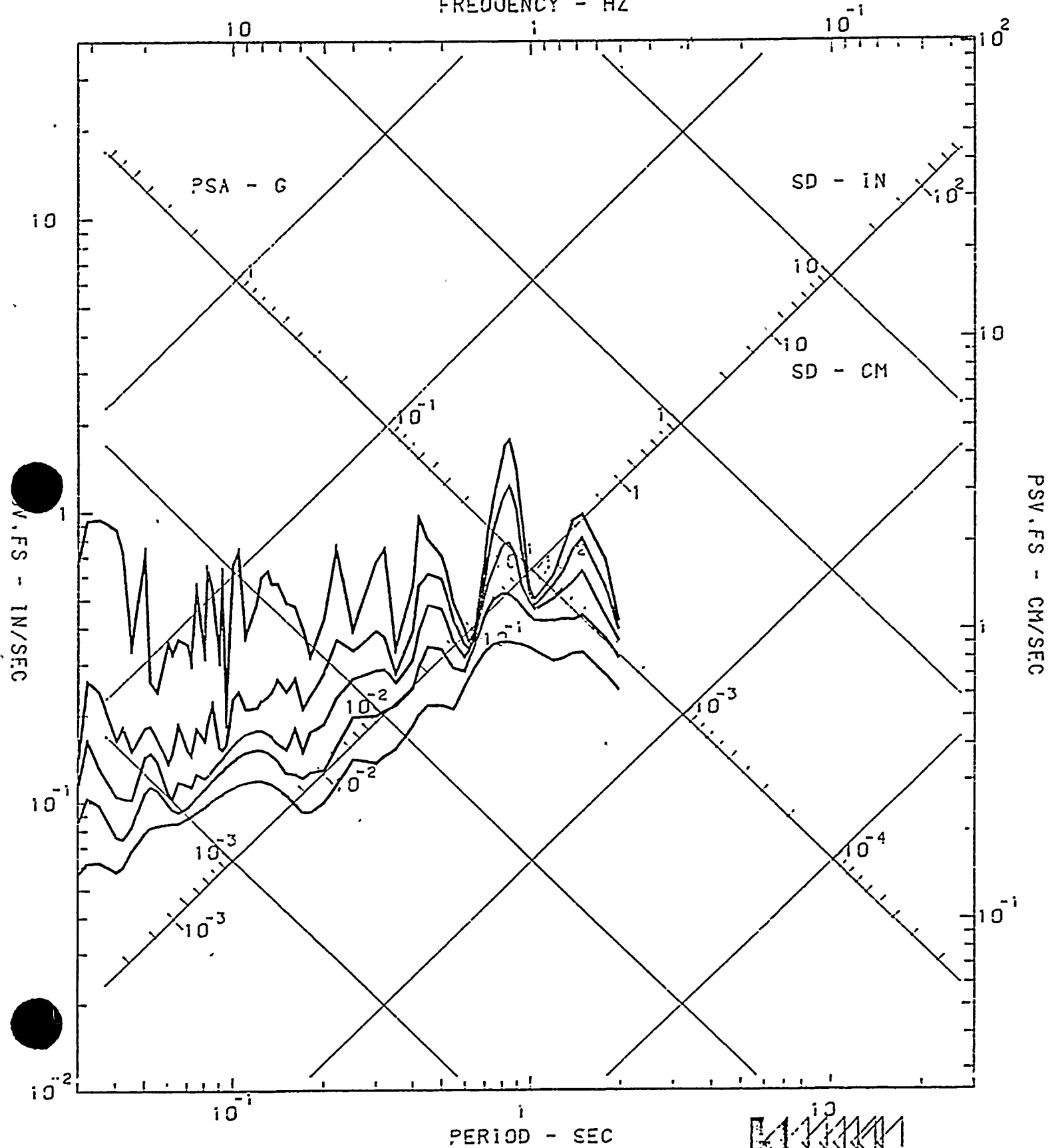
1158001

RX BLDG. COL H-11. EL. 198 FT

COMP L

SMA3 S/N105-1 L

DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
FREQUENCY - HZ





FISHING BROOK MTN EVENT, OCT. 7. 1983

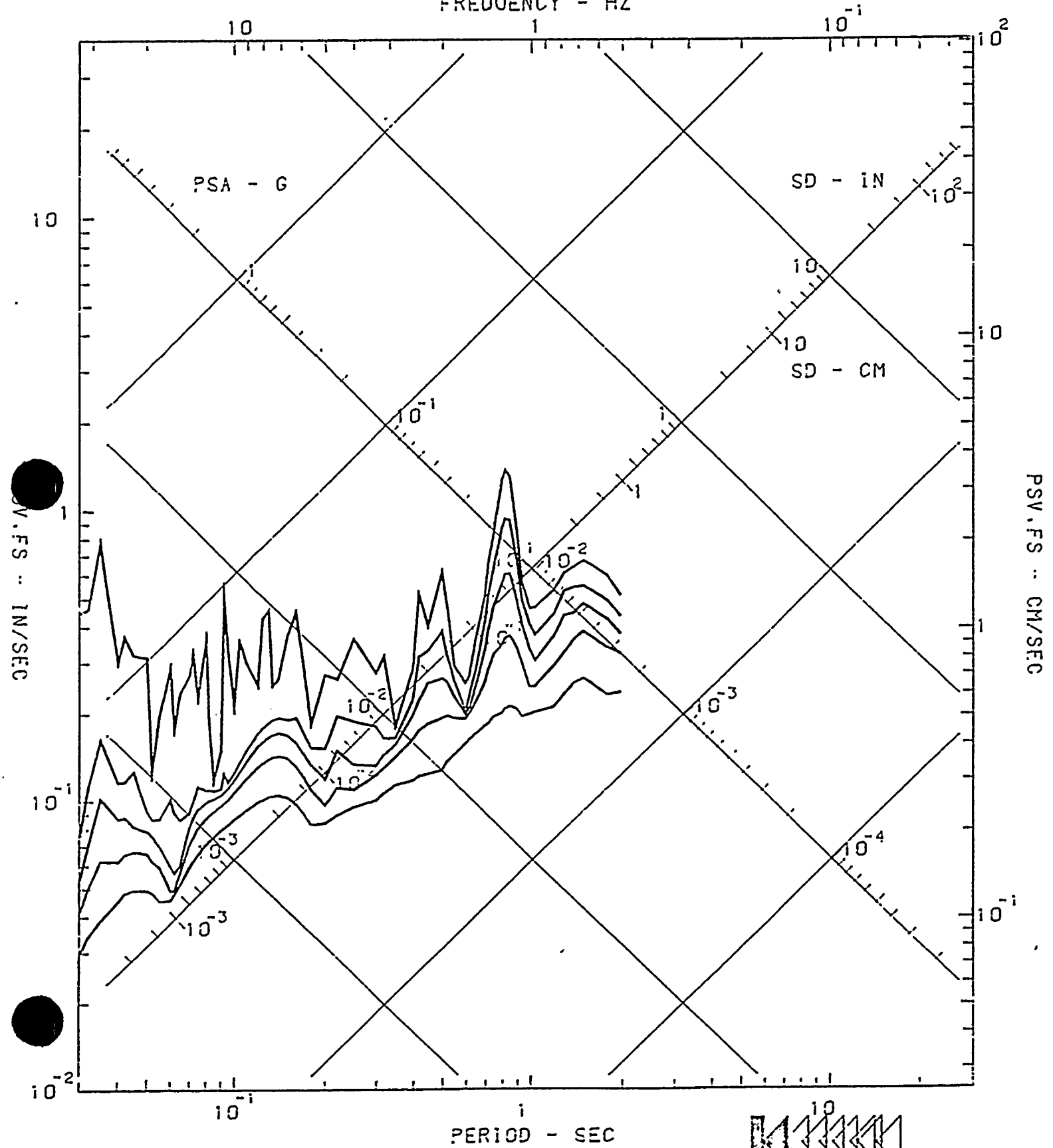
1152001

RX BLDG. COL H-11. EL. 198 FT

COMP T

SMA3 S/N105-1 T

DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
 FREQUENCY - HZ





FISHING BROOK MTN EVENT, OCT. 7, 1983

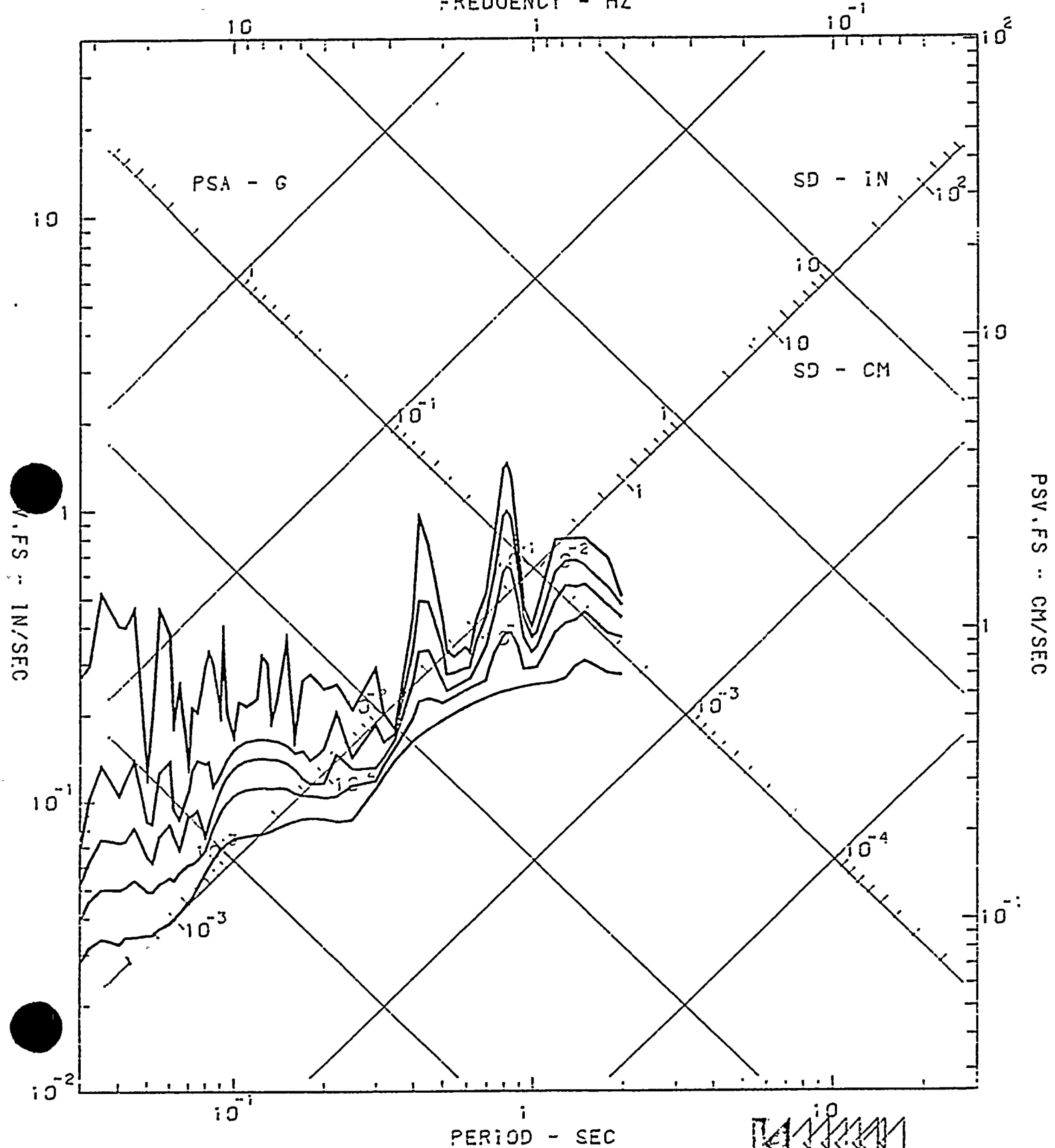
1183001

RX BLDG. COL H-11. EL. 198 FT

COMP V

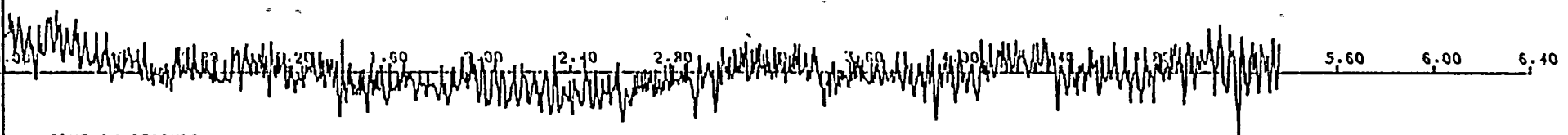
SMA3 S.N105-1 V

DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
FREQUENCY - HZ



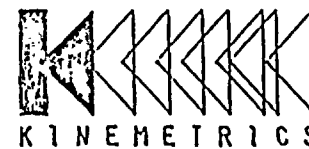


0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
4.75
5.00
5.25
5.50
5.75
6.00
6.25
6.50



TIME IN SECONDS

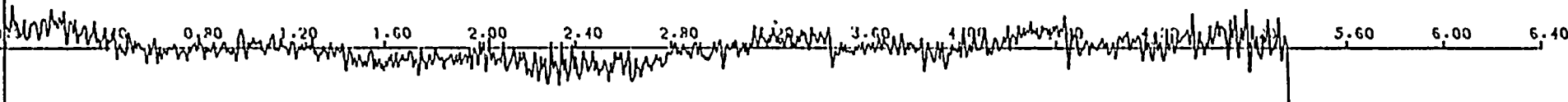
FISHING BROOK MTN EQ
OCT. 7.-1983 EVENT
SMA3 S/N 105-2 L





003 01 03

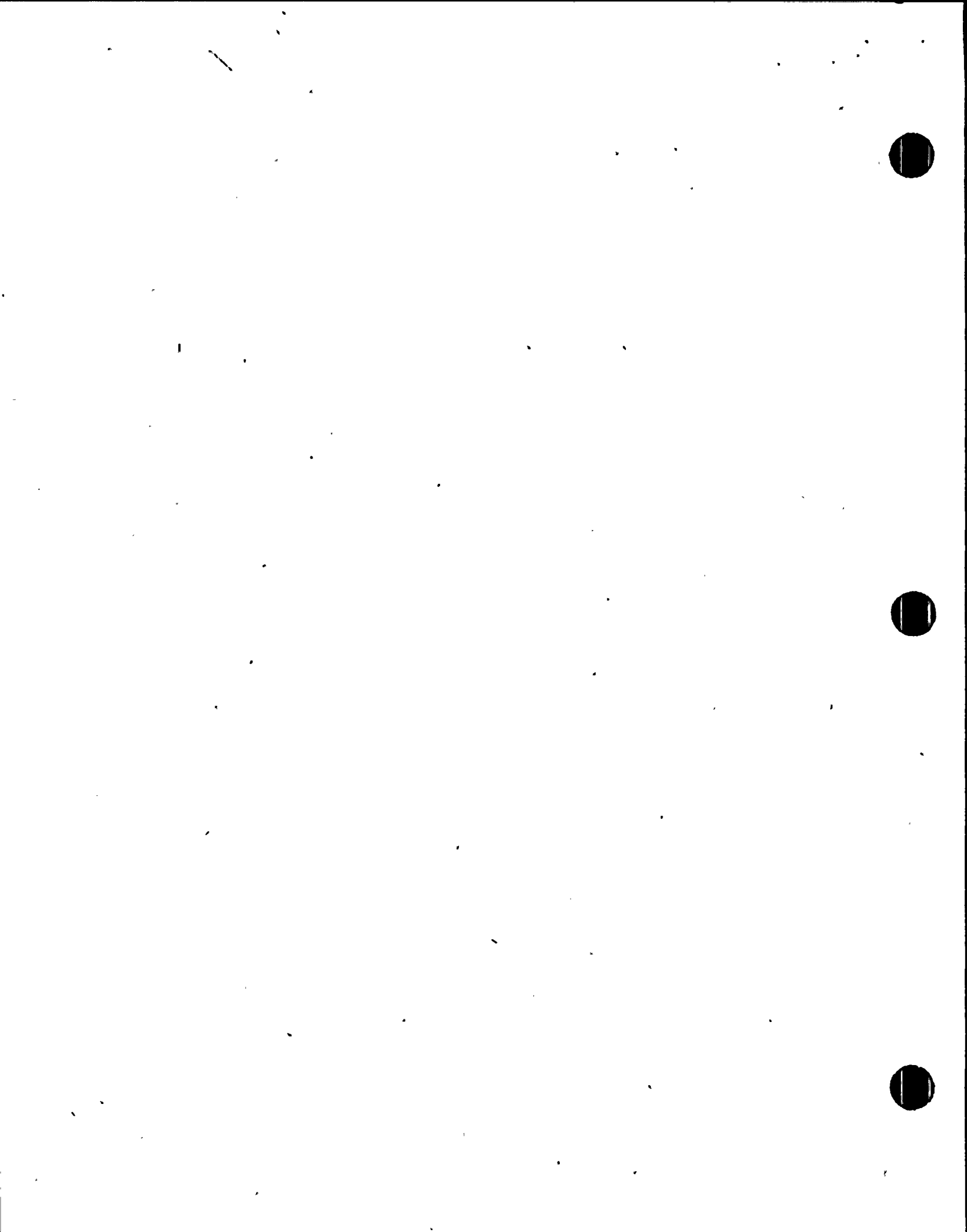
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
4.50
4.75
5.00
5.25
5.50
5.75
6.00
6.25
6.50



TIME IN SECONDS

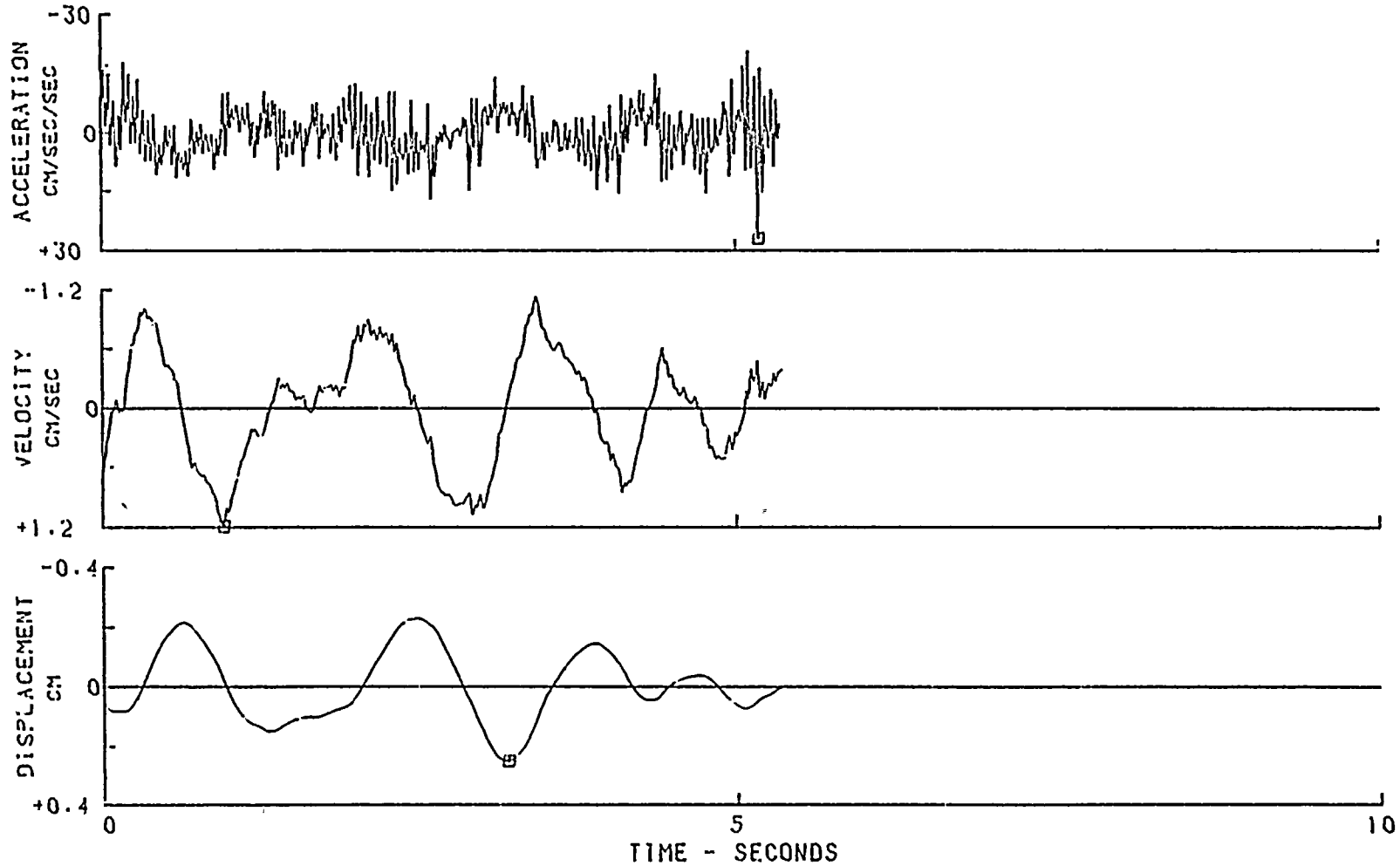
FISHING BROOK MTN EQ
OCT. 7, 1983 EVENT
SMA3 S/N 105-2 V



