NUREG/CR-0055
Vol. 2 Appendix
R6, RA

Verification of Subsurface Conditions at Selected "Rock" Accelerograph Stations in California

Volume 2 Appendix
Earthquake Records

Manuscript Completed: March 1977
Date Published: September 1980

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Prepared for
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Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
NRC FIN No. B3015
Under Contract No. AT(49-24)-0200

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EARTHQUAKE RECORDS

Introduction

Lists of selected accelerograms recorded at the accelerograph stations discussed in this report are presented in Tables A1-1 through A8-1 of this appendix. These listings have been organized by regions and coincide with the eight sections of the main text of the report. Following each listing are ground motion time history plots and response spectra curves for earthquake recordings that have been digitized by the California Institute of Technology (Hudson, et al., 1969 to 1975 a and b). Data were obtained from Hudson, et al. (1969 to 1975a and 1975b), and from the U.S. Geological Survey (1975 and unpub.).

Peak values of acceleration are given for each of the recorded earthquakes listed in the tables. In cases where the earthquake accelerogram has been digitized by the California Institute of Technology (Hudson, et al., 1969 to 1975a and 1975b), the peak accelerations of the baseline-corrected record are given.

Entries under the CIT Record column in the tables refer to the digitization of the earthquake records by the California Institute of Technology (CIT), (Hudson, et al., 1969 to 1975a and 1975b). A letter followed by a number is used to designate these records. The letter signifies the "part" in which the record has been grouped in the CIT publication series. Following this letter is the number used by CIT in differentiating the accelerograms.

Following the tabulation of seismic events for any one region are plots of baseline-corrected, ground motion time histories for selected earthquakes. For each earthquake, the time histories are presented on three separate pages: one page for each recorded component of ground motion.

Title information for each of the plots, which were directly reproduced from the CIT publications (Hudson, et al., 1969 to 1975a and 1975b), includes the name of the earthquake followed by its date and time of occurrence. On the second line is the CIT earthquake number, recording station, and recording component. The third line of the title contains the peak values of acceleration, velocity, and displacement for the ground motion plots. Presented immediately below the title information are the baseline-corrected ground motion time histories of acceleration, velocity, and displacement.

Plots of response spectra are also presented for each of the earthquakes digitized by CIT. Tripartite response spectra plots for each earthquake are presented in the figures immediately following the time history plots for any given region. The spectra were also reproduced from Hudson, et al. (1969 to 1975a and 1975b).

Section A1
Eureka Region

TABLE A1-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT EUREKA REGION STRONG-MOTION ACCELEROGRAPH STATION

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude or Intensity[4]	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
34	07	06	14:49	Northern California 41°42'N; 124°36'W	MM-V	Eureka Federal Bldg.	1022	70	N-S 0.017g	E-W 0.019g	Vert --	
35	01	02	14:41	West of Cape Mendocino 40°36'N; 125°0'W	5.8			70	N-S Maximum accel.	E-W	Vert <0.003g	
37	02	06	20:42	Off Humboldt Bay 40°30'N; 125°15'W	5.8			50	N-S 0.017g	E-W 0.012g	Vert 0.006g	
40	12	20	15:41	Near Cape Mendocino 40°0'N; 124°0'W	5.5			56	N-S 0.004g	E-W 0.005g	Vert 0.003g	
41	02	09	01:44	90km off Humboldt Bay 40°42'N; 125°24'W	6.0			65	N-S 0.008g	E-W 0.012g	Vert 0.004g	
44	09	21	09:18	Cape Mendocino 40°24'N; 124°24'W	MM-IV			--	N79E 0.006g	S11E 0.004g	Vert 0.003g	
45	05	02	12:48	Near Scott Mountain 41°12'N; 123°30'W	5.0			44	N79E 0.003g	S11E 0.004g	Vert 0.002g	
46	12	18	06:20	Northern California 40°18'N; 124°36'W	4.7			42	N79E 0.006g	S11E 0.005g	Vert 0.008g	
47	03	29	23:44	West of Cape Mendocino 40°23'N; 124°41'W	4.6			40	N79E 0.003g	S11E 0.002g	Vert 0.001g	
48	08	18	11:12	Northern California 40°30'N; 124°42'W	5.0			35	S81W 0.005g	S9E 0.002g	Vert 0.003g	
50	02	10	15:41	Northern California 41°12'N; 124°18'W	4.0			64	N79E 0.008g	S11E 0.005g	Vert 0.002g	
51	10	07	21:10	Northern California 40°17'N; 124°48'W	5.8			49	N79E 0.006g	S11E 0.005g	Vert 0.002g	
52	09	22	03:41	Northern California 40°12'N; 124°25'W	5.2			44	N79E 0.009g	S11E 0.008g	Vert 0.003g	
54	11	25	03:17	Cape Mendocino 40°16'N; 125°38'W	6.1			85	Maximum accel.		<0.05g	

TABLE A1-1 (cont'd)

LIST OF SELECTED SEISMIC EVENTS RECORDED AT EUREKA REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude or Intensity [4]	Recording Station	USGS Station Number	Distance from Station (mi.)	Peak Acceleration CIT - cm/sec^2 / USGS Files - g's			CIT Record
54	12	21 [1]	11:56	Eureka 40°49'N; 124°5'W	6.5	Eureka Federal Bldg.	1022	4	N79E 252.7	S11E 164.5	Vert 81.3	A-008
62	09	04 [1]	09:17	Northern California 40°58'N; 124°12'W	5.0			11 [3]	N79E 45.3	S11E 47.3	Up 13.0	V-330
67	12	10 [1]	04:06	Northern California 40°30'N; 124°36'W	5.8			50 [3]	N79E 19.5	S11E 20.4	Up 1.5	B-[illegible]39
68	06	25	17:42	Near coast N. Calif. 40°6'N; 124°24'W	See note 2			50	N79E 0.010	S11E <0.01g	Up <0.01g	

Notes:

Data obtained from the open files of the U.S. Geological Survey, Seismic Engineering Branch in Menlo Park, California, except as noted.

1) Data from Hudson, et al. (1969 - 1975 a and b).

2) M = 5.5 in Coffman and vonHake (1973); M = 5.9 in Bolt and Miller (1975).

3) Distance calculated from station and epicenter coordinates.

4) Richter Magnitude and Modified Mercalli Intensity (MM).

EUREKA EARTHQUAKE DEC 21, 1954 - 1156 PST
111008 S4.003.0 EUREKA FEDERAL BLDG COMP N79E
PEAK VALUES : ACCEL = -252.7 CM/SEC/SEC VELOCITY = 29.4 CM/SEC DISPL = 14.1 CM
ACCELERATION
CM/SEC/SEC
-500
0
500
VELOCITY
CM/SEC
-30
0
30
DISPLACEMENT
CM
-20
0
20
0
10
20
30
40
50
60
70
80
TIME - SECONDS

FIG. AI-1

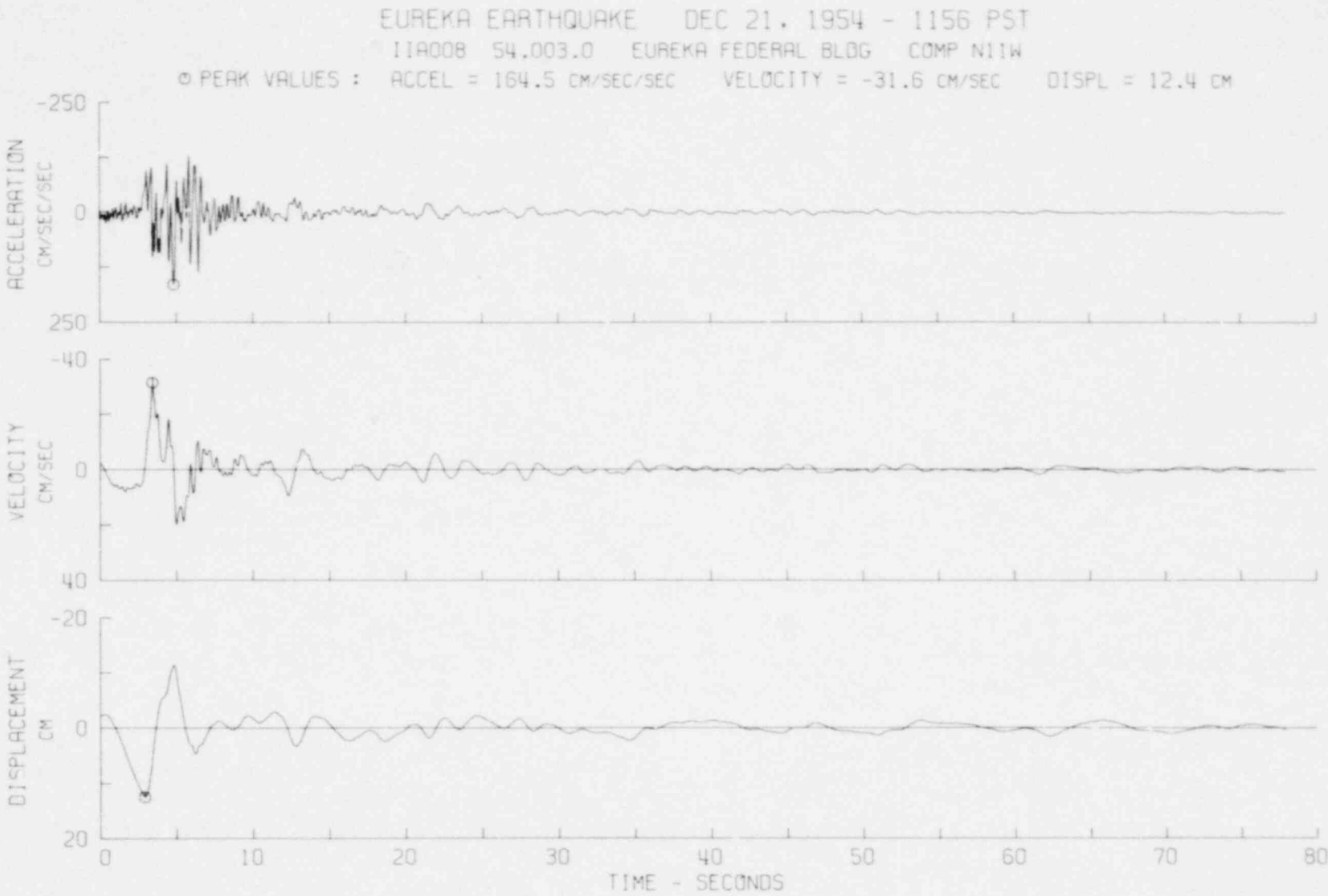

EUREKA EARTHQUAKE DEC 21, 1954 - 1156 PST
II A008 S4.003.0 EUREKA FEDERAL BLDG COMP N11W
⊙ PEAK VALUES : ACCEL = 164.5 CM/SEC/SEC VELOCITY = -31.6 CM/SEC DISPL = 12.4 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-40
0
40
DISPLACEMENT CM
-20
0
20
0
10
20
30
40
50
60
70
80
TIME - SECONDS

FIG. AI-2

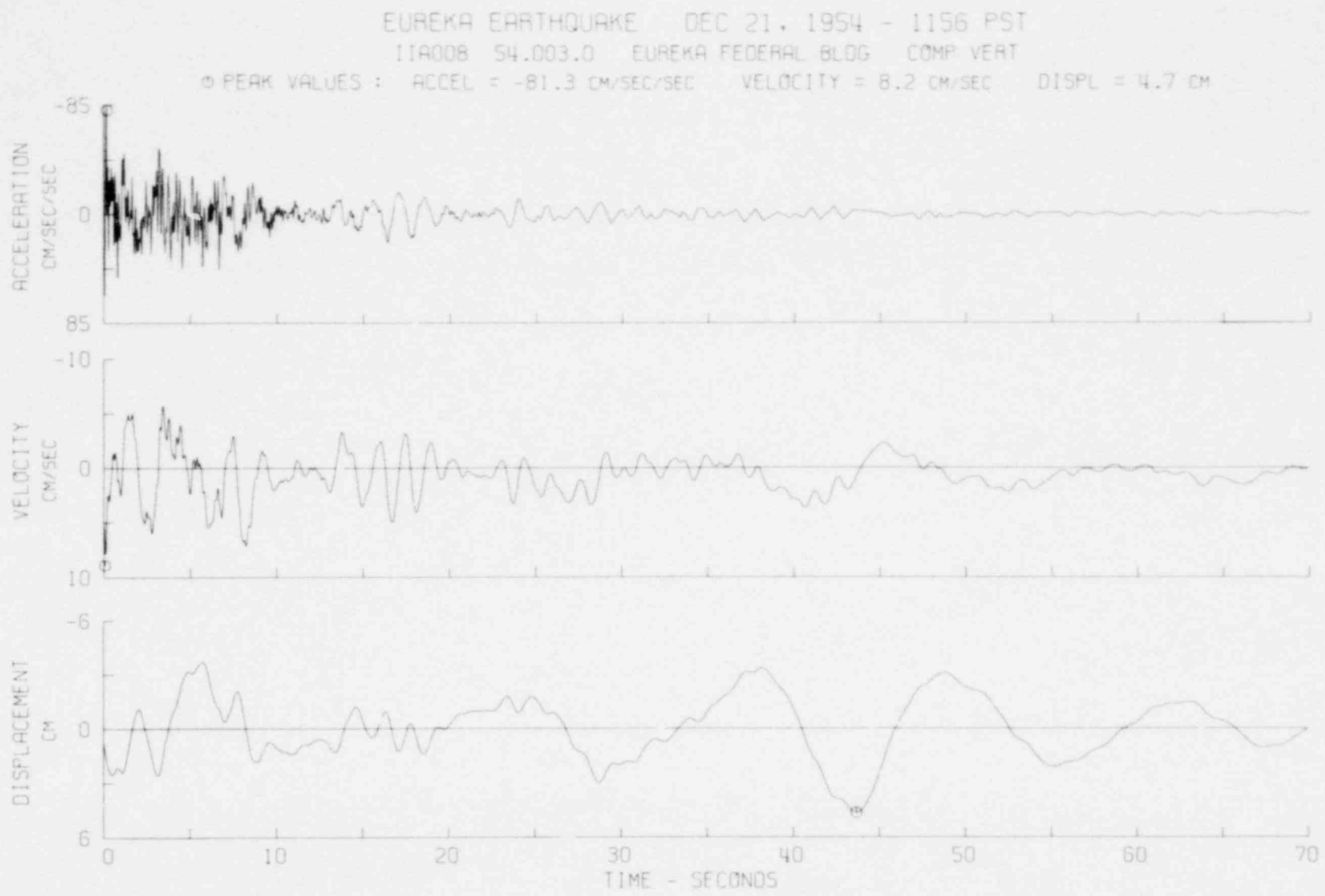

EUREKA EARTHQUAKE DEC 21, 1954 - 1156 PST
11A008 S4.003.0 EUREKA FEDERAL BLDG COMP VERT
PEAK VALUES : ACCEL = -81.3 CM/SEC/SEC VELOCITY = 8.2 CM/SEC DISPL = 4.7 CM
ACCELERATION CM/SEC/SEC
-85
0
85
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A1-3

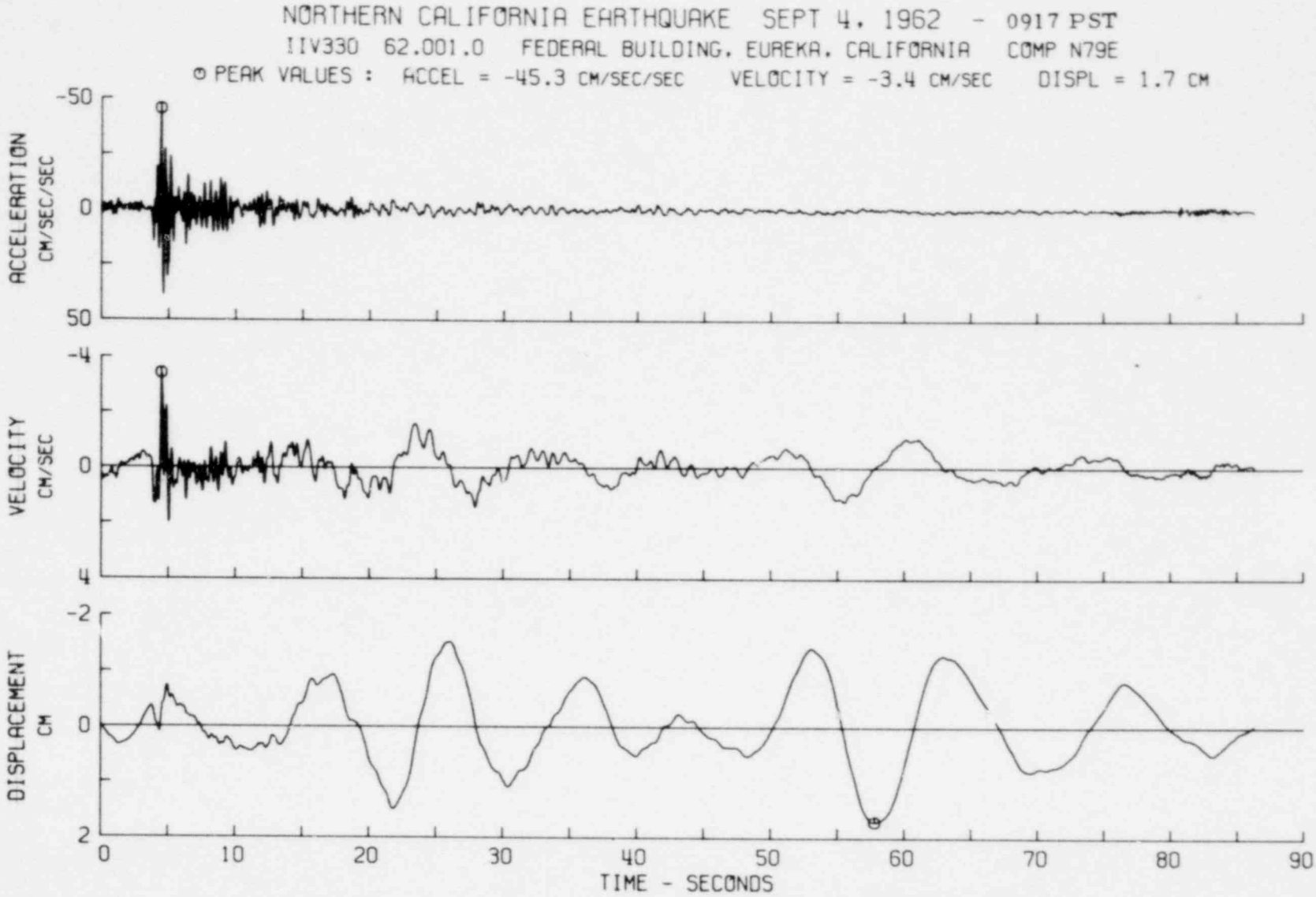

NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST
IIV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP N79E
⊙ PEAK VALUES : ACCEL = -45.3 CM/SEC/SEC VELOCITY = -3.4 CM/SEC DISPL = 1.7 CM
ACCELERATION CM/SEC/SEC
-50
0
50
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
60
70
80
90
TIME - SECONDS

FIG. A1-4

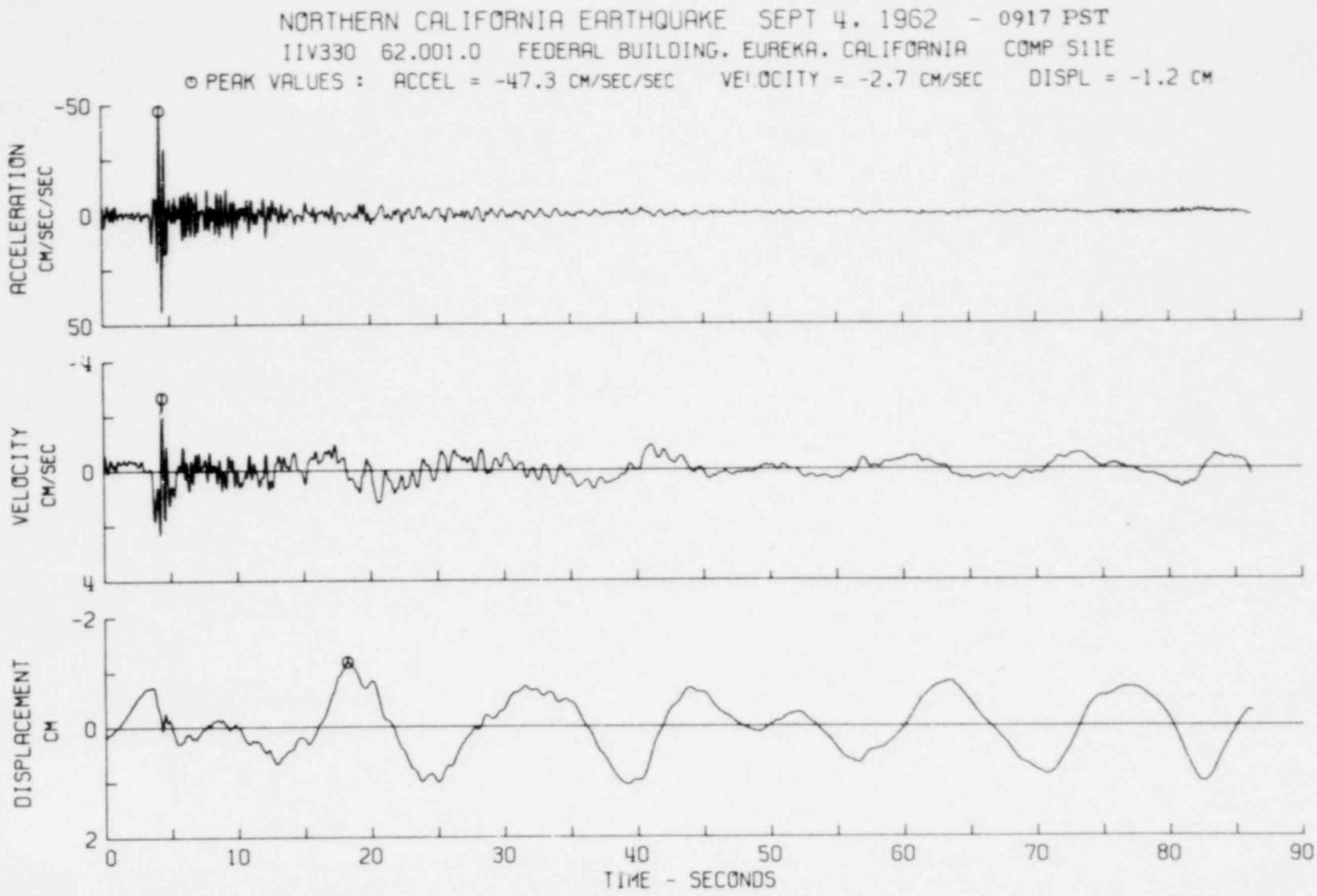

NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST
IIV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP S11E
⊙ PEAK VALUES : ACCEL = -47.3 CM/SEC/SEC VELOCITY = -2.7 CM/SEC DISPL = -1.2 CM
ACCELERATION CM/SEC/SEC
-50
0
50
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
60
70
80
90
TIME - SECONDS

FIG. A1-5

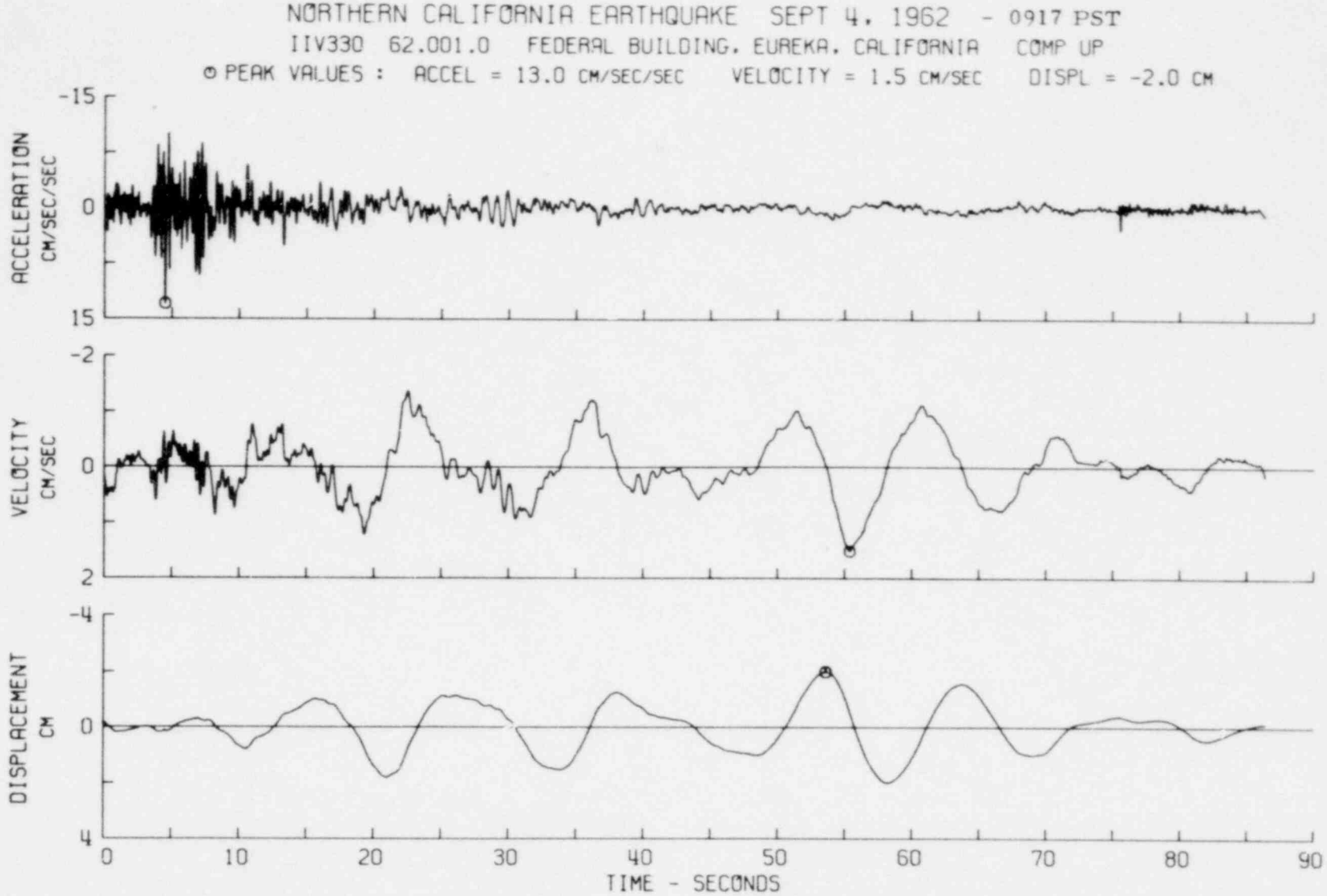

NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST
IIV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP UP
PEAK VALUES : ACCEL = 13.0 CM/SEC/SEC VELOCITY = 1.5 CM/SEC DISPL = -2.0 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
70
80
90
TIME - SECONDS

FIG. A1-6

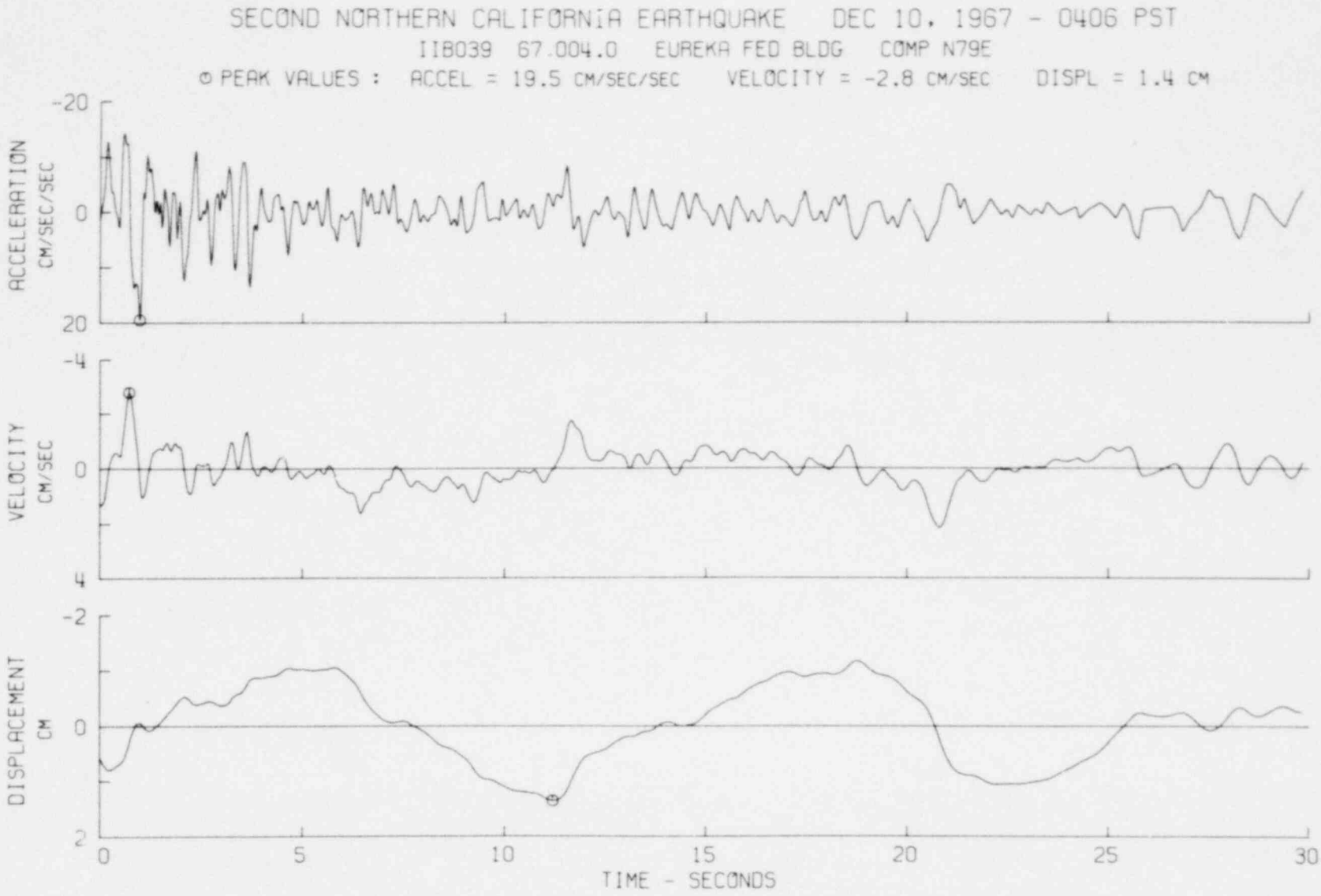

SECOND NORTHERN CALIFORNIA EARTHQUAKE DEC 10, 1967 - 0406 PST
IIB039 67.004.0 EUREKA FED BLDG COMP N79E
PEAK VALUES : ACCEL = 19.5 CM/SEC/SEC VELOCITY = -2.8 CM/SEC DISPL = 1.4 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A1-7

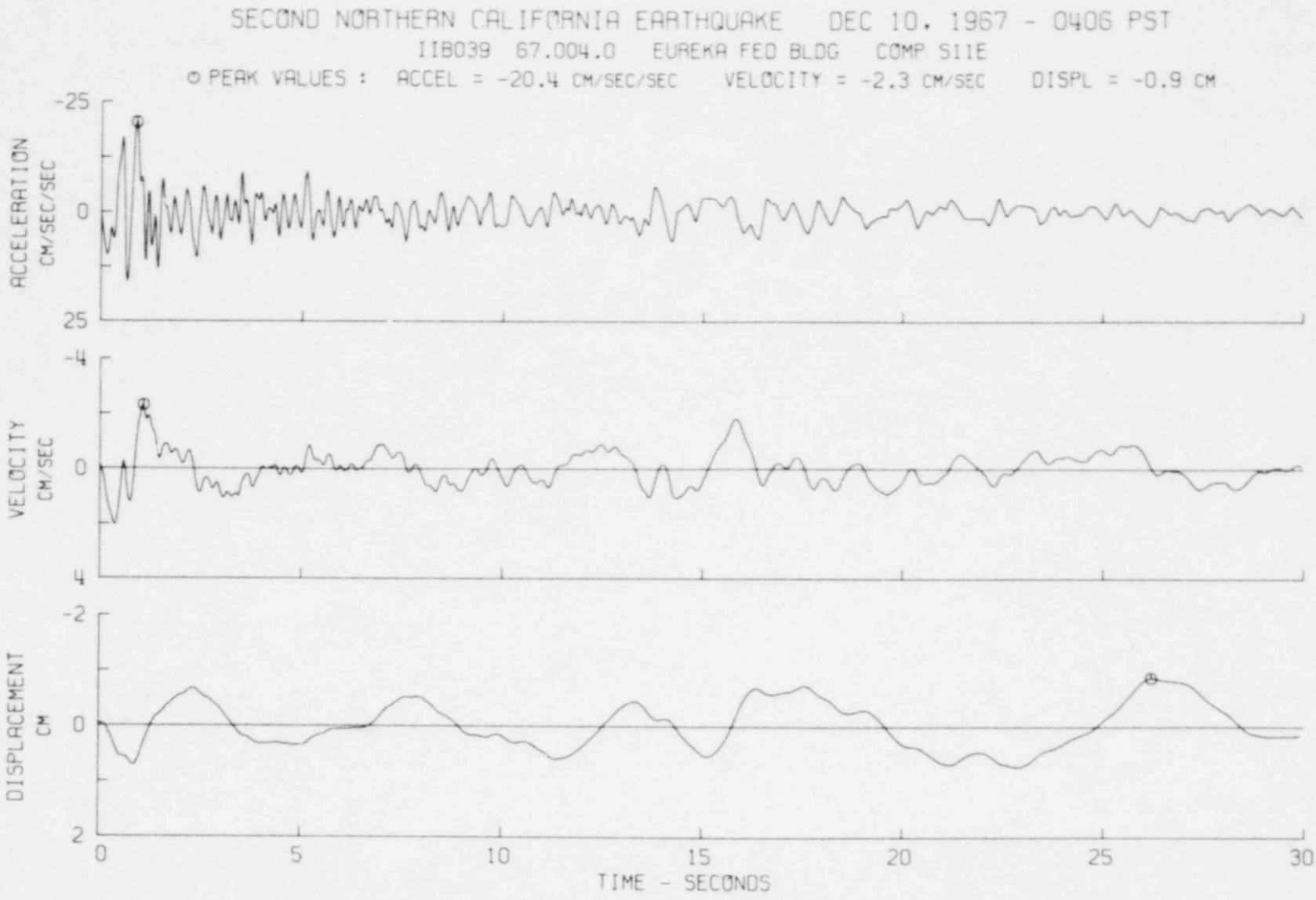

SECOND NORTHERN CALIFORNIA EARTHQUAKE DEC 10, 1967 - 0406 PST
IIB039 67.004.0 EUREKA FED BLDG COMP S11E
⊙ PEAK VALUES : ACCEL = -20.4 CM/SEC/SEC VELOCITY = -2.3 CM/SEC DISPL = -0.9 CM
ACCELERATION CM/SEC/SEC
-25
0
25
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. AI-8

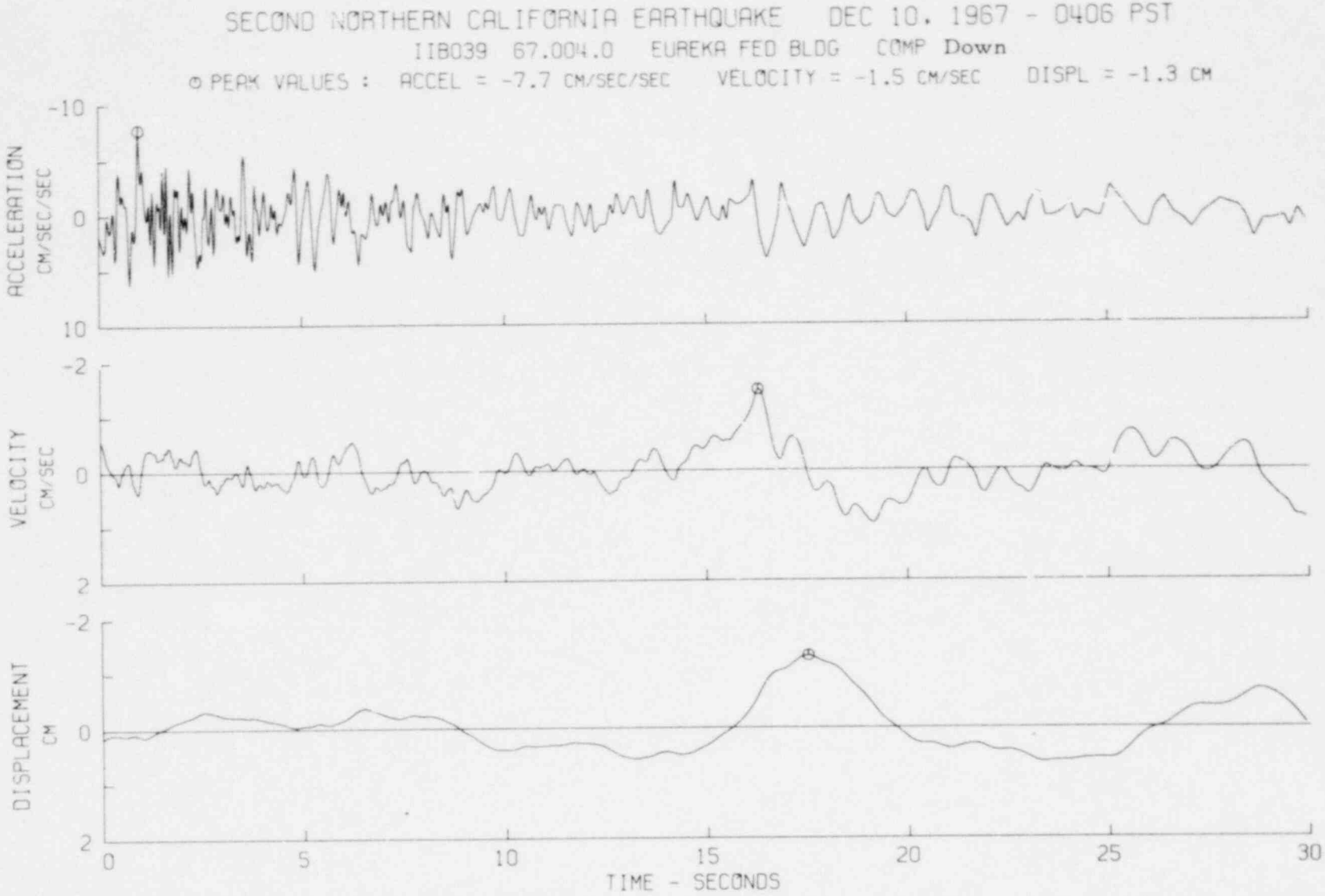

SECOND NORTHERN CALIFORNIA EARTHQUAKE DEC 10, 1967 - 0406 PST
IIB039 67.004.0 EUREKA FED BLDG COMP Down
⊙ PEAK VALUES : ACCEL = -7.7 CM/SEC/SEC VELOCITY = -1.5 CM/SEC DISPL = -1.3 CM
ACCELERATION CM/SEC/SEC
-10
0
10
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A1-9

RESPONSE SPECTRUM

EUREKA EARTHQUAKE DEC 21, 1954 - 1156 PST

IIIA008 54.003.0 EUREKA FEDERAL BLDG COMP N79E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

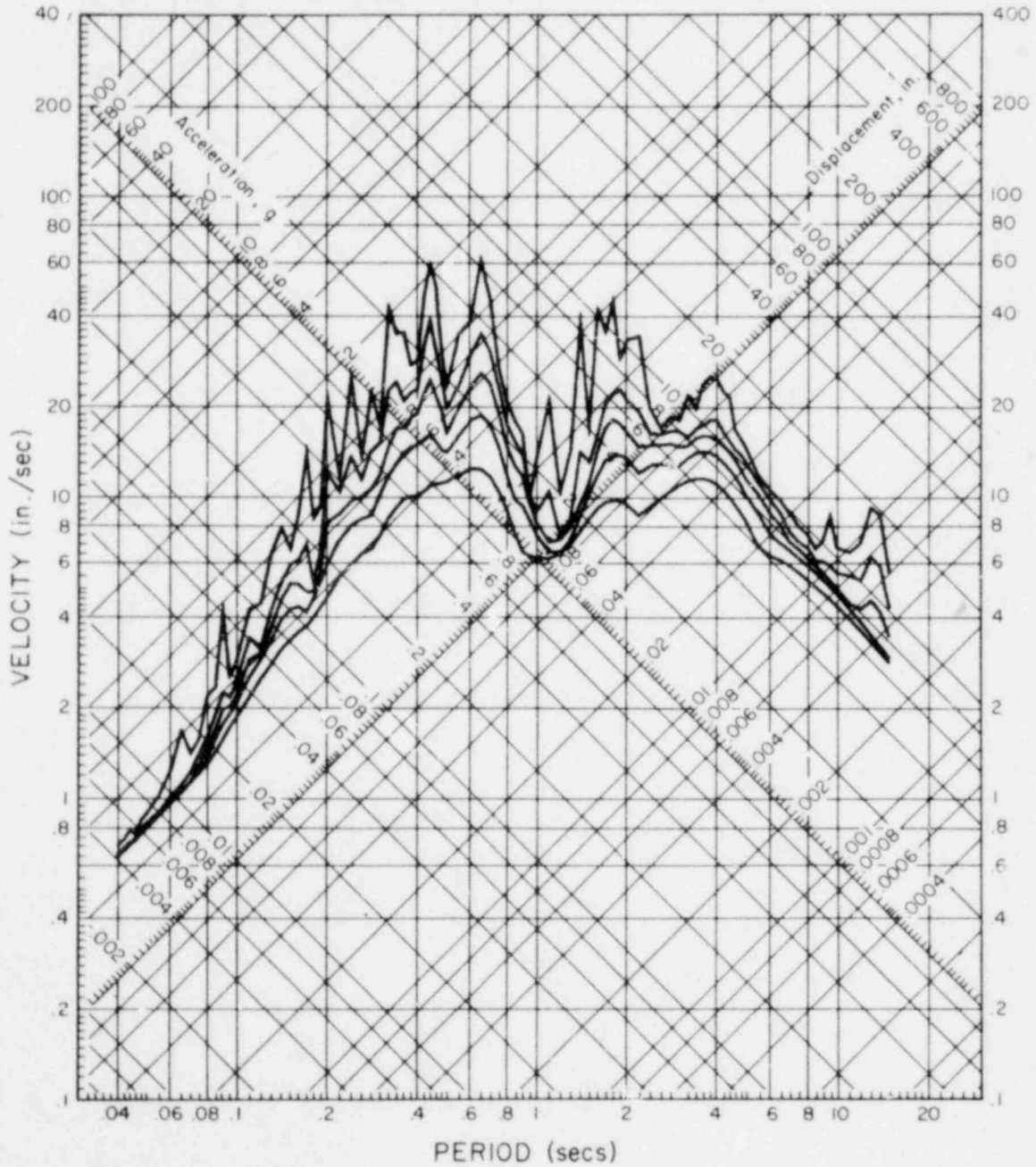


FIG. AI-10

RESPONSE SPECTRUM

EUREKA EARTHQUAKE DEC 21, 1954 - 1156 PST

IIIA008 54.003.0 EUREKA FEDERAL BLDG COMP N11W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

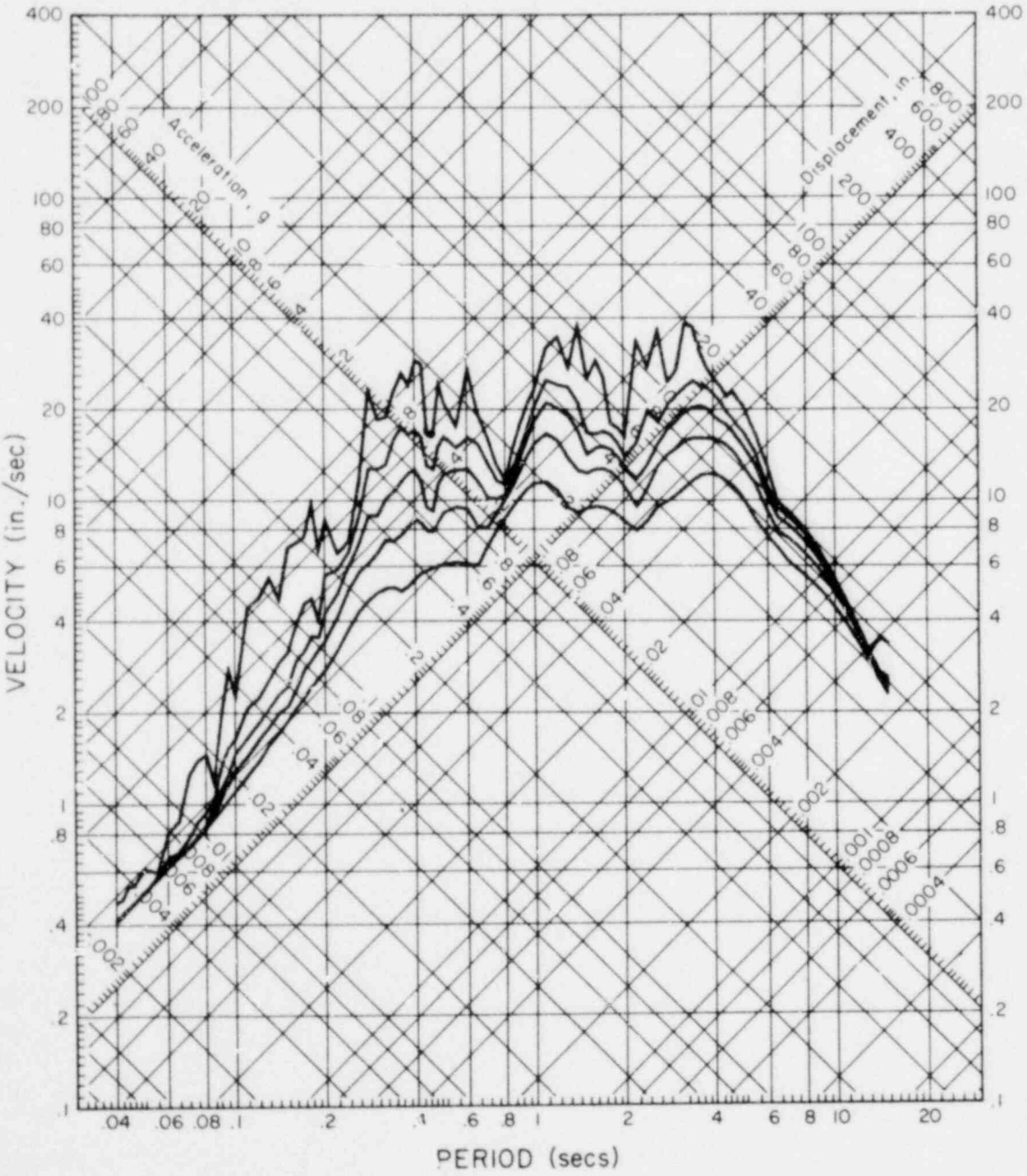


FIG. AI-11

RESPONSE SPECTRUM

EUREKA EARTHQUAKE DEC 21, 1954 - 1156 PST

IIIA008 54.003.0 EUREKA FEDERAL BLDG COMP VERT

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

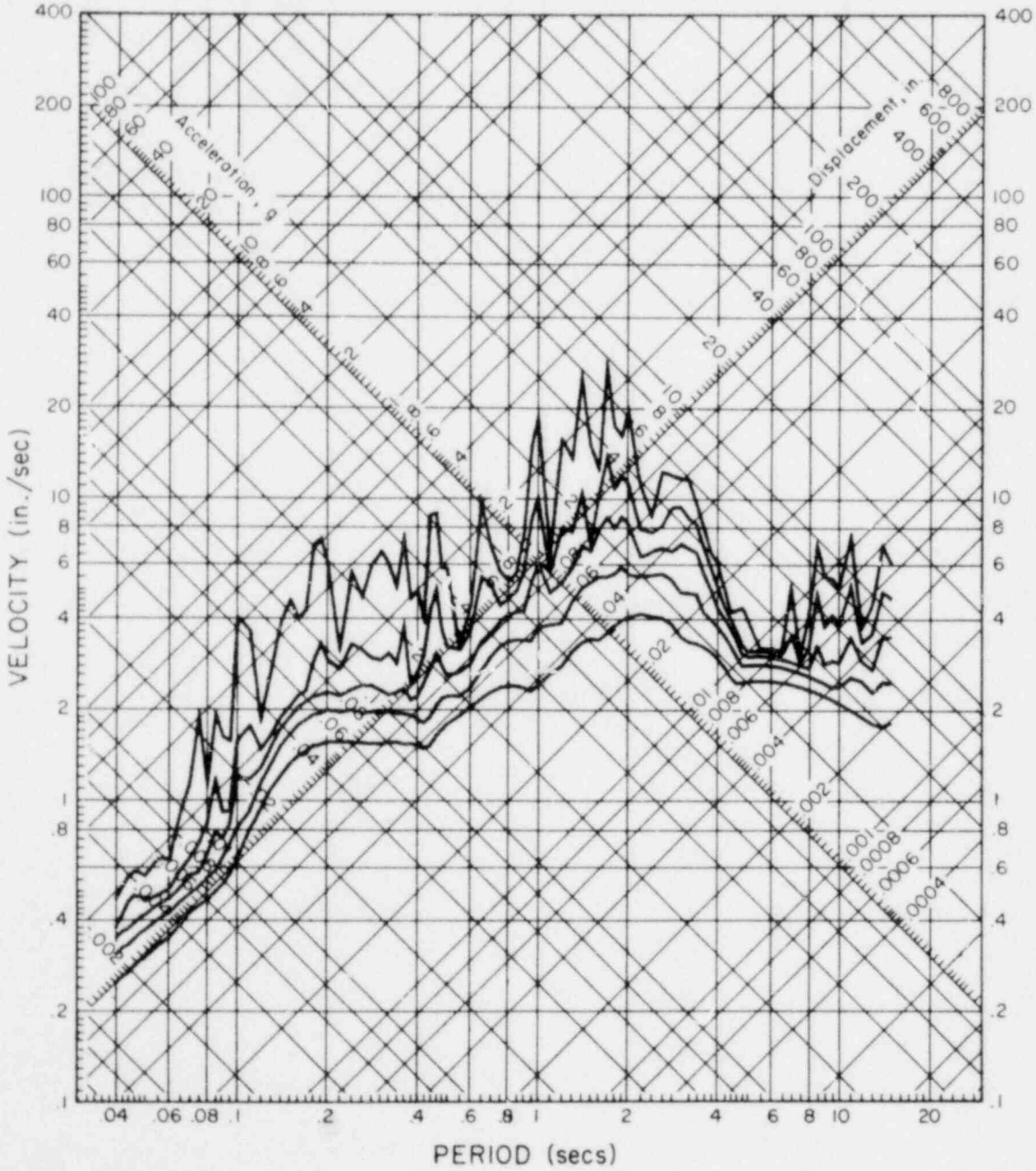


FIG. A1-12

RESPONSE SPECTRUM

NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST

IIIV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP N79E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

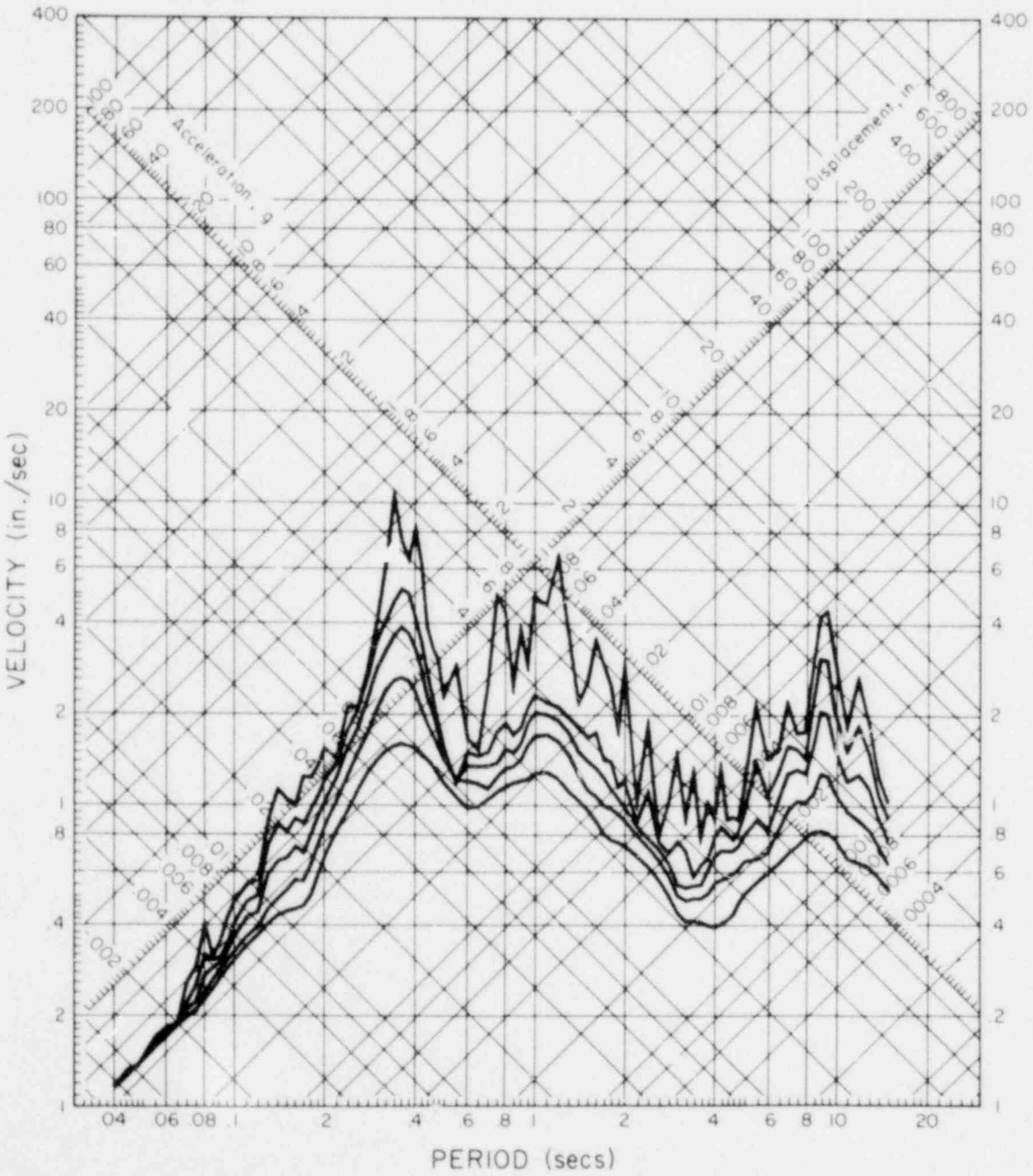


FIG. A1-13

RESPONSE SPECTRUM

NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST

IIIV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP S11E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

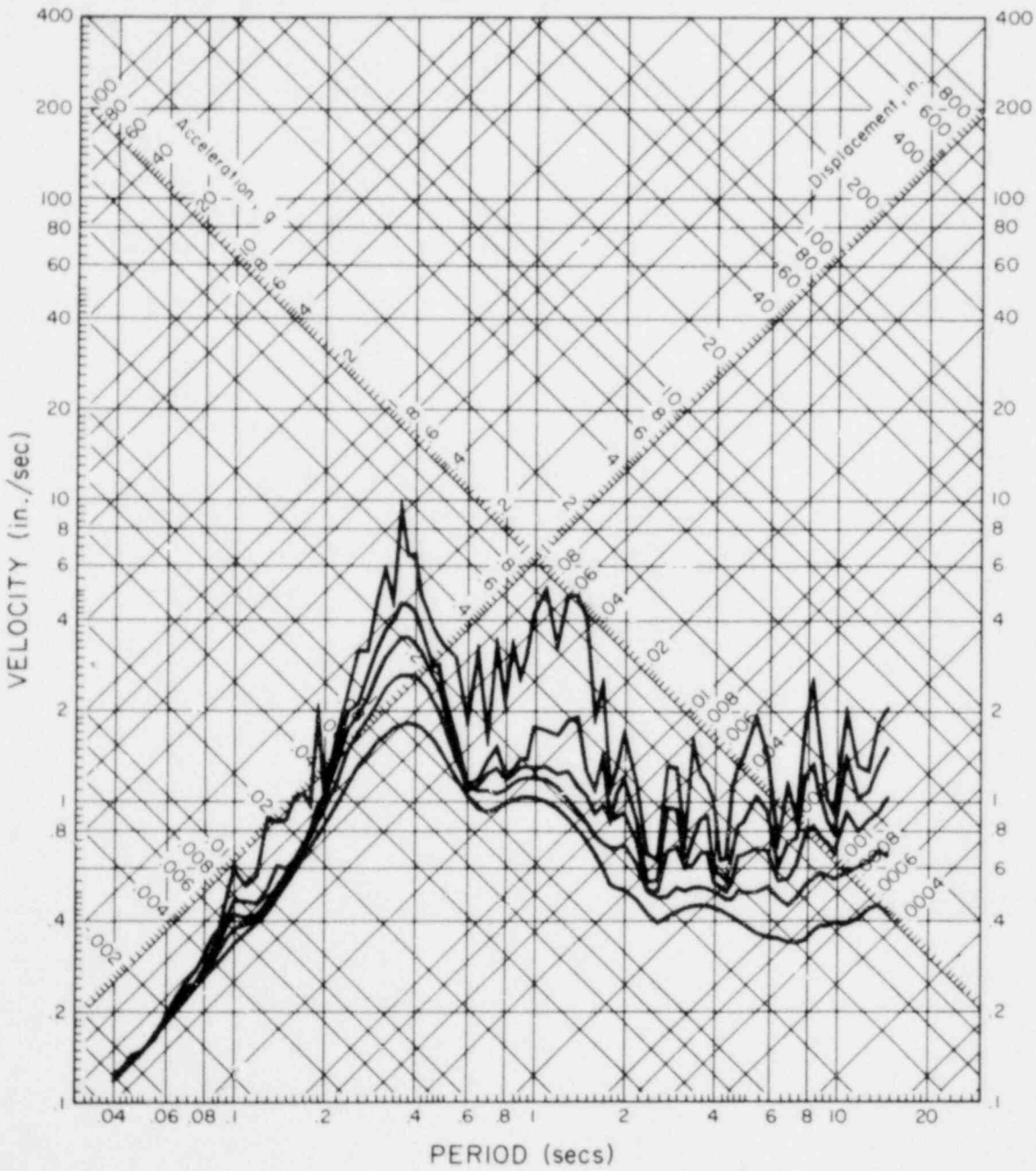


FIG. A1-14

RESPONSE SPECTRUM

NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST

IIIV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP UP

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

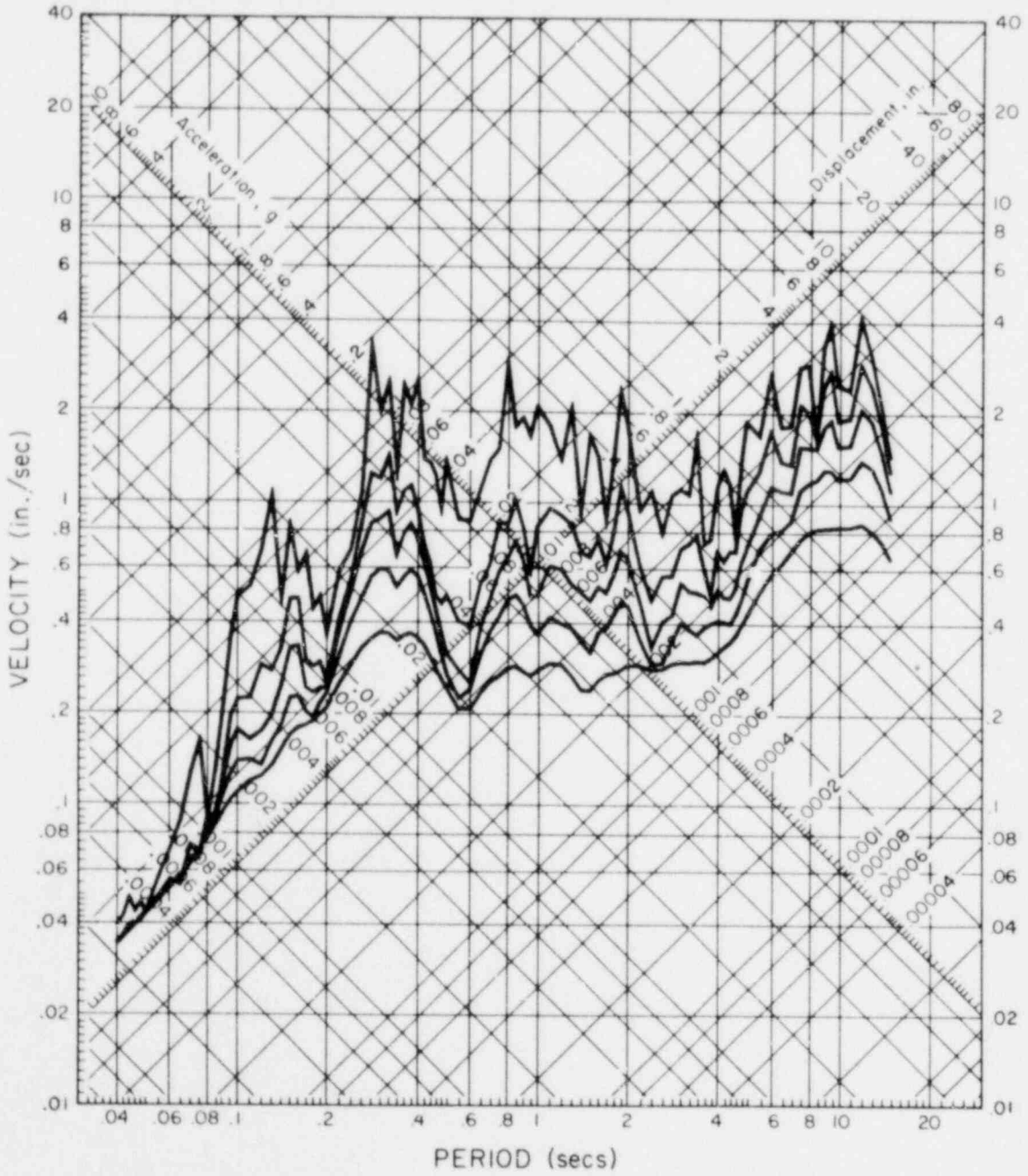


FIG. A1-15

RESPONSE SPECTRUM

SECOND NORTHERN CALIFORNIA EARTHQUAKE DEC 10, 1967 - 0406 PST

IIIB039 67.004.0 EUREKA FED BLDG COMP N79E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

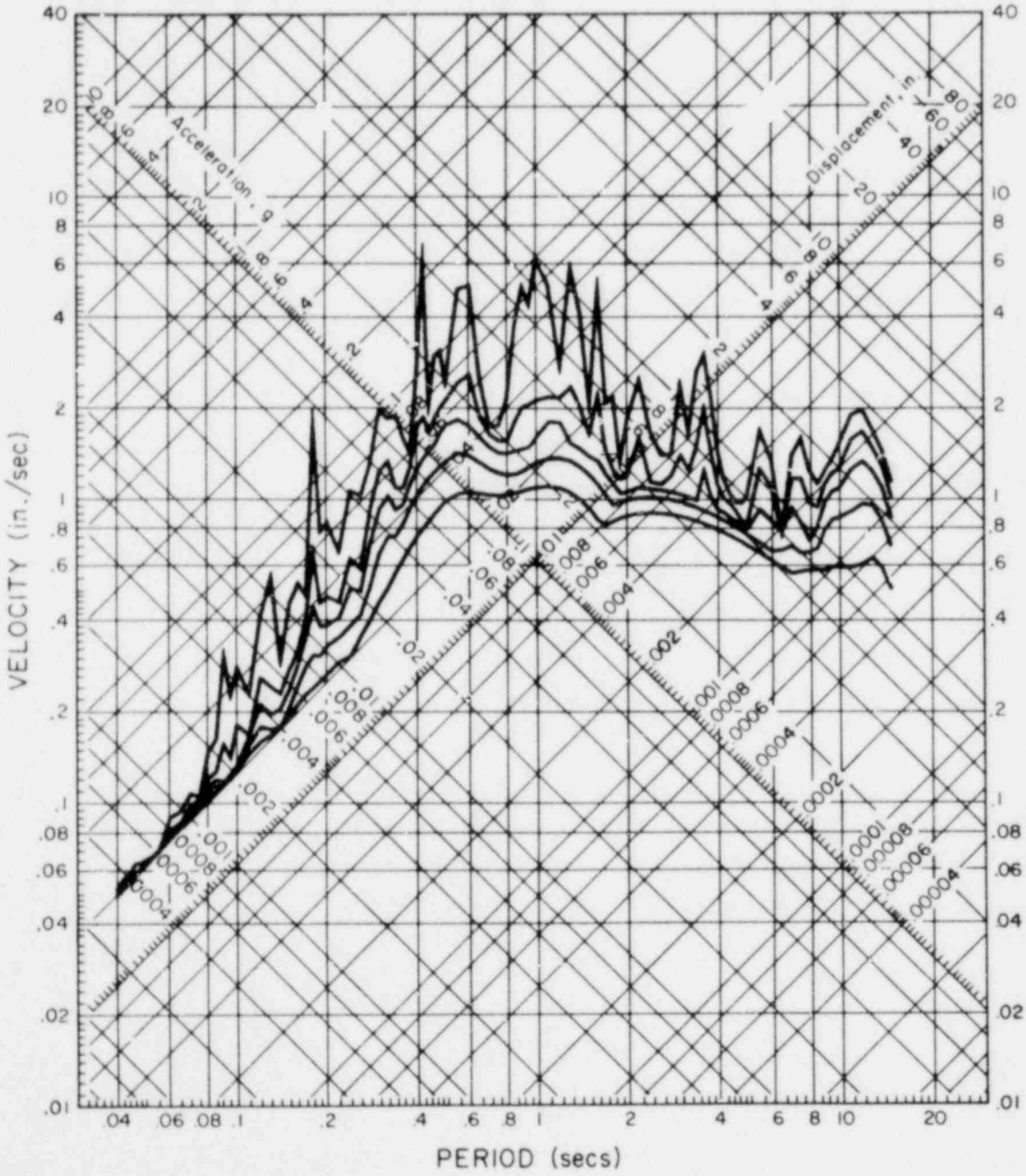


FIG. A1-16

RESPONSE SPECTRUM

SECOND NORTHERN CALIFORNIA EARTHQUAKE DEC 10, 1967 - 0406 PST

1118039 67.004.0 EUREKA FED BLDG COMP S11E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

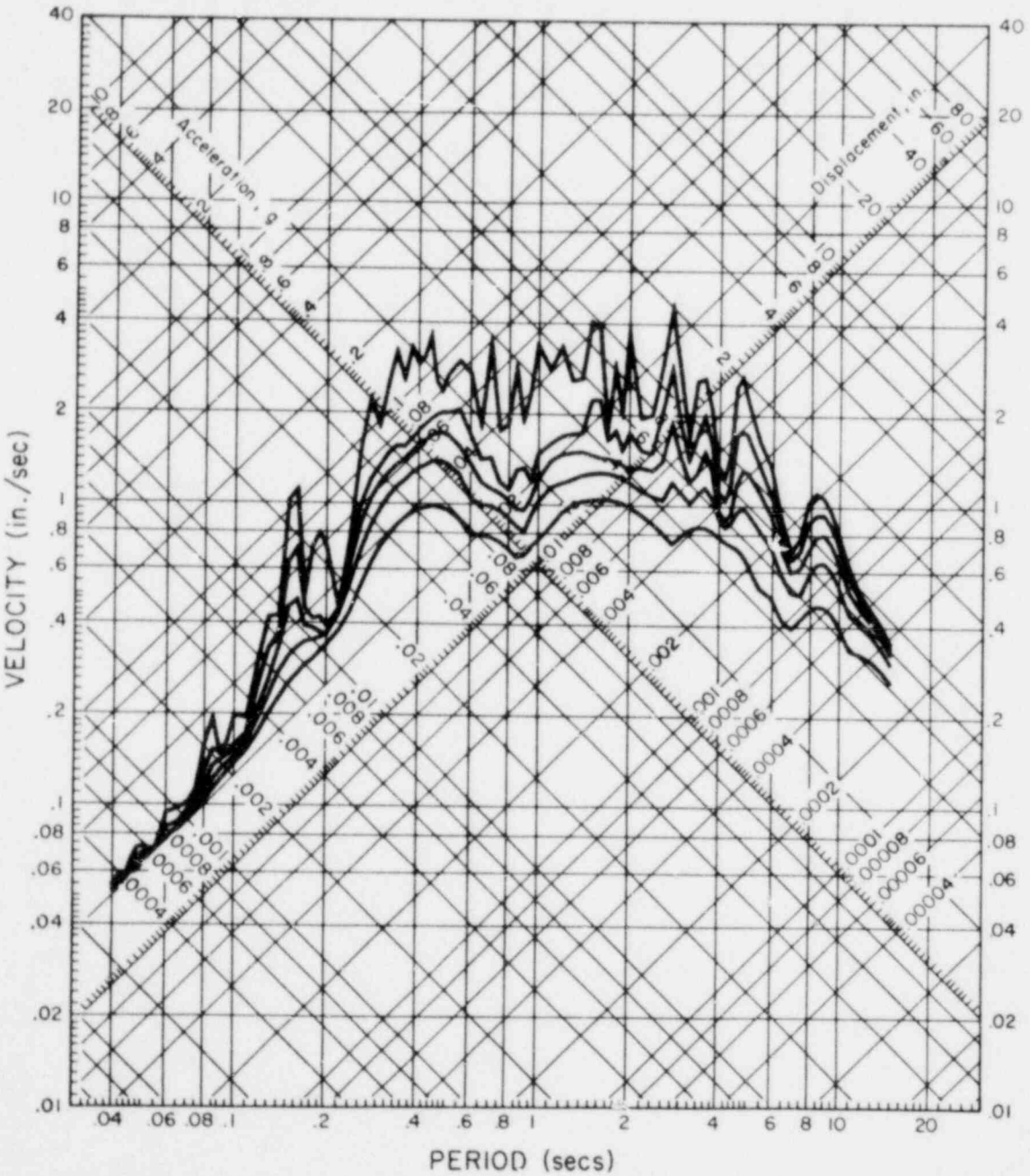


FIG. A1-17

RESPONSE SPECTRUM

SECOND NORTHERN CALIFORNIA EARTHQUAKE DEC 10, 1967 - 0406 PST

IIIB039 67.004.0 EUREKA FED BLDG COMP Down

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

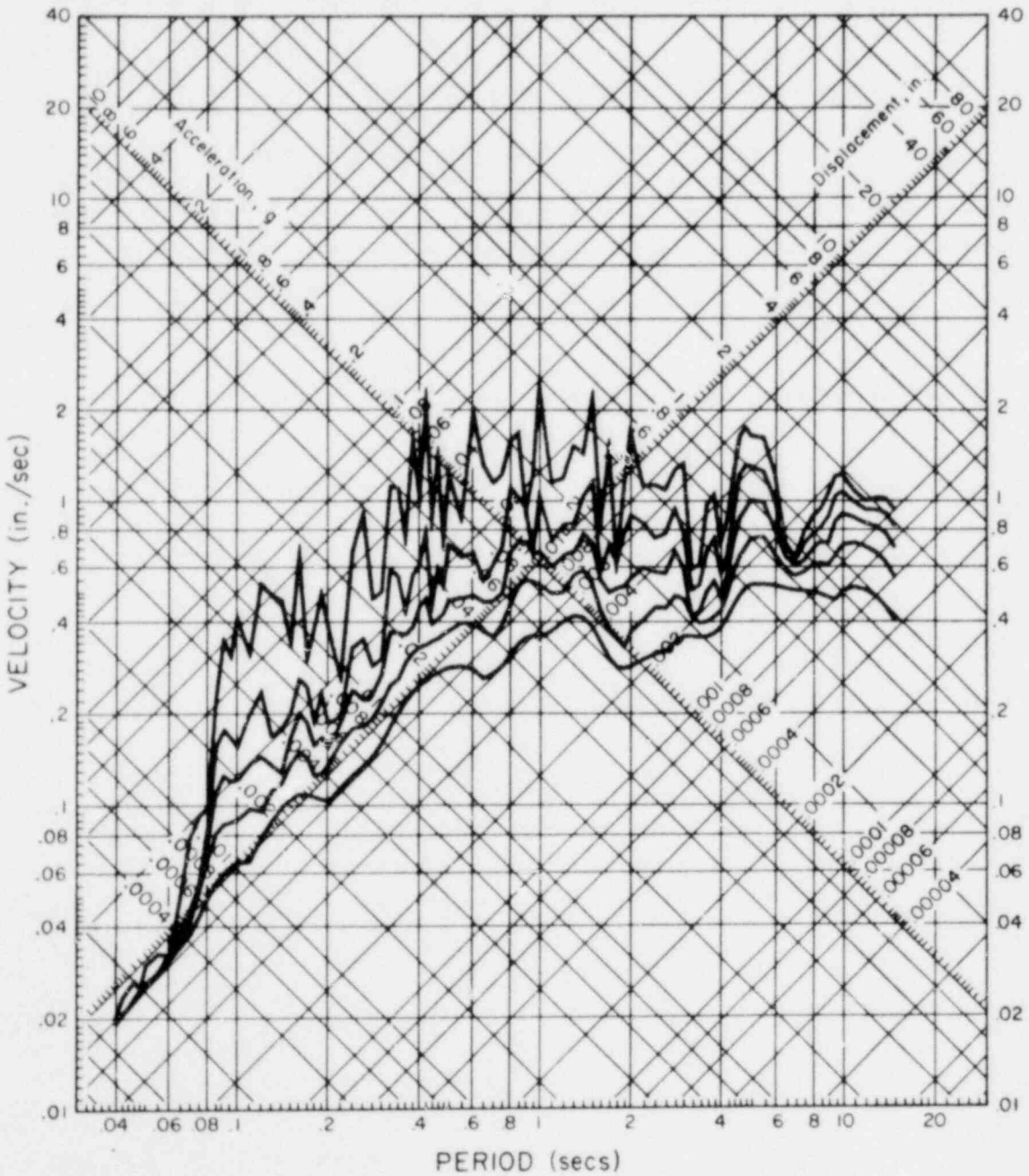


FIG. A1-18

TABLE A2-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT SAN FRANCISCO REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance from Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
34	10	02	12:20	San Francisco Bay 37°42'N; 122°48'W	4.0	San Fran. Golden Gate	1117	20	N-S ---	E-W 0.005g	Vert 0.002g	
						Oakland City Hall	1049	30	Maximum accel.		<0.01g	
37	03	08	02:31	Berkeley, California 37°48'N; 122°12'W	4.5	San Fran. State Bldg.	1080	12	S08E 0.016g	S82W 0.020g	Vert 0.006g	
						San Fran. Alexander Bld.	1065	12	N08W 0.006g	N82E 0.015g	Vert 0.013g	
43	10	25	20:51	Central California 37°26'N; 121°41'W	4.9	San Fran. Alexander Bld.	1065	47	N09W 0.010g	N81E 0.009g	Vert 0.006g	
						Oakland City Hall	1049	41	S25W 0.010g	N65W 0.005g	Vert 0.005g	
47	06	22	15:30	Near Santa Cruz 37°0'N; 121°46'W	4.7	San Fran. Alexander Bld.	1065	65	N09W 0.002g	N81E 0.001g	Vert 0.001g	
52	07	21	03:52	Kern County 35°00'N; 119°2'W	7.7	San Fran. Alexander Bld.	1065	269	S09E 0.002g	N81E 0.002g	Vert --	
						Oakland City Hall	1049	264	S26W 0.001g	N64W 0.001g	Vert --	
54	04	25	12:34	Watsonville, California 36°56'N; 121°41'W	5.3	San Fran. Alexander Bld.	1065	71	Maximum accel.		<0.05g	
						Oakland City Hall	1049	68	N26E 0.004g	S64E 0.004g	Vert 0.003g	
54	07	06	03:13	Fallon, Nevada 39°25'N; 118°32'W	6.8	San Fran. Alexander Bld.	1065	237	Maximum accel.		<0.05g	
						Oakland City Hall	1049	230	Maximum accel.		<0.05g	
54	12	16	03:07	Fallon, Nevada 39°19'N; 118°12'W	7.2	San Fran. Alexander Bld.	1065	250	Maximum accel.		<0.05g	
						Oakland City Hall	1049	243	Maximum accel.		<0.05g	
55	09	04	18:01	Near San Jose 37°22'N; 121°47'W	5.8	San Fran. Alexander Bld.	1065	45	N09W 0.002g	N81E 0.002g	Vert 0.002g	
						Oakland City Hall	1049	40	N26E 0.007g	N64W 0.005g	Vert 0.004g	
						San Francisco State Bldg.	1080	45	Maximum accel.		<0.05g	

TABLE A2-1 (cont'd)

LIST OF SELECTED SEISMIC EVENTS RECORDED AT SAN FRANCISCO REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
55	10	23	20:11	Btw. Walnut Ck & Concord 37°58'N; 122°03'W	5.4	San Fran. State Build.	1080	24	N09W 0.016g	N81E 0.023g	Vert 0.007g	
						San Fran. Golden Gate	1117	27	Maximum Accel. <0.05g			
						Oakland City Hall	1049	17	N26E 0.01g	N64W 0.023g	Vert 0.006g	
57	03	22[1]	11:44	San Francisco 37°40'N; 122°29'W	5.3	San Fran. Golden Gate	1117	7	S80E 102.8	N10E 81.8	Vert 37.2	A-015
						San Fran. State Building	1080	8	S09E 83.8	S81W 55.1	Vert 43.5	A-016
						San Fran. Alexander Bld.	1065	9	N09W 41.8	N81E 45.4	Vert 30.0	A-014
(aftershock)			15:15	37°39'N; 122°27'W	4.4			10	17.6	15.7	5.8	V-323
			11:44			Oakland City Hall	1049	15	N26E 39.0	S64E 23.7	Vert 15.3	A-017
(aftershock)			15:15	37°39'N; 122°27'W	4.4			14	2.9	3.5	2.4	V-326
59	03	02	15:27	Gilroy, California 36°59'N; 121°36'W	5.3	San Fran. Alexander Bld.	1065	71	S09E 0.005g	S81W 0.006g	Vert 0.005g	
						San Fran. Golden Gate	1117	73	N10E 0.002g	S80E 0.002g	Vert 0.002g	
						Oakland City Hall	1049	67	N26E 0.013g	S64E 0.014g	Vert 0.015g	
61	04	08	23:23	Near Hollister, Calif. 36°41'N; 121°18'W	5.6	San Fran. Alexander Bldg.	1065	98	Maximum accel. <0.05g			
						Oakland City Hall	1049	94	Maximum accel. <0.05g			
64	11	15	18:46	Central California 37°00'N; 121°43'W	5.25	San Fran. State Building	1080	66	S09E 0.007g	S81W 0.009g	Vert 0.004g	
67	12	18	09:25	Central California 37°0'N; 121°47'W	5.3	San Fran. Alexander Bldg.	1065	64	N09W 0.004g	N81E 0.004g	Vert 0.002g	
69	10	01	20:57	Santa Rosa 38°28'N; 122°41'W	5.6	San Fran. Alexander Bldg.	1065	50	Maximum accel. <0.01g			
						Oakland City Hall	1049	52	Maximum accel. <0.01g			

Notes: Data obtained from the open files of the U.S. Geological Survey, Seismic Engineering Branch in Menlo Park, California, except as noted.

1) Data from Hudson, et al. (1969-1975 a and b).

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA015 57.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP S80E
PEAK VALUES : ACCEL = -102.8 CM/SEC/SEC VELOCITY = -4.6 CM/SEC DISPL = -0.8 CM
ACCELERATION
CM/SEC/SEC
-250
0
250
VELOCITY
CM/SEC
-6
0
6
DISPLACEMENT
CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A2-1

SAN FRANCISCO EARTHQUAKE MAR 22. 1957 - 1144 PST
IIA015 57.00E.0 SAN FRANCISCO GOLDEN GATE PARK COMP N10E
⊙ PEAK VALUES : ACCEL = -81.8 CM/SEC/SEC VELOCITY = -4.9 CM/SEC DISPL = -2.3 CM
ACCELERATION CM/SEC/SEC
-85
0
85
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A2-2

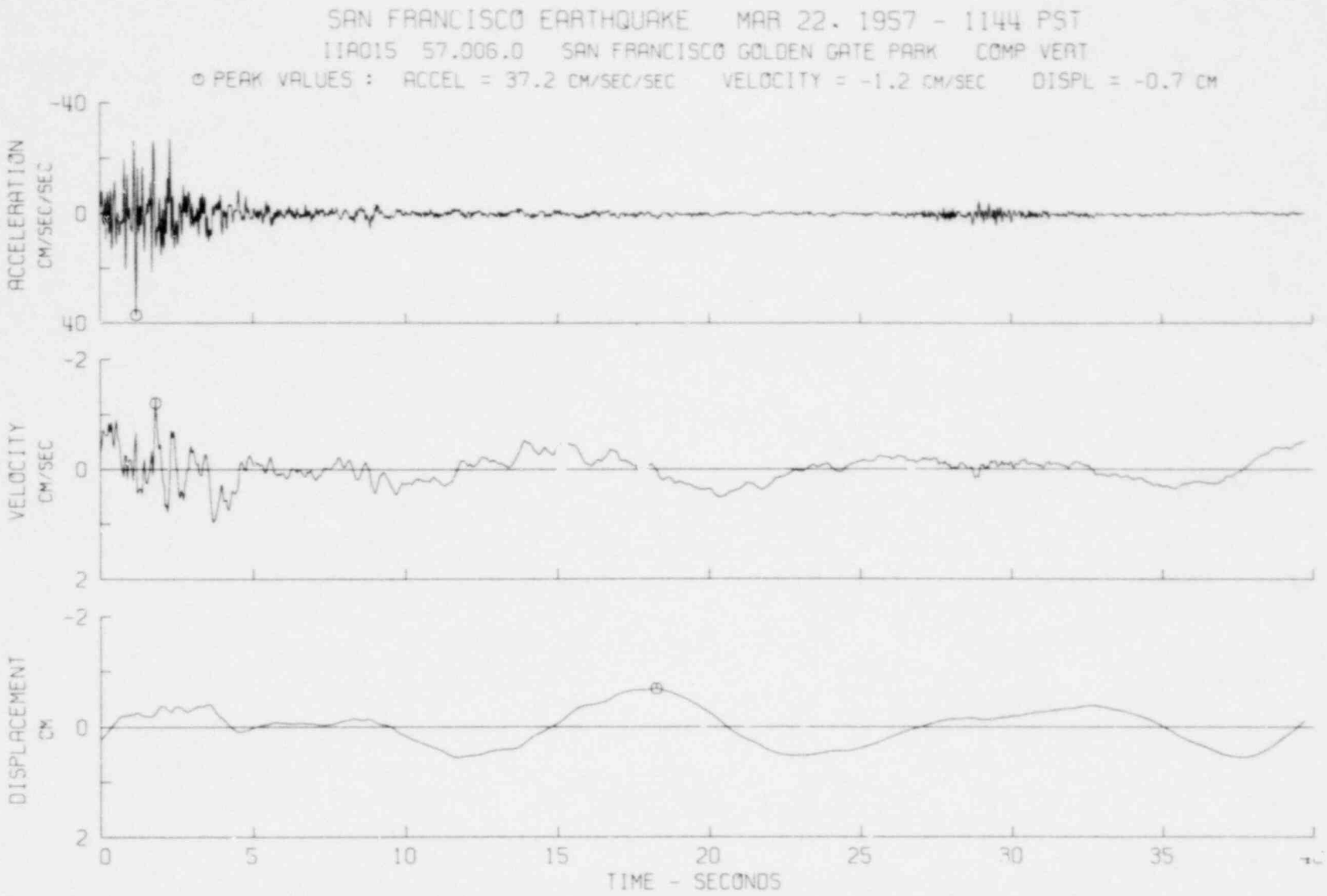

SAN FRANCISCO EARTHQUAKE MAR 22. 1957 - 1144 PST
IIA015 57.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP VERT
PEAK VALUES : ACCEL = 37.2 CM/SEC/SEC VELOCITY = -1.2 CM/SEC DISPL = -0.7 CM
ACCELERATION CM/SEC/SEC
-40
0
40
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A2-3

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA016 57.007.0 SAN FRANCISCO STATE BLDG BASEMENT COMP S08E
© PEAK VALUES : ACCEL = -83.8 CM/SEC/SEC VELOCITY = -5.1 CM/SEC DISPL = -1.1 CM
ACCELERATION
CM/SEC/SEC
-85
0
85
VELOCITY
CM/SEC
-6
0
6
DISPLACEMENT
CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A2-4

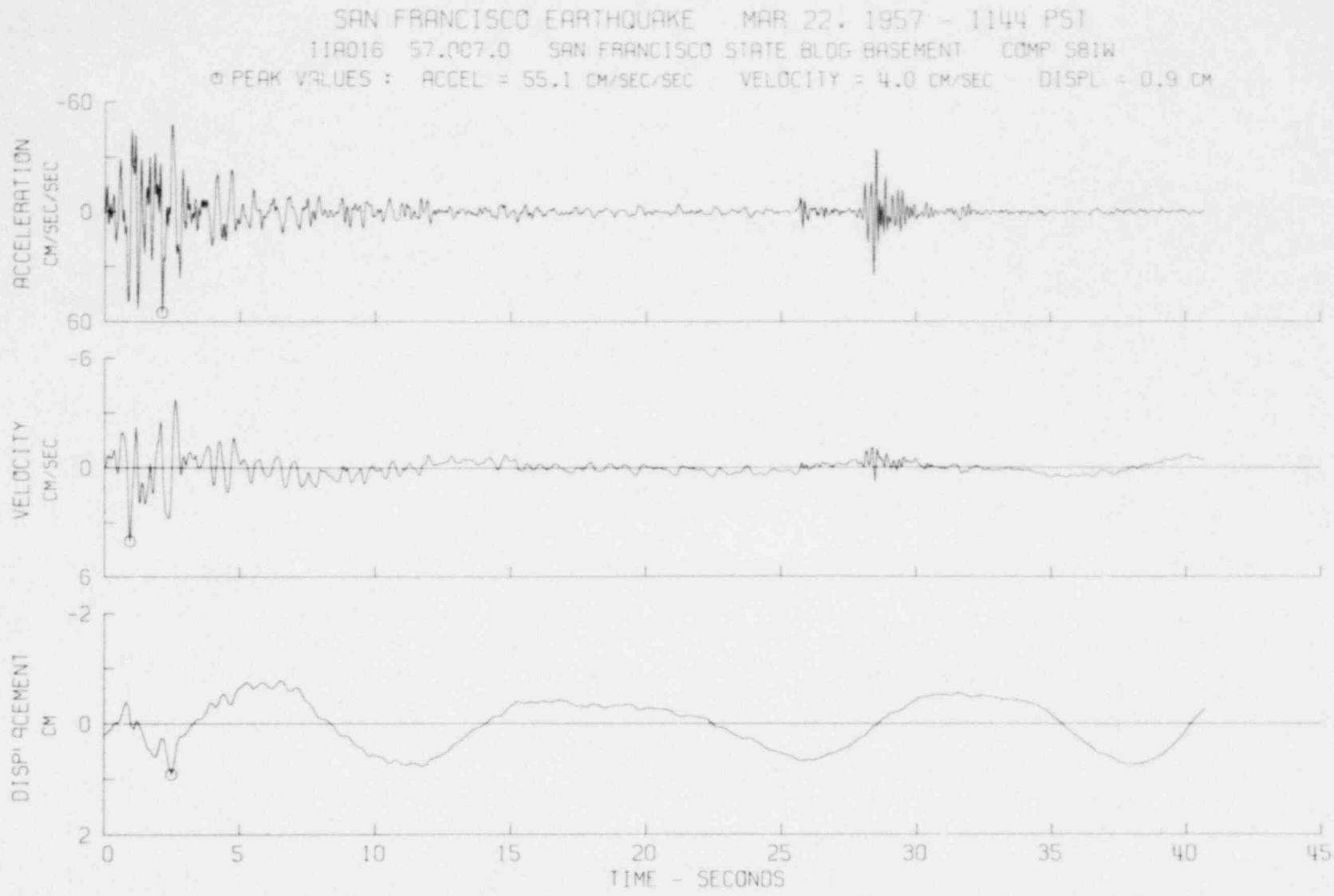

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
1IA016 57.0C7.0 SAN FRANCISCO STATE BLDG BASEMENT COMP S81W
PEAK VALUES : ACCEL = 55.1 CM/SEC/SEC VELOCITY = 4.0 CM/SEC DISPL = 0.9 CM
ACCELERATION CM/SEC/SEC
-60
0
60
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A2-5

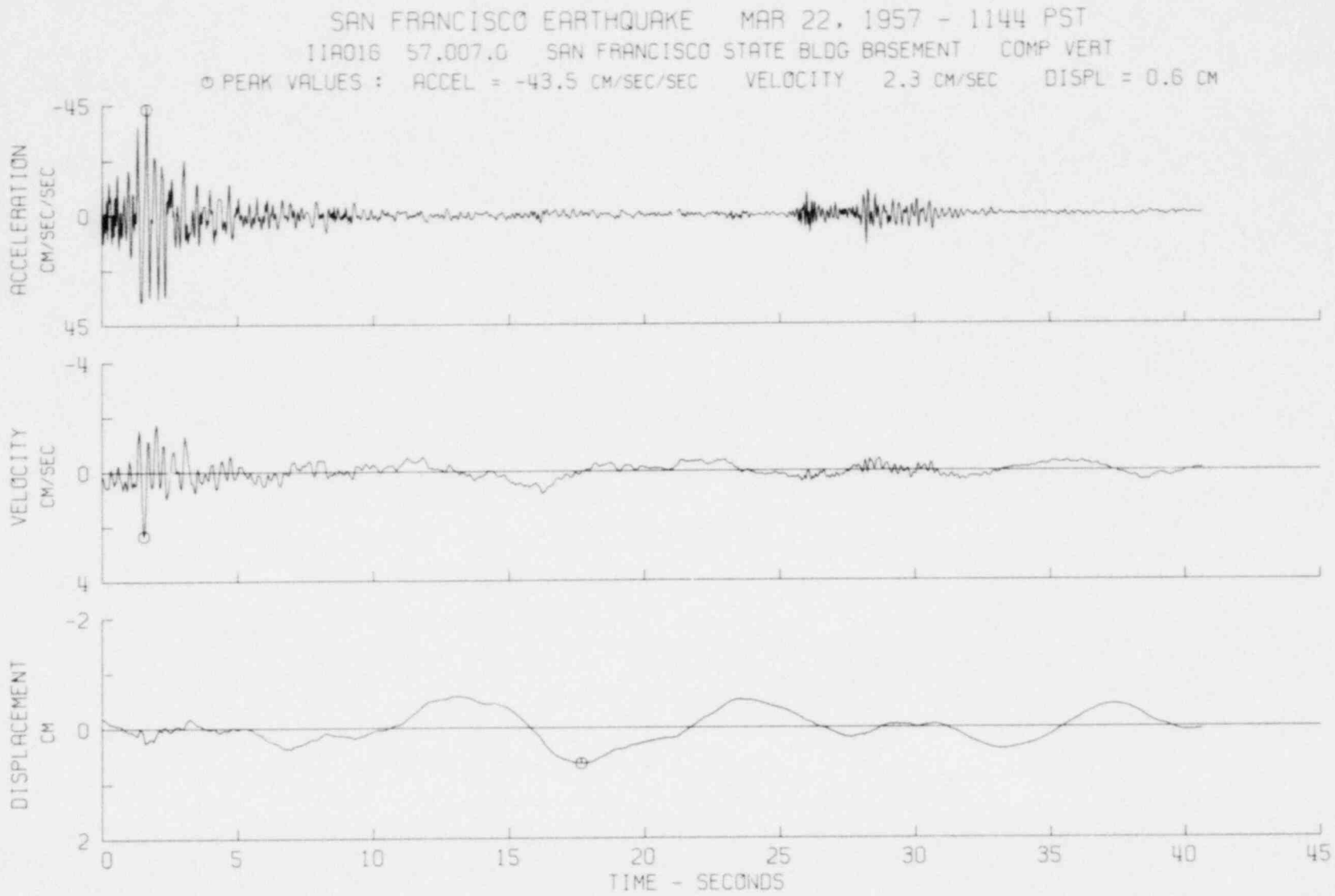

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
1IA016 57.007.0 SAN FRANCISCO STATE BLDG BASEMENT COMP VERT
PEAK VALUES : ACCEL = -43.5 CM/SEC/SEC VELOCITY 2.3 CM/SEC DISPL = 0.6 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A2-6

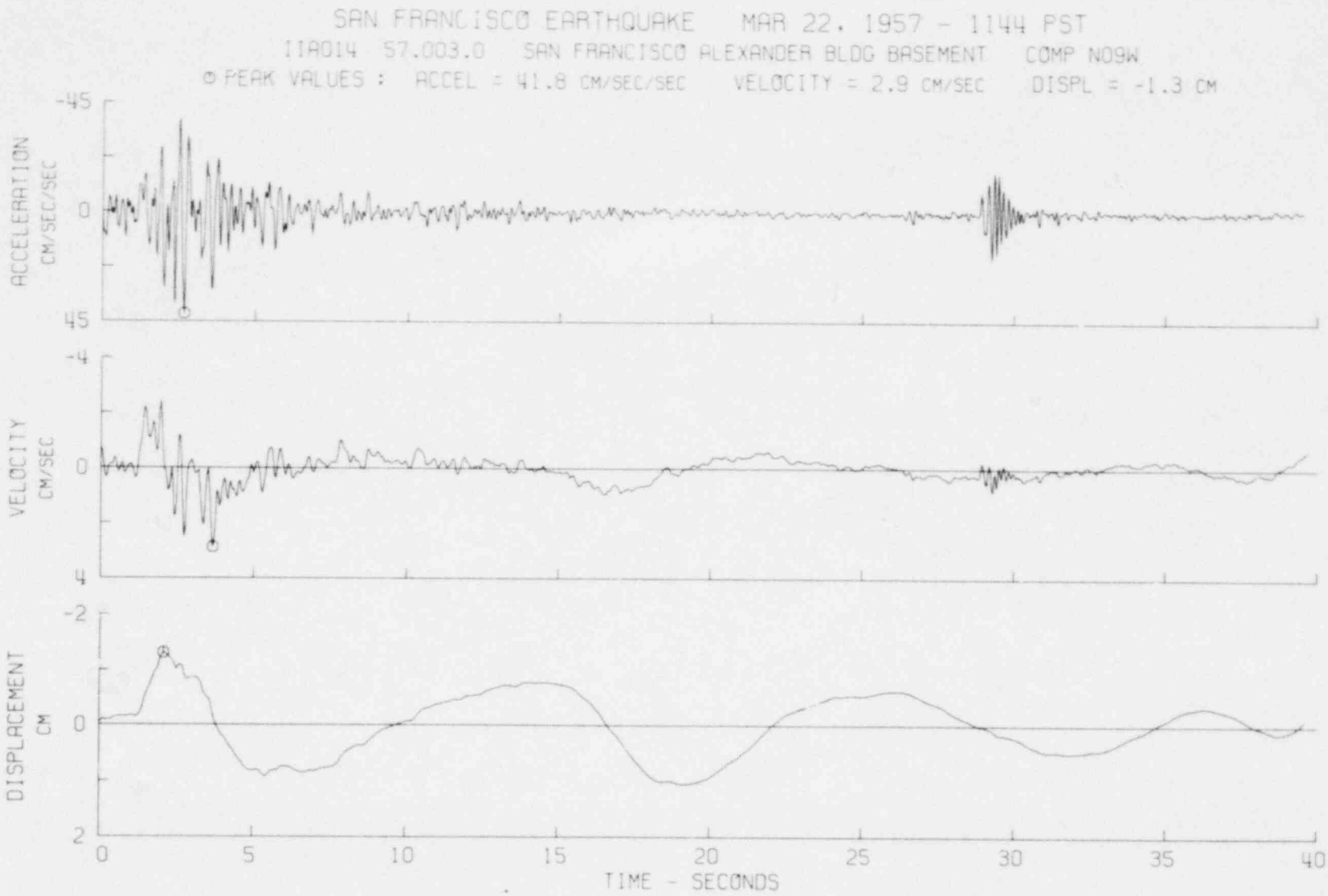

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA014 S7.003.0 SAN FRANCISCO ALEXANDER BLDG BASEMENT COMP N09W
PEAK VALUES : ACCEL = 41.8 CM/SEC/SEC VELOCITY = 2.9 CM/SEC DISPL = -1.3 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A2-7

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
1144 14 57.003.0 SAN FRANCISCO ALEXANDER BLDG BASEMENT COMP NOIE
PEAK VALUES : ACCEL = -45.4 CM/SEC/SEC VELOCITY = -2.1 CM/SEC DISPL = 1.0 CM
ACCELERATION
CM/SEC/SEC
-50
0
50
VELOCITY
CM/SEC
-4
0
4
DISPLACEMENT
CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A2-8

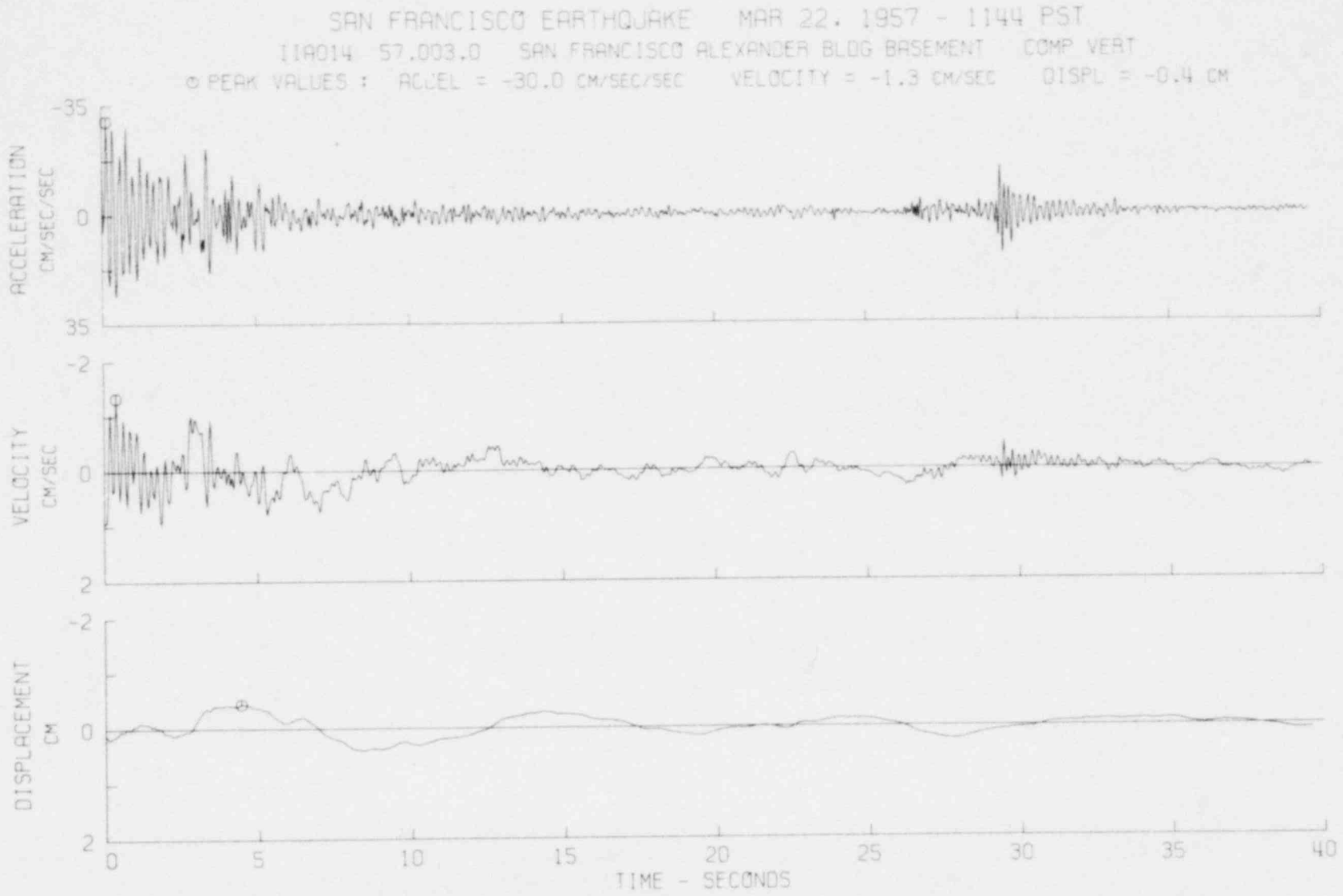

SAN FRANCISCO EARTHQUAKE MAR 22. 1957 - 1144 PST
IIA014 57.003.0 SAN FRANCISCO ALEXANDER BLDG BASEMENT COMP VERT
⊙ PEAK VALUES : ACCEL = -30.0 CM/SEC/SEC VELOCITY = -1.3 CM/SEC DISPL = -0.4 CM
ACCELERATION CM/SEC/SEC
-35
0
35
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A2-9

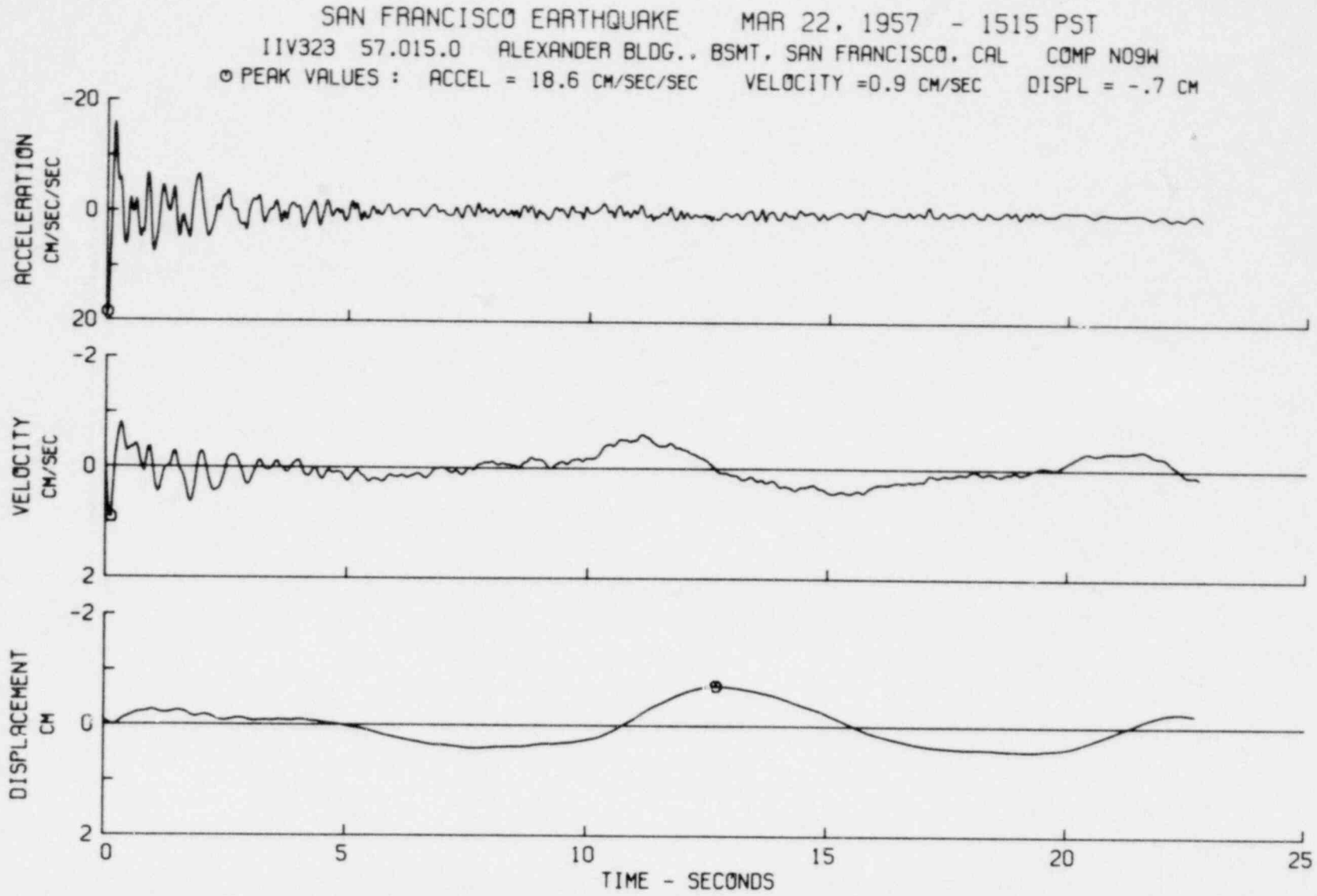

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IIV323 57.015.0 ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL COMP N09W
⊙ PEAK VALUES : ACCEL = 18.6 CM/SEC/SEC VELOCITY =0.9 CM/SEC DISPL = -.7 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
TIME - SECONDS

FIG. A2-10

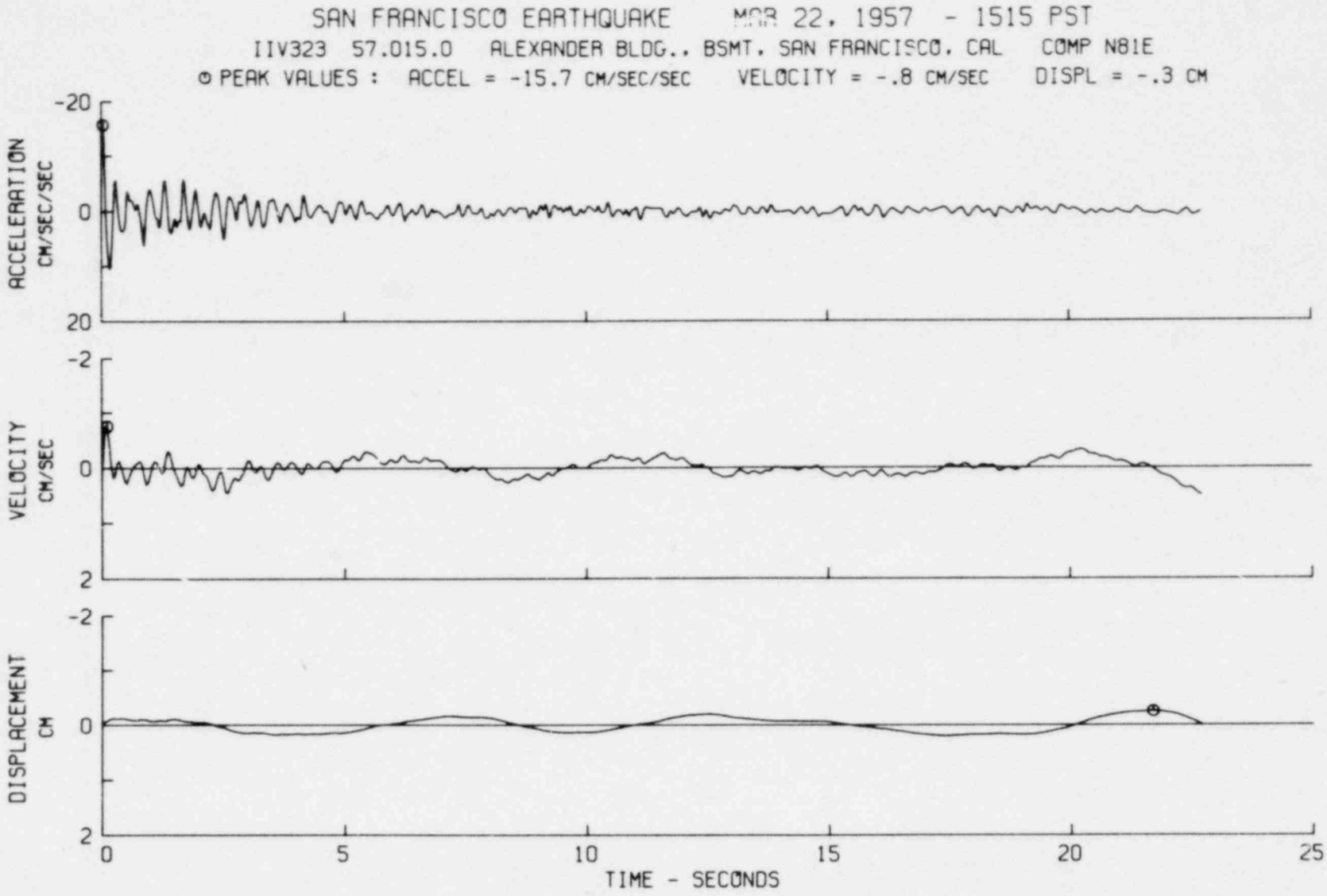

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IIV323 57.015.0 ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL COMP N81E
⊙ PEAK VALUES : ACCEL = -15.7 CM/SEC/SEC VELOCITY = -.8 CM/SEC DISPL = -.3 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
TIME - SECONDS

FIG. A2-11

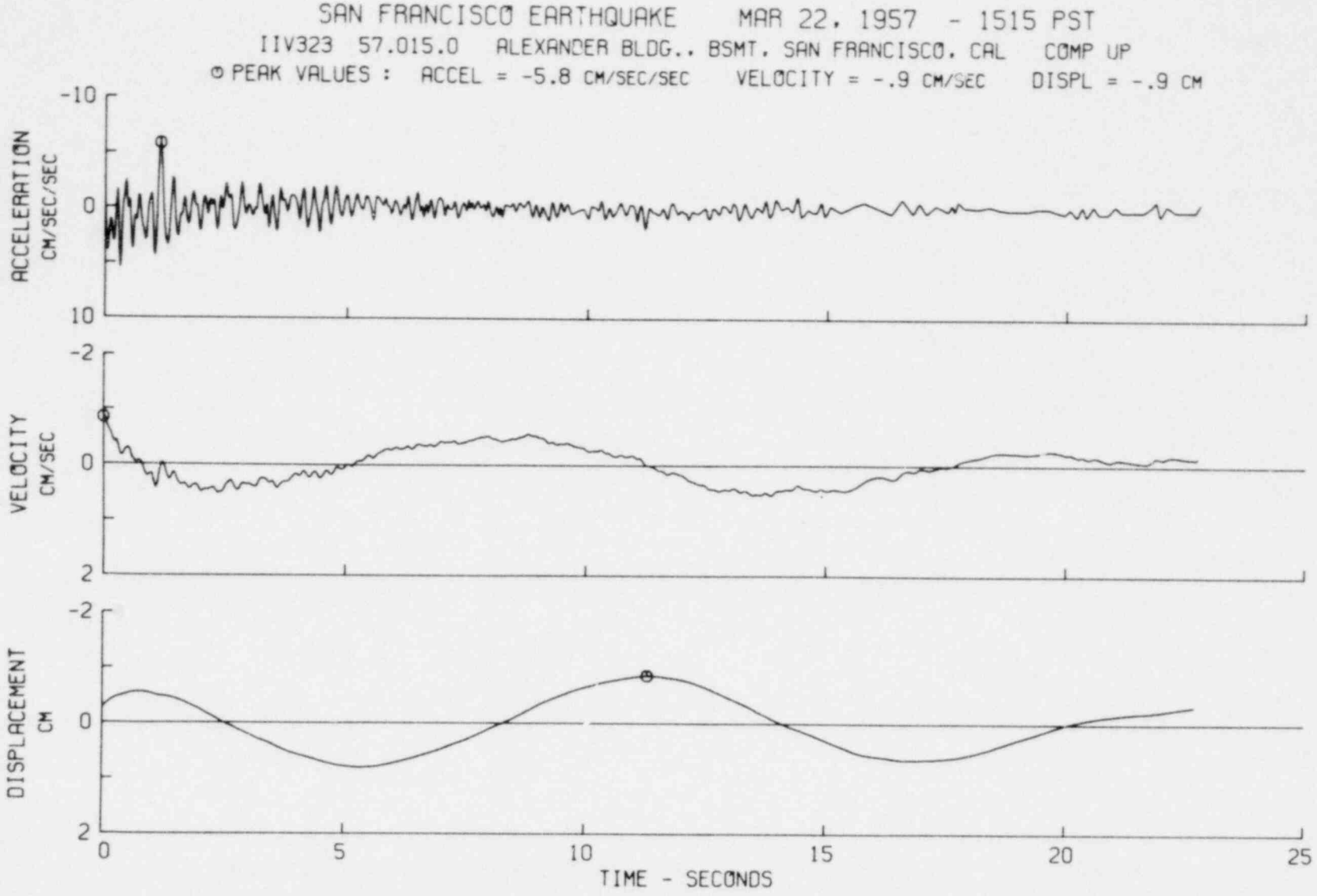

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IIV323 57.015.0 ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL COMP UP
PEAK VALUES : ACCEL = -5.8 CM/SEC/SEC VELOCITY = -.9 CM/SEC DISPL = -.9 CM
ACCELERATION CM/SEC/SEC
-10
0
10
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
TIME - SECONDS

FIG. A2-12

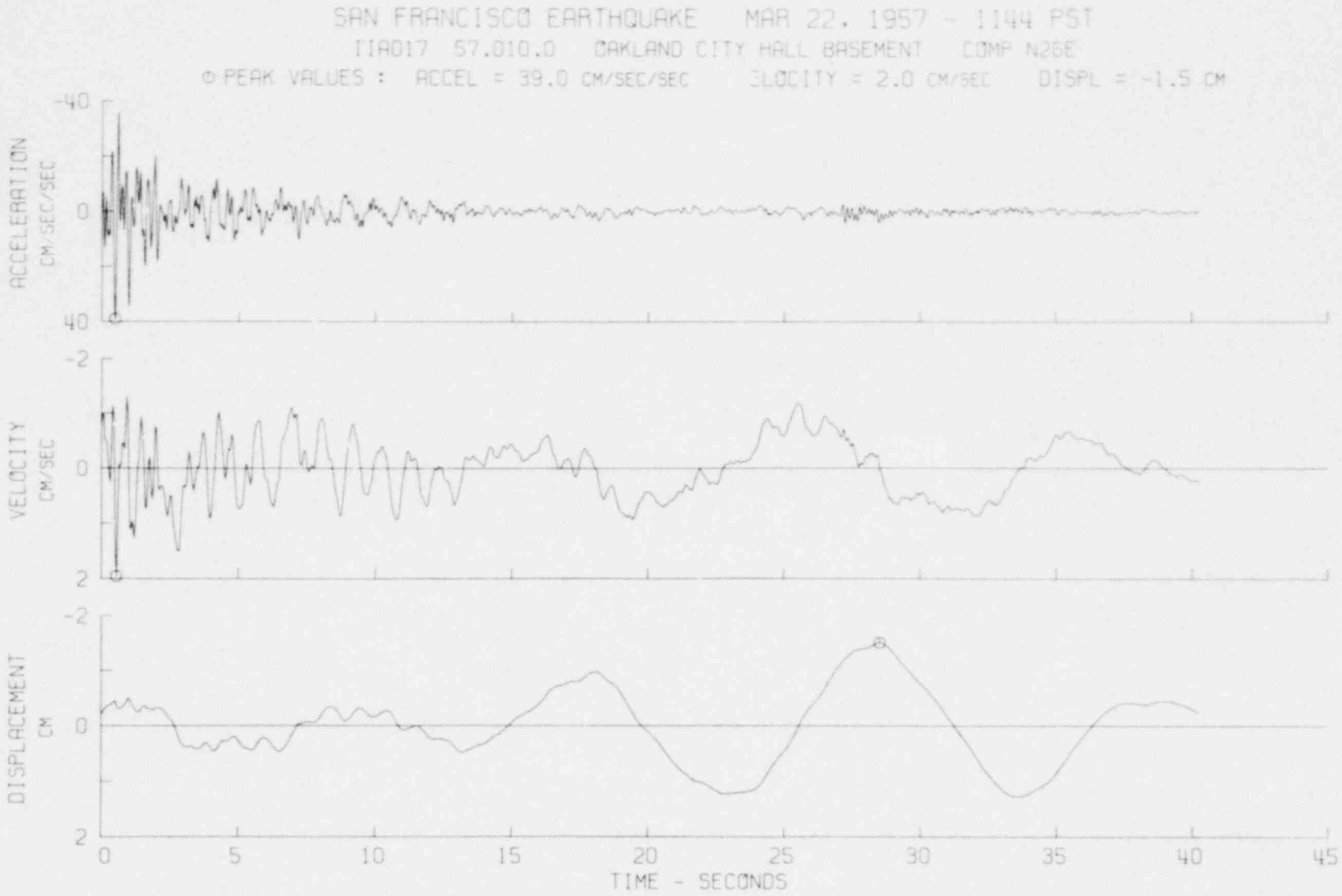

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA017 57.010.0 OAKLAND CITY HALL BASEMENT COMP N26E
⊙ PEAK VALUES : ACCEL = 39.0 CM/SEC/SEC VELOCITY = 2.0 CM/SEC DISPL = -1.5 CM
ACCELERATION CM/SEC/SEC
-40
0
40
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A2-13

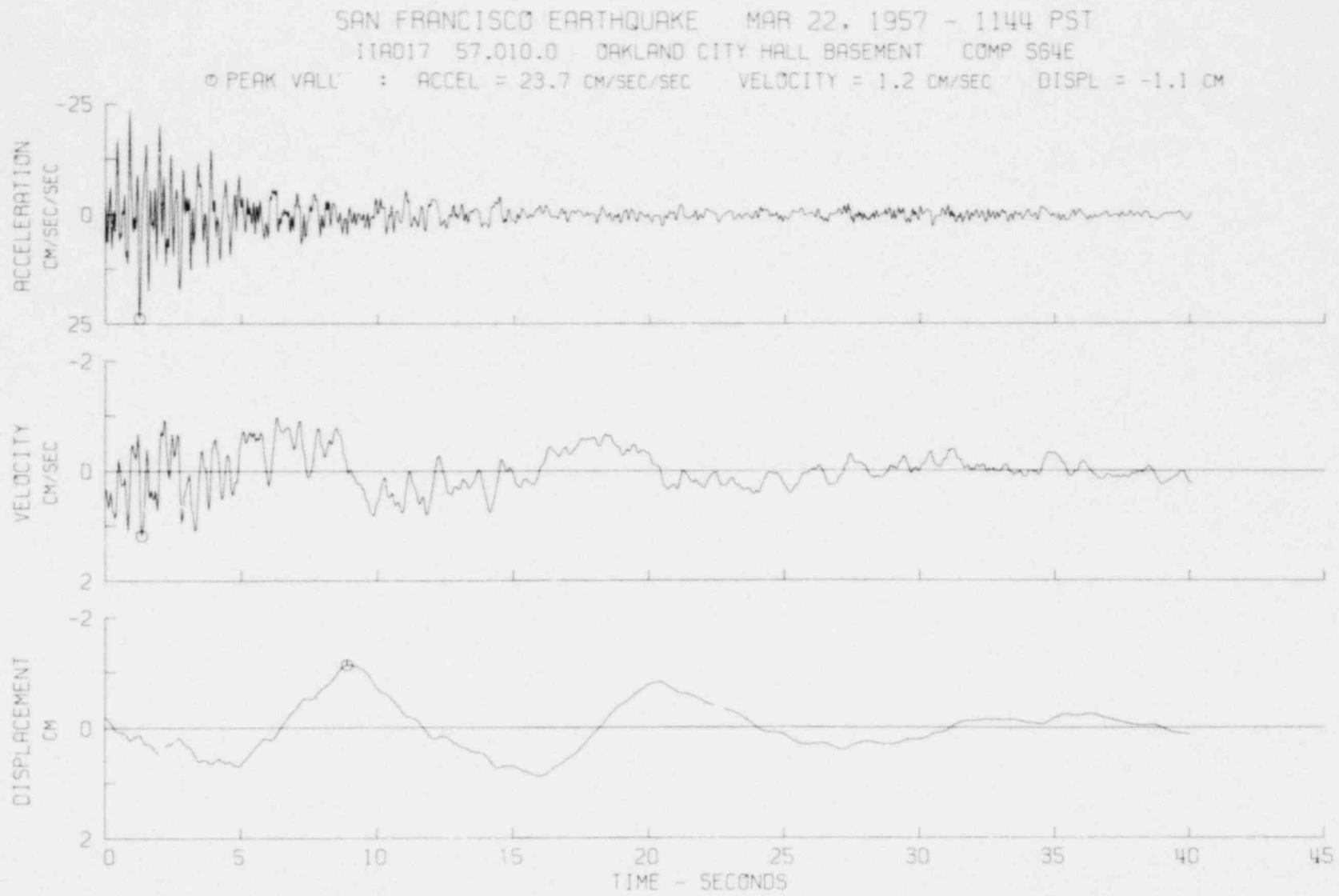

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST
IIA017 57.010.0 OAKLAND CITY HALL BASEMENT COMP S64E
PEAK VALUE : ACCEL = 23.7 CM/SEC/SEC VELOCITY = 1.2 CM/SEC DISPL = -1.1 CM
ACCELERATION CM/SEC/SEC
-25
0
25
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A2-14

SAN FRANCISCO EARTHQUAKE MAR 22. 1957 - 1144 PST
IIA017 57.010.0 OAKLAND CITY HALL BASEMENT COMP VERT
PEAK VALUES : ACCEL = 15.3 CM/SEC/SEC VELOCITY = 0.9 CM/SEC DISPL = -1.3 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A2-15

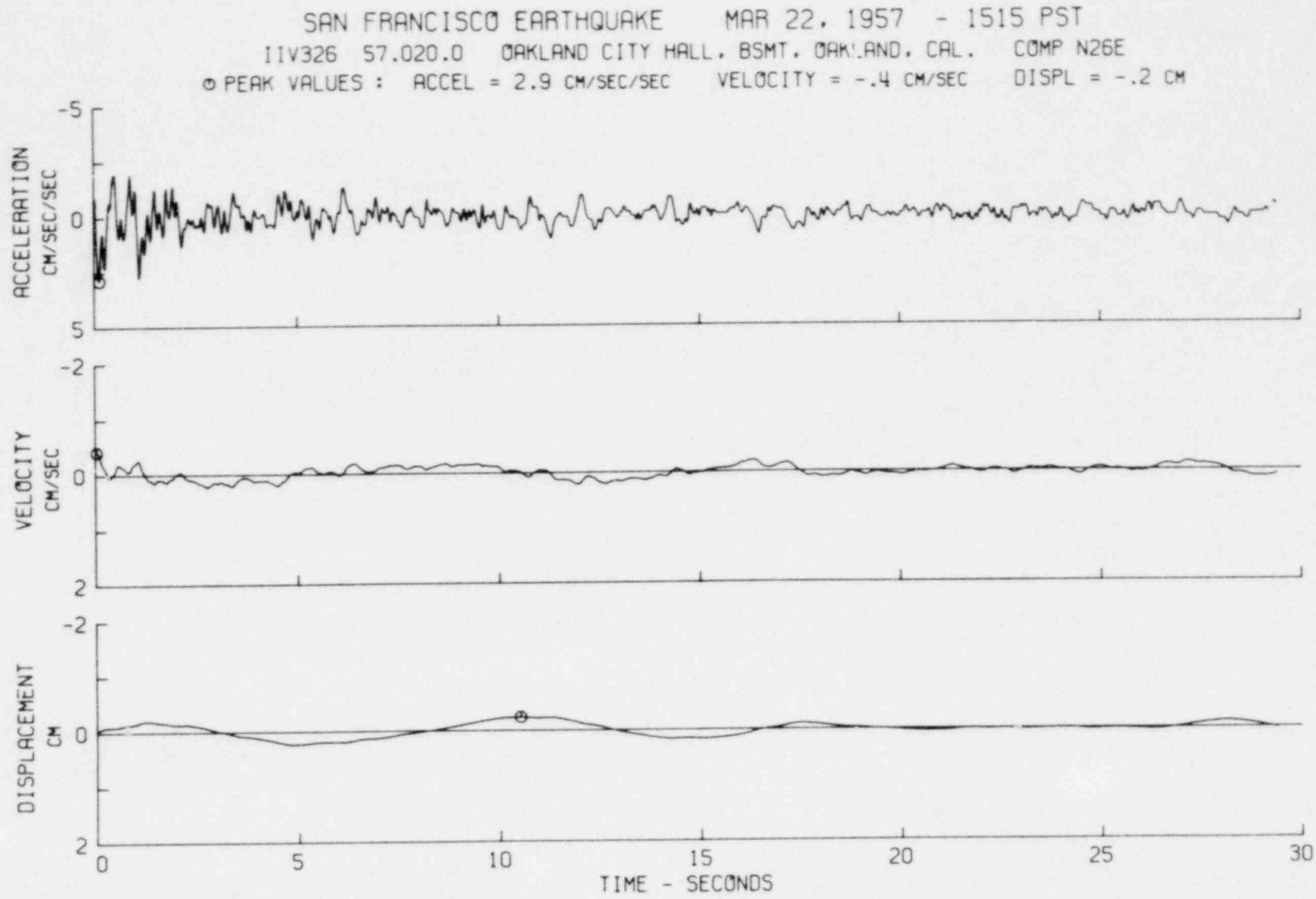

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IIV326 57.020.0 OAKLAND CITY HALL, BSMT, OAKLAND, CAL. COMP N26E
PEAK VALUES : ACCEL = 2.9 CM/SEC/SEC VELOCITY = -.4 CM/SEC DISPL = -.2 CM
ACCELERATION CM/SEC/SEC
-5
0
5
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A2-16

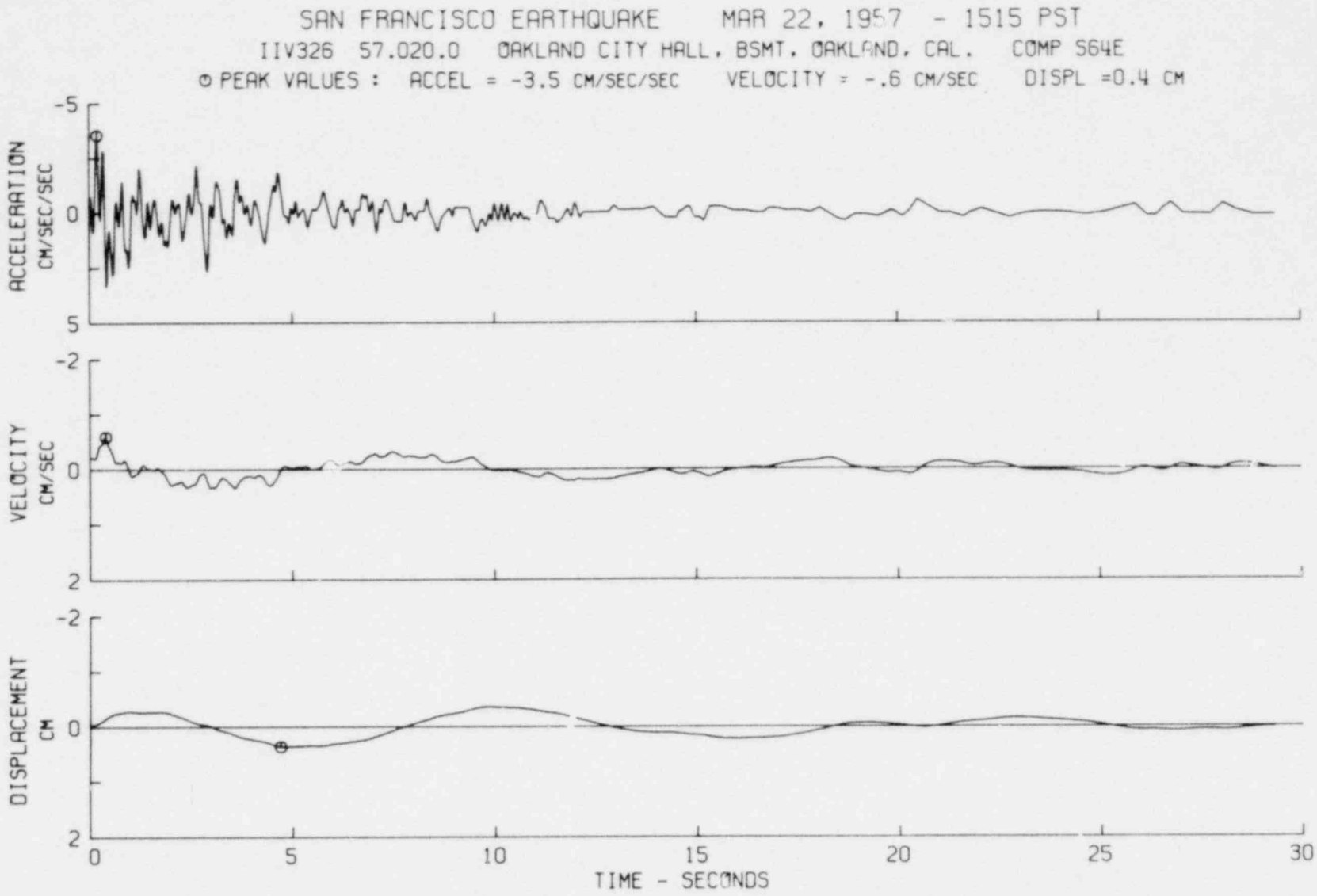

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IIV326 57.020.0 OAKLAND CITY HALL, BSMT, OAKLAND, CAL. COMP S64E
⊙ PEAK VALUES : ACCEL = -3.5 CM/SEC/SEC VELOCITY = -.6 CM/SEC DISPL =0.4 CM
ACCELERATION CM/SEC/SEC
VELOCITY CM/SEC
DISPLACEMENT CM
-5
0
5
-2
0
2
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A2-17

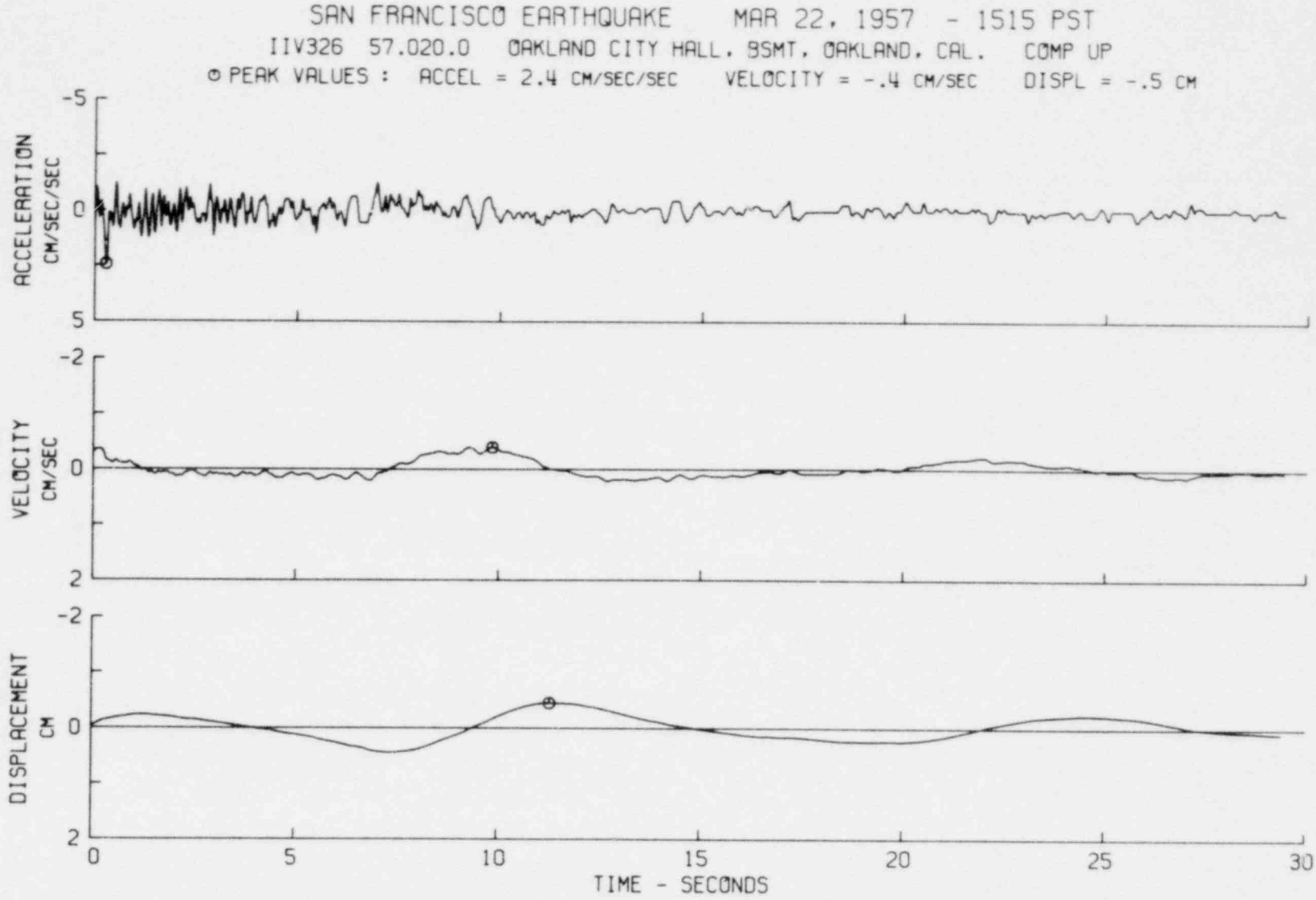

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IIV326 57.020.0 OAKLAND CITY HALL, BSMT, OAKLAND, CAL. COMP UP
⊙ PEAK VALUES : ACCEL = 2.4 CM/SEC/SEC VELOCITY = -.4 CM/SEC DISPL = -.5 CM
ACCELERATION CM/SEC/SEC
-5
0
5
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A2-18

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

IIIA015 S7.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP S80E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

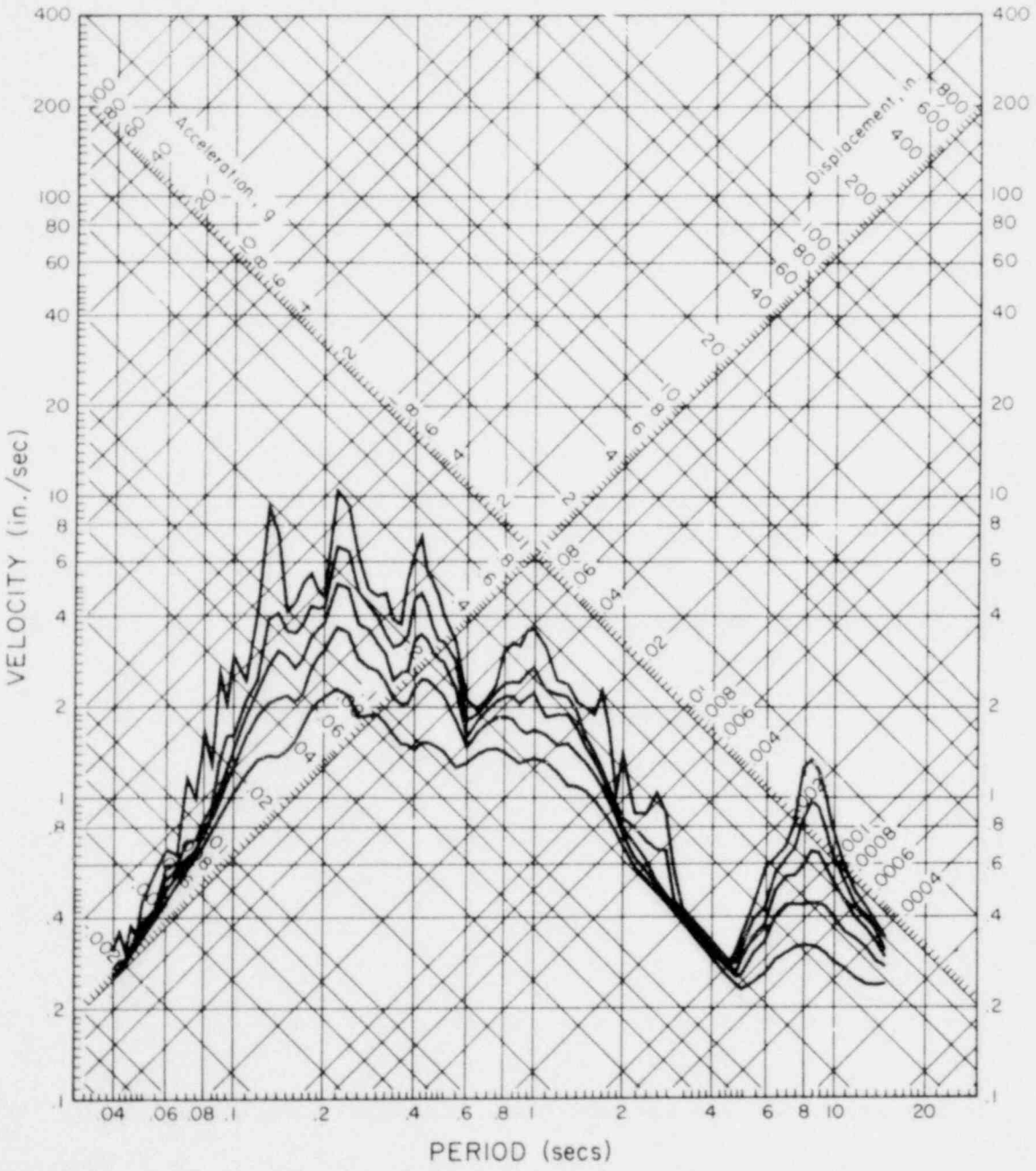


FIG. A2-19

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

III A015 57.006.0 SAN FRANCISCO GOLDEN GATE PARK COMP N10E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

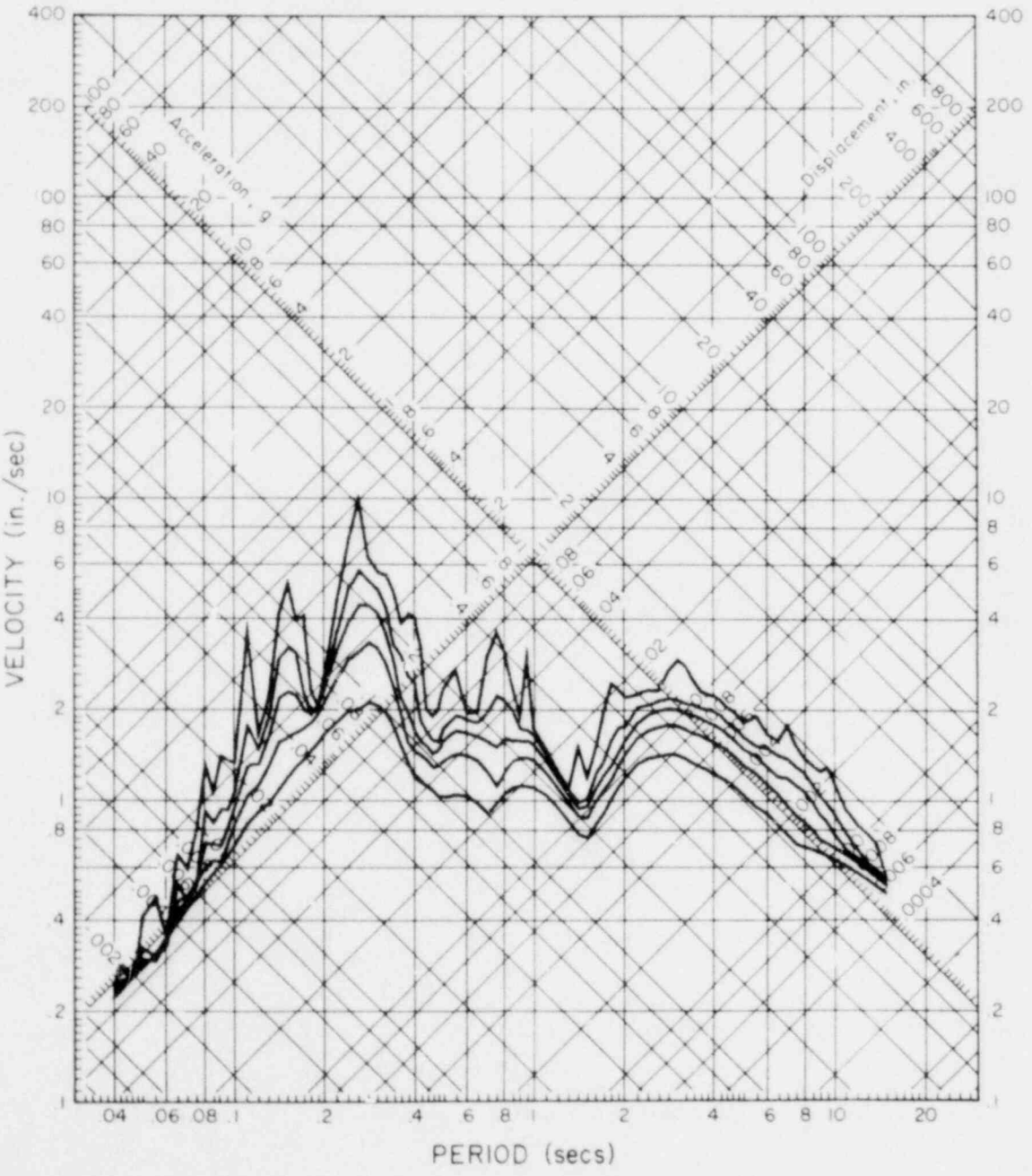


FIG. A2-20

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22. 1957 - 1144 PST

IIIA015 57 006 0 SAN FRANCISCO GOLDEN GATE PARK COMP VERT

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

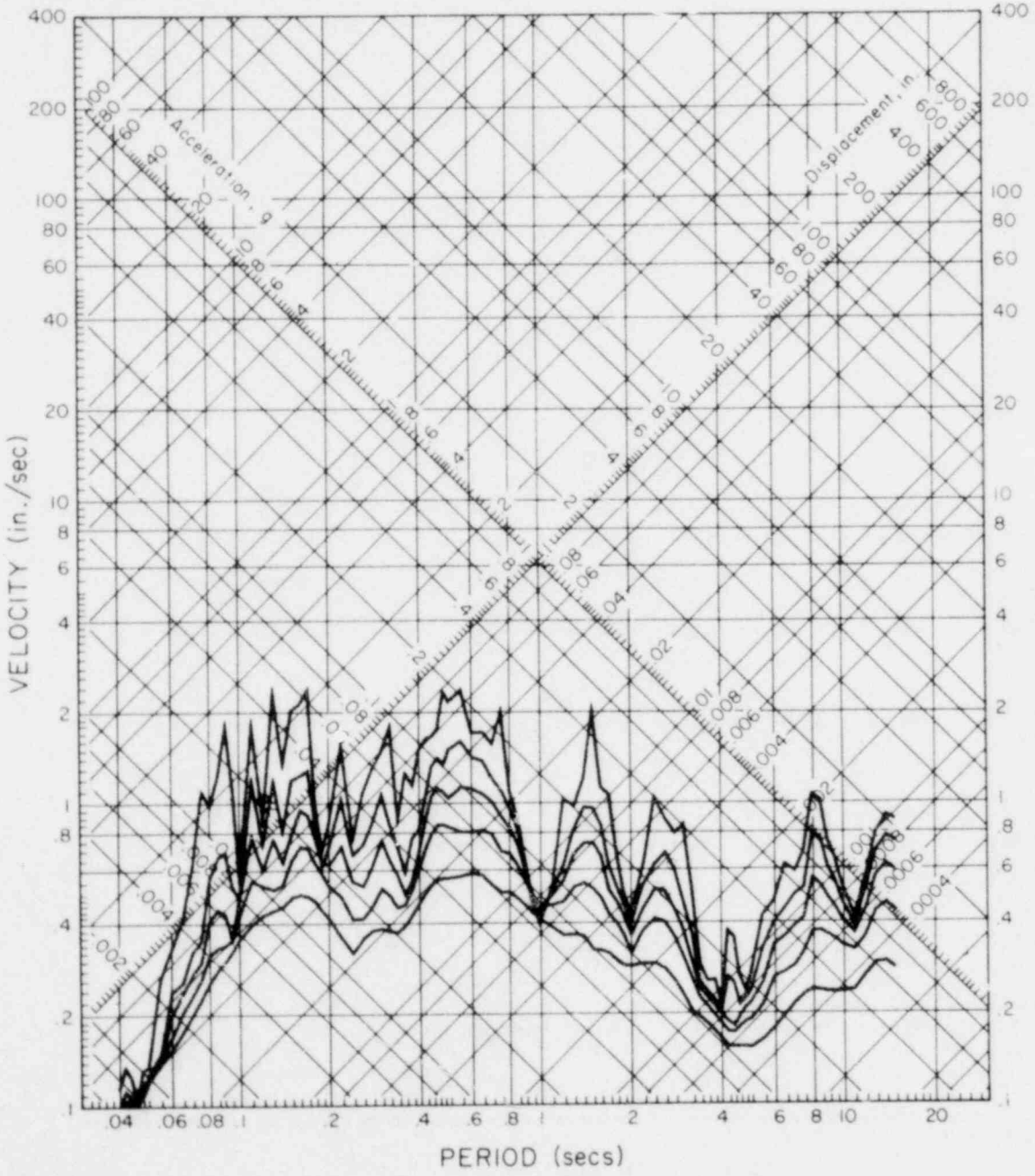


FIG. A2-21

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

IIIA016 57.007.0 SAN FRANCISCO STATE BLDG BASEMENT COMP S09E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

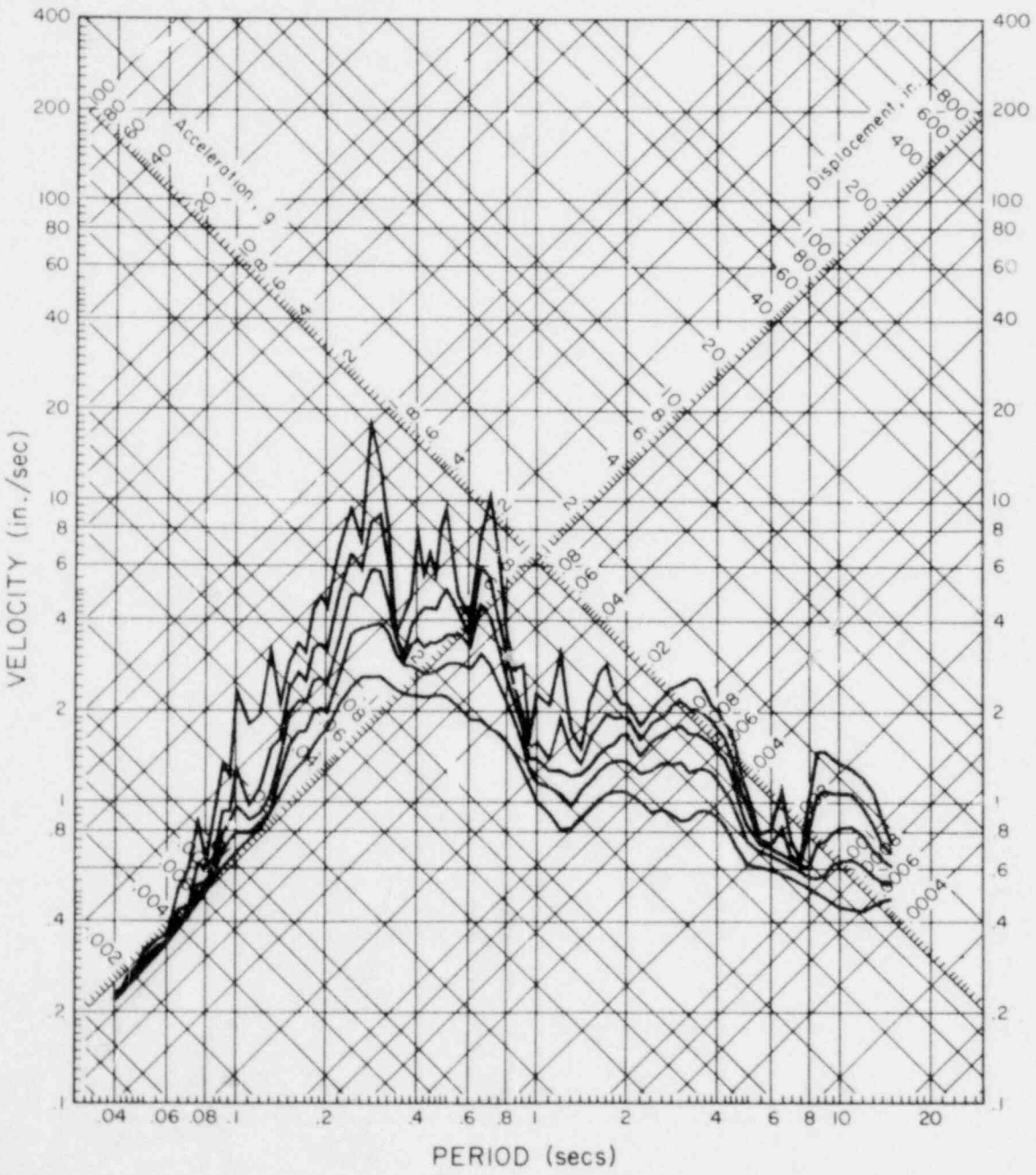


FIG. A2-22

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

III A016 57.007.0 SAN FRANCISCO STATE BLDG BASEMENT COMP S81W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

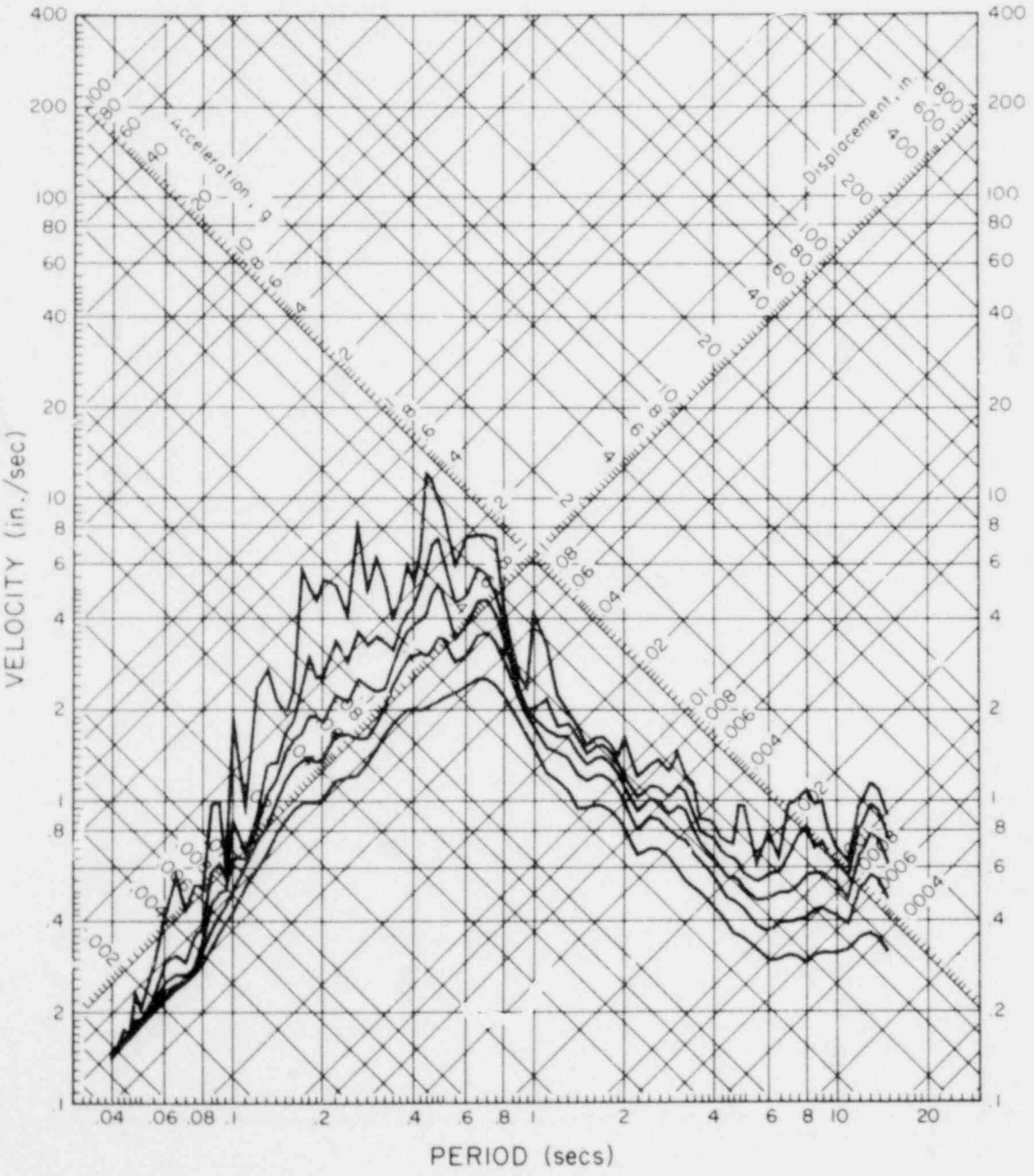


FIG. A2-23

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

IIIA016 57.007.0 SAN FRANCISCO STATE BLDG BASEMENT COMP VERT

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

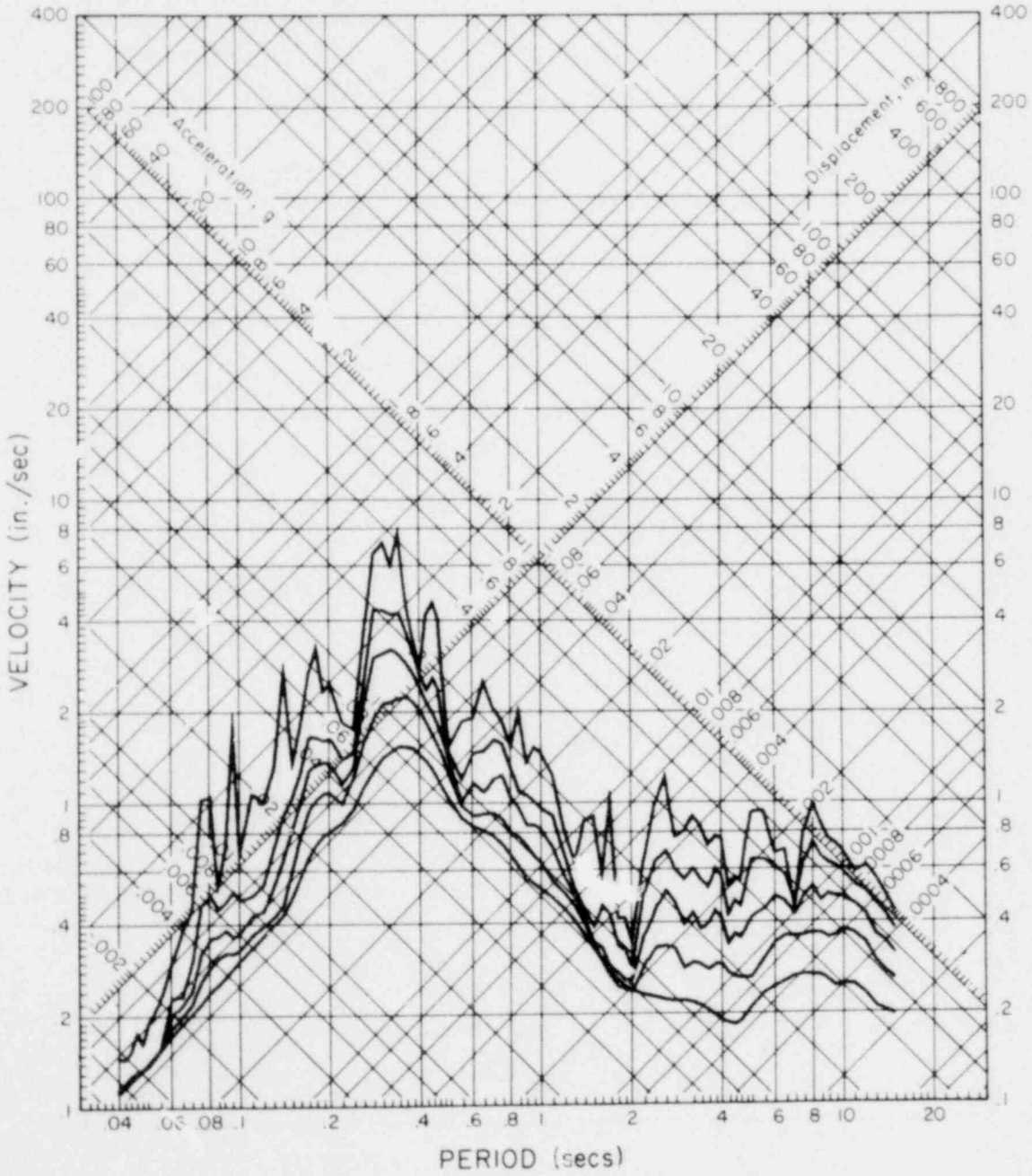


FIG. A2-24

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

IIIA014 57.003.0 SAN FRANCISCO ALEXANDER BLDG BASEMENT COMP N03W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

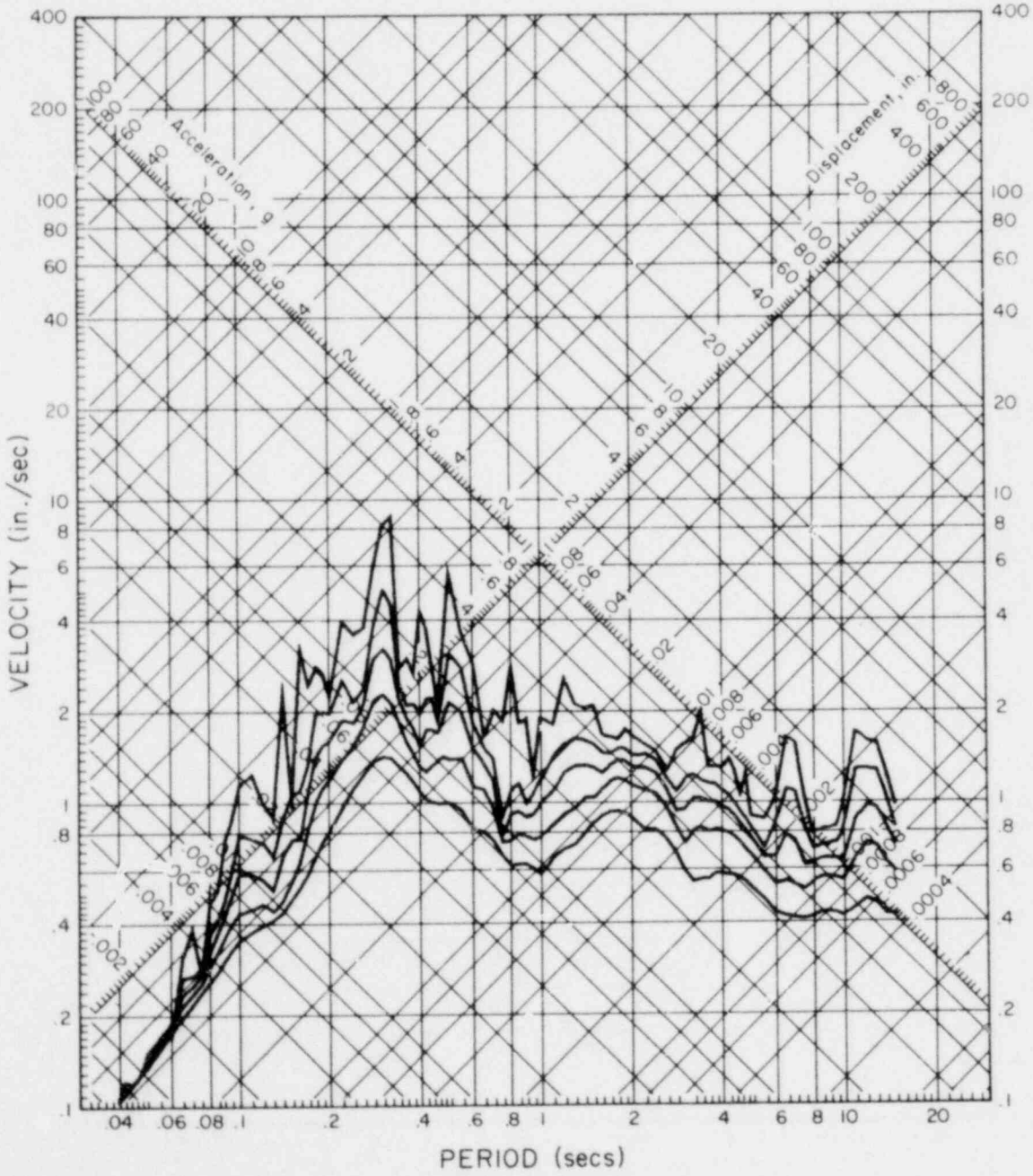


FIG. A2-25

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

IIIA014 57.003.0 SAN FRANCISCO ALEXANDER BLDG BASEMENT COMP N81E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

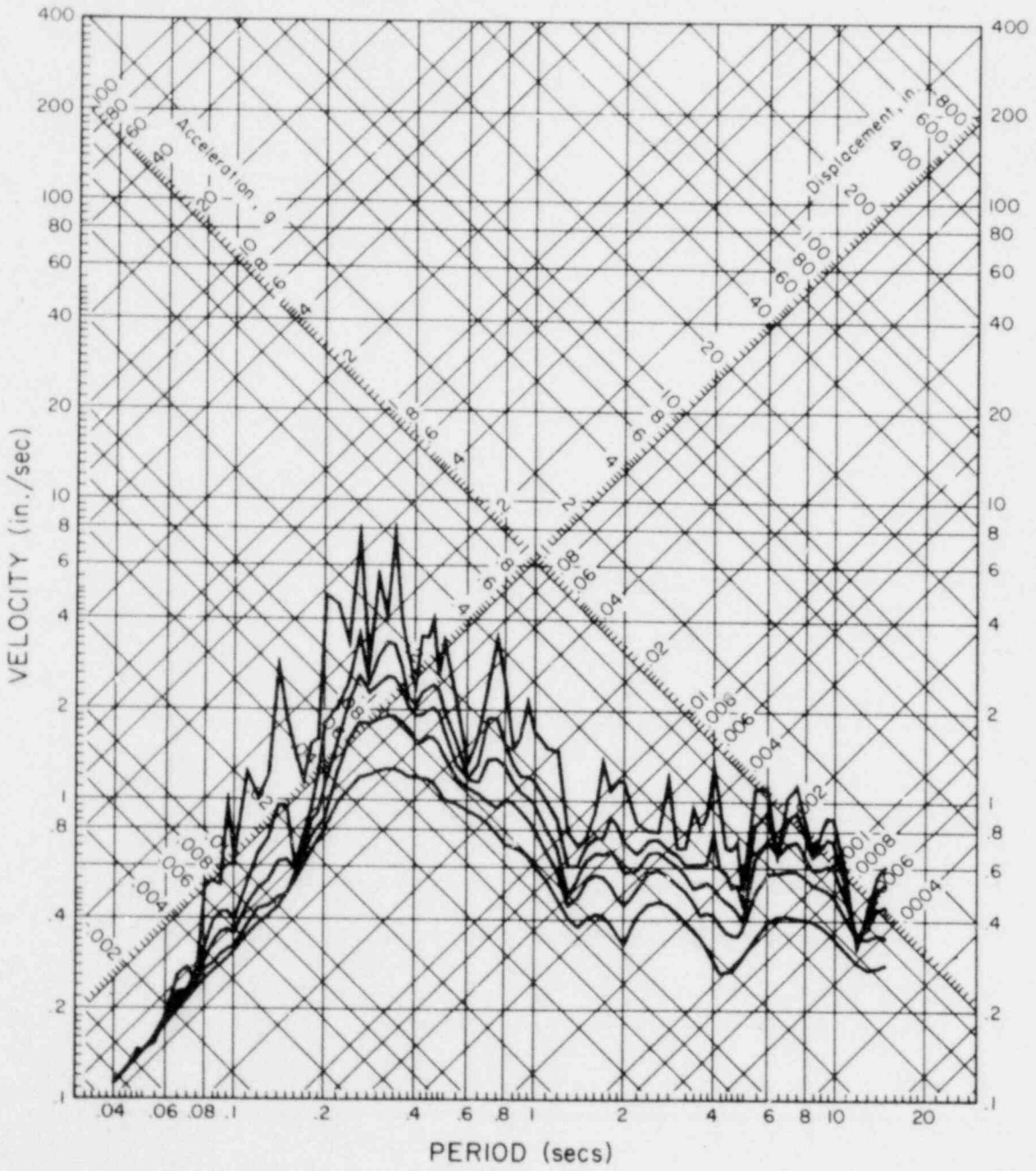


FIG. A2-26

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

III A014 57.003.0 SAN FRANCISCO ALEXANDER BLDG BASEMENT COMP VERT

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

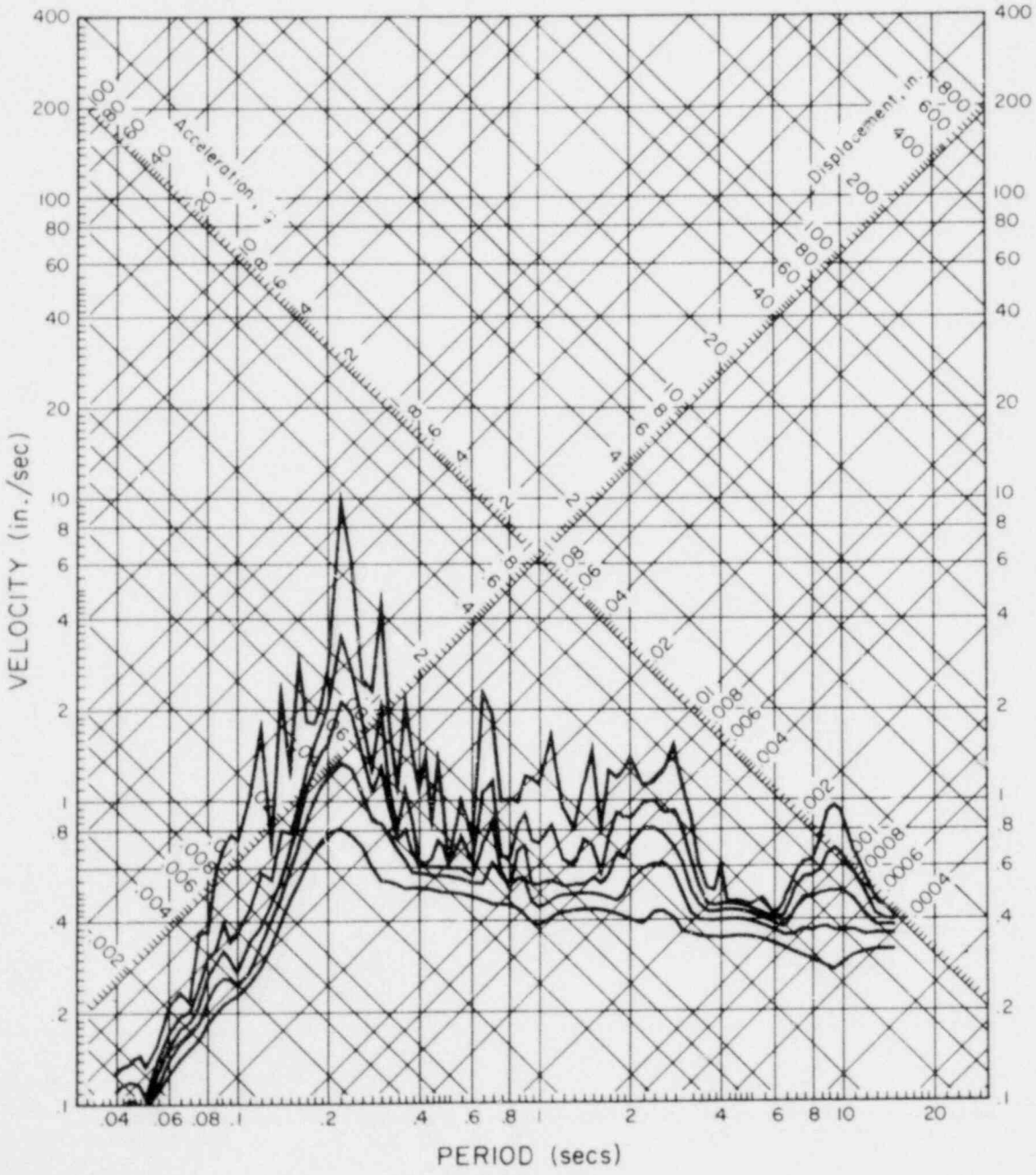


FIG. A2-27

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

IIIV323 57.015.0 ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL COMP N09W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

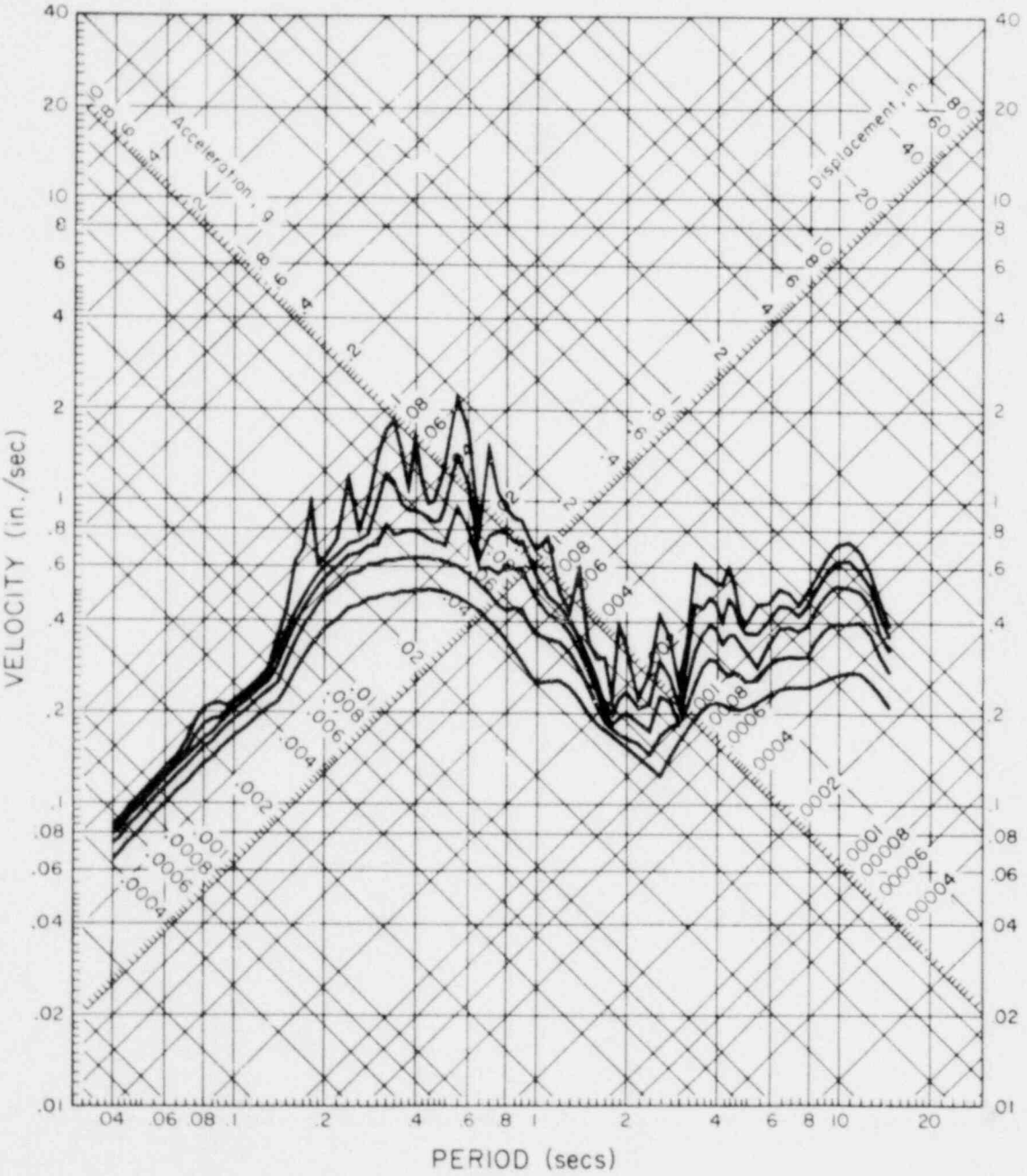


FIG. A2-28

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

IIIV323 57.015.0 ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL COMP N81E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

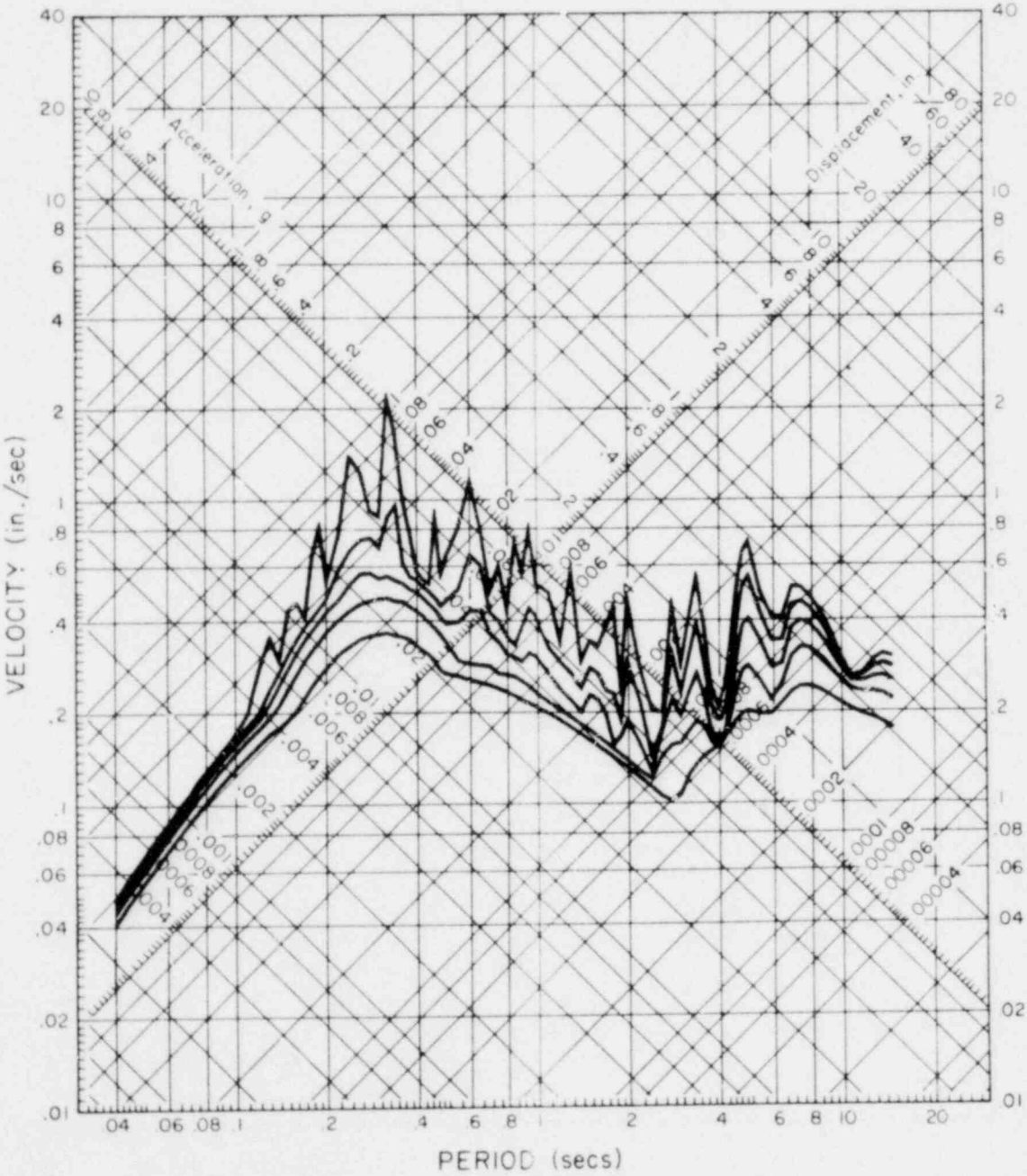


FIG. A2-29

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

IIIV323 57.015.0 ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL COMP UP

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

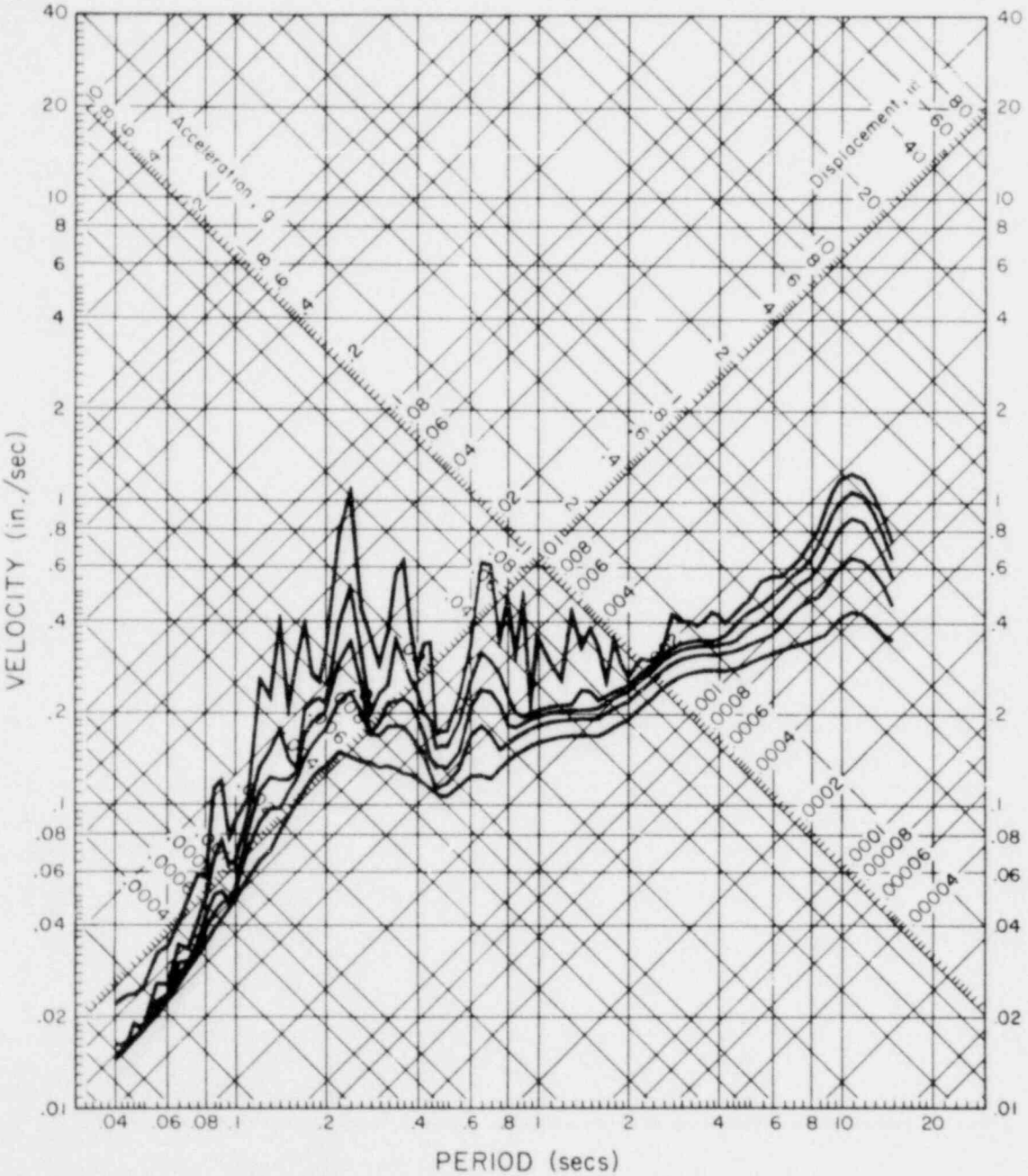


FIG. A2-30

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

III A017 57.010.0 OAKLAND CITY HALL BASEMENT COMP N26E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

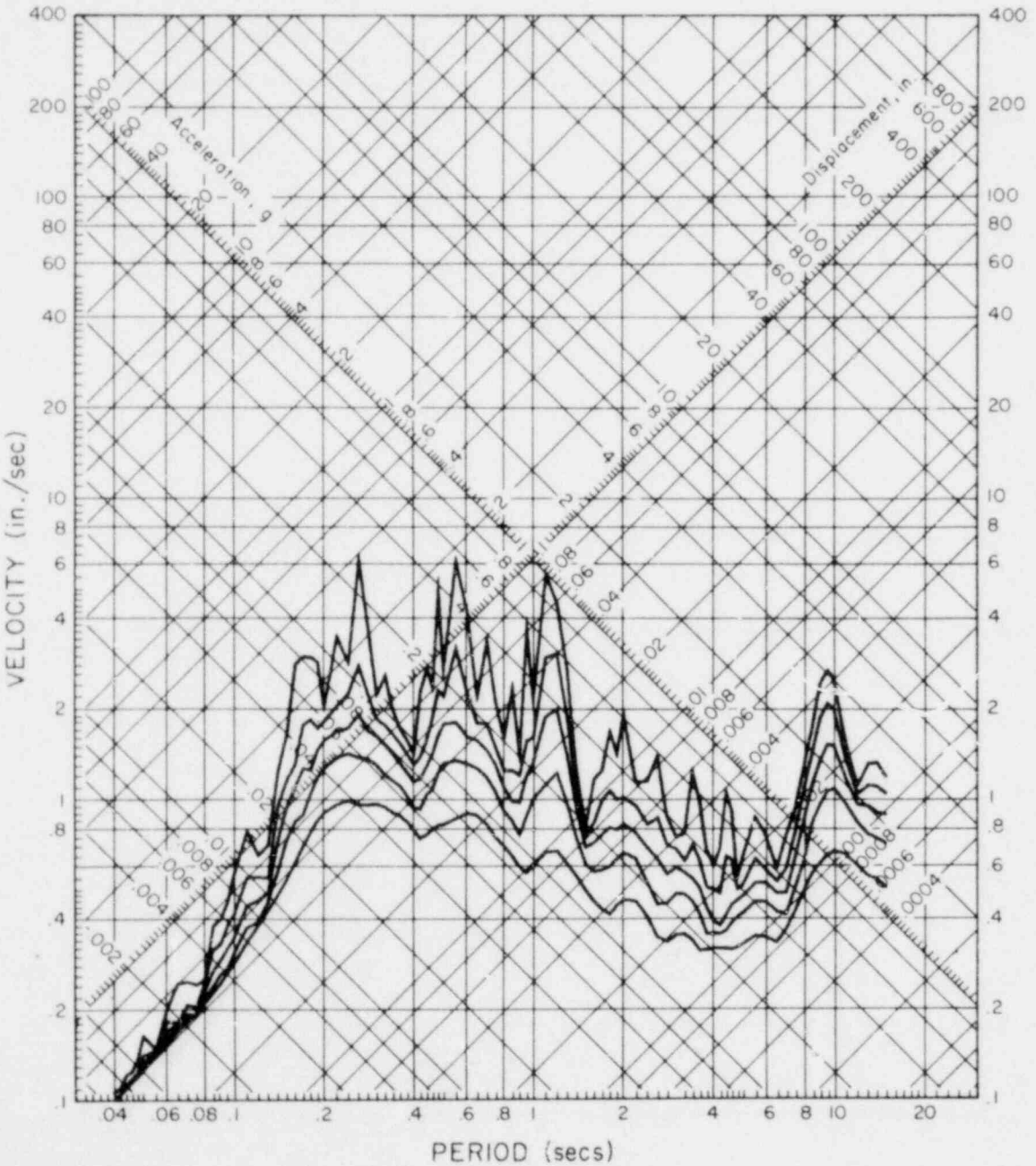


FIG. A2-31

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

III A017 57.010.0 OAKLAND CITY HALL BASEMENT COMP S64E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

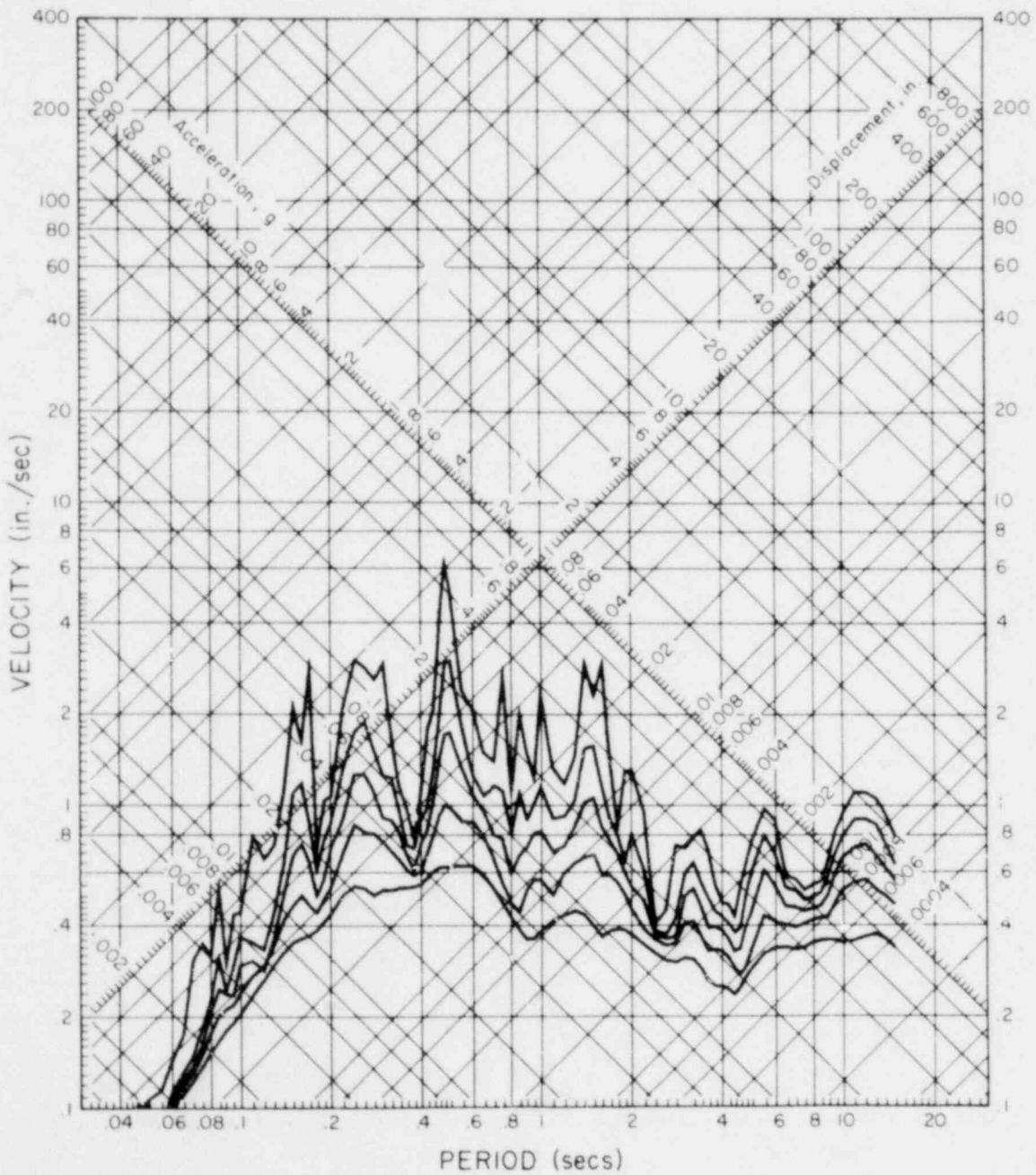


FIG. A2-32

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1144 PST

IIIA017 57.010.0 OAKLAND CITY HALL BASEMENT COMP VERT

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

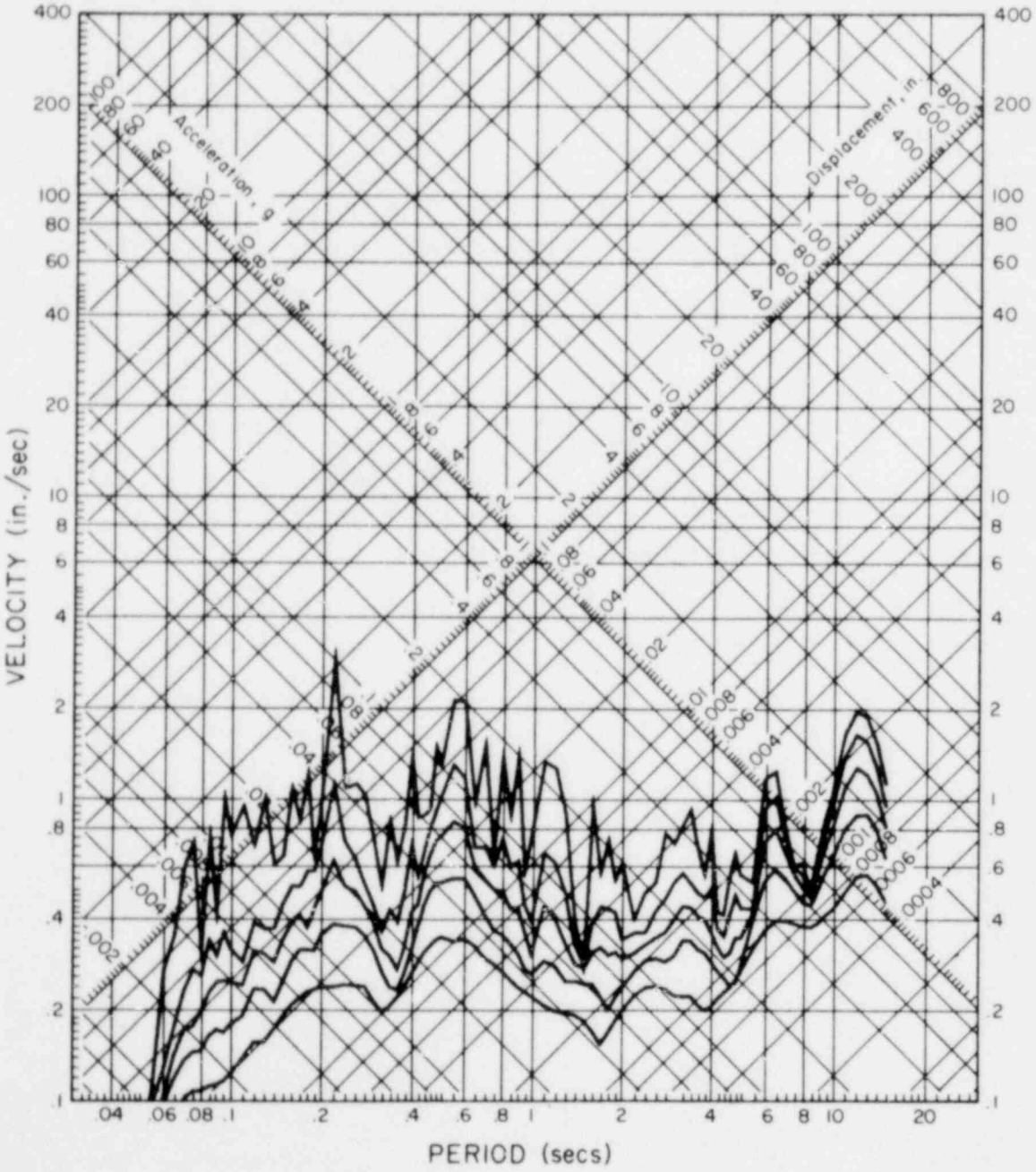


FIG. A2-33

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

II:V326 57.020.0 OAKLAND CITY HALL, BSMT, OAKLAND, CAL. COMP N26E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

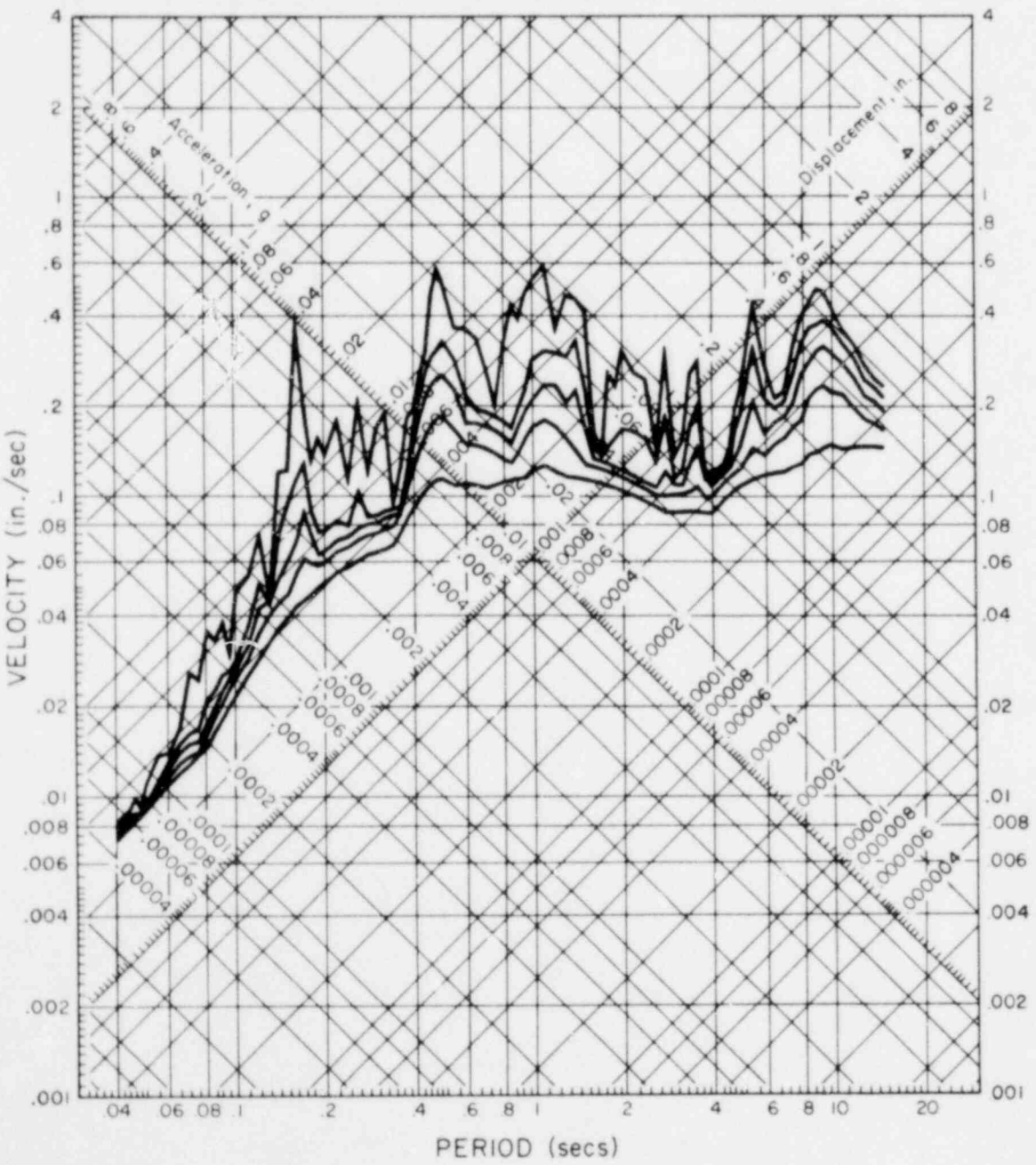


FIG. A2-34

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

IIIV326 57.020.0 OAKLAND CITY HALL, BSMT, OAKLAND, CAL. COMP S64E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

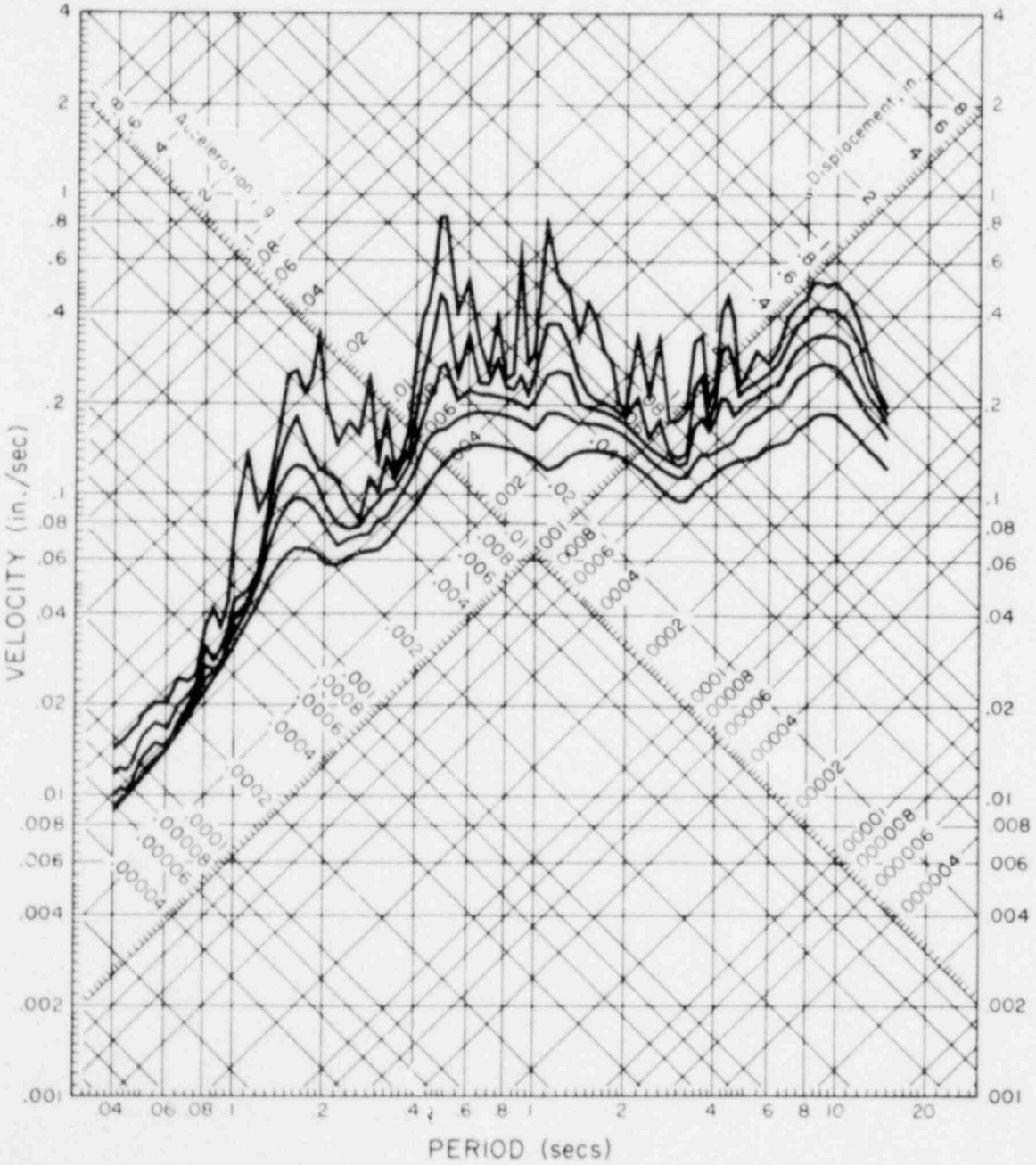


FIG. A2-35

RESPONSE SPECTRUM

SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

IIIV326 57.020.0 OAKLAND CITY HALL, BSMT, OAKLAND, CAL. COMP UP

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

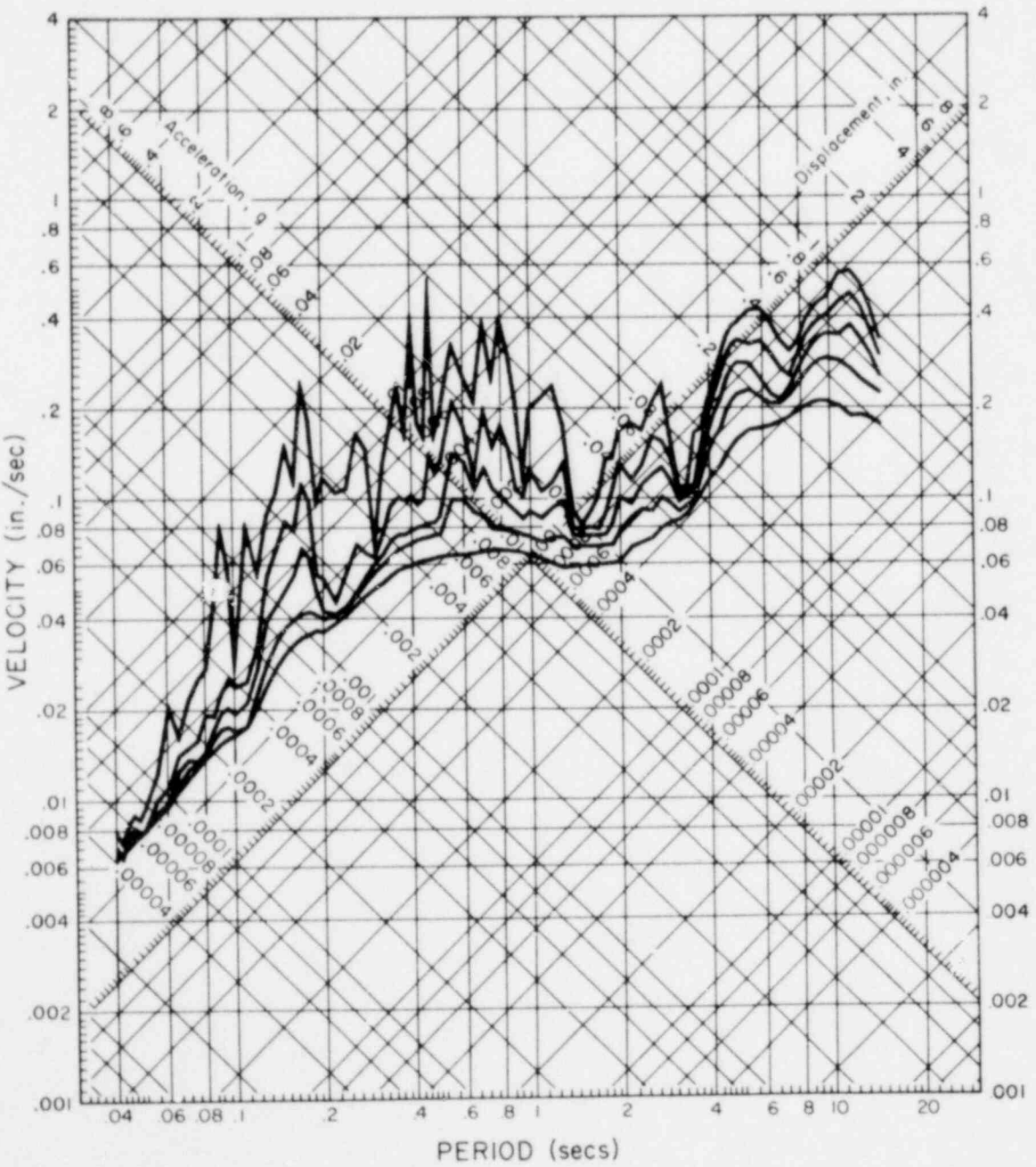


FIG. A2-36

Section A3
San Luis Obispo Region

TABLE A3-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT SAN LUIS OBISPO REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance from Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
52	7	21	3:52	Kern County 35°00'N; 119°02'W	7.7	City Recreation Bldg. San Luis Obispo	1083	94	N36W 0.014g	S54W 0.010g	Vert 0.009g	
52	11	21	1) 23:46	S.W. California 35°50'N; 121°10'W	6.0	City Recreation Bldg. San Luis Obispo	1083	48	N36W 52.9	S54W 35.4	Up 26.4	V-319
55	03	02	07:59	Near San Ardo, Calif. 36°0'N; 120°56'W	4.8	City Recreation Bldg. San Luis Obispo	1083	52	Maximum accel. <0.05g			
66	06	27	1) 20:26	Parkfield 35°54'N; 120°54'W	5.6	City Recreation Bldg. San Luis Obispo	1083	43	N36W 14.2	S54W 11.4	Up 6.1	B-038
						Cholame-Shandon Array Temblor	1438 2) 1097 3)	24	N65W 264.3	S25W 340.8	Down 129.8	B-037

Notes:

Data obtained from the open files of the U.S. Geological Survey, Seismic Engineering Branch in Menlo Park, California, except as noted.