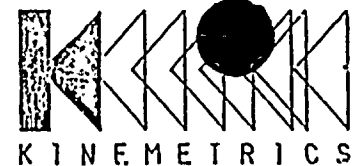


FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB002 SEWAGE TREATMENT, EL. 248 FT COMP L SMA3 S/N105-2 L
 ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ
 □ PEAK VALUES: ACCEL= 26.89 CM/SEC/SEC VEL= 1.19 CM/SEC DISPL= 0.25 CM



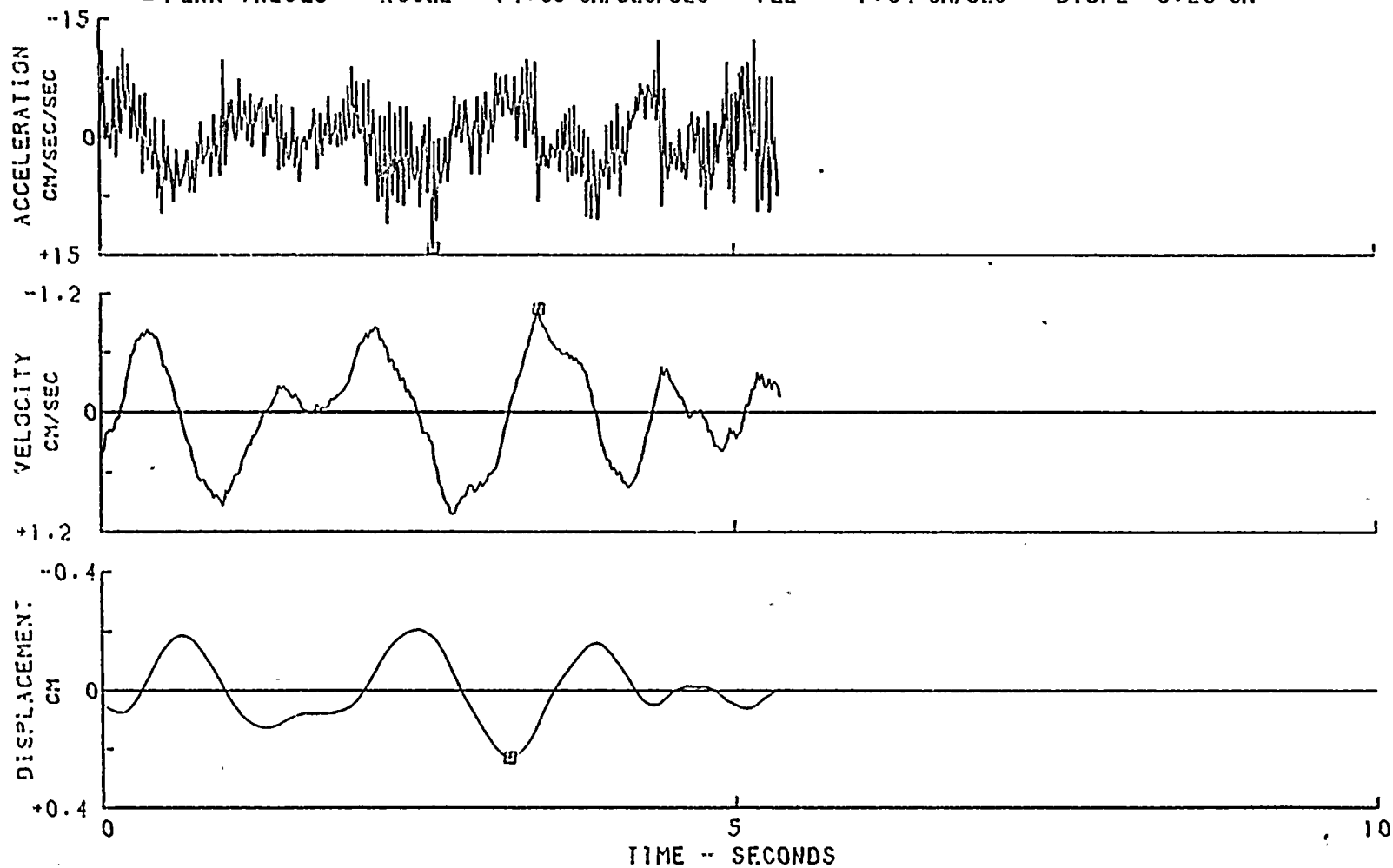




FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB002 SEWAGE TREATMENT, EL. 248 FT COMP V SMA3 S/N105-2 V
ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL= 14.09 CM/SEC/SEC VEL= -1.04 CM/SEC DISPL= 0.23 CM





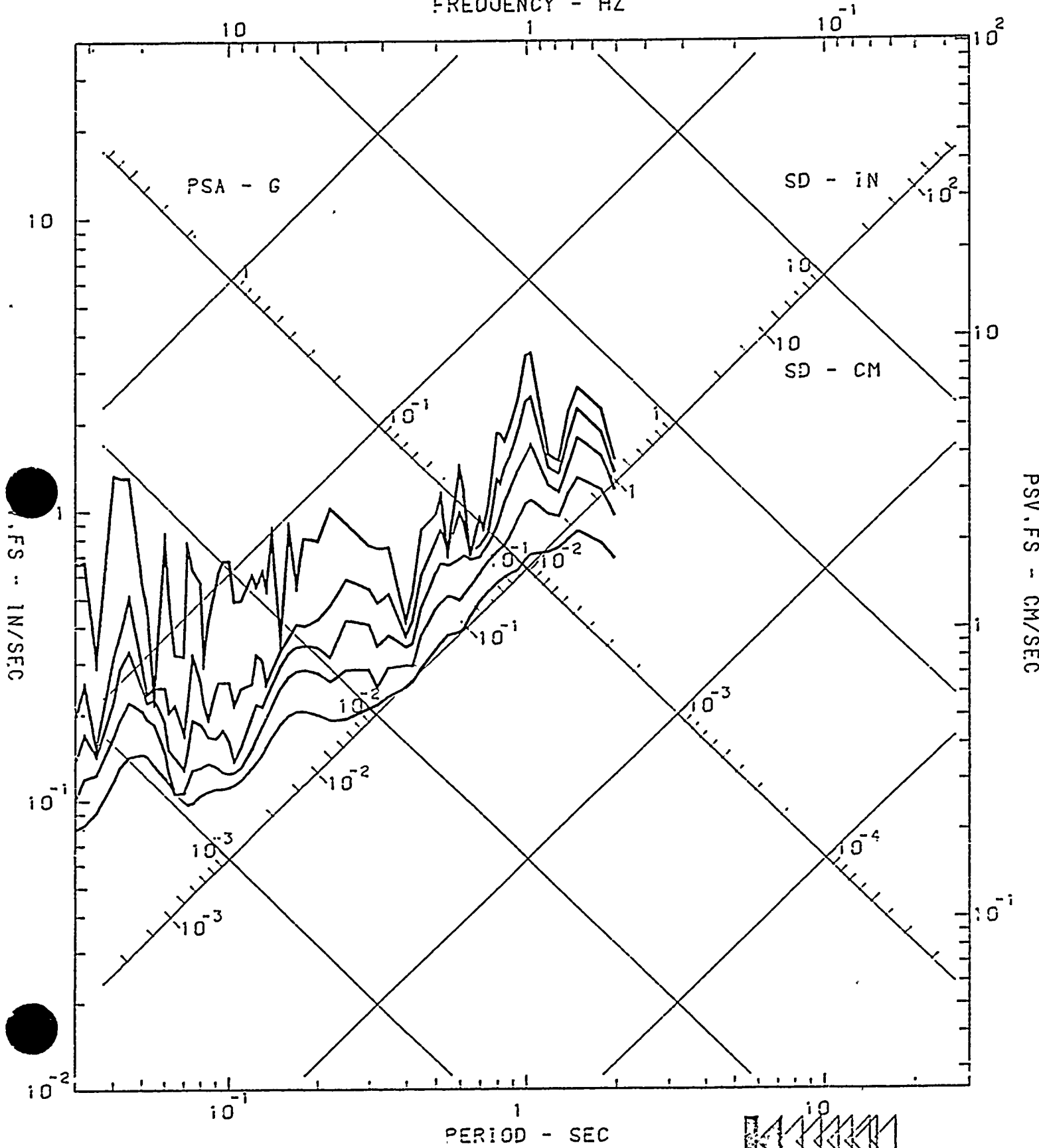
FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB002

SEWAGE TREATMENT, EL. 248 FT COMP L

SMA3 S/N105-2 L

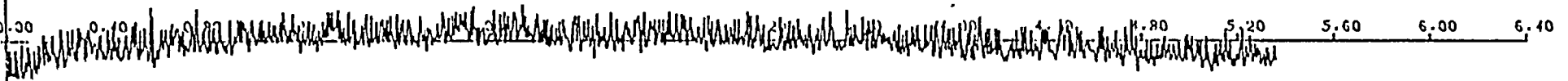
DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
FREQUENCY - HZ







52.0
51.0
50.0
49.0
48.0
47.0
46.0
45.0
44.0
43.0
42.0
41.0
40.0
39.0
38.0
37.0
36.0
35.0
34.0
33.0
32.0
31.0
30.0
29.0
28.0
27.0
26.0
25.0
24.0
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
15.0
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0



TIME IN SECONDS

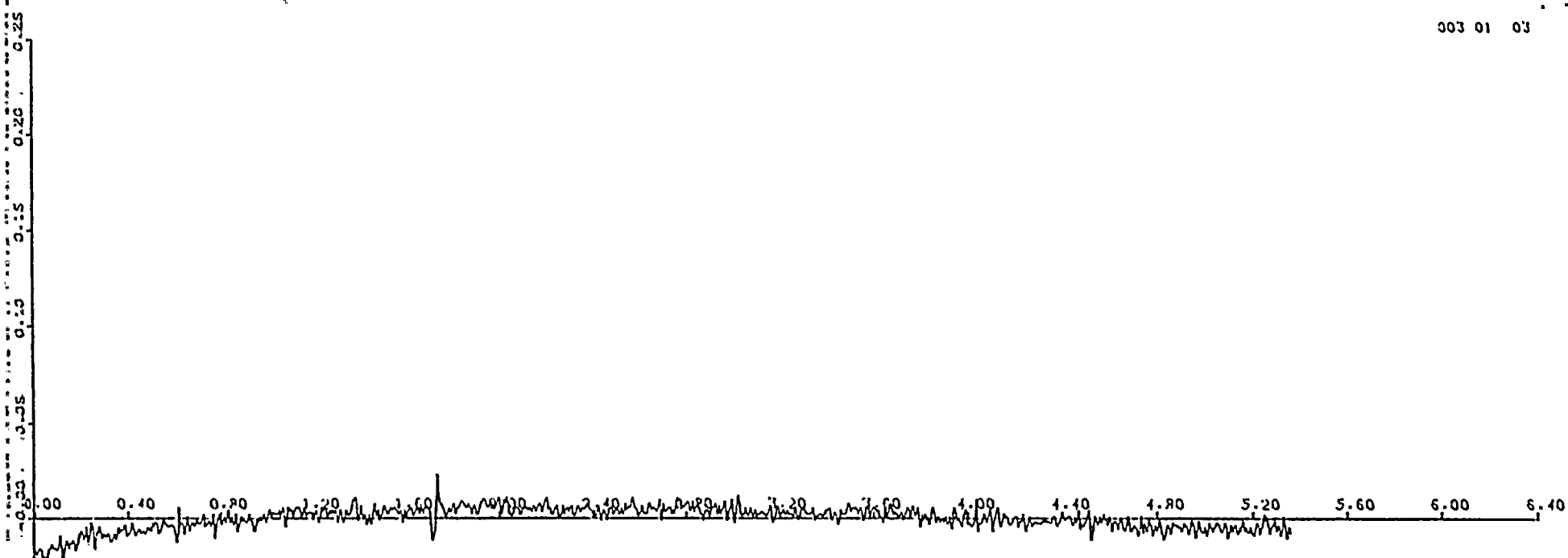
FISHING BROOK MTN EO
OCT. 7, 1983 EVENT
SMA3 S/N 105-3 L





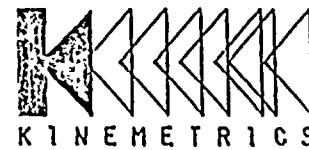


003 01 03



TIME IN SECONDS

FISHING BROOK MTN EQ
OCT. 7, 1983 EVENT
SMA3 S/N 105-3 V

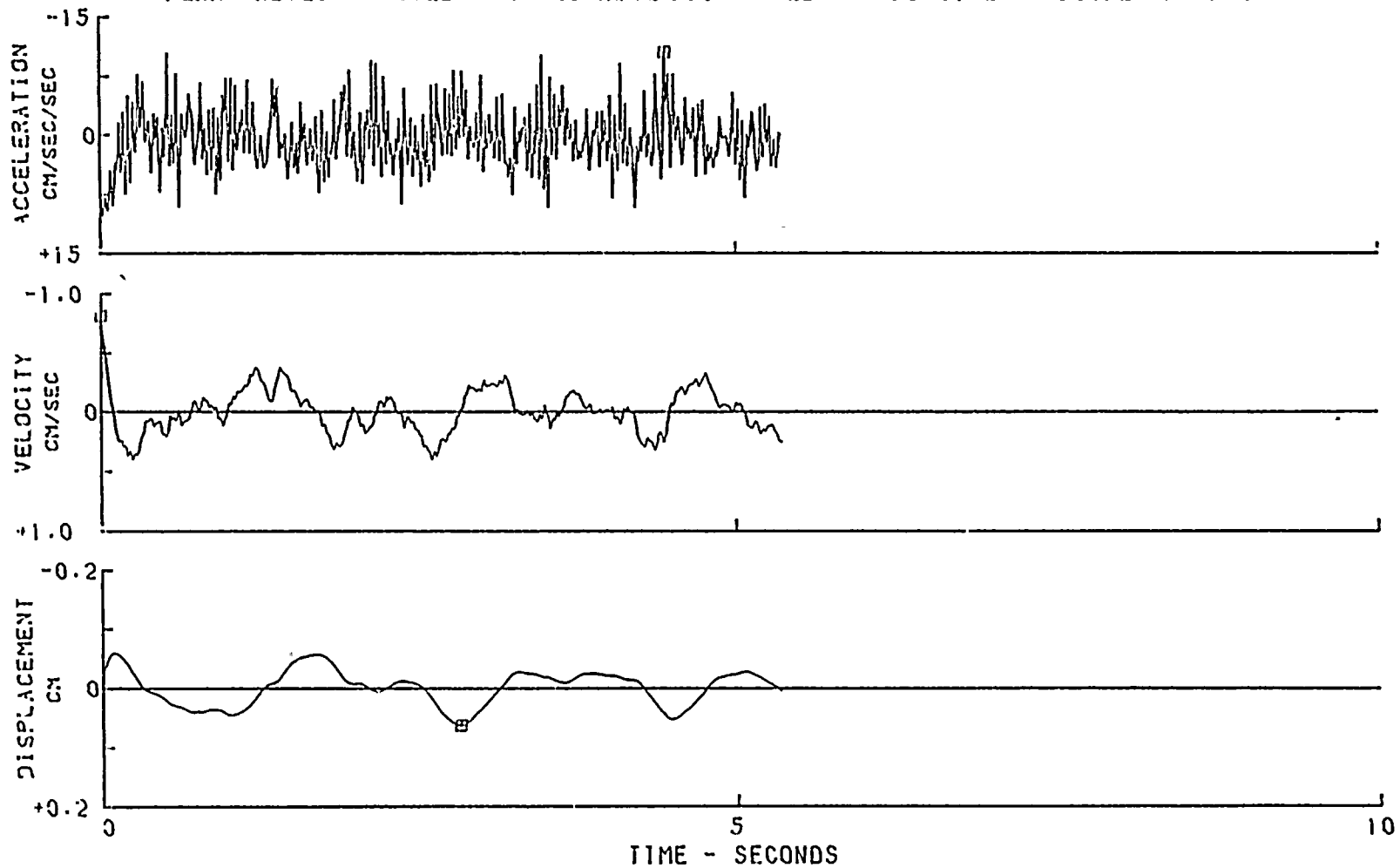




FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB003 RX VESSEL FOUND. FL. 259 FT COMP L SMA3 S/N105-3 L
 ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL = -10.48 CM/SEC/SEC VEL = -.82 CM/SEC DISPL = 0.06 CM



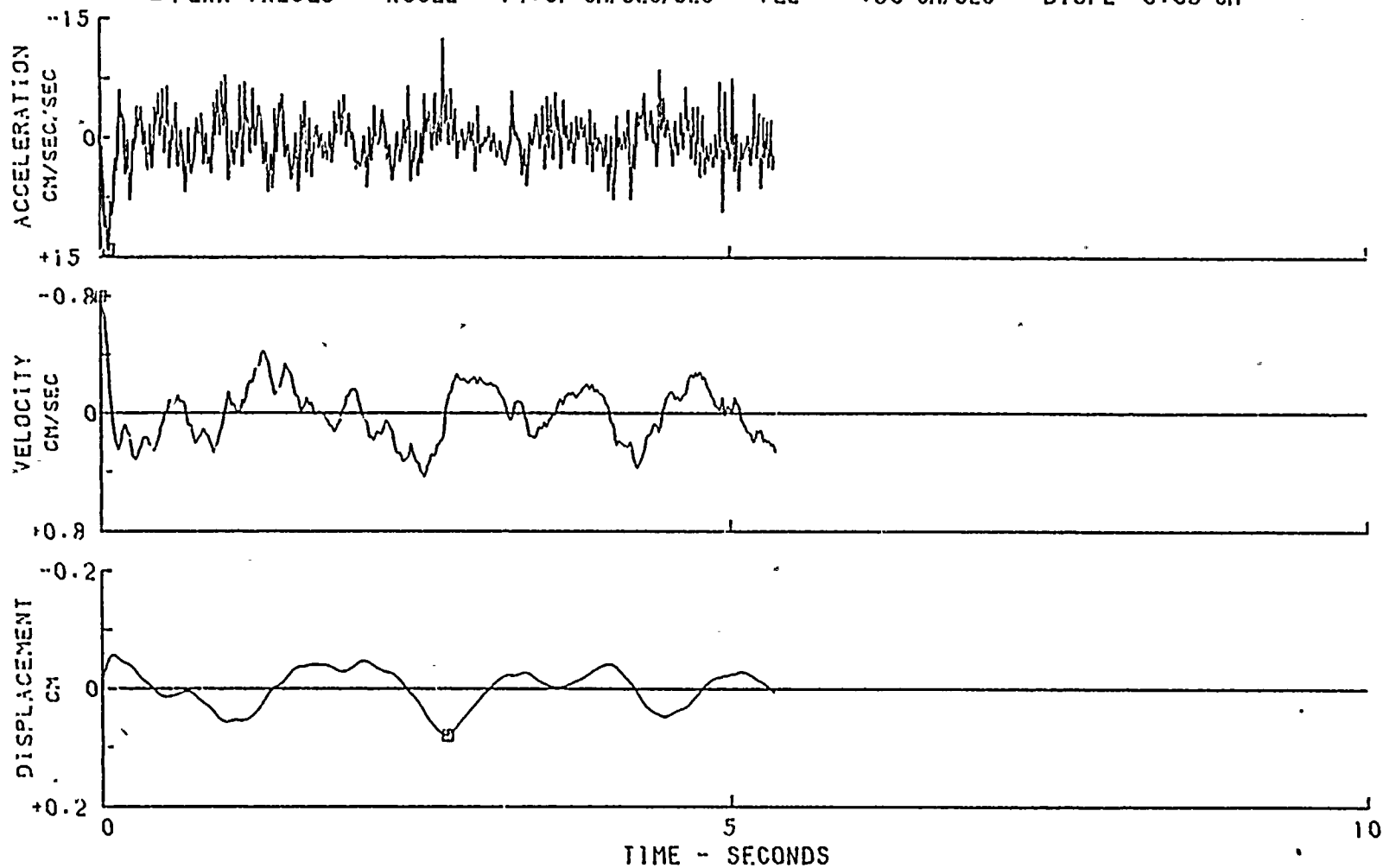


FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB003 RX VESSEL FOUND, EL. 259 FT COMP T SMA3 S/N105-3 T

ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL= 14.07 CM/SEC/SEC VEL= -.80 CM/SEC DISPL= 0.08 CM