1) Data from Hudson, et al. (1969-1975 a and b).

2) Station discontinued in 1969.

3) Station initiated in 1969.

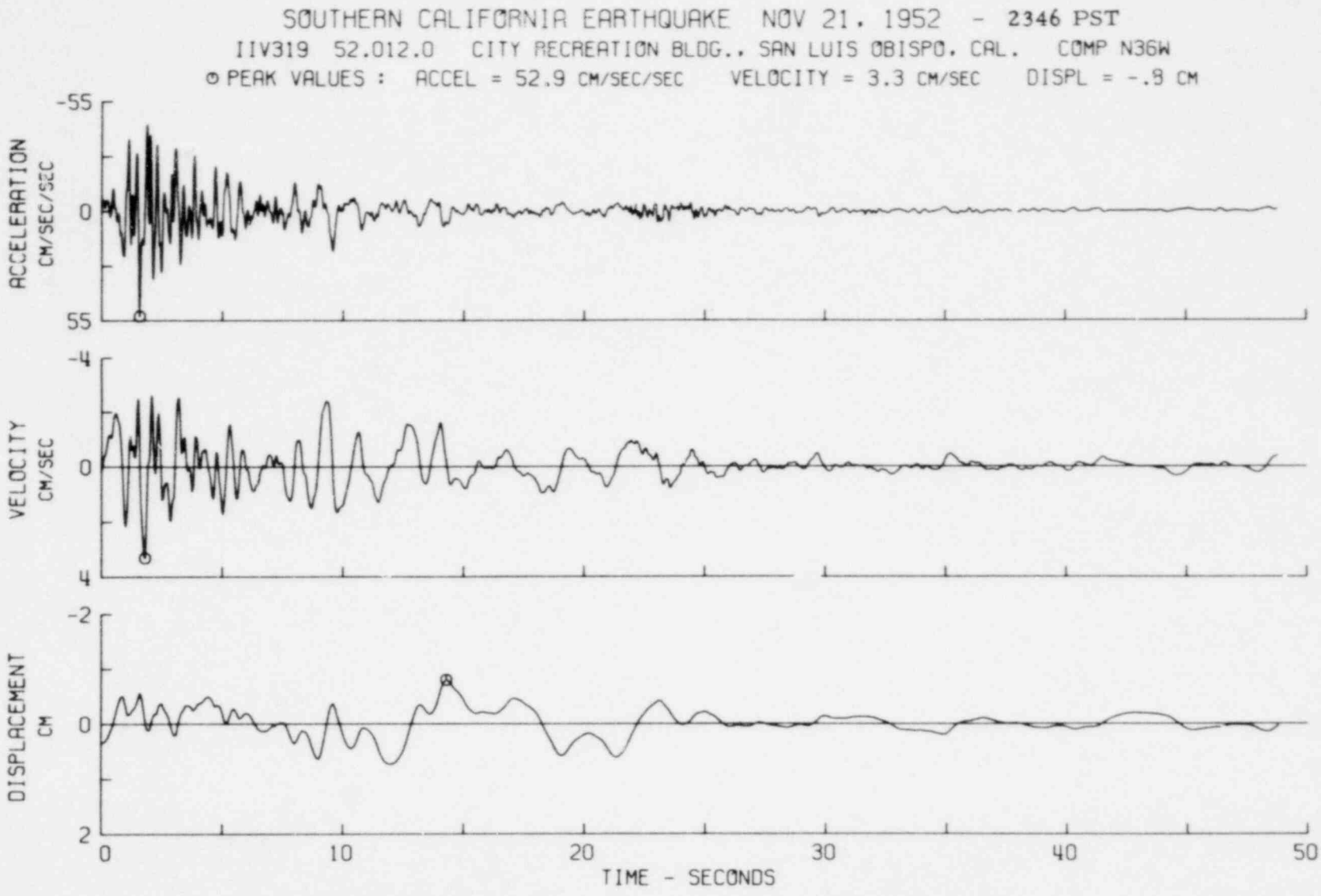

SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST
IIV319 52.012.0 CITY RECREATION BLDG., SAN LUIS OBISPO, CAL. COMP N36W
⊙ PEAK VALUES : ACCEL = 52.9 CM/SEC/SEC VELOCITY = 3.3 CM/SEC DISPL = -.8 CM
ACCELERATION CM/SEC/SEC
-55
0
55
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
TIME - SECONDS

FIG. A3-1

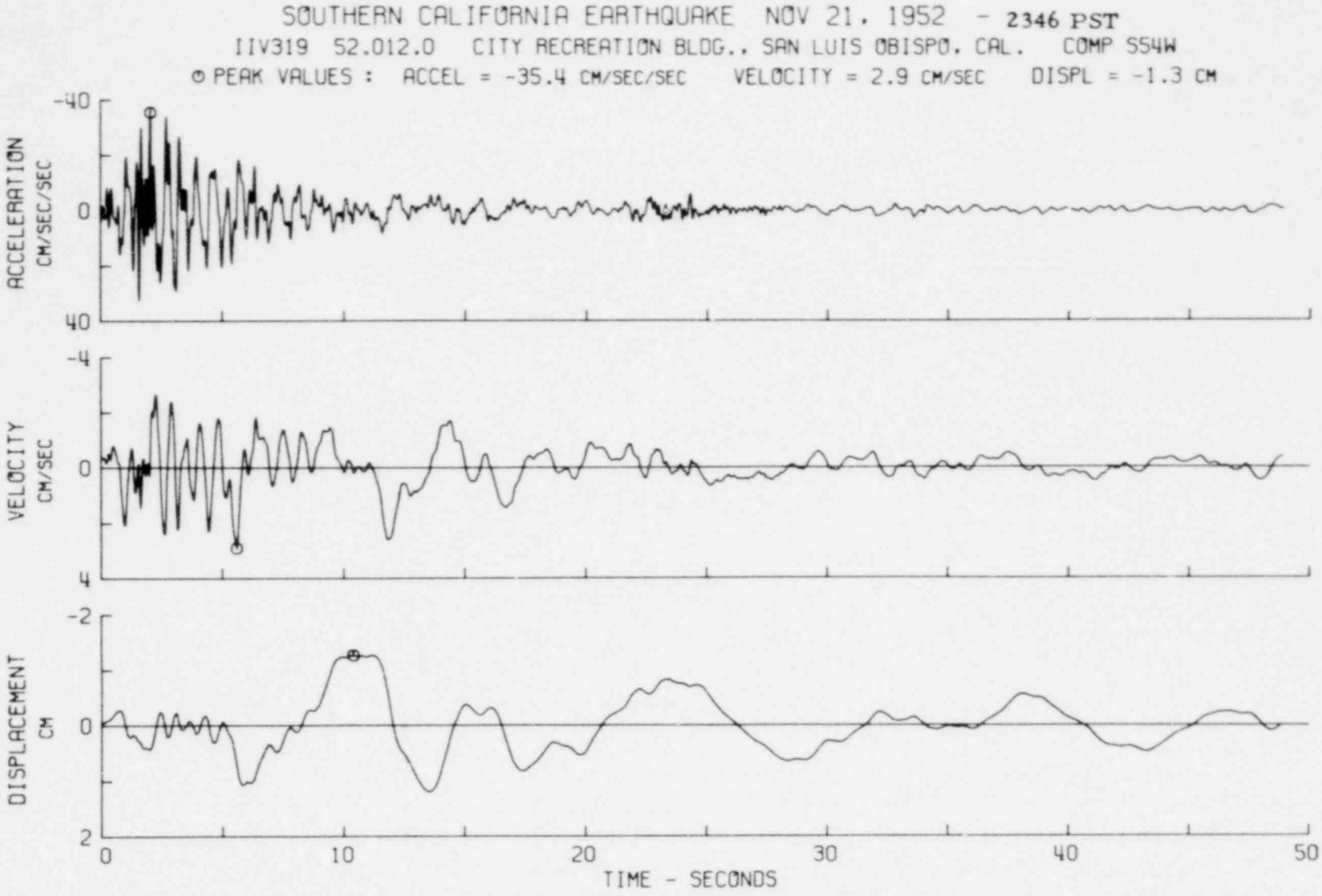

SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST
IIV319 52.012.0 CITY RECREATION BLDG., SAN LUIS OBISPO, CAL. COMP S54W
⊙ PEAK VALUES : ACCEL = -35.4 CM/SEC/SEC VELOCITY = 2.9 CM/SEC DISPL = -1.3 CM
ACCELERATION CM/SEC/SEC
-40
0
40
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
TIME - SECONDS

FIG. A3-2

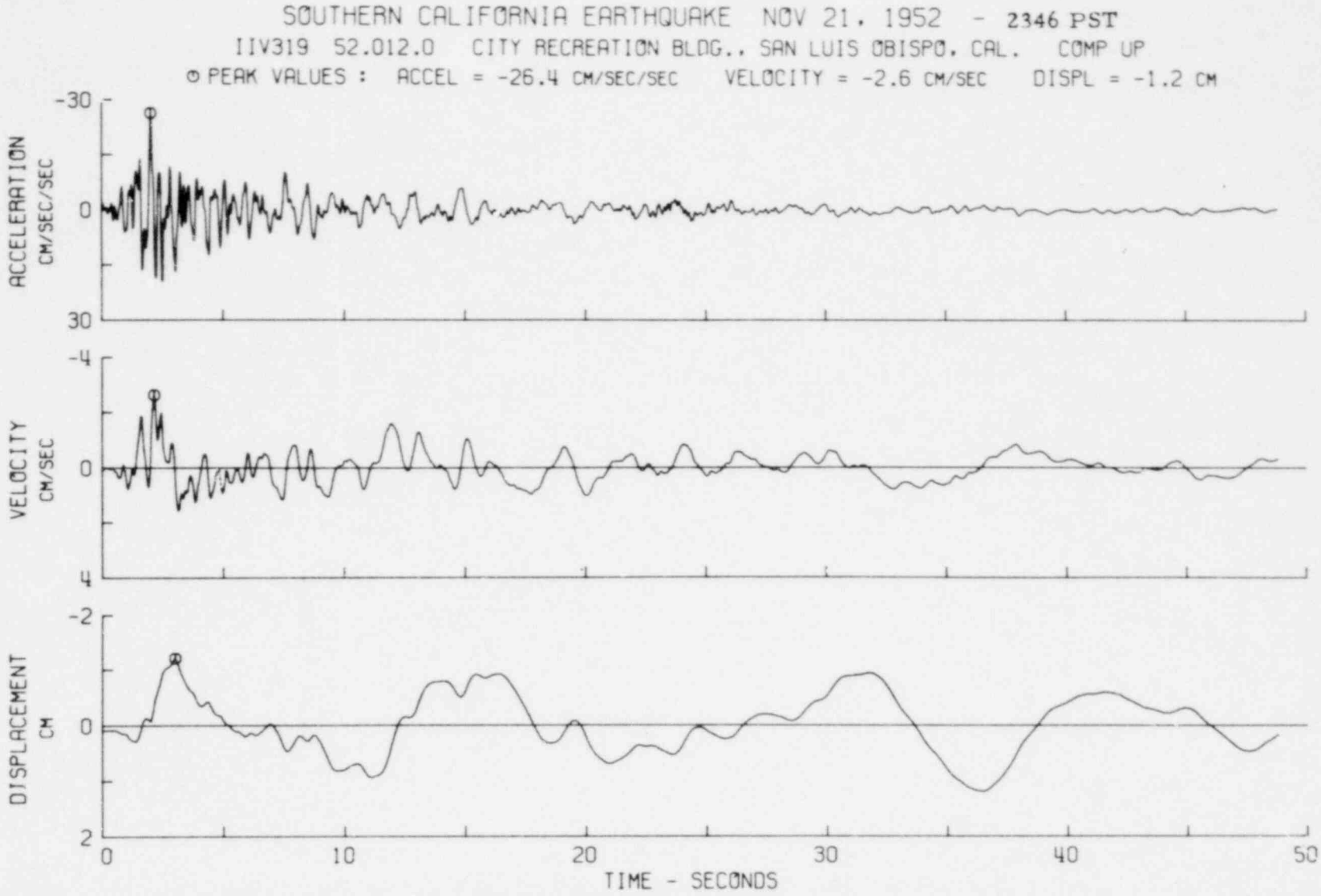

SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST
IIV319 S2.012.0 CITY RECREATION BLDG., SAN LUIS OBISPO, CAL. COMP UP
⊙ PEAK VALUES : ACCEL = -26.4 CM/SEC/SEC VELOCITY = -2.6 CM/SEC DISPL = -1.2 CM
ACCELERATION CM/SEC/SEC
-30
0
30
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
TIME - SECONDS

FIG. A3-3

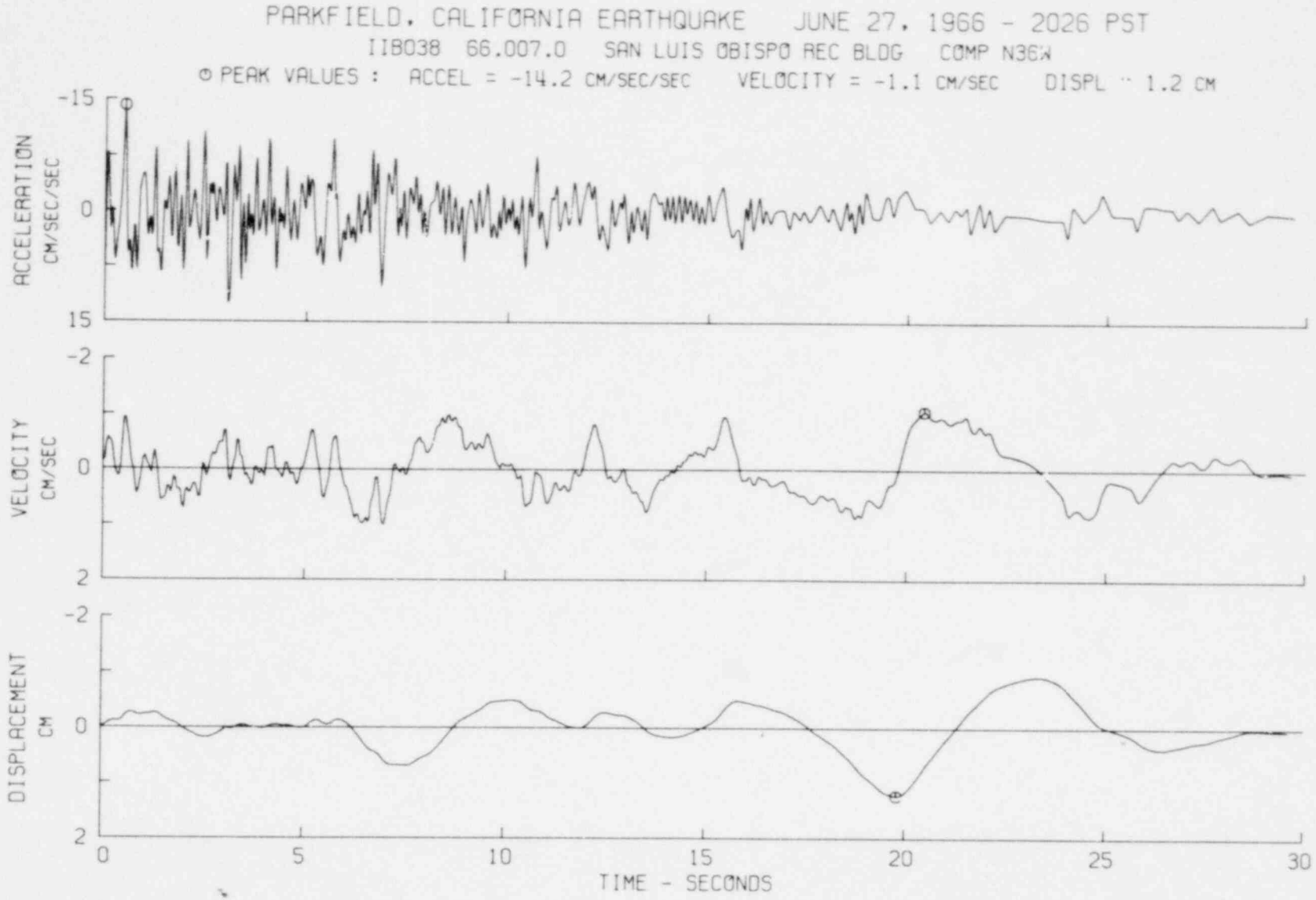

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB038 66.007.0 SAN LUIS OBISPO REC BLDG COMP N36W
⊕ PEAK VALUES : ACCEL = -14.2 CM/SEC/SEC VELOCITY = -1.1 CM/SEC DISPL = 1.2 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A3-4

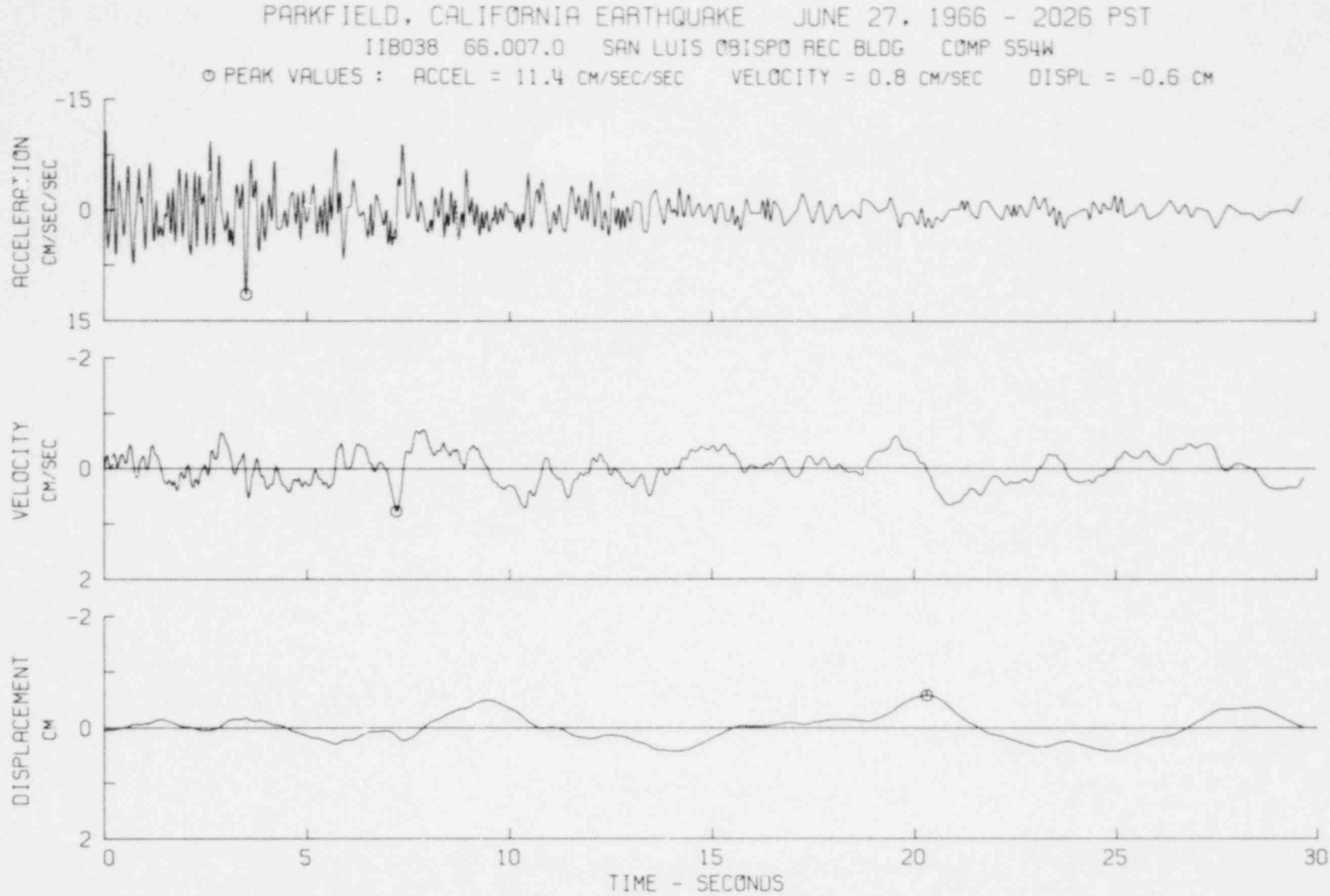

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
1IB038 66.007.0 SAN LUIS OBISPO REC BLDG COMP S54W
⊙ PEAK VALUES : ACCEL = 11.4 CM/SEC/SEC VELOCITY = 0.8 CM/SEC DISPL = -0.6 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A3-5

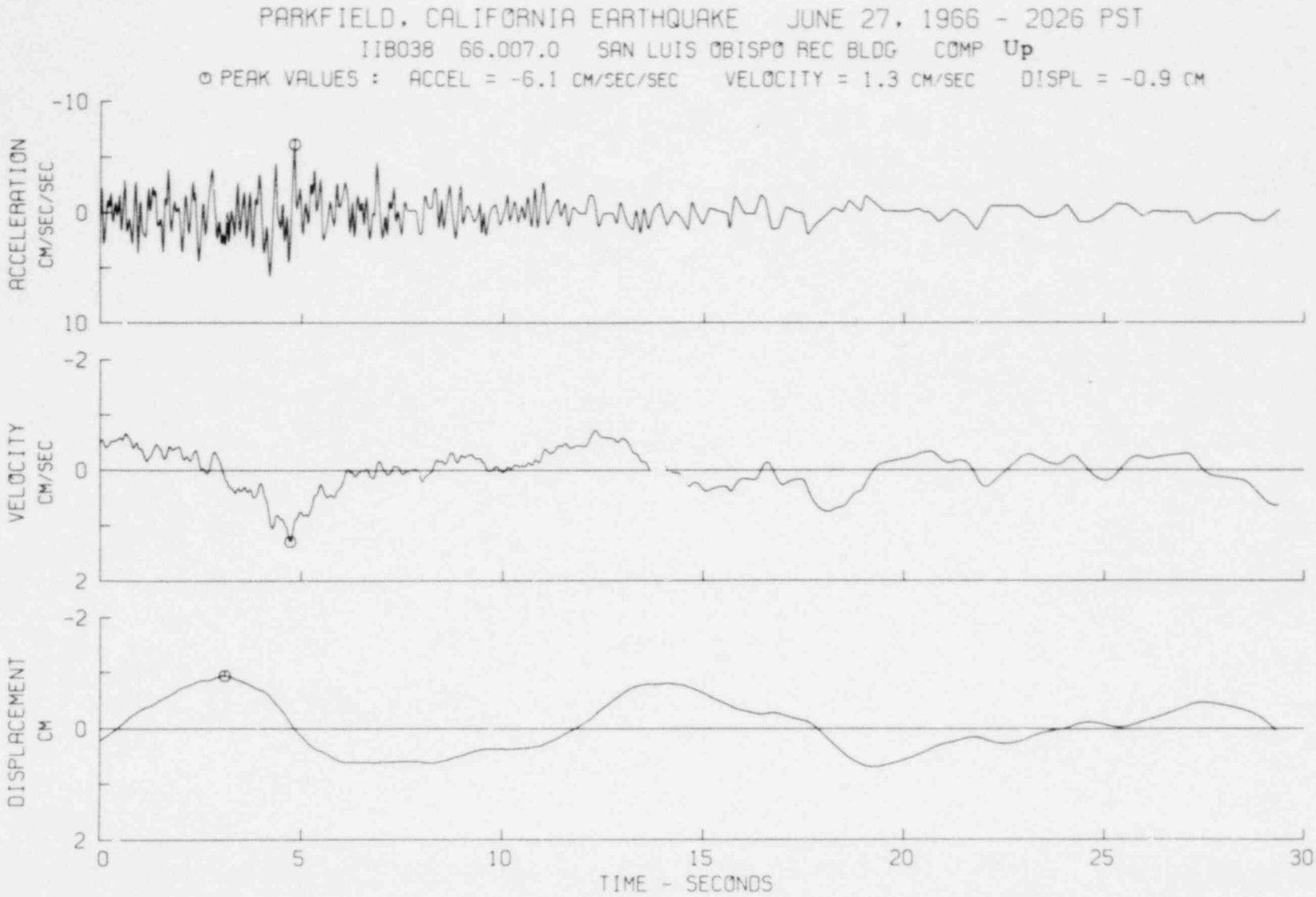

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB038 66.007.0 SAN LUIS OBISPO REC BLDG COMP Up
⊙ PEAK VALUES : ACCEL = -6.1 CM/SEC/SEC VELOCITY = 1.3 CM/SEC DISPL = -0.9 CM
ACCELERATION CM/SEC/SEC
-10
0
10
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A3-6

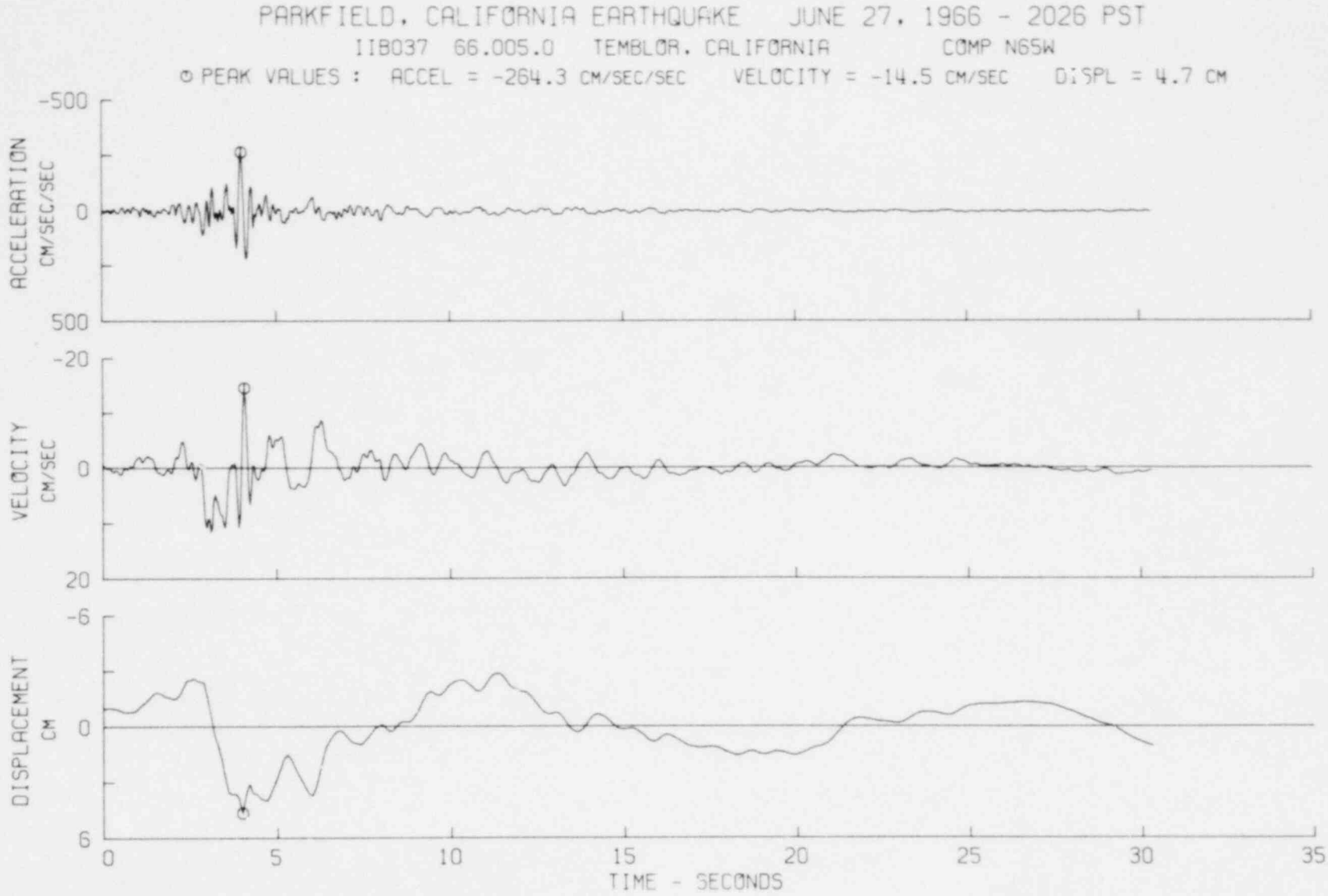

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB037 66.005.0 TEMBLOR, CALIFORNIA COMP N65W
PEAK VALUES : ACCEL = -264.3 CM/SEC/SEC VELOCITY = -14.5 CM/SEC DISPL = 4.7 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A3-7

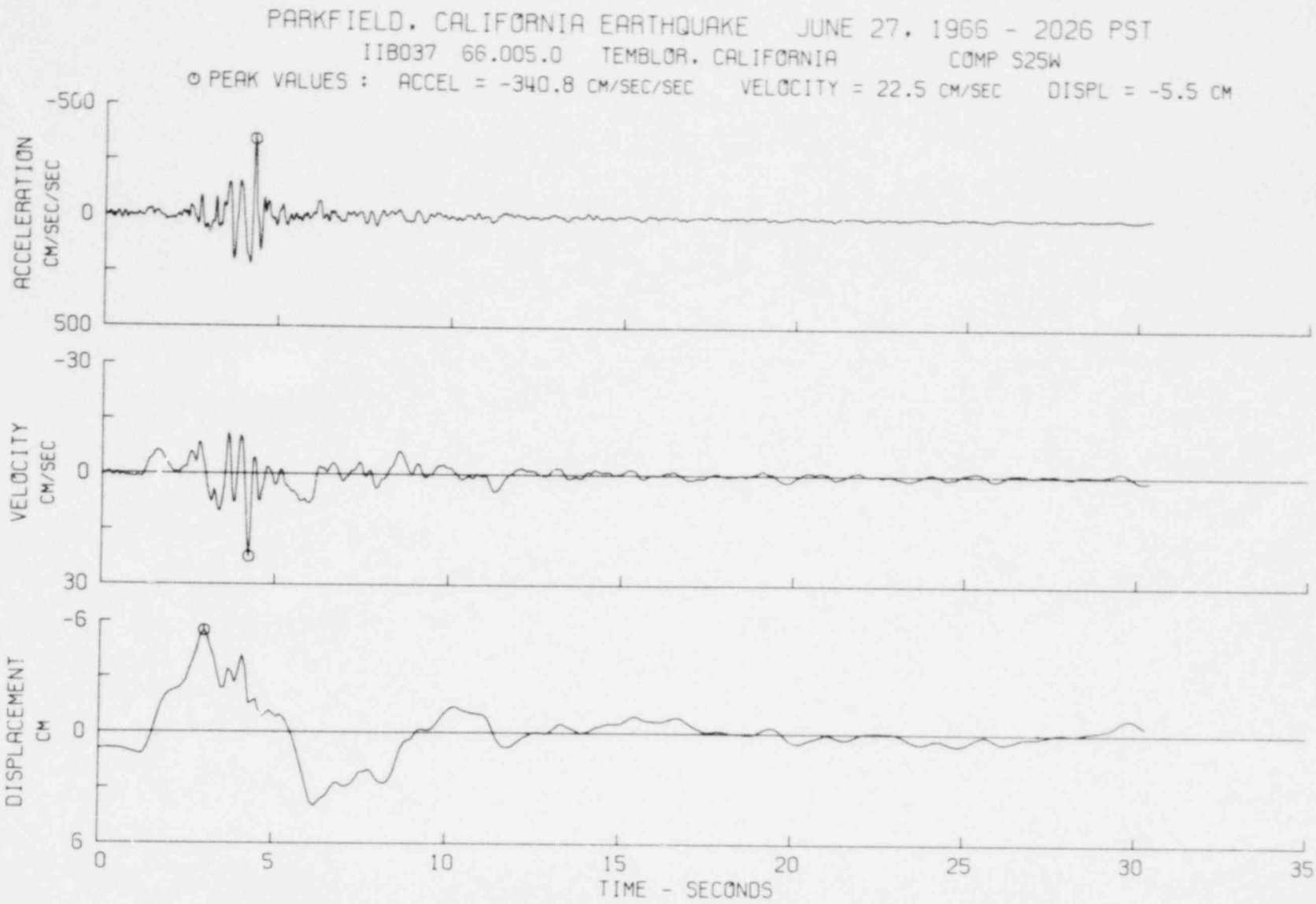

PARKFIELD. CALIFORNIA EARTHQUAKE JUNE 27. 1966 - 2026 PST
IIB037 66.005.0 TEMBLOR. CALIFORNIA COMP S25W
PEAK VALUES : ACCEL = -340.8 CM/SEC/SEC VELOCITY = 22.5 CM/SEC DISPL = -5.5 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-30
0
30
DISPLACEMENT CM
-6
0
6
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A3-8

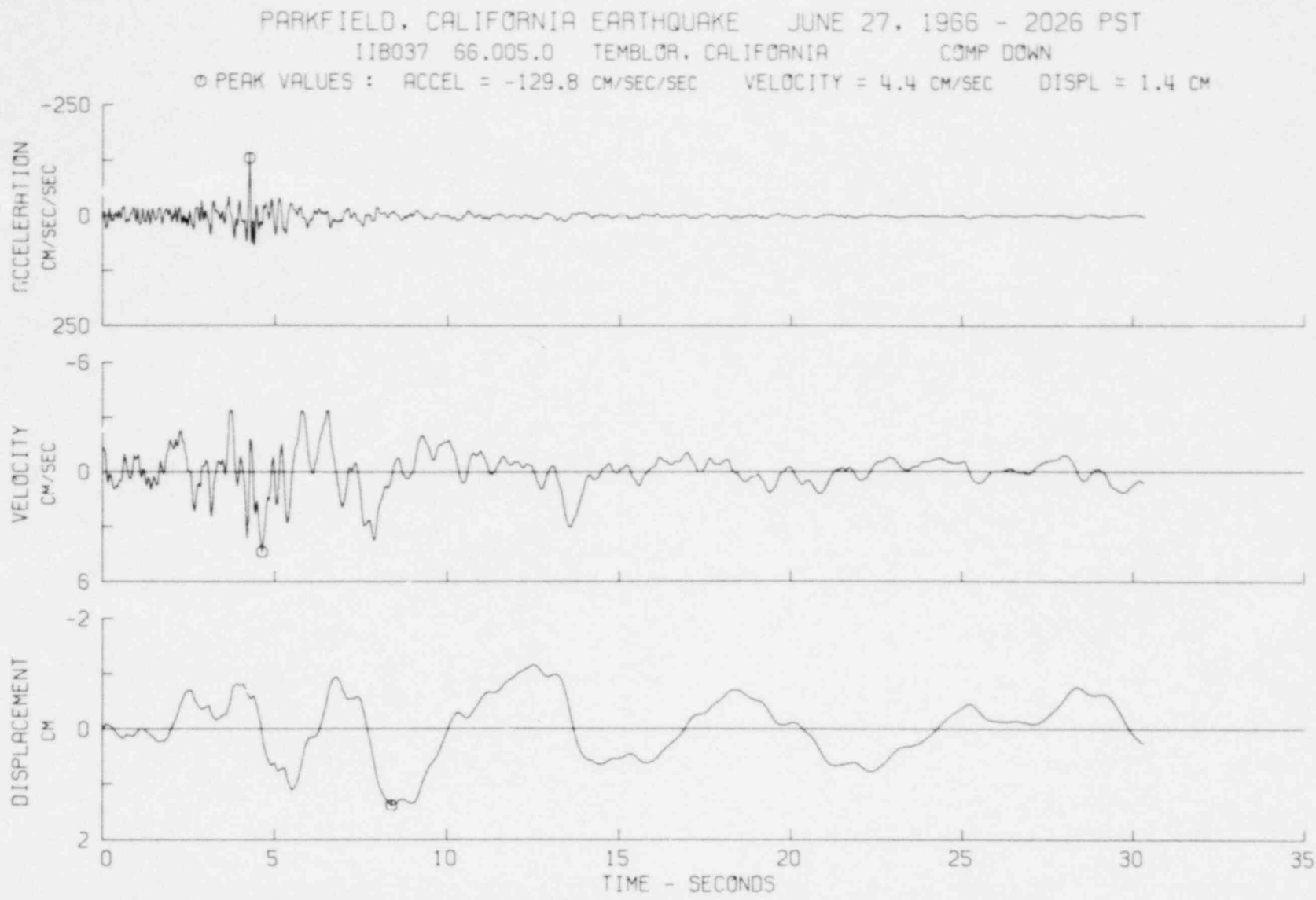

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST
IIB037 66.005.0 TEMBLOR, CALIFORNIA COMP DOWN
PEAK VALUES : ACCEL = -129.8 CM/SEC/SEC VELOCITY = 4.4 CM/SEC DISPL = 1.4 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A3-9

RESPONSE SPECTRUM

SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST

IIIV319 52.012.0 CITY RECREATION BLDG., SAN LUIS OBISPO, CAL. COMP N36W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

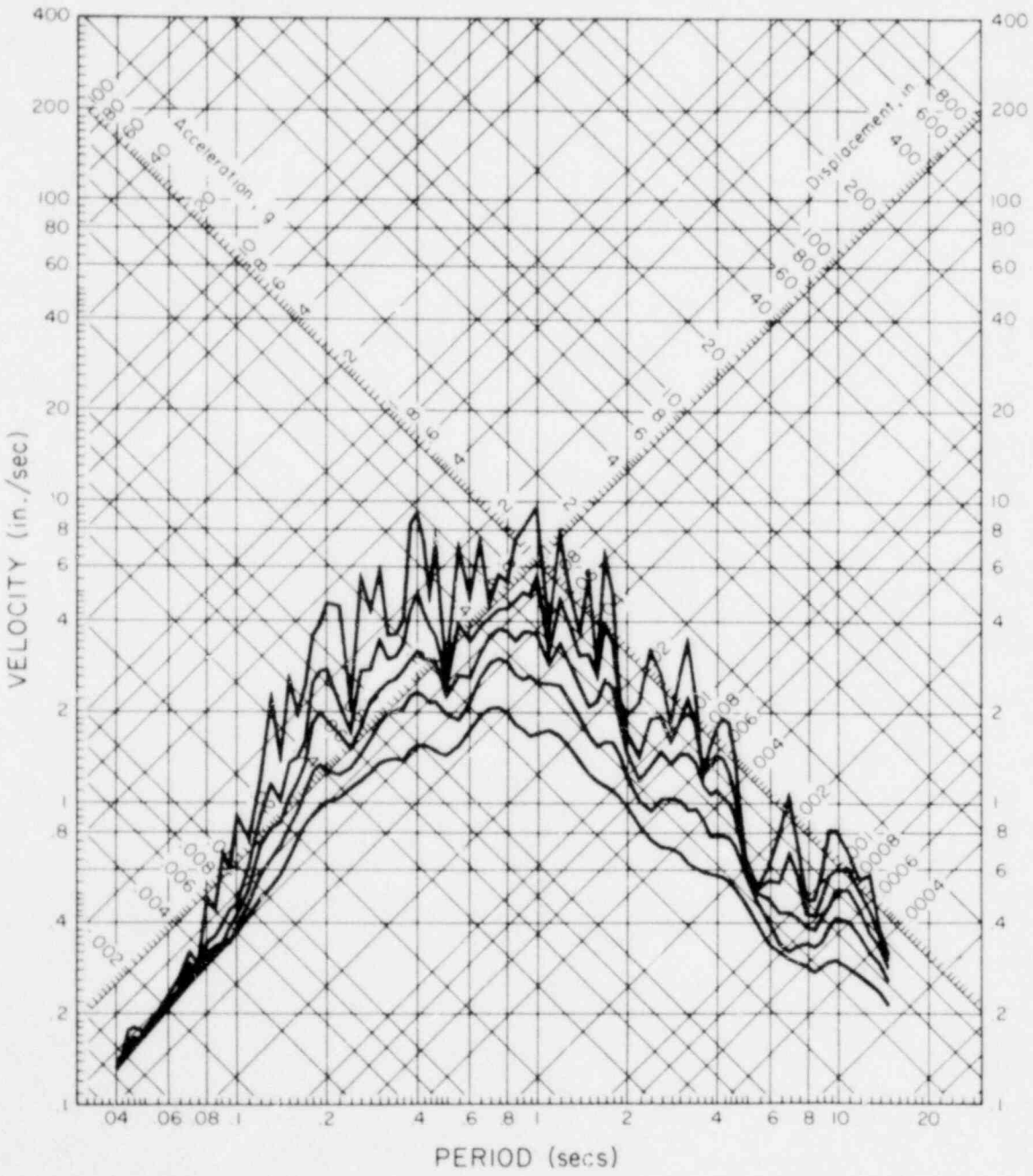


FIG. A3-10

RESPONSE SPECTRUM

SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST

!!!V319 52.012.0 CITY RECREATION BLDG., SAN LUIS OBISPO, CAL. COMP S54W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

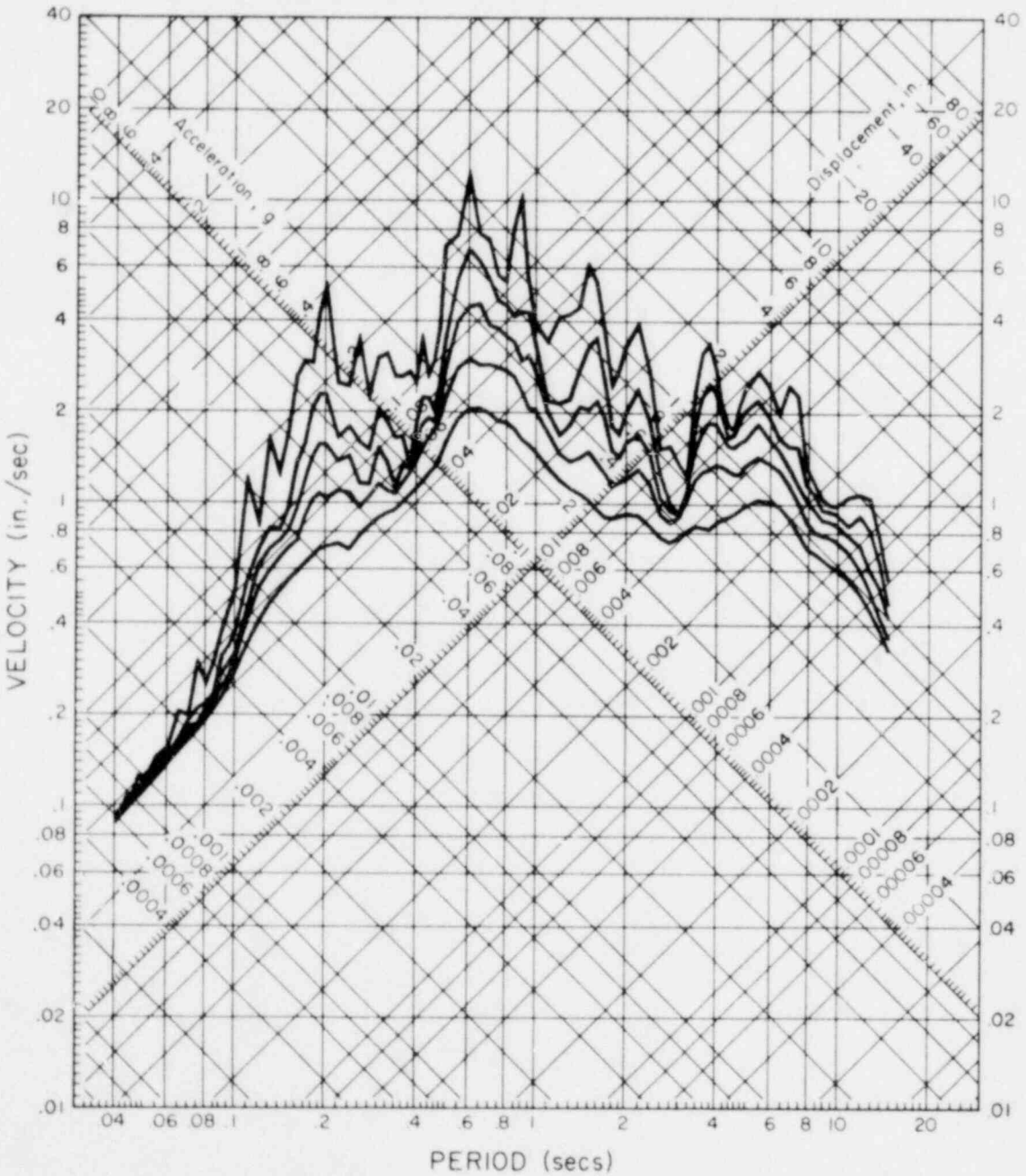


FIG. A3-11

RESPONSE SPECTRUM

SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST

IIIV319 52.012.0 CITY RECREATION BLDG., SAN LUIS OBISPO, CAL. COMP UP

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

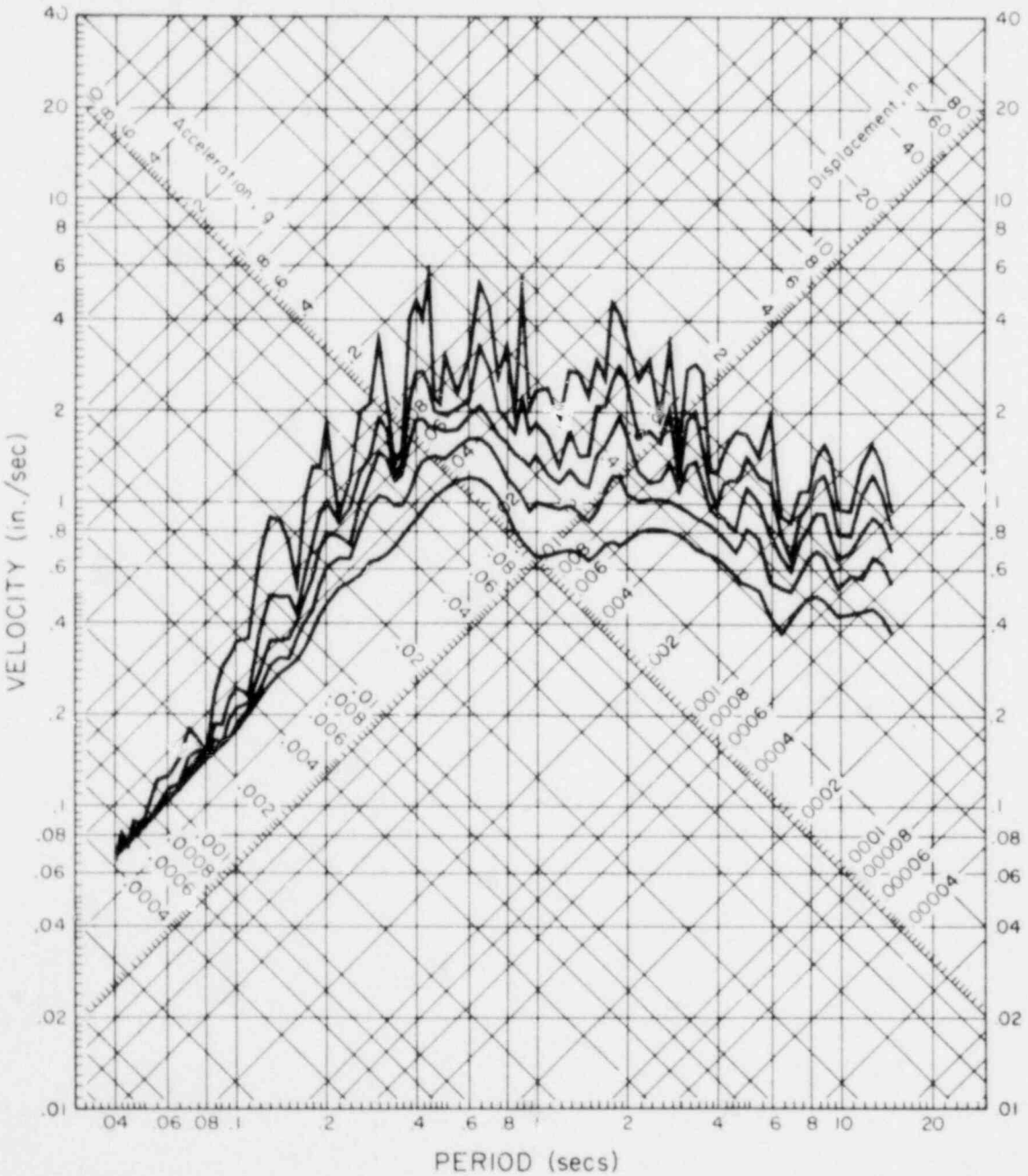


FIG. A3-12

RESPONSE SPECTRUM

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

IIIB038 66.007.0 SAN LUIS OBISPO REC BLDG COMP N36W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

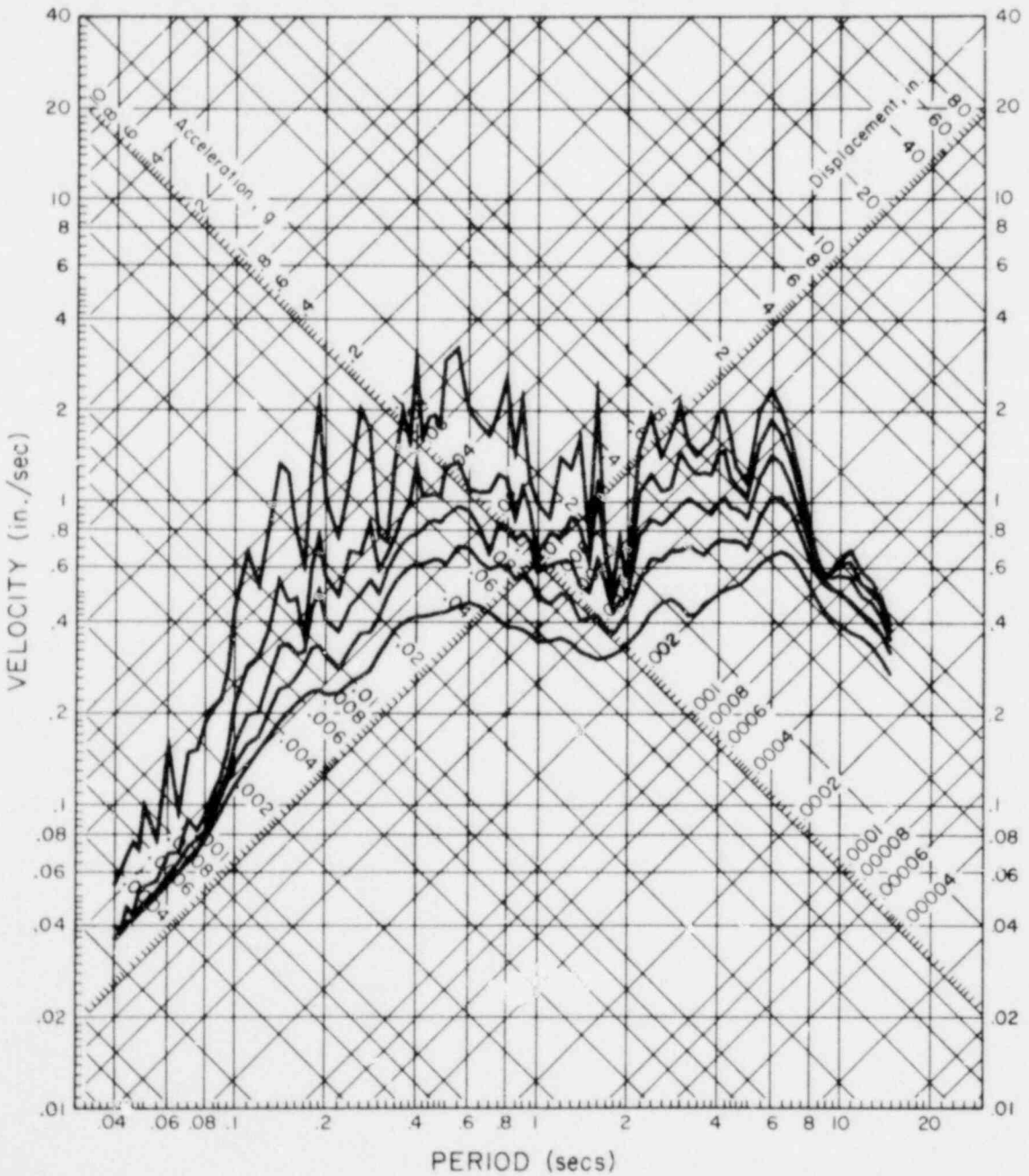


FIG. A3-13

RESPONSE SPECTRUM

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

1118038 66.007.0 SAN LUIS OBISPO REC BLDG COMP S54W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

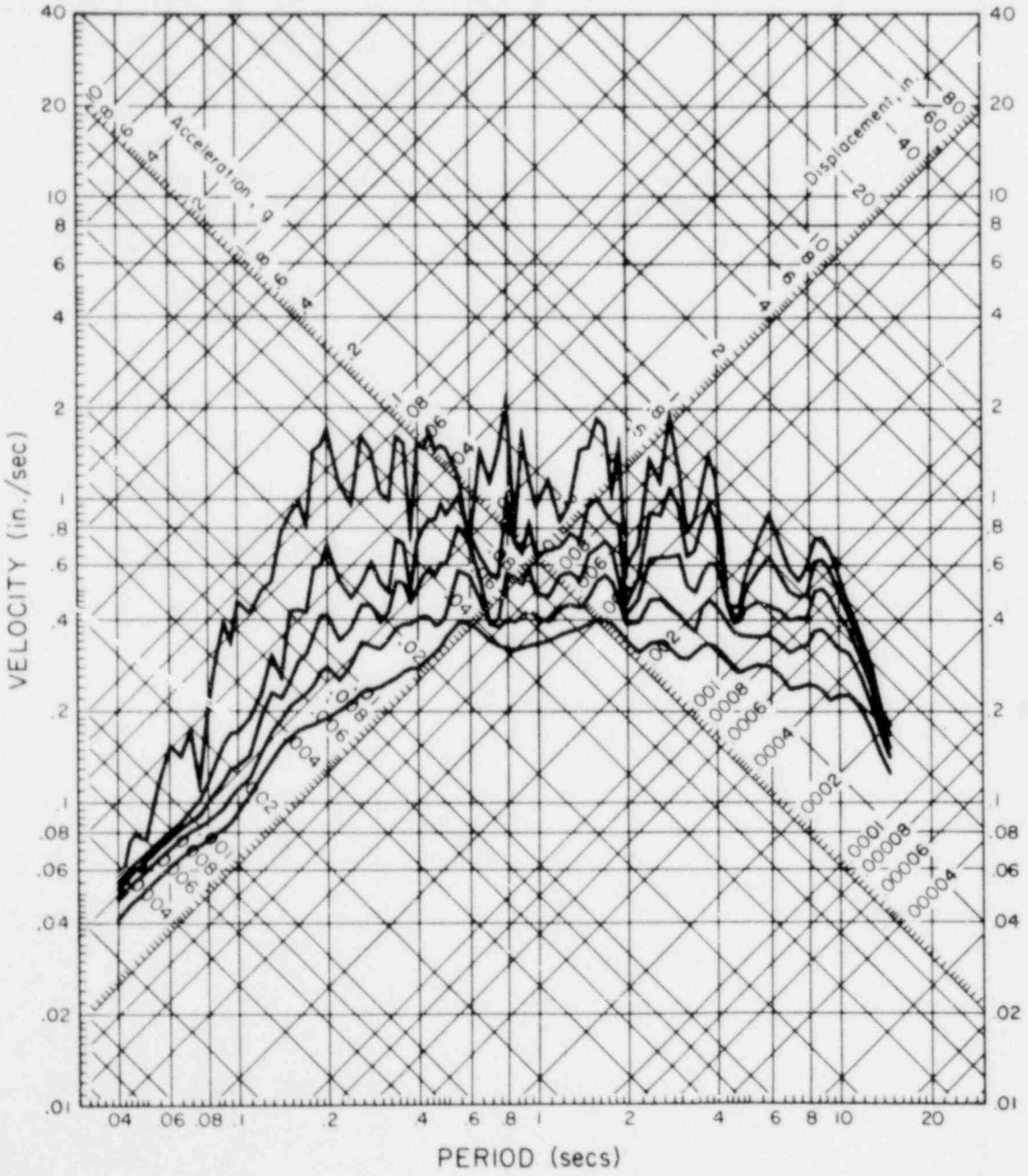


FIG. A3-14

RESPONSE SPECTRUM

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

IIIB038 66.007.0 SAN LUIS OBISPO REC BLDG COMP Up

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

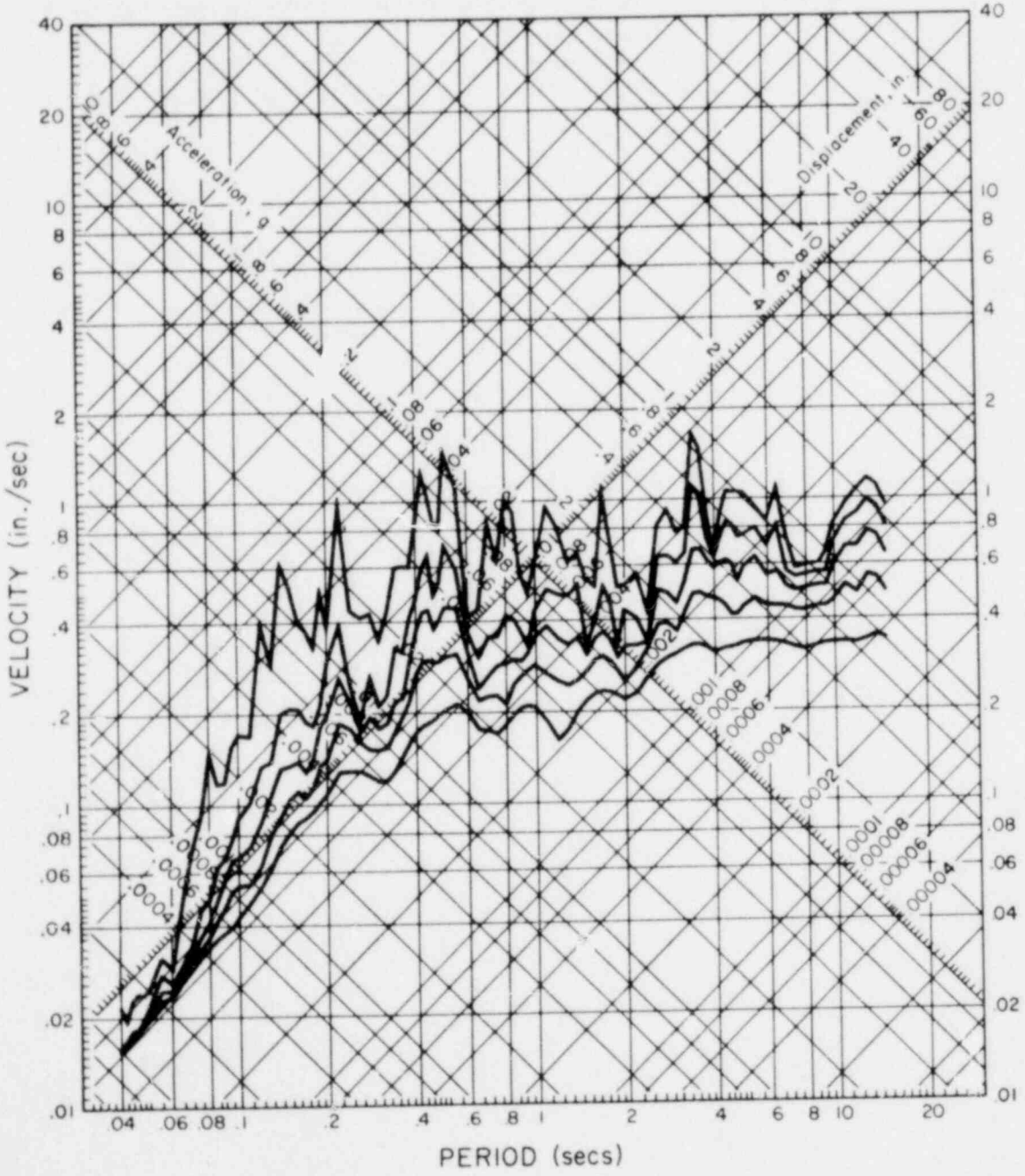


FIG. A3-15

RESPONSE SPECTRUM

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

1118037 66.005.0 TEMBLOR, CALIFORNIA COMP N65W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

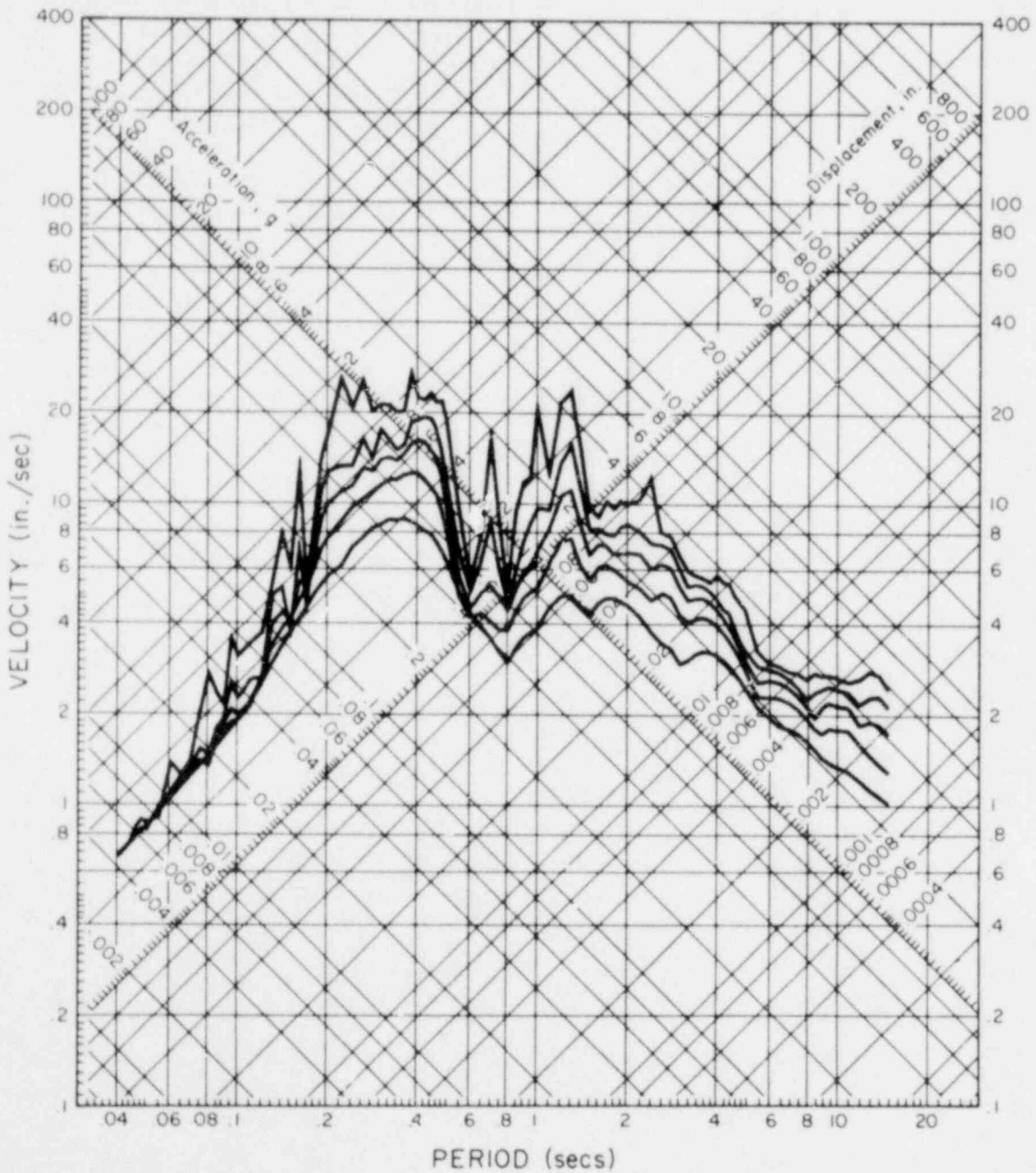


FIG. A3-16

RESPONSE SPECTRUM

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

IIIB037 66.005.0 TEMBLOR, CALIFORNIA COMP S25W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

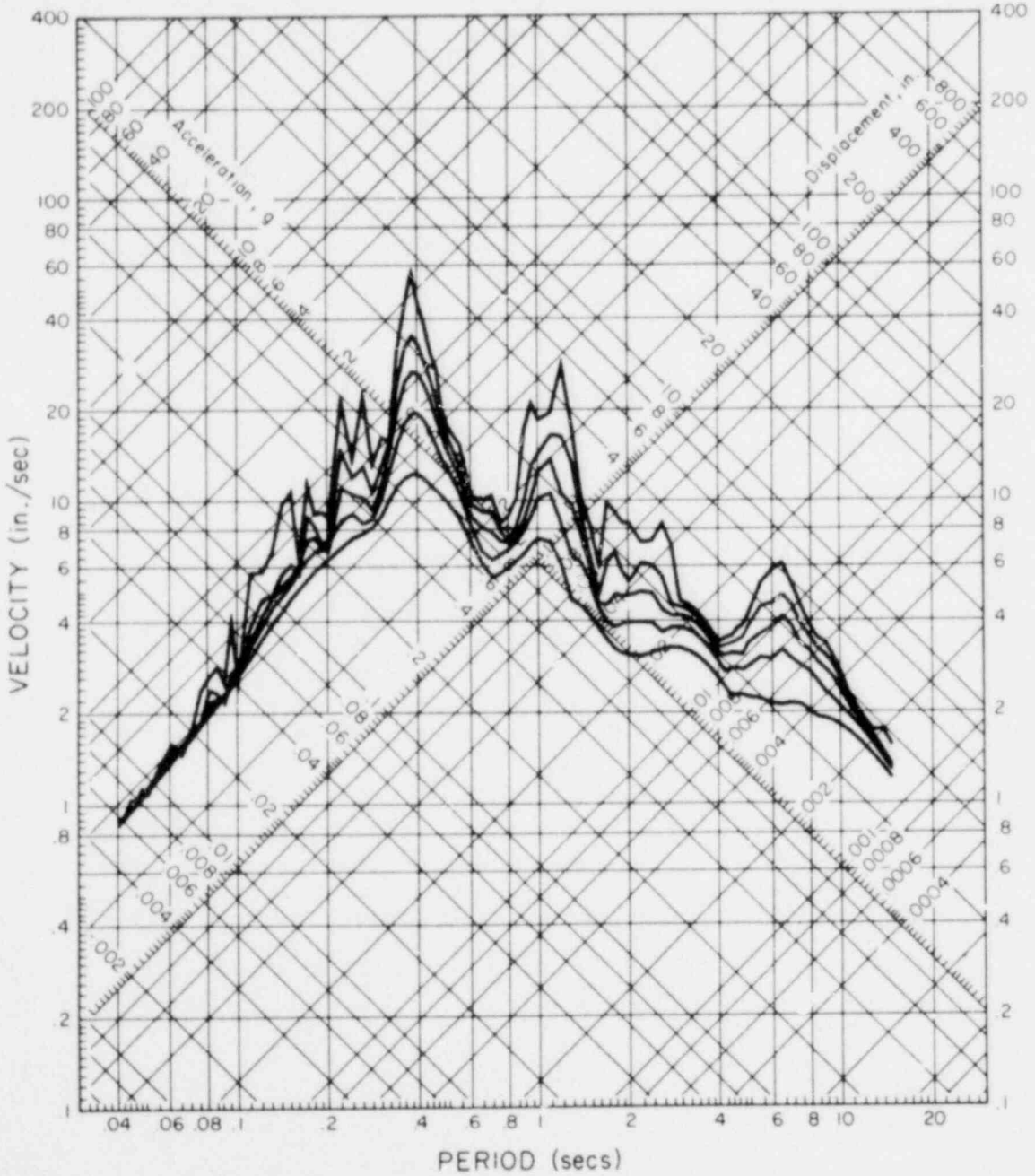


FIG. A3-17

RESPONSE SPECTRUM

PARKFIELD, CALIFORNIA EARTHQUAKE JUNE 27, 1966 - 2026 PST

III8037 66.005.0 TEMBLOR, CALIFORNIA COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

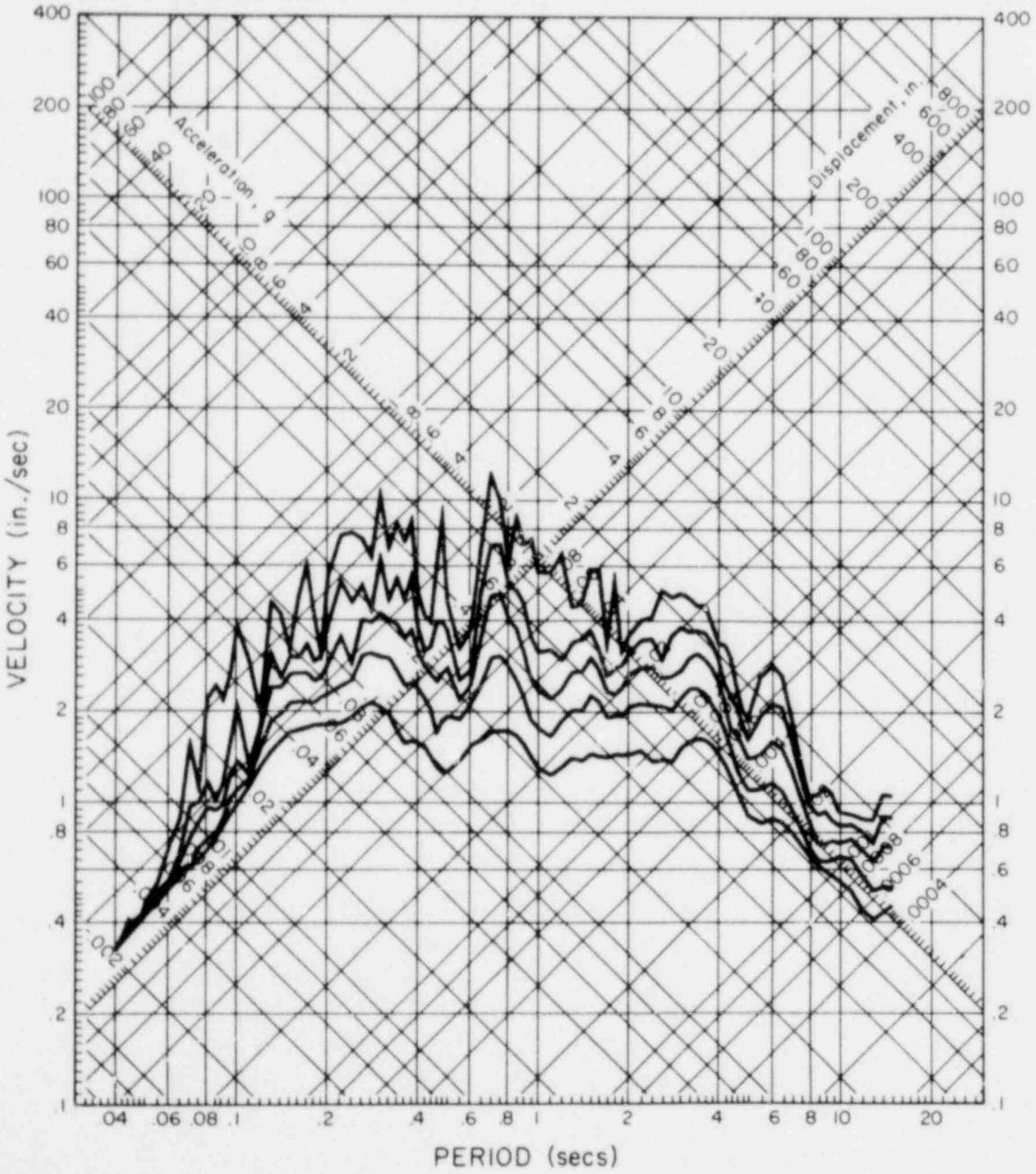


FIG. A3-18

Section A4
Santa Barbara Region

TABLE A4-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT SANTA BARBARA REGIONAL STRONG-MOTION ACCELEROGRAPH STATION

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
									N42E	S48E	Up	
71	02	09	6:00	San Fernando 34°24'N; 118°24'W	6.4	U.C. Santa Barbara (Fluid Mechanics Lab)	282	83	16.5	17.0	11.0	0-208

Data from Hudson, et al. (1969-1975 a and b)

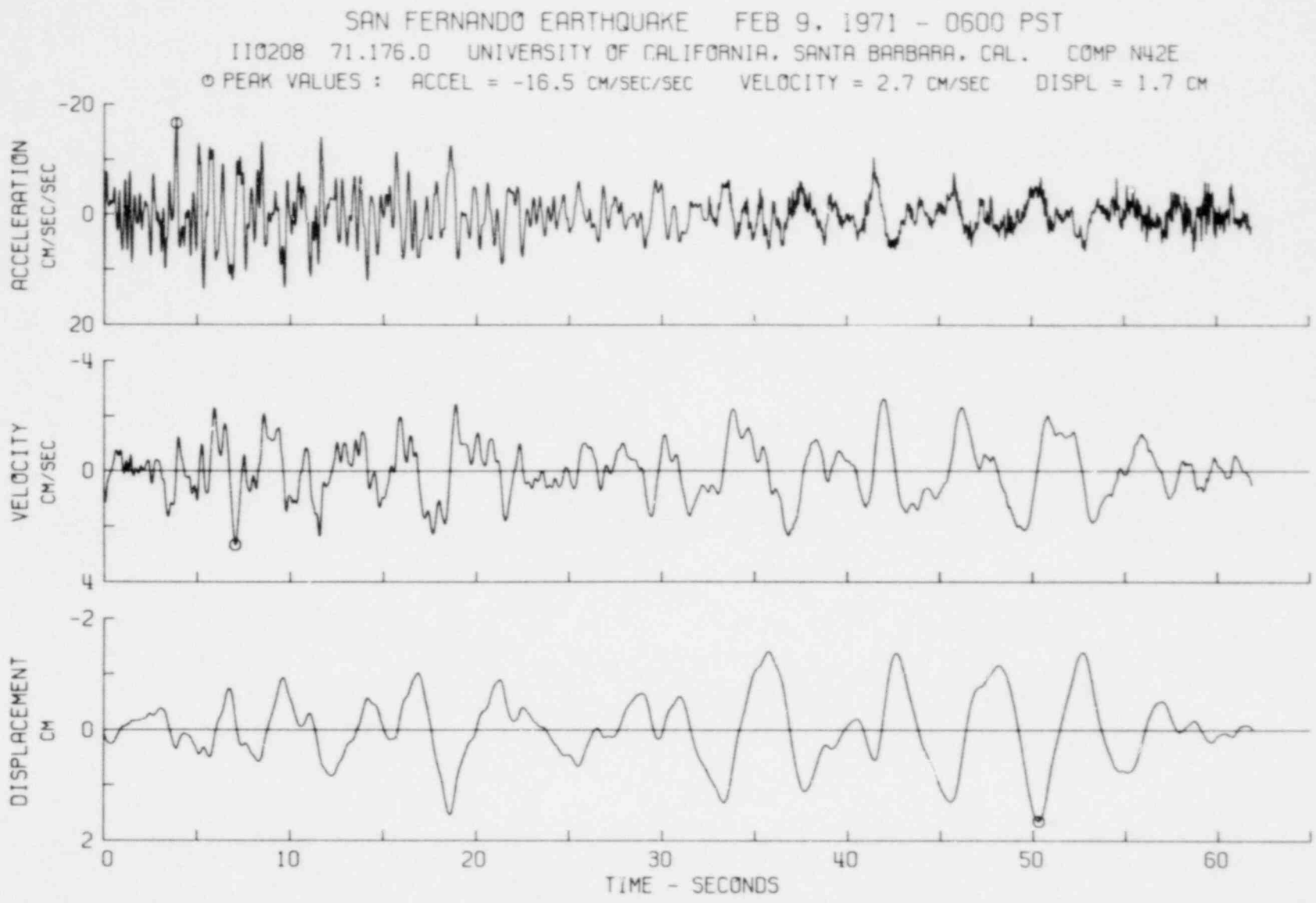

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
II0208 71.176.0 UNIVERSITY OF CALIFORNIA, SANTA BARBARA, CAL. COMP N42E
⊙ PEAK VALUES : ACCEL = -16.5 CM/SEC/SEC VELOCITY = 2.7 CM/SEC DISPL = 1.7 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A4-1

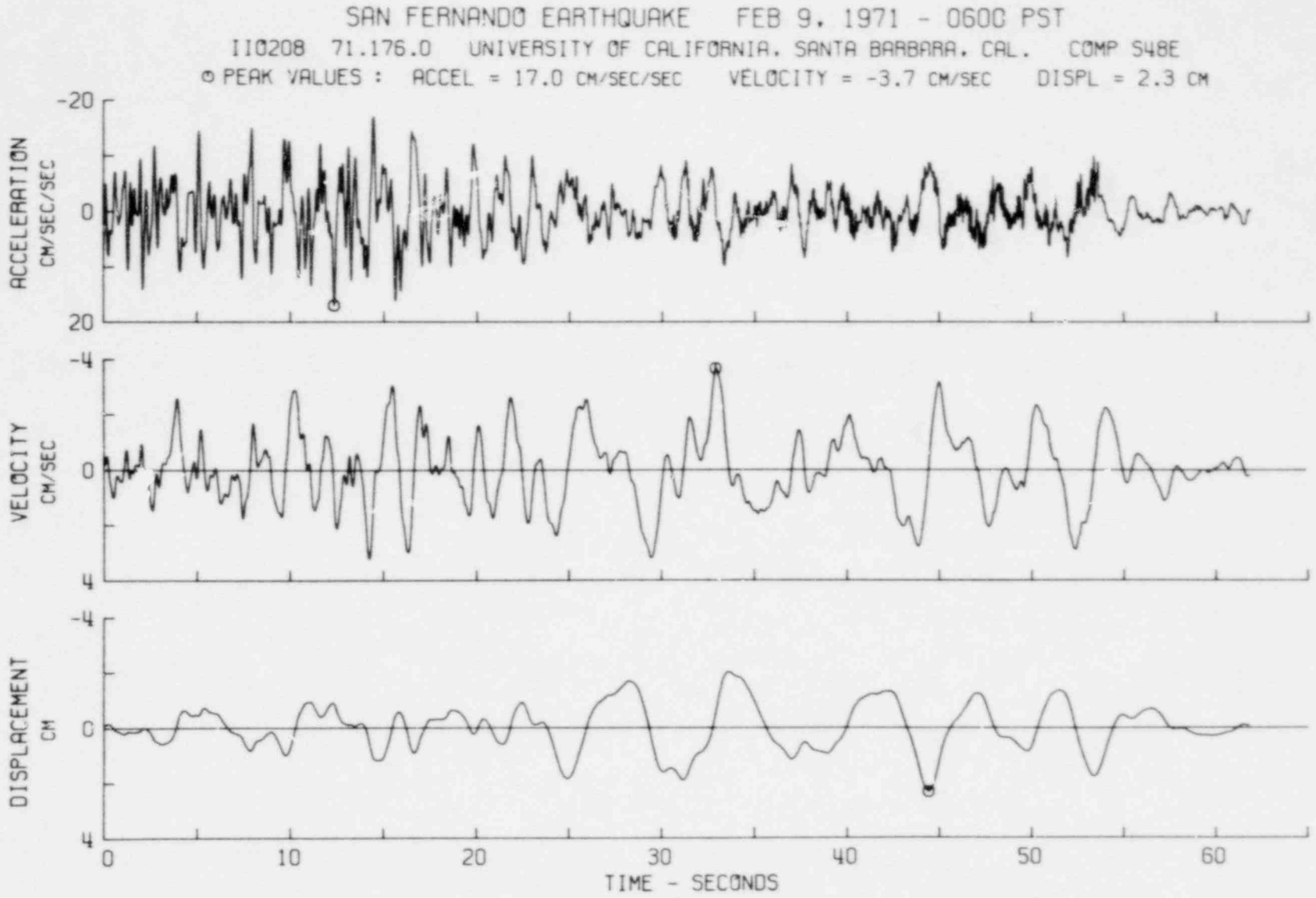

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
II0208 71.176.0 UNIVERSITY OF CALIFORNIA, SANTA BARBARA, CAL. COMP S48E
PEAK VALUES : ACCEL = 17.0 CM/SEC/SEC VELOCITY = -3.7 CM/SEC DISPL = 2.3 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A4-2

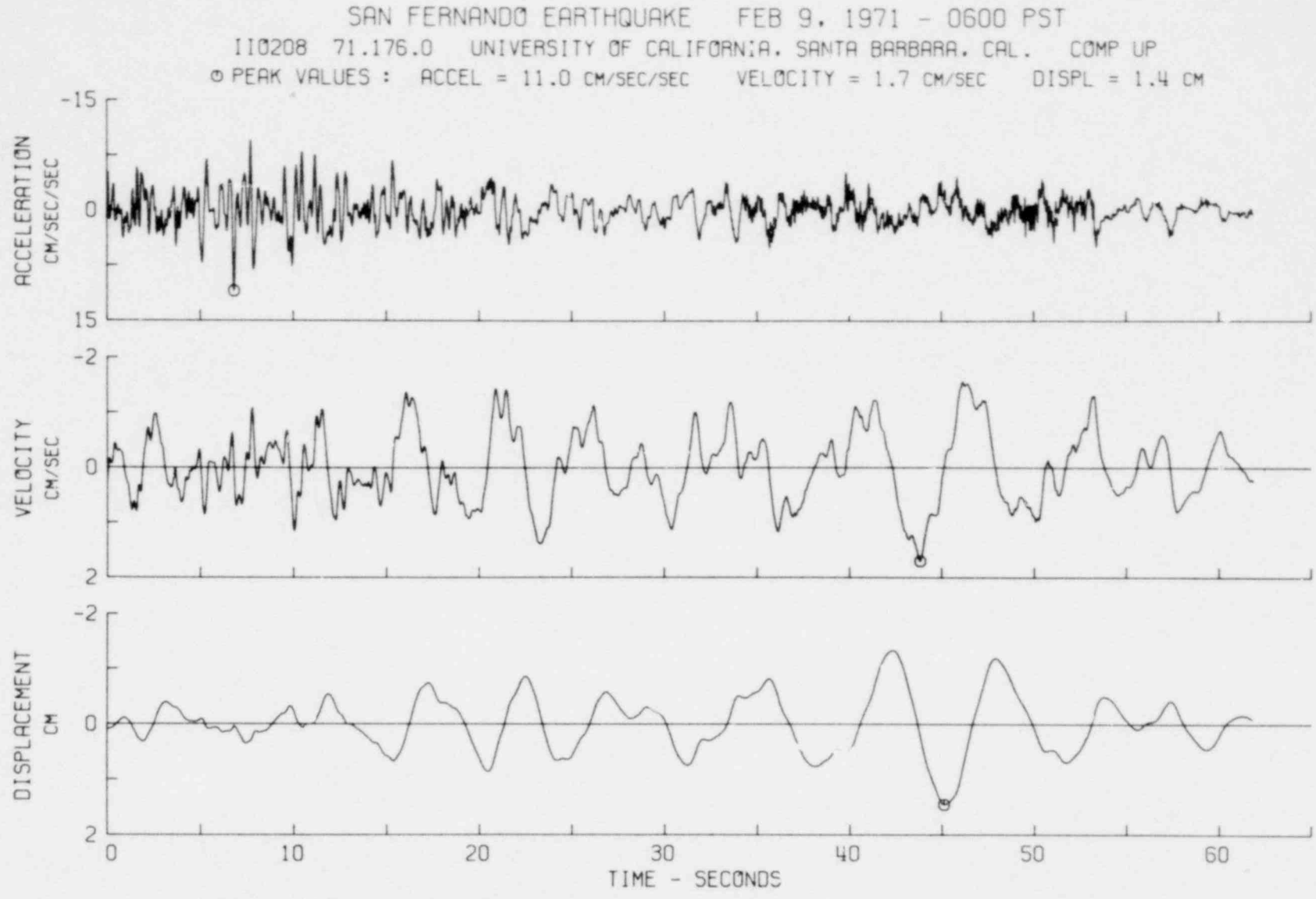

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
II0208 71.176.0 UNIVERSITY OF CALIFORNIA. SANTA BARBARA. CAL. COMP UP
PEAK VALUES : ACCEL = 11.0 CM/SEC/SEC VELOCITY = 1.7 CM/SEC DISPL = 1.4 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A4-3

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0208 71.176.0 UNIVERSITY OF CALIFORNIA, SANTA BARBARA, CAL. COMP N42E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

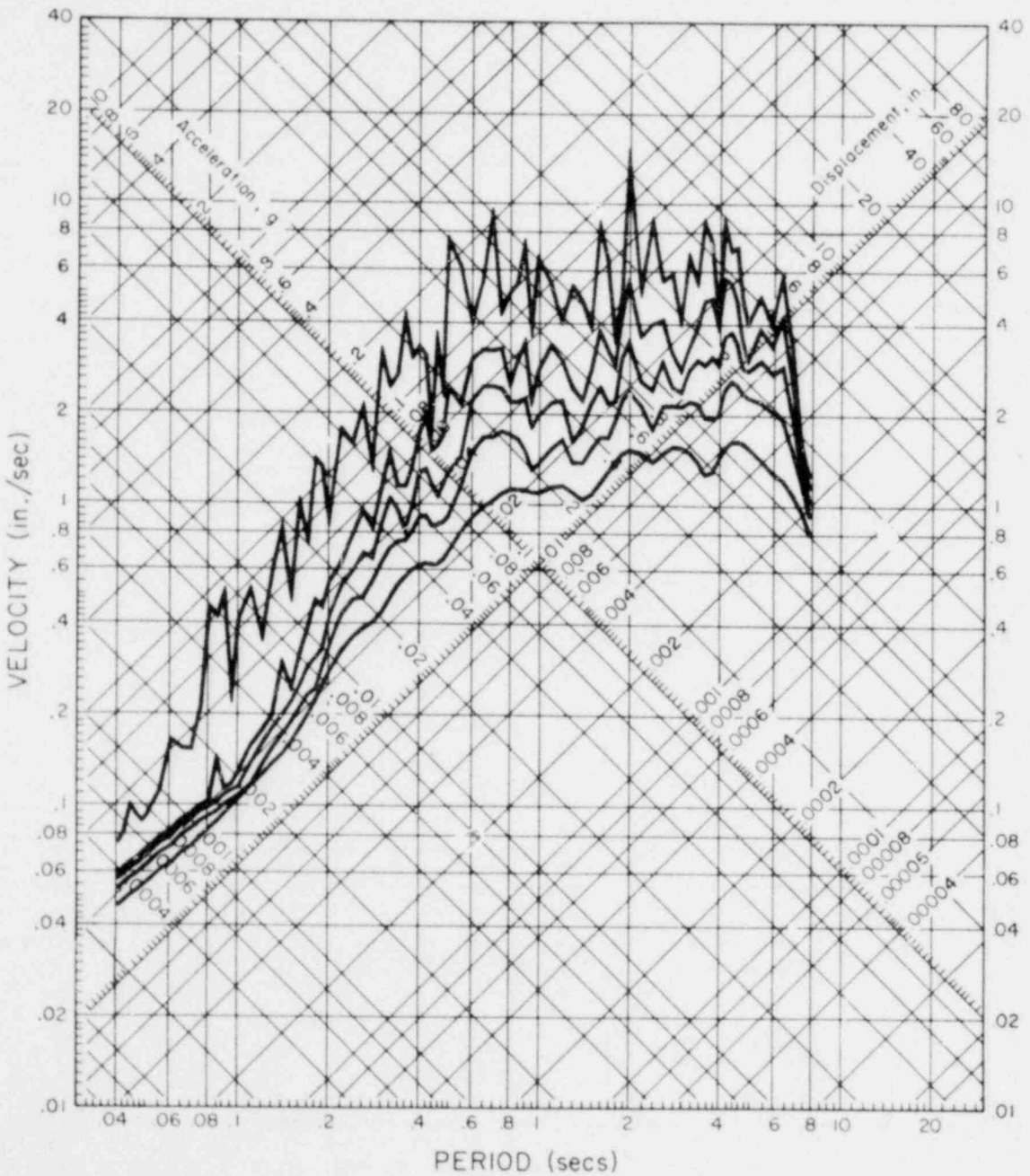


FIG. A4-4

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0208 71.176.0 UNIVERSITY OF CALIFORNIA, SANTA BARBARA, CAL. COMP S48E

DAMPING VALUES ARE .5, 2, 5, 10 AND 20 PERCENT OF CRITICAL

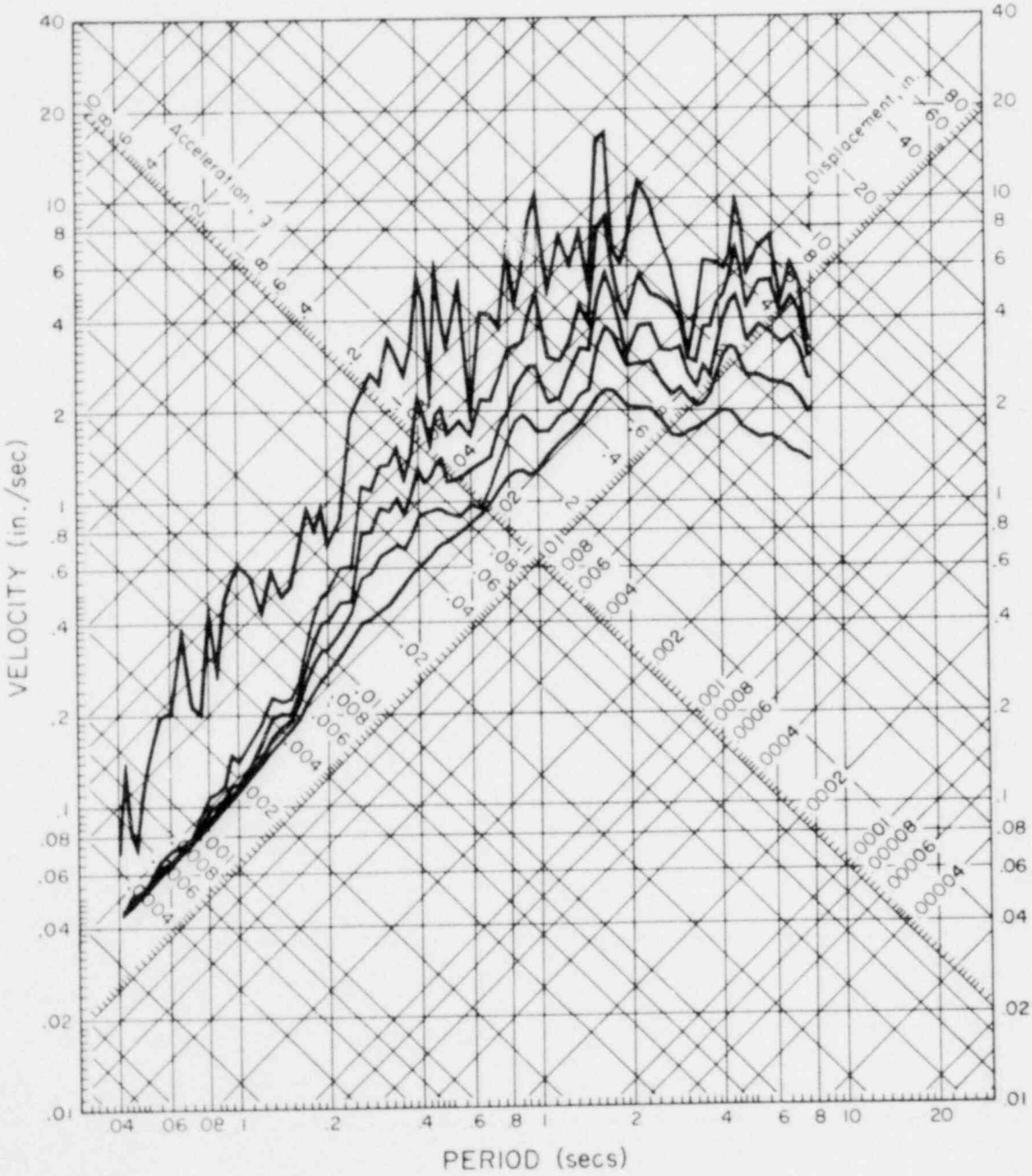


FIG. A4-5

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0208 71.176.0 UNIVERSITY OF CALIFORNIA, SANTA BARBARA, CAL. COMP UP

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

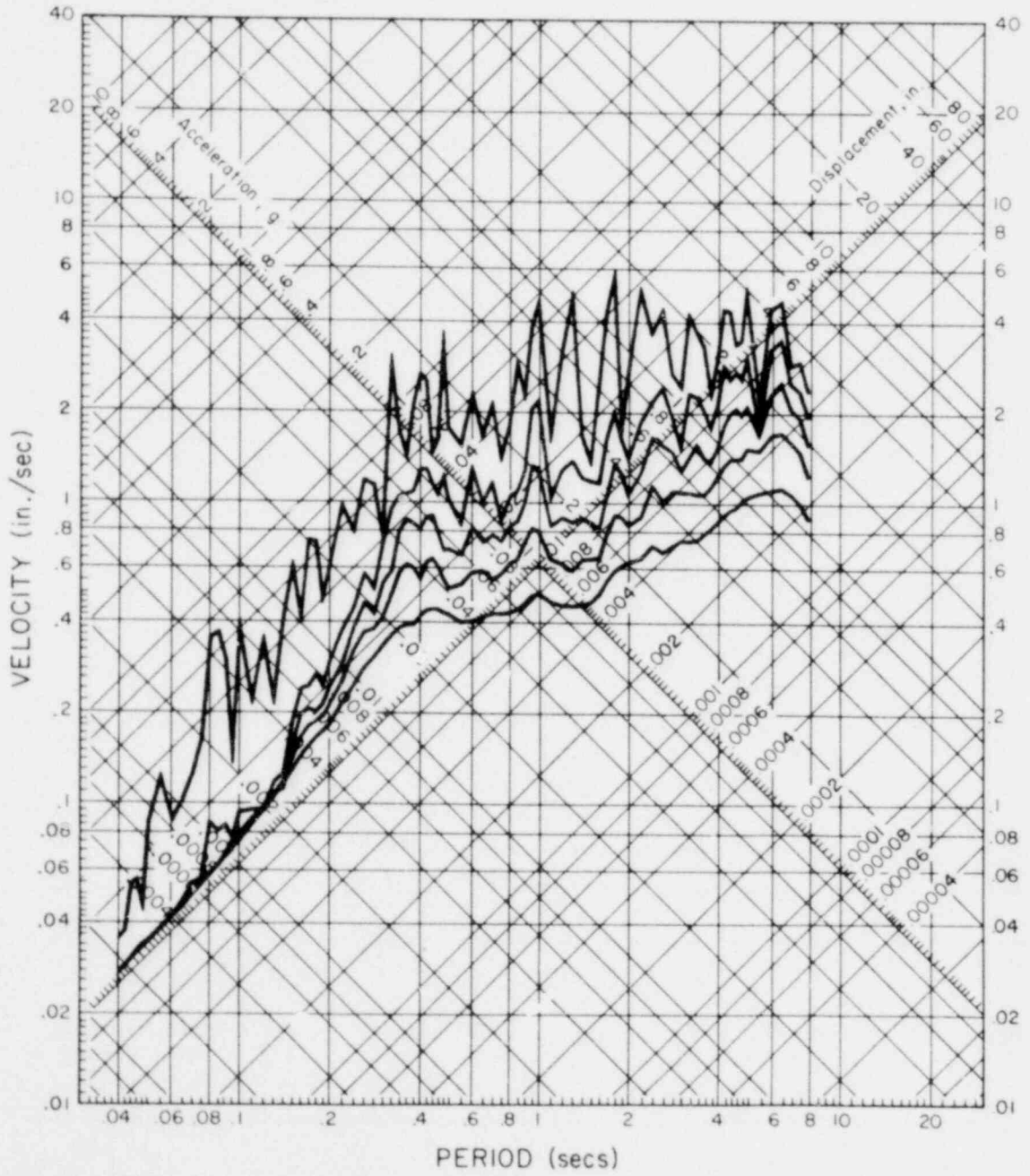


FIG. A4-6

Section A5
Lake Hughes Region

TABLE A5-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT LAKE HUGHES REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec² / USGS Files - g's			CIT Record
65	07	15	23:46	Southern California 34°29'N; 118°31'W	4.0	Castaic, Old Ridge Rt.	110	9	S 40.4	E 35.9	Down 26.3	V-331
66	06	27	20:26	Parkfield 35°54'N; 120°54'N	5.6	Castaic, Old Ridge Rt.	110		S .004g	E Not measurable	Down	
68	04	08	18:30	Borrego Mountain 33°09'N; 116°08'W	6.5	Castaic, Old Ridge Rt.	110	174	Maximum accel. <0.01g			
68	07	04	16:45	Santa Barbara Channel 34°07'N; 119°42'W	5.2	Castaic, Old Ridge Rt.	110	67	N21E 0.03g	N69W 0.02g	Vert <0.01g	
71	02	09	6:00	San Fernando 34°24'N; 118°24'W	6.4	Castaic, Old Ridge Rt.	110	18*	N21E 309.4	N69W 265.4	Down 153.3	D-056
						Santa Felicia Dam, Outlet Works	284	20*	S08E 213.0	S82W 198.3	Down 63.7	E-061
						Lake Hughes Array, No. 4	126	18	S69E 168.2	S21W 143.5	Down 150.8	J-142
						Lake Hughes Array, No. 12	128	15*	N21E 346.2	N69W 277.9	Down 105.3	J-144

Notes:

Data from Hudson, et al. (1969-1975 a and b), except for the 1966 and the 1968 earthquakes for which the data were obtained from U.S. Geological Survey open files, Menlo Park, California.