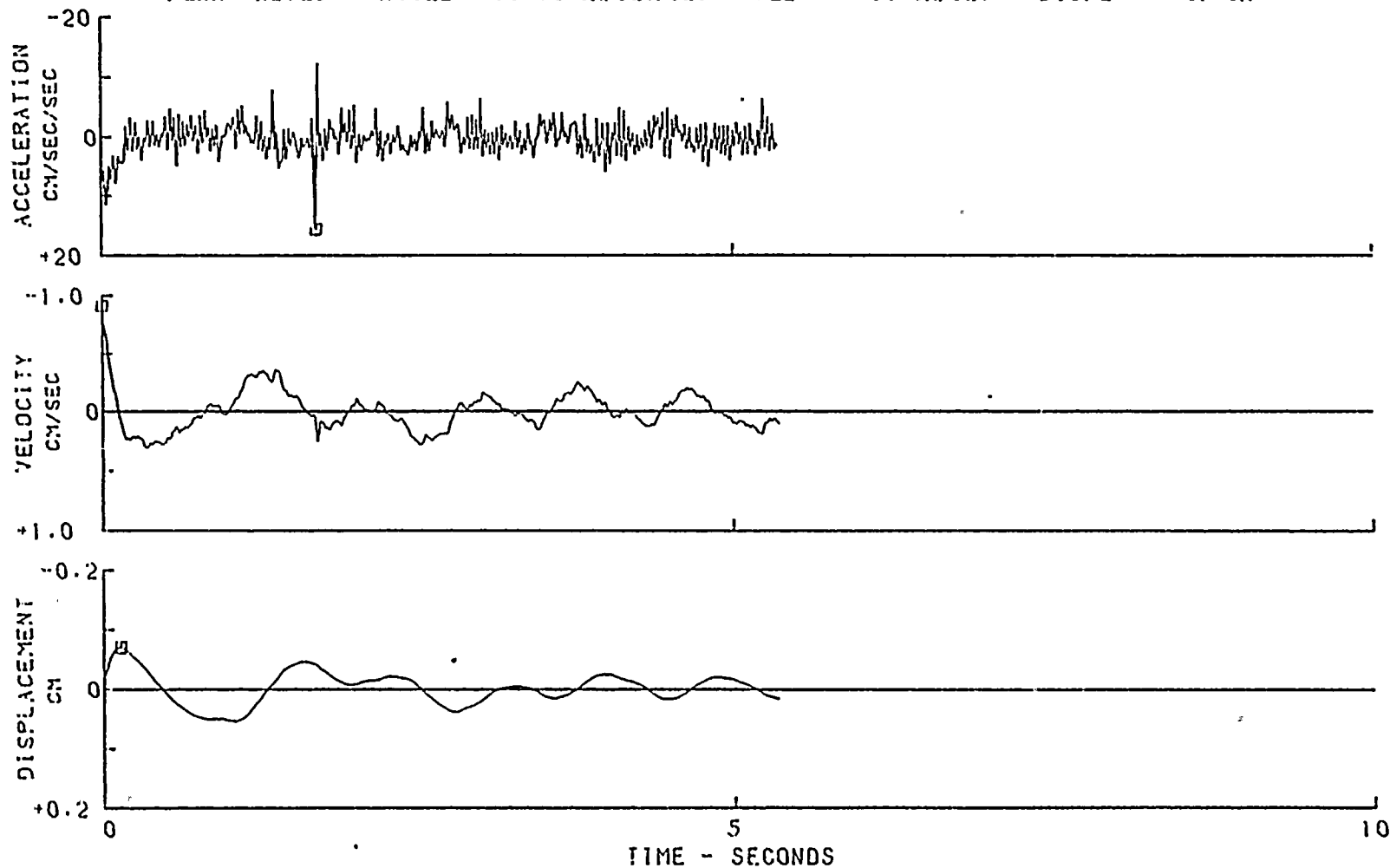




FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB003 RX VESSEL FOUND. EL. 259 FT COMP V SMA3 S/N105-3 V
 ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL = 15.58 CM/SEC/SEC VEL = -.91 CM/SEC DISPL = -.07 CM





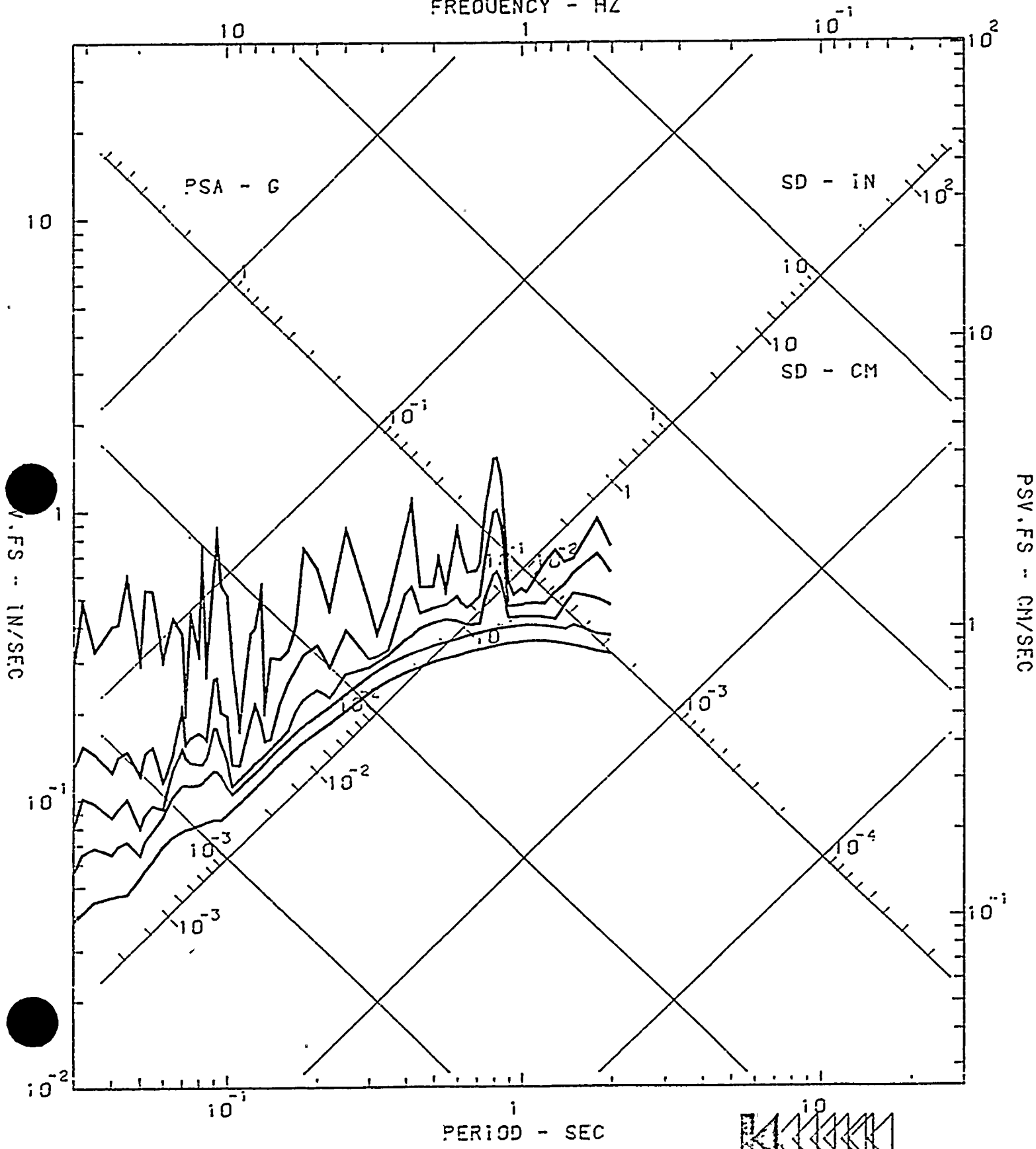
FISHING BROOK MTN EVENT, OCT. 7, 1983

11F3003

RX VESSEL FOUND. FL. 259 FT COMP L

SMA3 S/N105-3 L

DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
FREQUENCY - HZ



M.F.S - IN/SEC

PSV.FS - CM/SEC





FISHING BROOK MTN EVENT, OCT. 7, 1983

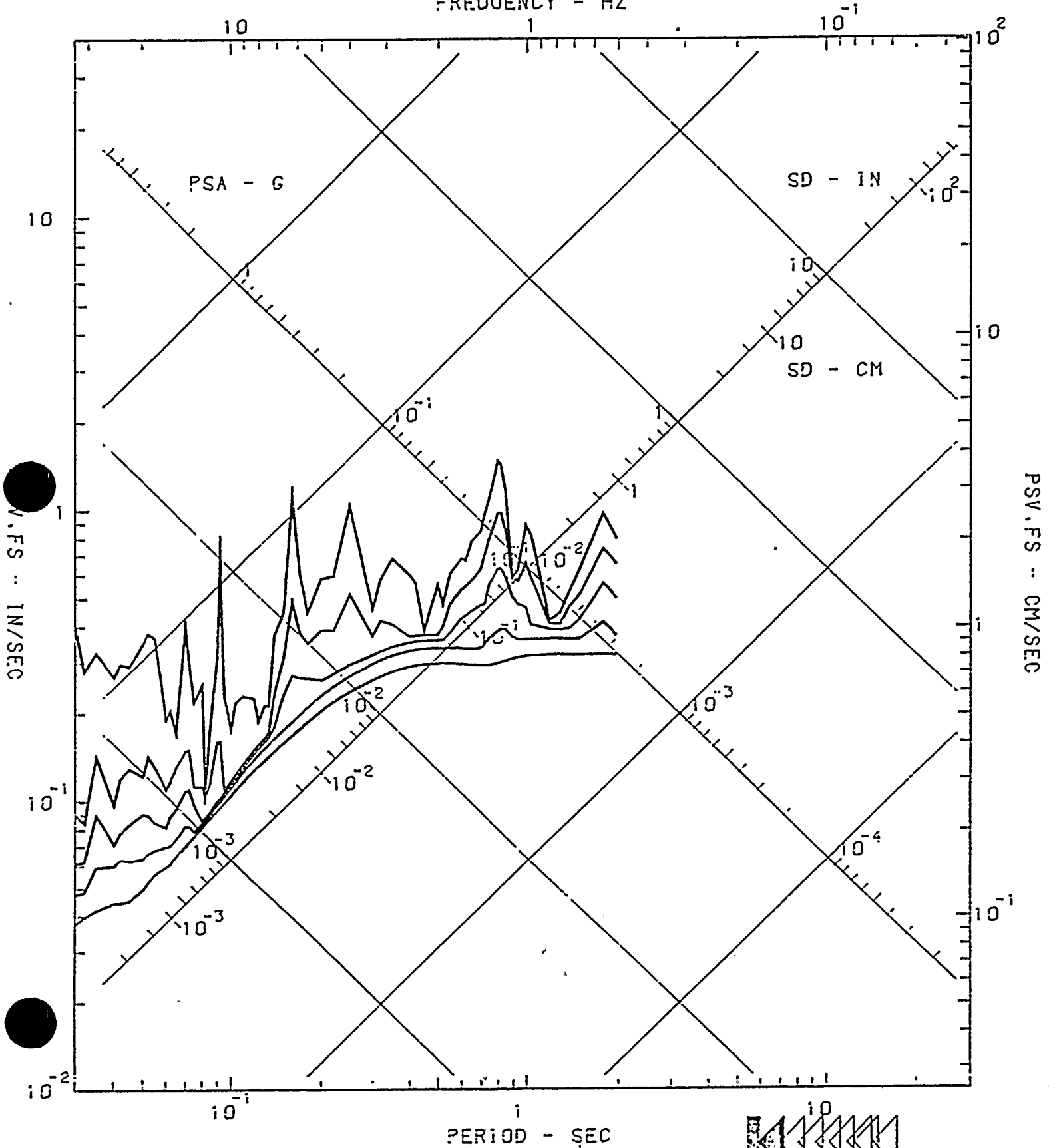
11F3003

RX VESSEL FOUND. FL. 259 FT

COMP T

SMA3 S/N105-3 7

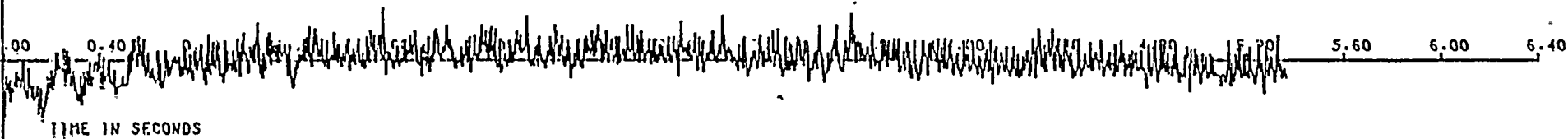
DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
FREQUENCY - HZ







001 01 01

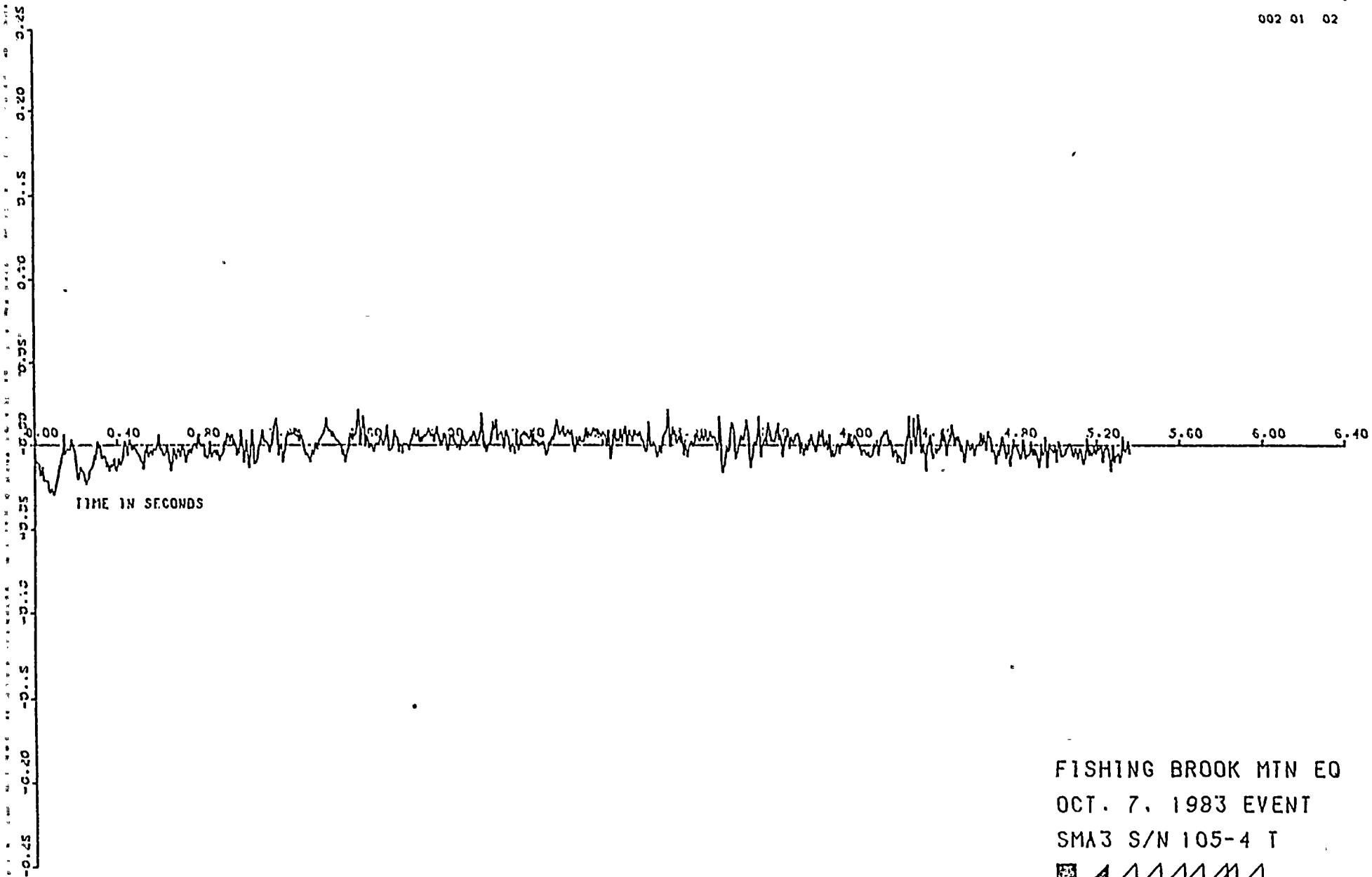


FISHING BROOK MTN EQ
OCT. 7, 1983 EVENT
SMA3 S/N 105-4 L



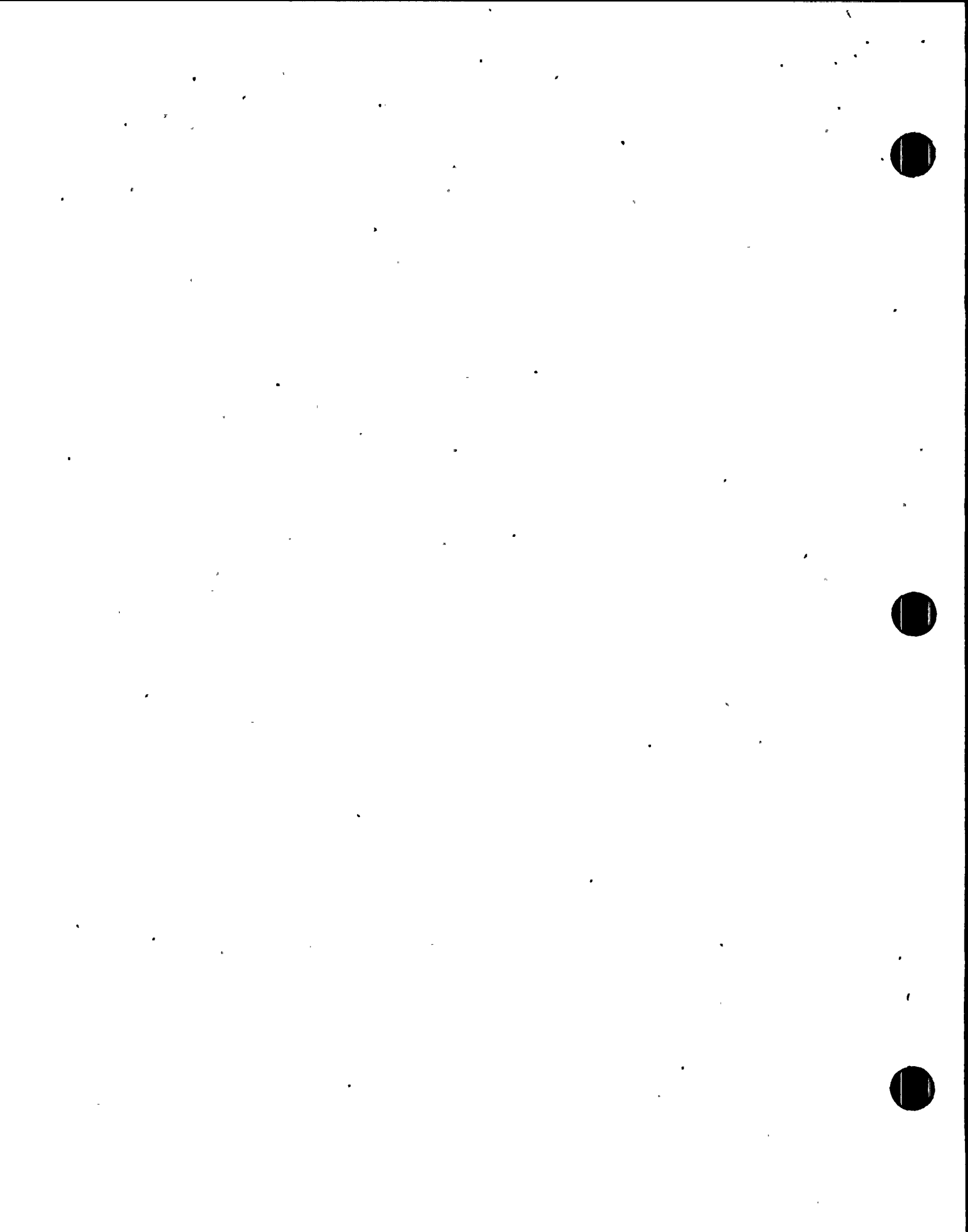


002 01 02

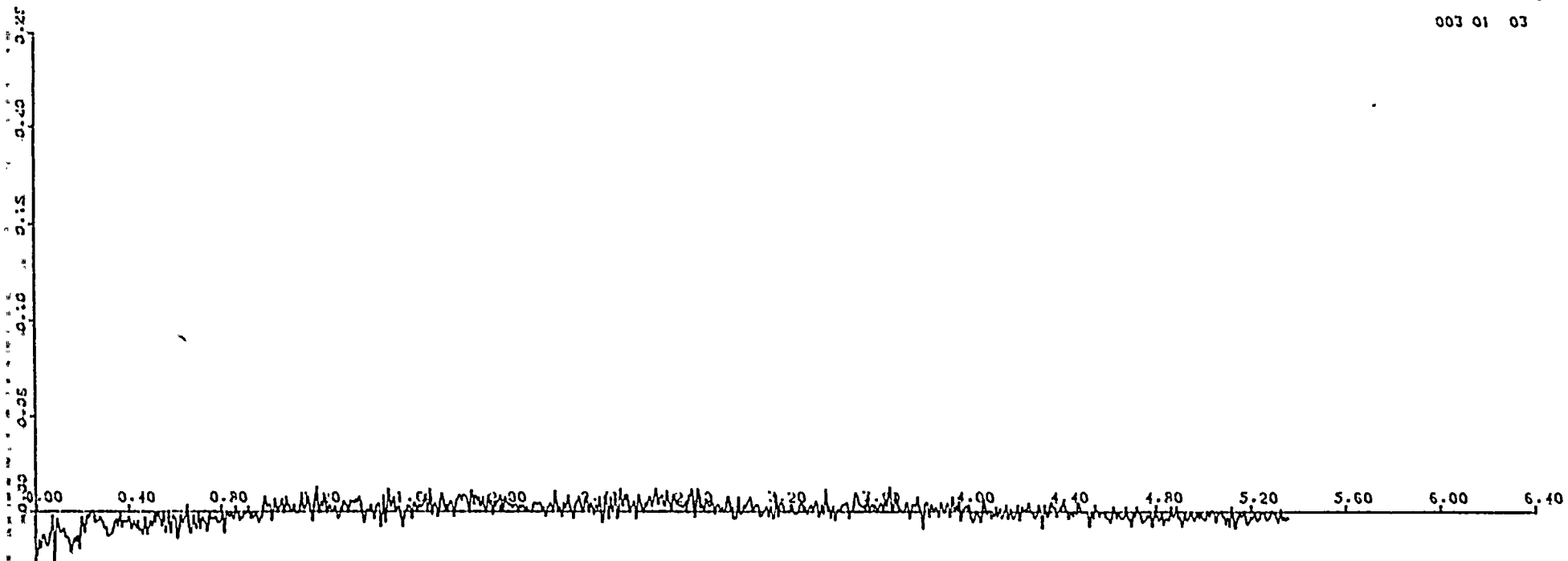


FISHING BROOK MTN EQ
OCT. 7, 1983 EVENT
SMA3 S/N 105-4 T



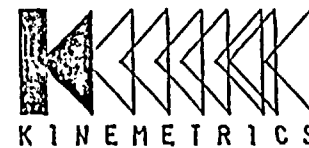


003 01 03

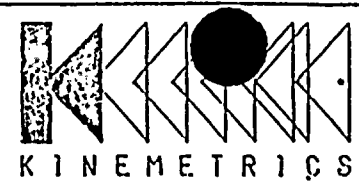


TIME IN SECONDS

FISHING BROOK MTN EQ
OCT. 7, 1983 EVENT
SMA3 S/N 105-4 V





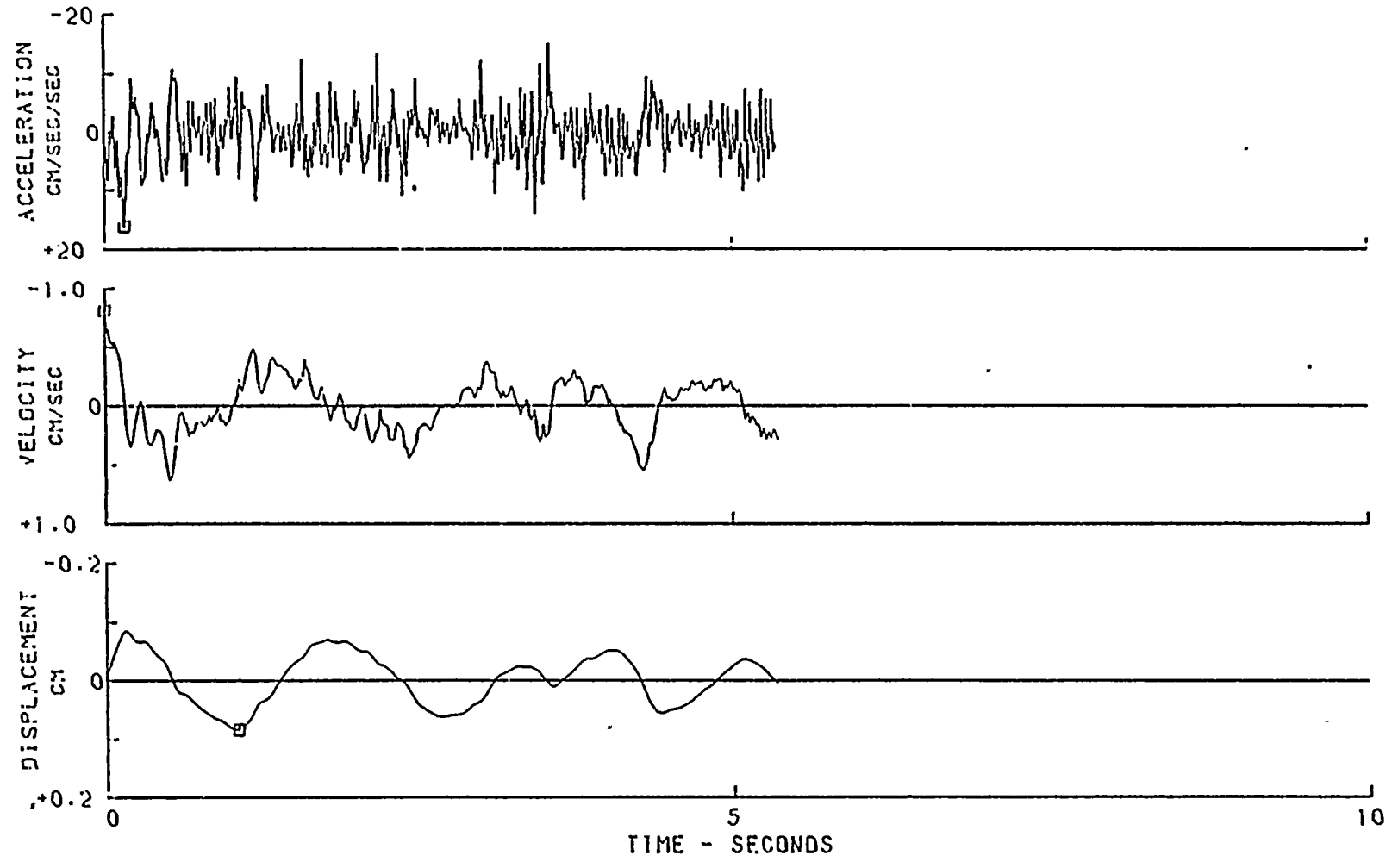


FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB004 RX BLDG, COL M-12, FL. 340 FT COMP L SMA3 S/N105-4 L

ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL= 16.12 CM/SEC/SEC VEL= -.81 CM/SEC DISPL= 0.08 CM





FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB004

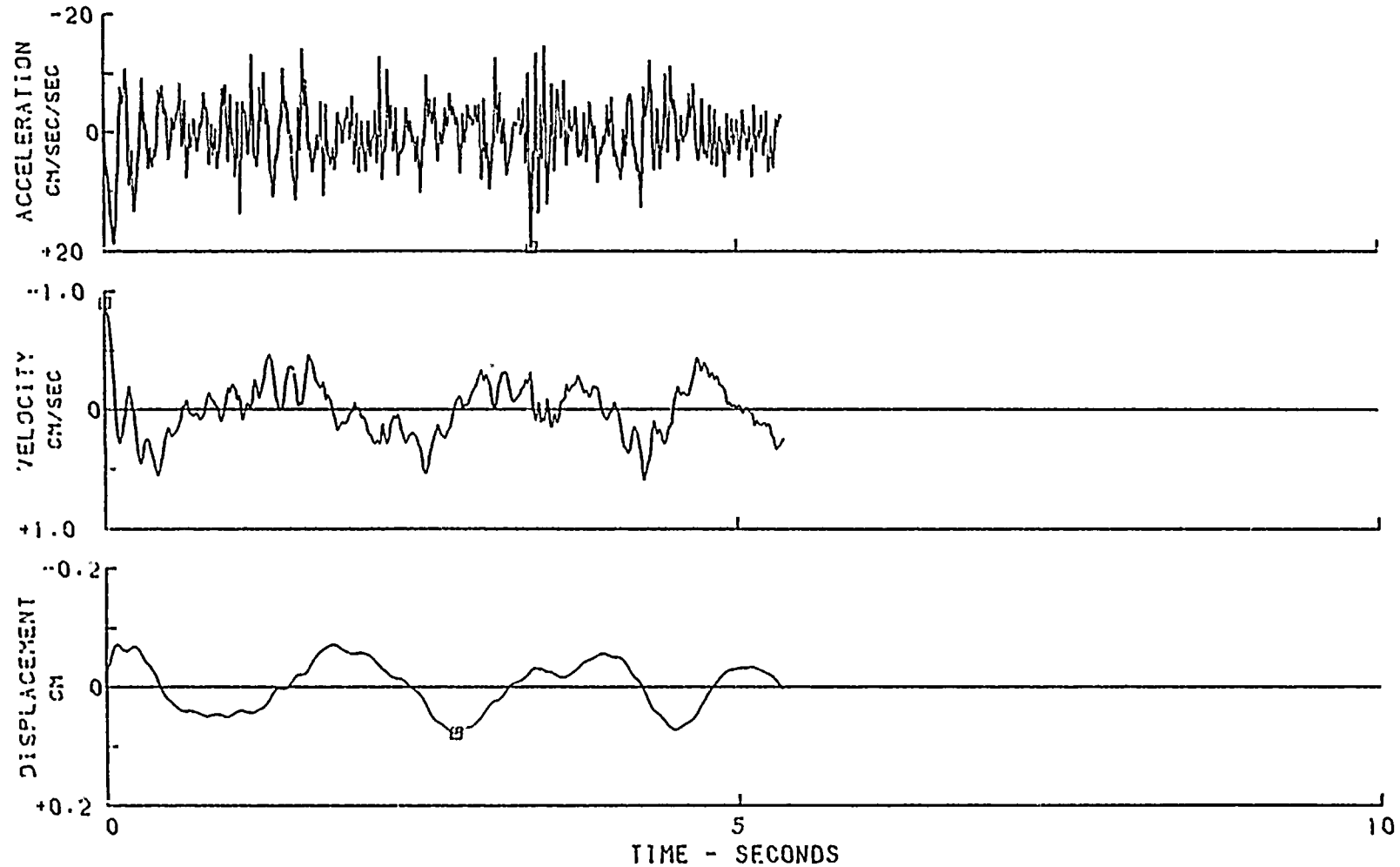
RX BLDG, COL M-12, EL. 340 FT

COMP T

SMA3 S/N105-4 T

ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL= 19.34 CM/SEC/SEC VEL= -.90 CM/SEC DISPL= 0.08 CM