* Distance calculated from station and epicenter coordinates

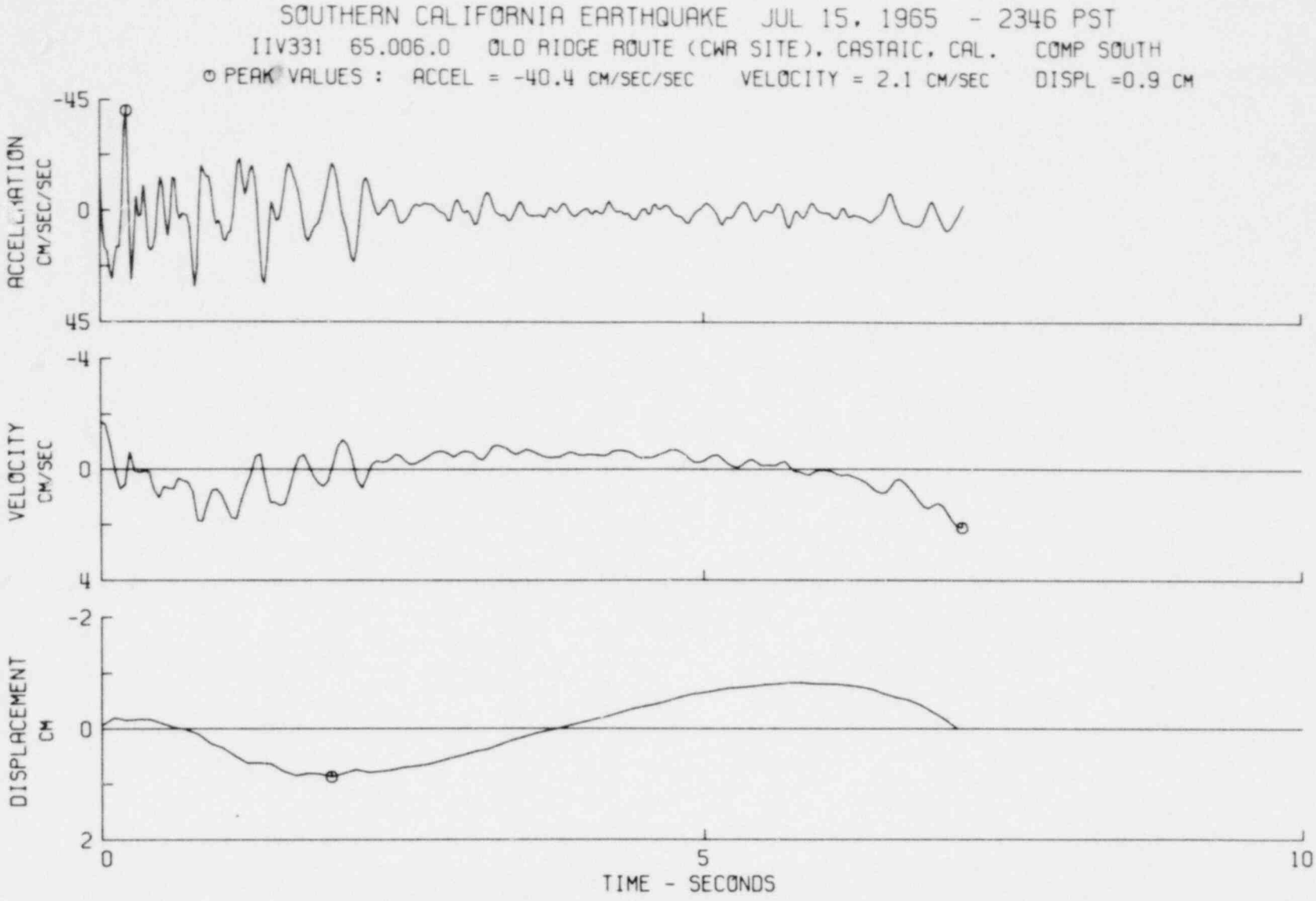

SOUTHERN CALIFORNIA EARTHQUAKE JUL 15, 1965 - 2346 PST
IIV331 65.006.0 OLD RIDGE ROUTE (CWR SITE), CASTAIC, CAL. COMP SOUTH
⊙ PEAK VALUES : ACCEL = -40.4 CM/SEC/SEC VELOCITY = 2.1 CM/SEC DISPL =0.9 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
TIME - SECONDS

FIG. A5-1

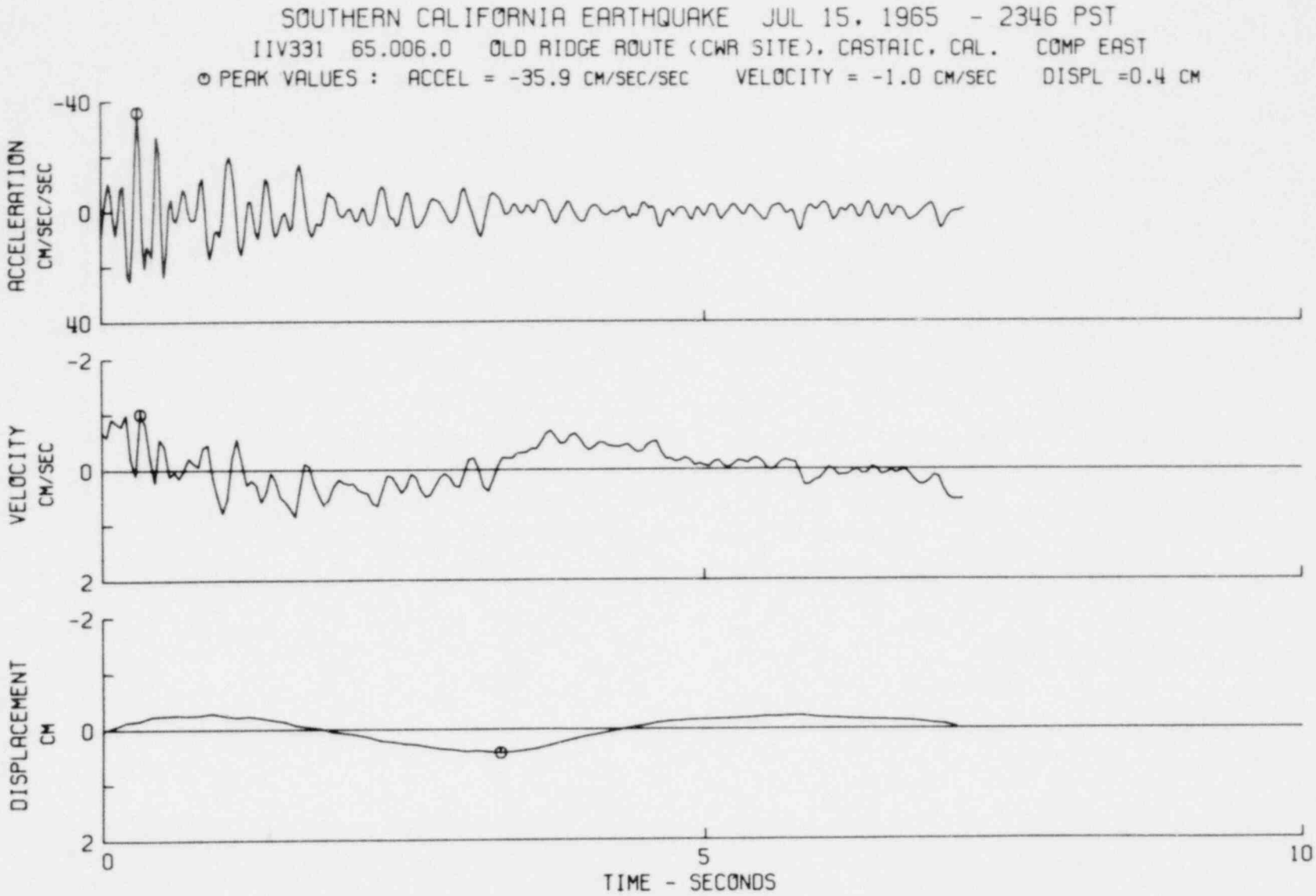

SOUTHERN CALIFORNIA EARTHQUAKE JUL 15. 1965 - 2346 PST
IIV331 65.006.0 OLD RIDGE ROUTE (CWR SITE). CASTAIC. CAL. COMP EAST
⊙ PEAK VALUES : ACCEL = -35.9 CM/SEC/SEC VELOCITY = -1.0 CM/SEC DISPL =0.4 CM
ACCELERATION CM/SEC/SEC
-40
0
40
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
TIME - SECONDS

FIG. A5-2

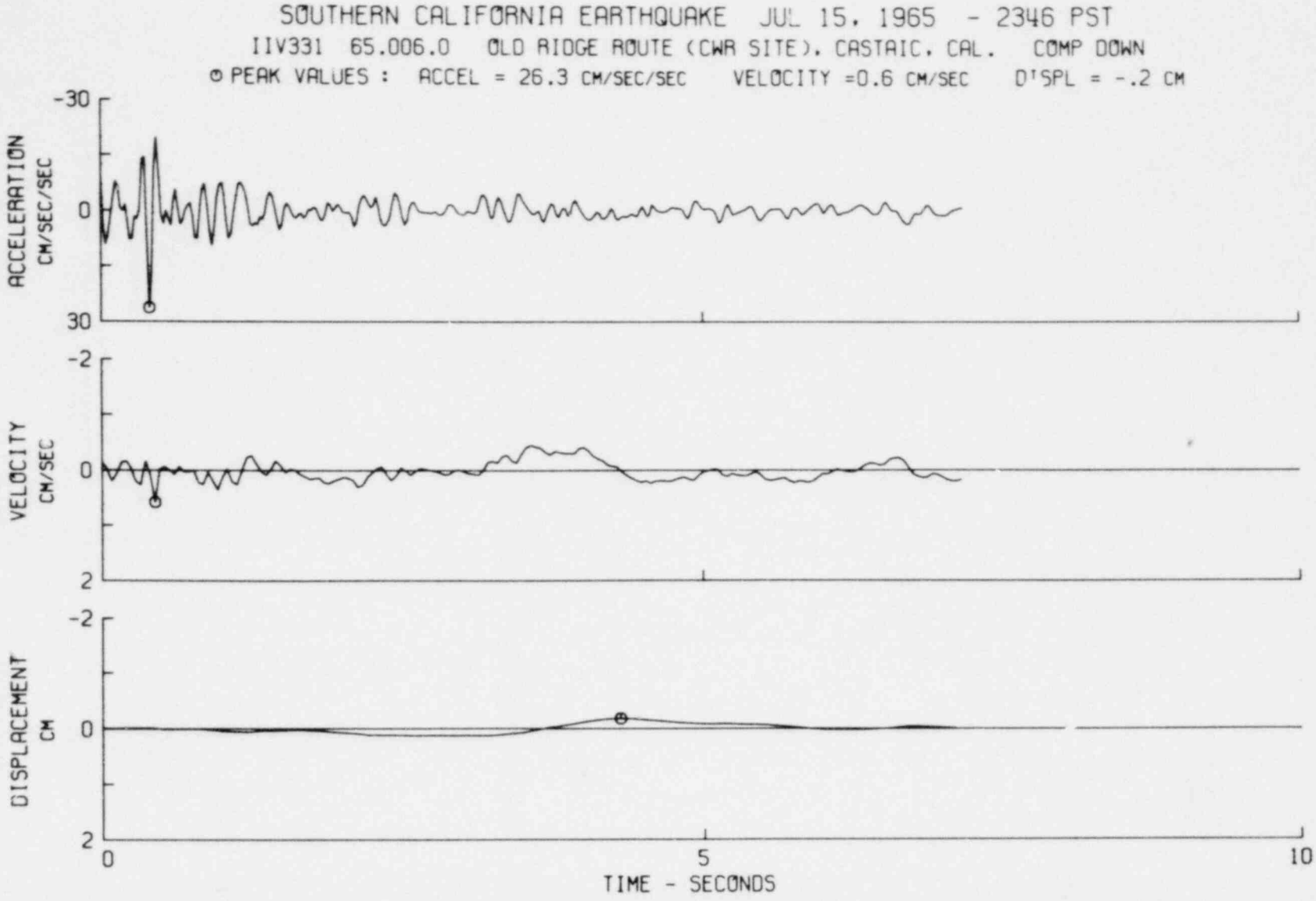

SOUTHERN CALIFORNIA EARTHQUAKE JUL 15, 1965 - 2346 PST
IIV331 65.006.0 OLD RIDGE ROUTE (CWR SITE), CASTAIC, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = 26.3 CM/SEC/SEC VELOCITY =0.6 CM/SEC DISPL = -.2 CM
ACCELERATION CM/SEC/SEC
-30
0
30
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
TIME - SECONDS

FIG. A5-3

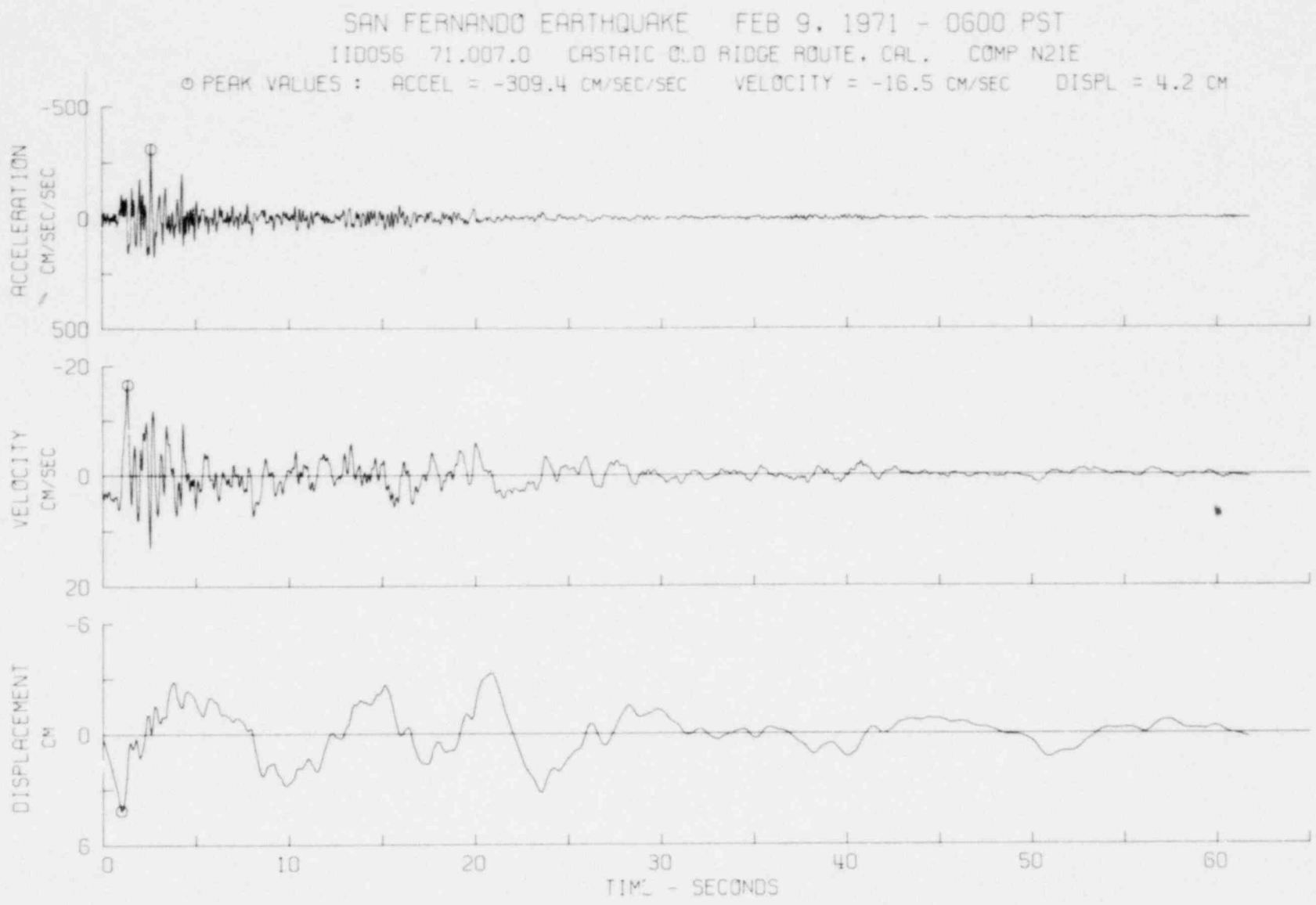

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IID056 71.007.0 CASTAIC OLD RIDGE ROUTE, CAL. COMP N21E
⊙ PEAK VALUES : ACCEL = -309.4 CM/SEC/SEC VELOCITY = -16.5 CM/SEC DISPL = 4.2 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A5-4

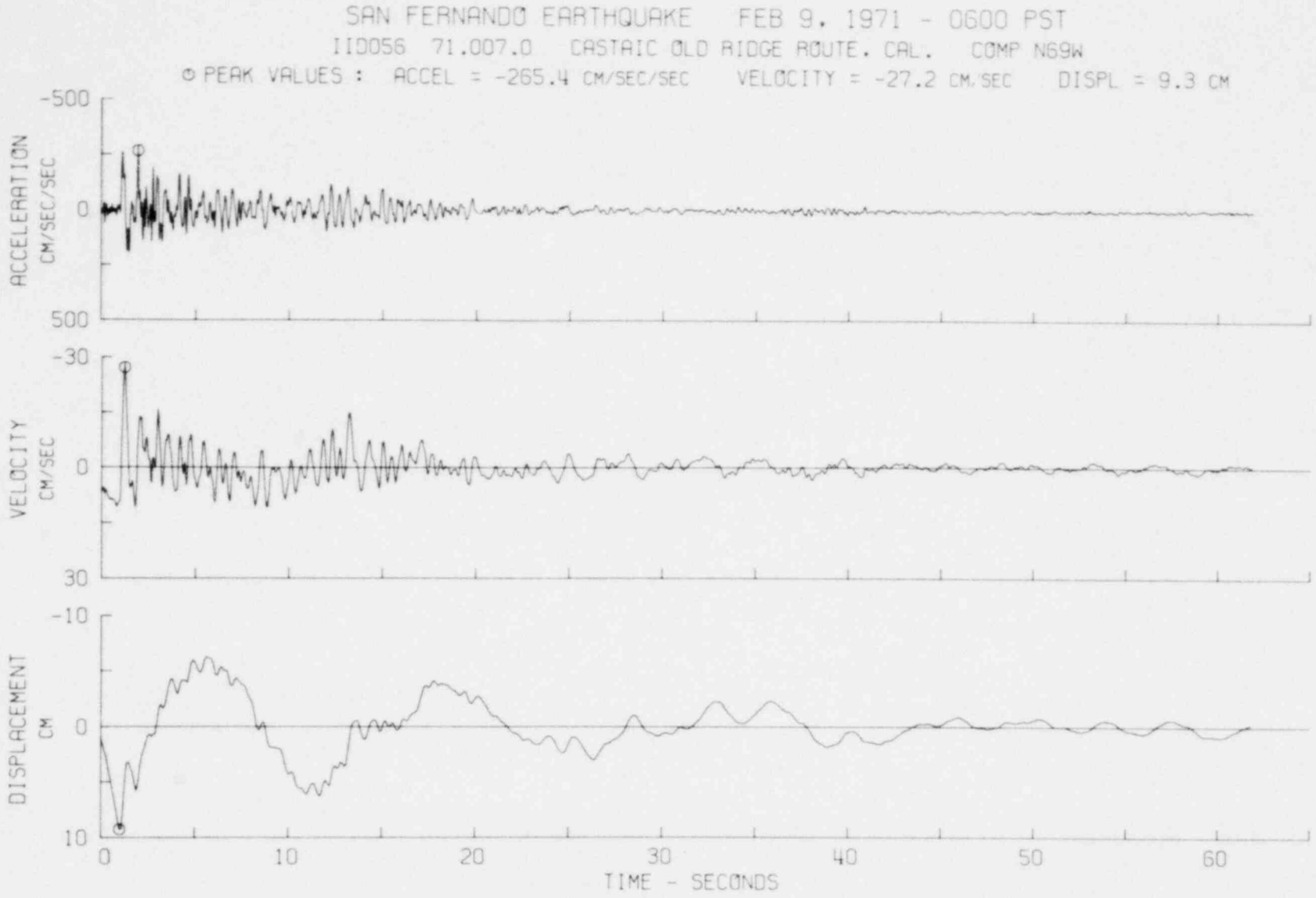

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IID056 71.007.0 CASTAIC OLD RIDGE ROUTE. CAL. COMP N69W
⊙ PEAK VALUES : ACCEL = -265.4 CM/SEC/SEC VELOCITY = -27.2 CM/SEC DISPL = 9.3 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-30
0
30
DISPLACEMENT CM
-10
0
10
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A5-5

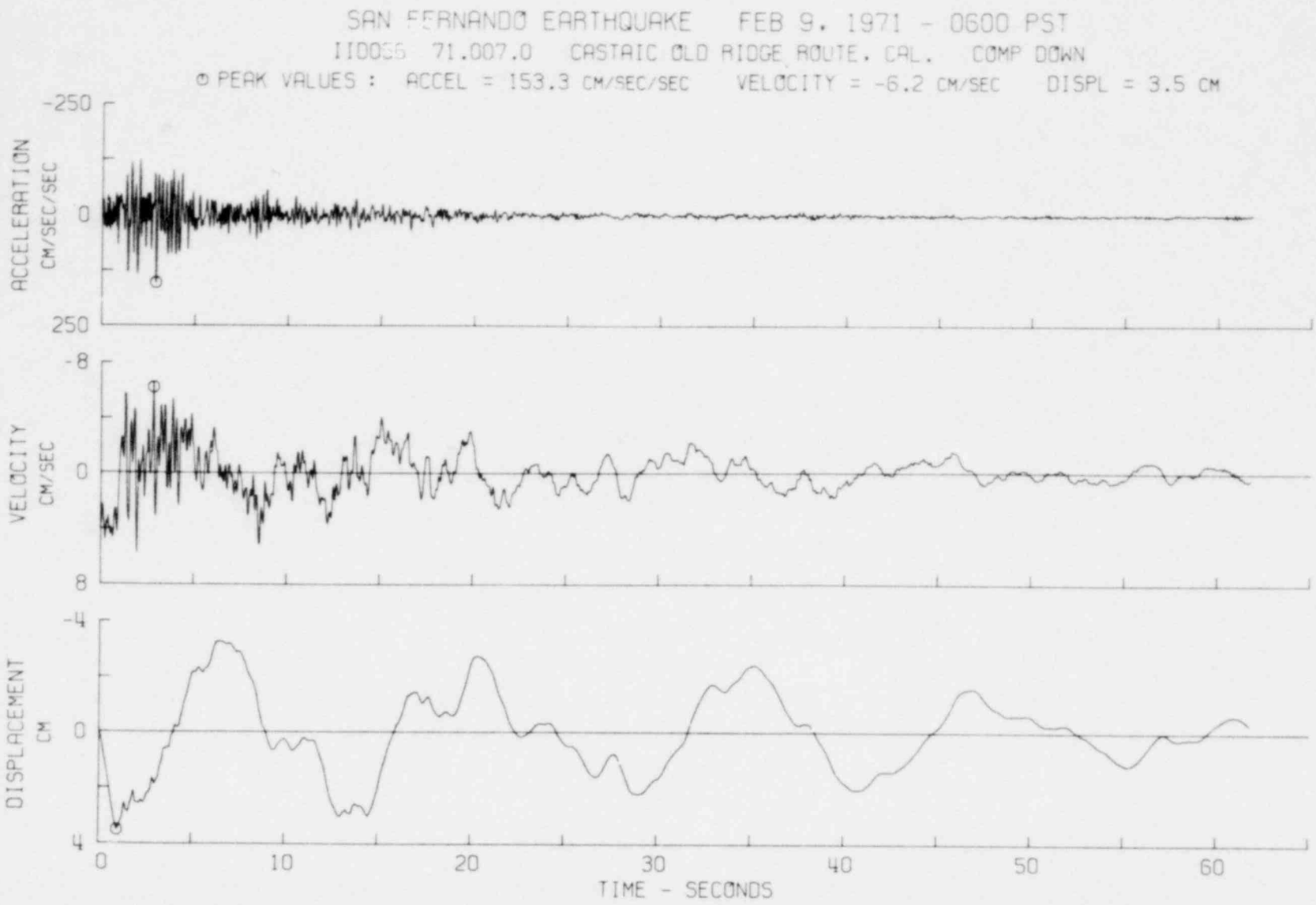

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IID055 71.007.0 CASTAIC OLD RIDGE ROUTE. CAL. COMP DOWN
Φ PEAK VALUES : ACCEL = 153.3 CM/SEC/SEC VELOCITY = -6.2 CM/SEC DISPL = 3.5 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-8
0
8
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A5-6

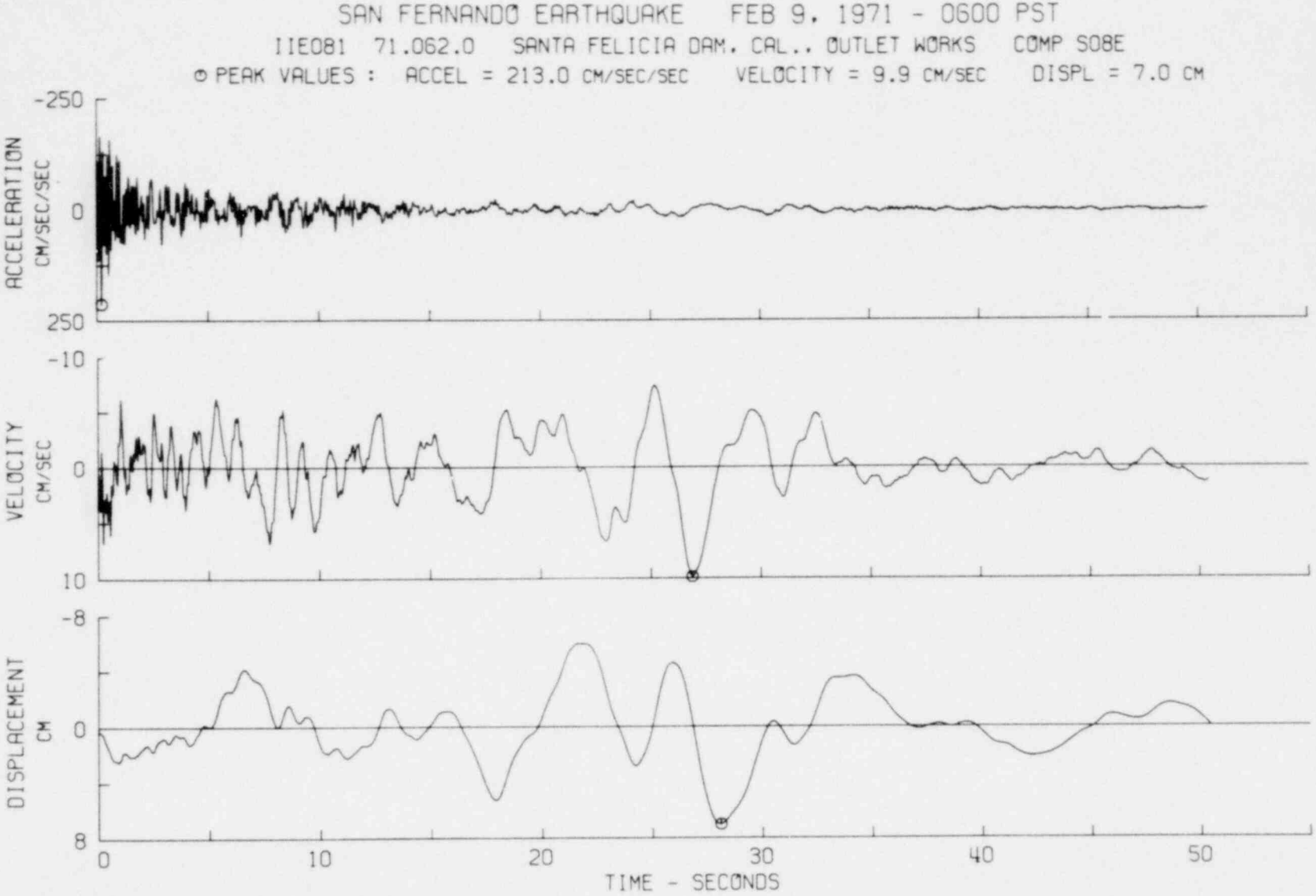

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIE081 71.062.0 SANTA FELICIA DAM, CAL., OUTLET WORKS COMP S08E
⊙ PEAK VALUES : ACCEL = 213.0 CM/SEC/SEC VELOCITY = 9.9 CM/SEC DISPL = 7.0 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-8
0
8
0
10
20
30
40
50
TIME - SECONDS

FIG. A5-7

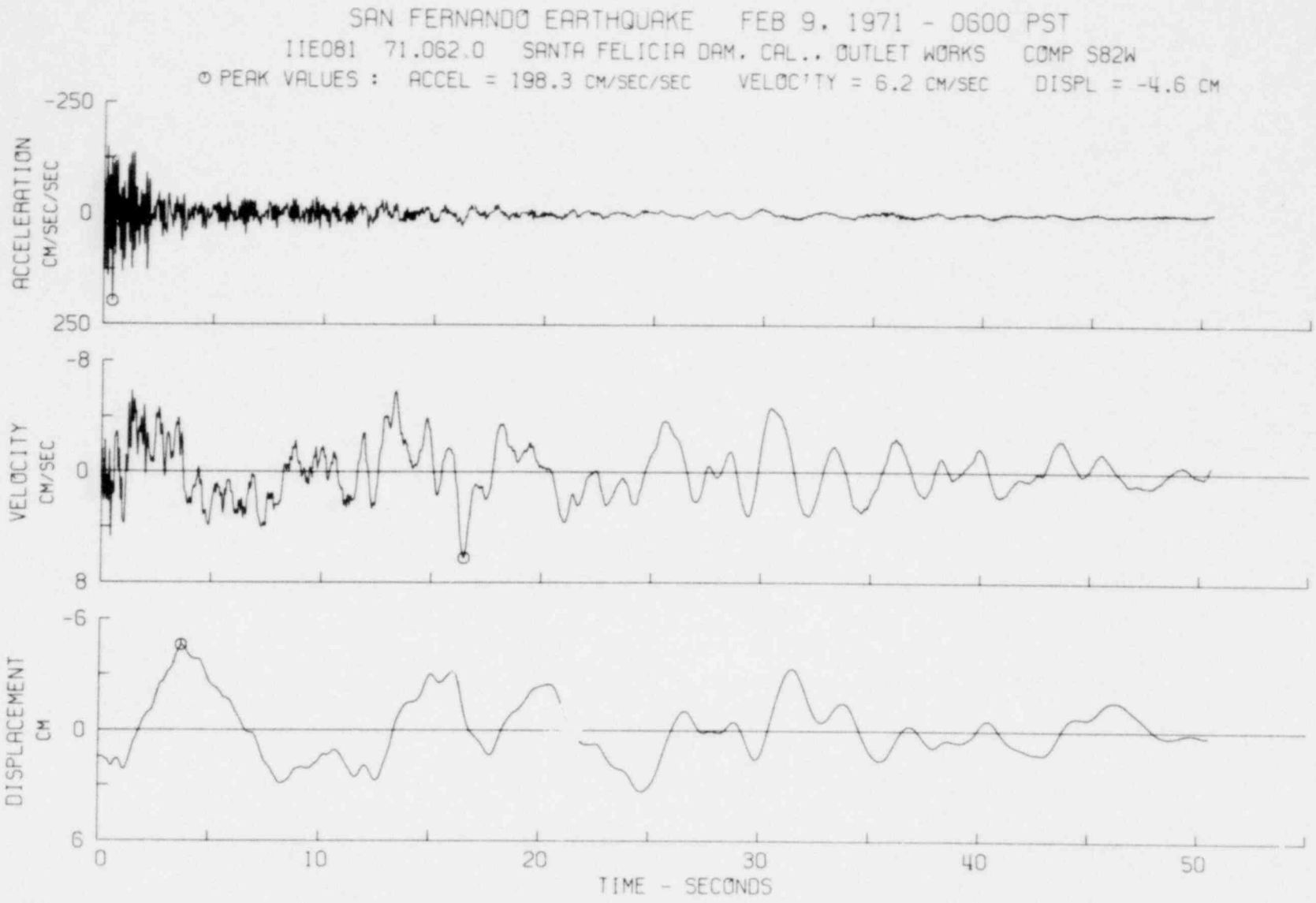

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIE081 71.062.0 SANTA FELICIA DAM, CAL., OUTLET WORKS COMP S82W
⊙ PEAK VALUES : ACCEL = 198.3 CM/SEC/SEC VELOCITY = 6.2 CM/SEC DISPL = -4.6 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-8
0
8
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
TIME - SECONDS

FIG. A5-8

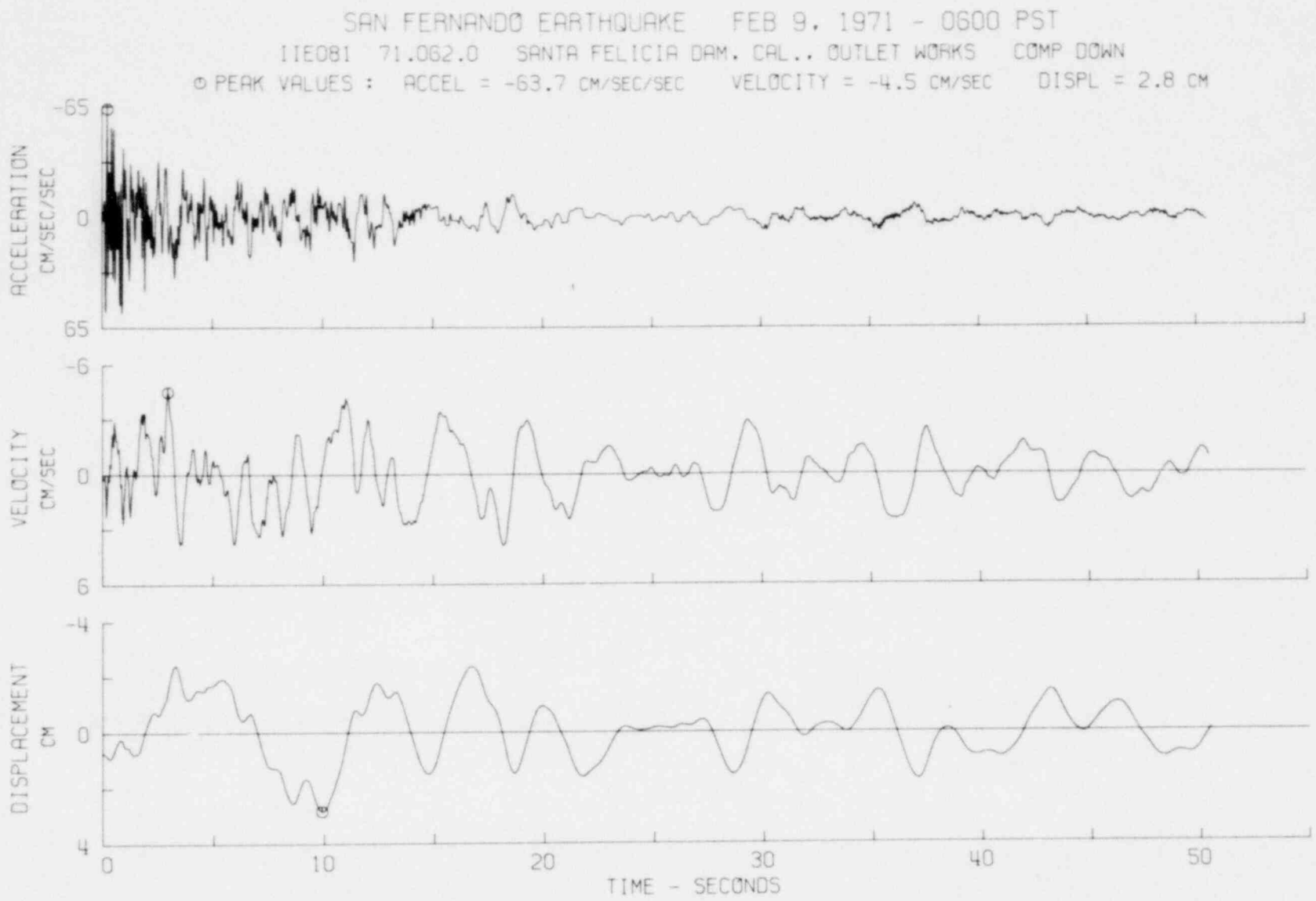

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIE081 71.062.0 SANTA FELICIA DAM. CAL.. OUTLET WORKS COMP DOWN
⊙ PEAK VALUES : ACCEL = -63.7 CM/SEC/SEC VELOCITY = -4.5 CM/SEC DISPL = 2.8 CM
ACCELERATION CM/SEC/SEC
-65
0
65
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
TIME - SECONDS

FIG. A5-9

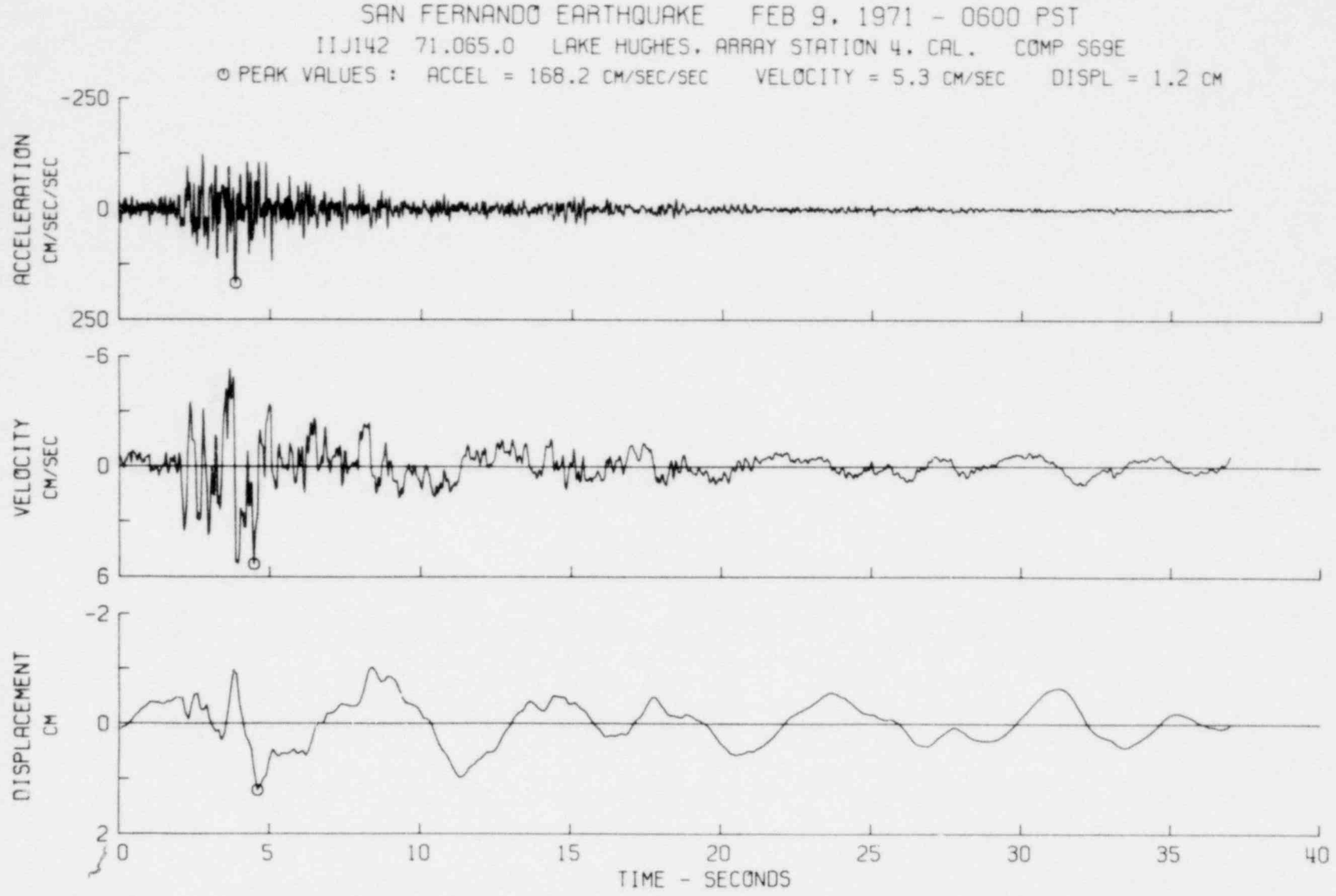

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIJ142 71.065.0 LAKE HUGHES, ARRAY STATION 4, CAL. COMP S69E
⊙ PEAK VALUES : ACCEL = 168.2 CM/SEC/SEC VELOCITY = 5.3 CM/SEC DISPL = 1.2 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A5-10

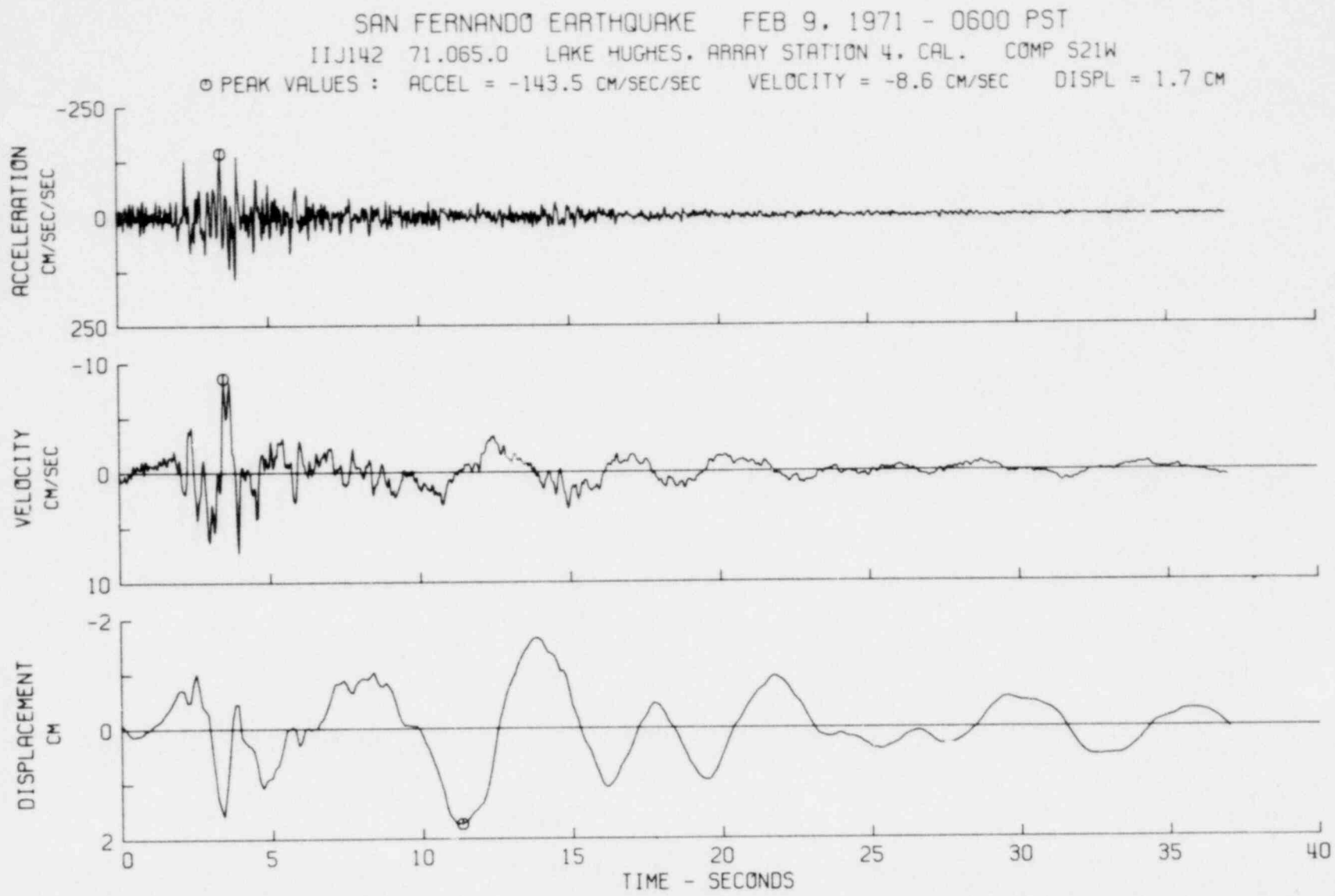

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIJ142 71.065.0 LAKE HUGHES. ARRAY STATION 4. CAL. COMP S21W
⊙ PEAK VALUES : ACCEL = -143.5 CM/SEC/SEC VELOCITY = -8.6 CM/SEC DISPL = 1.7 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A5-11

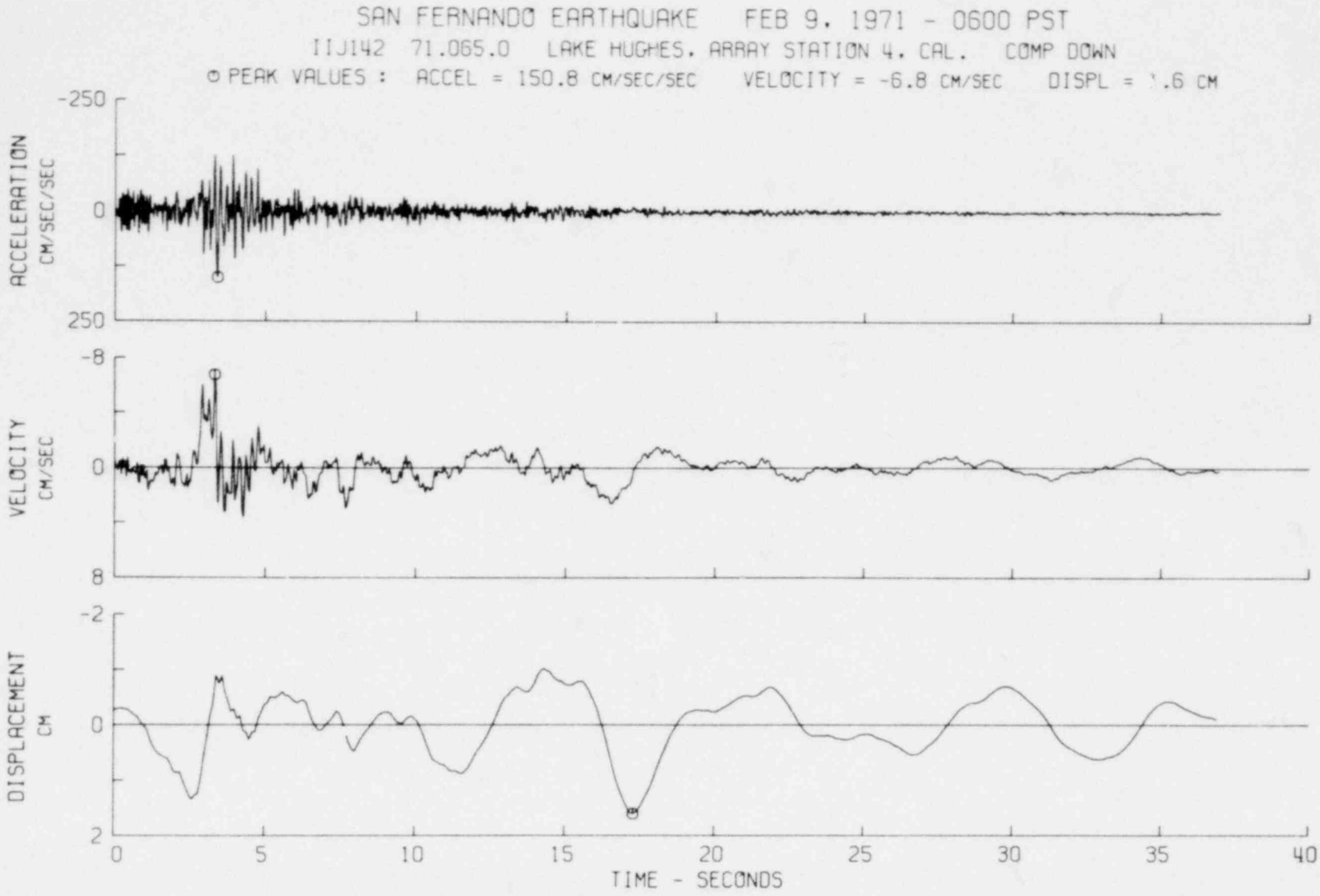

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IIJ142 71.065.0 LAKE HUGHES. ARRAY STATION 4. CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = 150.8 CM/SEC/SEC VELOCITY = -6.8 CM/SEC DISPL = 1.6 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-8
0
8
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A5-12

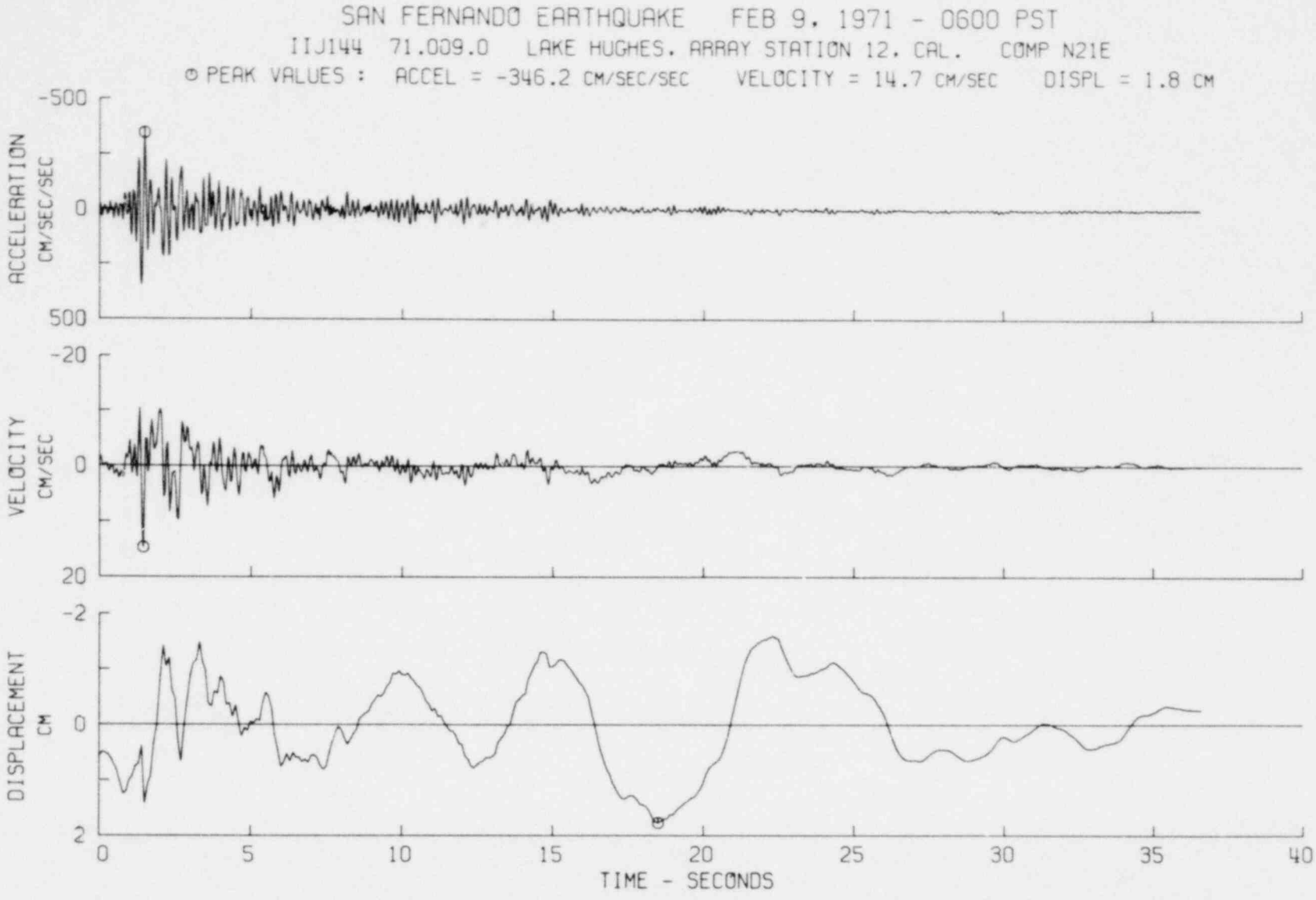

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IIJ144 71.009.0 LAKE HUGHES. ARRAY STATION 12. CAL. COMP N21E
⊙ PEAK VALUES : ACCEL = -346.2 CM/SEC/SEC VELOCITY = 14.7 CM/SEC DISPL = 1.8 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A5-13

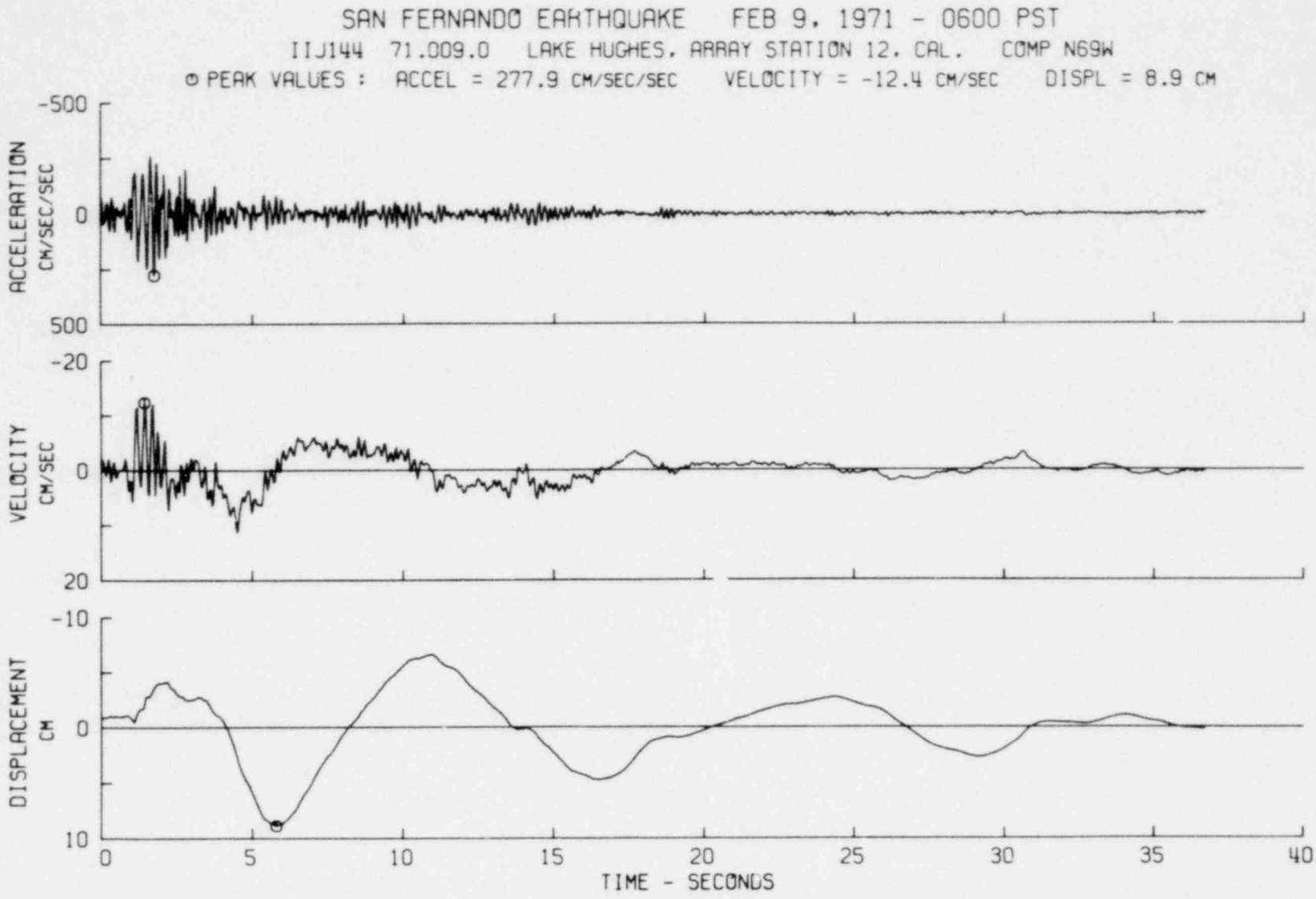

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIJ144 71.009.0 LAKE HUGHES, ARRAY STATION 12, CAL. COMP N69W
⊙ PEAK VALUES : ACCEL = 277.9 CM/SEC/SEC VELOCITY = -12.4 CM/SEC DISPL = 8.9 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-10
0
10
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A5-14

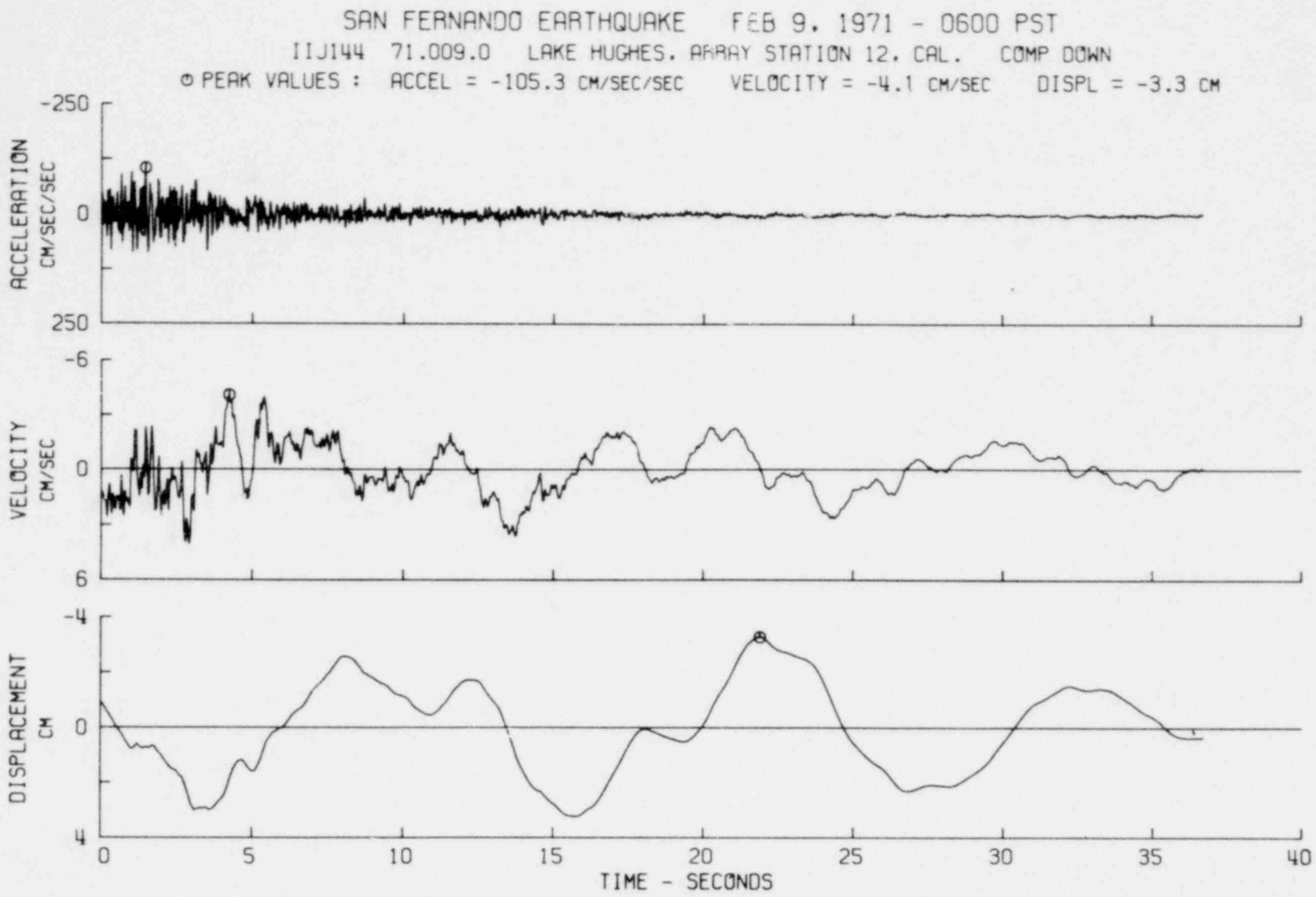

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIJ144 71.009.0 LAKE HUGHES, ARRAY STATION 12, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = -105.3 CM/SEC/SEC VELOCITY = -4.1 CM/SEC DISPL = -3.3 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A5-15

RESPONSE SPECTRUM

SOUTHERN CALIFORNIA EARTHQUAKE JUL 15, 1965 - 2346 PST

IIIV331 65.006.0 OLD RIDGE ROUTE (CWR SITE), CASTAIC, CAL. COMP SOUTH

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

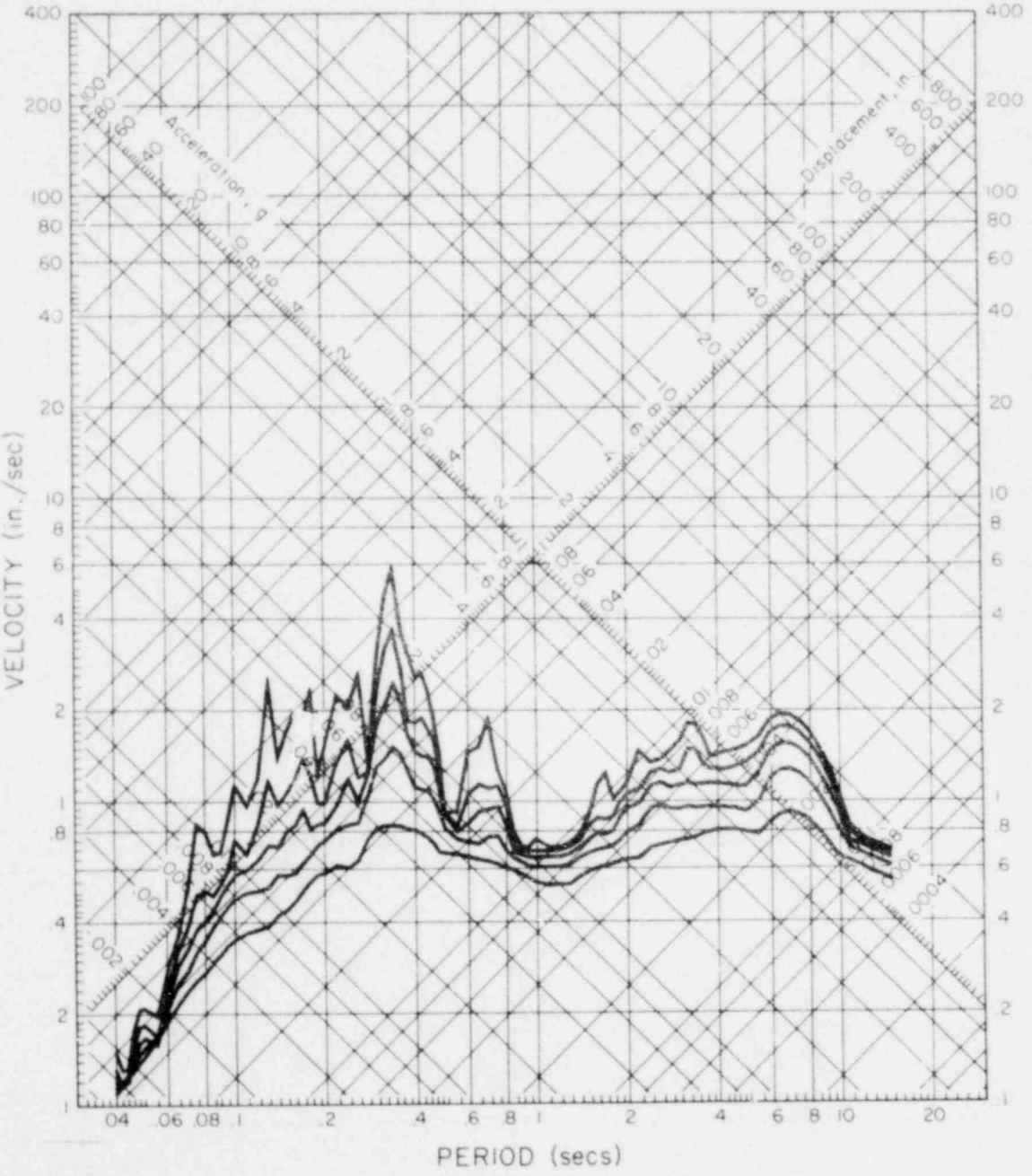


FIG. A5-16

RESPONSE SPECTRUM

SOUTHERN CALIFORNIA EARTHQUAKE JUL 15, 1965 - 2346 PST

IIIV331 65.006.0 OLD RIDGE ROUTE (CWR SITE), CASTAIC CAL. COMP EAST

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

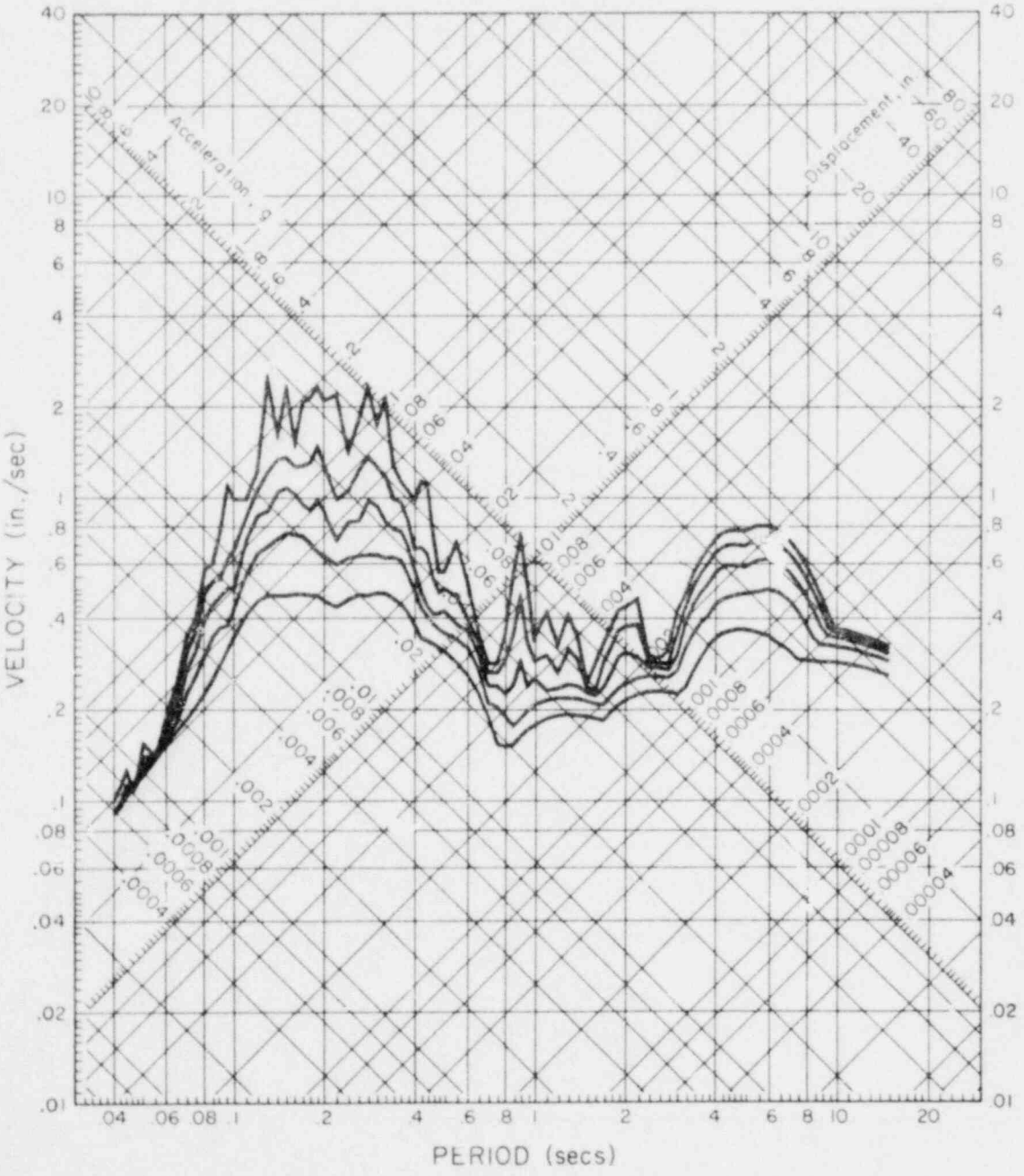


FIG. A5-17

RESPONSE SPECTRUM

SOUTHERN CALIFORNIA EARTHQUAKE JUL 15, 1965 - 2346 PST

IIIV331 65.006.0 OLD RIDGE ROUTE (CWR SITE), CASTAIC, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

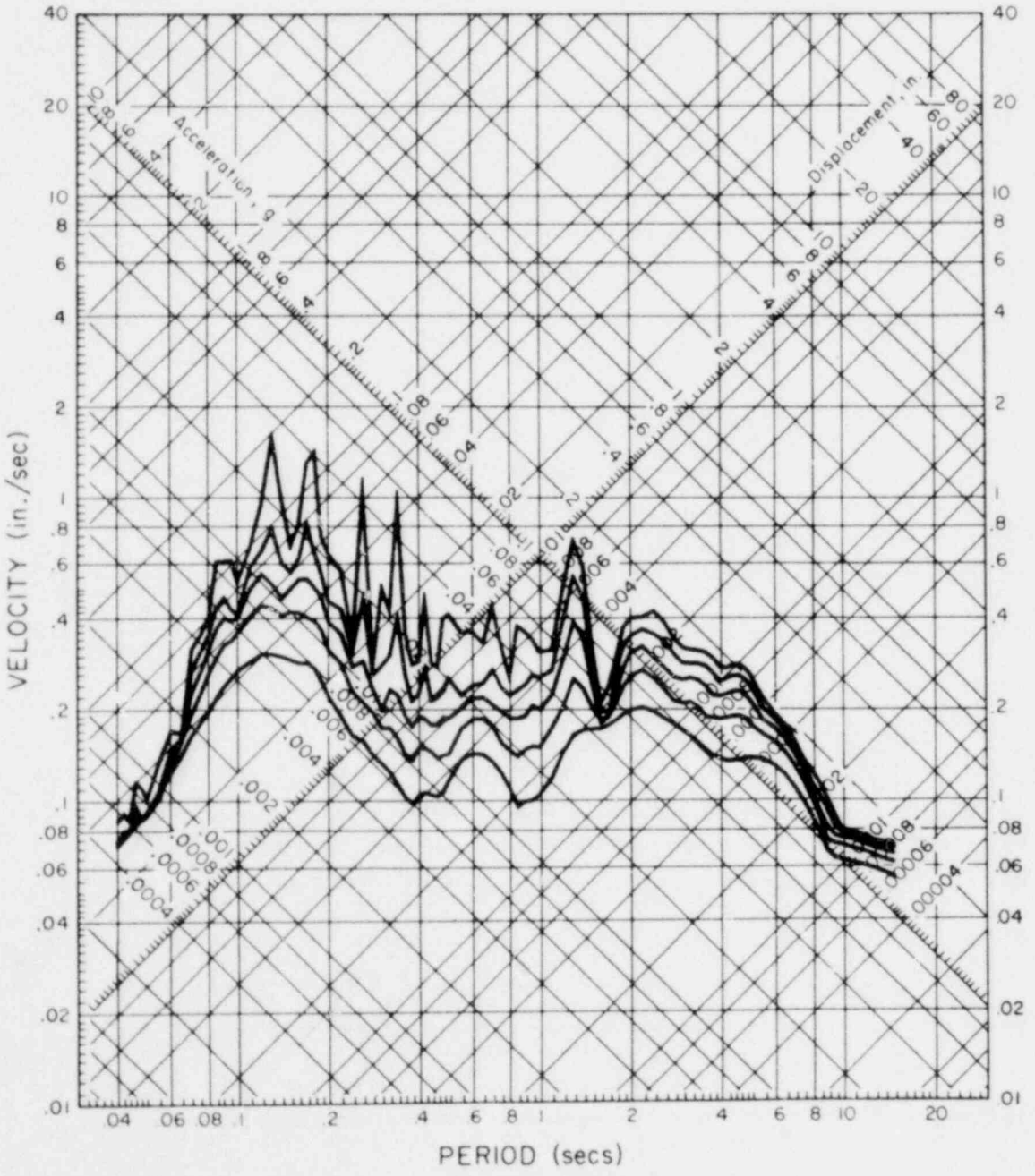


FIG. A5-18

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

1110056 71.007.0 CASTAIC OLD RIDGE ROUTE, CAL. COMP N21E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

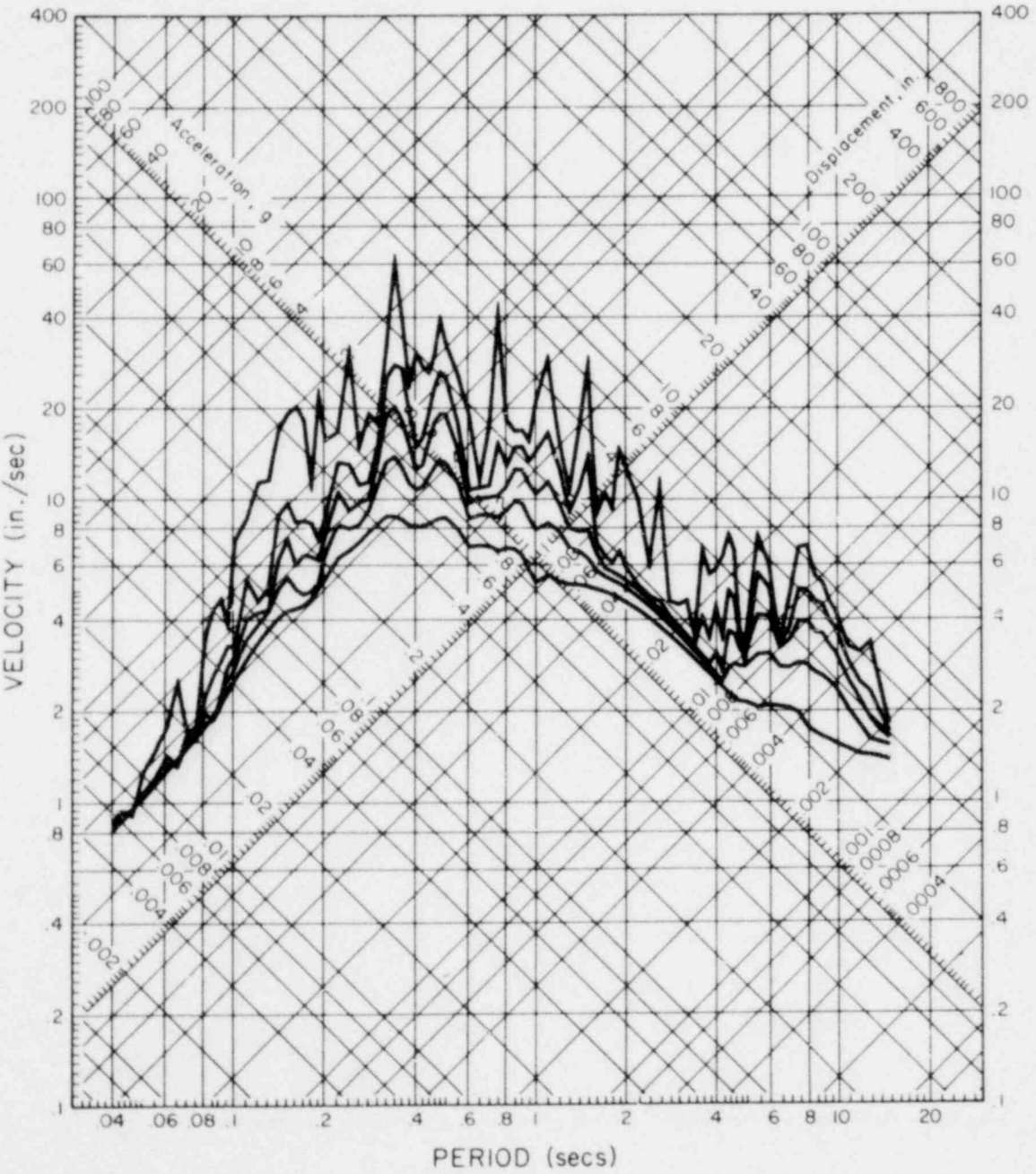


FIG. A5-19

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0056 71.007.0 CASTAIC OLD RIDGE ROUTE, CAL. COMP N69W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

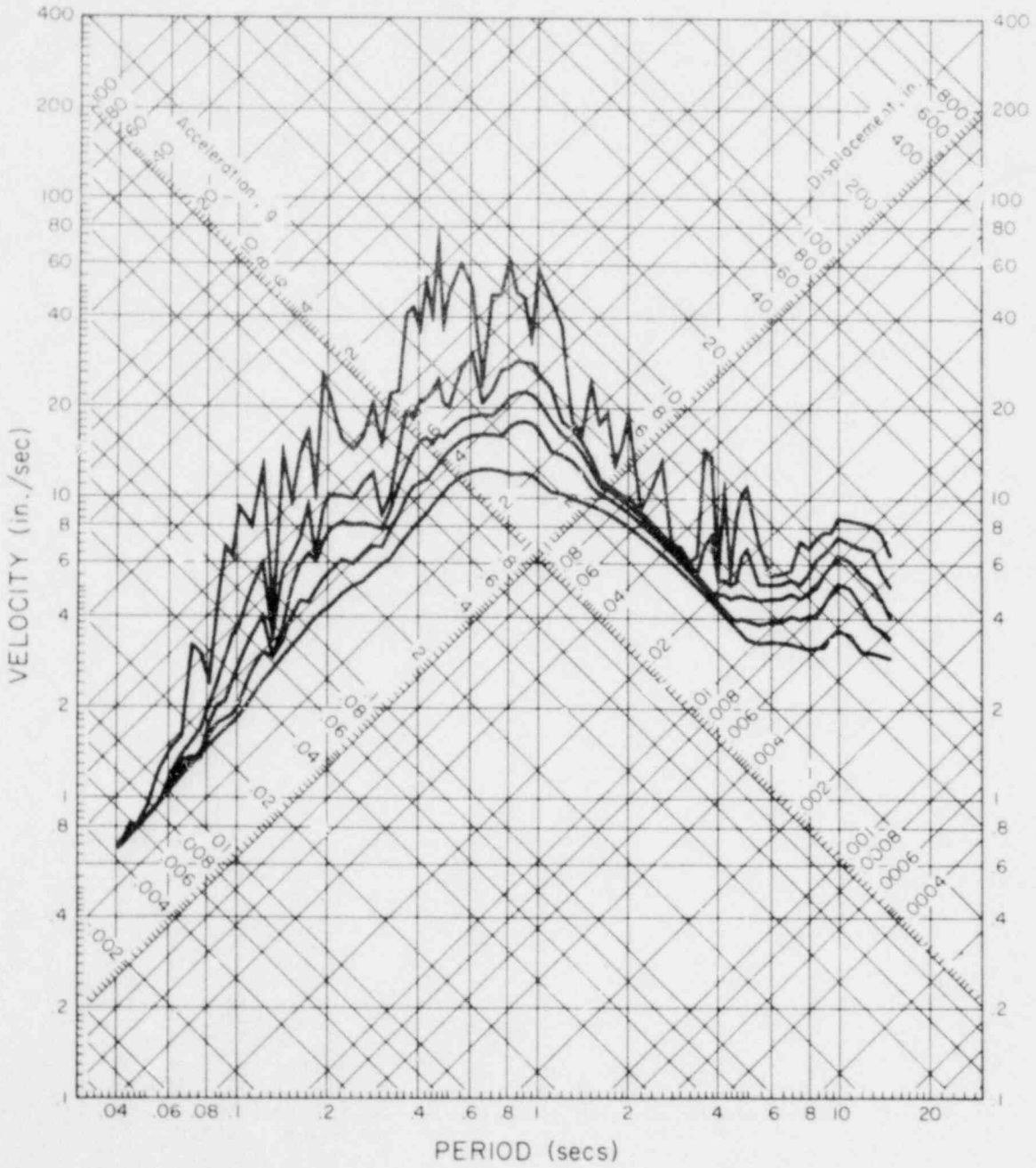


FIG. A5-20

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

1110056 71.007.0 CASTAIC OLD RIDGE ROUTE, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

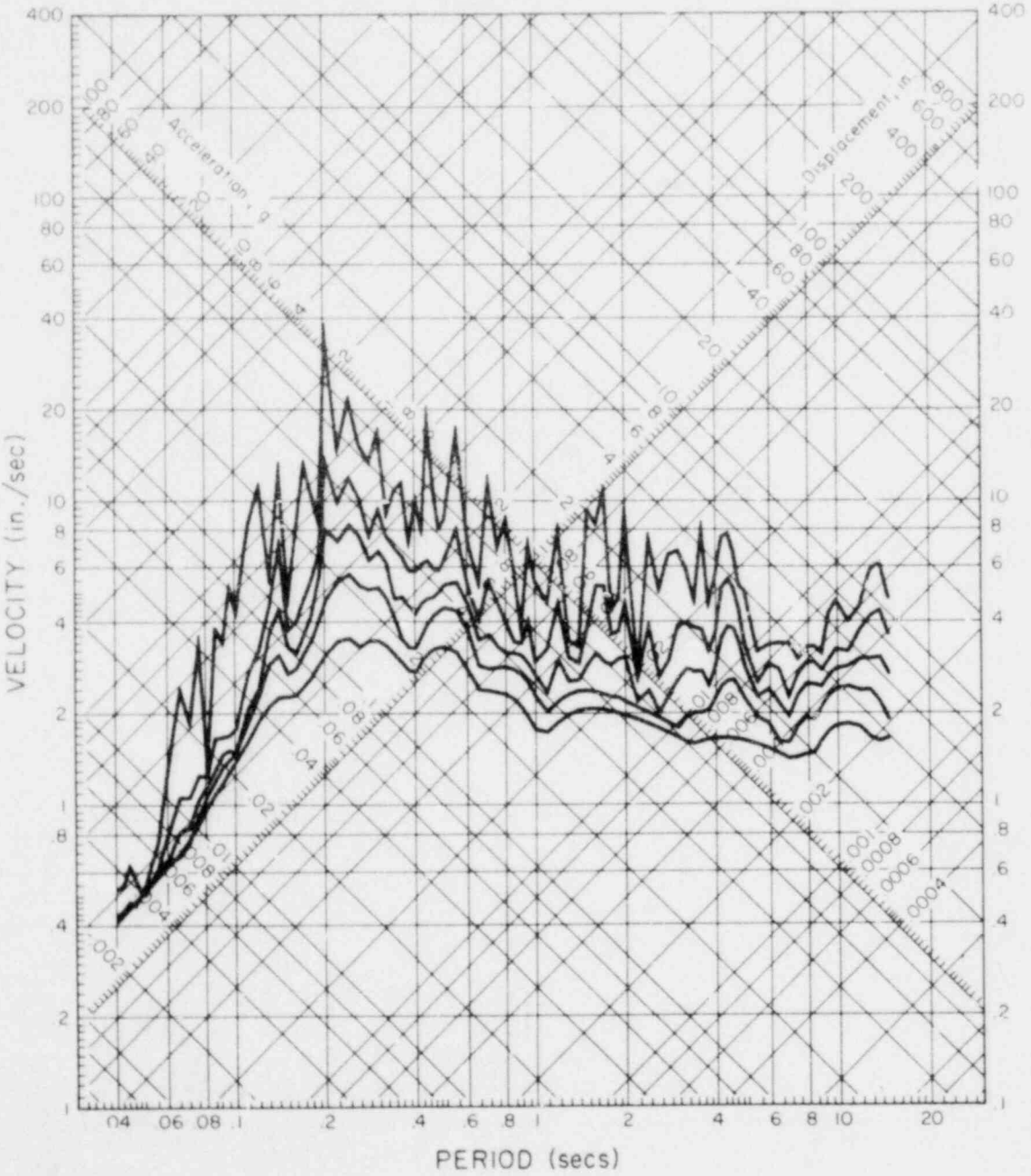


FIG. A5-21

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIE081 71.062.0 SANTA FELICIA DAM, CAL., OUTLET WORKS COMP S08E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

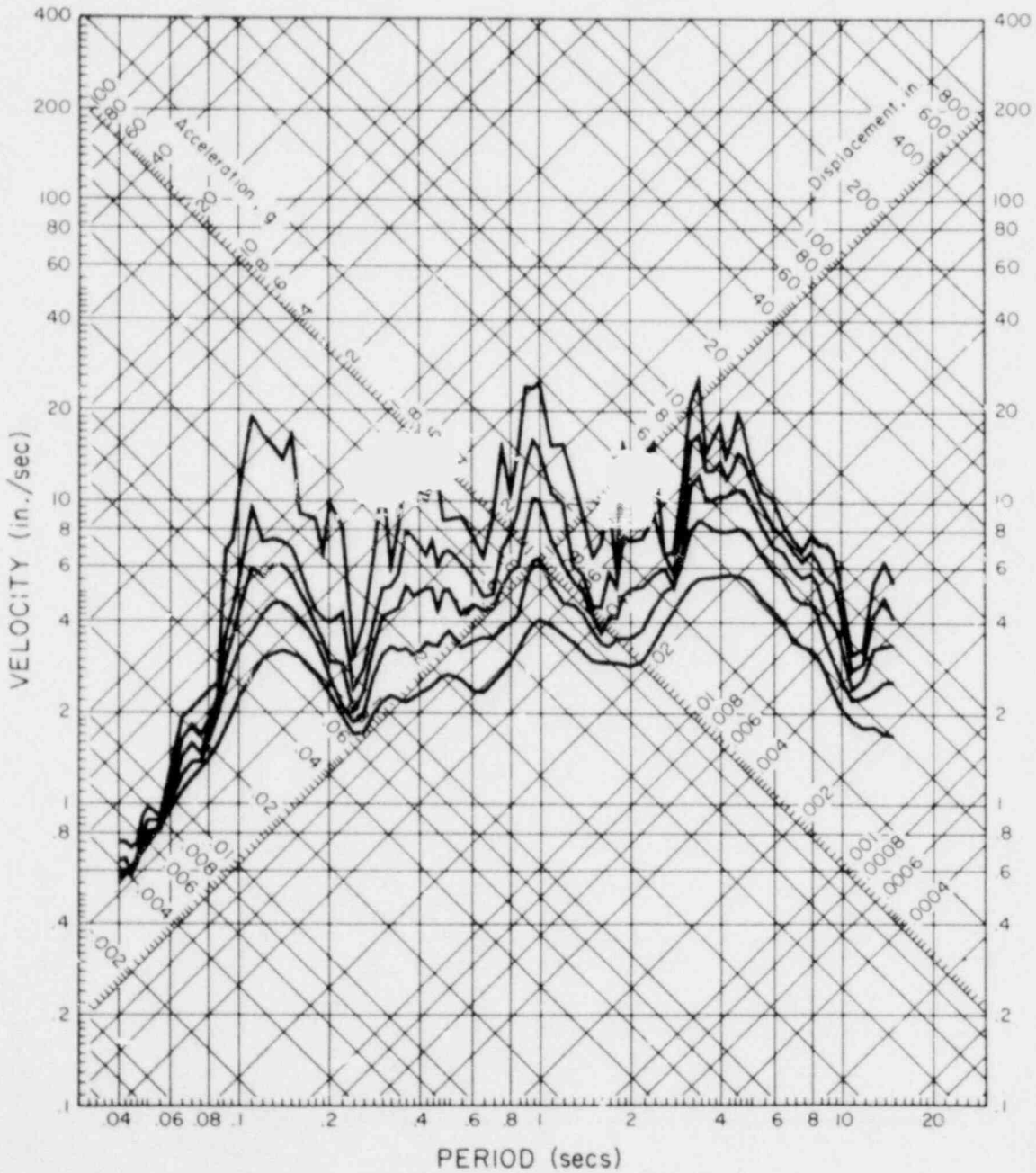


FIG. A5-22

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIE081 71.062.0 SANTA FELICIA DAM, CAL., OUTLET WORKS COMP S82W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

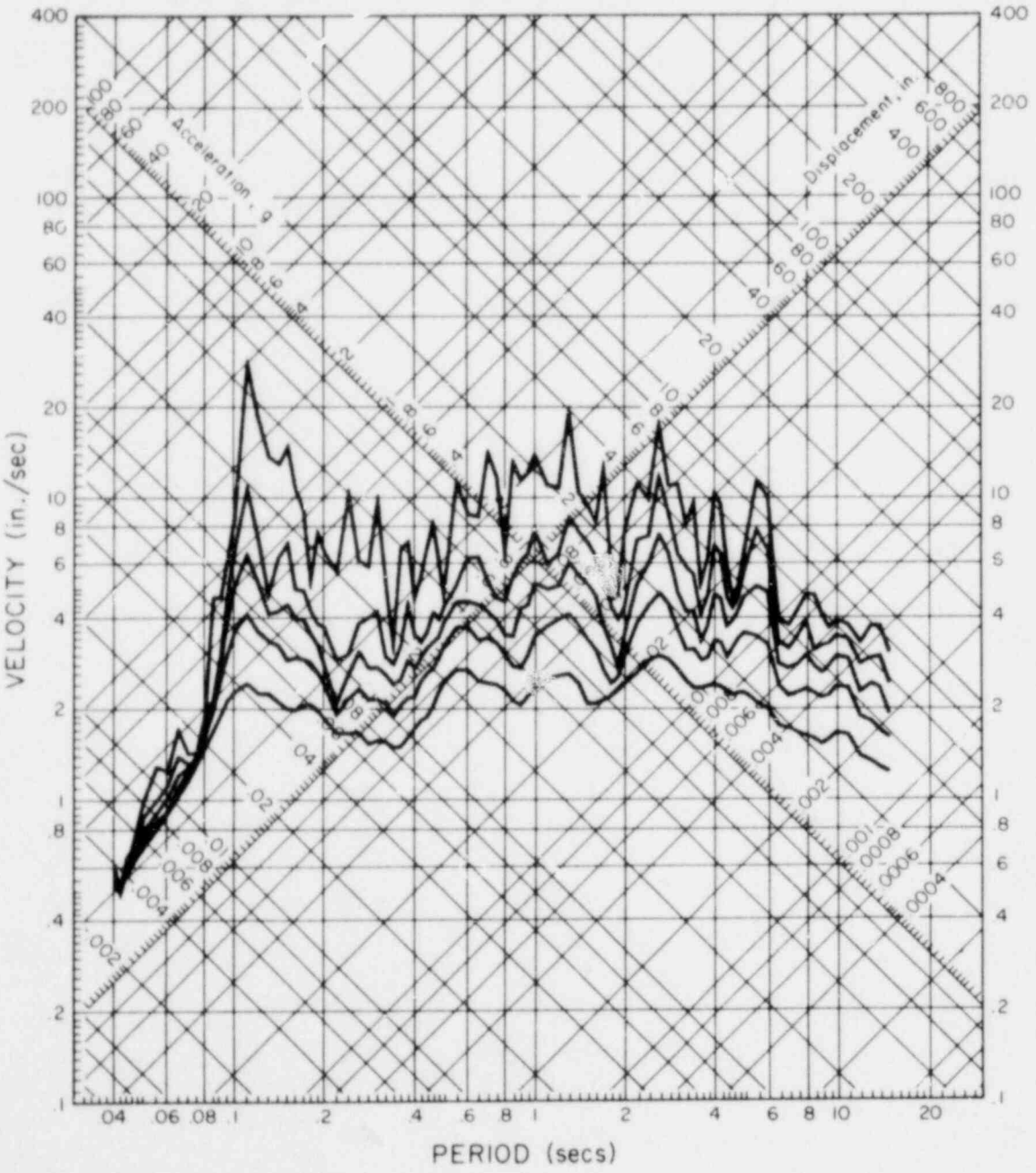


FIG. A5-23

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIE081 71.062.0 SANTA FELICIA DAM, CAL., OUTLET WORKS COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

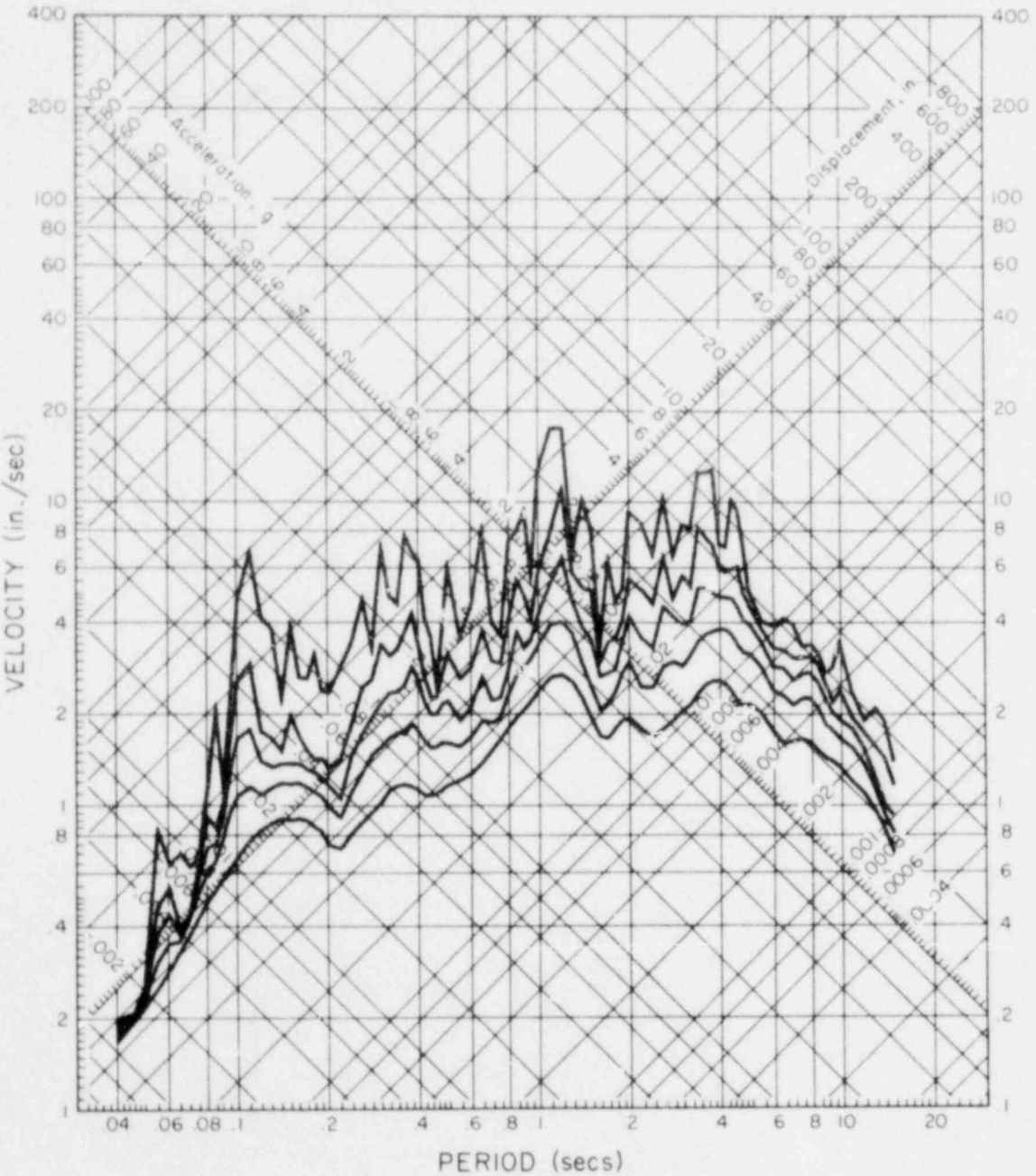


FIG. A5-24

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIJ142 71.065.0 LAKE HUGHES, ARRAY STATION 4, CAL. COMP S69E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

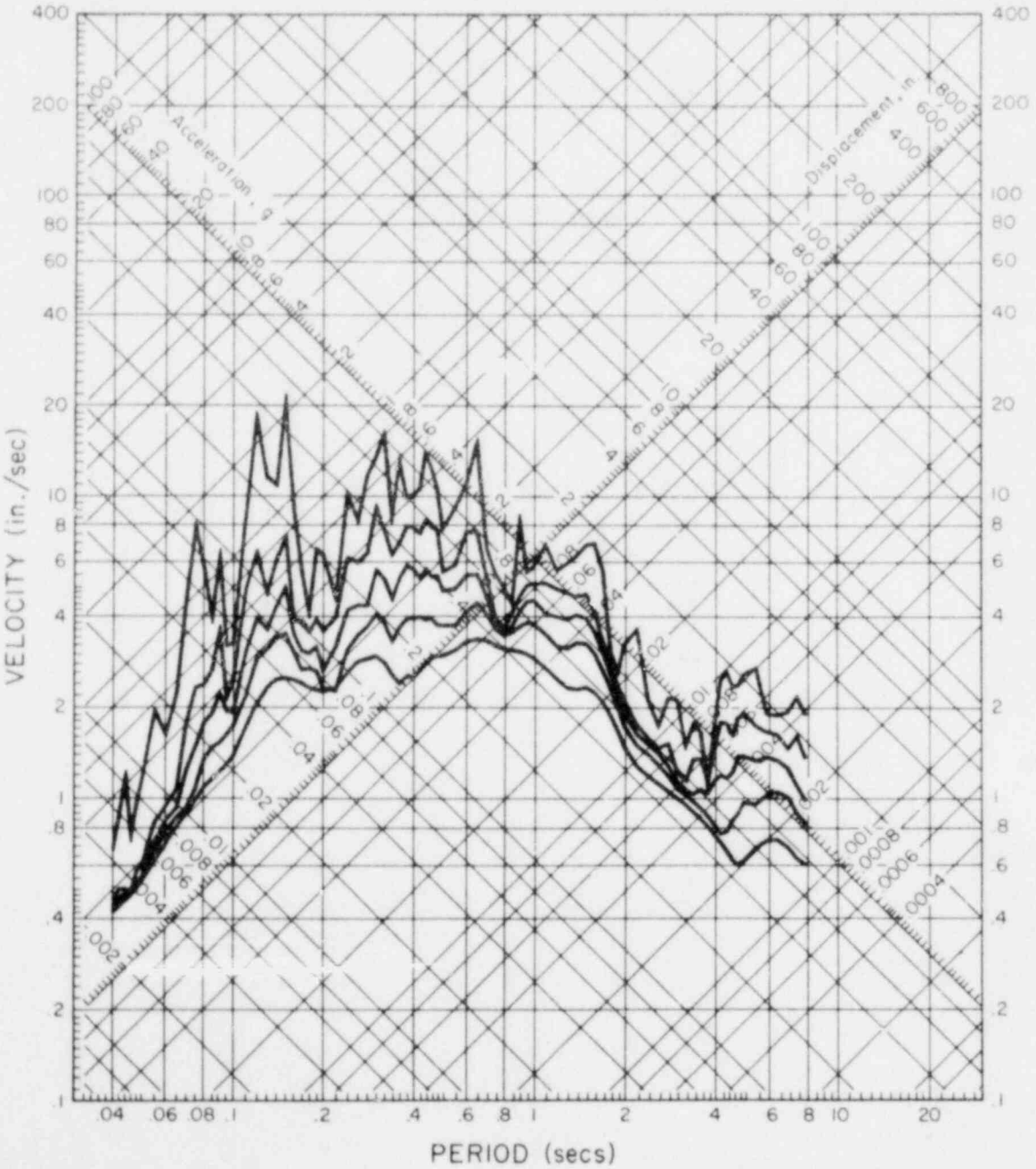


FIG. A5-25

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIJ142 71.065.0 LAKE HUGHES, ARRAY STATION 4, CAL. COMP S21W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

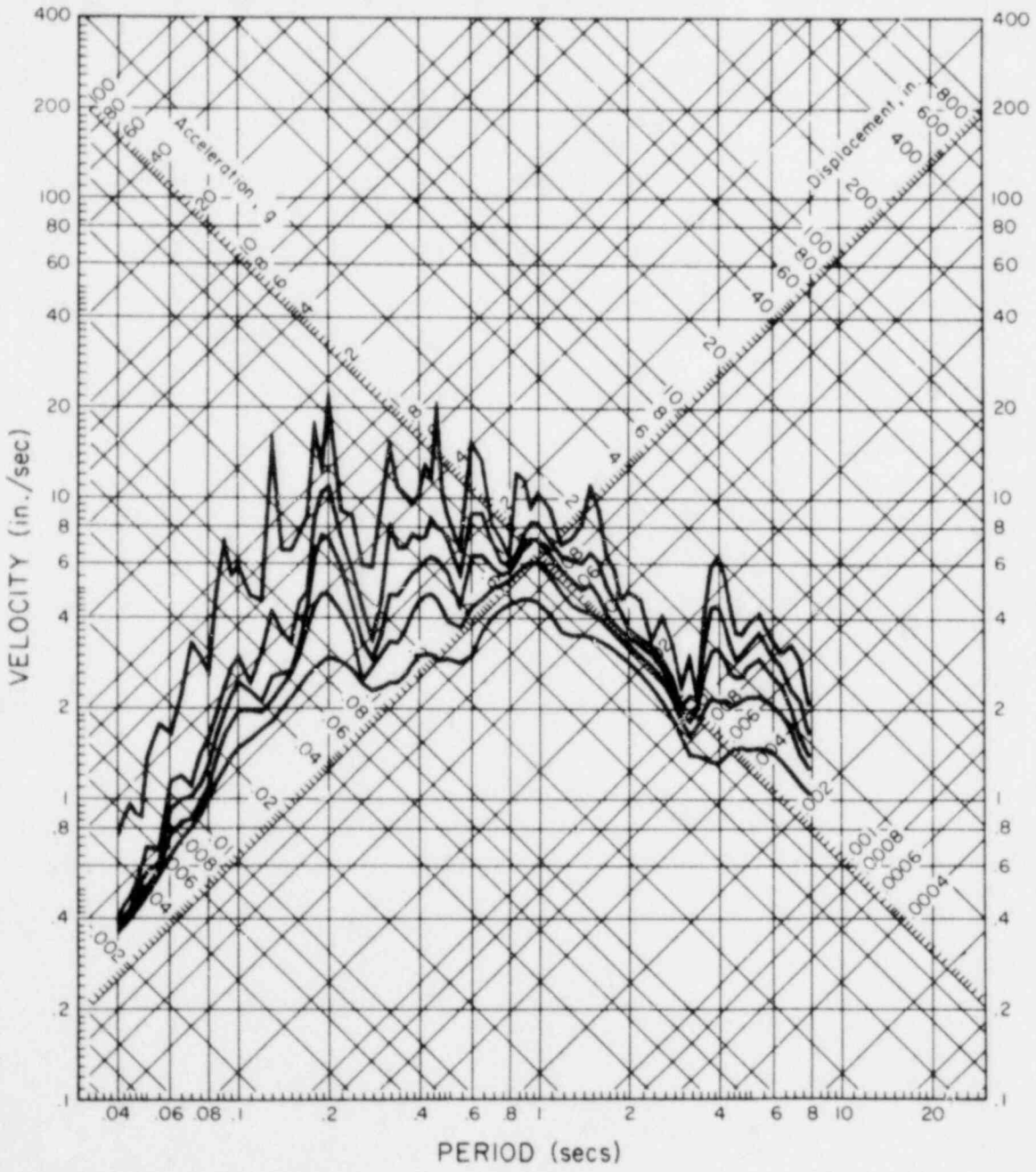


FIG. A5-26

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIJ142 71.065.0 LAKE HUGHES, ARRAY STATION 4, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

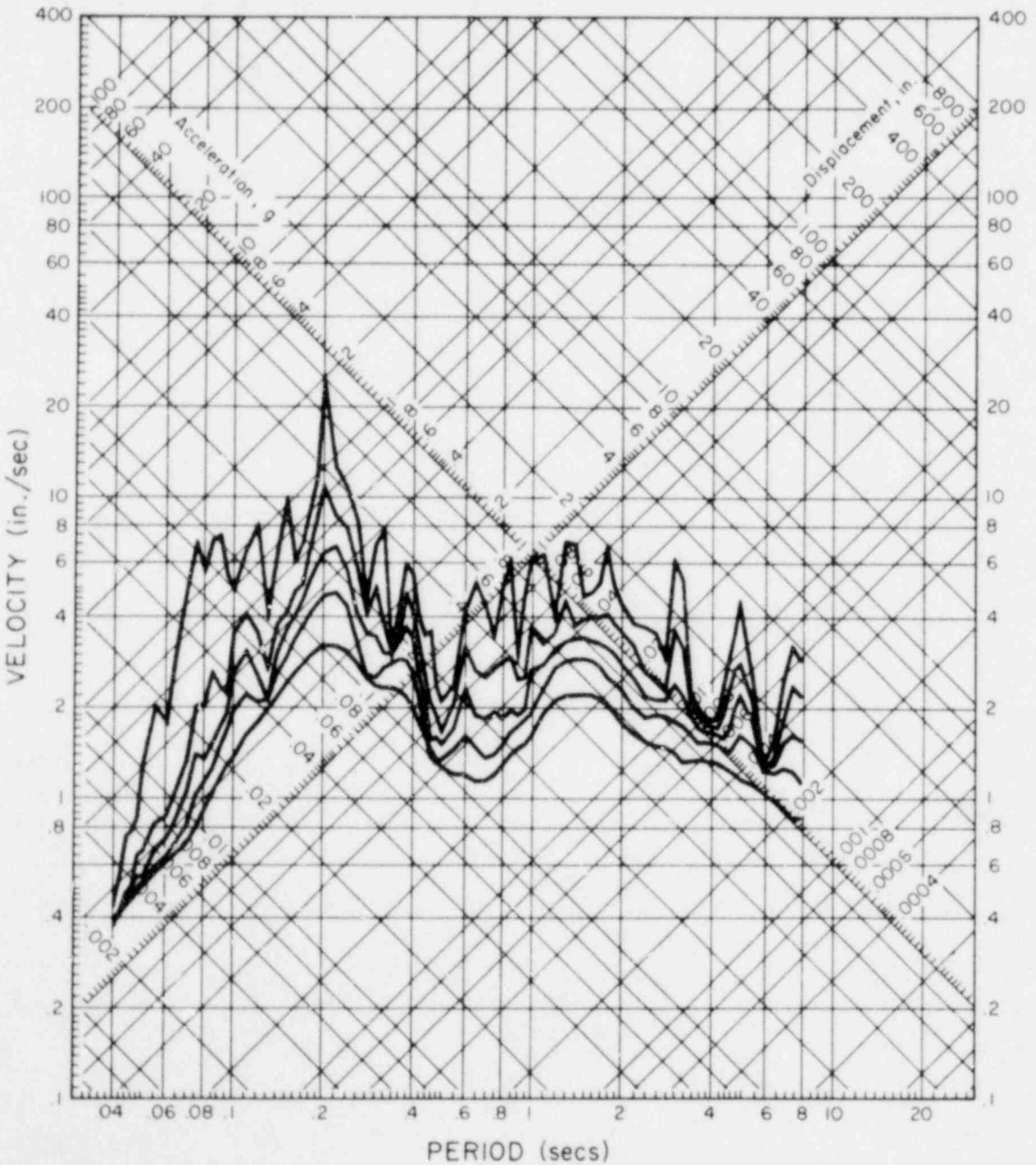


FIG. A5-27

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIJ144 71.009.0 LAKE HUGHES, ARRAY STATION 12, CAL. COMP N21E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

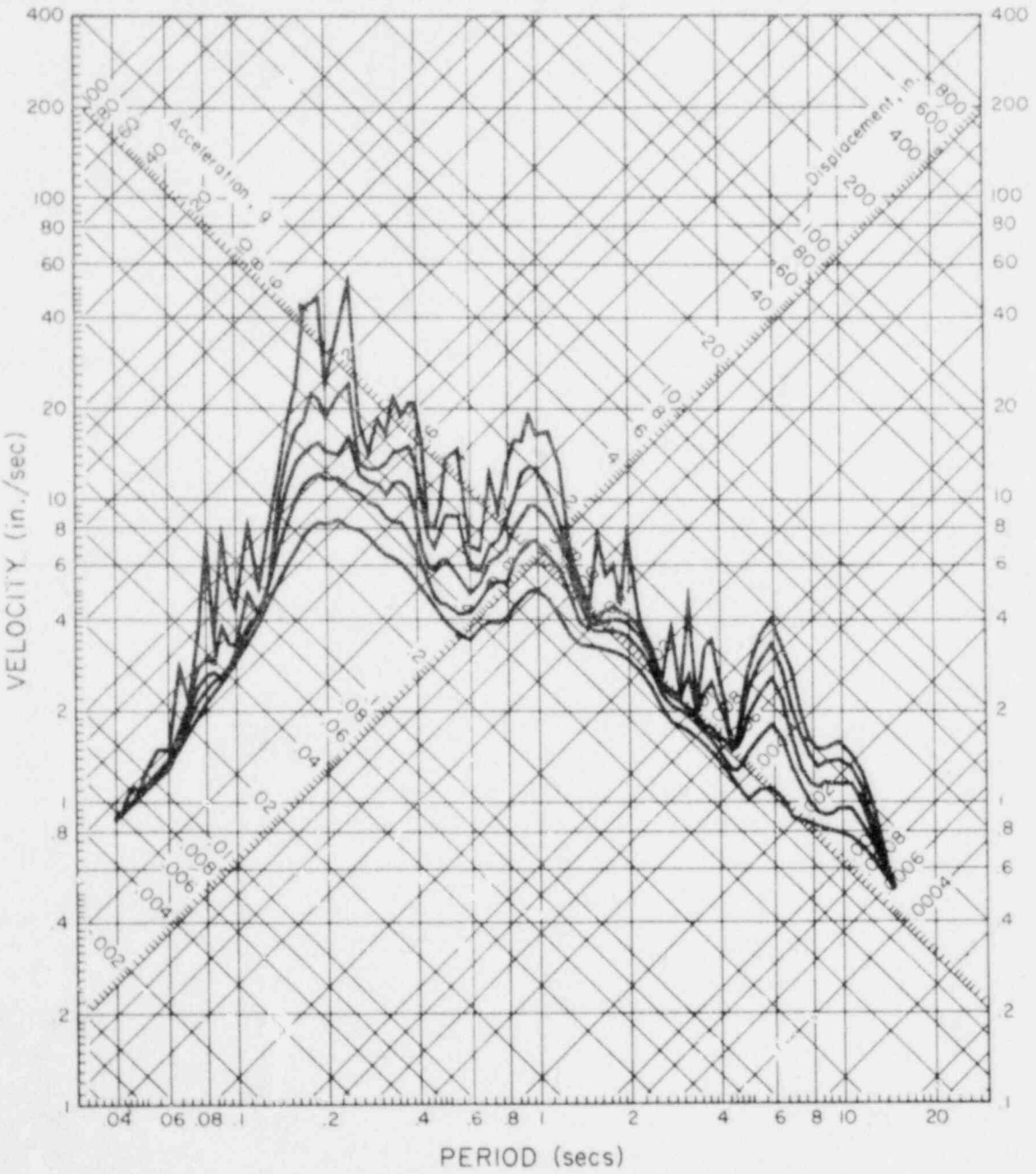


FIG. A5-28

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIJ144 71.009.0 LAKE HUGHES, ARRAY STATION 12, CAL. COMP N69W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

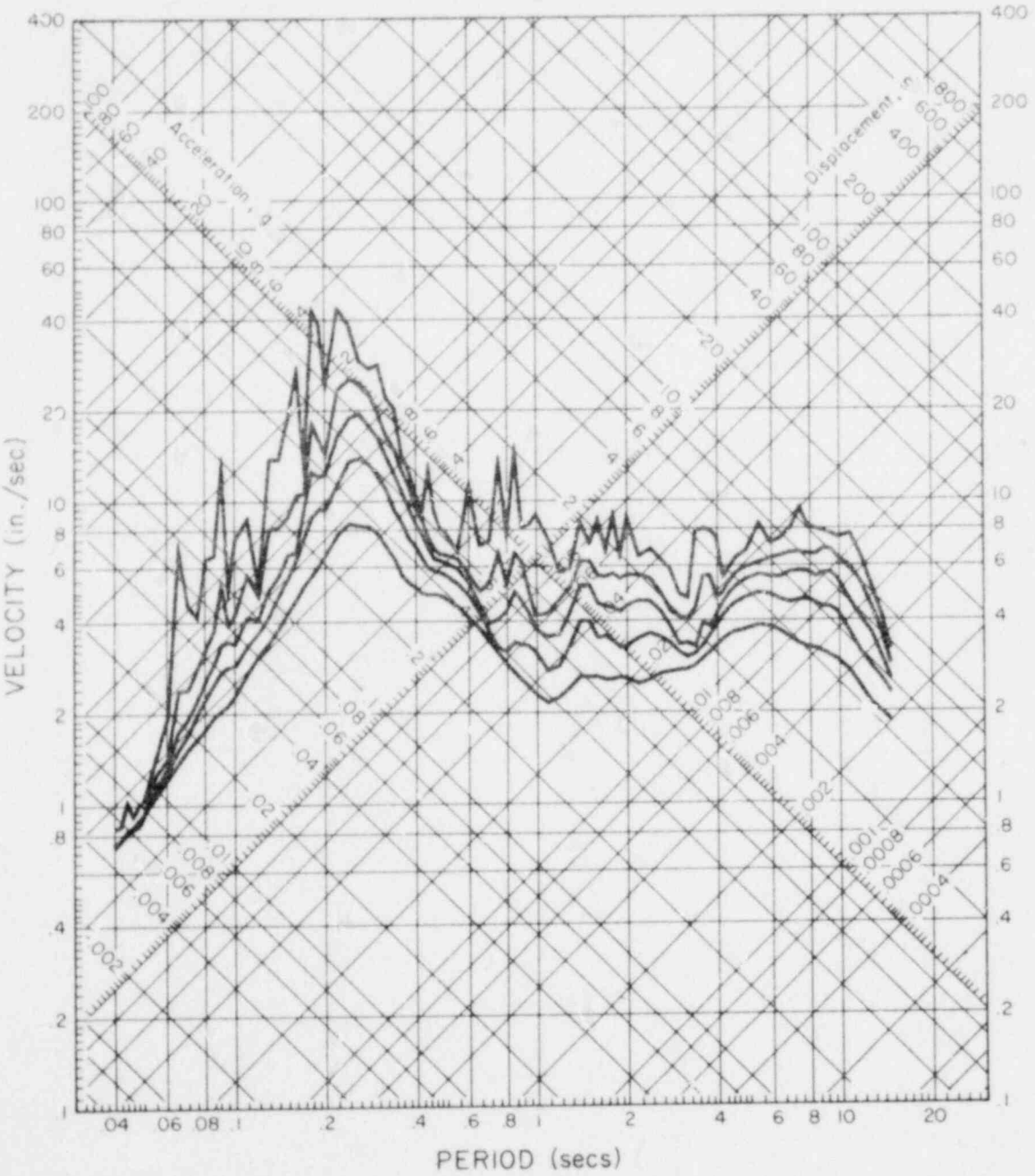


FIG. A5-29

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIJ144 71.009.0 LAKE HUGHES, ARRAY STATION 12, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

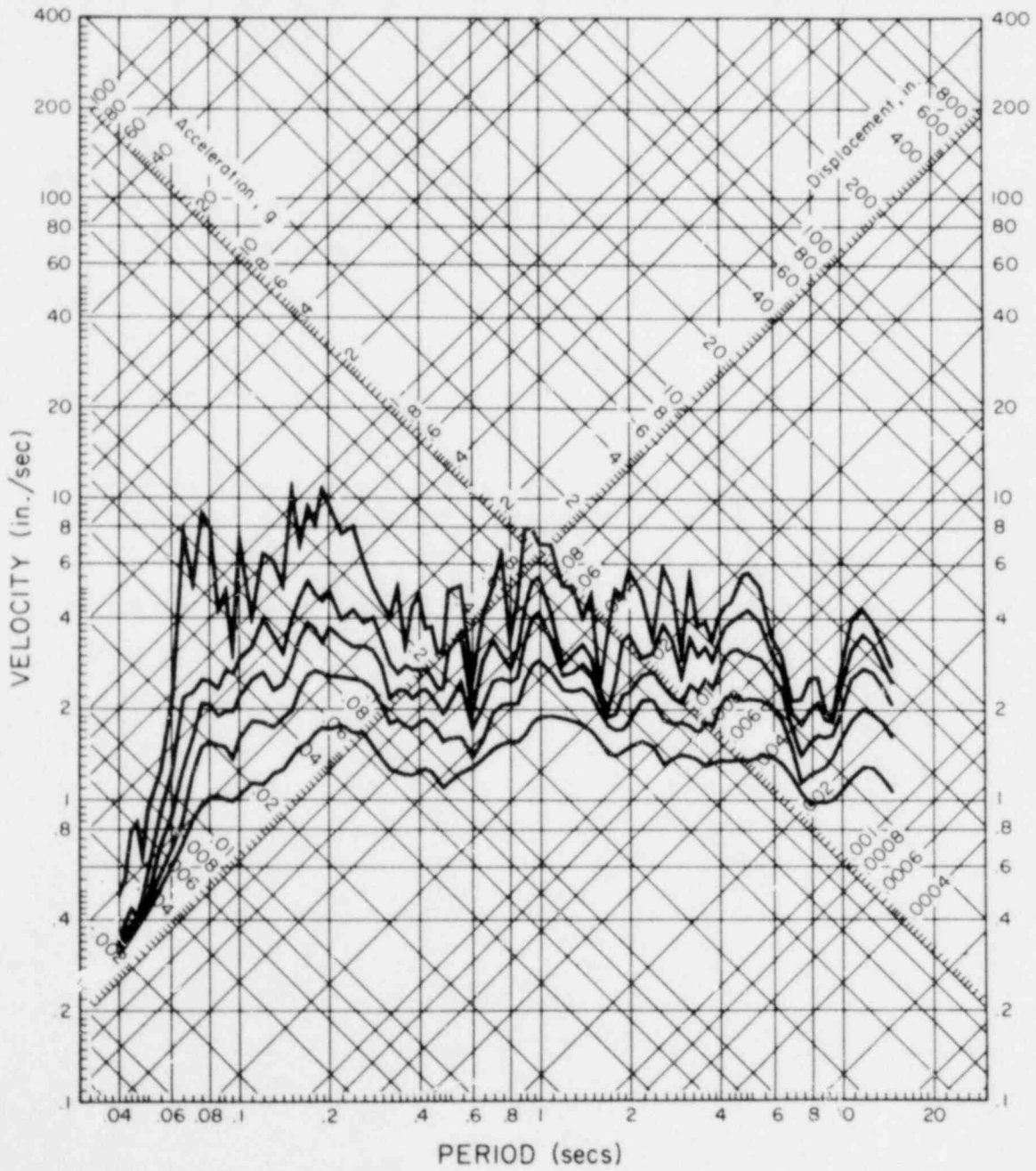


FIG. A5-30

Section A6
San Bernardino Region

TABLE A6-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT SAN BERNARDINO REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
68	04	08	18:30	Borrego Mountain 33°09'N; 116°08'W	6.5	Cedar Springs, Allen Ranch	111	103	Maximum accel.		<0.01g	
70	09	12	6:30	Lytle Creek 34°16'N; 117°32'W	5.4	Cedar Springs, Allen Ranch	111	12	S85E 69.9	S05W 54.9	Down 59.3	W-335
						Cedar Springs, Pump House	112	135*	S54E 56.0	S36W 69.4	Down 36.9	W-336
						6074 Park Drive, Wrightwood	290	9	S65E 139.0	S25W 194.4	Down 53.1	W-334
71	71	02	09	6:00	San Fernando 32°24'N; 118°24'W	6.4	6074 Park Drive, Wrightwood	290	40	S65E 42.4	S25W 55.7	Down 22.9	M-183

Notes:

Data obtained from Hudson, et al. (1972-1975 a and b) except for the 1968 earthquake for which the data were obtained from U.S. Geological Survey open files, Menlo Park, California.

* Distance calculated from station and epicenter coordinates.

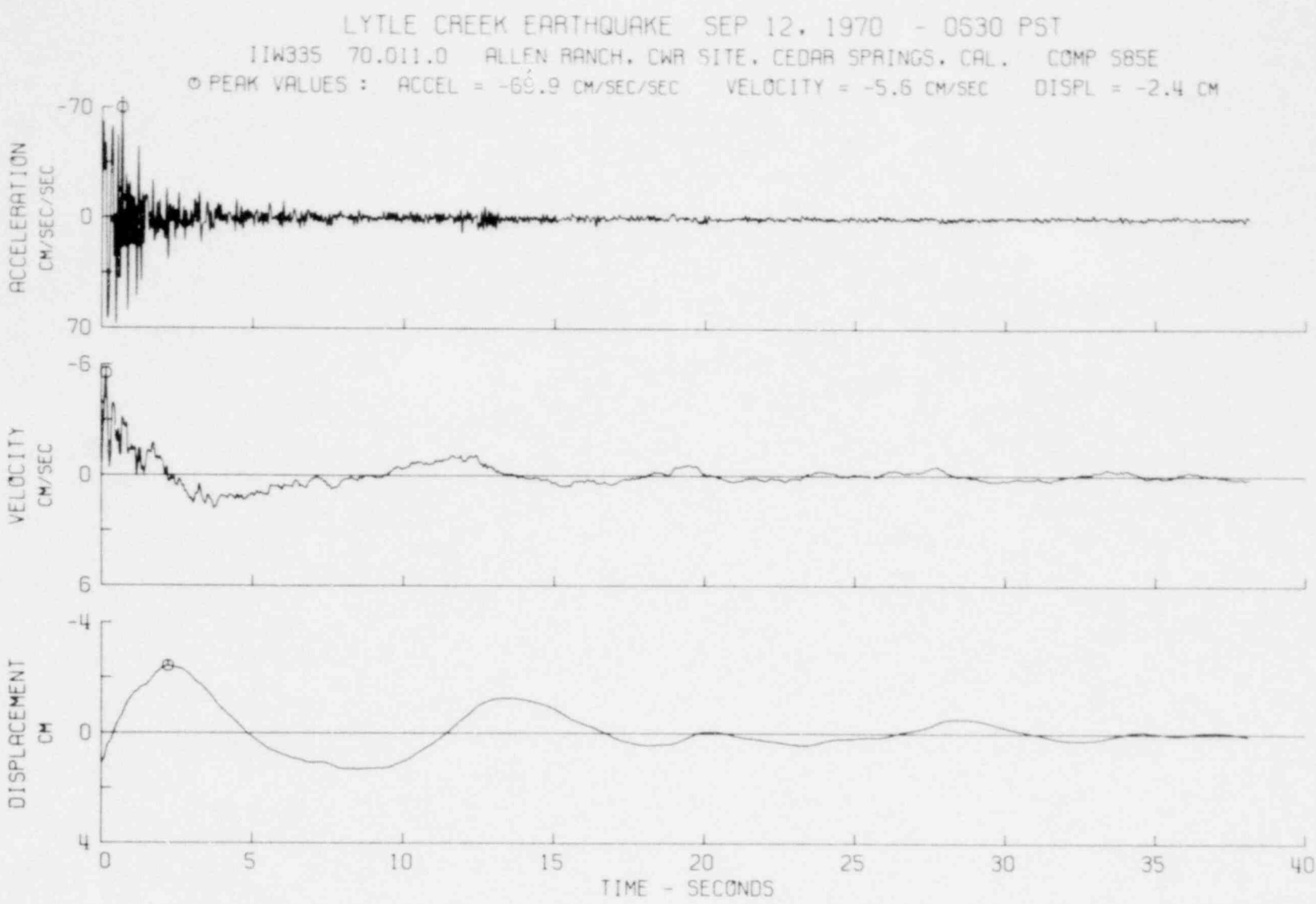

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0530 PST
IIW335 70.011.0 ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL. COMP S85E
⊙ PEAK VALUES : ACCEL = -69.9 CM/SEC/SEC VELOCITY = -5.6 CM/SEC DISPL = -2.4 CM
ACCELERATION CM/SEC/SEC
-70
0
70
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A6-1

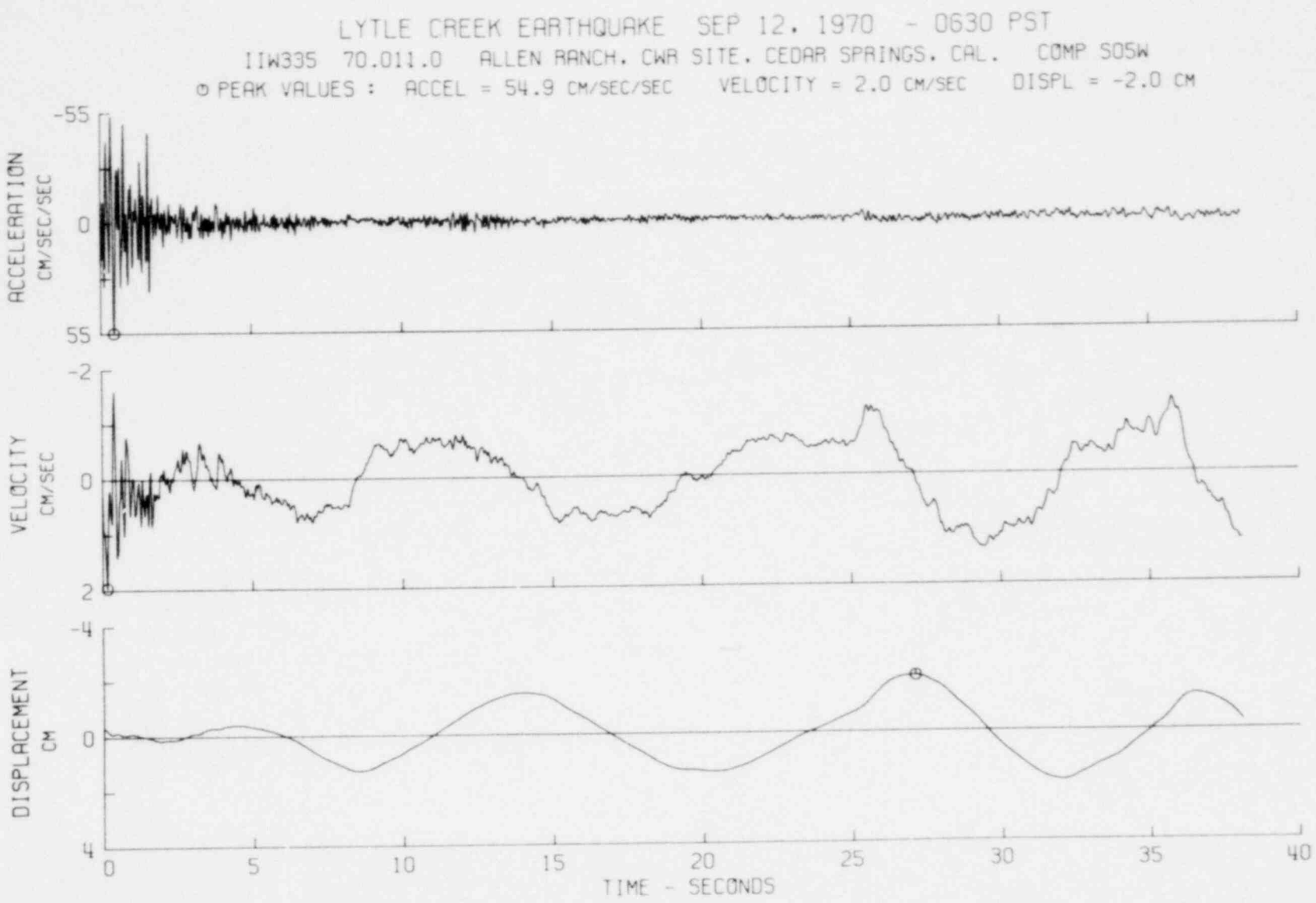

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW335 70.011.0 ALLEN RANCH. CWR SITE. CEDAR SPRINGS. CAL. COMP S05W
⊙ PEAK VALUES : ACCEL = 54.9 CM/SEC/SEC VELOCITY = 2.0 CM/SEC DISPL = -2.0 CM
ACCELERATION CM/SEC/SEC
-55
0
55
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A6-2

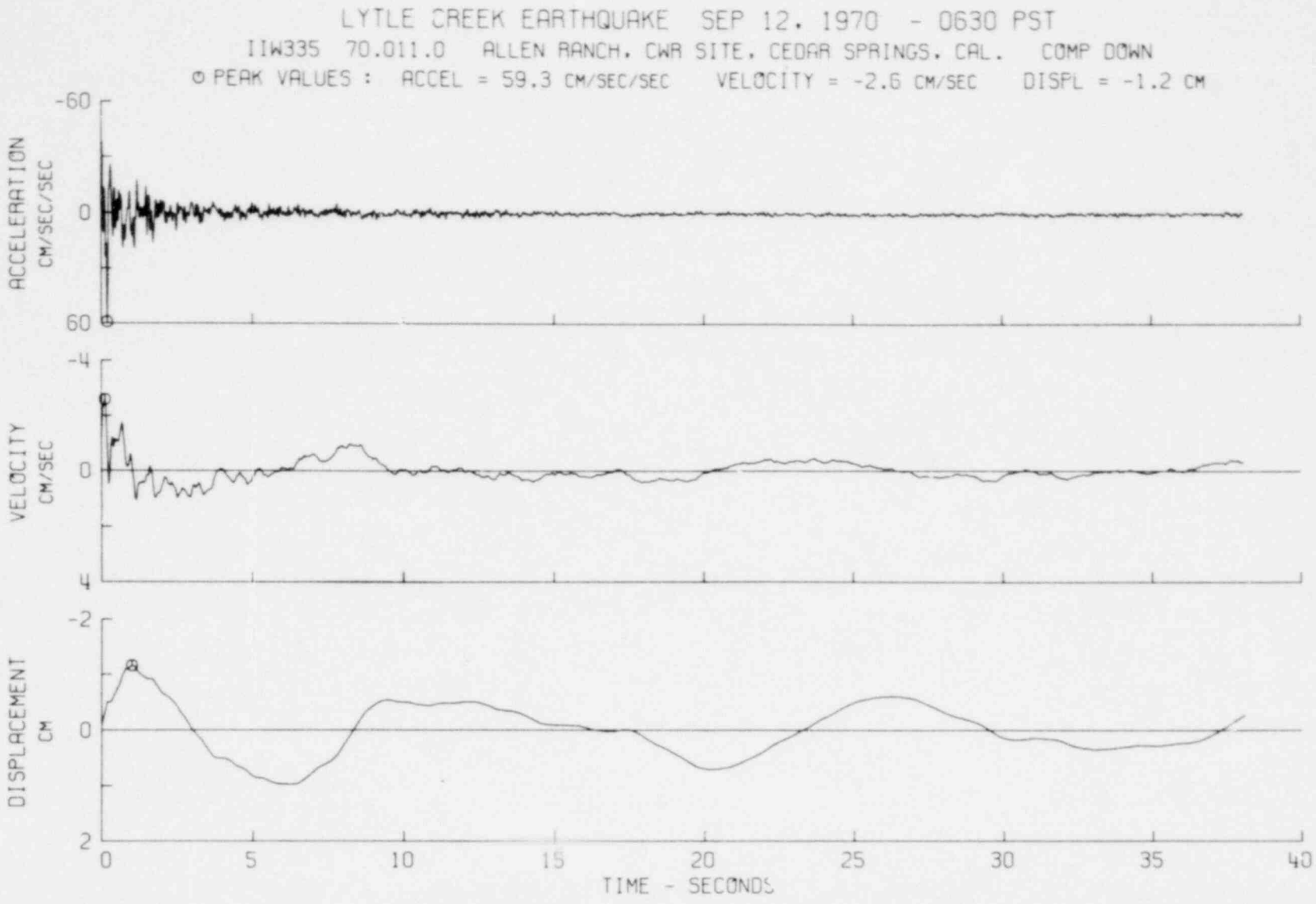

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW335 70.011.0 ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL. COMP DOWN
PEAK VALUES : ACCEL = 59.3 CM/SEC/SEC VELOCITY = -2.6 CM/SEC DISPL = -1.2 CM
ACCELERATION CM/SEC/SEC
-60
0
60
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
TIME - SECONDS

FIG. A6-3

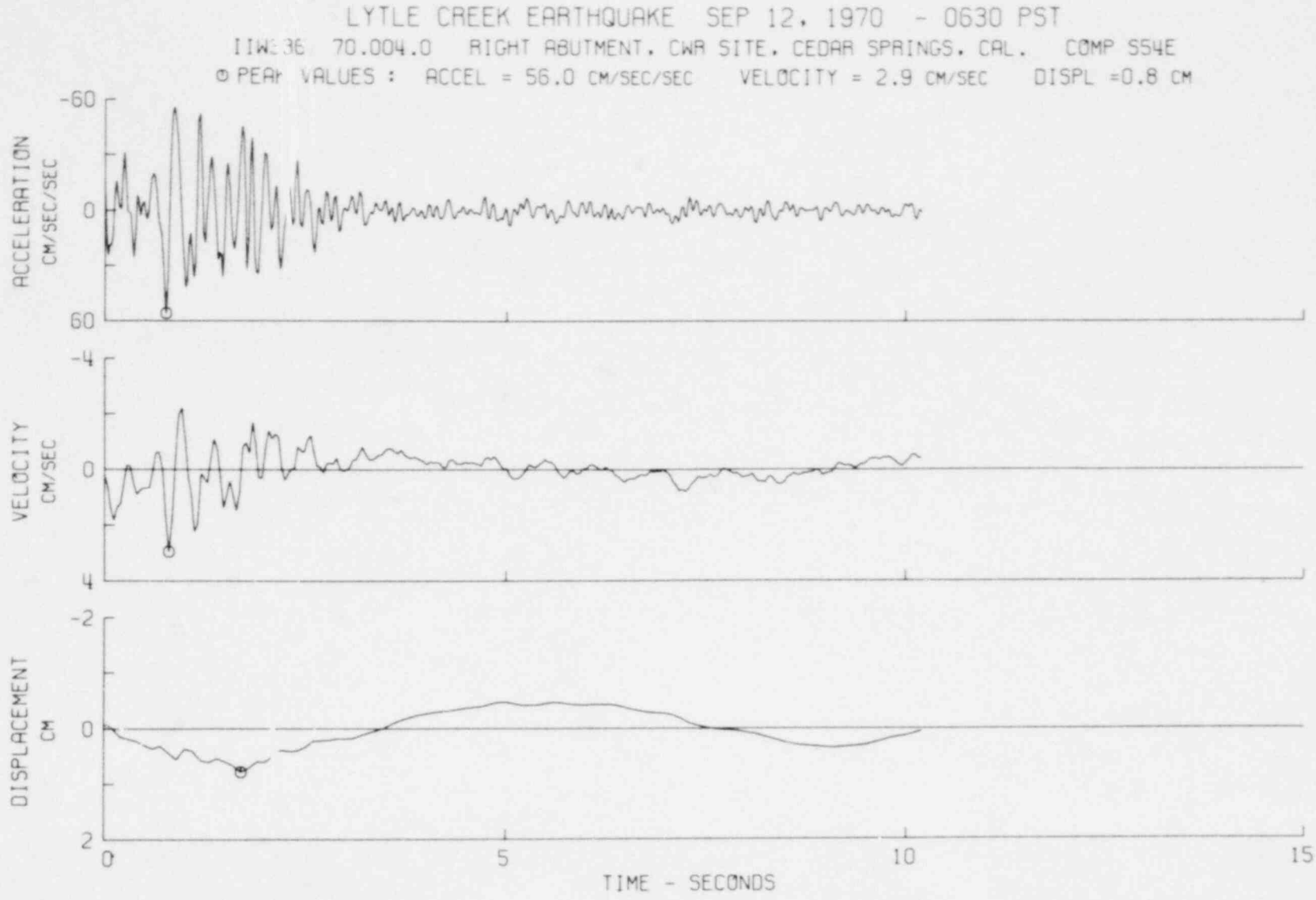

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW:36 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP S54E
⊙ PEAK VALUES : ACCEL = 56.0 CM/SEC/SEC VELOCITY = 2.9 CM/SEC DISPL =0.8 CM
ACCELERATION CM/SEC/SEC
-60
0
60
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
TIME - SECONDS

FIG. A6-4

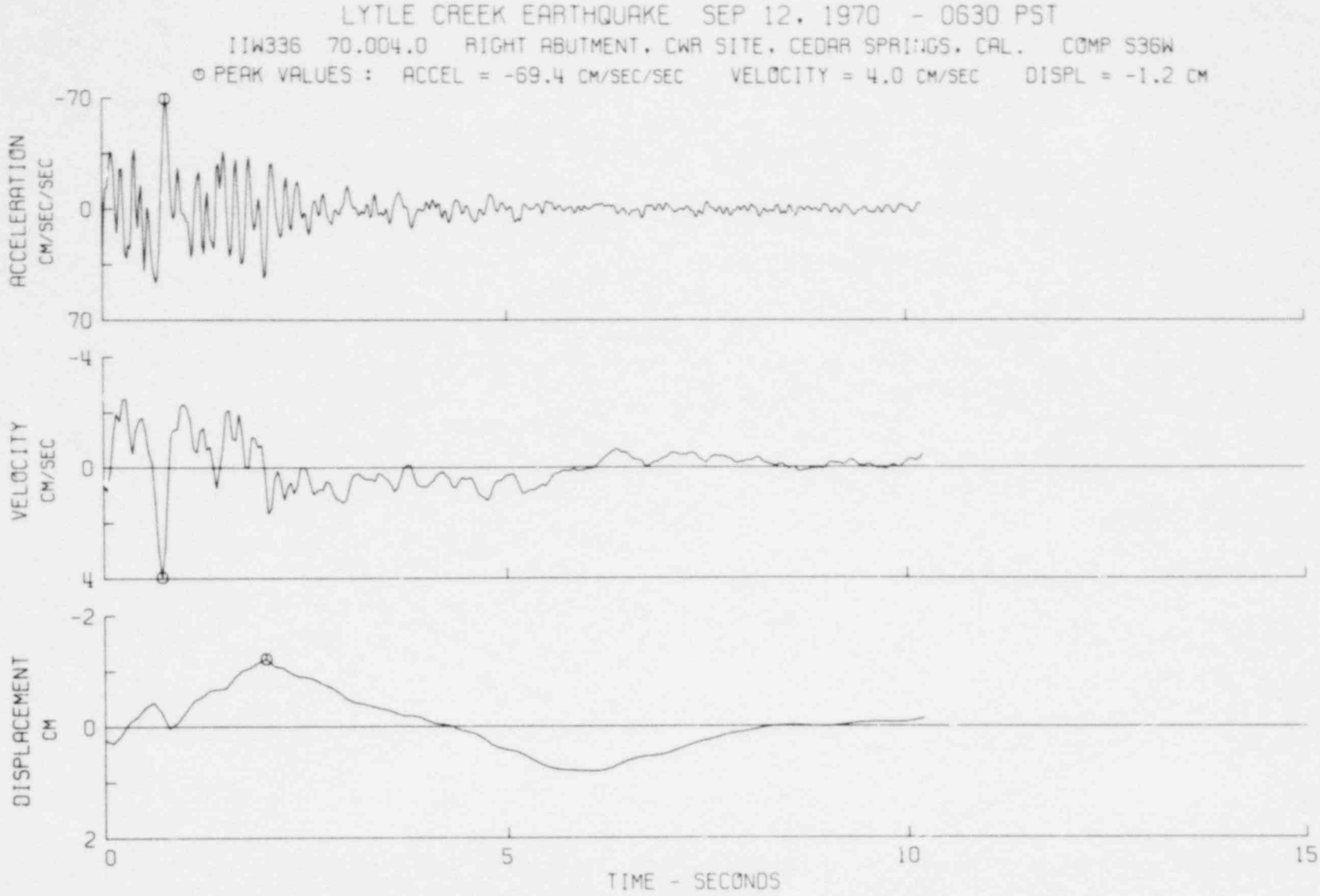

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP S36W
⊙ PEAK VALUES : ACCEL = -69.4 CM/SEC/SEC VELOCITY = 4.0 CM/SEC DISPL = -1.2 CM
ACCELERATION CM/SEC/SEC
-70
0
70
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
TIME - SECONDS

FIG. A6-5

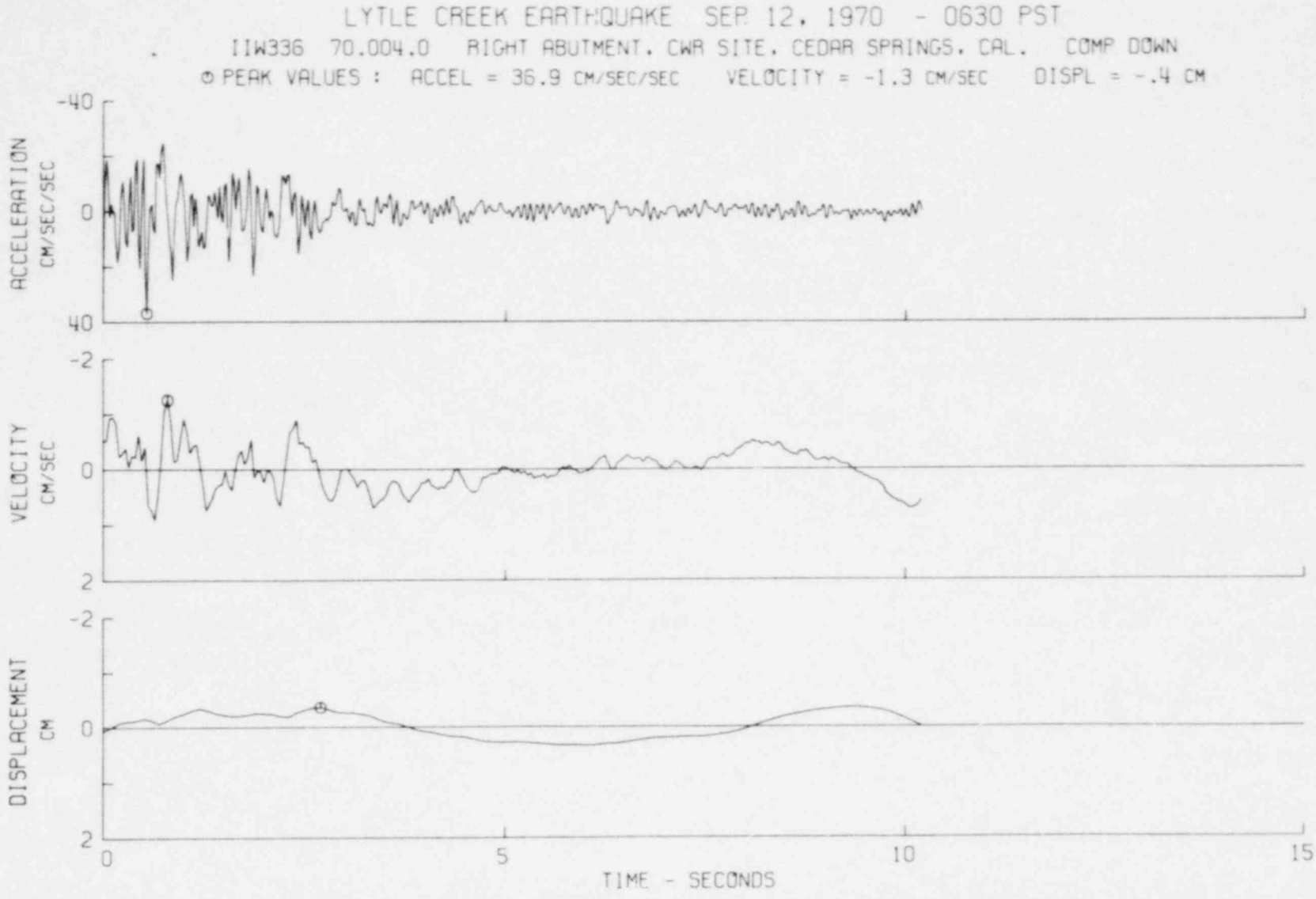

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP DOWN
PEAK VALUES : ACCEL = 36.9 CM/SEC/SEC VELOCITY = -1.3 CM/SEC DISPL = -.4 CM
ACCELERATION CM/SEC/SEC
-40
0
40
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
TIME - SECONDS

FIG. A6-6

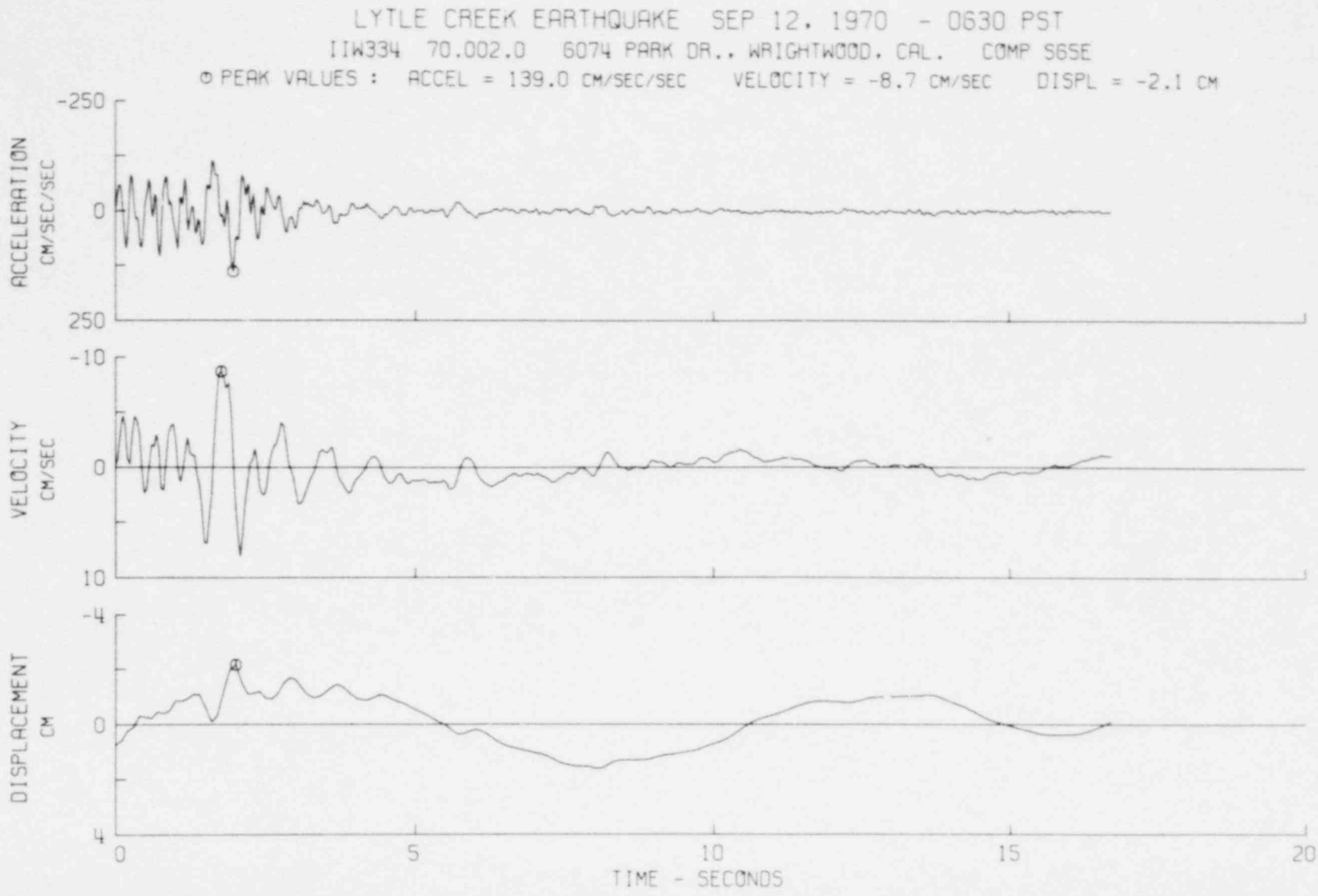

LYTLE CREEK EARTHQUAKE SEP 12. 1970 - 0630 PST
IIW334 70.002.0 6074 PARK DR.. WRIGHTWOOD. CAL. COMP S65E
PEAK VALUES : ACCEL = 139.0 CM/SEC/SEC VELOCITY = -8.7 CM/SEC DISPL = -2.1 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
TIME - SECONDS

FIG. A6-7

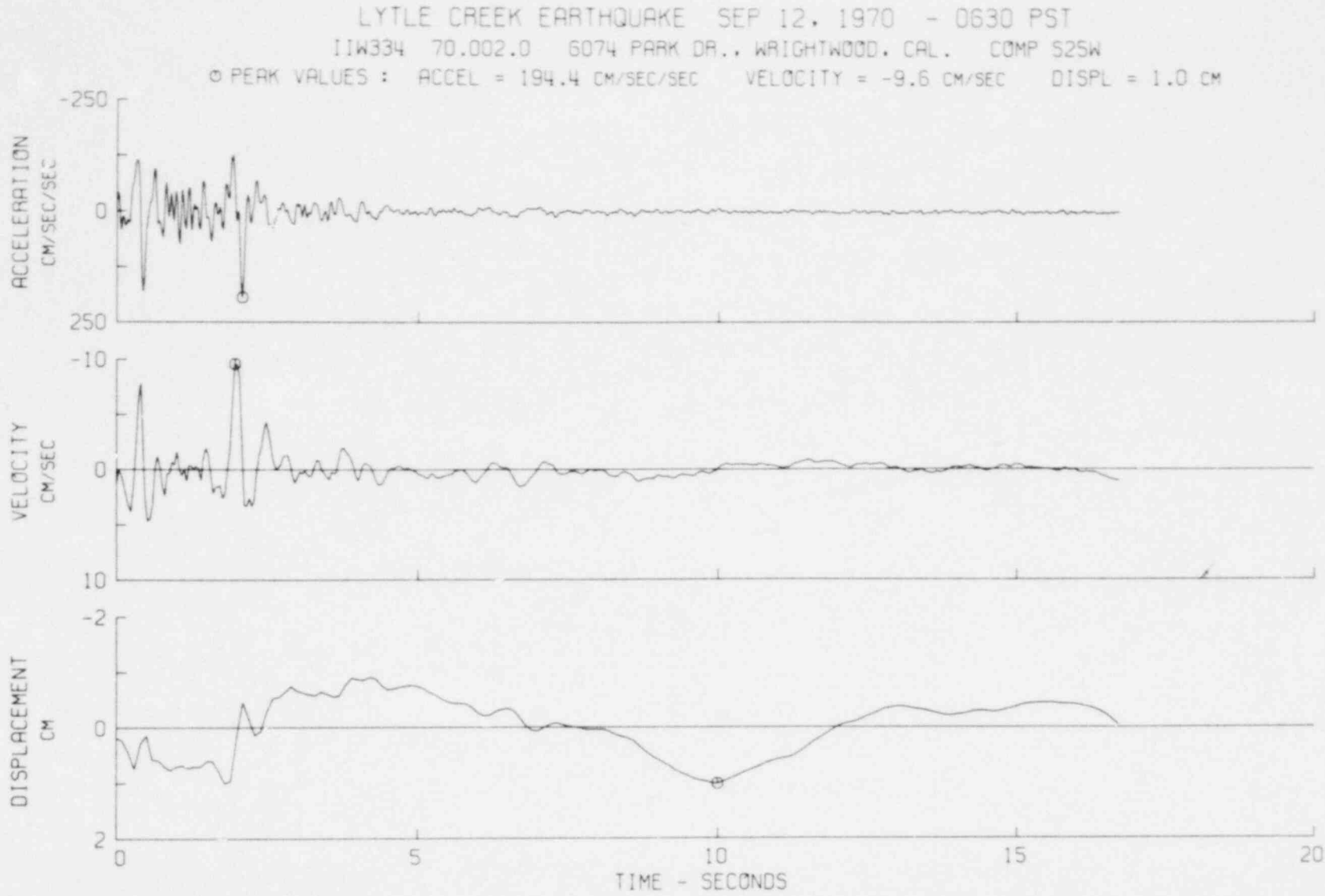

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP S25W
⊙ PEAK VALUES : ACCEL = 194.4 CM/SEC/SEC VELOCITY = -9.6 CM/SEC DISPL = 1.0 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
TIME - SECONDS

FIG. A6-8

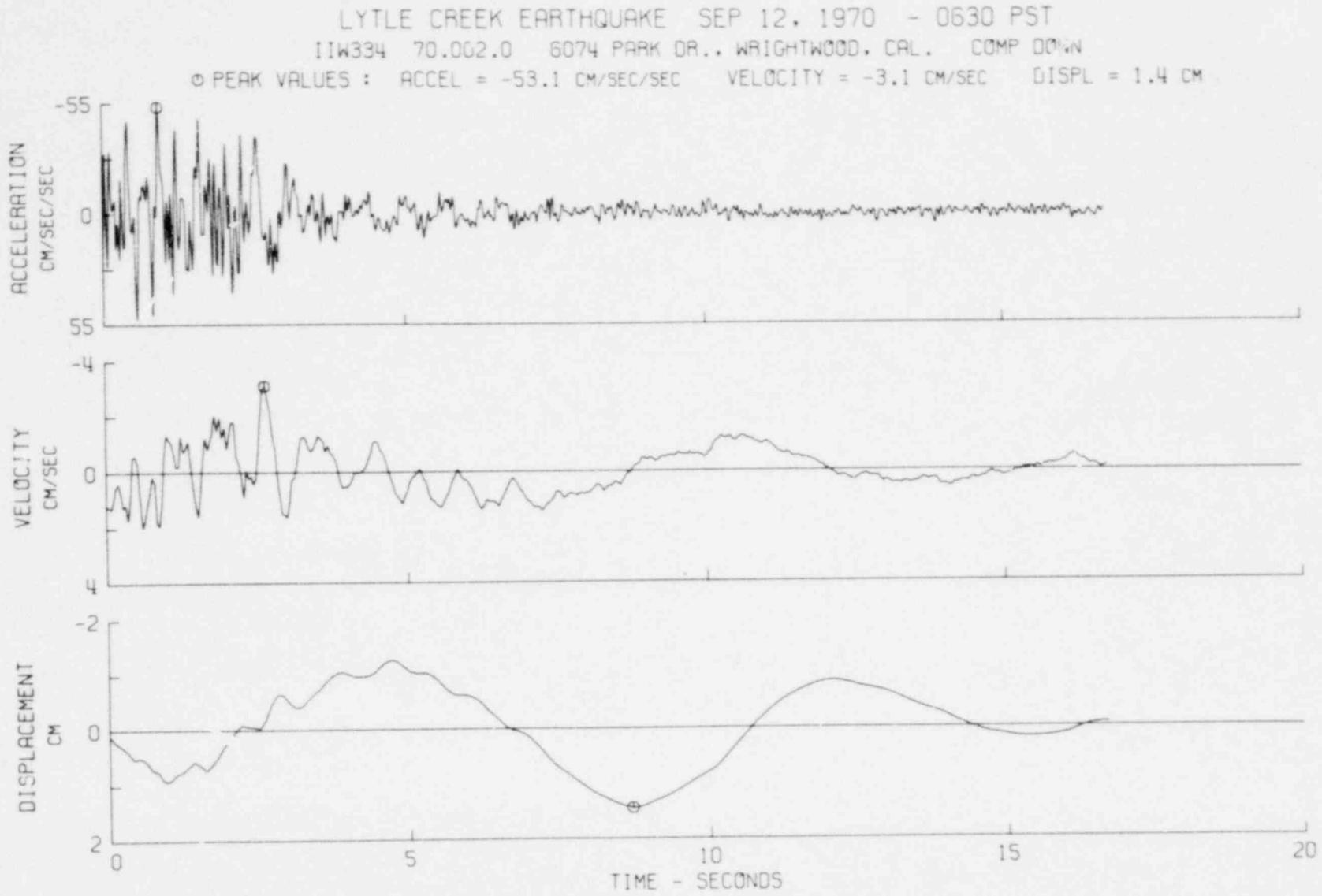

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = -53.1 CM/SEC/SEC VELOCITY = -3.1 CM/SEC DISPL = 1.4 CM
ACCELERATION CM/SEC/SEC
-55
0
55
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
TIME - SECONDS

FIG. A6-9

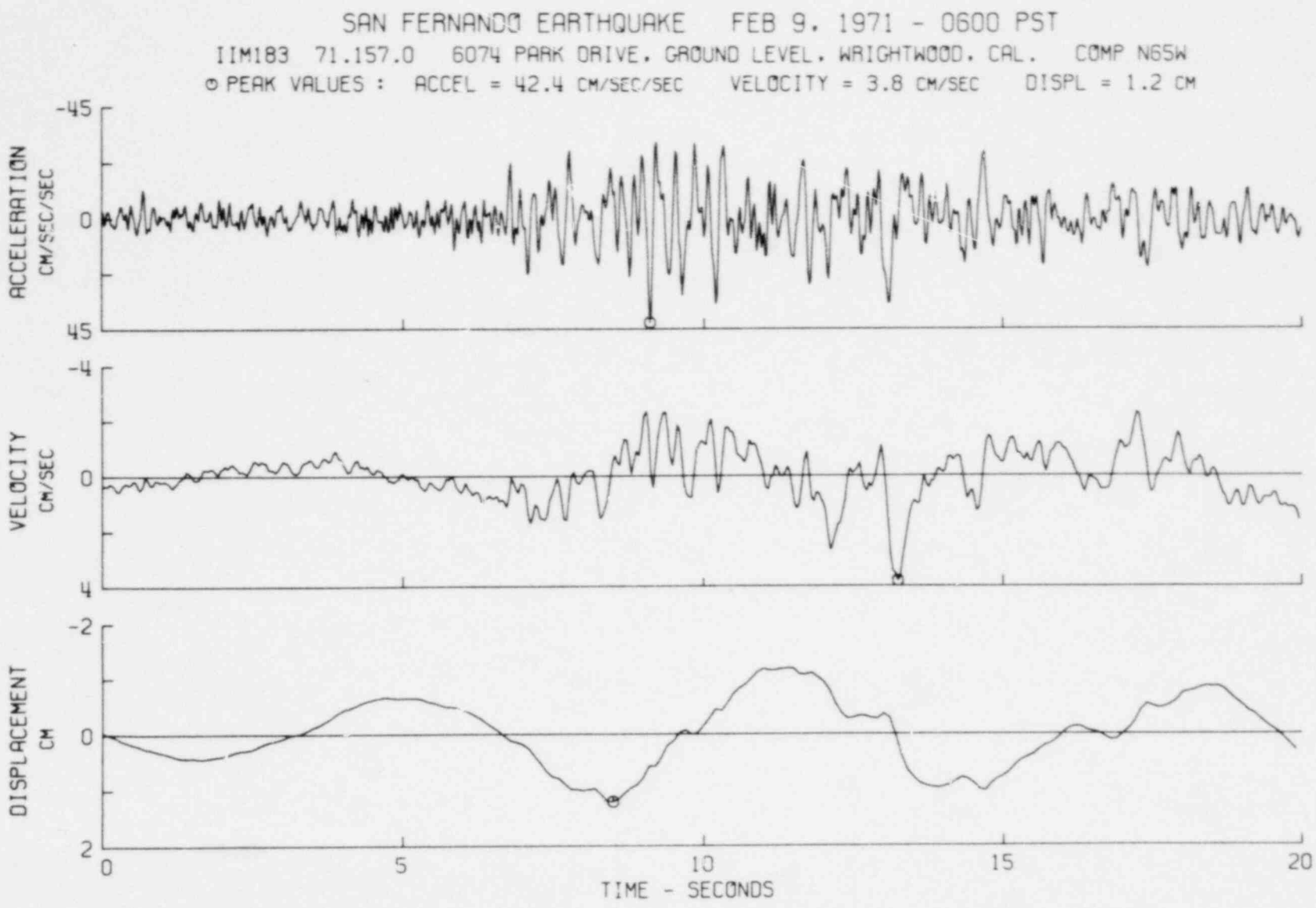

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IIM183 71.157.0 6074 PARK DRIVE. GROUND LEVEL. WRIGHTWOOD. CAL. COMP N65W
⊙ PEAK VALUES : ACCEL = 42.4 CM/SEC/SEC VELOCITY = 3.8 CM/SEC DISPL = 1.2 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
TIME - SECONDS

FIG. A6-10

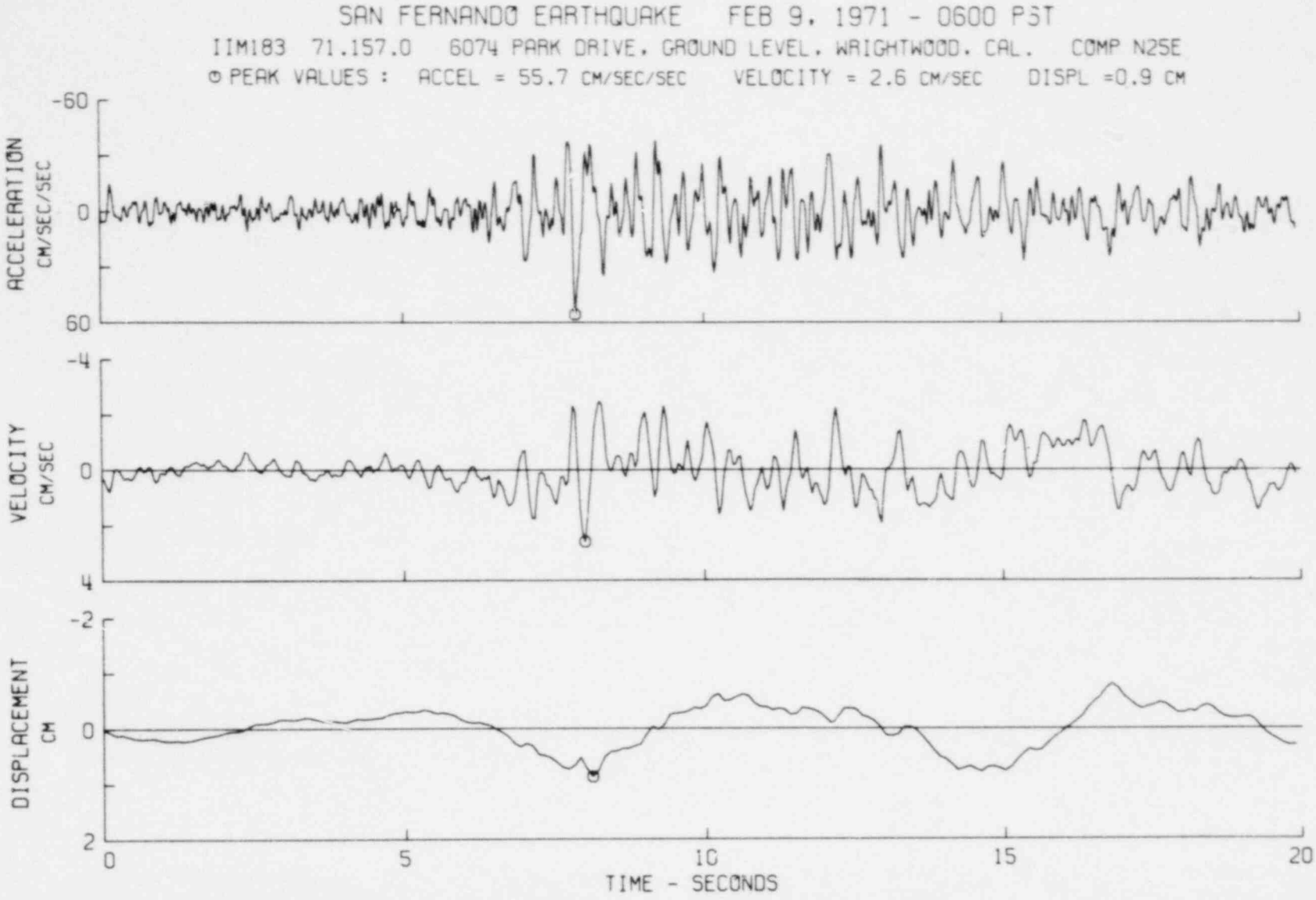

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIM183 71.157.0 6074 PARK DRIVE, GROUND LEVEL, WRIGHTWOOD, CAL. COMP N25E
PEAK VALUES : ACCEL = 55.7 CM/SEC/SEC VELOCITY = 2.6 CM/SEC DISPL =0.9 CM
ACCELERATION CM/SEC/SEC
-60
0
60
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
TIME - SECONDS

FIG. A6-11

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIM183 71.157.0 6074 PARK DRIVE, GROUND LEVEL, WRIGHTWOOD, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = 22.9 CM/SEC/SEC VELOCITY = 2.0 CM/SEC DISPL = -1.2 CM
ACCELERATION CM/SEC/SEC
-25
0
25
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
TIME - SECONDS

FIG. M6-12

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW335 70.011.0 ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL. COMP S85E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

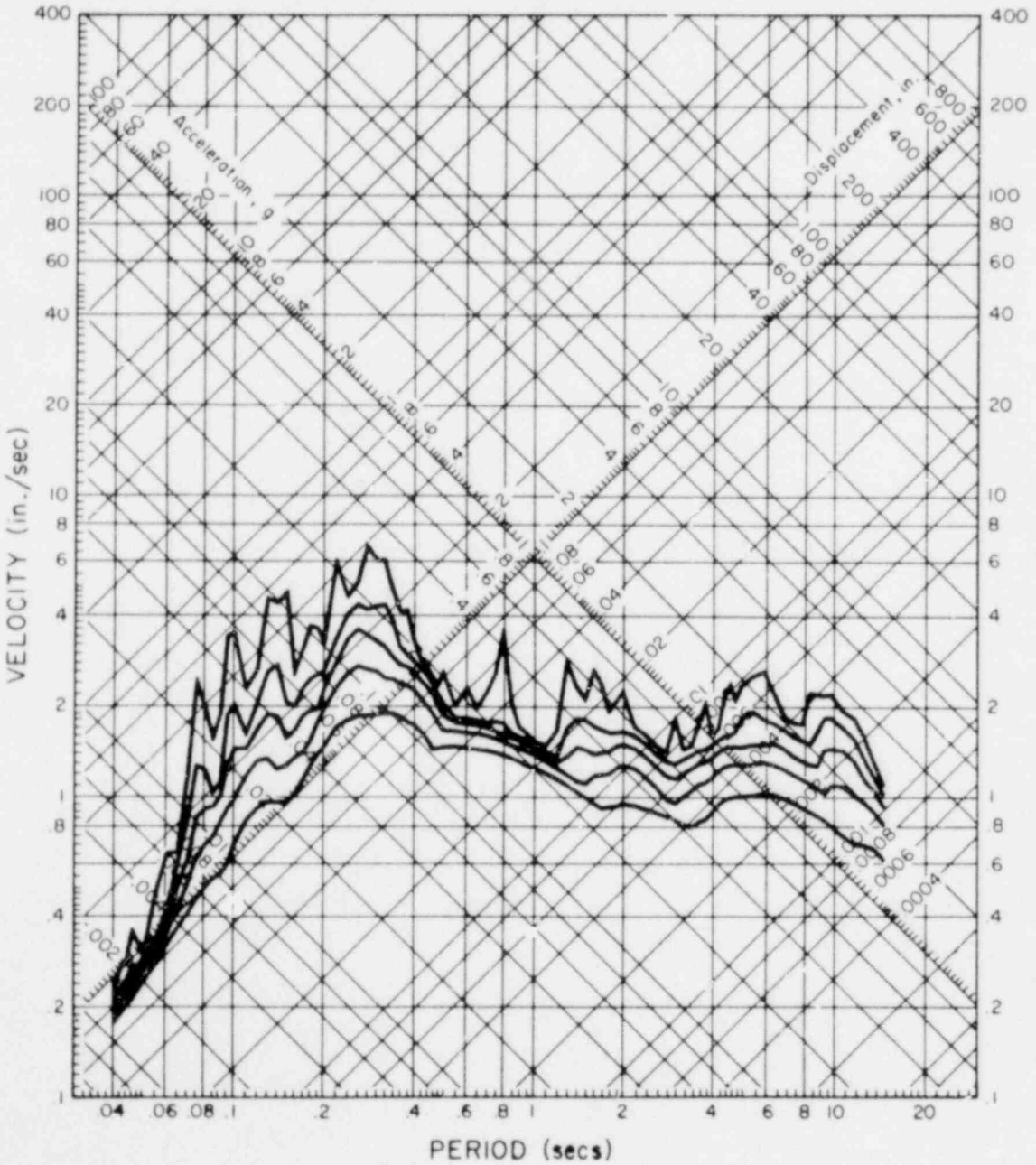


FIG. A8-13

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW335 70.011.0 ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL. COMP S05W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

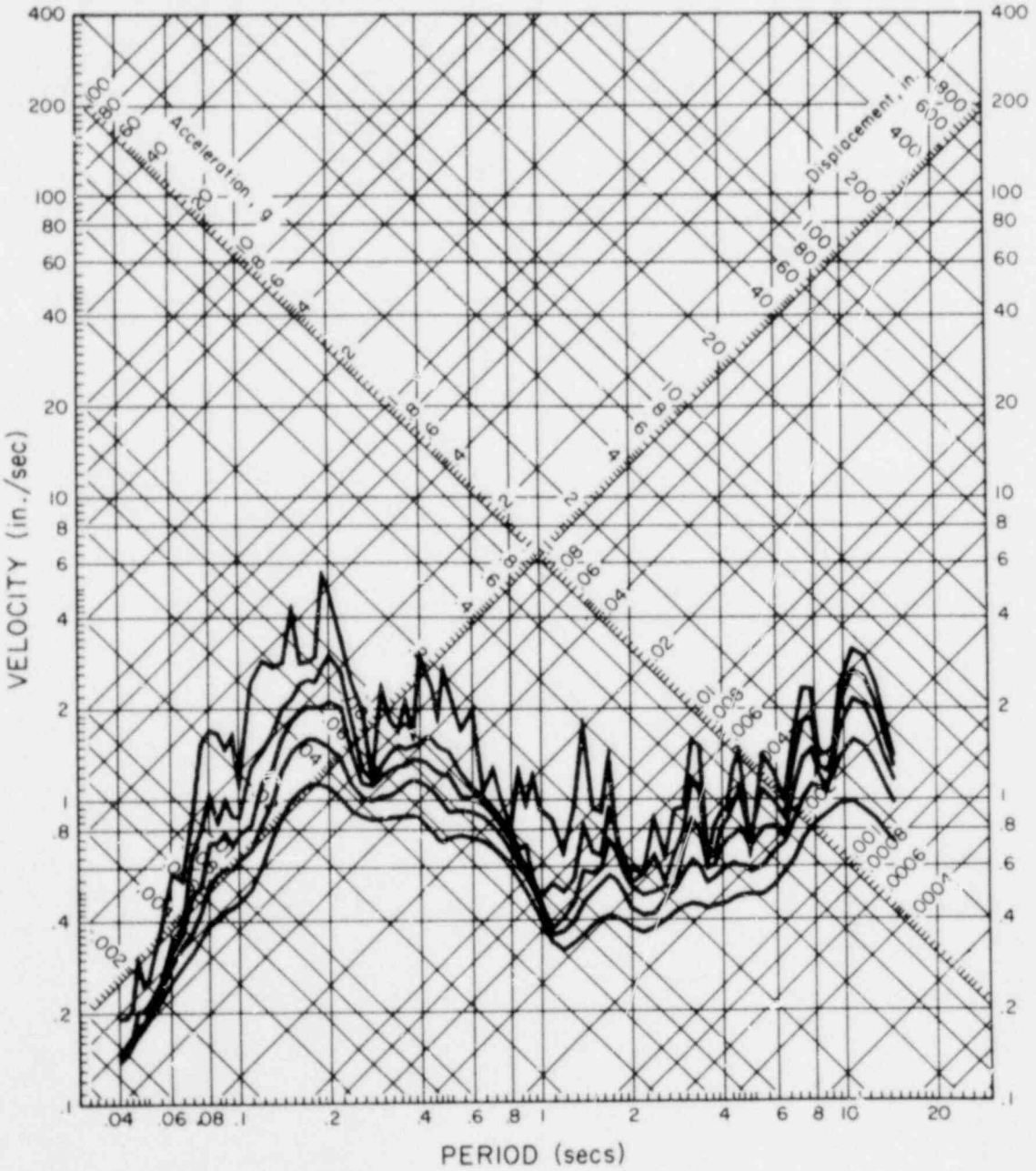


FIG. A6-14

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW335 70.011.0 ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

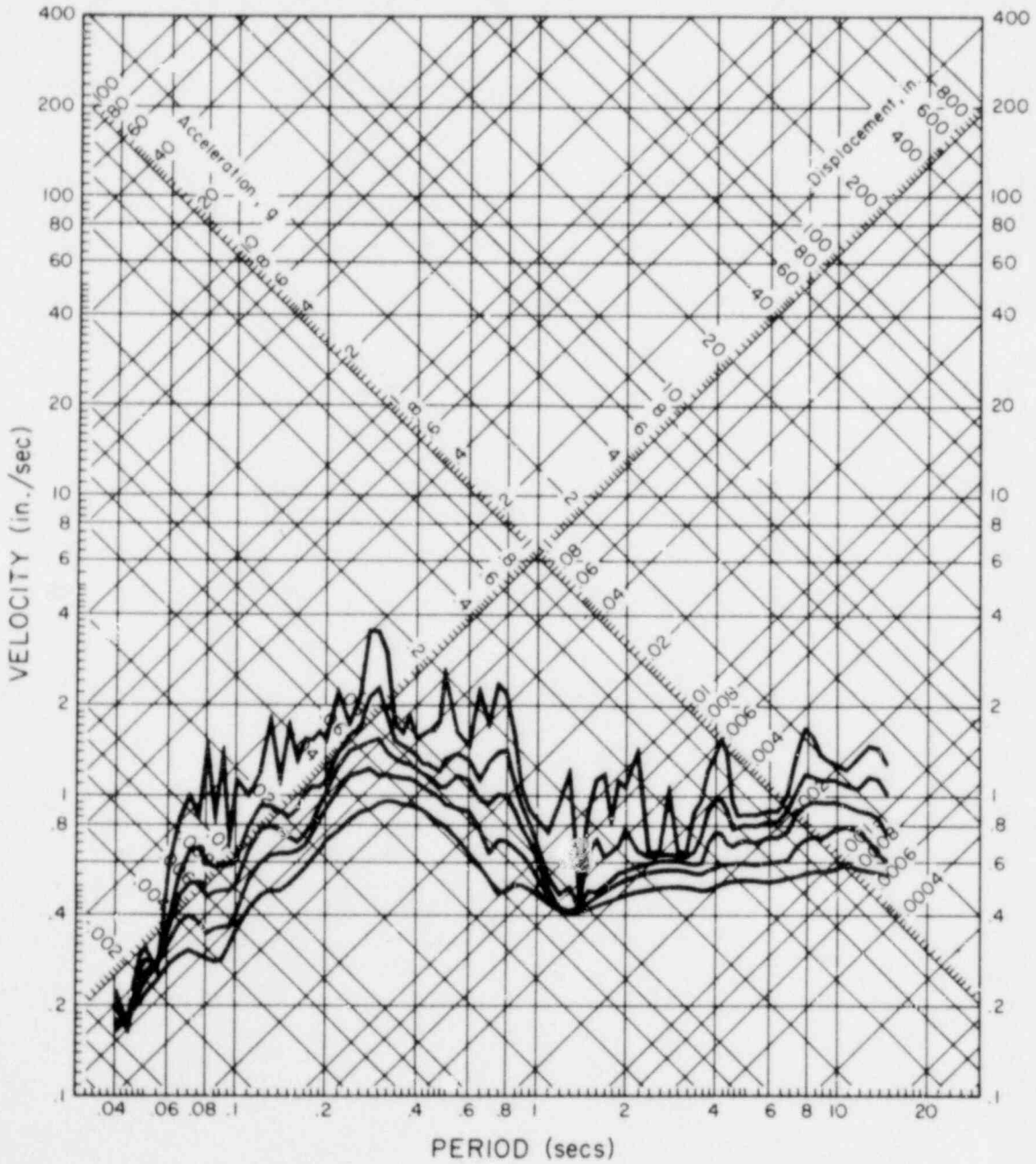


FIG. A6-15

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP S54E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

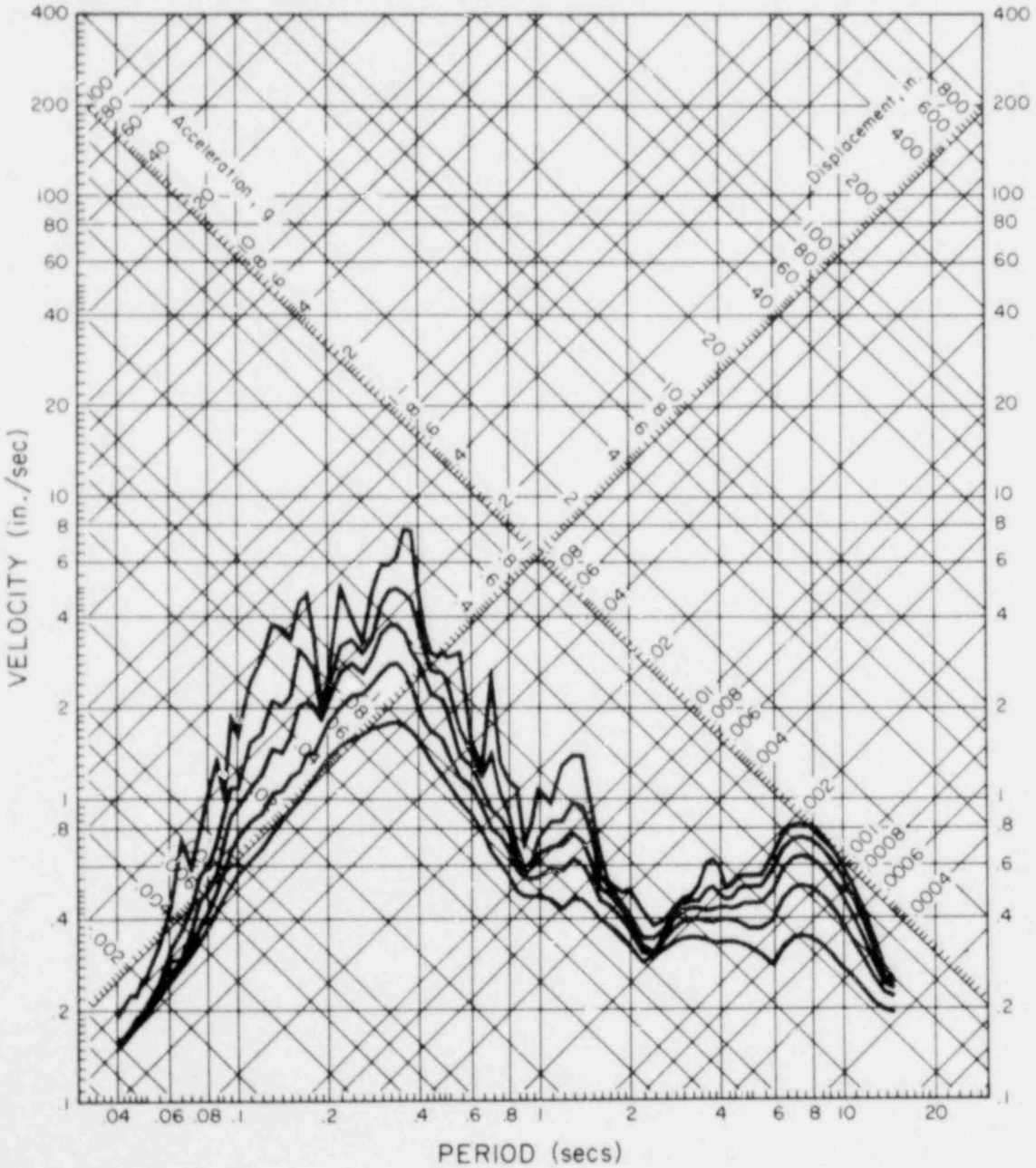


FIG. A6-16

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

II:W336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP S36W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

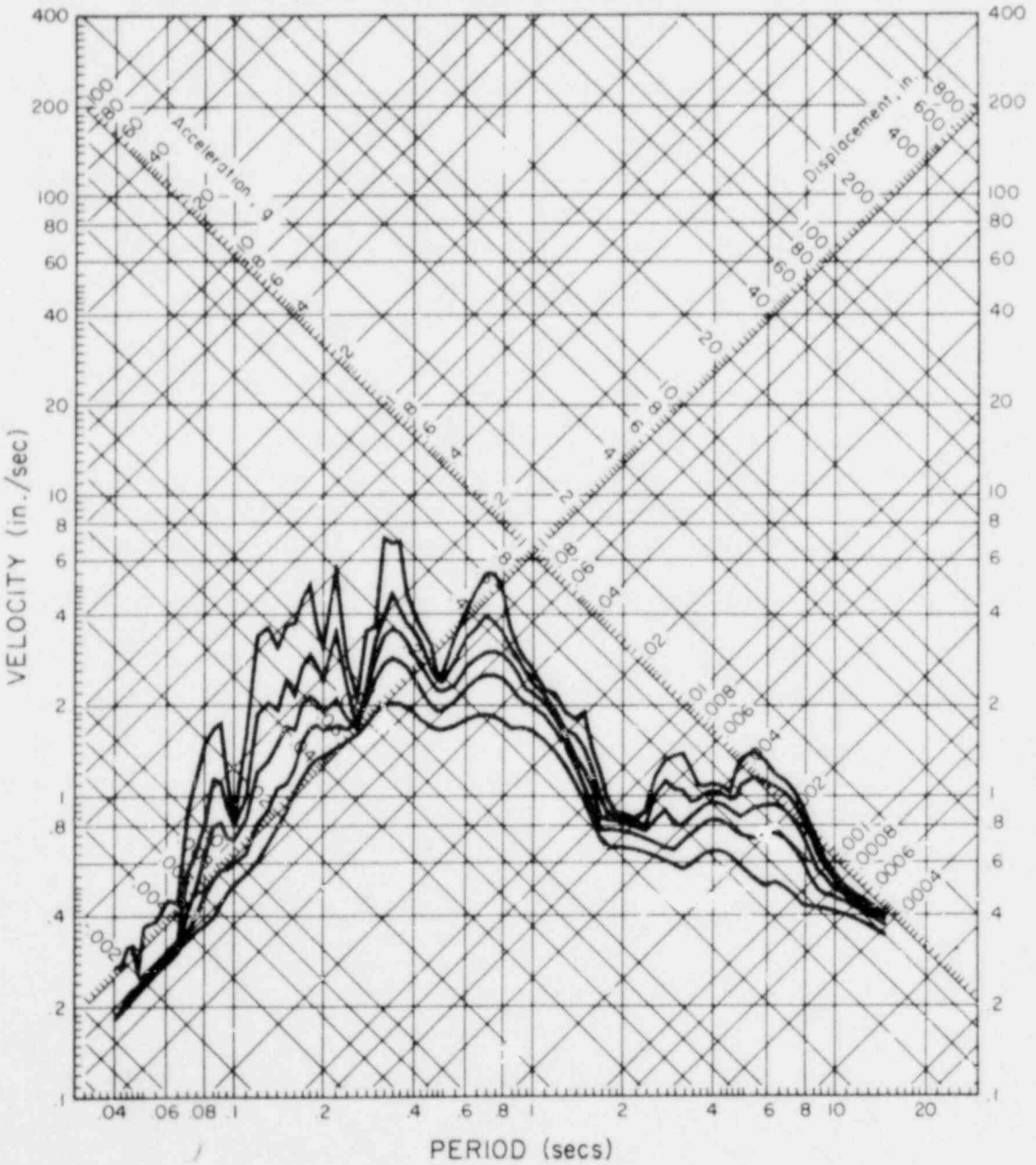


FIG. A6-17

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

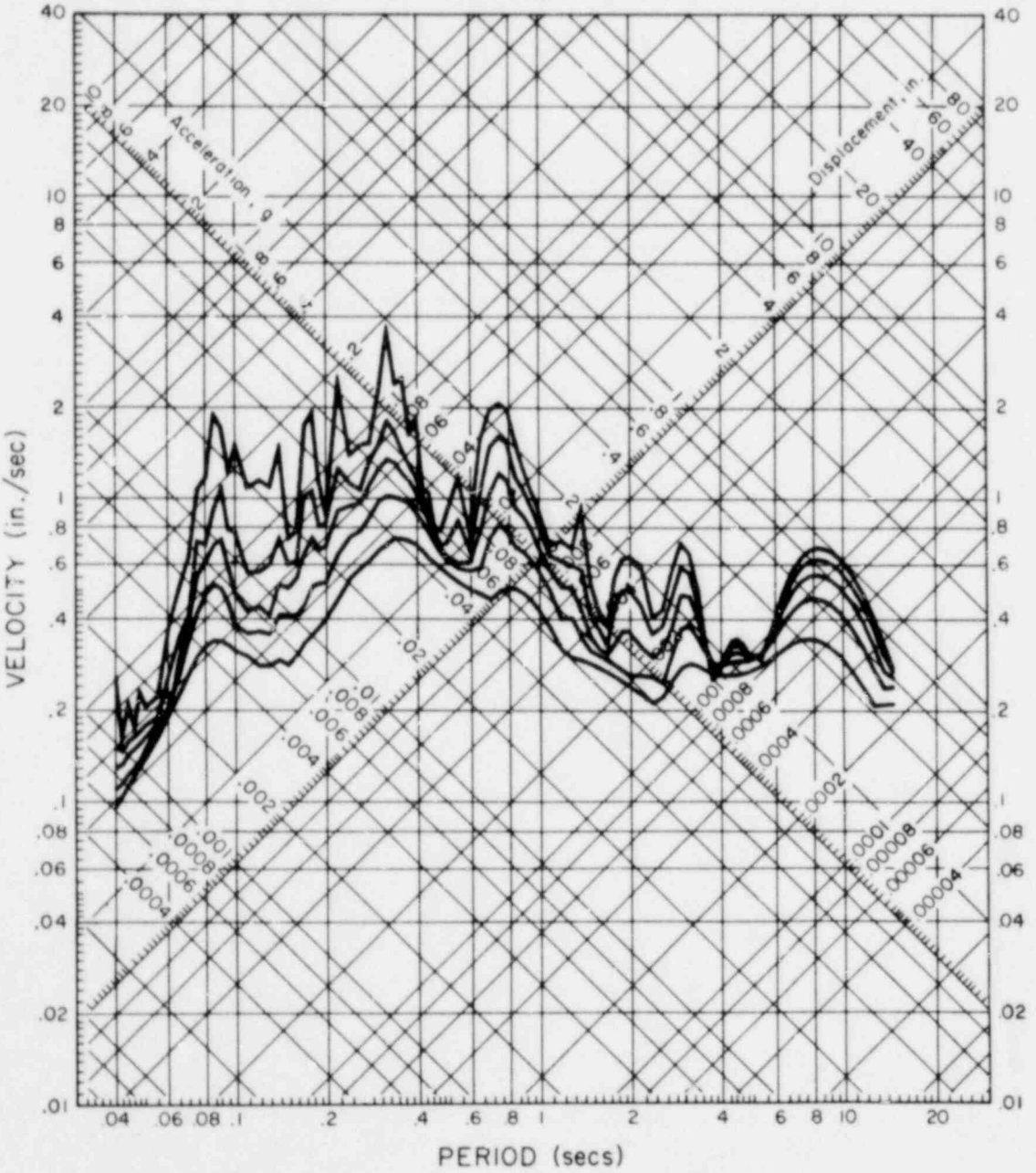


FIG. A6-18

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP S65E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