FISHING BROOK MTN EVENT, OCT. 7, 1983

11FB004

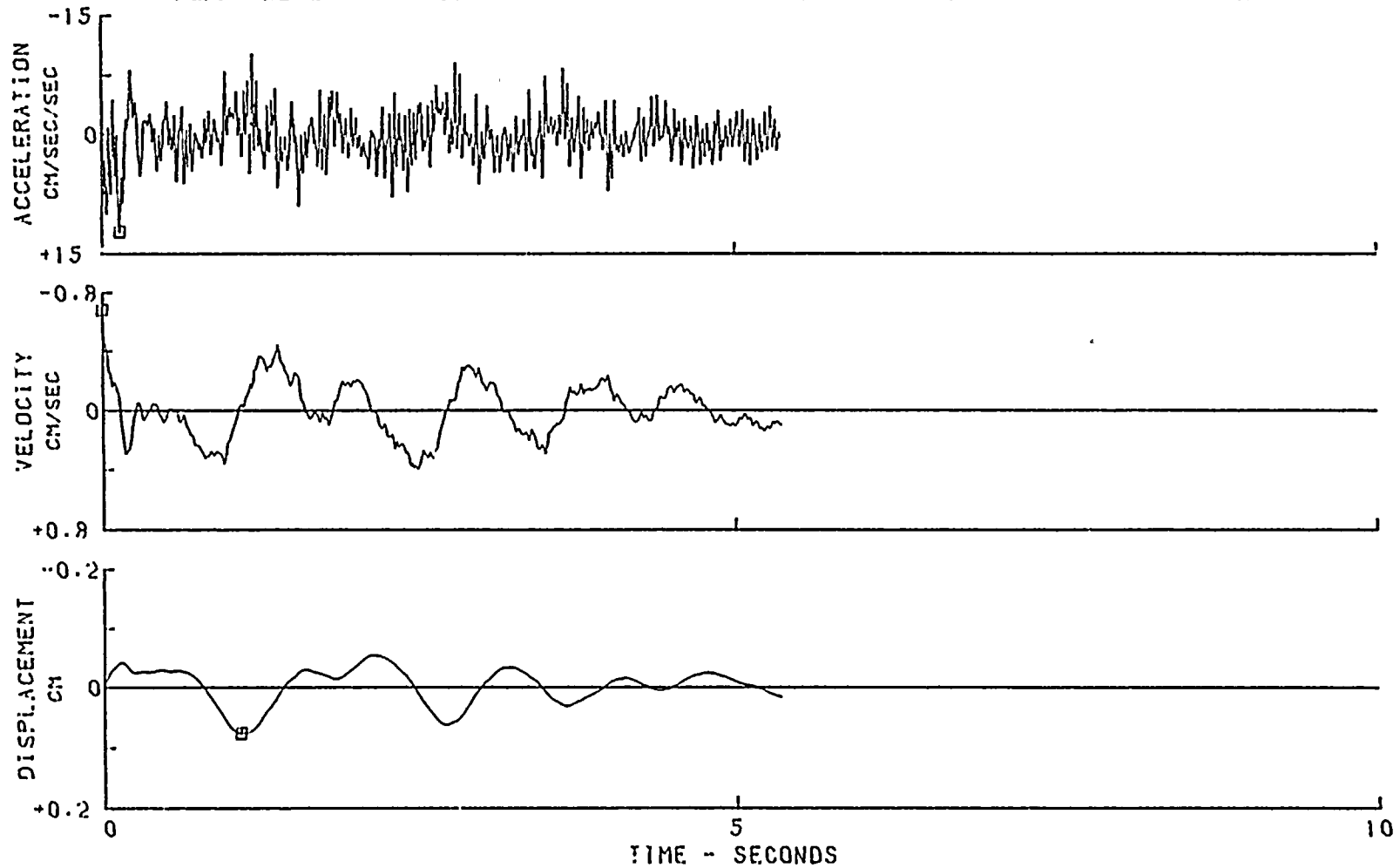
RX BLDG. COL M-12. EL. 340 FT

COMP V

SMA3 S/N105-4 V

ACCELEROGRAM IS BAND-PASS FILTERED BETWEEN 0.300- 0.500 AND 33.00- 35.00 HERTZ

□ PEAK VALUES: ACCEL= 12.22 CM/SEC/SEC VEL= -.68 CM/SEC DISPL= 0.08 CM





FISHING BROOK MTN EVENT, OCT. 7, 1983

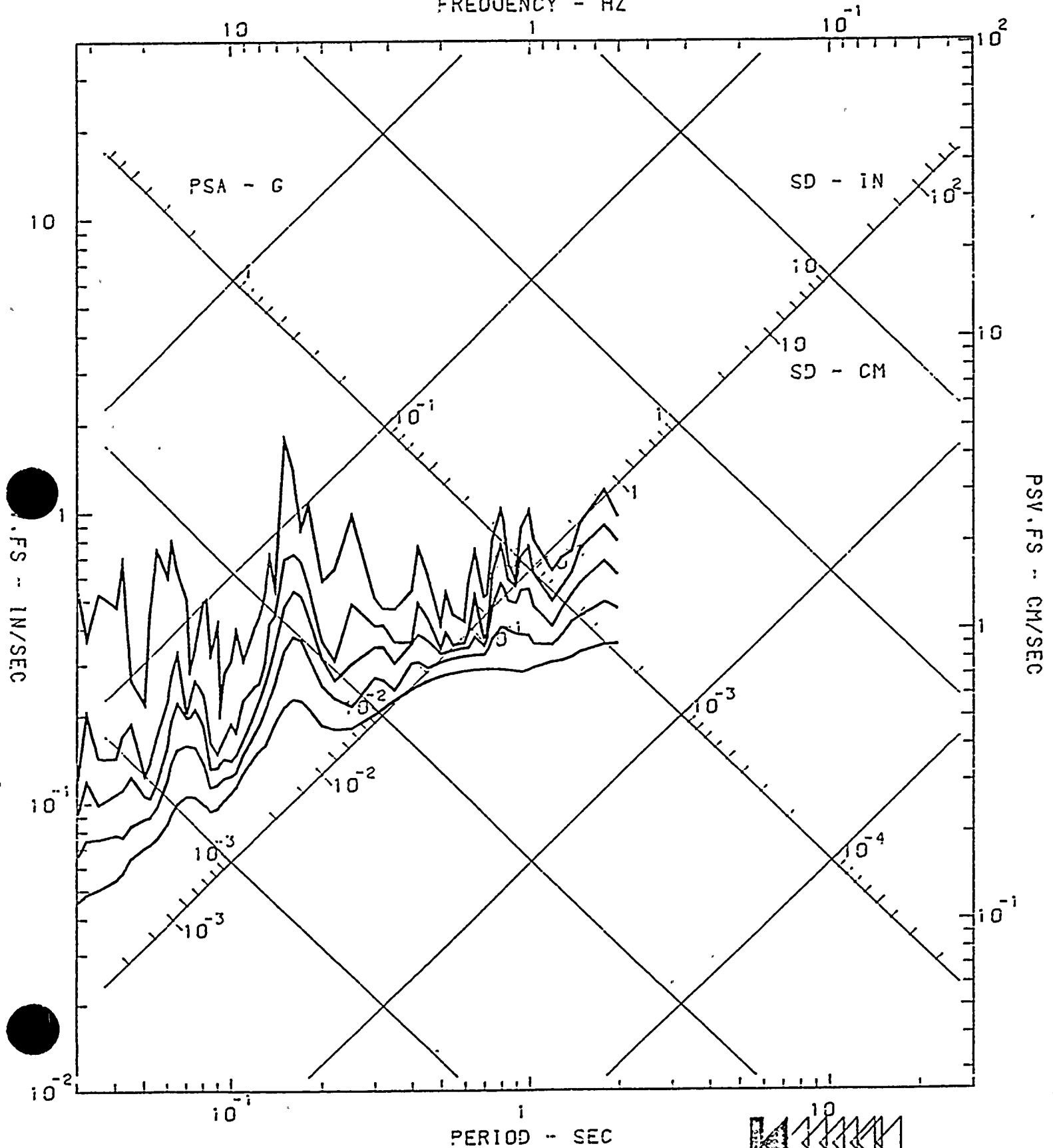
115B004

RX BLDG. COL M-12. EL. 340 FT

COMP L

SMA3 S/N105-4 L

DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT OF CRITICAL
FREQUENCY - HZ





FISHING BROOK MTN EVENT, OCT. 7, 1983

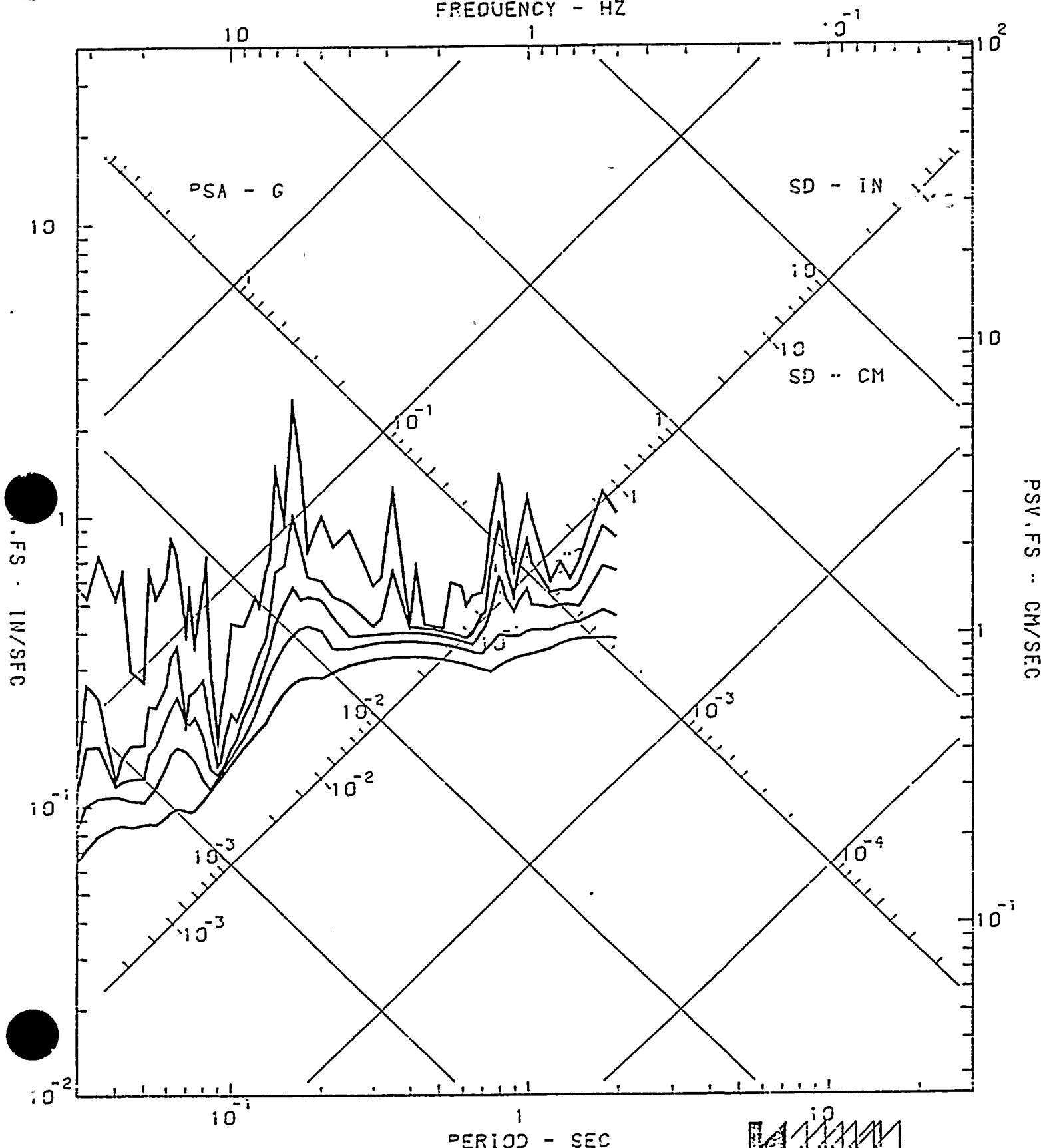
115B004

RX BLDG. COL M-12. EL. 340 FT

COMP T

SMA3 S/N105-4 T

DAMPING VALUES ARE 0. 2. 5. 10. 20 PERCENT. CRITICAL
 FREQUENCY - HZ



KINERETICS