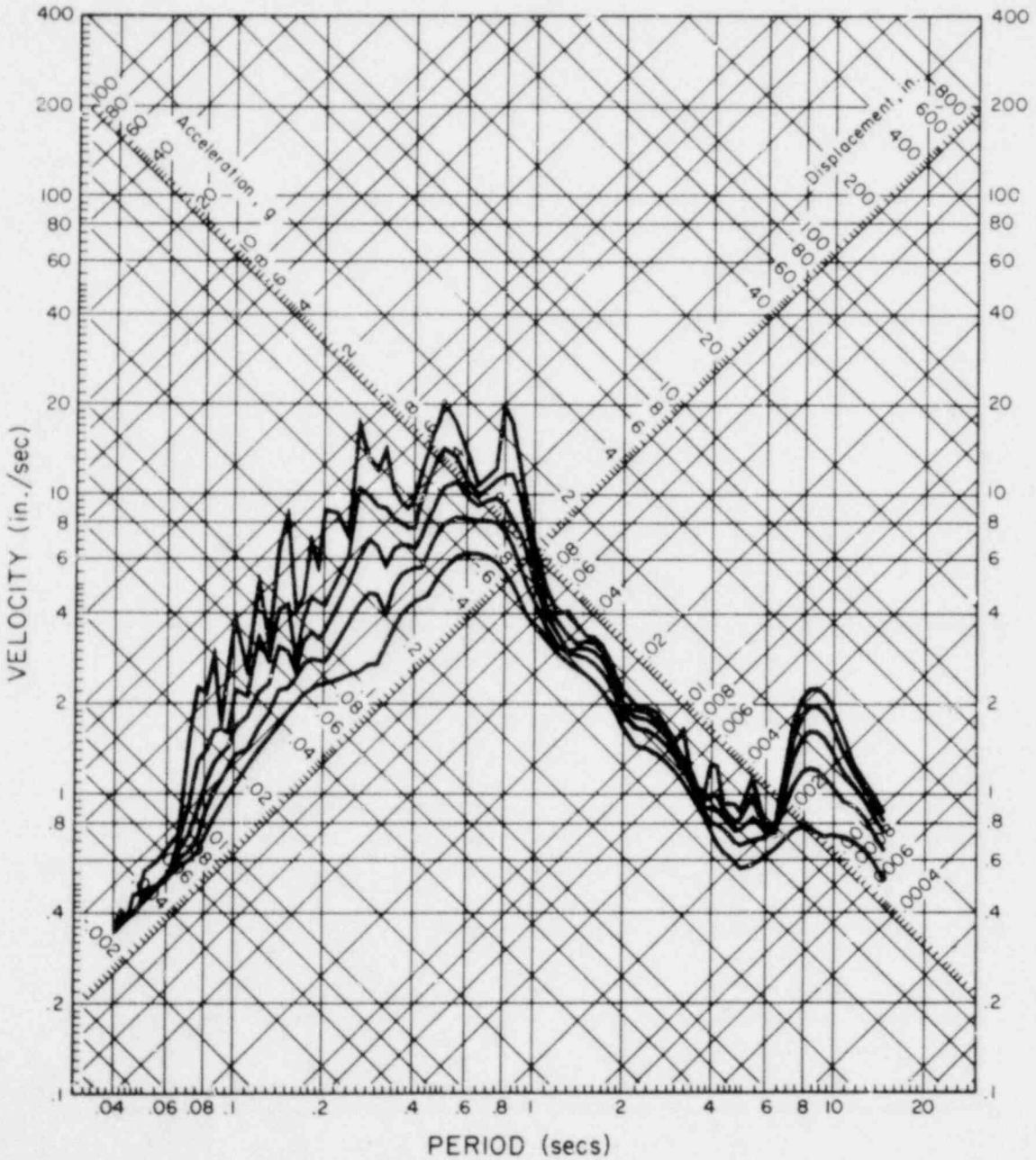


FIG. A6-19

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP S25W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

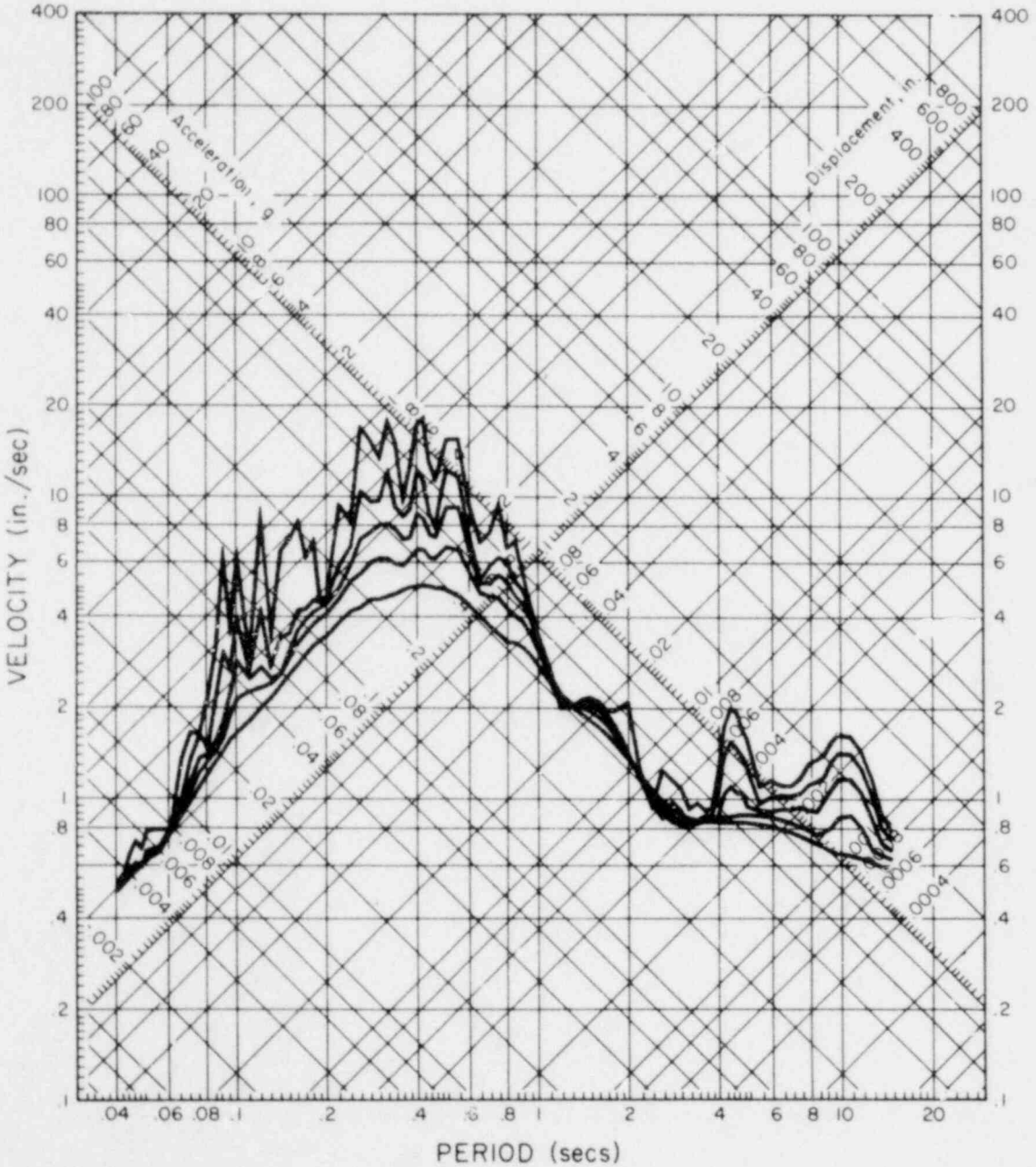


FIG. A6-20

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

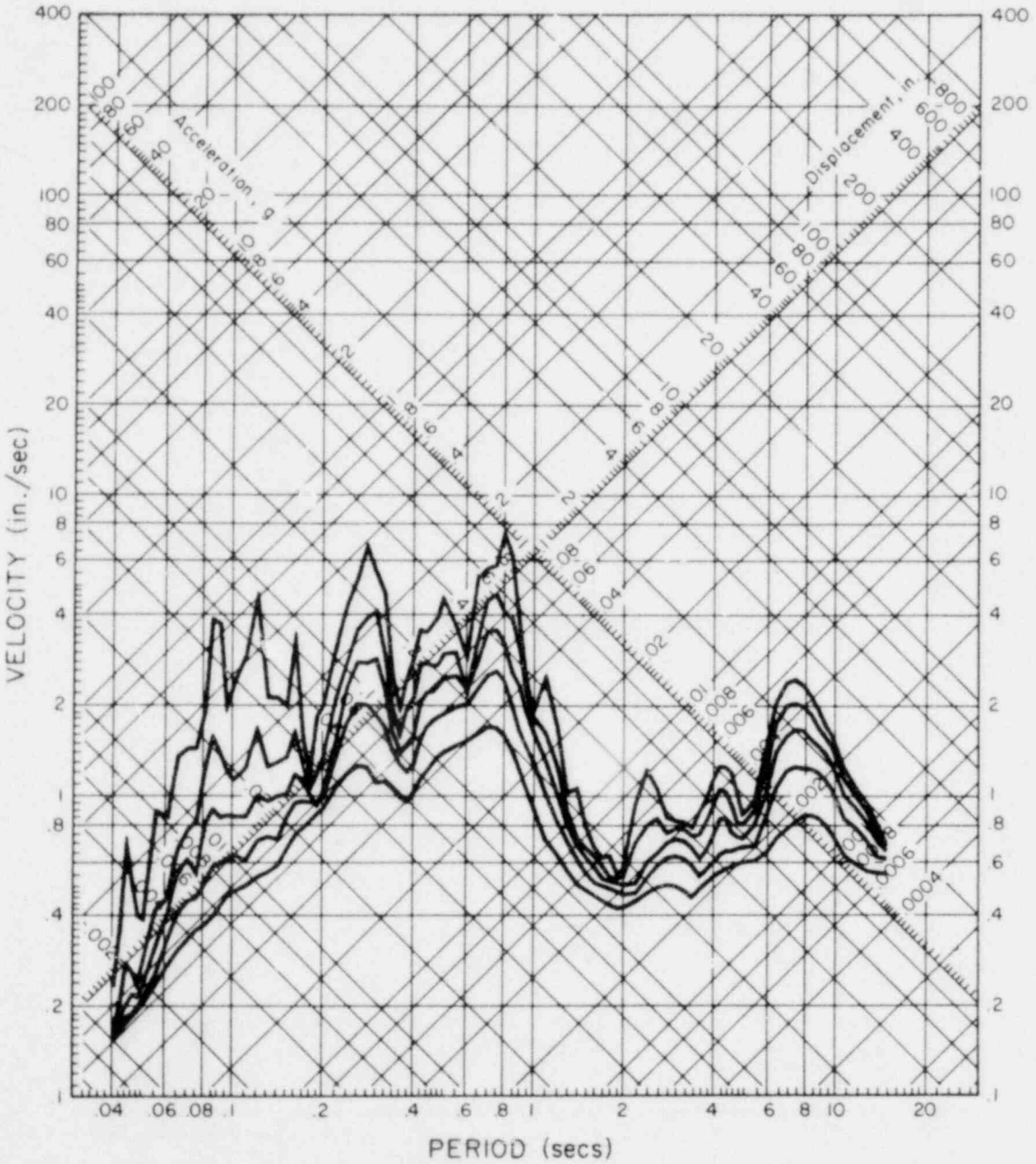


FIG. A6-21

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIM183 71.157.0 6074 PARK DRIVE, GROUND LEVEL, WRIGHTWOOD, CAL. COMP N65W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

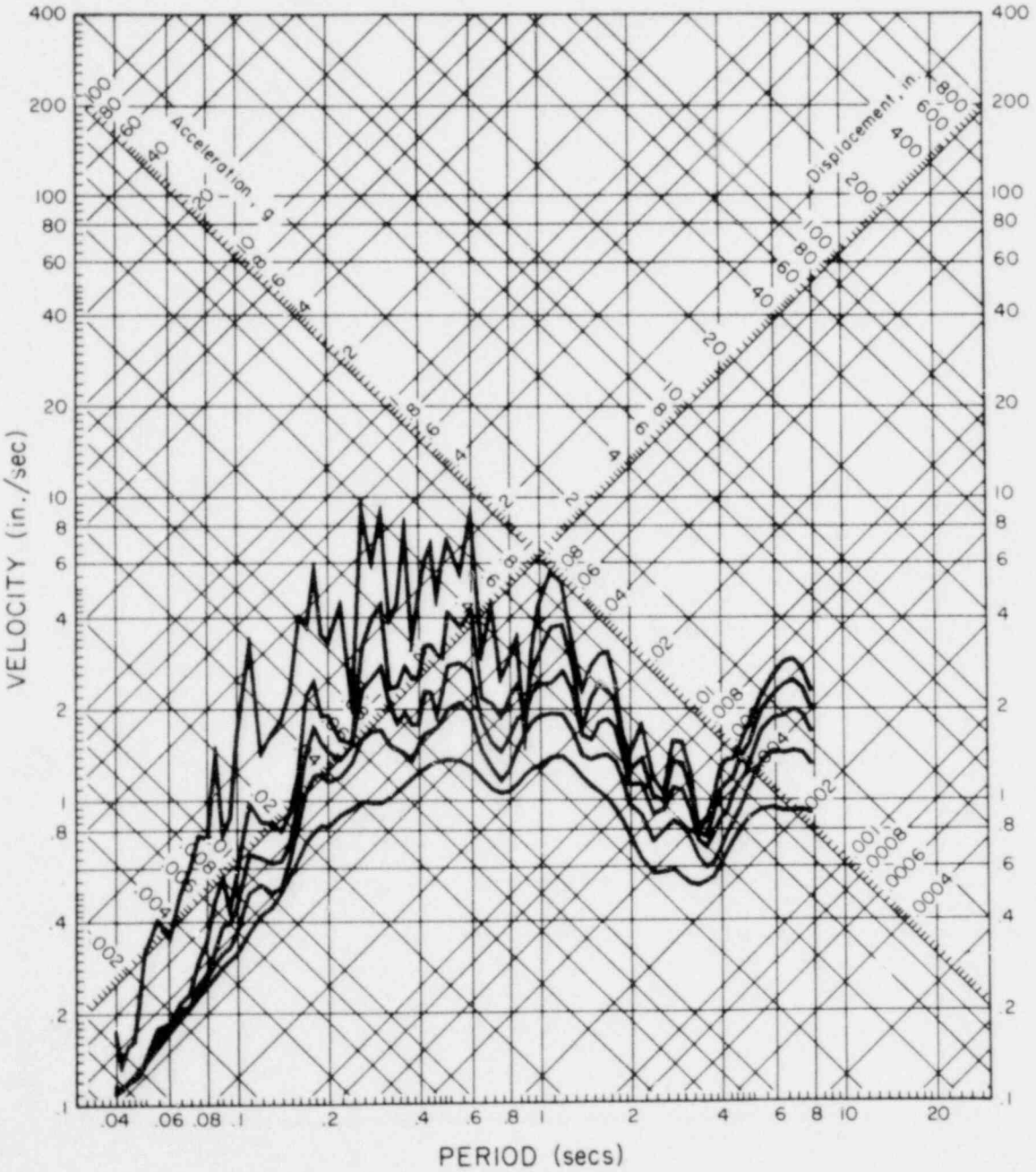


FIG. A6-22

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIM183 71.157.0 6074 PARK DRIVE, GROUND LEVEL, WRIGHTWOOD, CAL. COMP N25E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

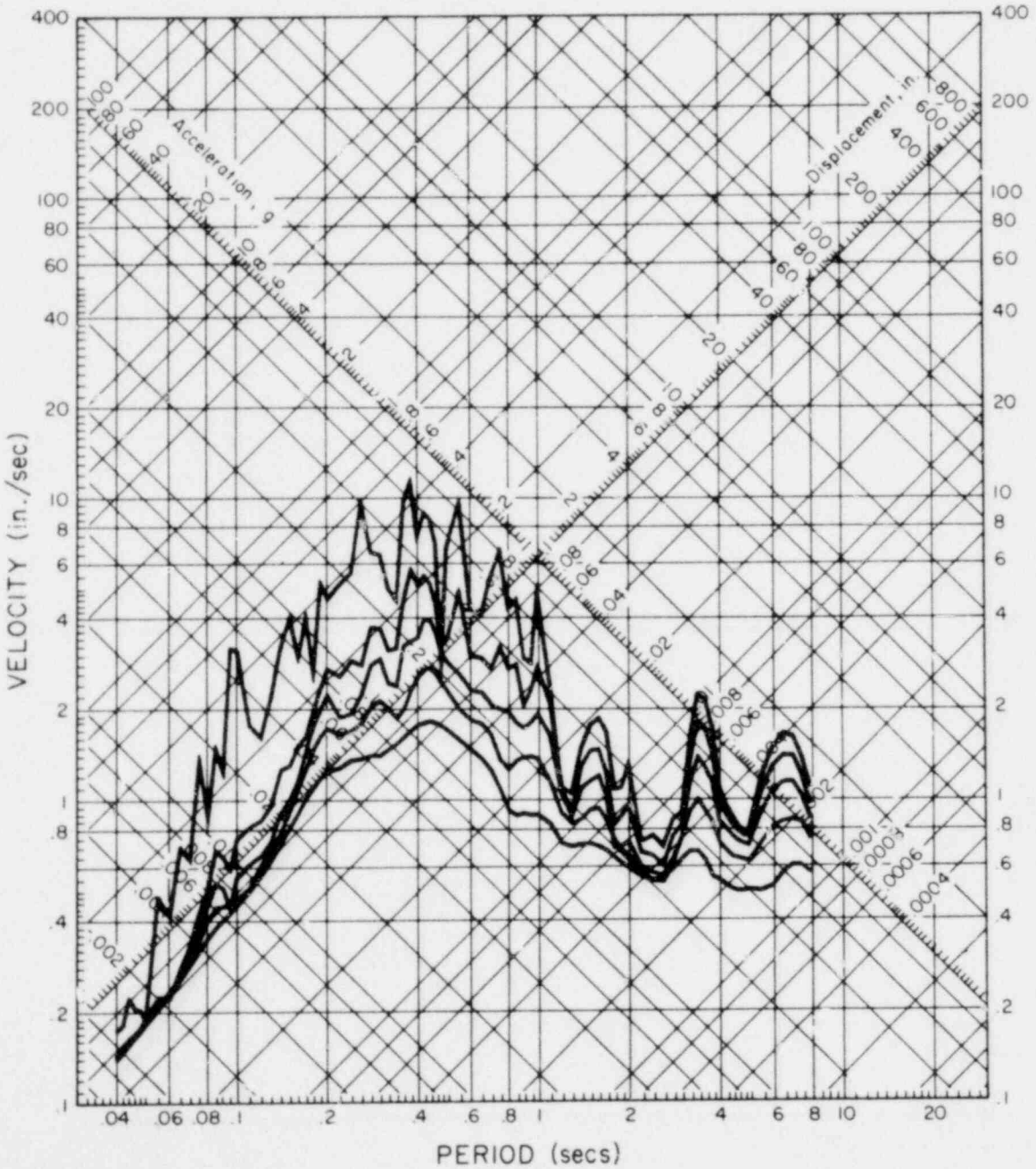


FIG. A6-23

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIM183 71.157.0 6074 PARK DRIVE, GROUND LEVEL, WRIGHTWOOD, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

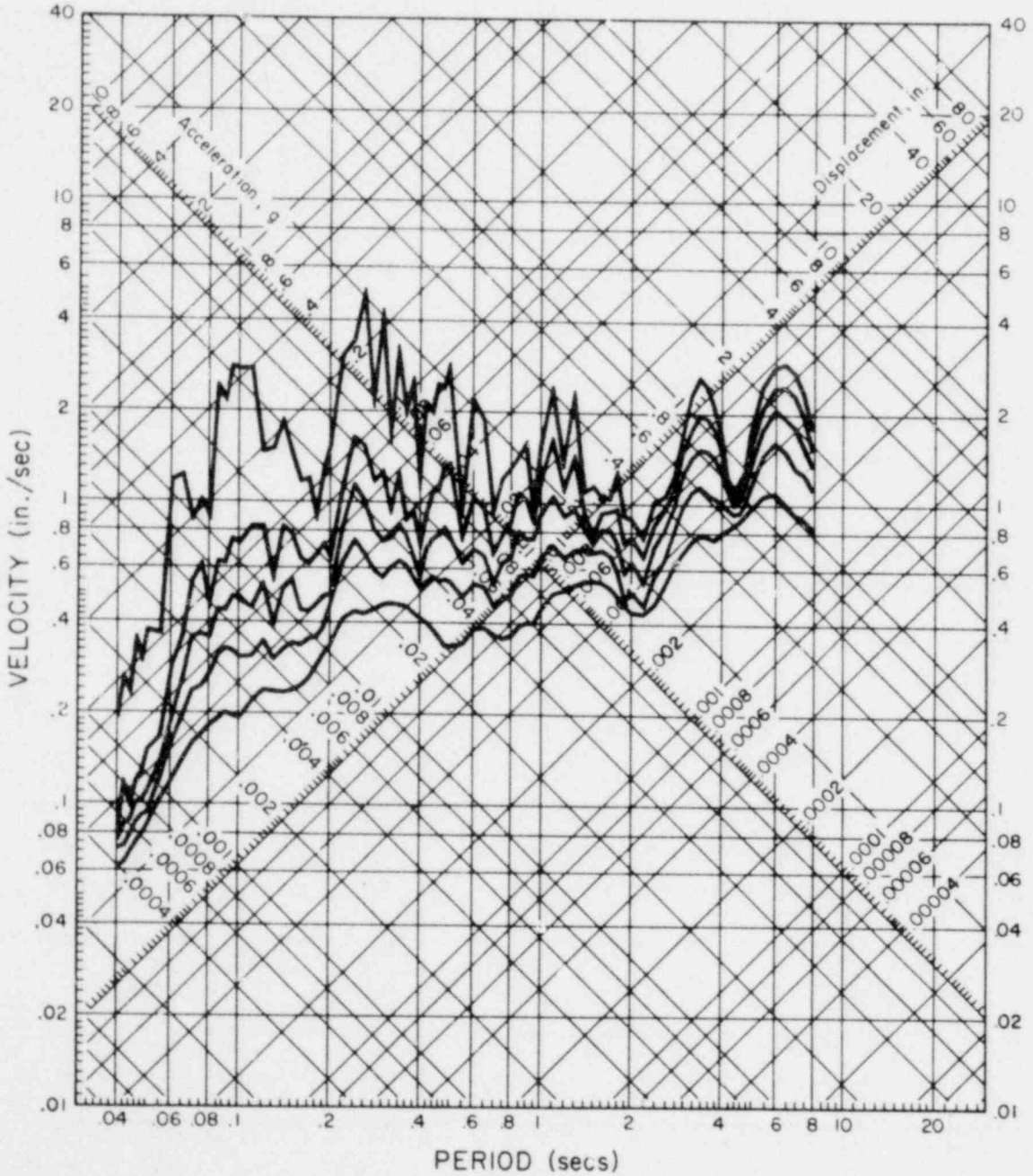


FIG. A6-24

Section A7
Los Angeles Region

TABLE A7-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT LOS ANGELES REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance from Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
68	04	08	18:30	Borrego Mountain 33°09'N; 116°08'W	6.5	Pacoima Dam, San Fernando	279	153	N76W	S14W	Vert	
									Maximum accel. <0.01g			
						633 E. Broadway Glendale (bsmt)	122	139	S70E	S20W	Down	
									0.02g	0.02g	0.02g	
						Jet Propulsion Lab, Pasadena (bsmt)	267	137	S82E	S08W	Down	Y-373
									7.4	7.0	4.9	
						Santa Anita Dam, Arcadia	104	129	Maximum accel. <0.01g			
68	07	04	16:45	Santa Barbara Channel 34°07'N; 119°42'W	5.2	Jet Propulsion Lab, Pasadena	267	88	Maximum accel. <0.05g			
69	04	28	15:21	Southern California 33°21'N; 118°29'W	5.9	4867 Sunset Blvd., L.A. (bsmt)	226	53	Maximum accel. <0.01g			
						Puddingstone Reservoir, San Dimas	278	64	Maximum accel. <0.01g			
70	09	12	6:30	Lytle Creek 34°16'N; 117°32'W	5.4	Jet Propulsion Lab, Pasadena (bsmt)	267	36	S82E	S08E	Down	W-344
									14.5	24.1	15.4	
71	02	09	6:00	San Fernando 34°24'N; 118°24'W	6.4	Pacoima Dam, San Fernando	279	4.6*	S14W	N76W	Down	C-041
									1148.1	1054.9	696.0	
						633 E Broadway, Glendale (bsmt)	122	20*	S70E	S20W	Down	F-088
									265.7	209.1	131.5	
						Seismological Lab, CIT Pasadena	266	22*	S0W	S90W	Down	G-106
									87.5	188.6	83.5	
						Jet Propulsion Lab, Pasadena (bsmt)	267	18	S82E	S08W	Down	G-110
									207.8	139.0	126.3	
						3838 Lankershim Blvd., L.A. (bsmt)	220	19	N0W	S90W	Down	L-166
									164.2	147.6	69.7	
						Carbon Canyon Dam, Brea	108	46	S50E	S40W	Down	N-185
									67.3	67.3	41.5	
						Griffith Park Observatory, L..	141	21	S0W	S90W	Down	O-198
									176.9	167.4	120.3	
						4867 Sunset Blvd, L.A. (bsmt)	226	22*	S89W	S01E	Down	P-214
									154.1	156.3	115.7	

TABLE 7-1 (cont'd)

LIST OF SELECTED SEISMIC EVENTS RECORDED AT LOS ANGELES REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
71	02	09	6:00	San Fernando 34°24'N; 118°24'W	6.4	Puddingstone Reservoir, San Dimas	278	40*	N55E 69.7	N35W 53.3	Down 37.8	P-223
						420 So. Grand, L.A. (second floor)	154	25	S53E 168.3	S37W 116.1	Down 56.3	K-157
						Santa Anita Dam (Res.) Arcadia	104	20*	N03E 137.7	N87W 165.8	Down 47.6	P-221
74	02	11	----	34°06'N; 118°16'W	3.4	420 So. Grand, L.A. (second floor)	154	4	S53E 80	S37W 100	Down 80	
74	08	14	----	34°26'N; 118°22'W	---	Pacoima Dam, San Fernando	279	6	S14W 120	N76W 60	Down 30	

Notes:

Data obtained from the open files of the U.S. Geological Survey, Seismic Engineering Branch in Menlo Park, California, except as follows:

Data for San Fernando Earthquake, February 9, 1971: Hudson, et al. (1969-1975 a and b)

Data for the two Earthquakes in 1974: U.S. Geological Survey (1975)

* Distance calculated from station and epicenter coordinates.

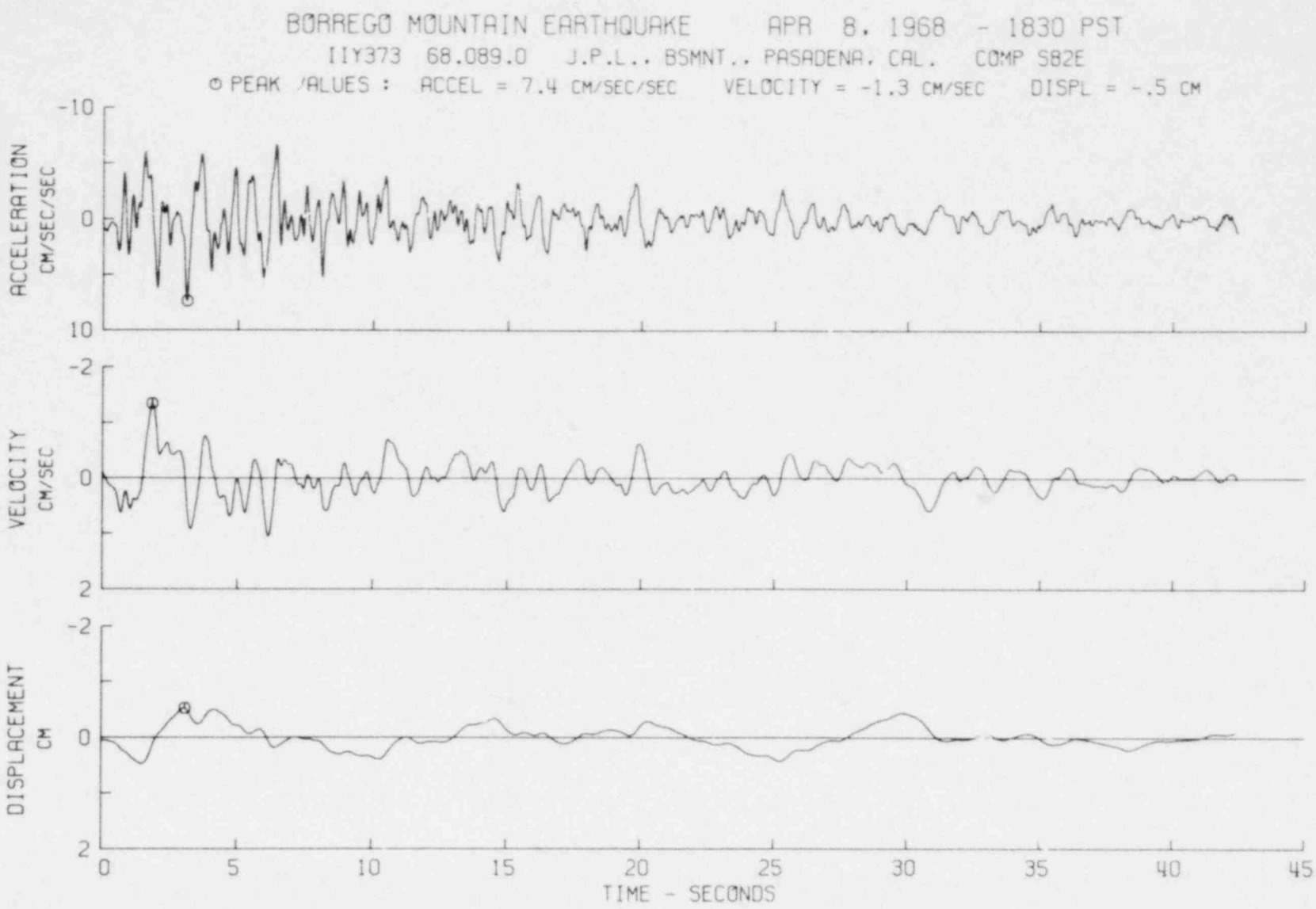

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IIY373 68.089.0 J.P.L., BSMNT., PASADENA, CAL. COMP S82E
⊙ PEAK VALUES : ACCEL = 7.4 CM/SEC/SEC VELOCITY = -1.3 CM/SEC DISPL = -.5 CM
ACCELERATION CM/SEC/SEC
-10
0
10
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-1

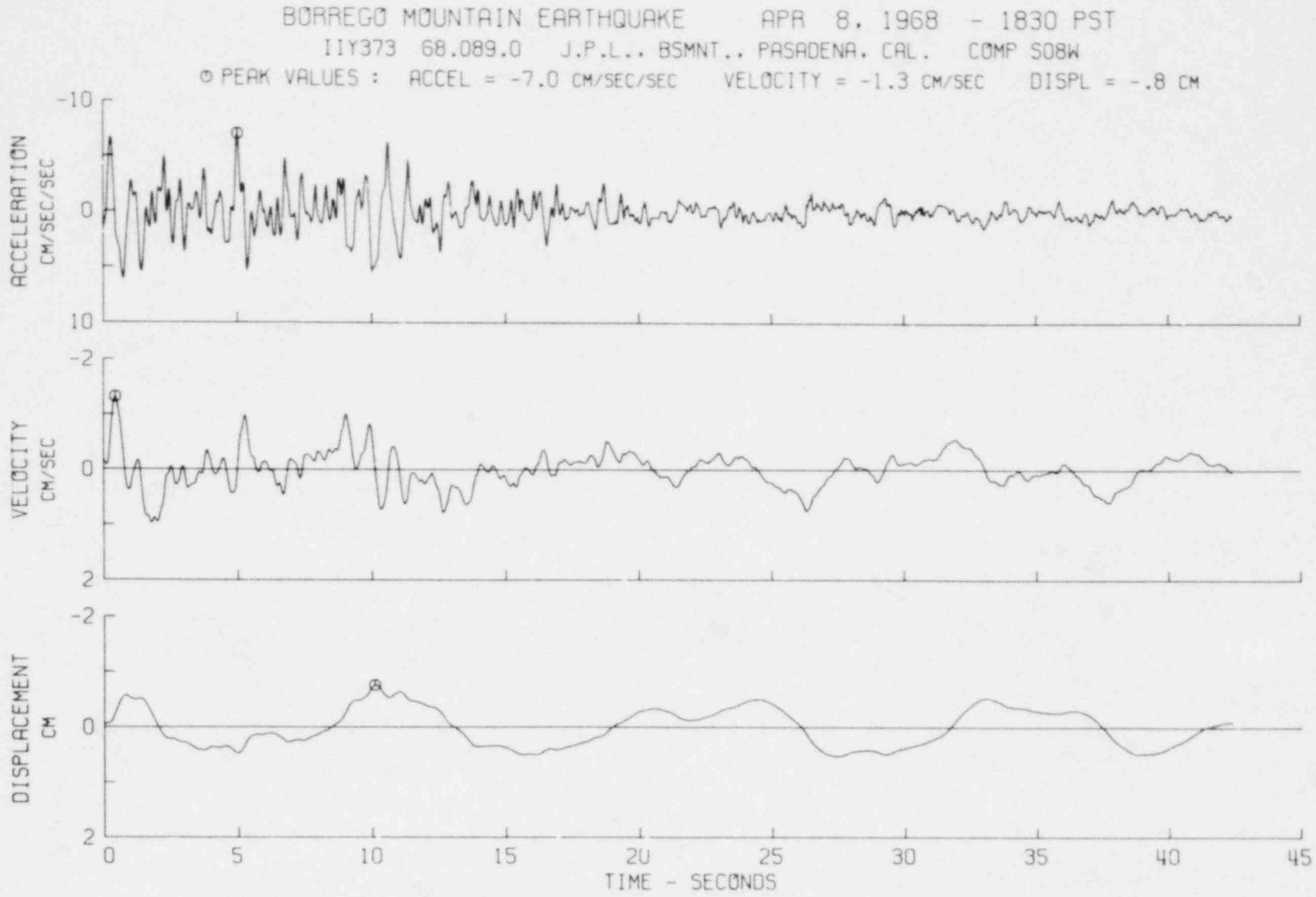

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IIY373 68.089.0 J.P.L., BSMNT., PASADENA, CAL. COMP S08W
PEAK VALUES : ACCEL = -7.0 CM/SEC/SEC VELOCITY = -1.3 CM/SEC DISPL = -.8 CM
ACCELERATION CM/SEC/SEC
VELOCITY CM/SEC
DISPLACEMENT CM
-10
0
10
-2
0
2
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-2

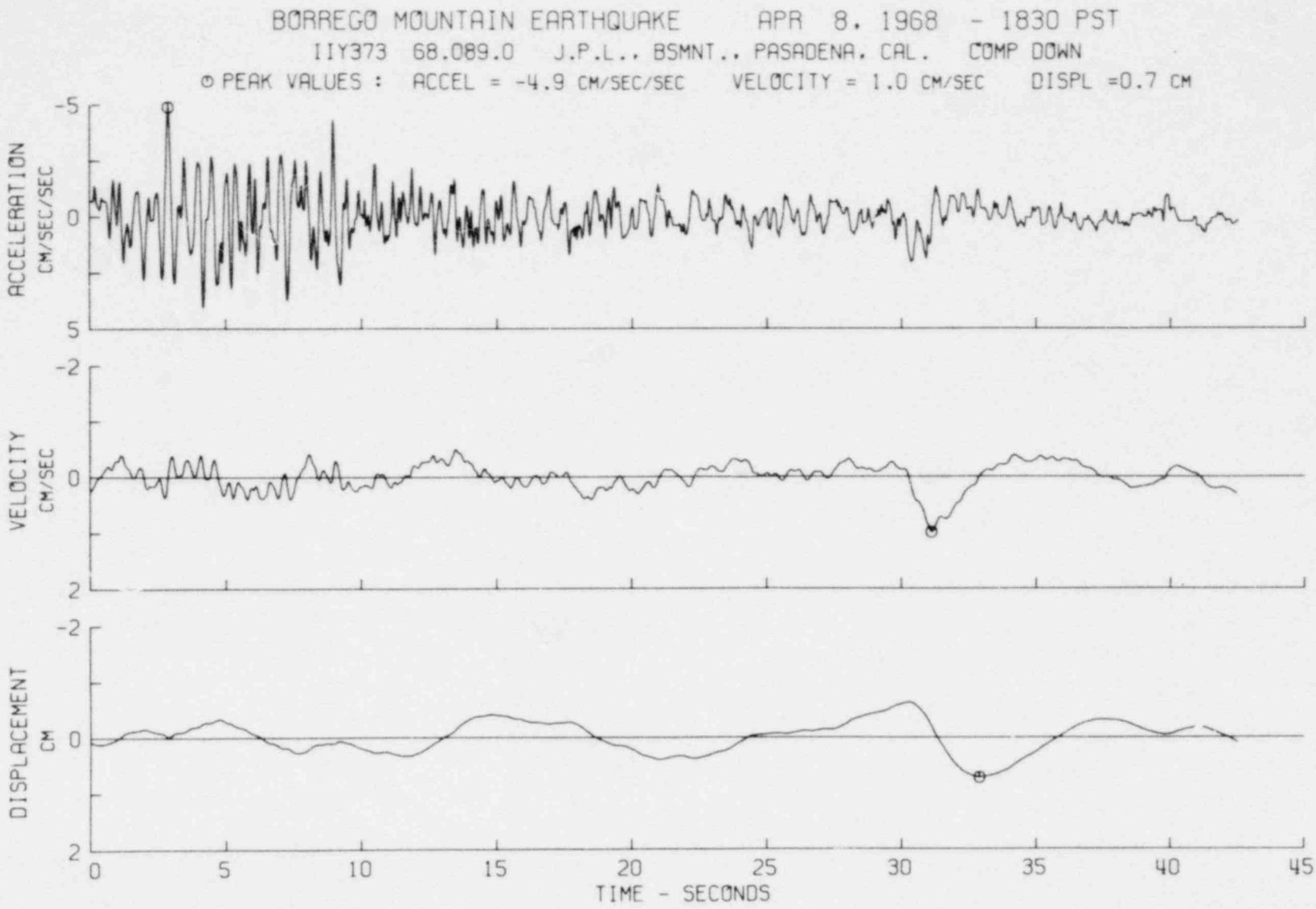

BORREGO MOUNTAIN EARTHQUAKE APR 8. 1968 - 1830 PST
IIY373 68.089.0 J.P.L.. BSMNT.. PASADENA. CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = -4.9 CM/SEC/SEC VELOCITY = 1.0 CM/SEC DISPL =0.7 CM
ACCELERATION CM/SEC/SEC
VELOCITY CM/SEC
DISPLACEMENT CM
TIME - SECONDS

FIG. A7-3

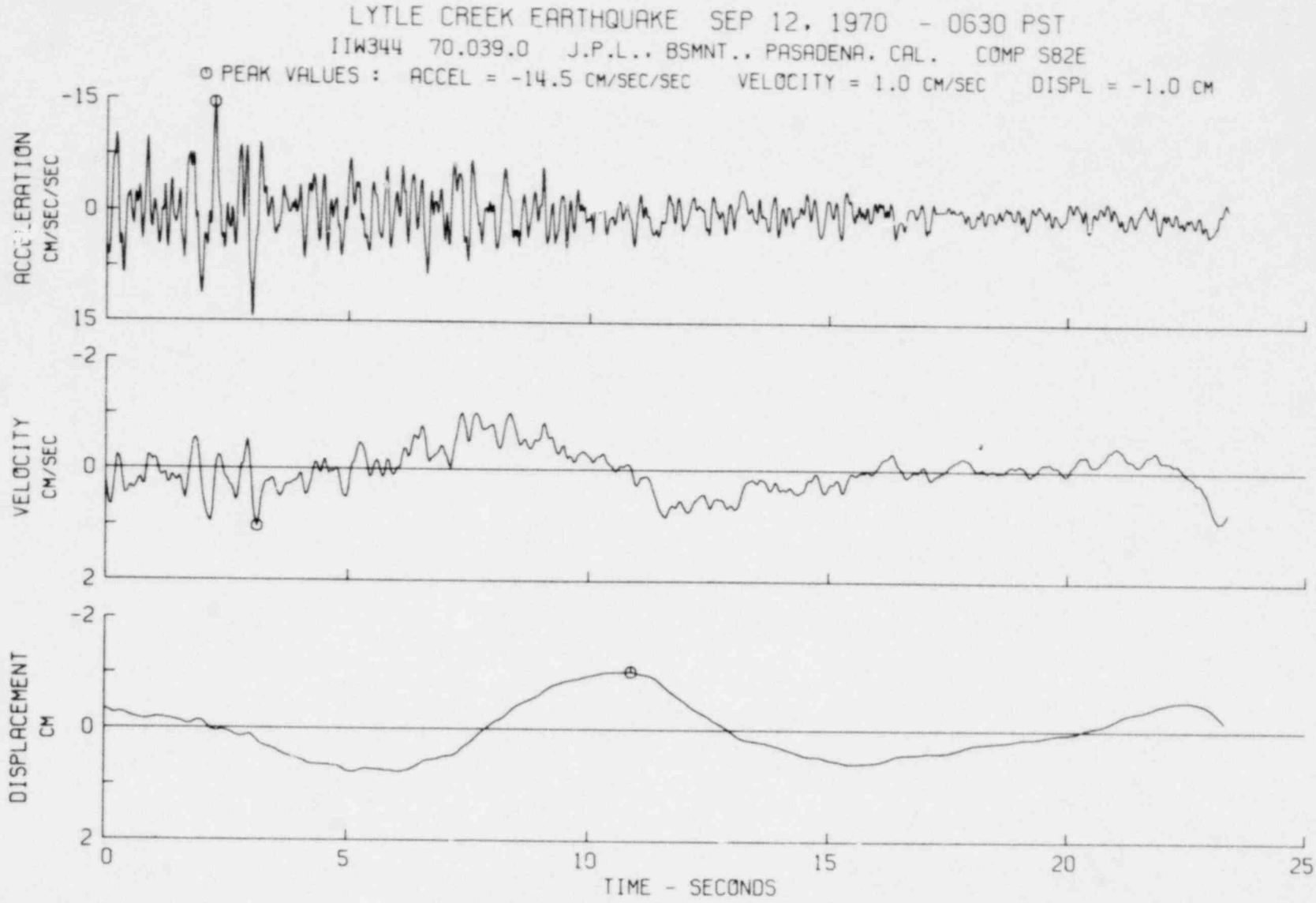

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP S82E
⊙ PEAK VALUES : ACCEL = -14.5 CM/SEC/SEC VELOCITY = 1.0 CM/SEC DISPL = -1.0 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
TIME - SECONDS

FIG. A7-4

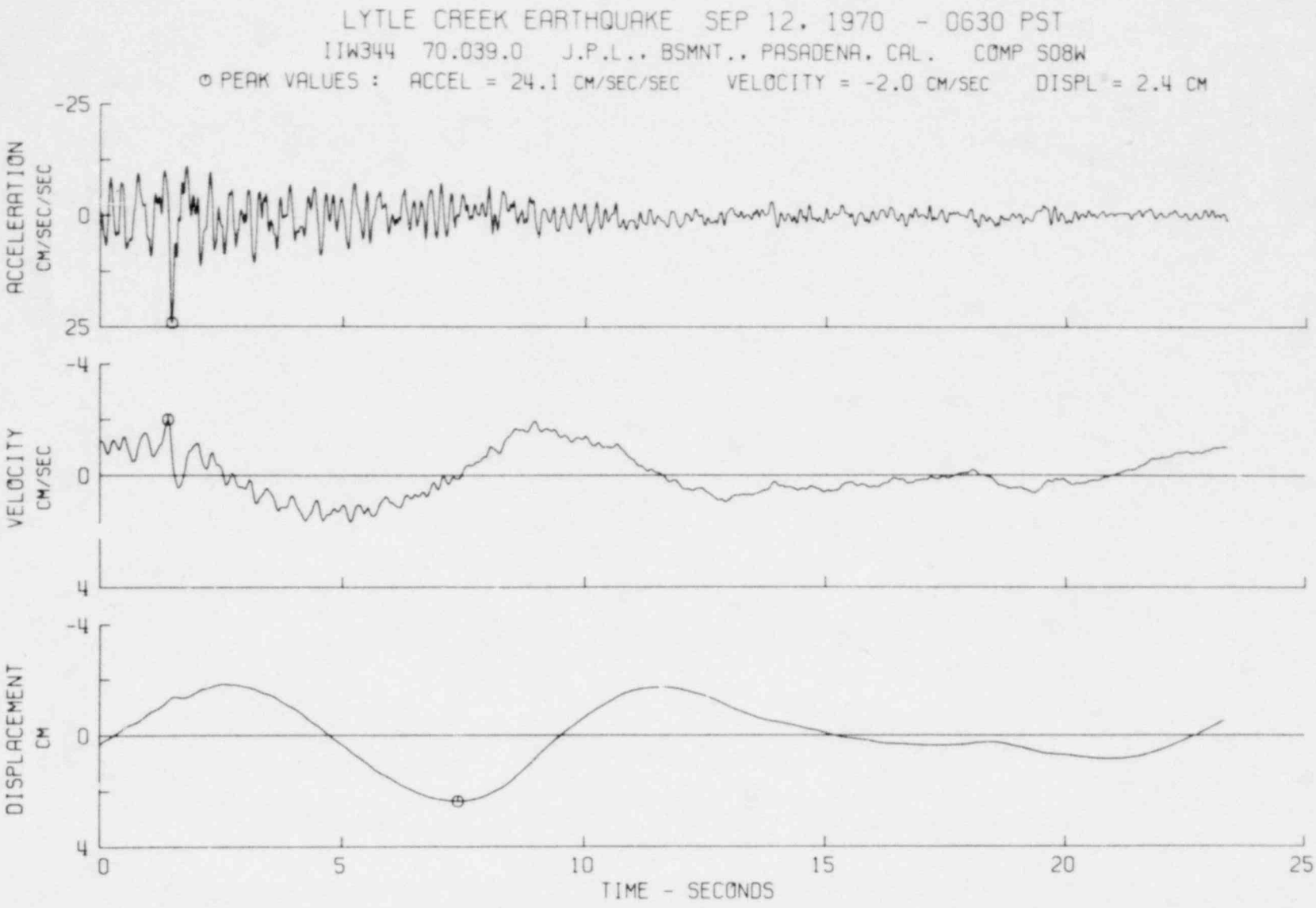

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP S08W
⊙ PEAK VALUES : ACCEL = 24.1 CM/SEC/SEC VELOCITY = -2.0 CM/SEC DISPL = 2.4 CM
ACCELERATION CM/SEC/SEC
-25
0
25
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
TIME - SECONDS

FIG. A7-5

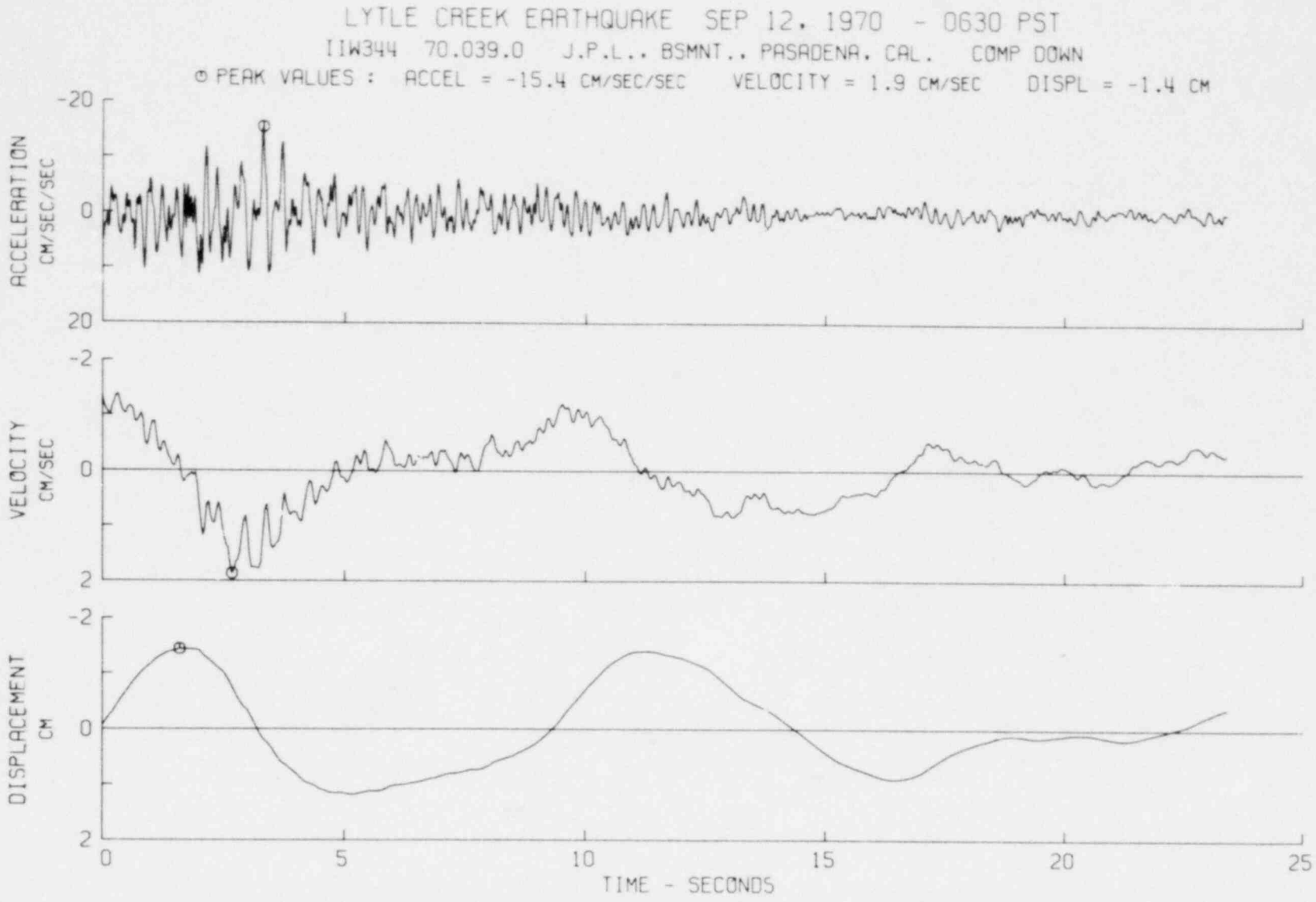

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IIW344 70.039.0 J.P.L.. BSMNT.. PASADENA, CAL. COMP DOWN
PEAK VALUES : ACCEL = -15.4 CM/SEC/SEC VELOCITY = 1.9 CM/SEC DISPL = -1.4 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
TIME - SECONDS

FIG. A7-6

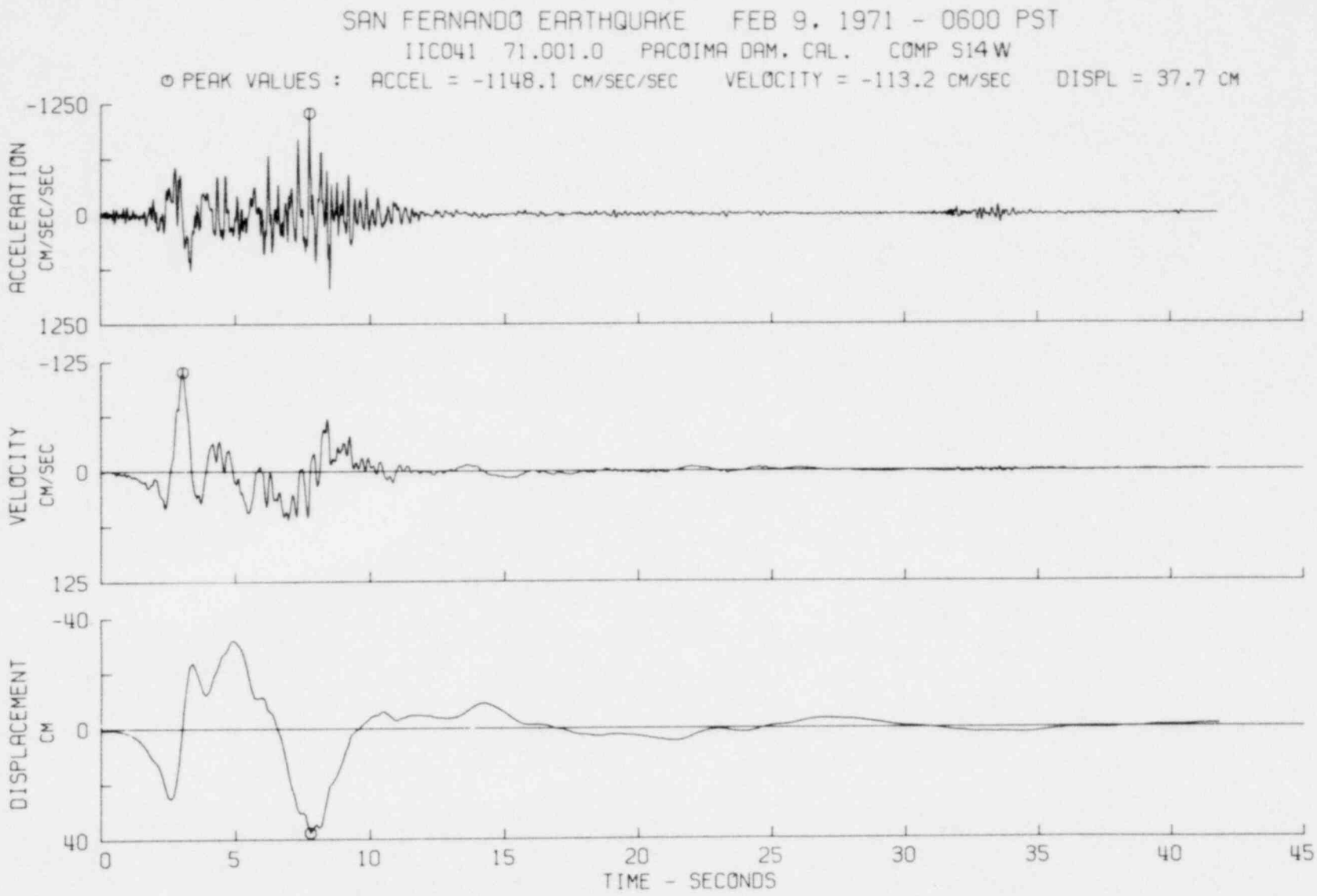

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IICO41 71.001.0 PACOIMA DAM. CAL. COMP S14W
⊙ PEAK VALUES : ACCEL = -1148.1 CM/SEC/SEC VELOCITY = -113.2 CM/SEC DISPL = 37.7 CM
ACCELERATION CM/SEC/SEC
-1250
0
1250
VELOCITY CM/SEC
-125
0
125
DISPLACEMENT CM
-40
0
40
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-7

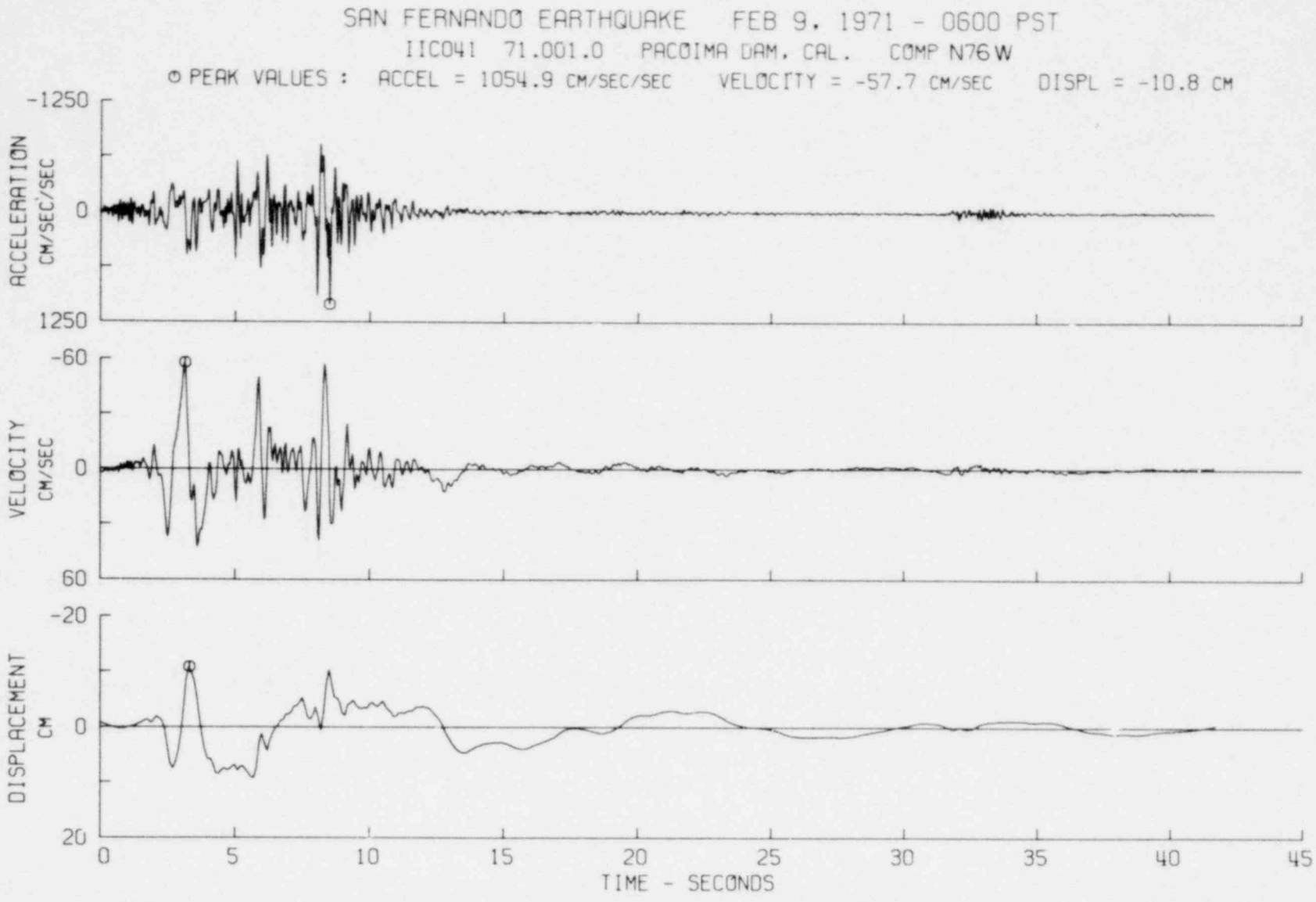

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIC041 71.001.0 PACOIMA DAM, CAL. COMP N76W
⊙ PEAK VALUES : ACCEL = 1054.9 CM/SEC/SEC VELOCITY = -57.7 CM/SEC DISPL = -10.8 CM
ACCELERATION CM/SEC/SEC
-1250
0
1250
VELOCITY CM/SEC
-60
0
60
DISPLACEMENT CM
-20
0
20
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-8

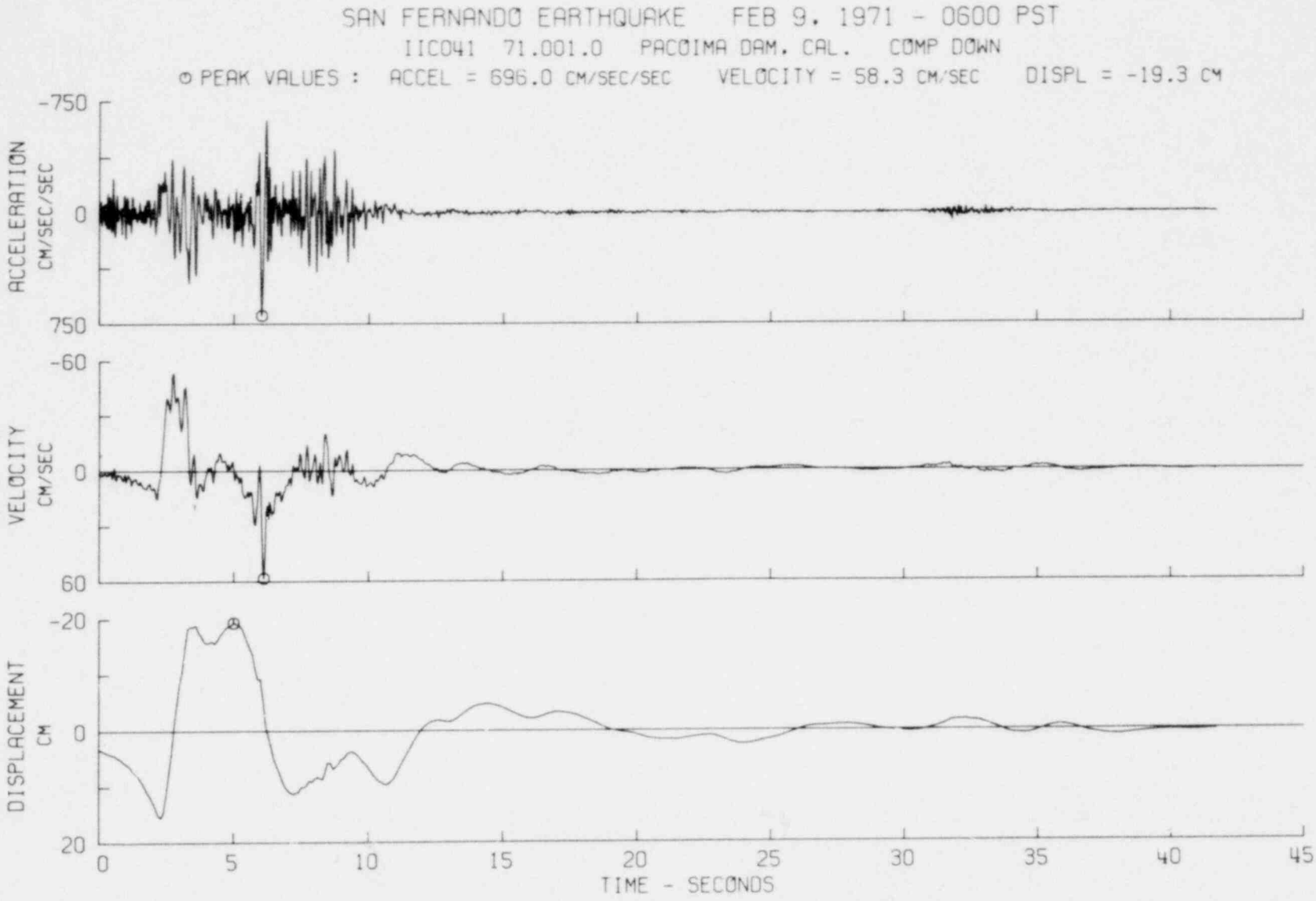

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IICO41 71.001.0 PACOIMA DAM. CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = 696.0 CM/SEC/SEC VELOCITY = 58.3 CM/SEC DISPL = -19.3 CM
ACCELERATION CM/SEC/SEC
-750
0
750
VELOCITY CM/SEC
-60
0
60
DISPLACEMENT CM
-20
0
20
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-9

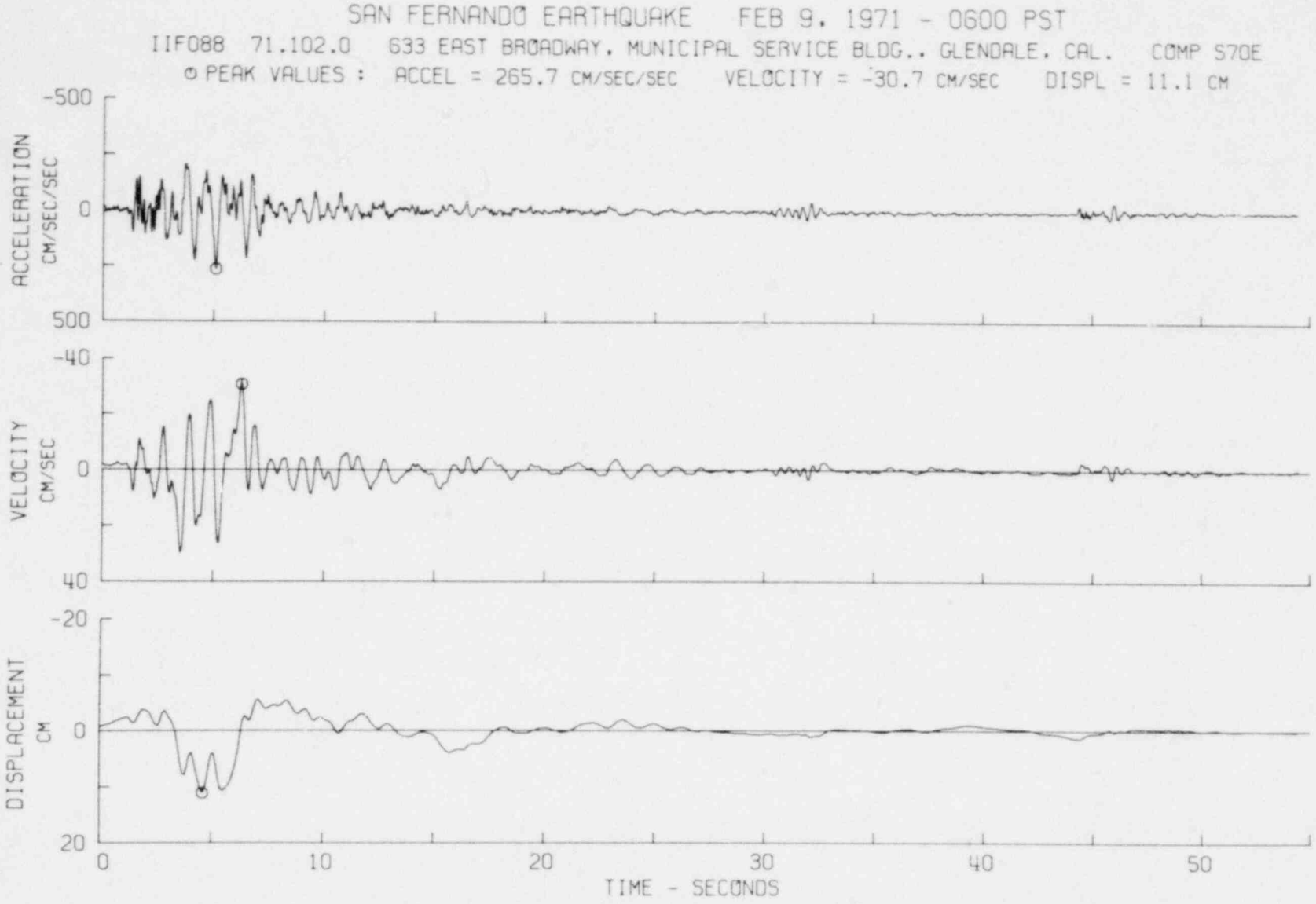

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIF088 71.102.0 633 EAST BROADWAY, MUNICIPAL SERVICE BLDG., GLENDALE, CAL. COMP S70E
PEAK VALUES : ACCEL = 265.7 CM/SEC/SEC VELOCITY = 30.7 CM/SEC DISPL = 11.1 CM
ACCELERATION CM/SEC/SEC
-500
0
500
VELOCITY CM/SEC
-40
0
40
DISPLACEMENT CM
-20
0
20
0
10
20
30
40
50
TIME - SECONDS

FIG. A7-10

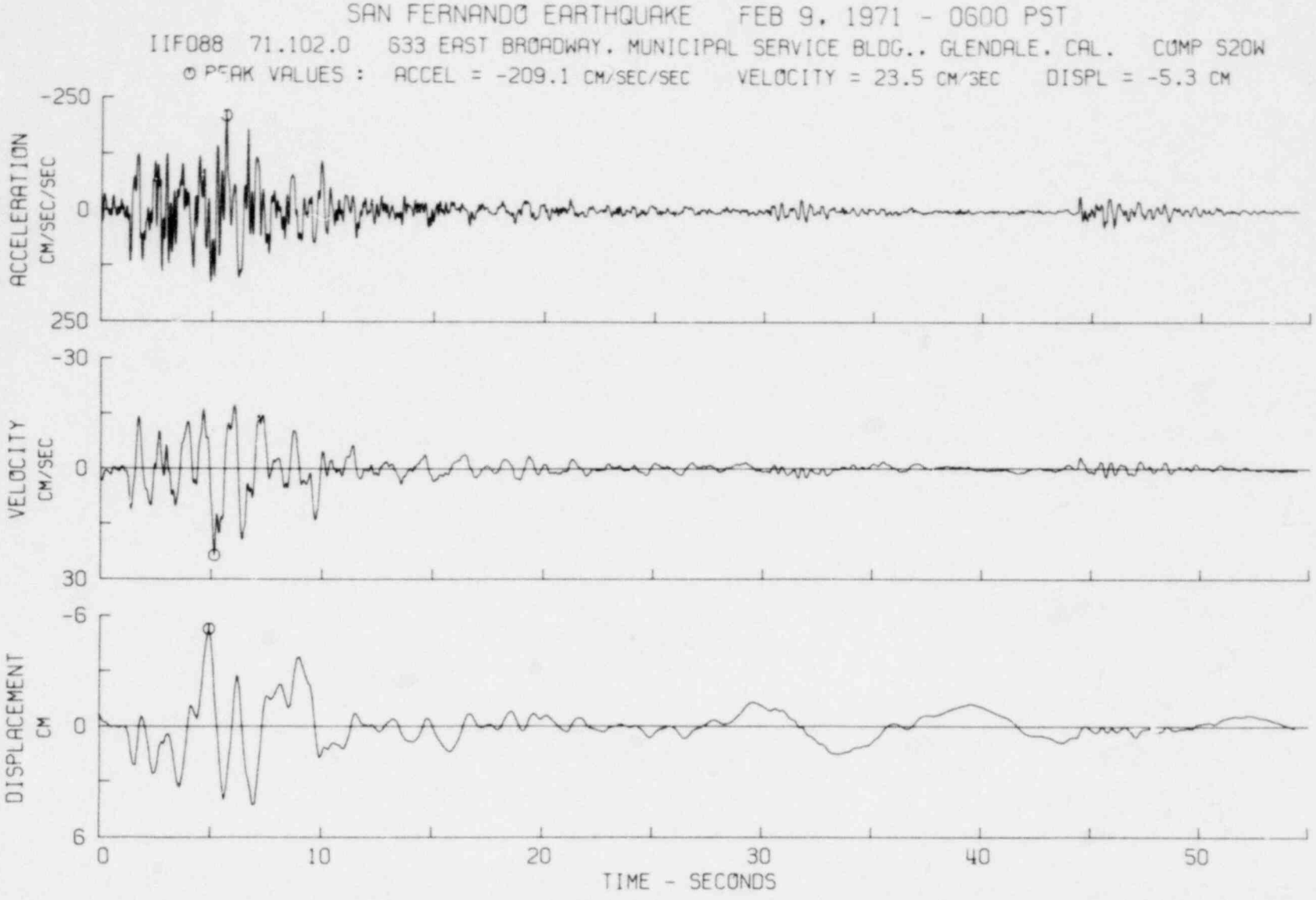

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIF088 71.102.0 633 EAST BROADWAY, MUNICIPAL SERVICE BLDG., GLENDALE, CAL. COMP S20W
PEAK VALUES : ACCEL = -209.1 CM/SEC/SEC VELOCITY = 23.5 CM/SEC DISPL = -5.3 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-30
0
30
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
TIME - SECONDS

FIG. A7-11

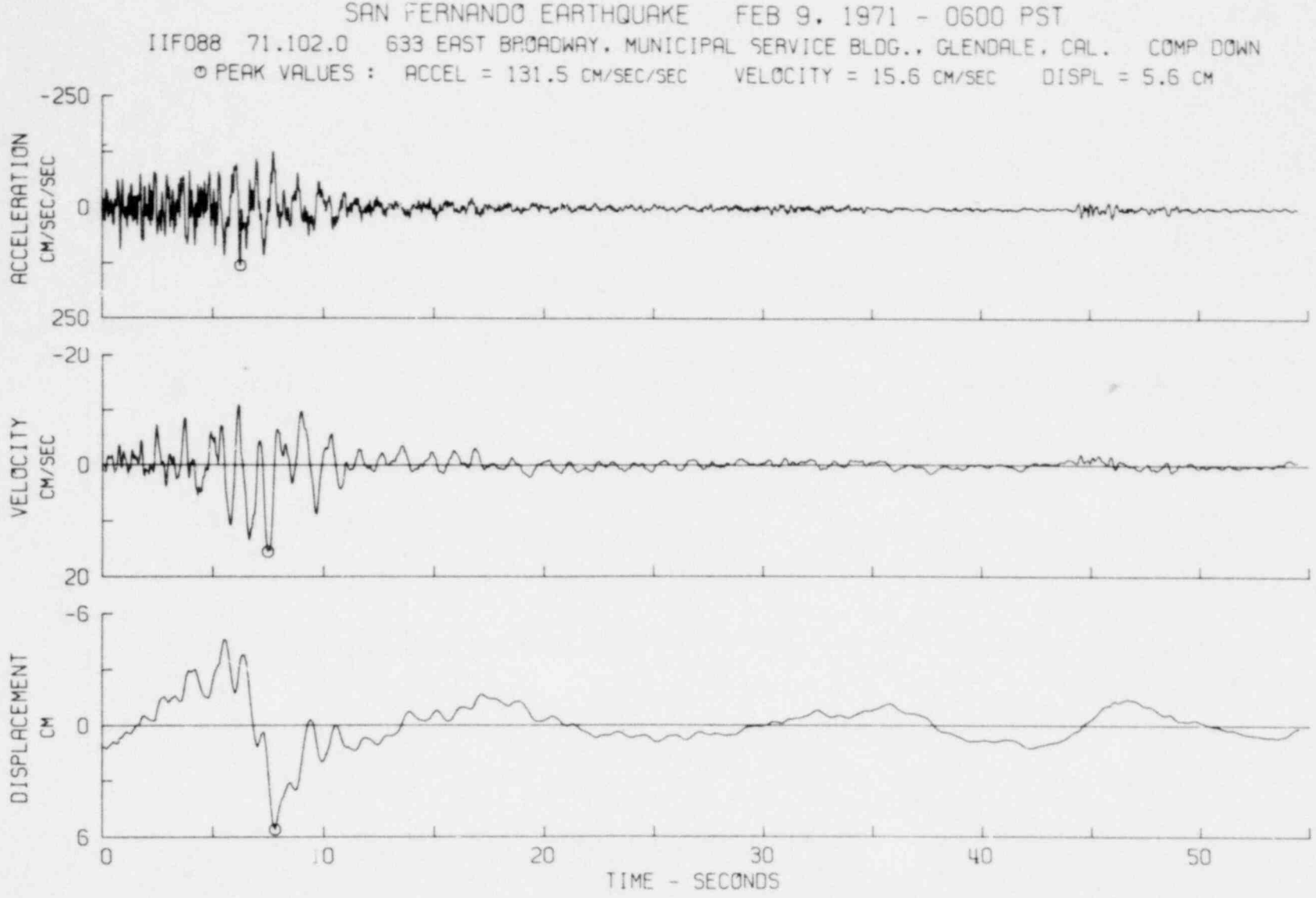

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IIF088 71.102.0 633 EAST BROADWAY. MUNICIPAL SERVICE BLDG.. GLENDALE. CAL. COMP DOWN
Φ PEAK VALUES : ACCEL = 131.5 CM/SEC/SEC VELOCITY = 15.6 CM/SEC DISPL = 5.6 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
TIME - SECONDS

FIG. A7-12

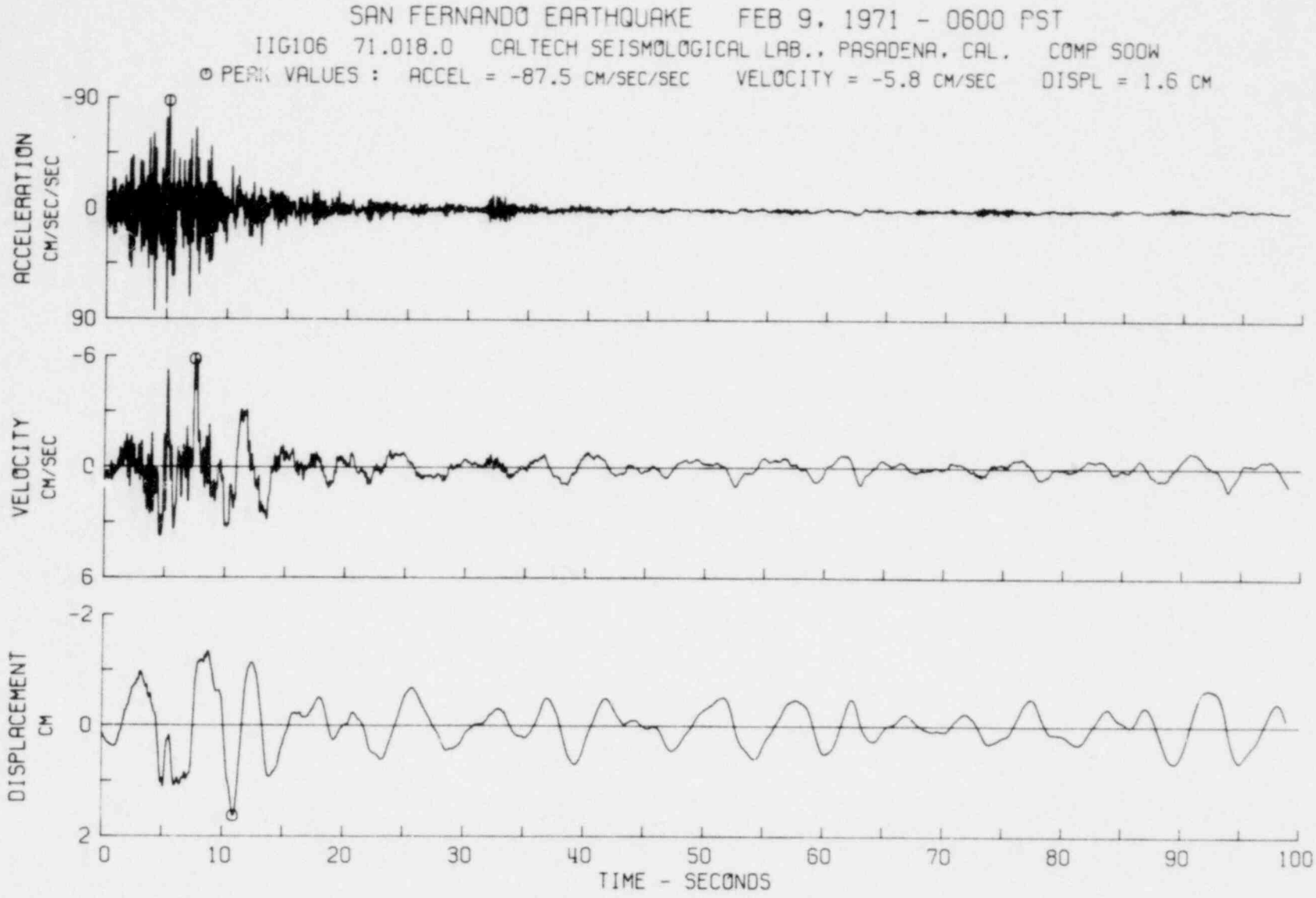

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP S00W
⊙ PEAK VALUES : ACCEL = -87.5 CM/SEC/SEC VELOCITY = -5.8 CM/SEC DISPL = 1.6 CM
ACCELERATION CM/SEC/SEC
-90
0
90
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
60
70
80
90
100
TIME - SECONDS

FIG. A7-13

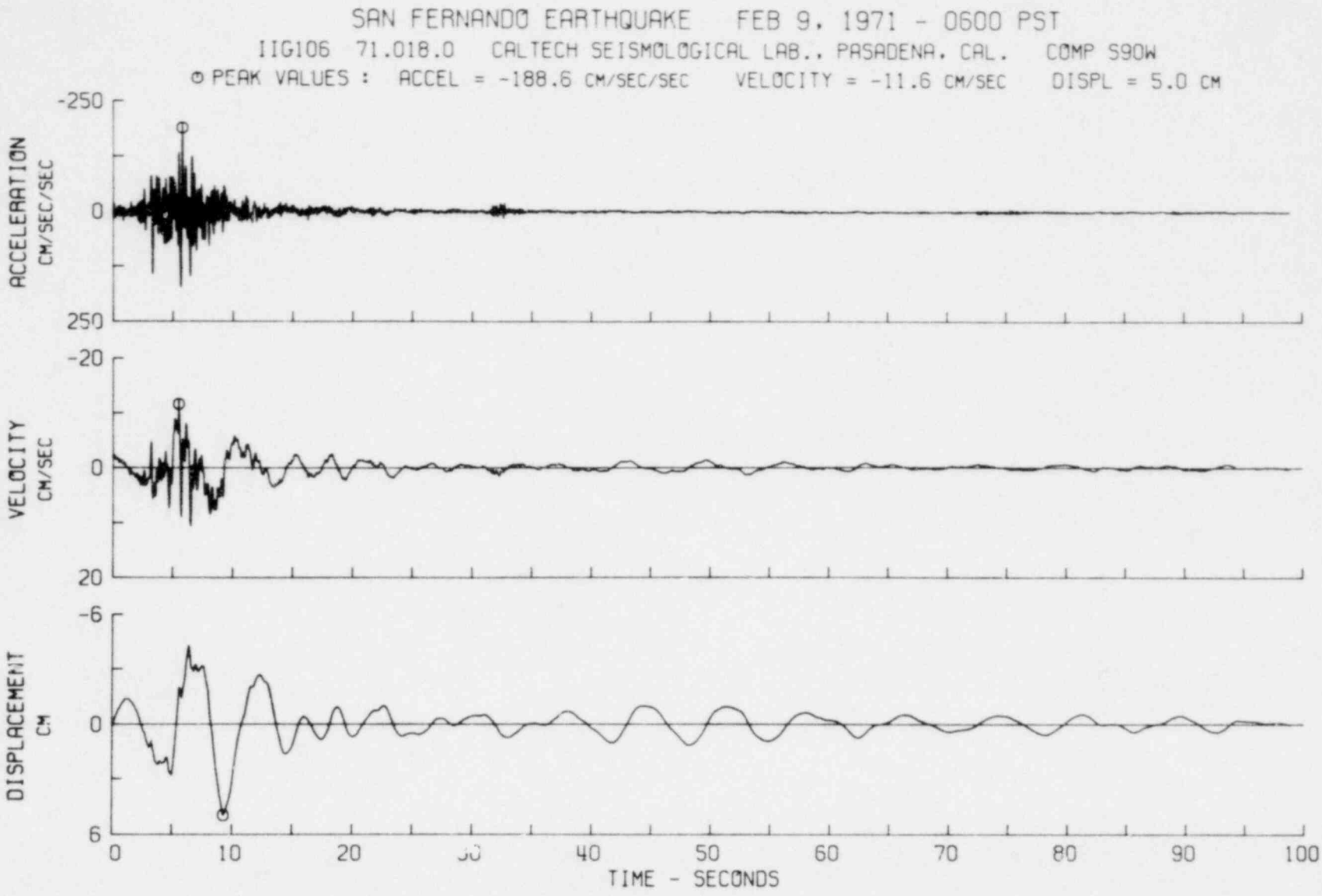

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP S90W
⊙ PEAK VALUES : ACCEL = -188.6 CM/SEC/SEC VELOCITY = -11.6 CM/SEC DISPL = 5.0 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
70
80
90
100
TIME - SECONDS

FIG. A7-14

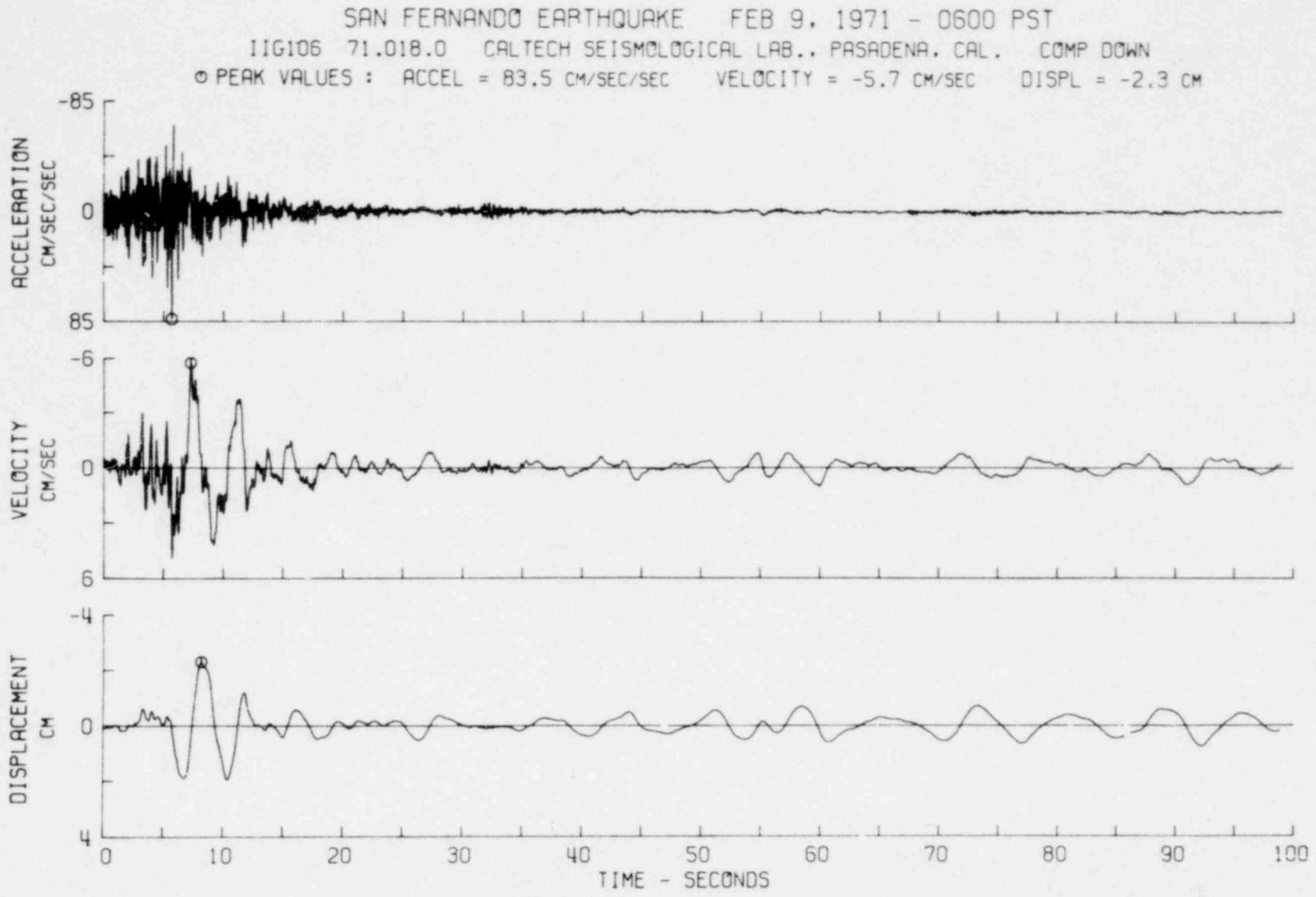

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP DOWN
PEAK VALUES : ACCEL = 83.5 CM/SEC/SEC VELOCITY = -5.7 CM/SEC DISPL = -2.3 CM
ACCELERATION CM/SEC/SEC
-85
0
85
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
70
80
90
100
TIME - SECONDS

FIG. A7-15

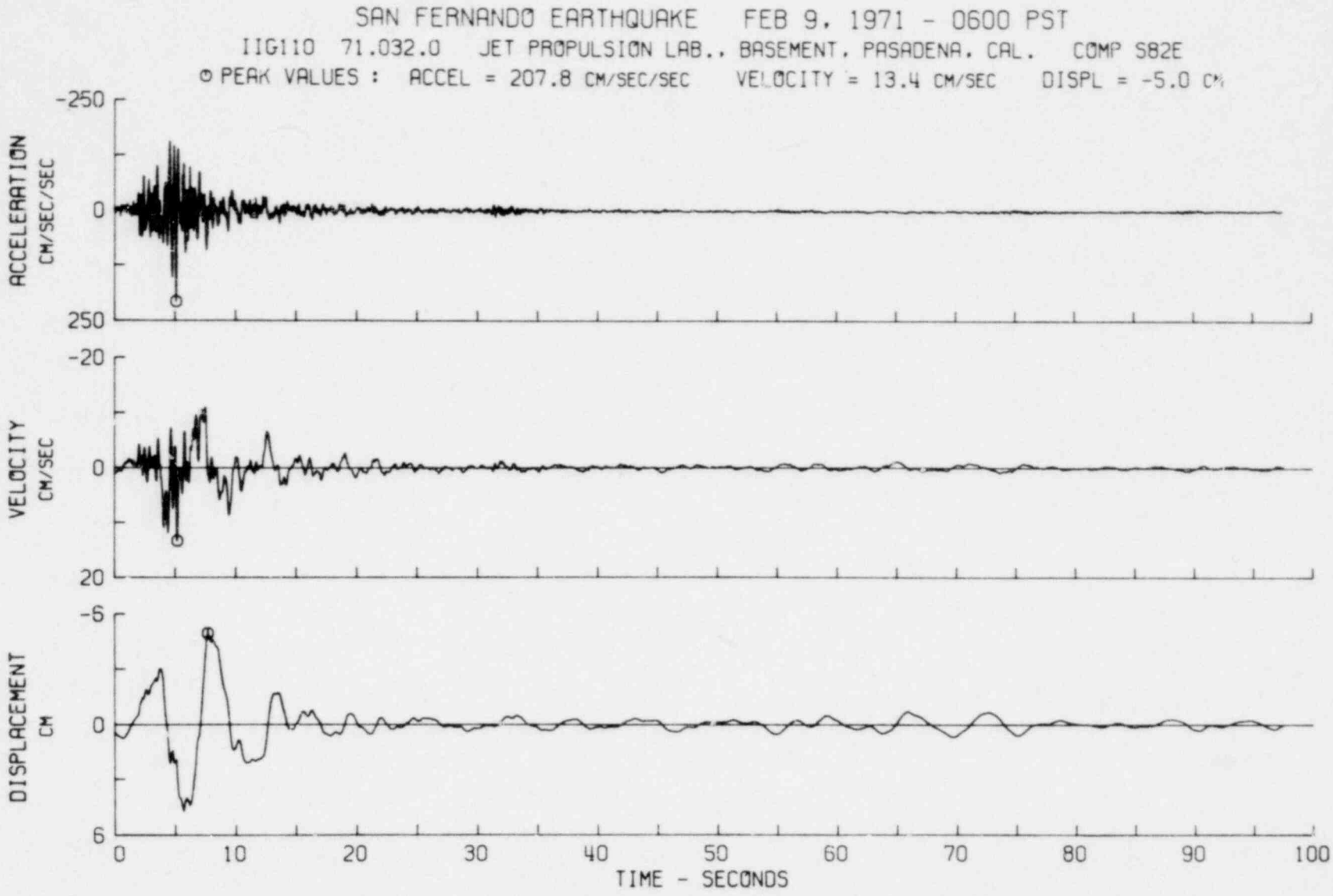

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S82E
PEAK VALUES : ACCEL = 207.8 CM/SEC/SEC VELOCITY = 13.4 CM/SEC DISPL = -5.0 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
70
80
90
100
TIME - SECONDS

FIG. A7-16

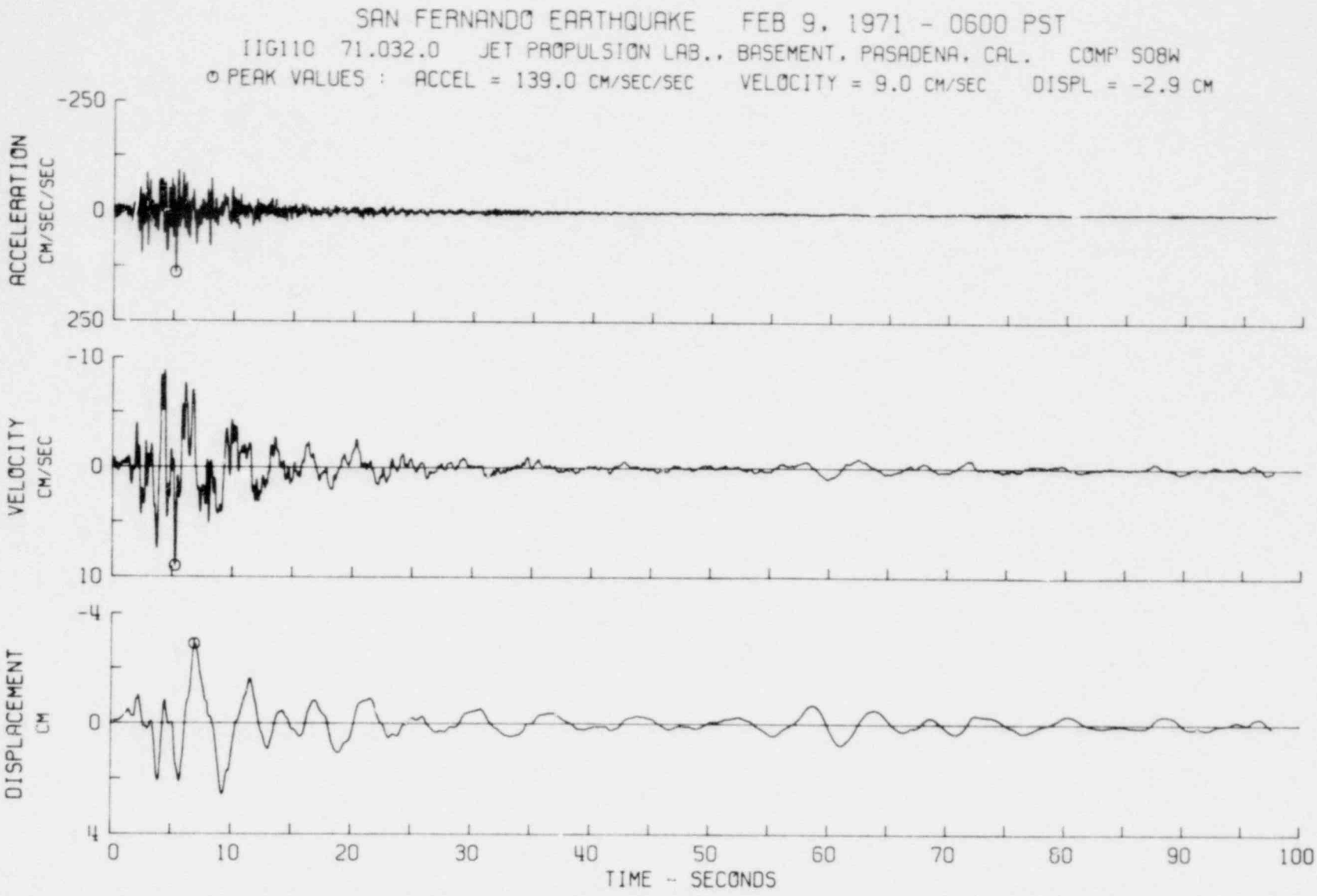
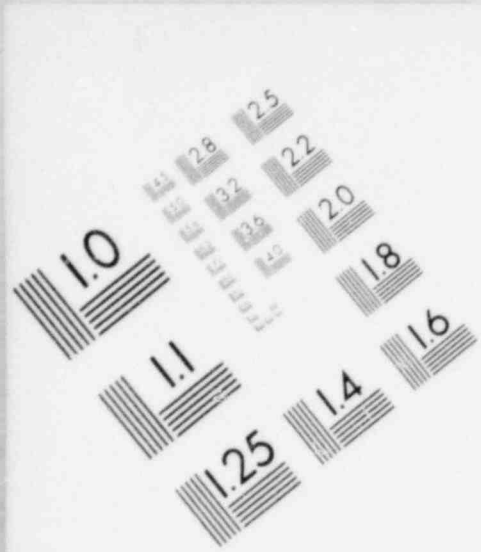

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S08W
⊙ PEAK VALUES : ACCEL = 139.0 CM/SEC/SEC VELOCITY = 9.0 CM/SEC DISPL = -2.9 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
70
80
90
100
TIME - SECONDS

FIG. A7-17



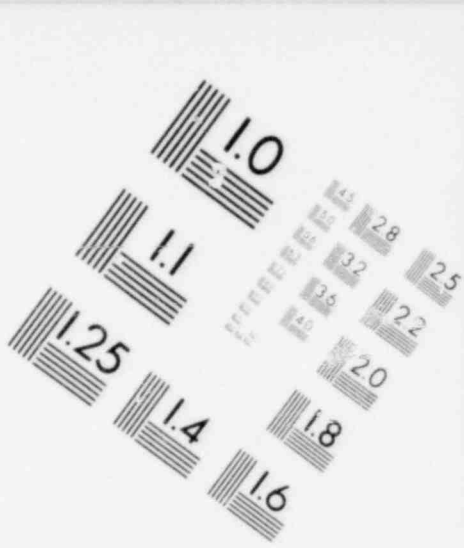
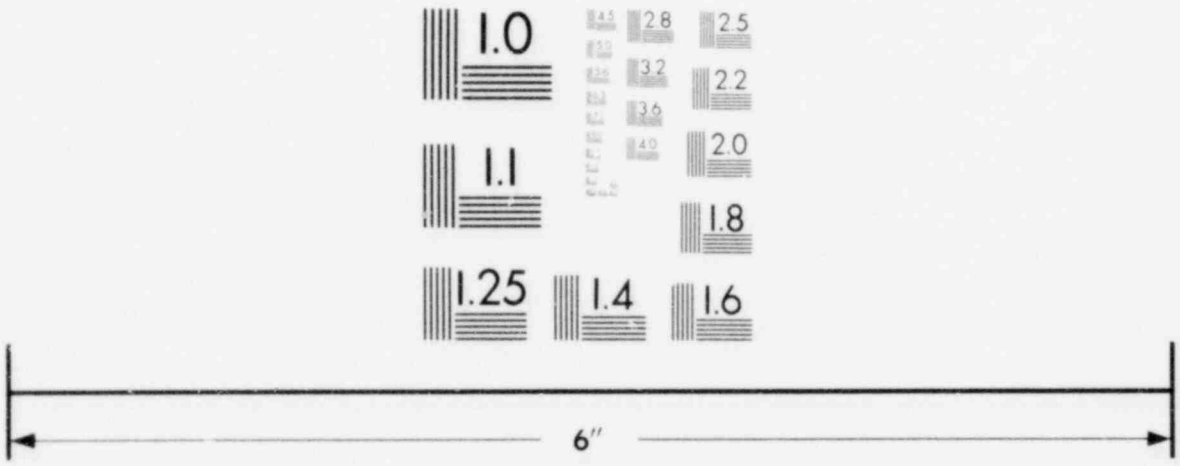
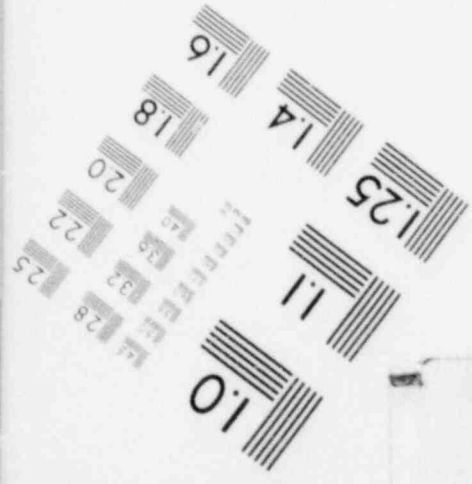
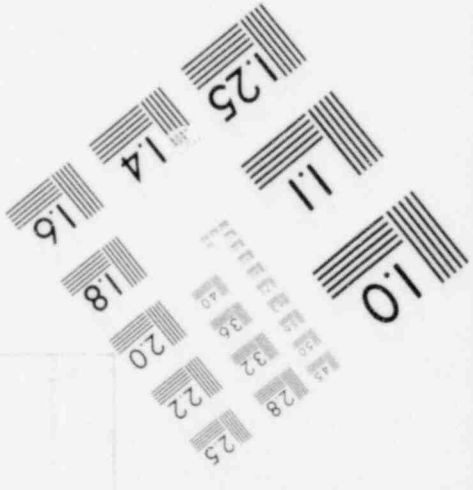


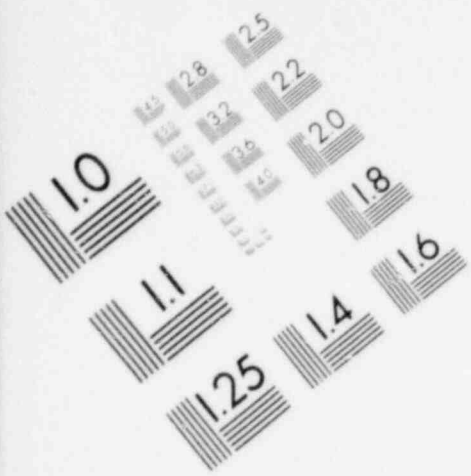
IMAGE EVALUATION
TEST TARGET (MT-3)



MICROCOPY RESOLUTION TEST CHART







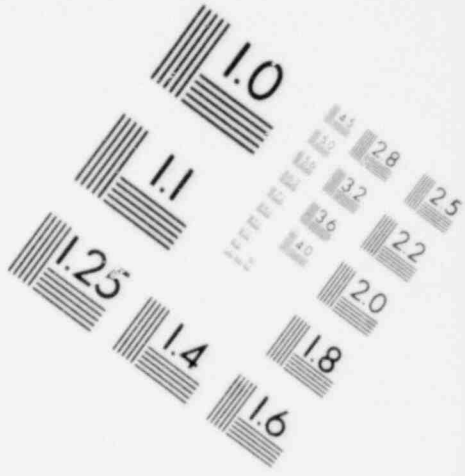
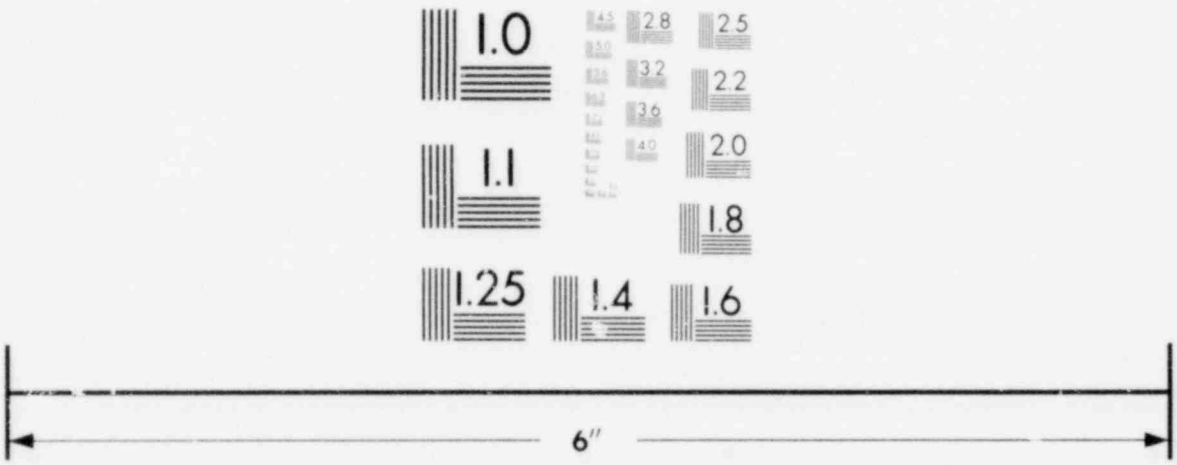
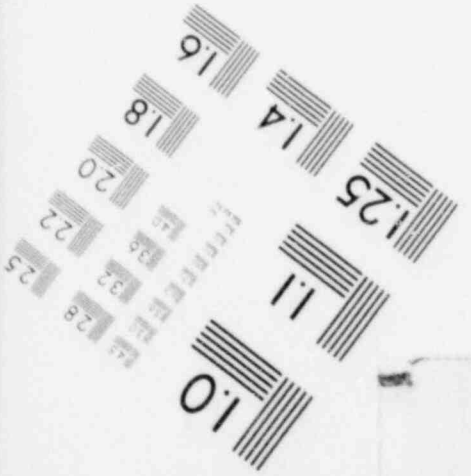
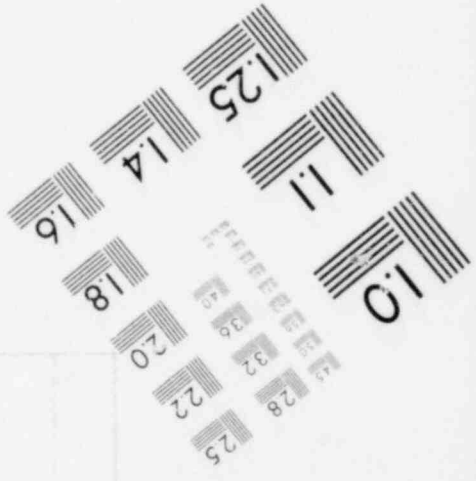


IMAGE EVALUATION
TEST TARGET (MT-3)



MICROCOPY RESOLUTION TEST CHART





SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = -126.3 CM/SEC/SEC VELOCITY = -5.7 CM/SEC DISPL = 2.6 CM
ACCELERATION
CM/SEC/SEC
-250
0
250
VELOCITY
CM/SEC
-6
0
6
DISPLACEMENT
CM
-4
0
4
0
10
20
30
40
50
60
70
80
90
100
TIME - SECONDS

FIG. A7-18

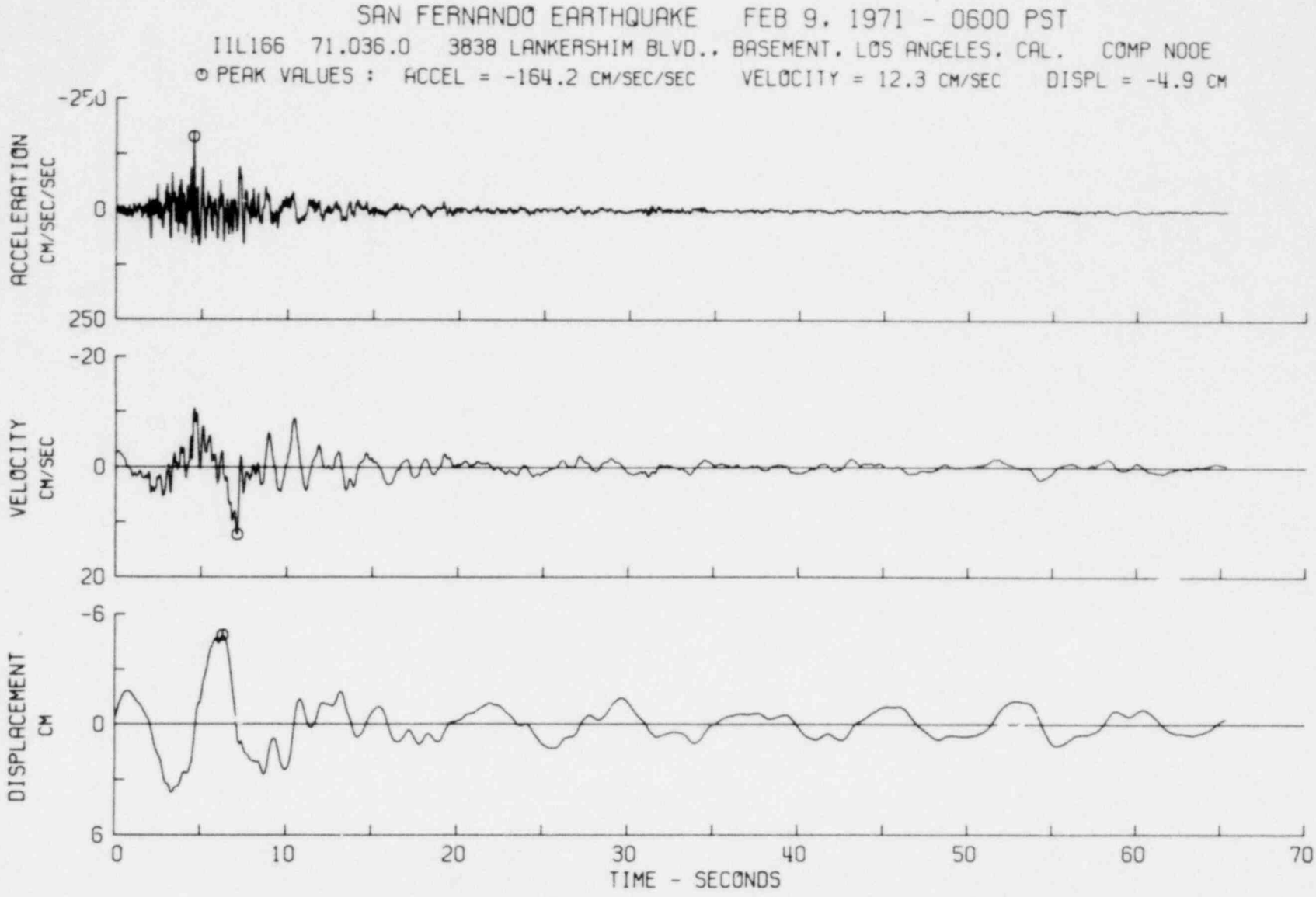

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIL166 71.036.0 3838 LANKERSHIM BLVD., BASEMENT, LOS ANGELES, CAL. COMP N00E
PEAK VALUES : ACCEL = -164.2 CM/SEC/SEC VELOCITY = 12.3 CM/SEC DISPL = -4.9 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A7-19

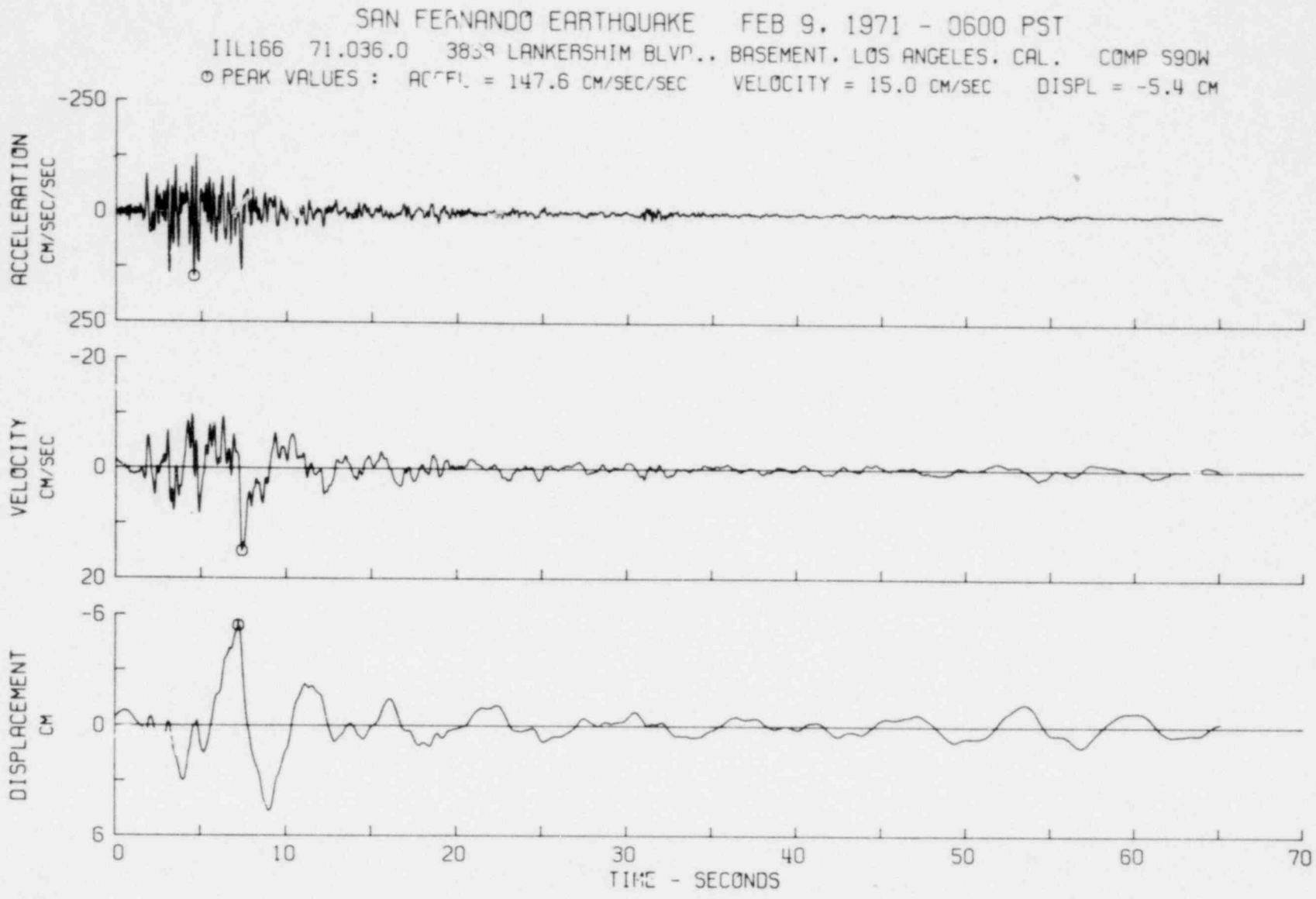

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIL166 71.036.0 3839 LANKERSHIM BLVD., BASEMENT, LOS ANGELES, CAL. COMP S90W
⊙ PEAK VALUES : ACCEL = 147.6 CM/SEC/SEC VELOCITY = 15.0 CM/SEC DISPL = -5.4 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A7-20

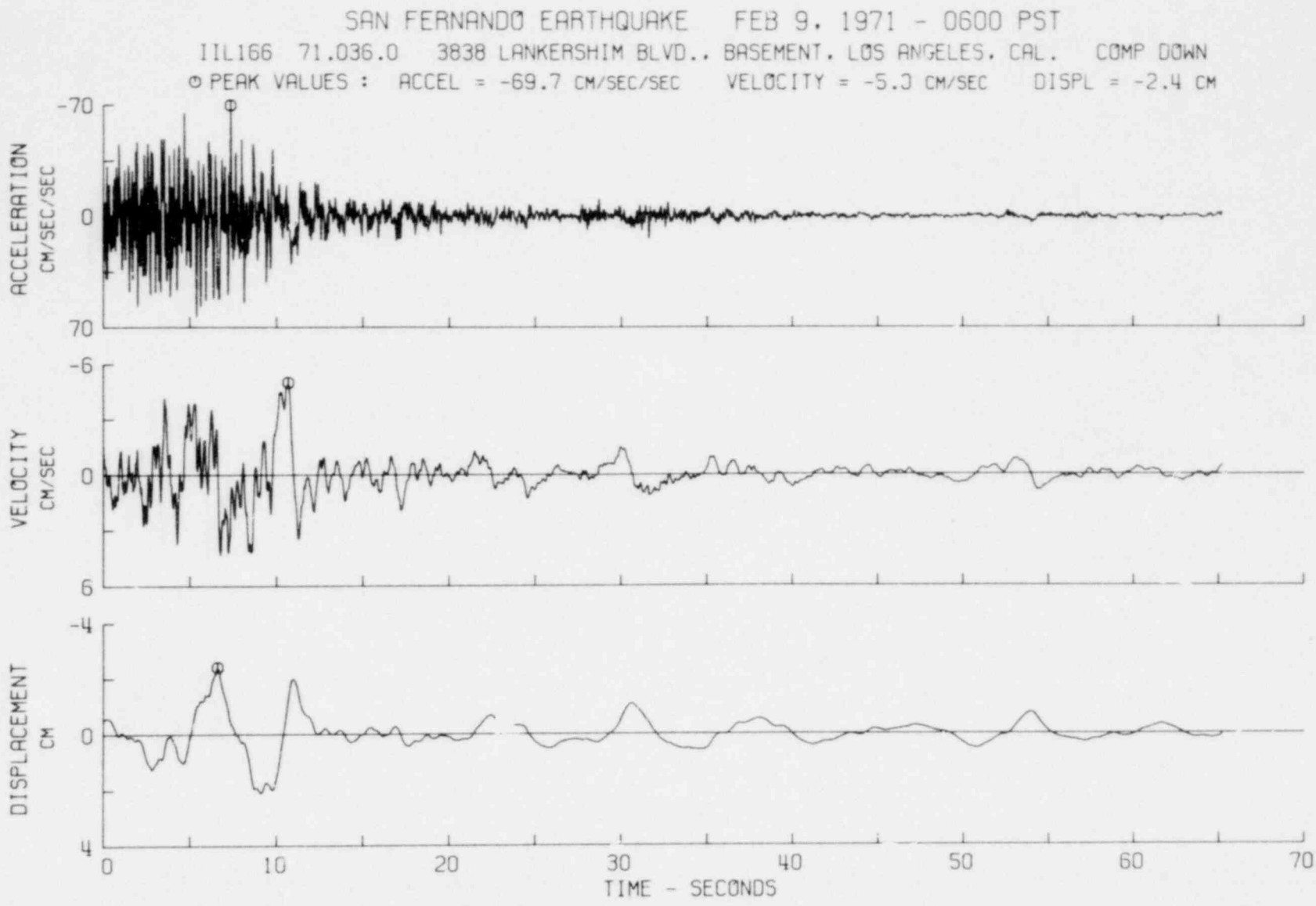

SAN FERNANDO EARTHQUAKE FEB 9. 1971 - 0600 PST
IIL166 71.036.0 3838 LANKERSHIM BLVD.. BASEMENT. LOS ANGELES. CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = -69.7 CM/SEC/SEC VELOCITY = -5.0 CM/SEC DISPL = -2.4 CM
ACCELERATION CM/SEC/SEC
-70
0
70
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A7-21

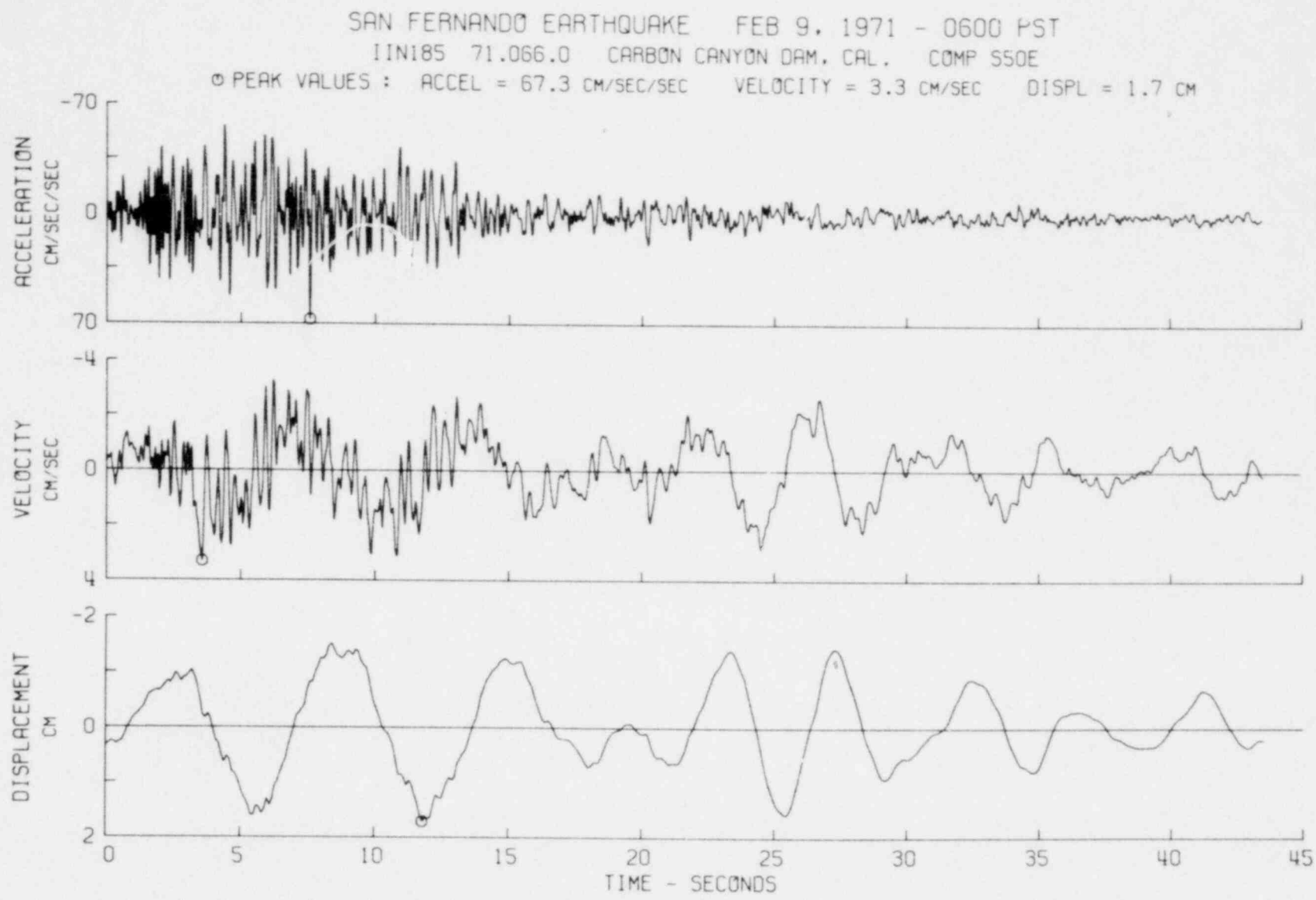

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIN185 71.066.0 CARBON CANYON DAM, CAL. COMP S50E
PEAK VALUES : ACCEL = 67.3 CM/SEC/SEC VELOCITY = 3.3 CM/SEC DISPL = 1.7 CM
ACCELERATION CM/SEC/SEC
-70
0
70
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-22

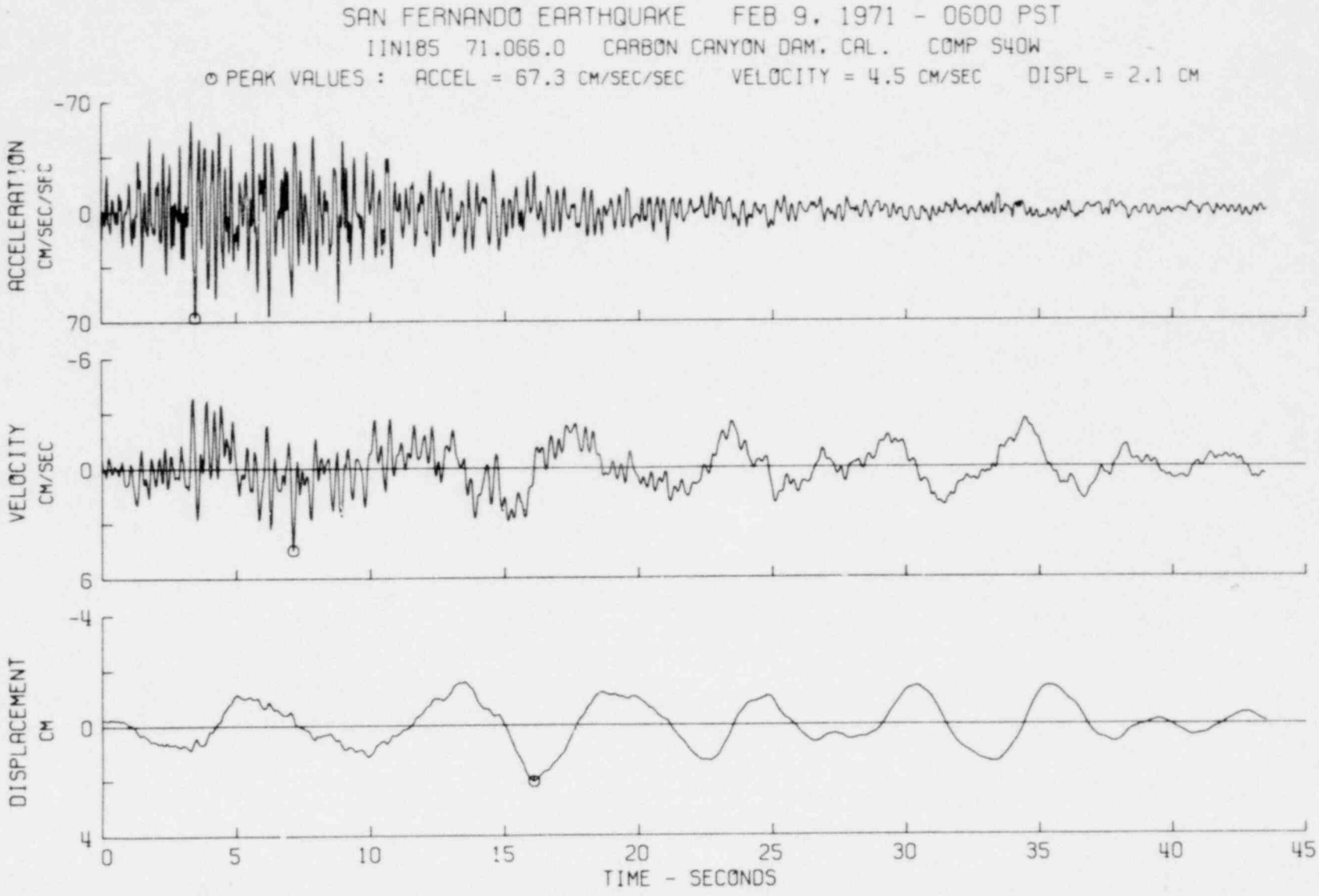

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIN185 71.066.0 CARBON CANYON DAM, CAL. COMP S40W
⊙ PEAK VALUES : ACCEL = 67.3 CM/SEC/SEC VELOCITY = 4.5 CM/SEC DISPL = 2.1 CM
ACCELERATION CM/SEC/SEC
-70
0
70
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-23

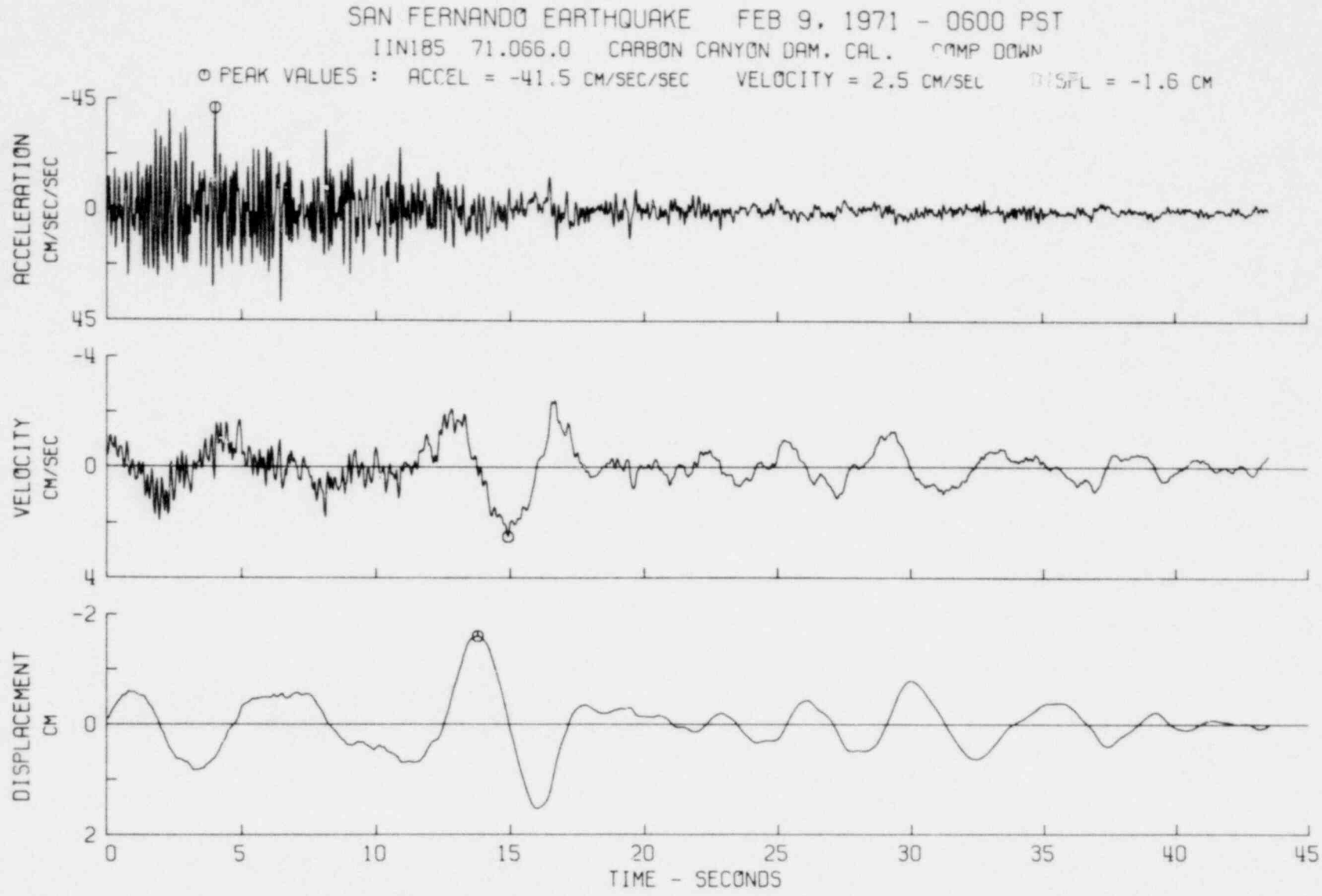

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIN185 71.066.0 CARBON CANYON DAM. CAL. COMP DOWN
Φ PEAK VALUES : ACCEL = -41.5 CM/SEC/SEC VELOCITY = 2.5 CM/SEC DISPL = -1.6 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-24

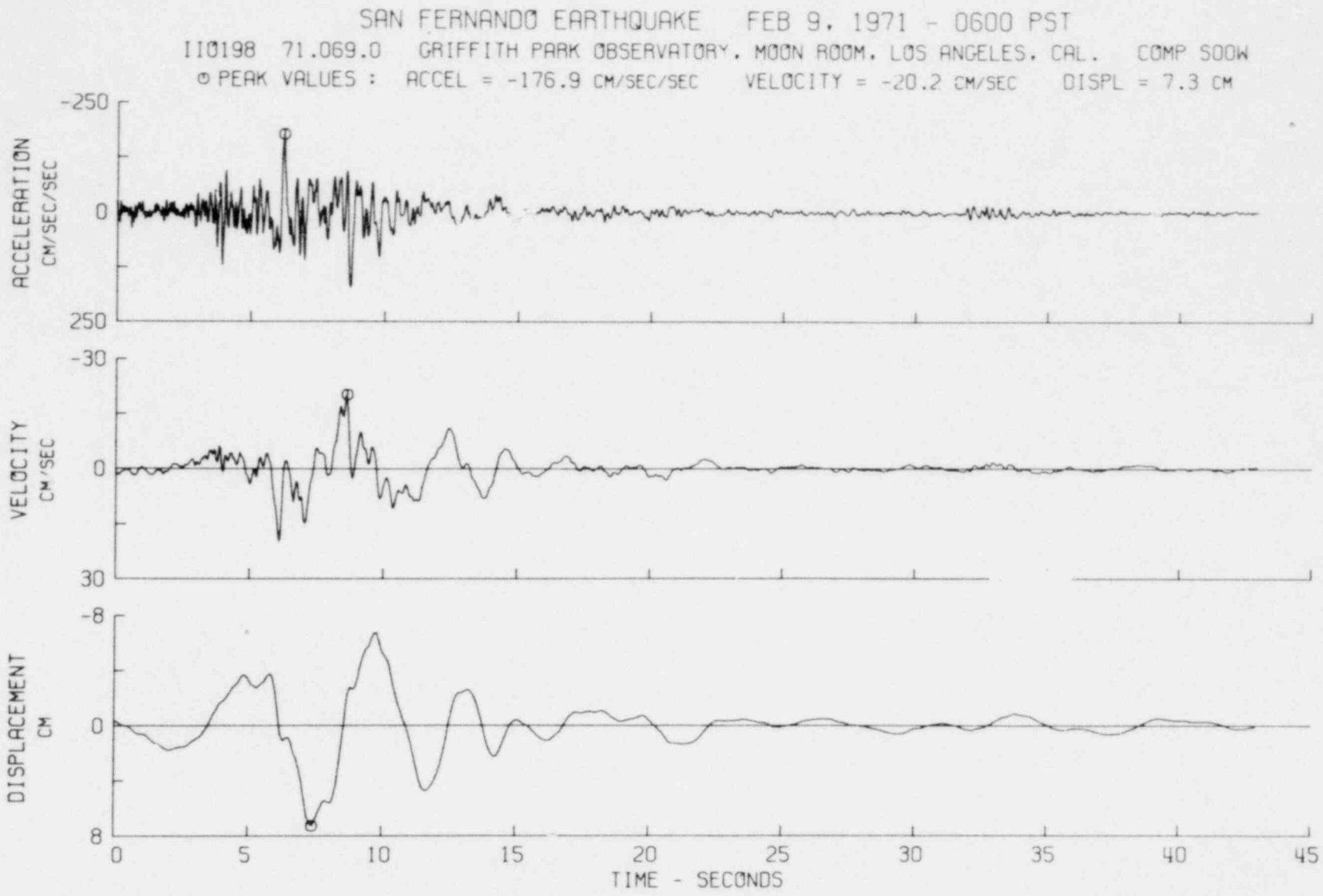

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
II0198 71.069.0 GRIFFITH PARK OBSERVATORY, MOON ROOM, LOS ANGELES, CAL. COMP S00W
PEAK VALUES : ACCEL = -176.9 CM/SEC/SEC VELOCITY = -20.2 CM/SEC DISPL = 7.3 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-30
0
30
DISPLACEMENT CM
-8
0
8
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-25

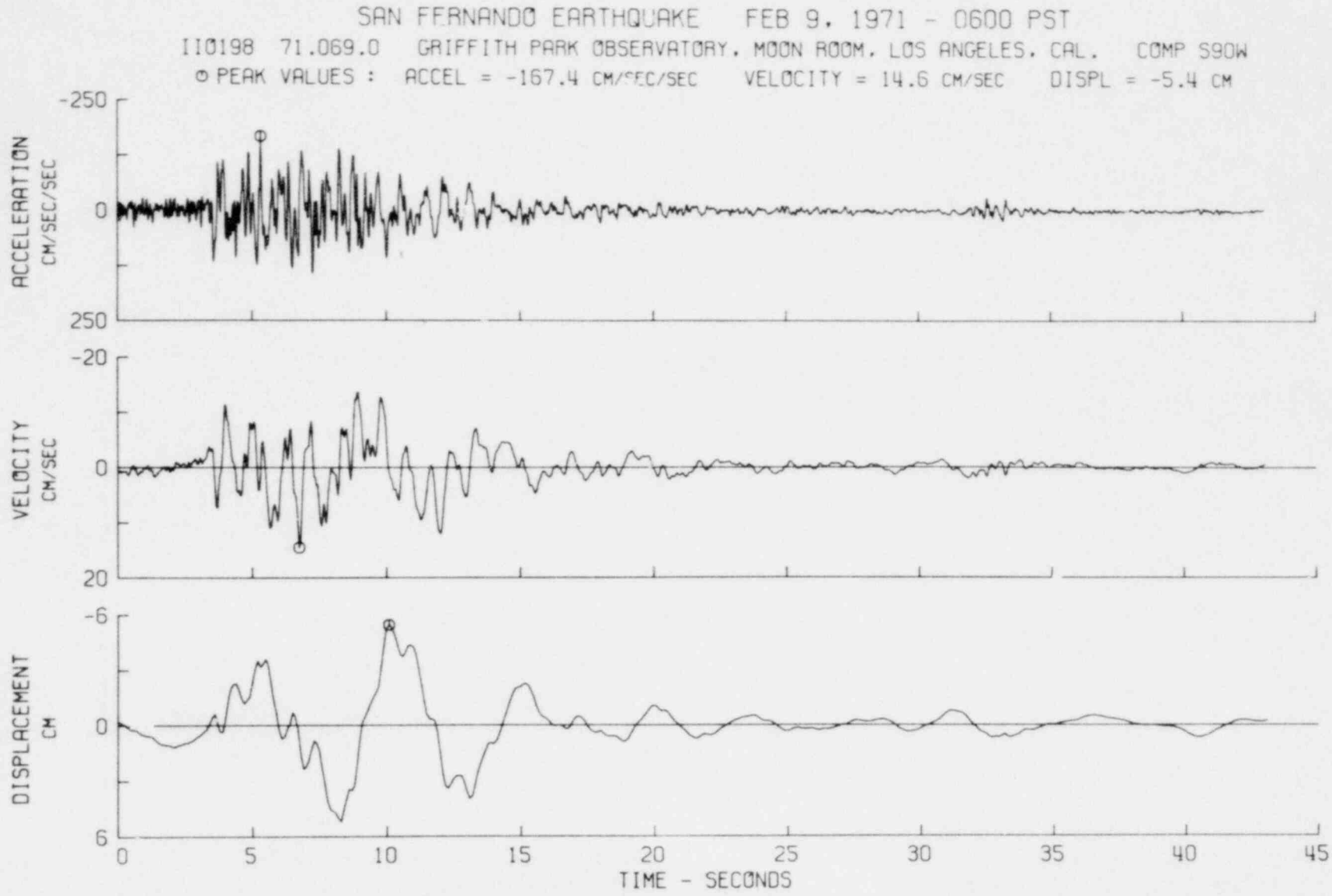

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
II0198 71.069.0 GRIFFITH PARK OBSERVATORY, MOON ROOM, LOS ANGELES, CAL. COMP S90W
⊙ PEAK VALUES : ACCEL = -167.4 CM/SEC/SEC VELOCITY = 14.6 CM/SEC DISPL = -5.4 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-6
0
6
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-26

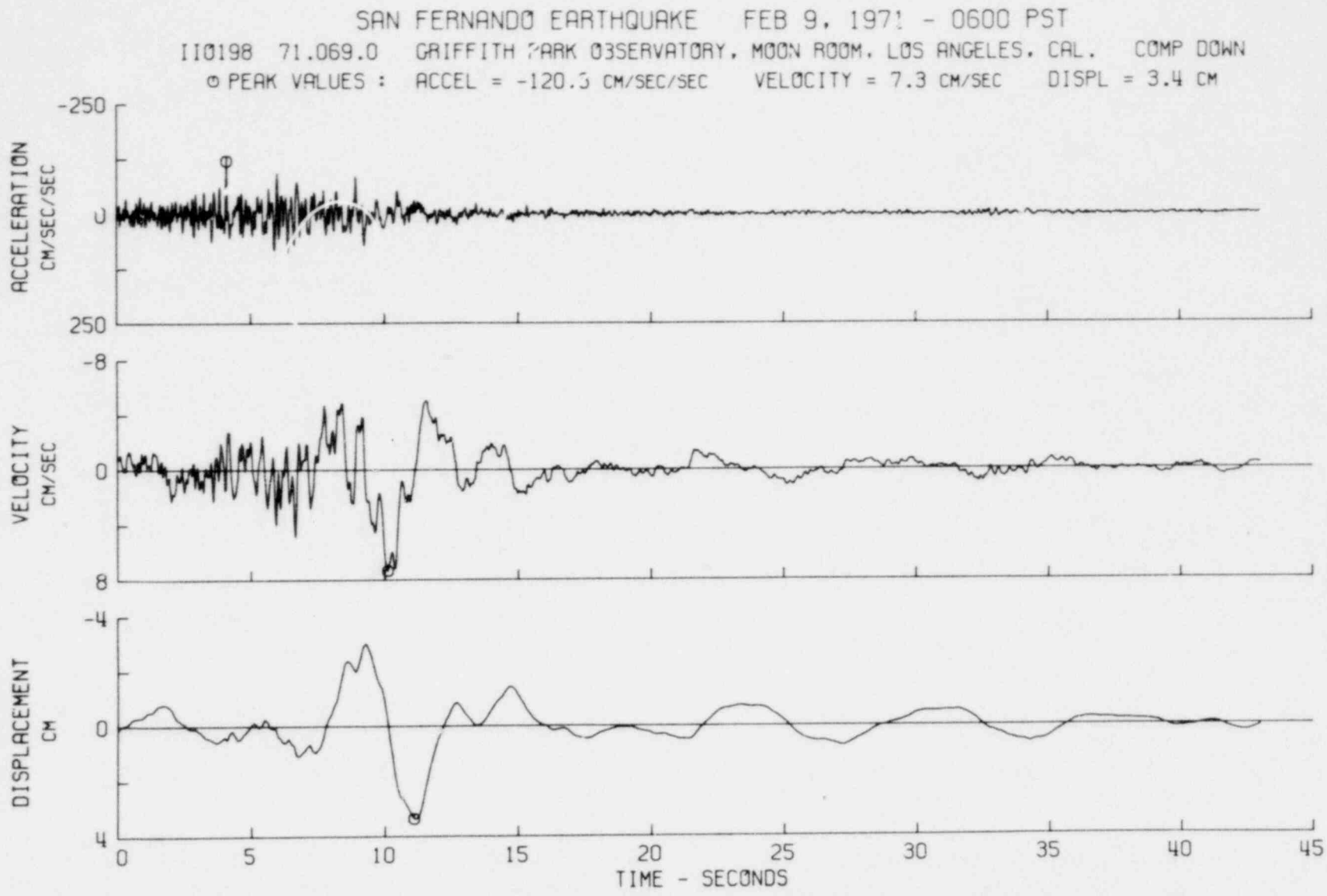

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
II0198 71.069.0 GRIFFITH PARK OBSERVATORY, MOON ROOM, LOS ANGELES, CAL. COMP DOWN
PEAK VALUES : ACCEL = -120.3 CM/SEC/SEC VELOCITY = 7.3 CM/SEC DISPL = 3.4 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-8
0
8
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A7-27

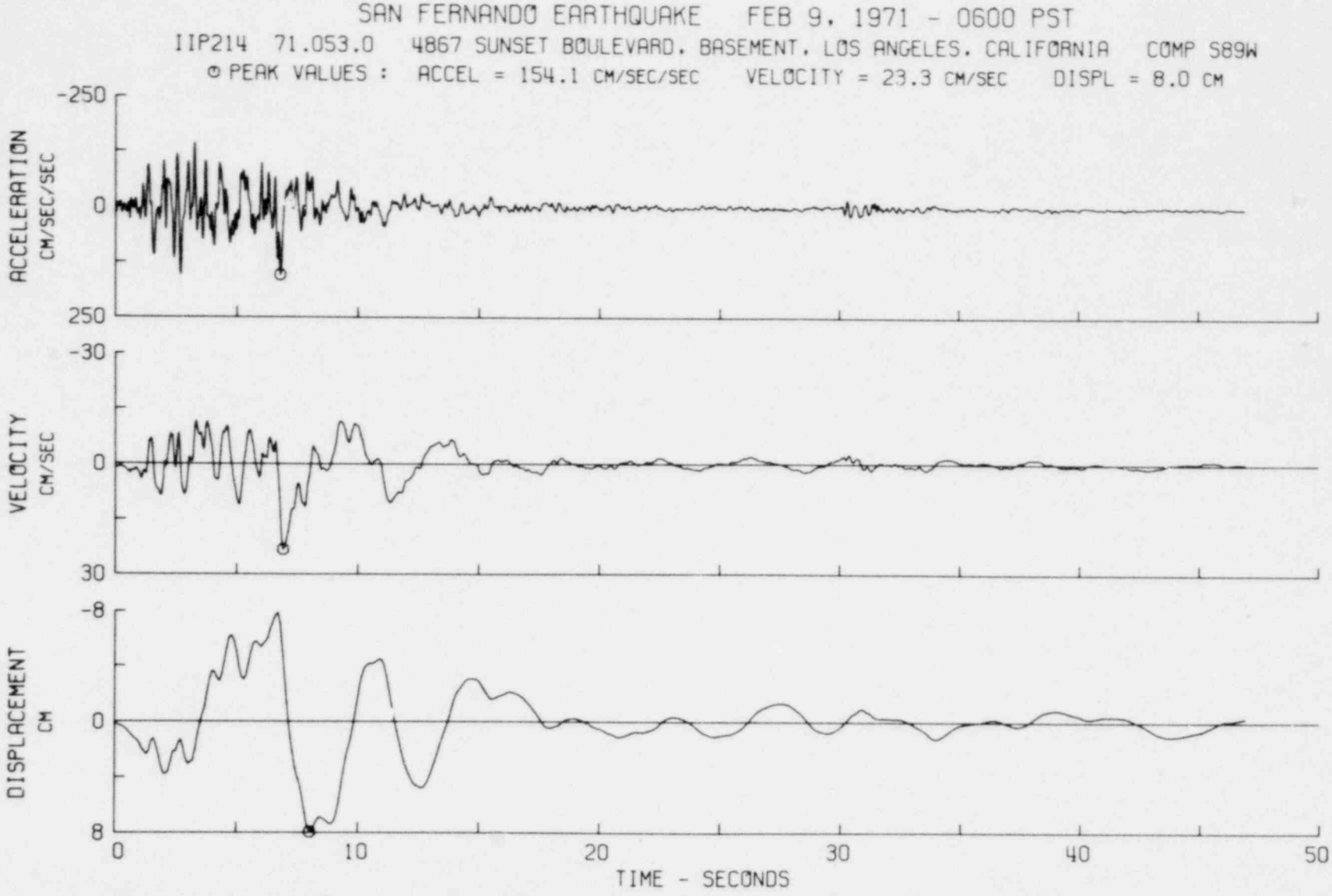

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP214 71.053.0 4867 SUNSET BOULEVARD, BASEMENT, LOS ANGELES, CALIFORNIA COMP S89W
PEAK VALUES : ACCEL = 154.1 CM/SEC/SEC VELOCITY = 23.3 CM/SEC DISPL = 8.0 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-30
0
30
DISPLACEMENT CM
-8
0
8
0
10
20
30
40
50
TIME - SECONDS

FIG. A7-28

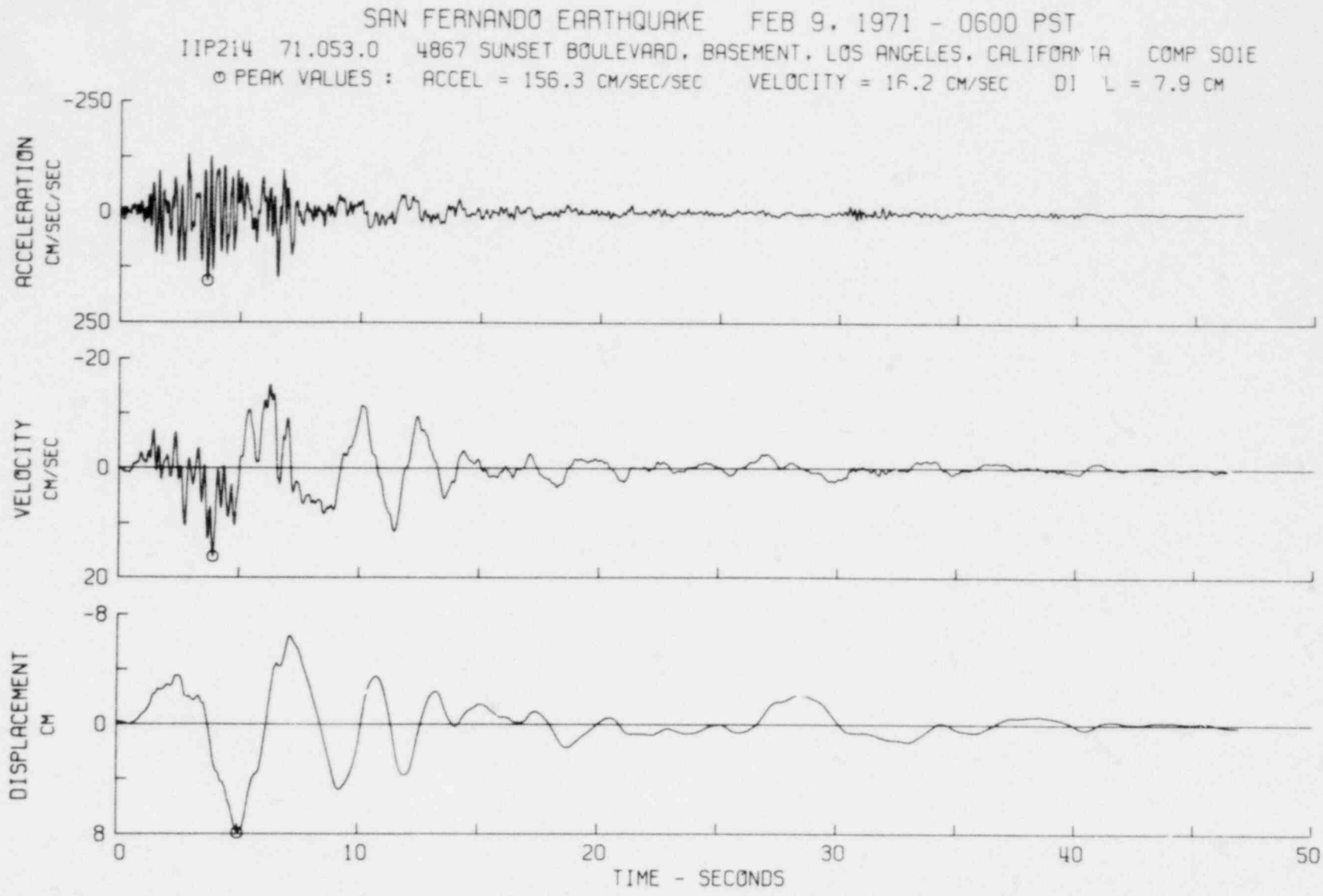

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP214 71.053.0 4867 SUNSET BOULEVARD, BASEMENT, LOS ANGELES, CALIFORNIA COMP SO1E
PEAK VALUES : ACCEL = 156.3 CM/SEC/SEC VELOCITY = 16.2 CM/SEC DI L = 7.9 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-8
0
8
0
10
20
30
40
50
TIME - SECONDS

FIG. A7-29

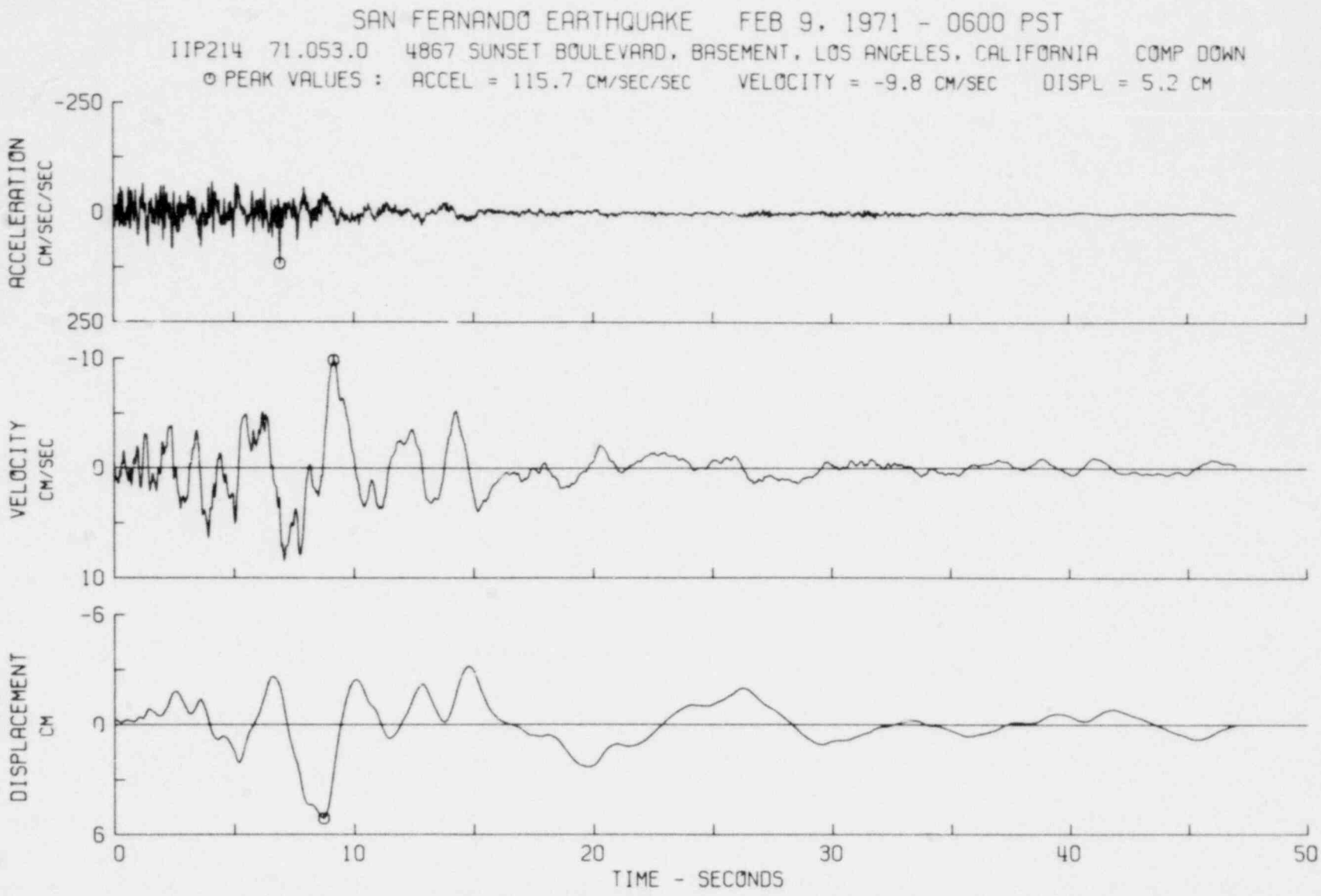

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
1IP214 71.053.0 4867 SUNSET BOULEVARD, BASEMENT, LOS ANGELES, CALIFORNIA COMP DOWN
PEAK VALUES : ACCEL = 115.7 CM/SEC/SEC VELOCITY = -9.8 CM/SEC DISPL = 5.2 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
TIME - SECONDS

FIG. A7-30

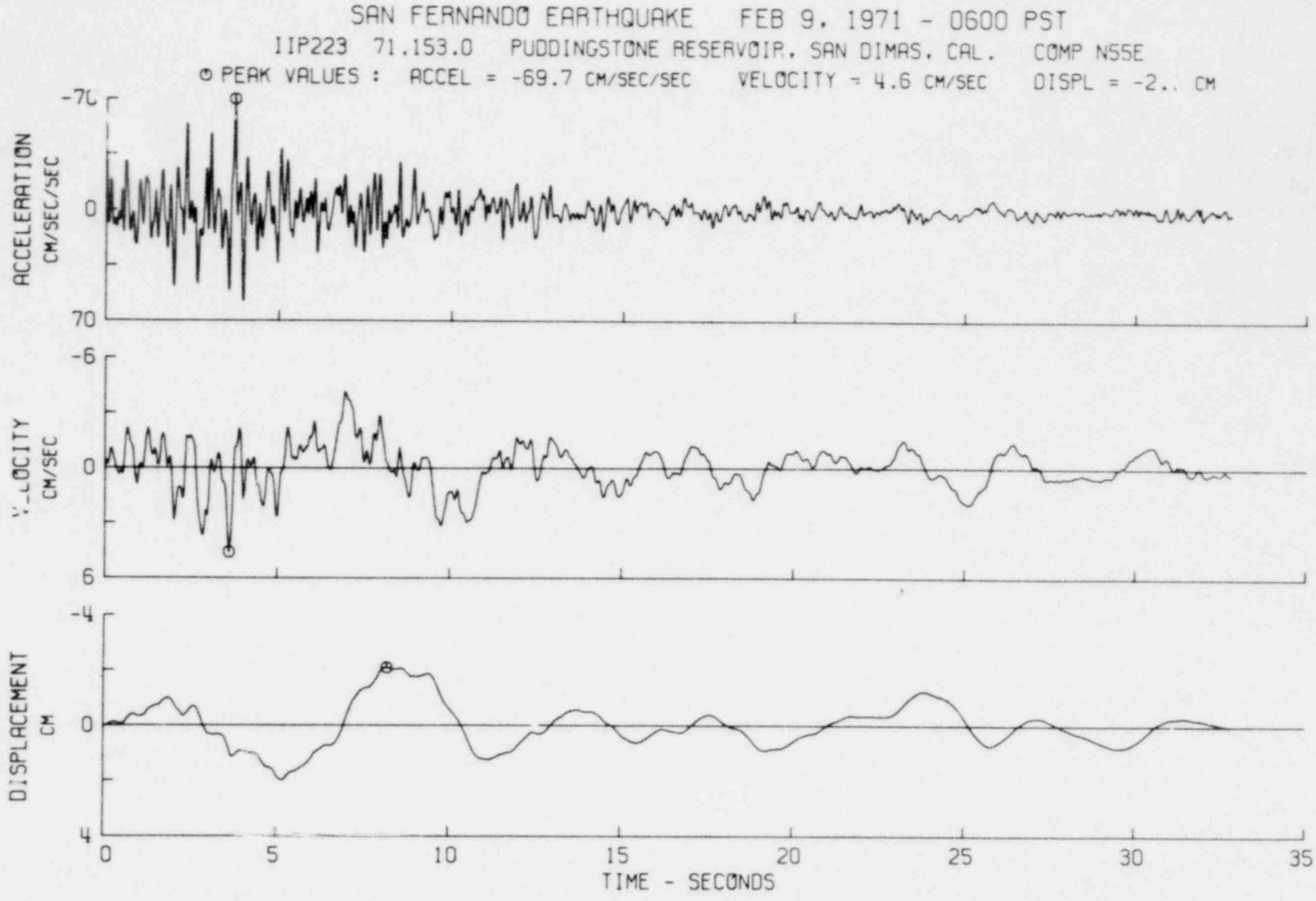

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP223 71.153.0 PUDDINGSTONE RESERVOIR, SAN DIMAS, CAL. COMP N55E
PEAK VALUES : ACCEL = -69.7 CM/SEC/SEC VELOCITY = 4.6 CM/SEC DISPL = -2.. CM
ACCELERATION CM/SEC/SEC
-70
0
70
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A7-31

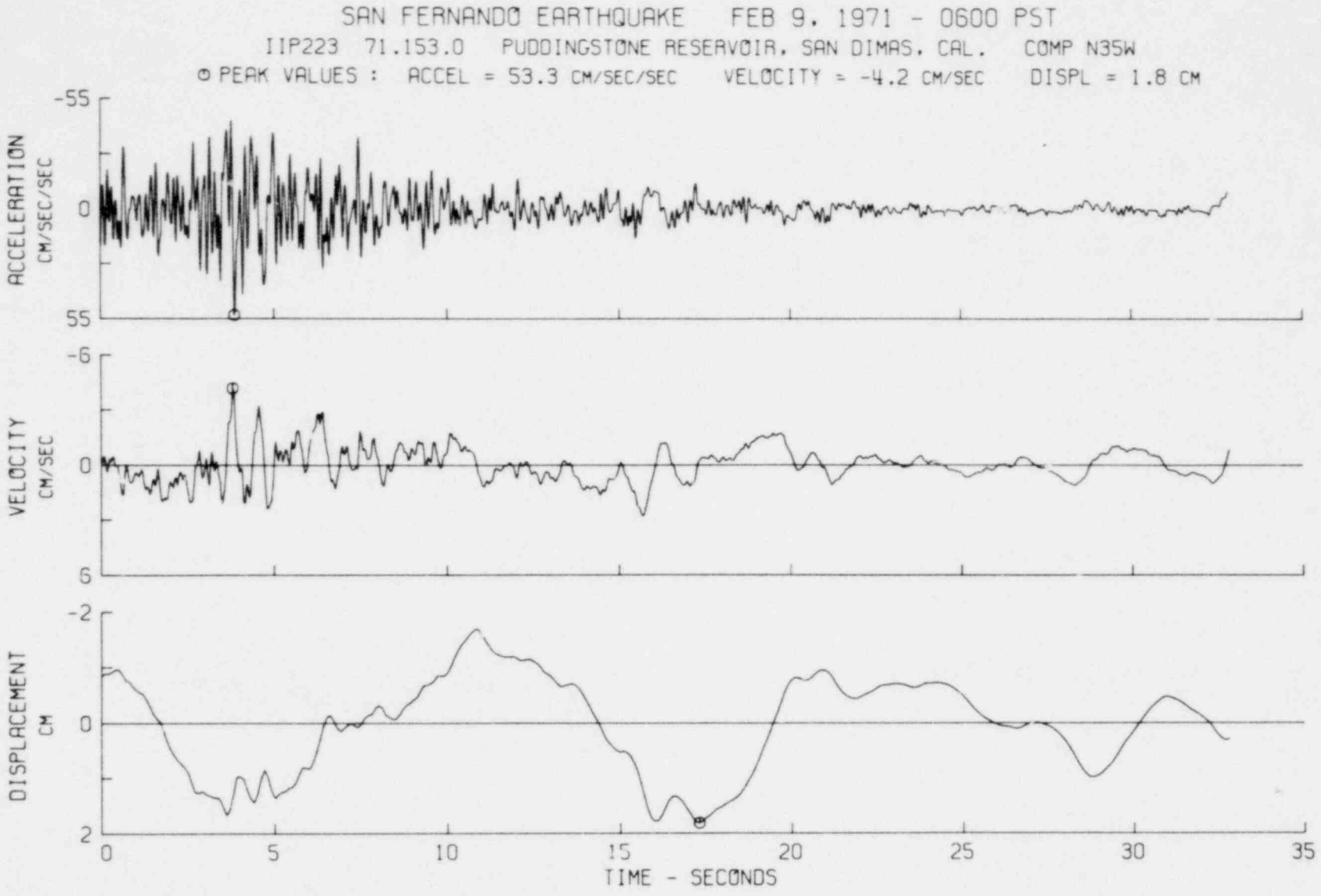

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP223 71.153.0 PUDDINGSTONE RESERVOIR, SAN DIMAS, CAL. COMP N35W
⊙ PEAK VALUES : ACCEL = 53.3 CM/SEC/SEC VELOCITY = -4.2 CM/SEC DISPL = 1.8 CM
ACCELERATION CM/SEC/SEC
-55
0
55
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-2
0
2
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A7-32

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP223 71.153.0 PUDDINGSTONE RESERVOIR, SAN DIMAS, CAL. COMP DOWN
Φ PEAK VALUES : ACCEL = -37.8 CM/SEC/SEC VELOCITY = -2.1 CM/SEC DISPL = -1.8 CM
ACCELERATION
CM/SEC/SEC
40
0
-40
VELOCITY
CM/SEC
4
0
-4
DISPLACEMENT
CM
2
0
-2
0
5
10
15
20
25
30
35
TIME - SECONDS

FIG. A7-33

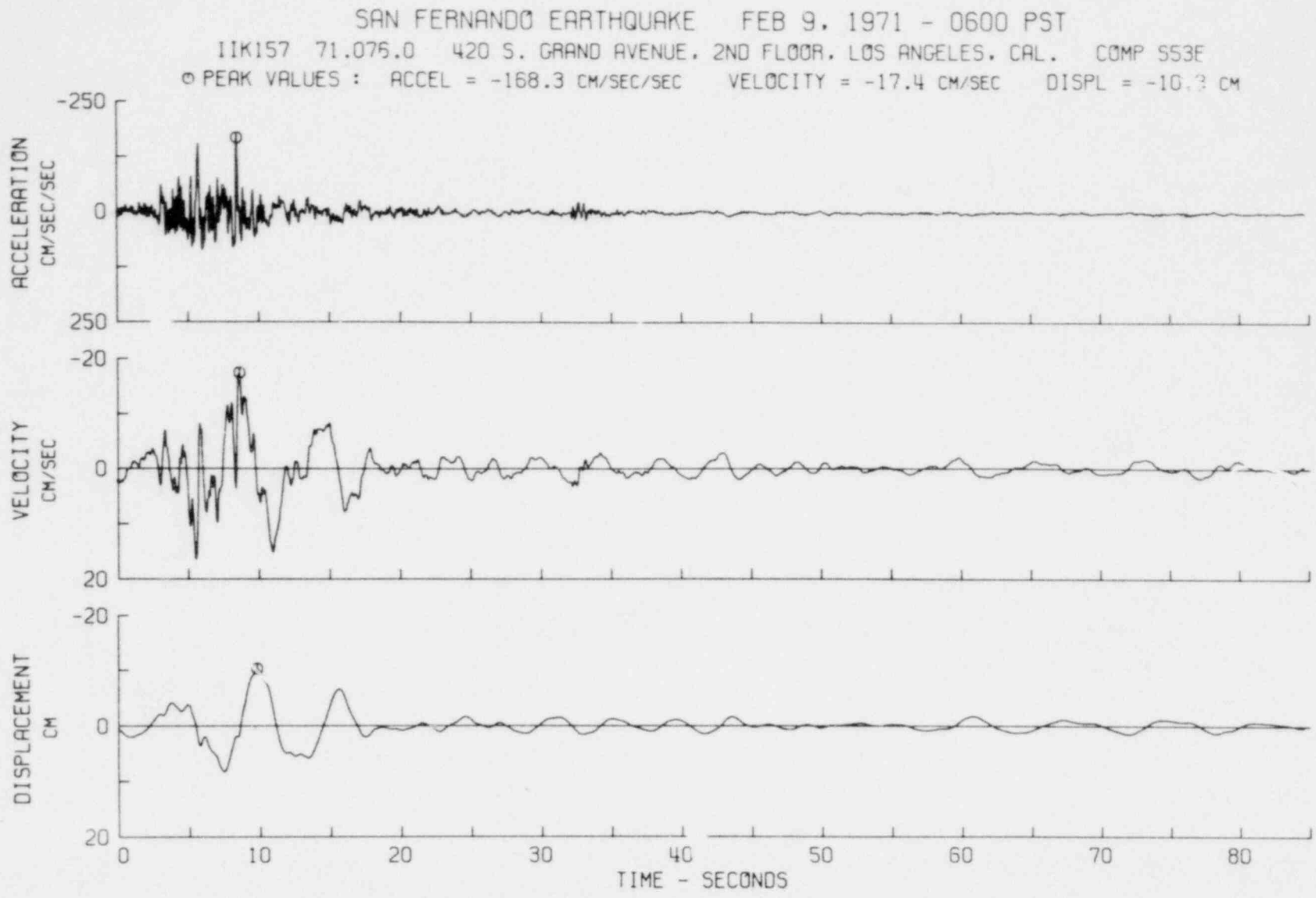

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIK157 71.075.0 420 S. GRAND AVENUE, 2ND FLOOR, LOS ANGELES, CAL. COMP S53E
PEAK VALUES : ACCEL = -168.3 CM/SEC/SEC VELOCITY = -17.4 CM/SEC DISPL = -10.3 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-20
0
20
0
10
20
30
40
50
60
70
80
TIME - SECONDS

FIG. A7-34

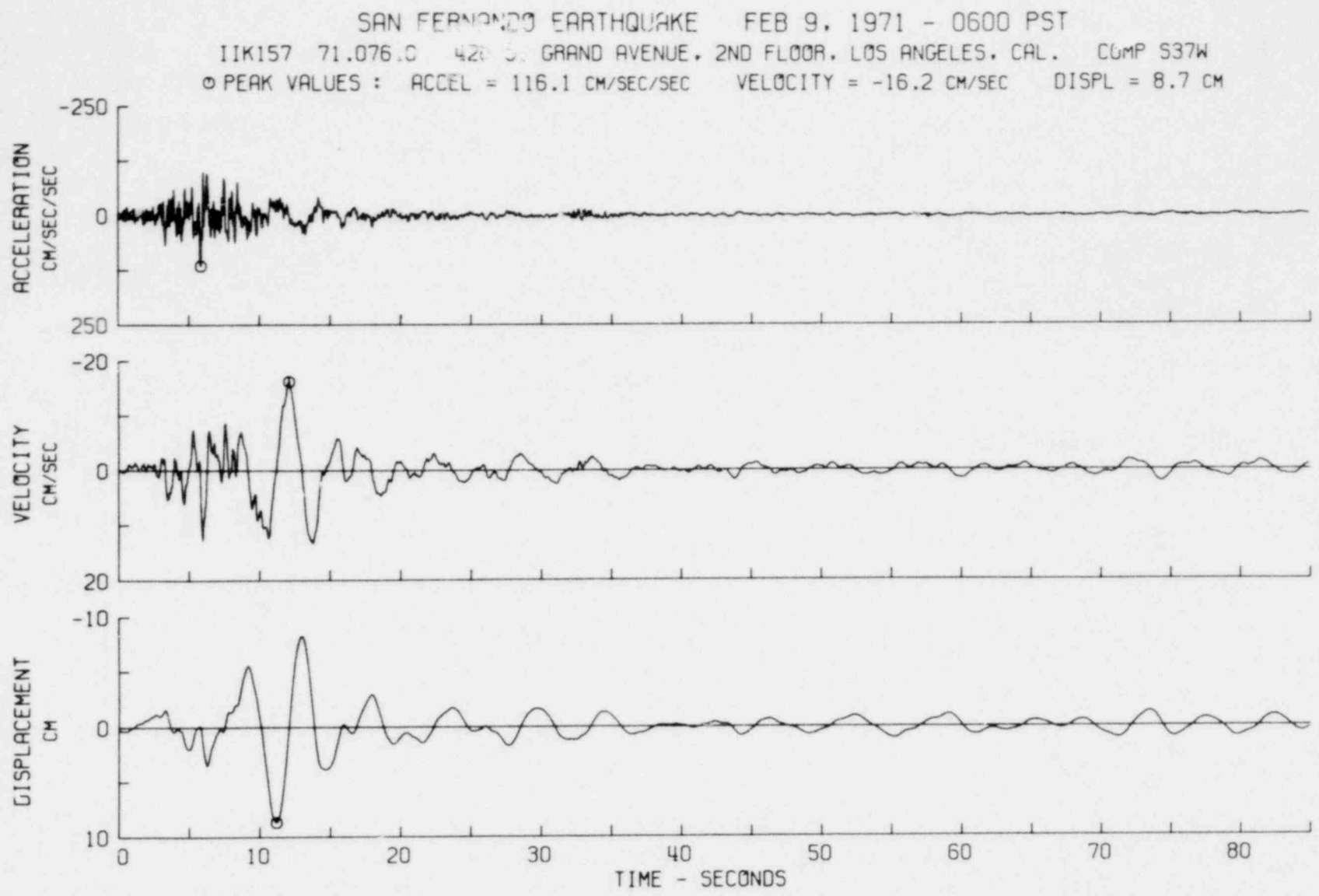

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIK157 71.076.0 42[illegible] GRAND AVENUE, 2ND FLOOR, LOS ANGELES, CAL. COMP S37W
PEAK VALUES : ACCEL = 116.1 CM/SEC/SEC VELOCITY = -16.2 CM/SEC DISPL = 8.7 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-20
0
20
DISPLACEMENT CM
-10
0
10
0
10
20
30
40
50
60
70
80
TIME - SECONDS

FIG. A7-35

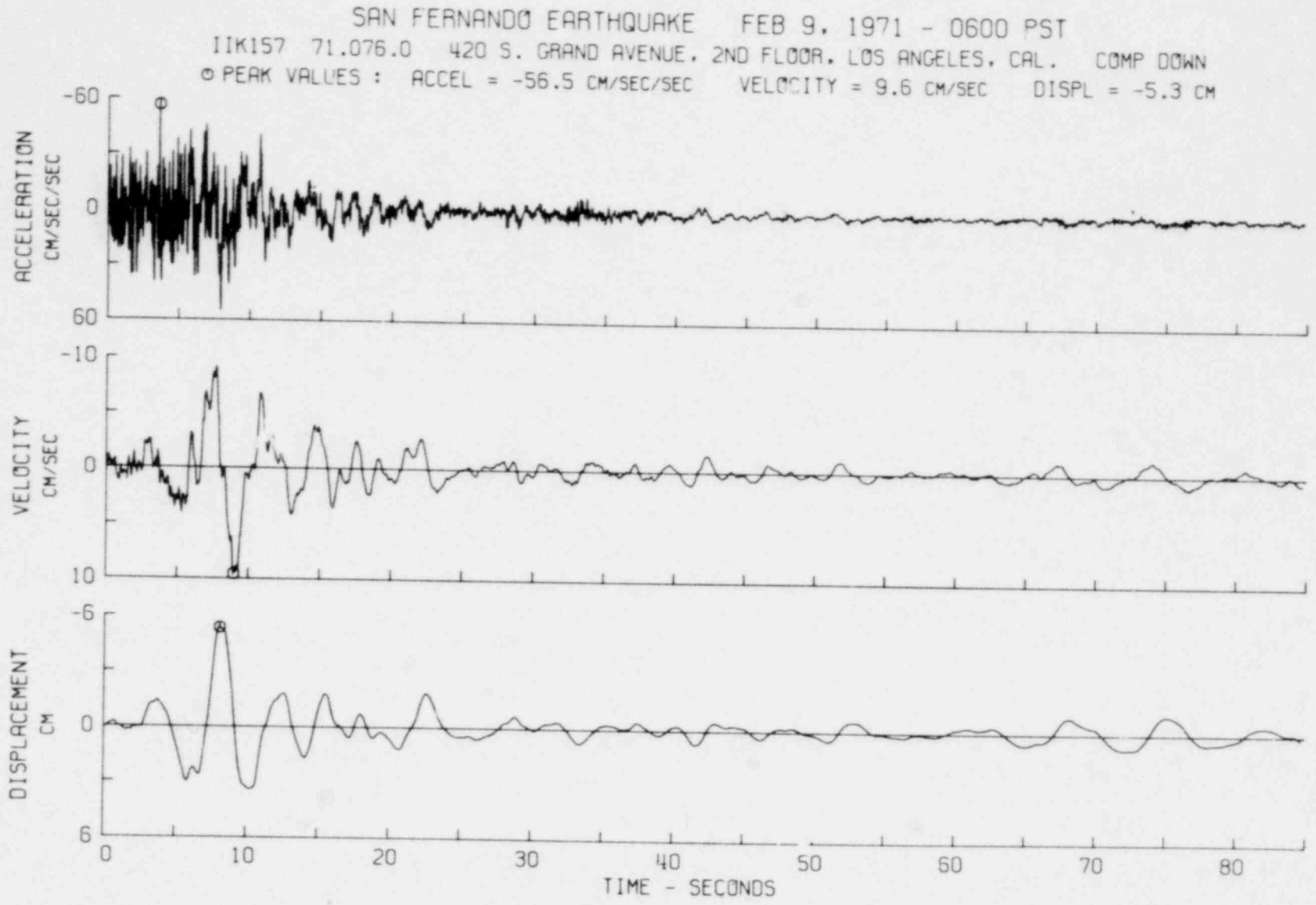

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIK157 71.076.0 420 S. GRAND AVENUE, 2ND FLOOR, LOS ANGELES, CAL. COMP DOWN
Φ PEAK VALUES : ACCEL = -56.5 CM/SEC/SEC VELOCITY = 9.6 CM/SEC DISPL = -5.3 CM
ACCELERATION CM/SEC/SEC
-60
0
60
VELOCITY CM/SEC
-10
0
10
DISPLACEMENT CM
-6
0
6
0
10
20
30
40
50
60
70
80
TIME - SECONDS

FIG. A7-36

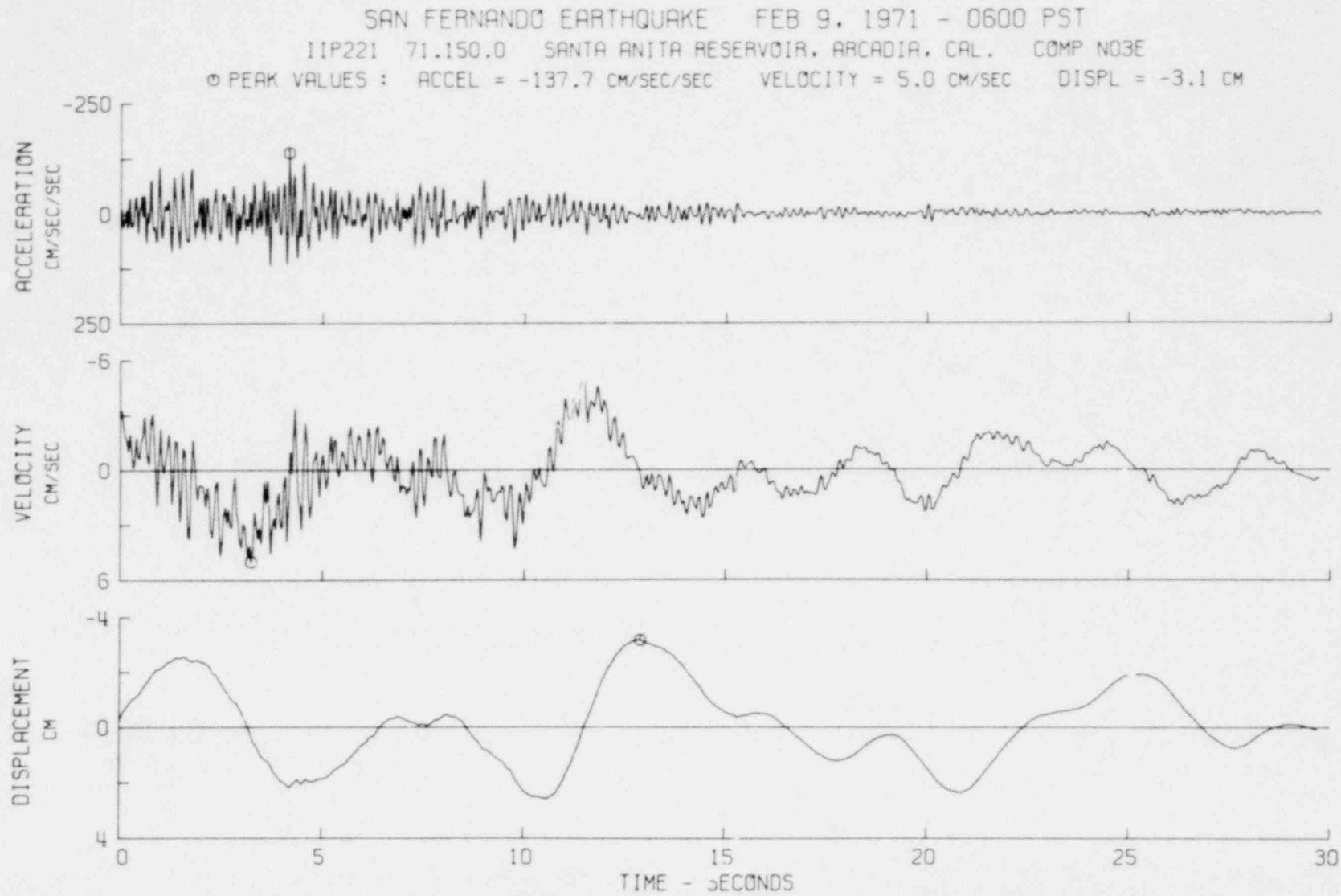

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP221 71.150.0 SANTA ANITA RESERVOIR, ARCADIA, CAL. COMP N03E
⊙ PEAK VALUES : ACCEL = -137.7 CM/SEC/SEC VELOCITY = 5.0 CM/SEC DISPL = -3.1 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A7-37

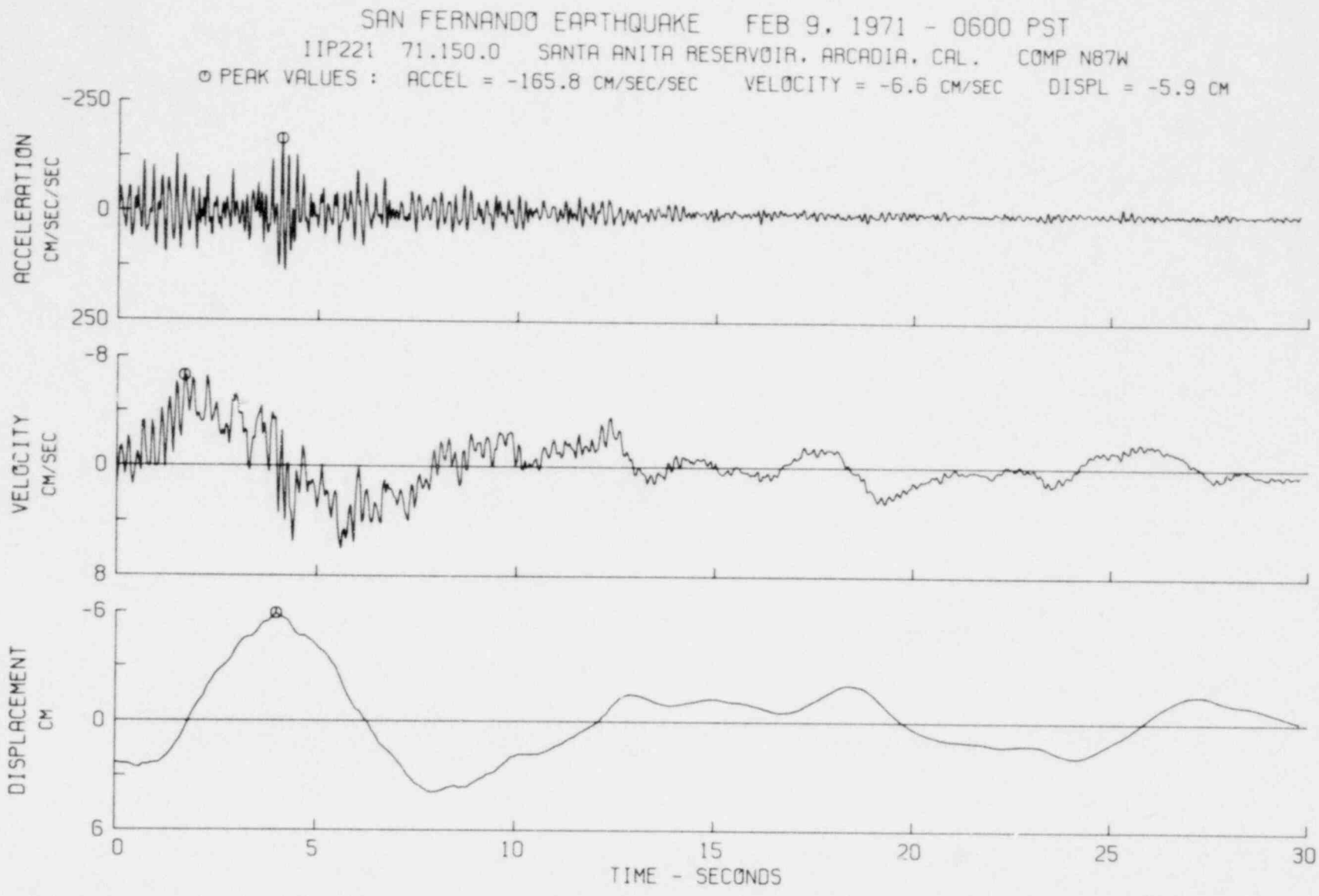

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP221 71.150.0 SANTA ANITA RESERVOIR, ARCADIA, CAL. COMP N87W
⊙ PEAK VALUES : ACCEL = -165.8 CM/SEC/SEC VELOCITY = -6.6 CM/SEC DISPL = -5.9 CM
ACCELERATION CM/SEC/SEC
-250
0
250
VELOCITY CM/SEC
-8
0
8
DISPLACEMENT CM
-6
0
6
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A7-38

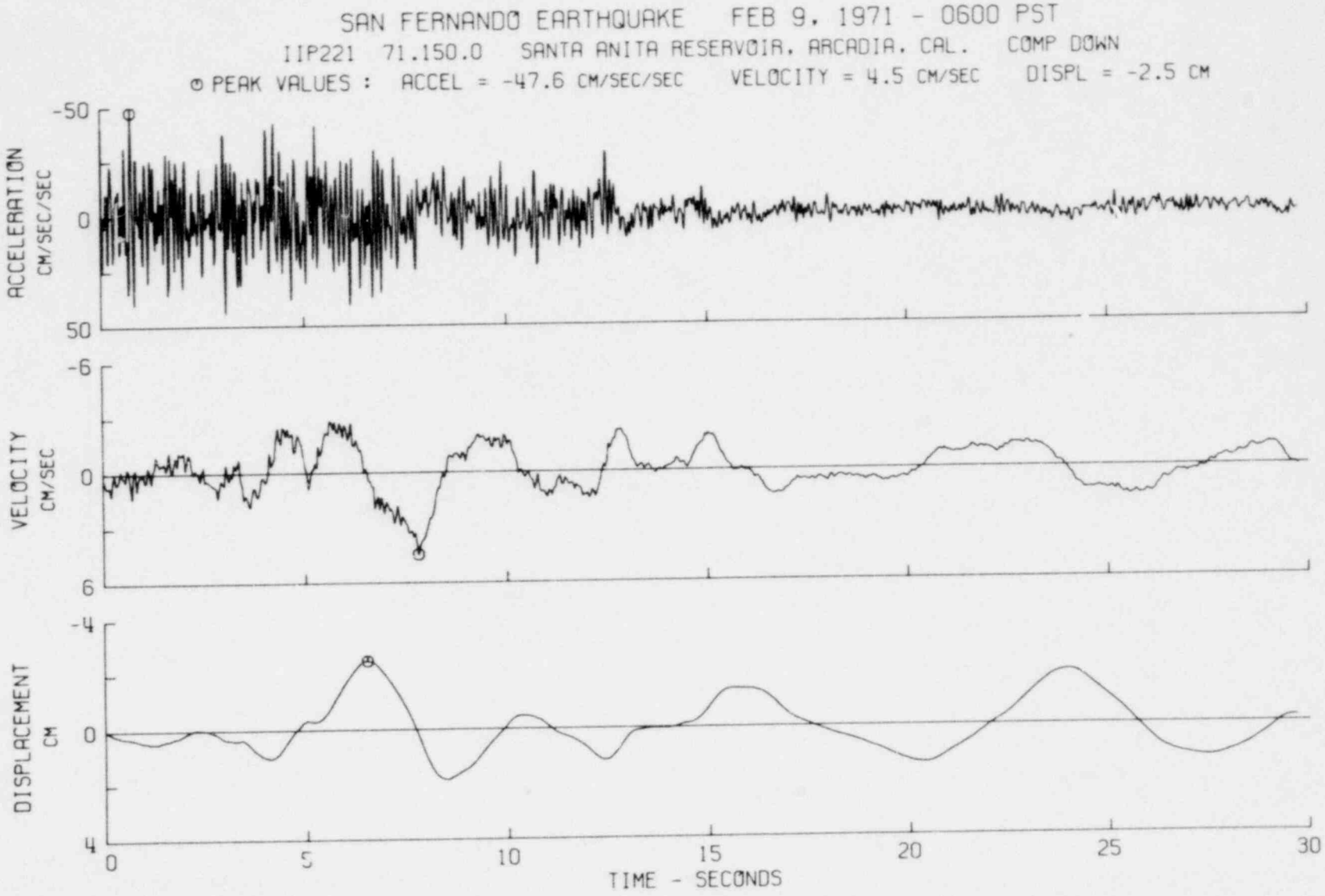

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP221 71.150.0 SANTA ANITA RESERVOIR, ARCADIA, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = -47.6 CM/SEC/SEC VELOCITY = 4.5 CM/SEC DISPL = -2.5 CM
ACCELERATION CM/SEC/SEC
-50
0
50
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
TIME - SECONDS

FIG. A7-39

RESPONSE SPECTRUM

BORREGO MOUNTAIN EARTHQUAKE APR 8. 1968 - 1830 PST

IIIY373 68.089.0 J.P.L., BSMNT., PASADENA, CAL. COMP S82E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

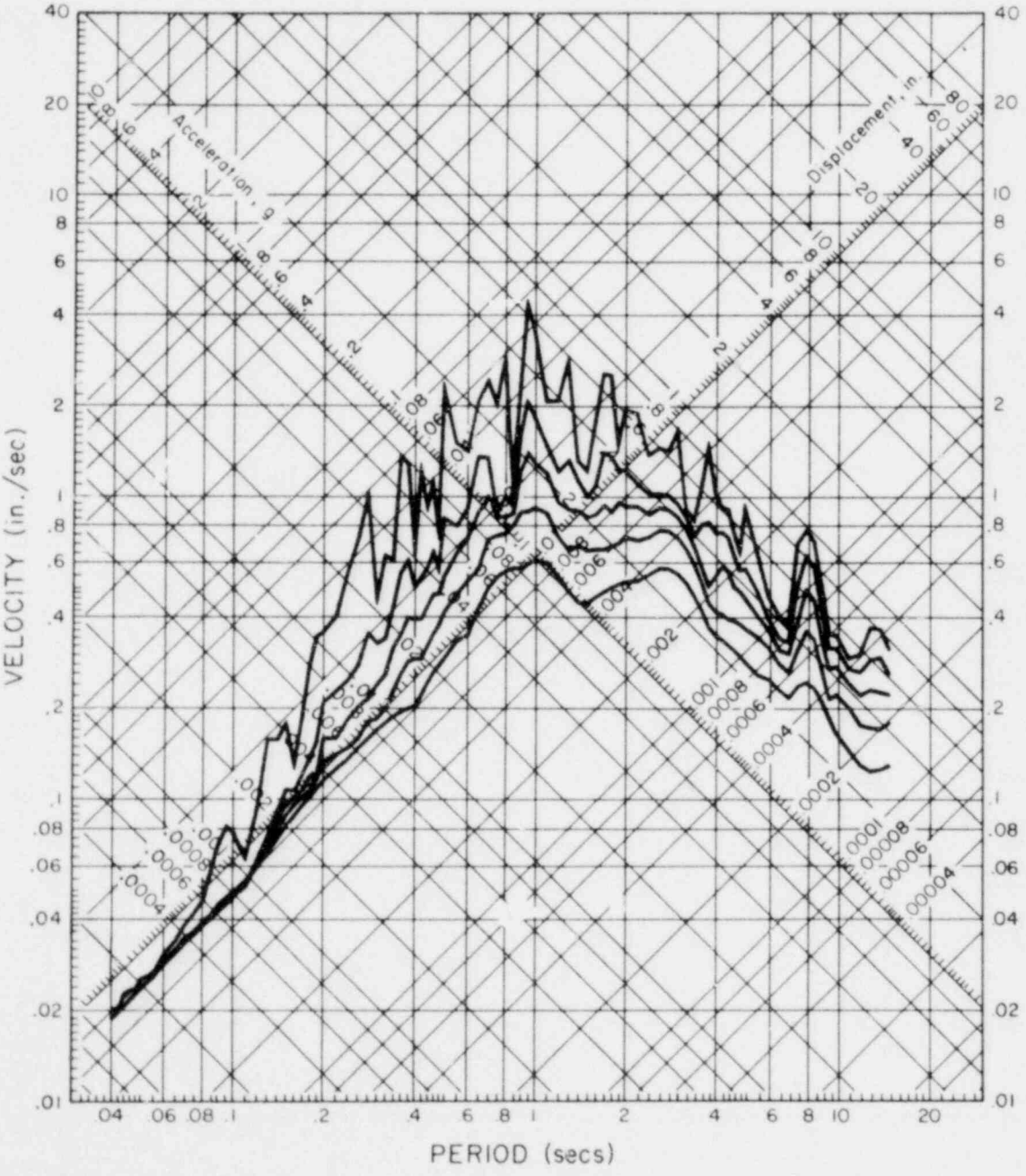


FIG. A7-40

RESPONSE SPECTRUM

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST

IIIY373 68.089.0 J.P.L., BSMNT., PASADENA, CAL. COMP S08W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

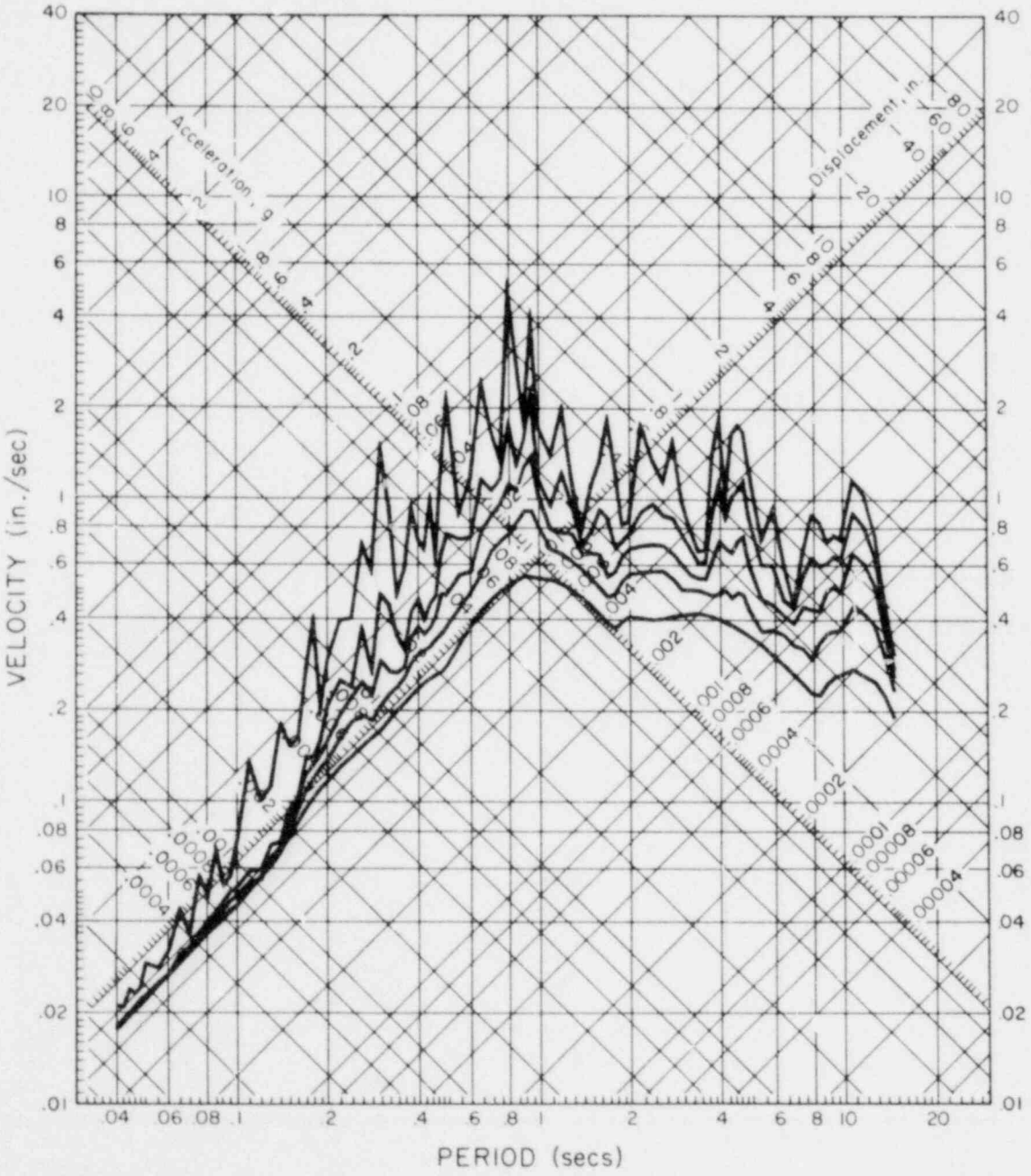


FIG. A7-41

RESPONSE SPECTRUM

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST

IIIY373 68.089.0 J.P.L., BSMNT., PASADENA, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

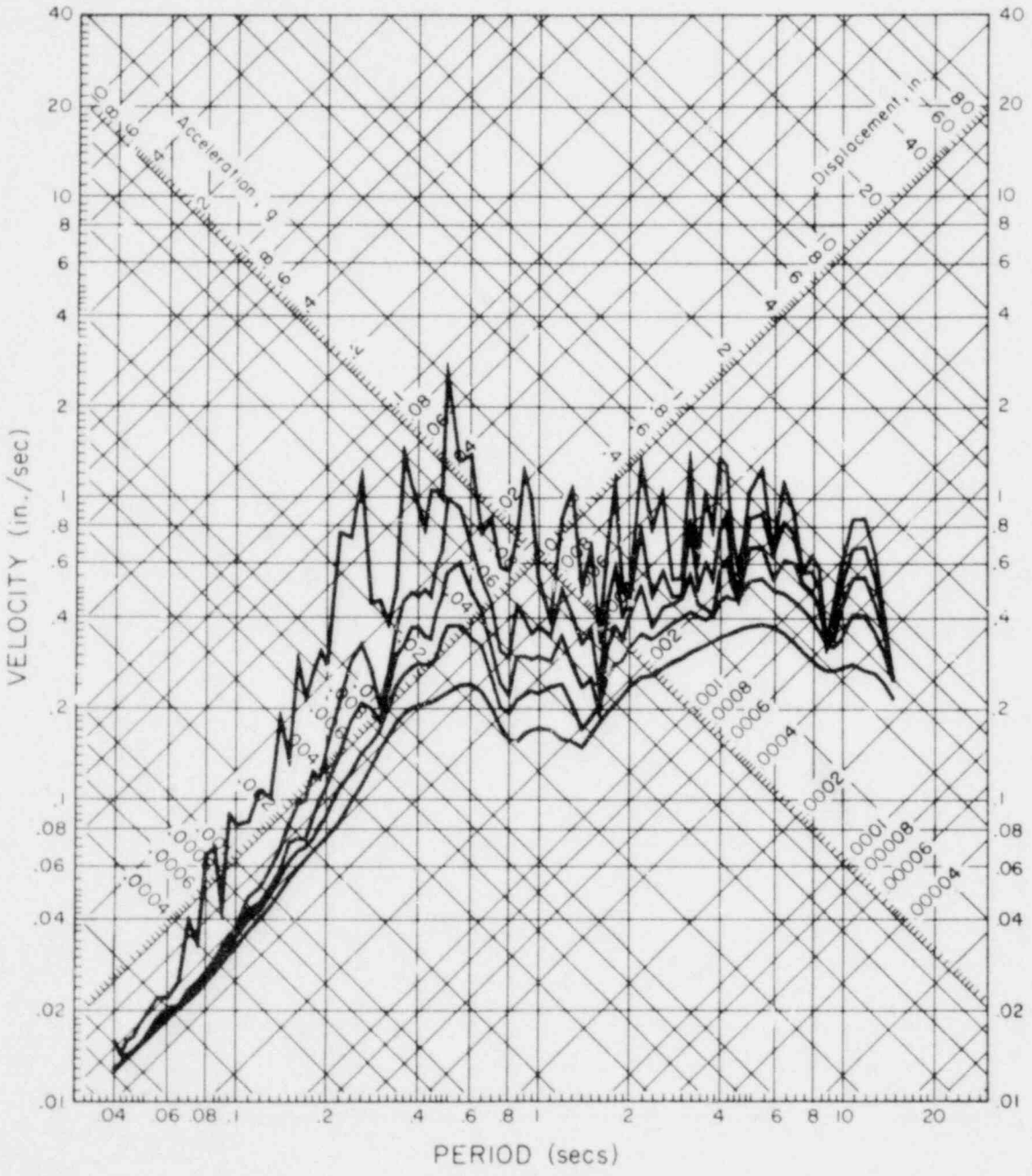


FIG. A7-42

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP S82E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

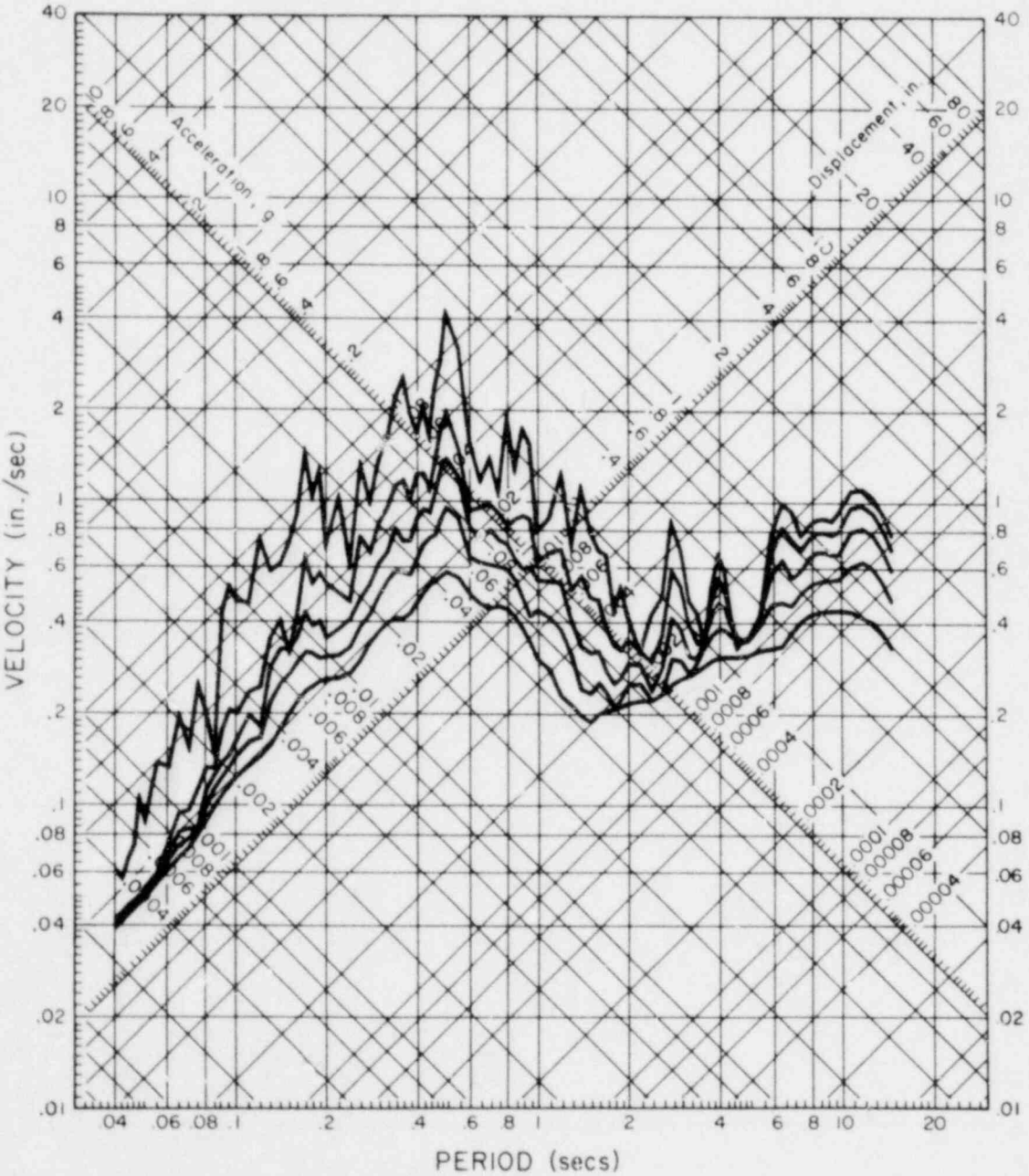


FIG. A7-43

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP S08W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

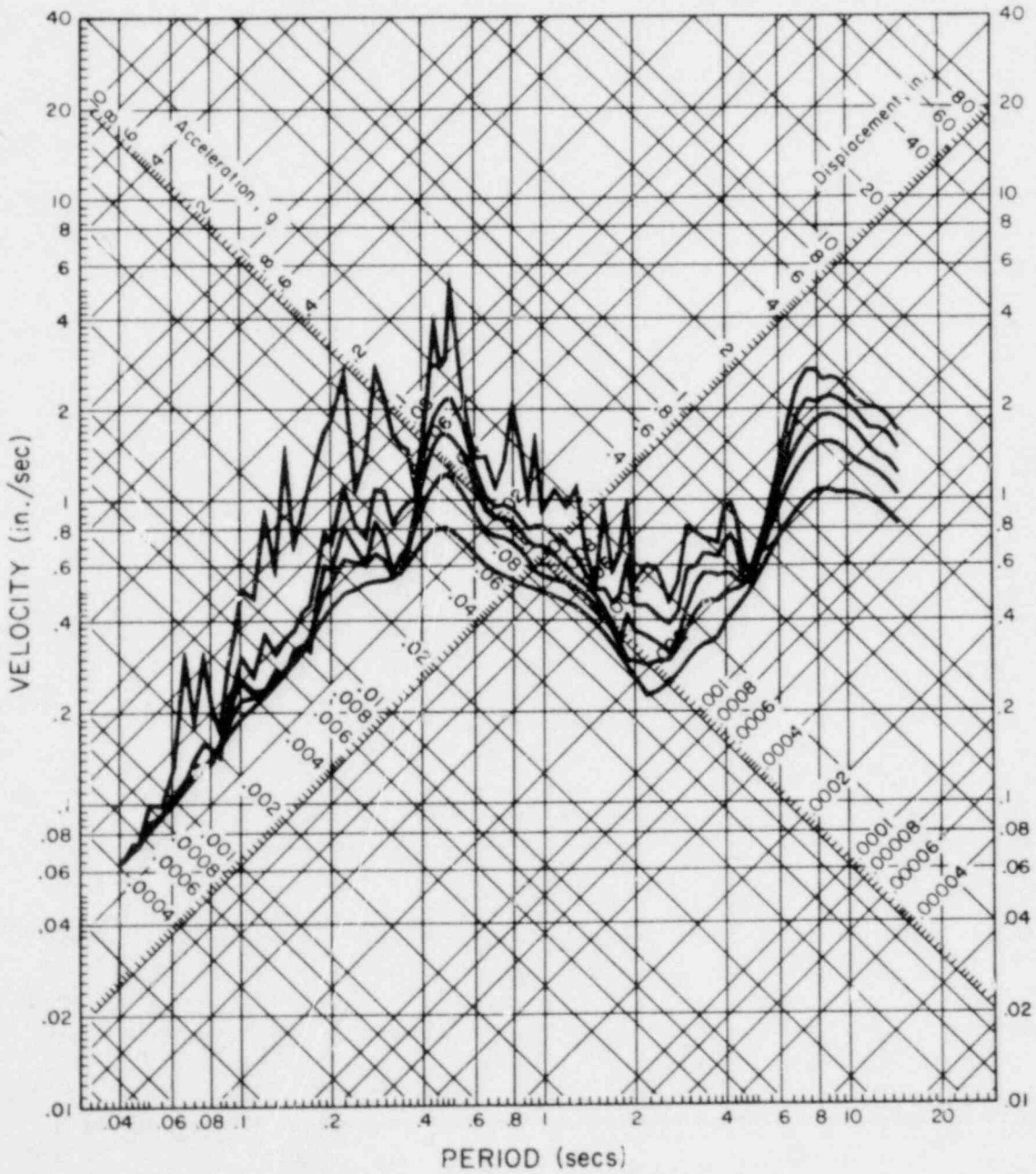


FIG. A7-44

RESPONSE SPECTRUM

LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST

IIIW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

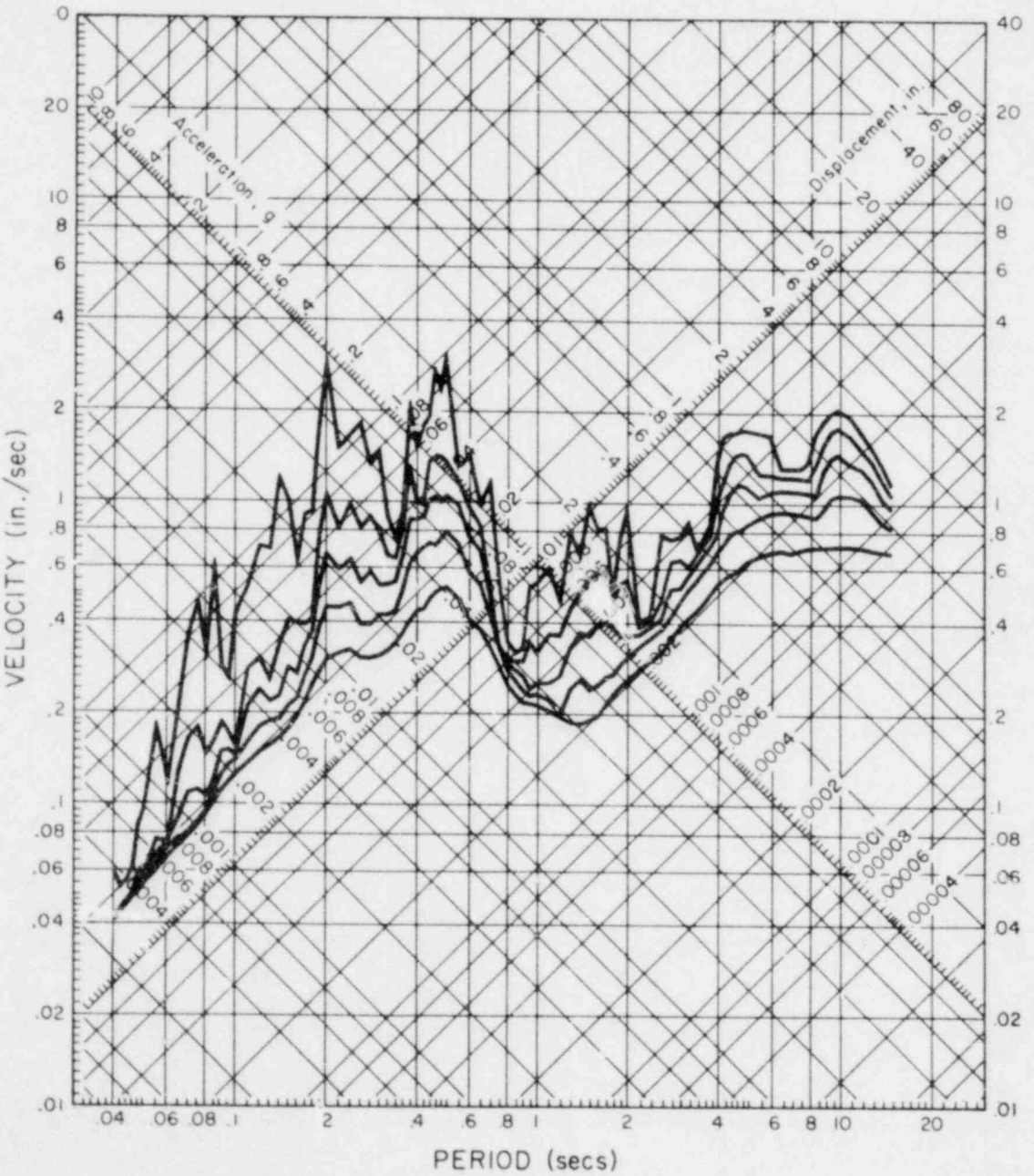


FIG. A7-45

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIICO41 71.001.0 PACOIMA DAM, CAL. COMP S14W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

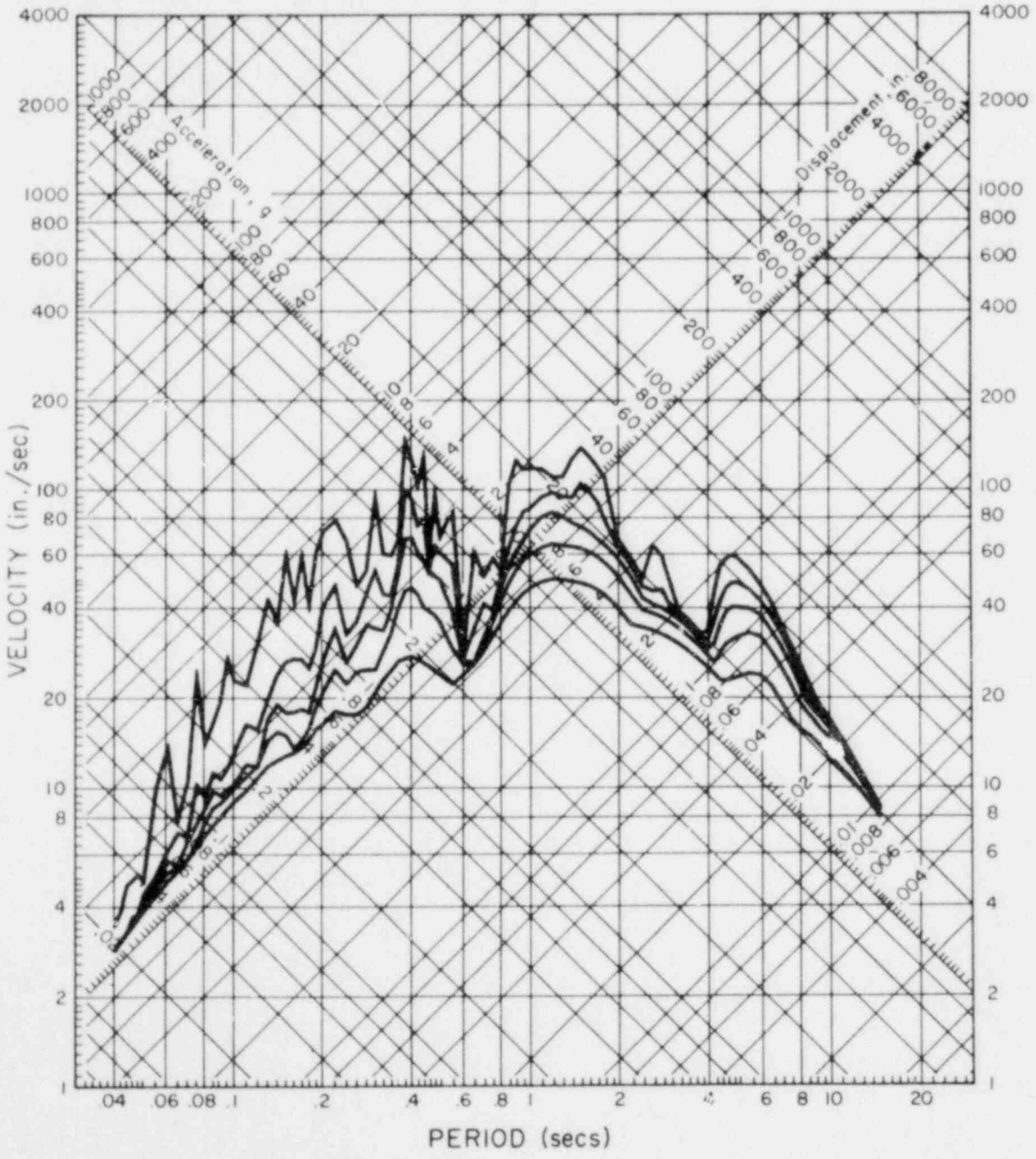


FIG. A7-46

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIC041 71.001.0 PACOIMA DAM, CAL. COMP N76W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

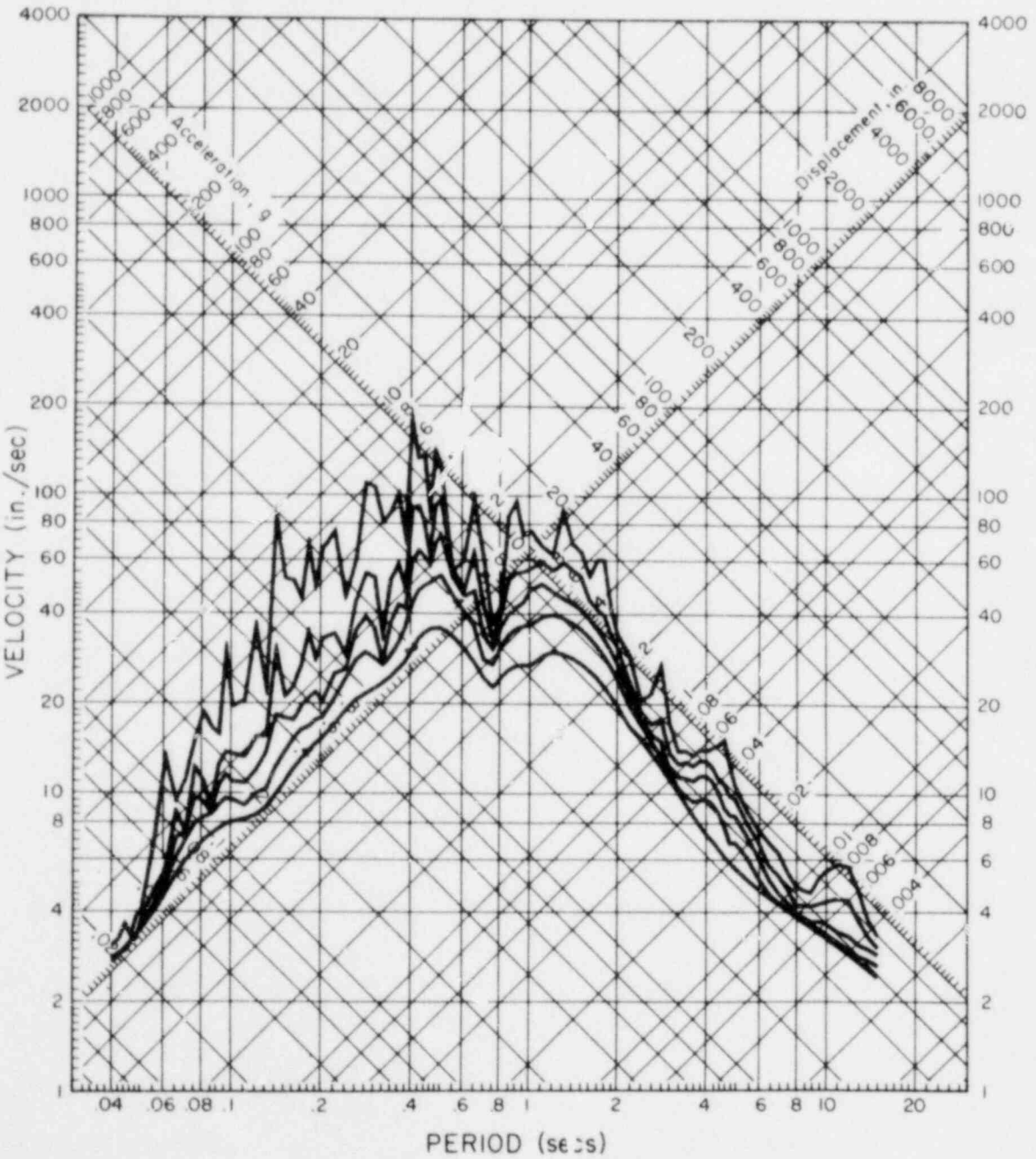


FIG. A7-17

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIC041 71.001.0 PACOIMA DAM, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

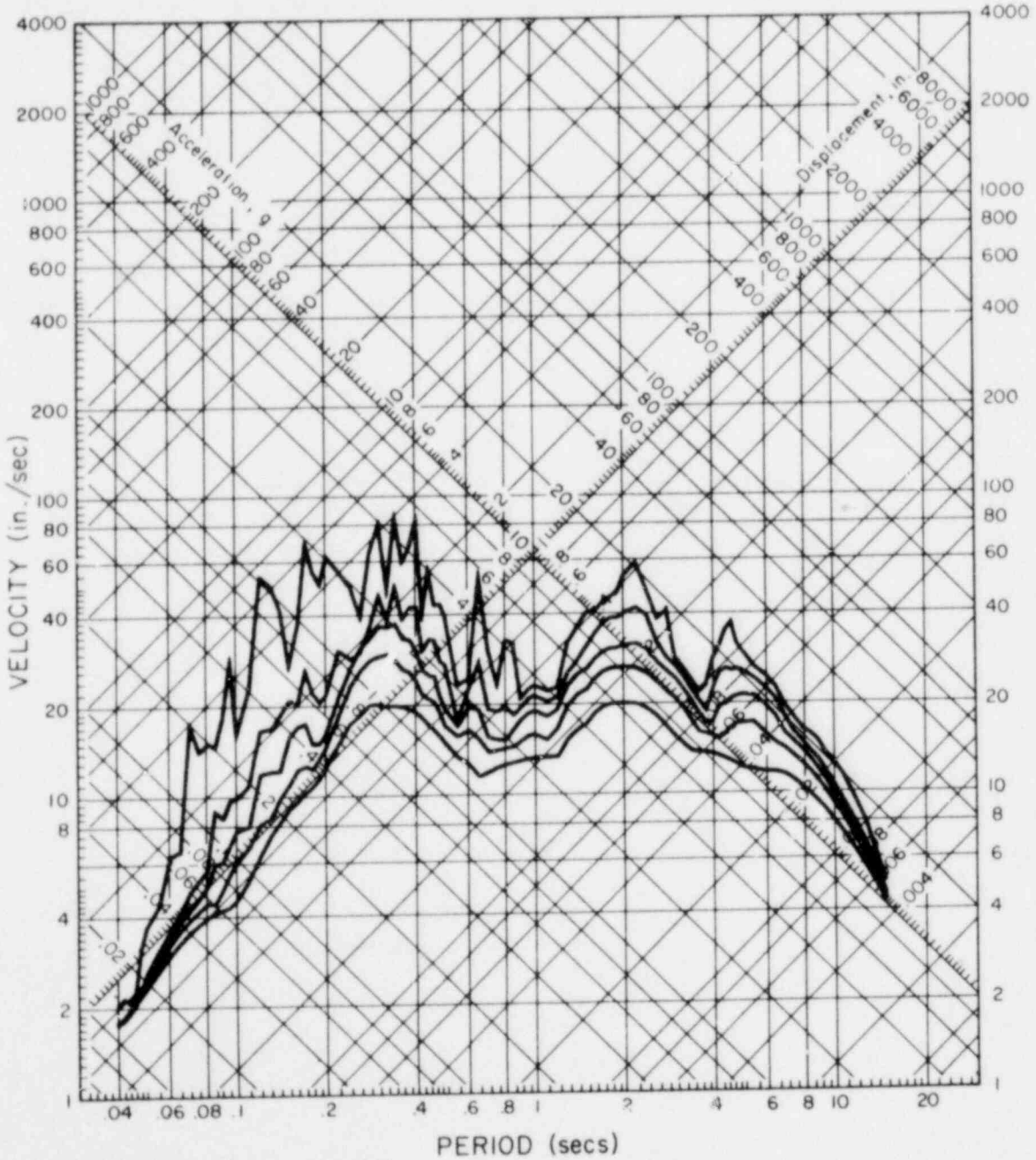


FIG. A7-48

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIF088 71.102.0 633 EAST BROADWAY, MUNICIPAL SERVICE BLDG., GLENDALE, CAL. COMP S70E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

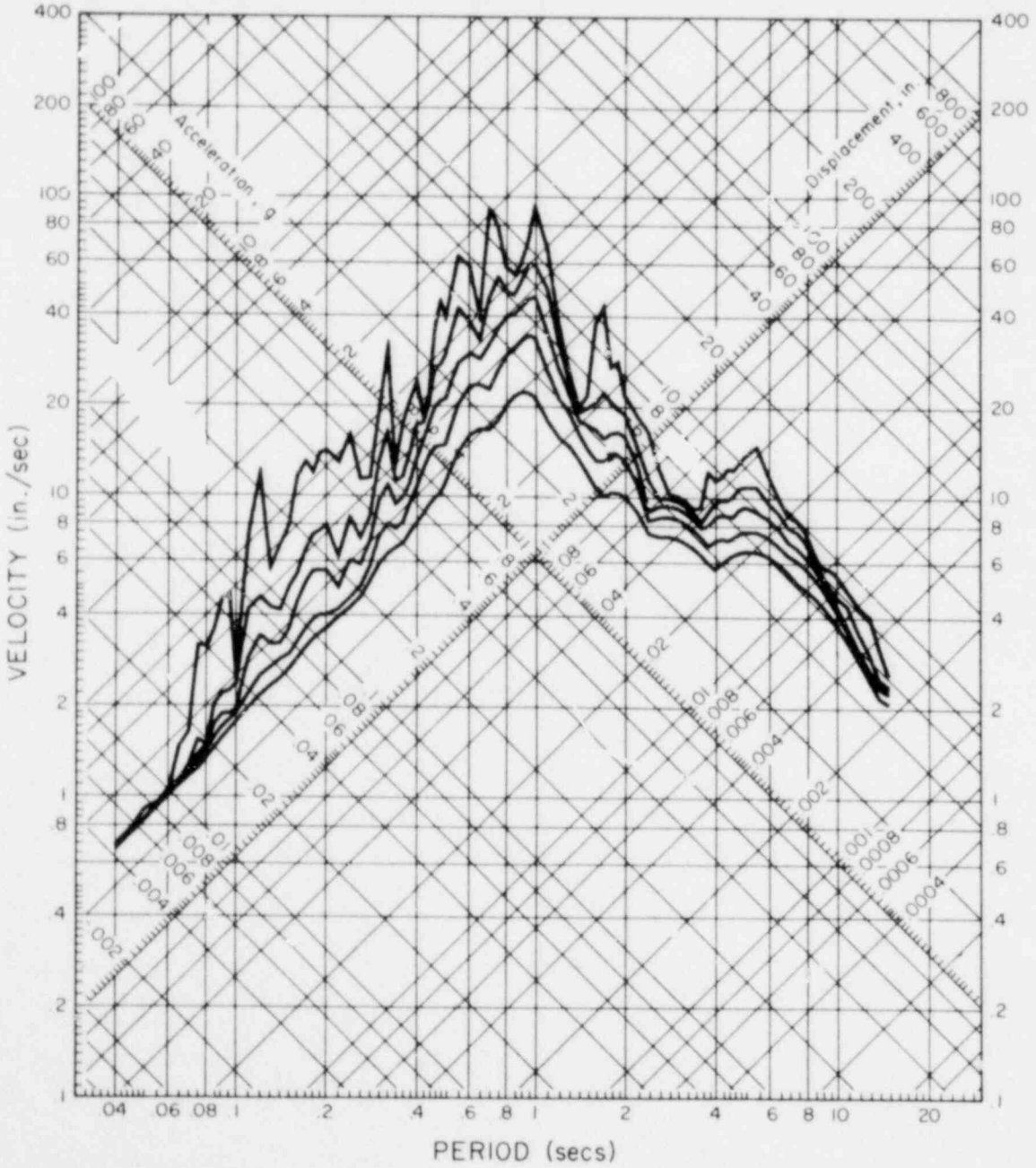


FIG. A7-49

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIF088 71.102.0 633 EAST BROADWAY, MUNICIPAL SERVICE BLDG., GLENDALE, CAL. COMP S20W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

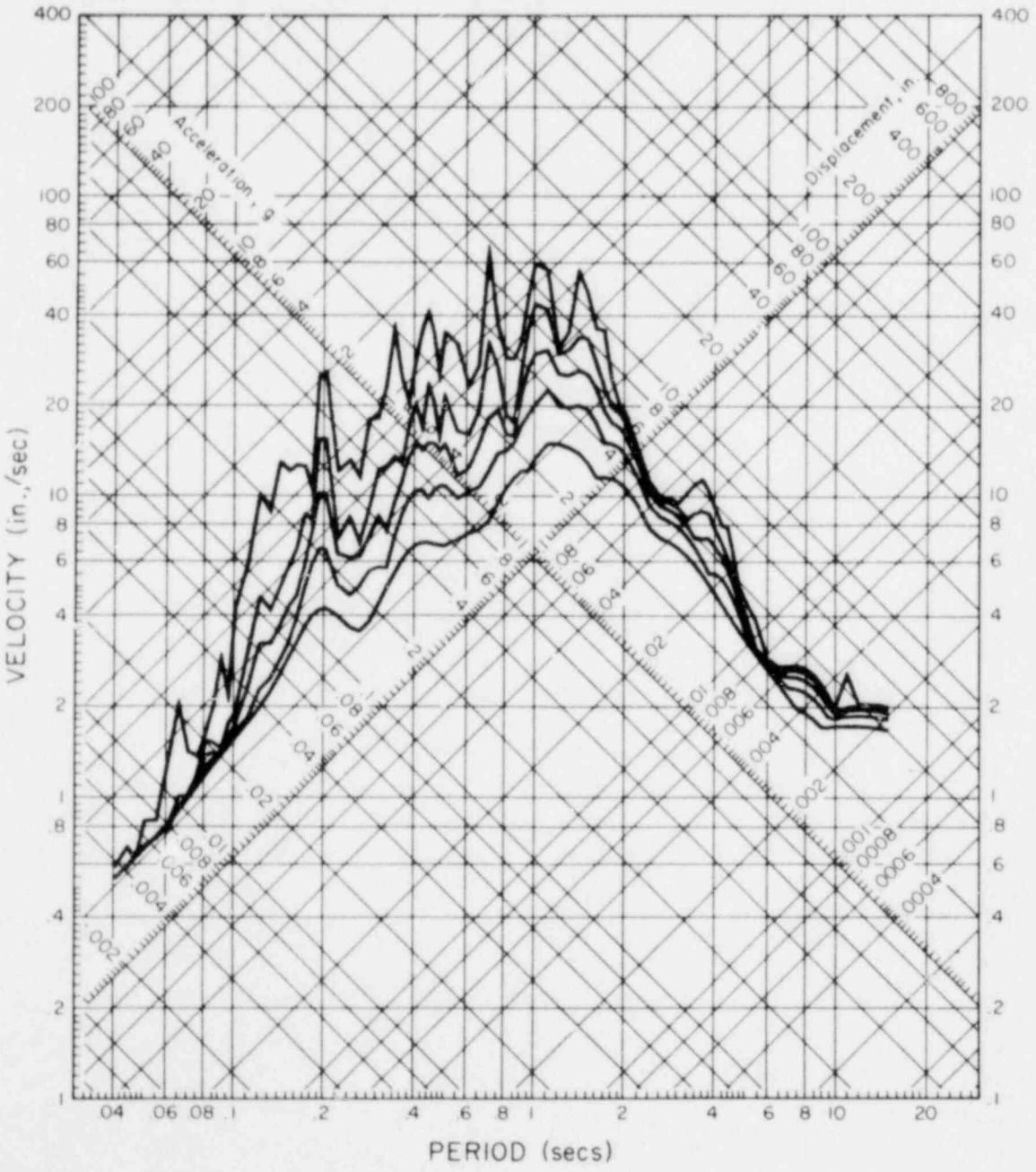


FIG. A7-50

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIF088 71.102.0 633 EAST BROADWAY, MUNICIPAL SERVICE BLDG., GLENDALE, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

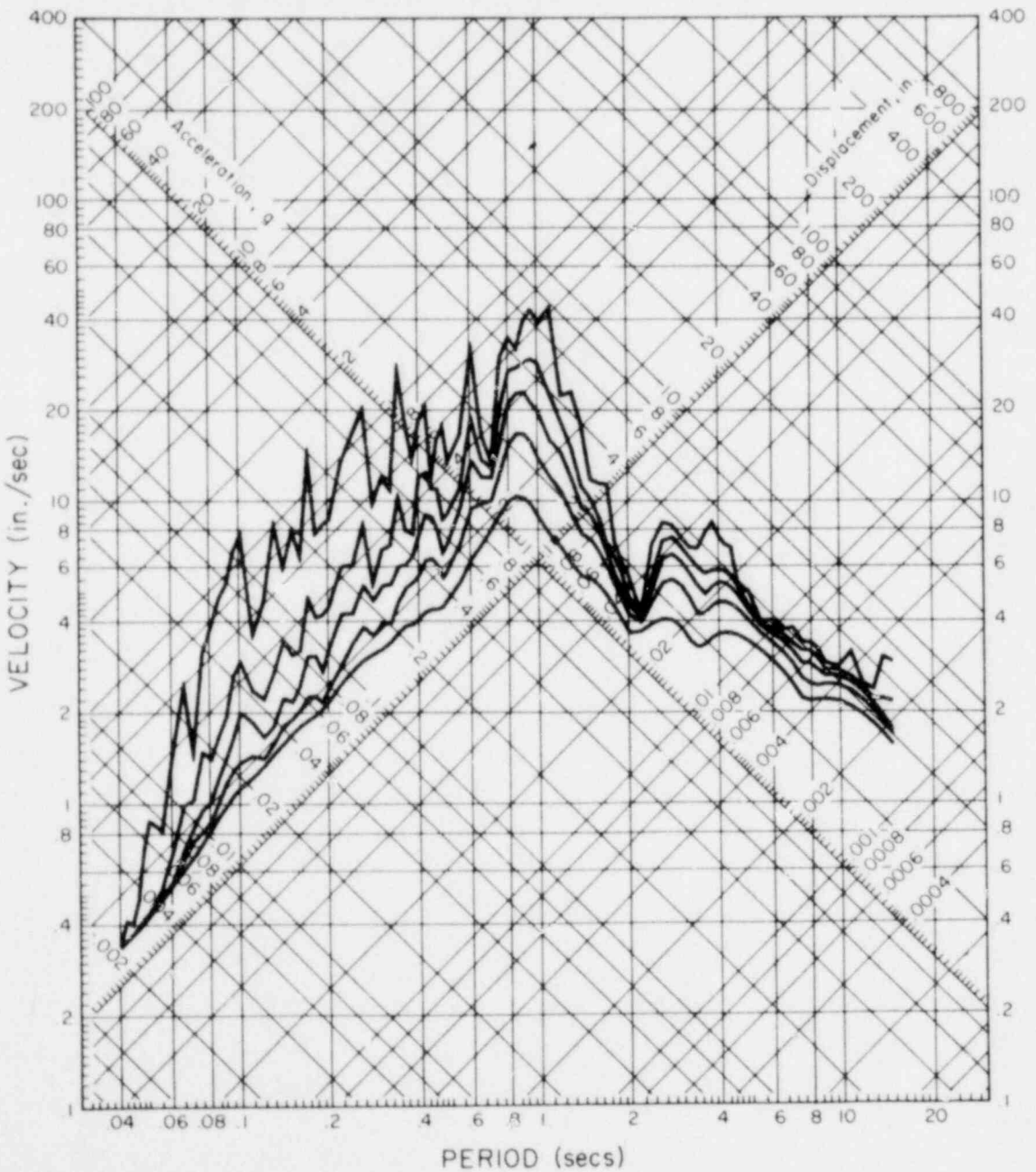


FIG. A7-51

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP S00W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

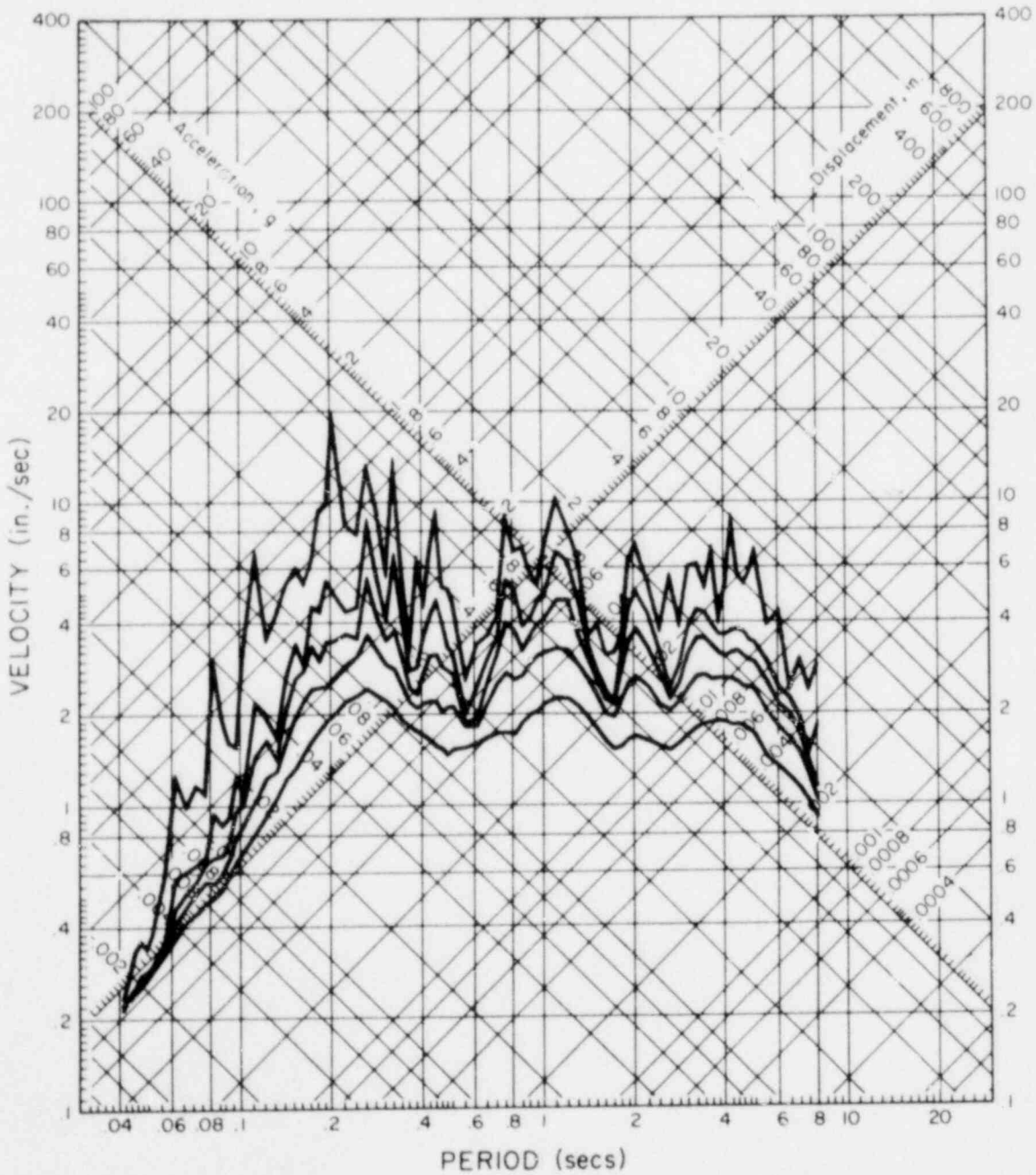


FIG. A7-52

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP S90W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

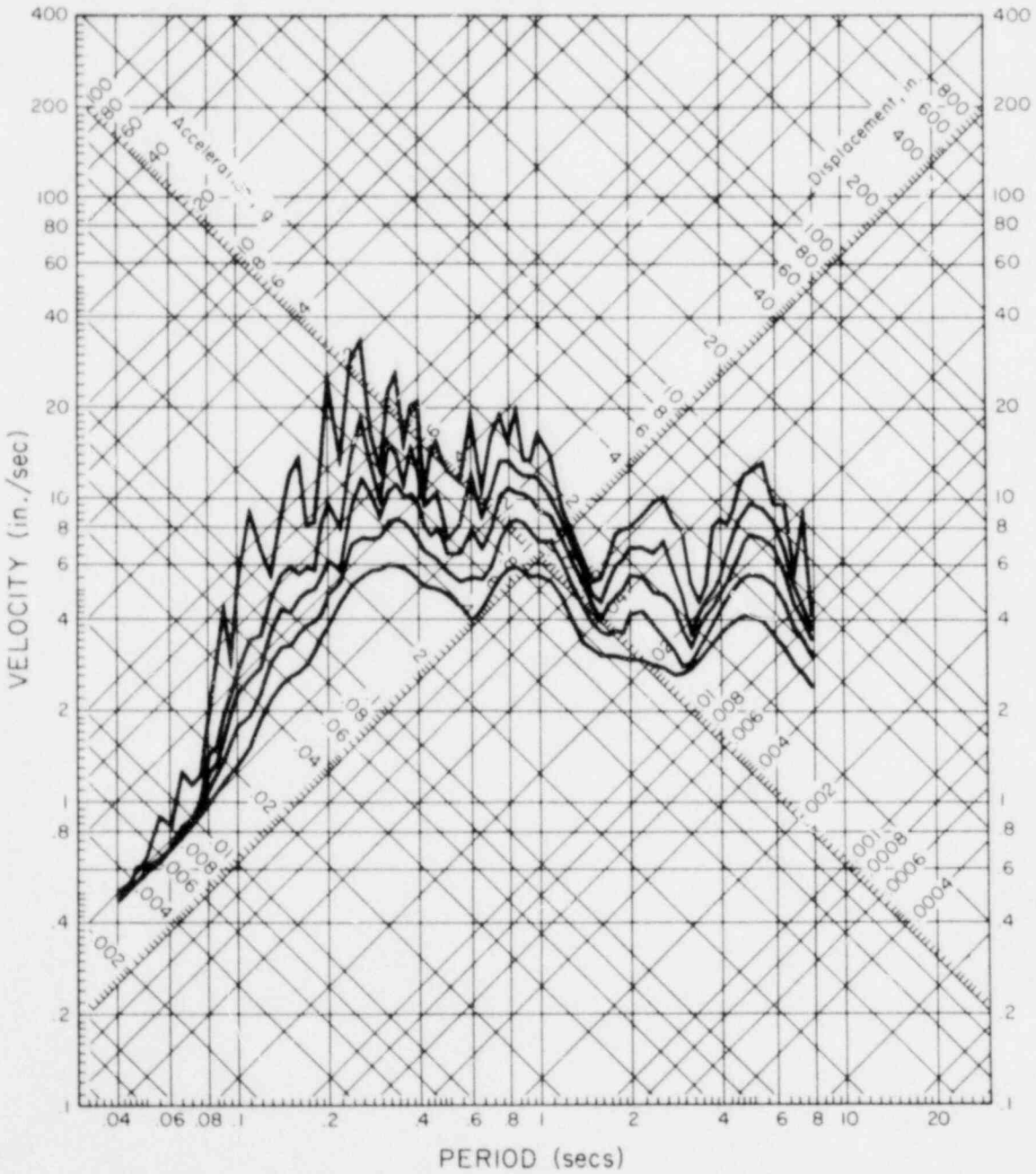


FIG. A7-53

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIG106 71.018.0 CALTECH SEISMOLOGICAL LAB., PASADENA, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

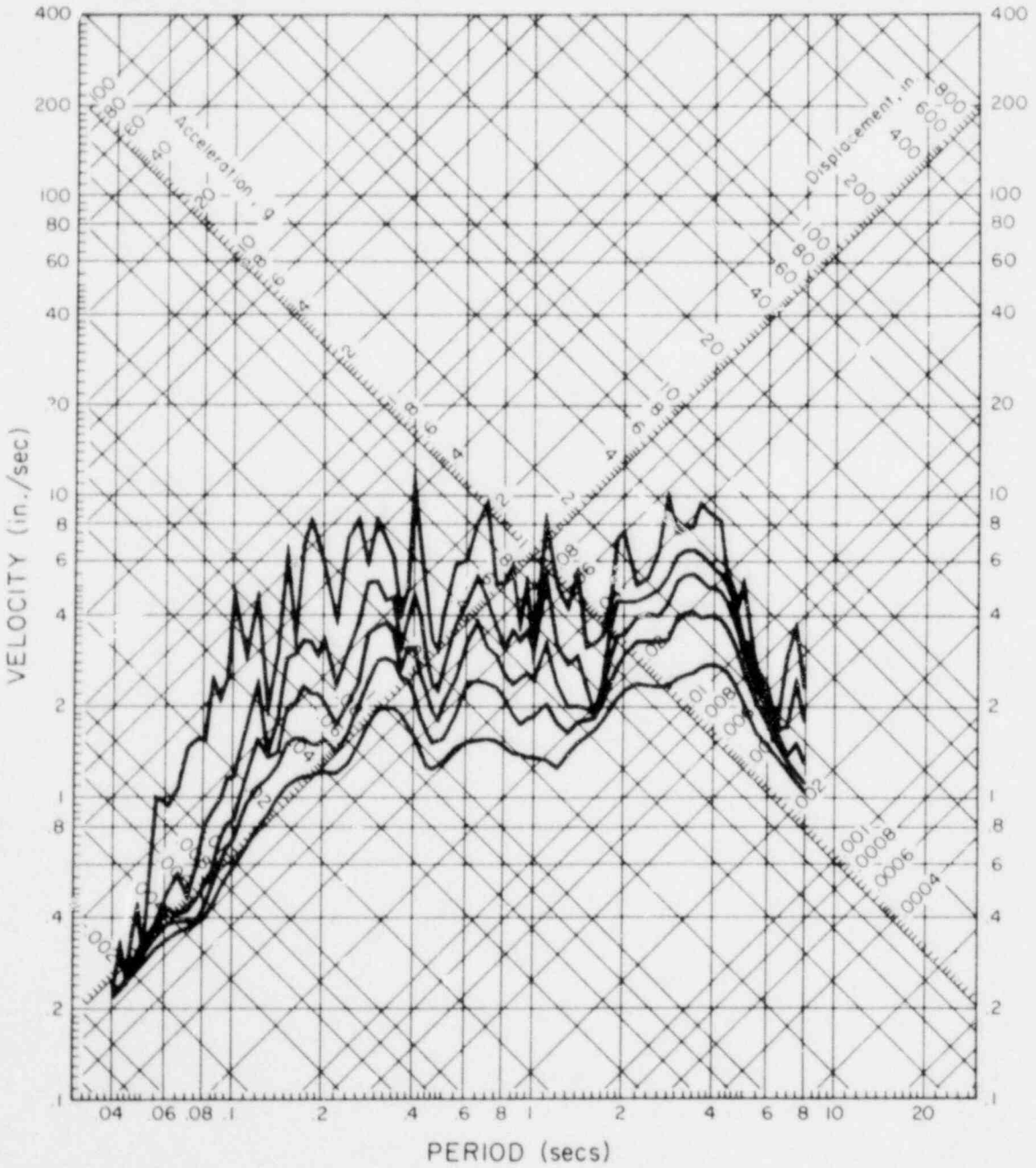


FIG. A7-54

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S82E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

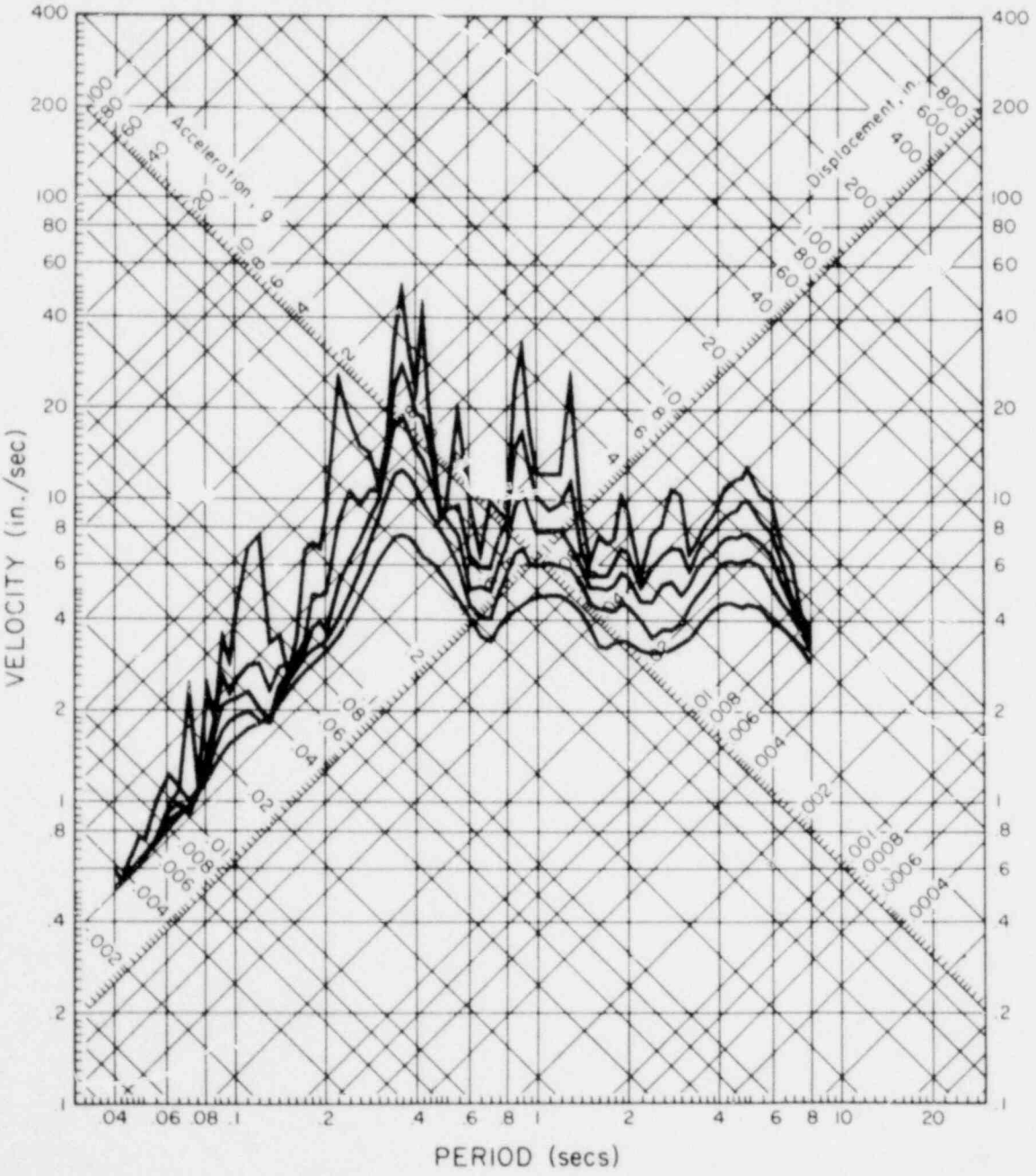


FIG. A7-55

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP S08W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

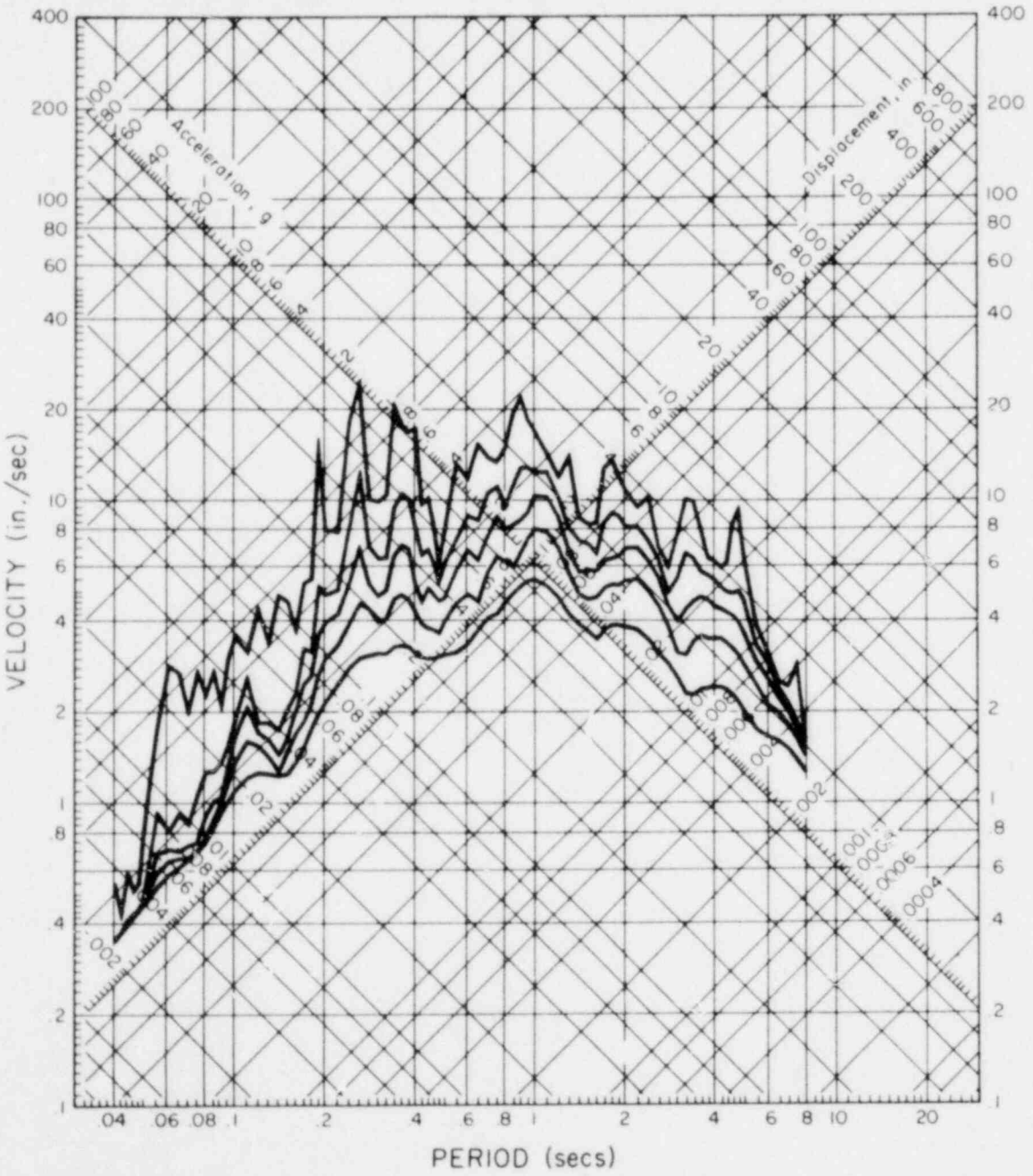


FIG. A7-56

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIG110 71.032.0 JET PROPULSION LAB., BASEMENT, PASADENA, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

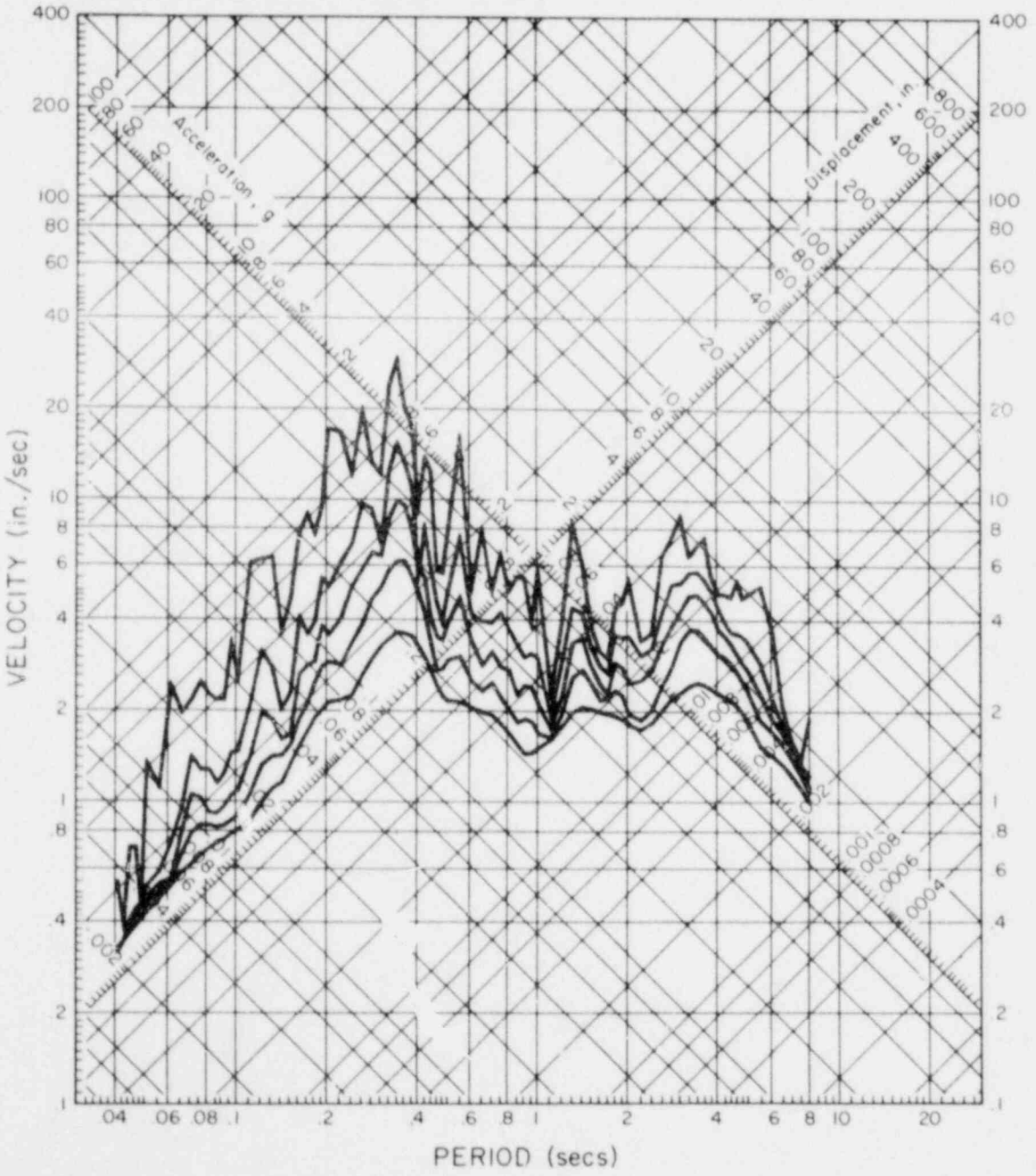


FIG. A7-57

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIL166 71.036.0 3838 LANKERSHIM BLVD., BASEMENT, LOS ANGELES, CAL. COMP N00E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

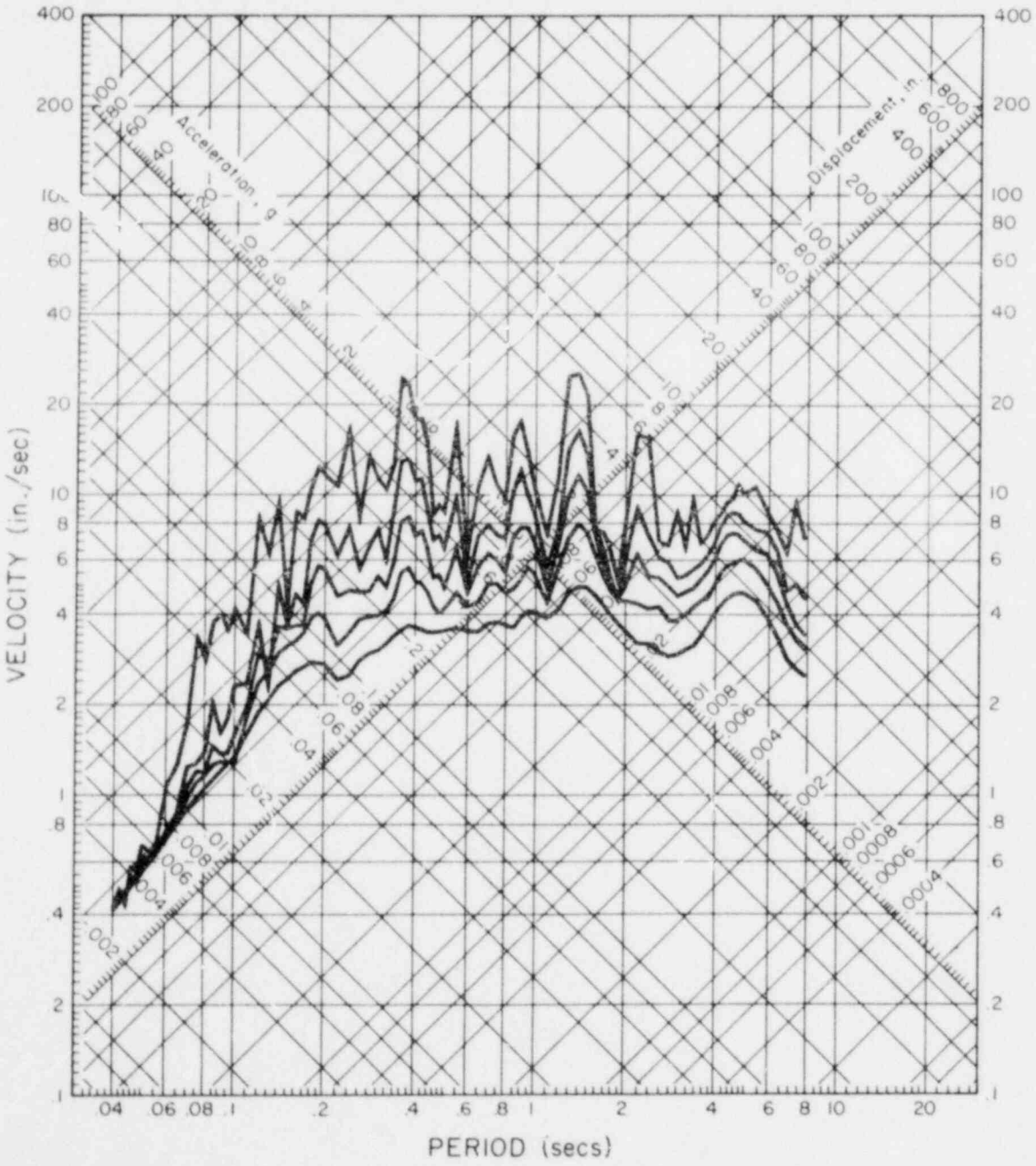


FIG. A7-58

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIL166 71.036.0 3838 LANKERSHIM BLVD., BASEMENT, LOS ANGELES, CAL. COMP S90W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

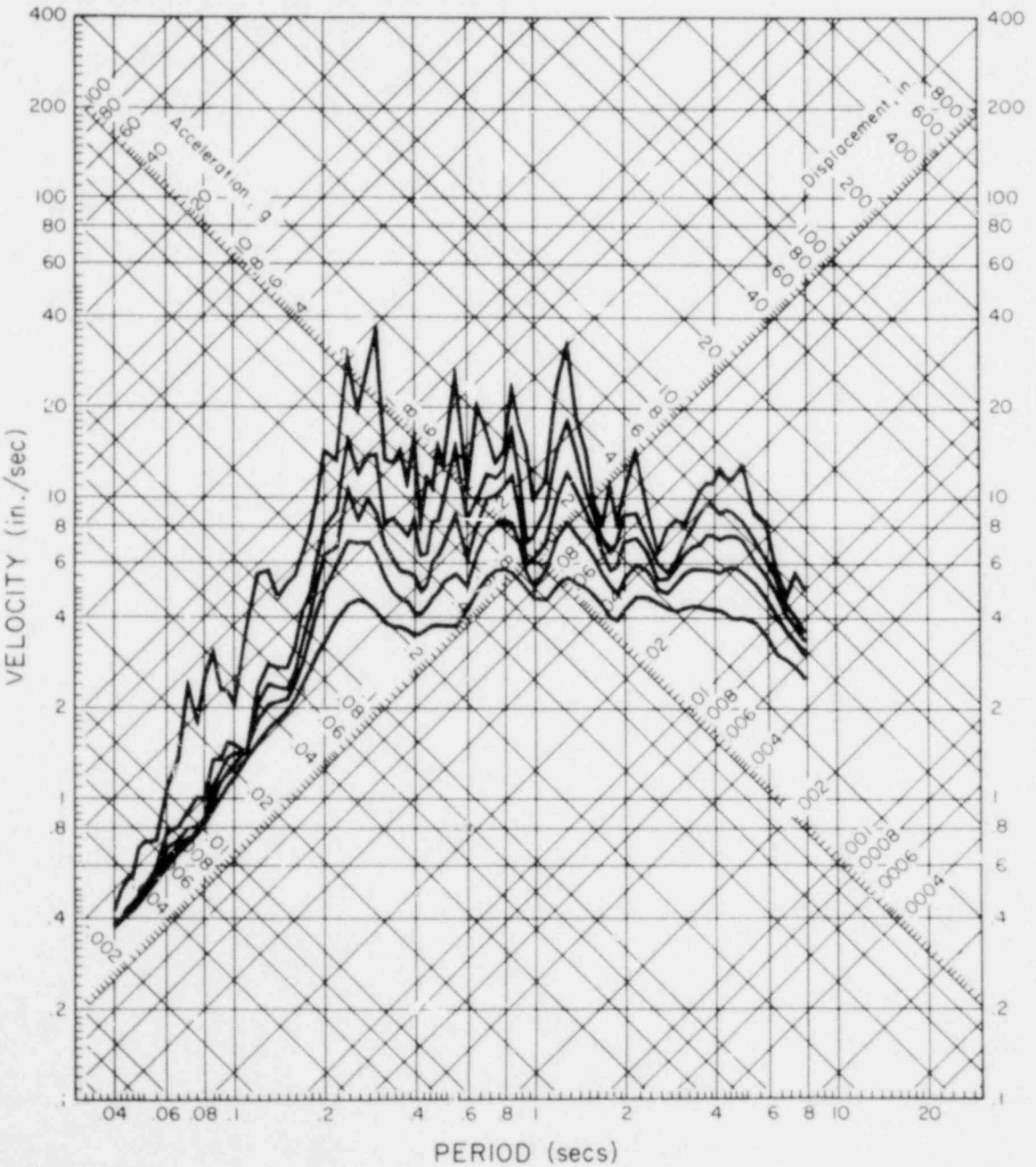


FIG. A7-59

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIL166 71.036.0 3838 LANKERSHIM BLVD., BASEMENT, LOS ANGELES, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

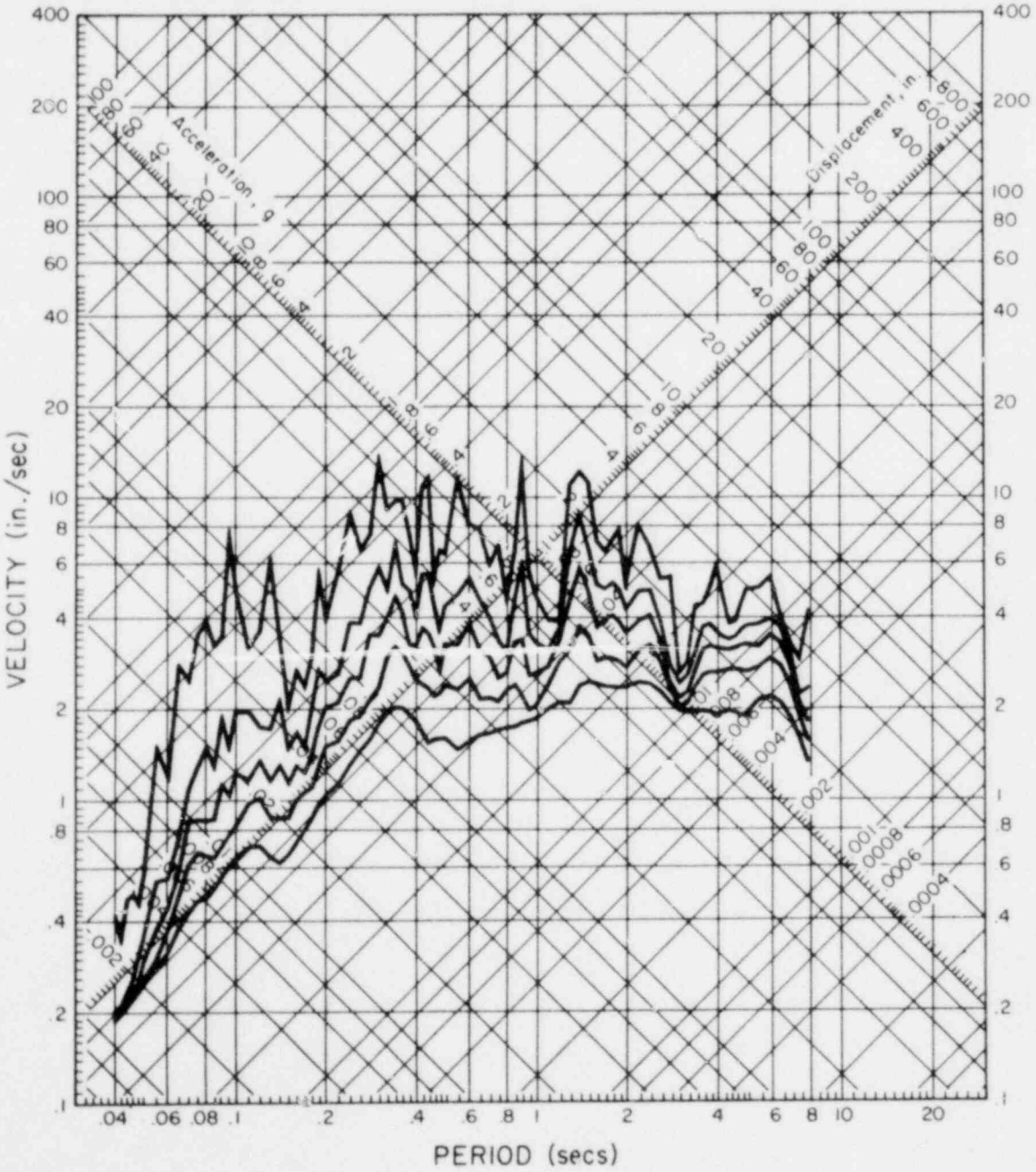


FIG. A7-60

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIN185 71.066.0 CARBON CANYON DAM, CAL. COMP S50E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

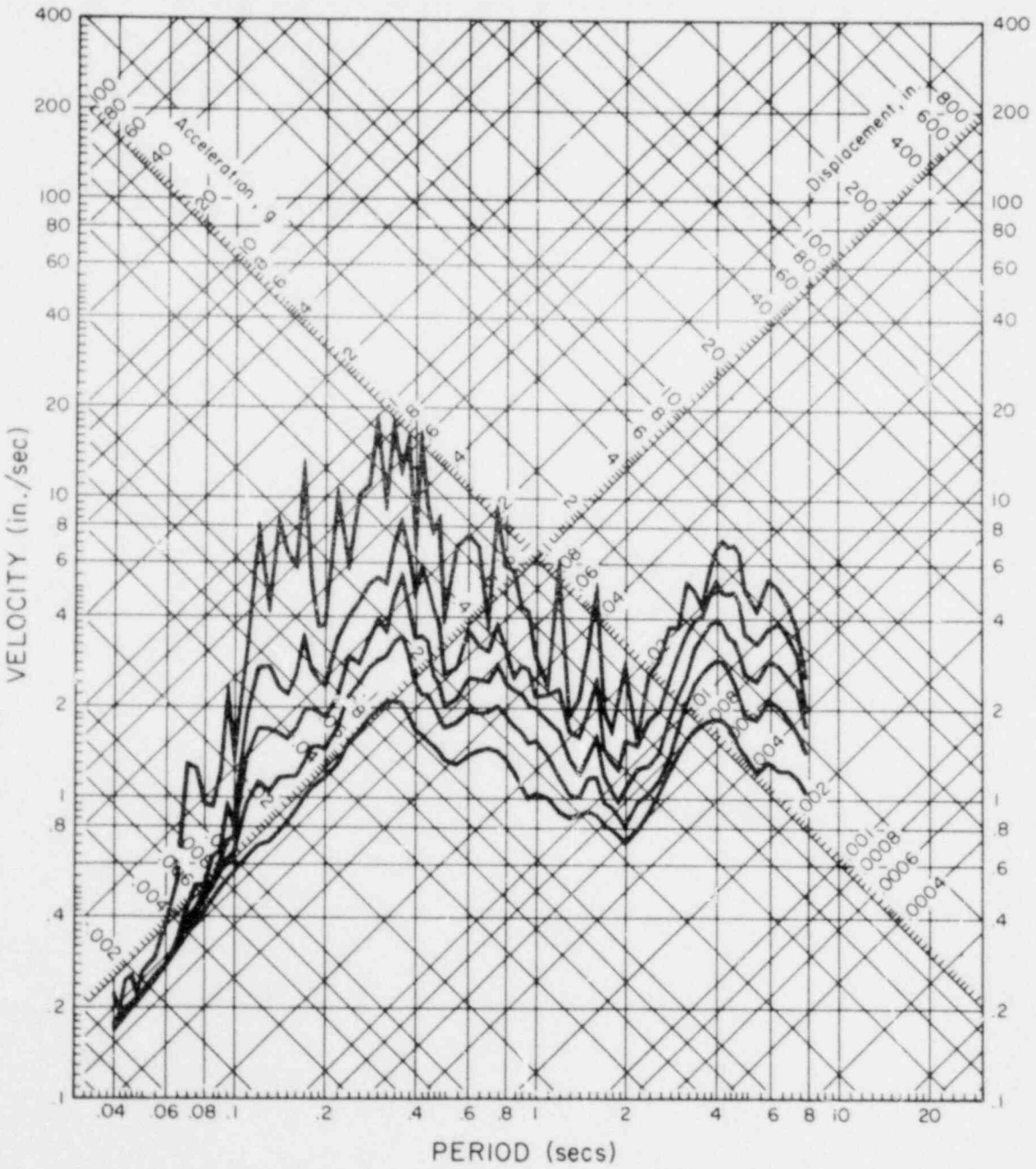


FIG. A7-61

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIN185 71.066.0 CARBON CANYON DAM, CAL. COMP S40W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

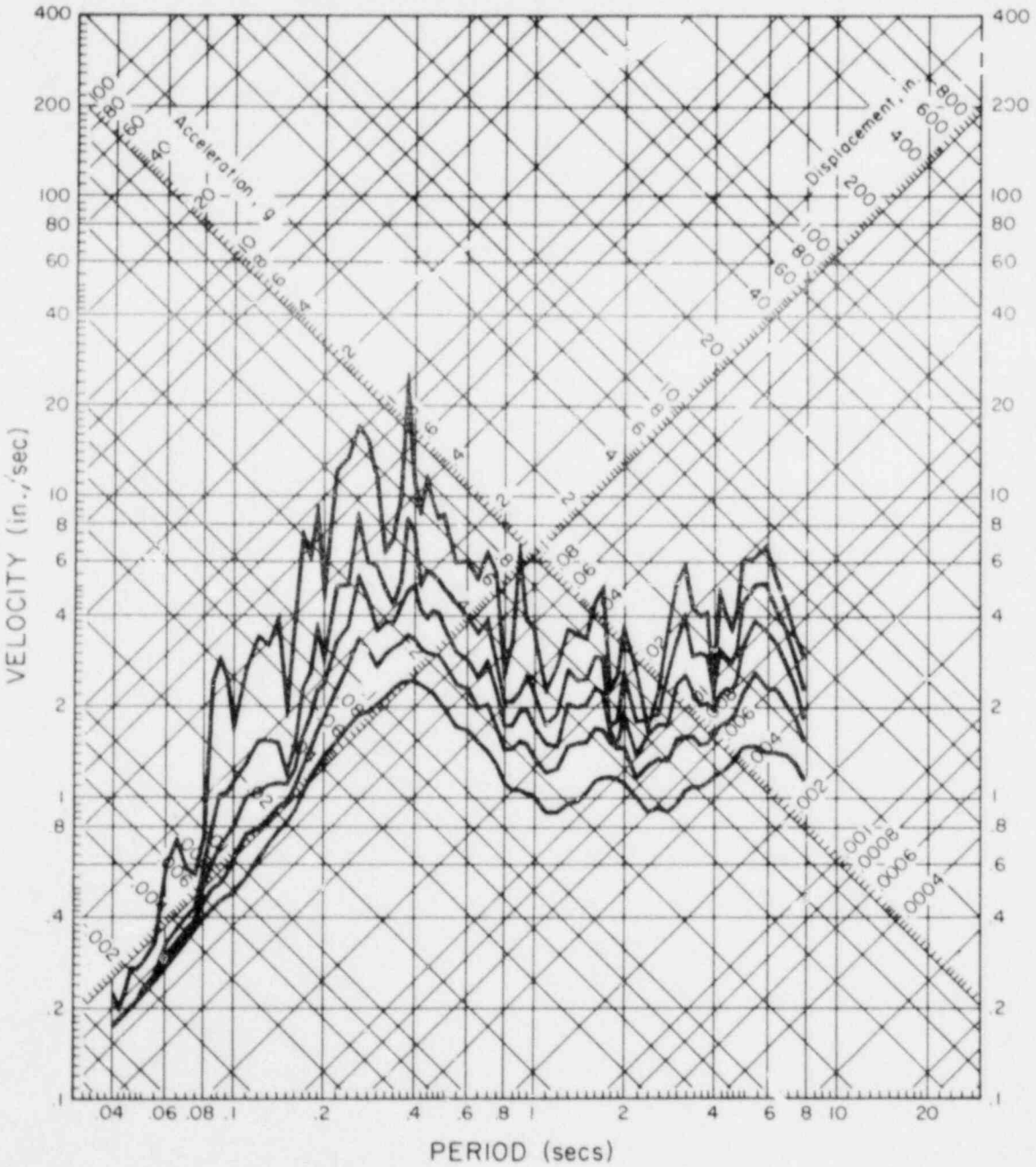


FIG. A7-62

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIN185 71.066.0 CARBON CANYON DAM, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

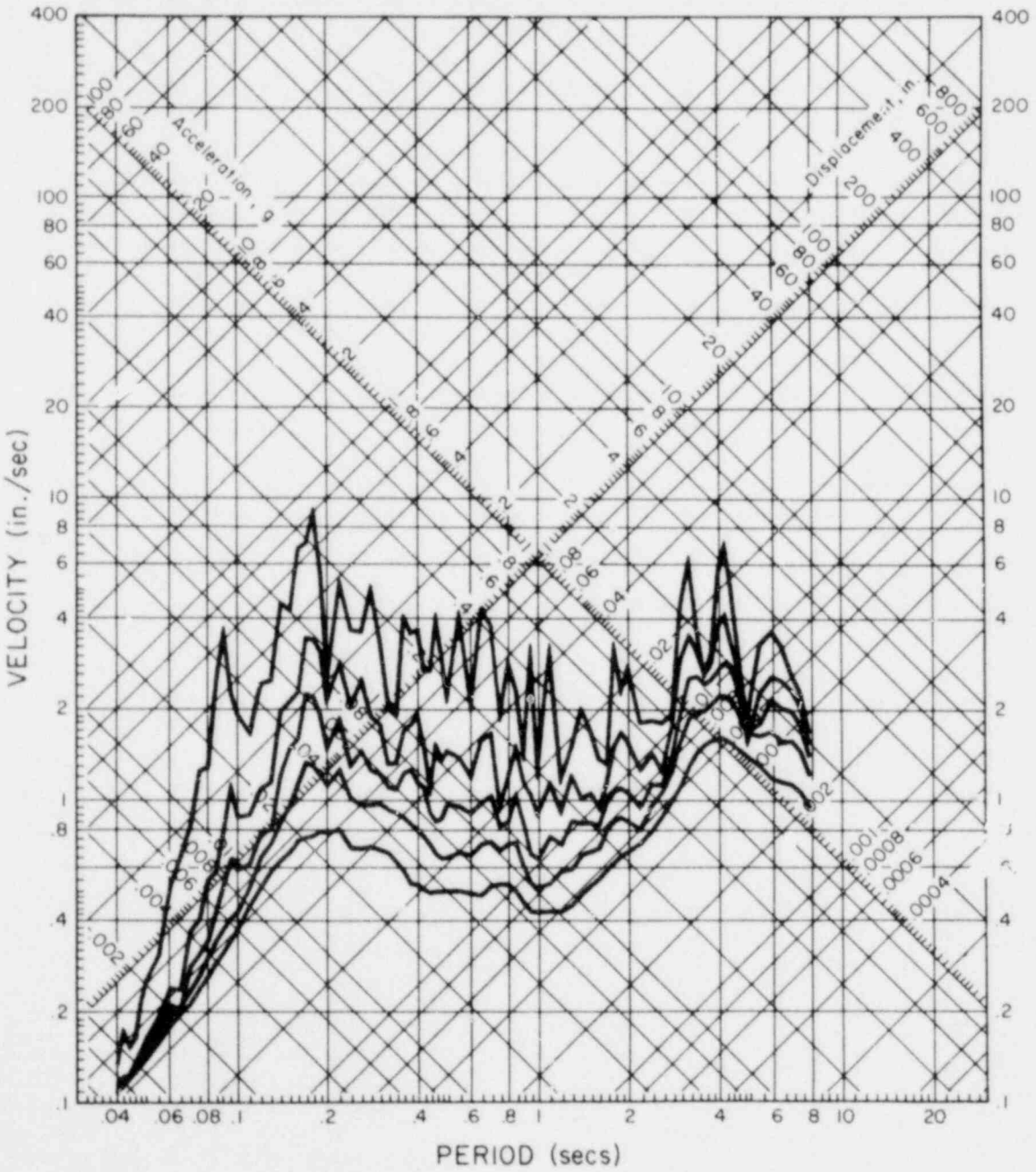


FIG. A7-63

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0198 71.069.0 GRIFFITH PARK OBSERVATORY, MOON ROOM, LOS ANGELES, CAL. COMP S00W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

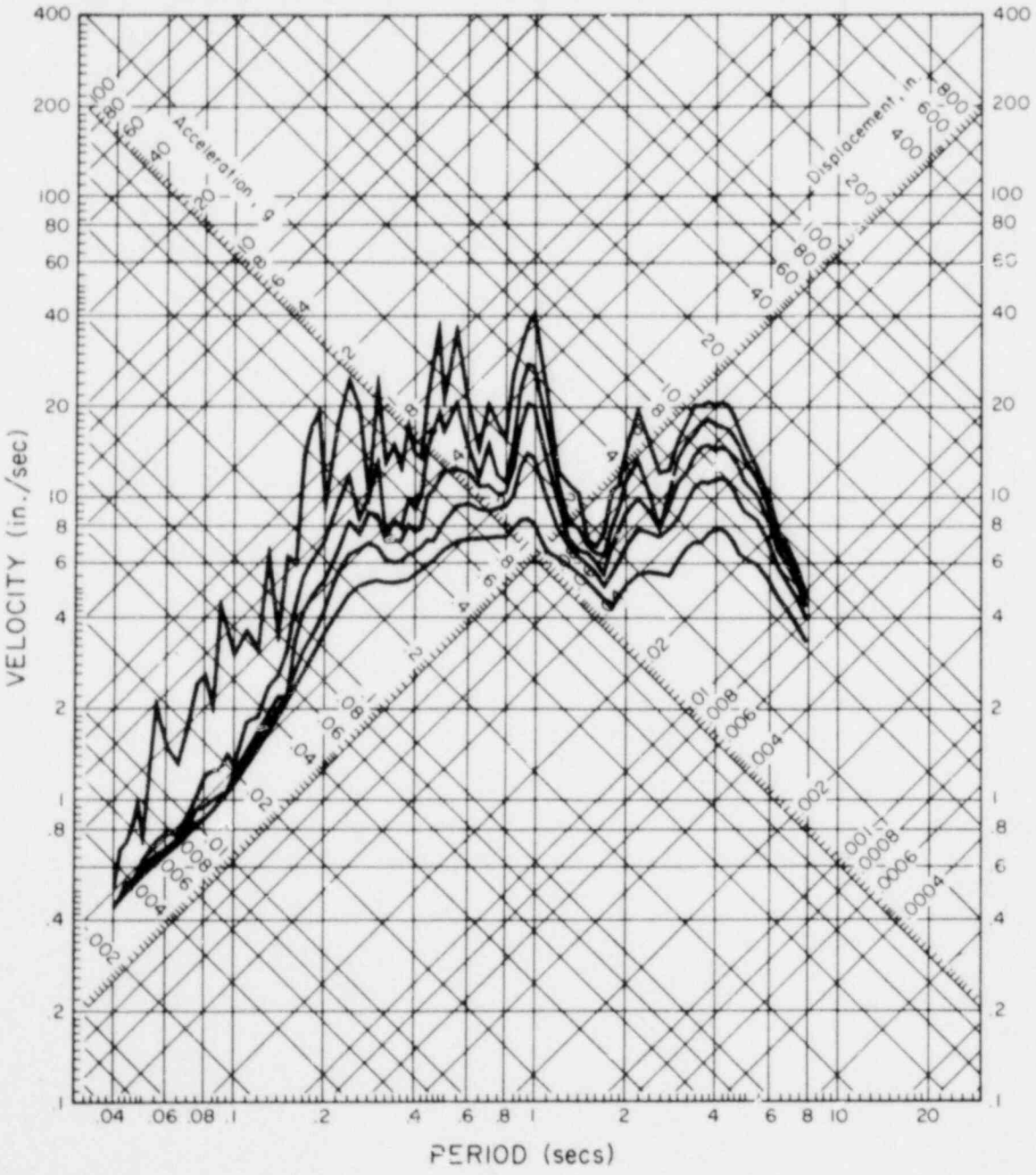


FIG. A7-64

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0198 71.069.0 GRIFFITH PARK OBSERVATORY, MOON ROOM, LOS ANGELES, CAL. COMP S90W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

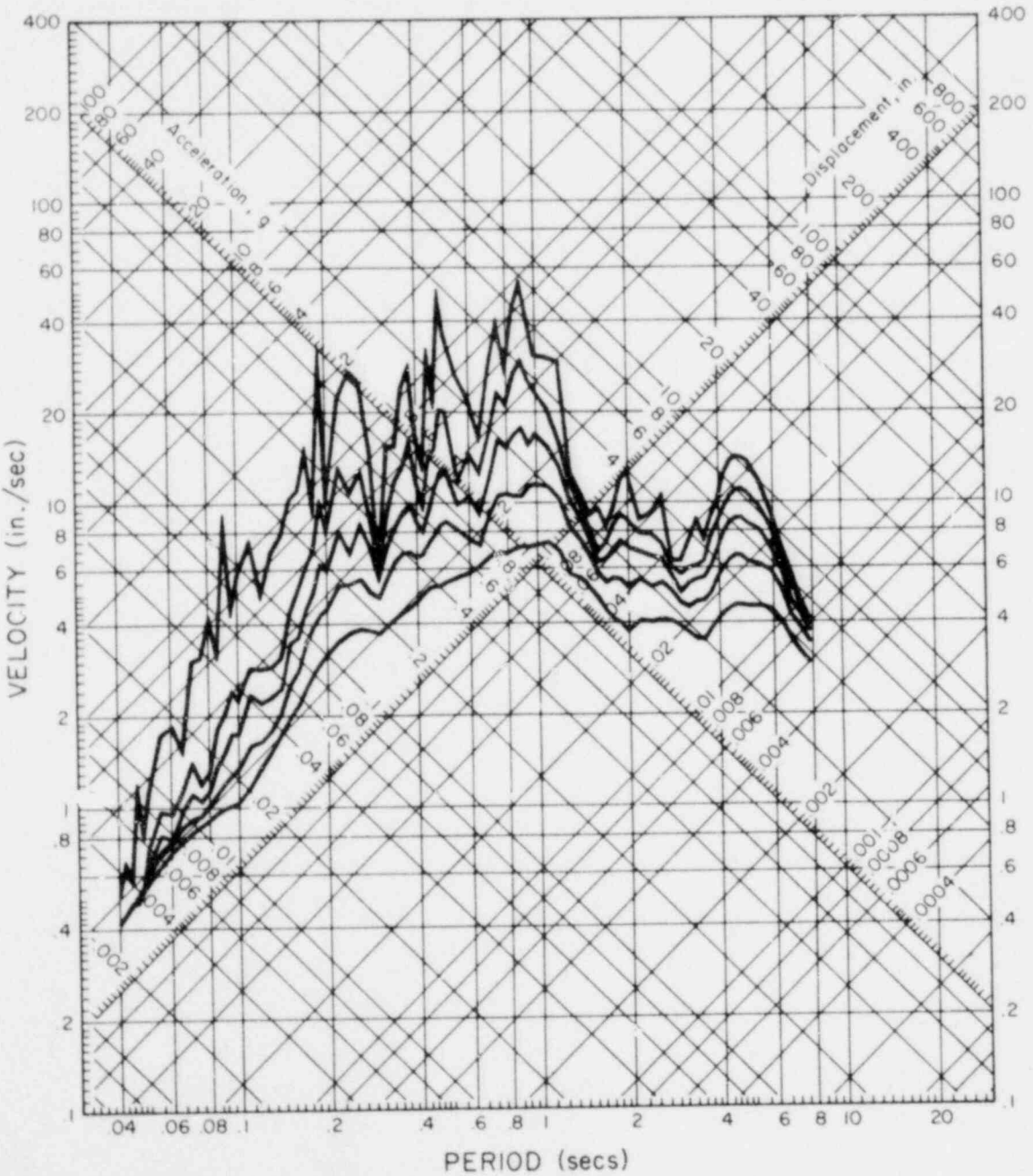


FIG. A7-65

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III0198 71.069.0 GRIFFITH PARK OBSERVATORY, MOON ROOM, LOS ANGELES, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

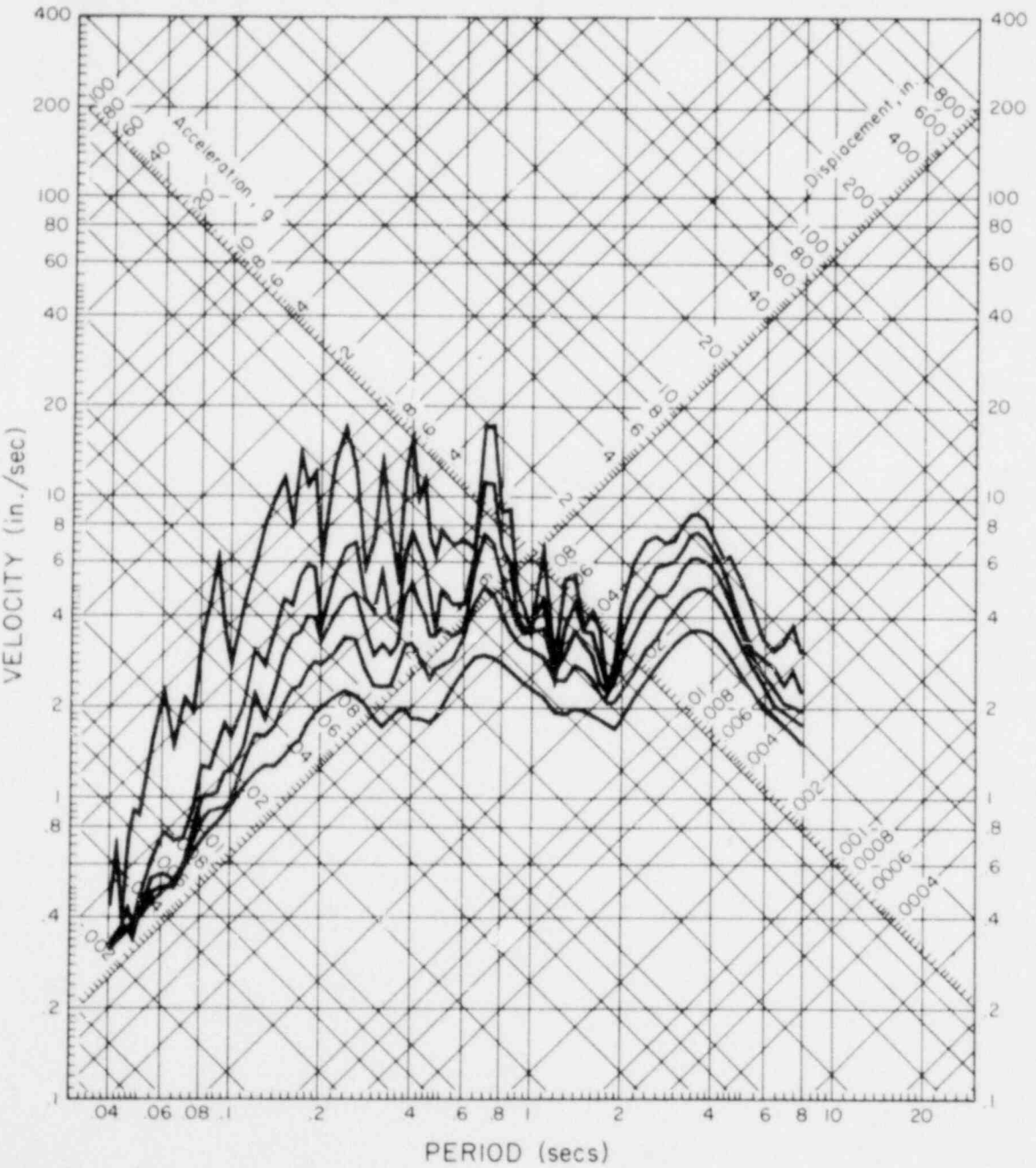


FIG. A7-66

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP214 71.053.0 4867 SUNSET BOULEVARD, BASEMENT, LOS ANGELES, CALIFORNIA COMP S89W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

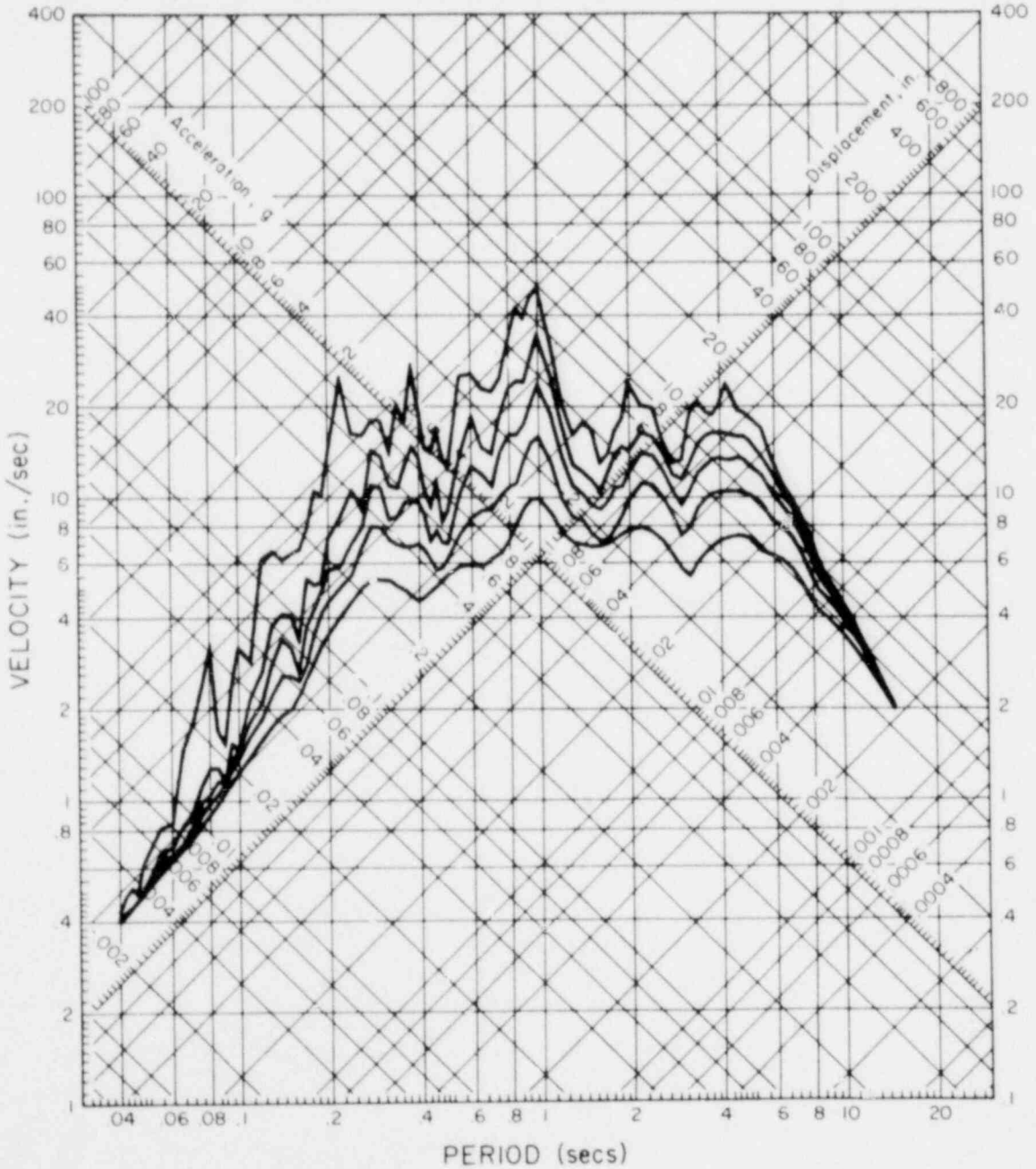


FIG. A7-67

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP214 71.053.G 4867 SUNSET BOULEVARD, BASEMENT, LOS ANGELES, CALIFORNIA COMP S01E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

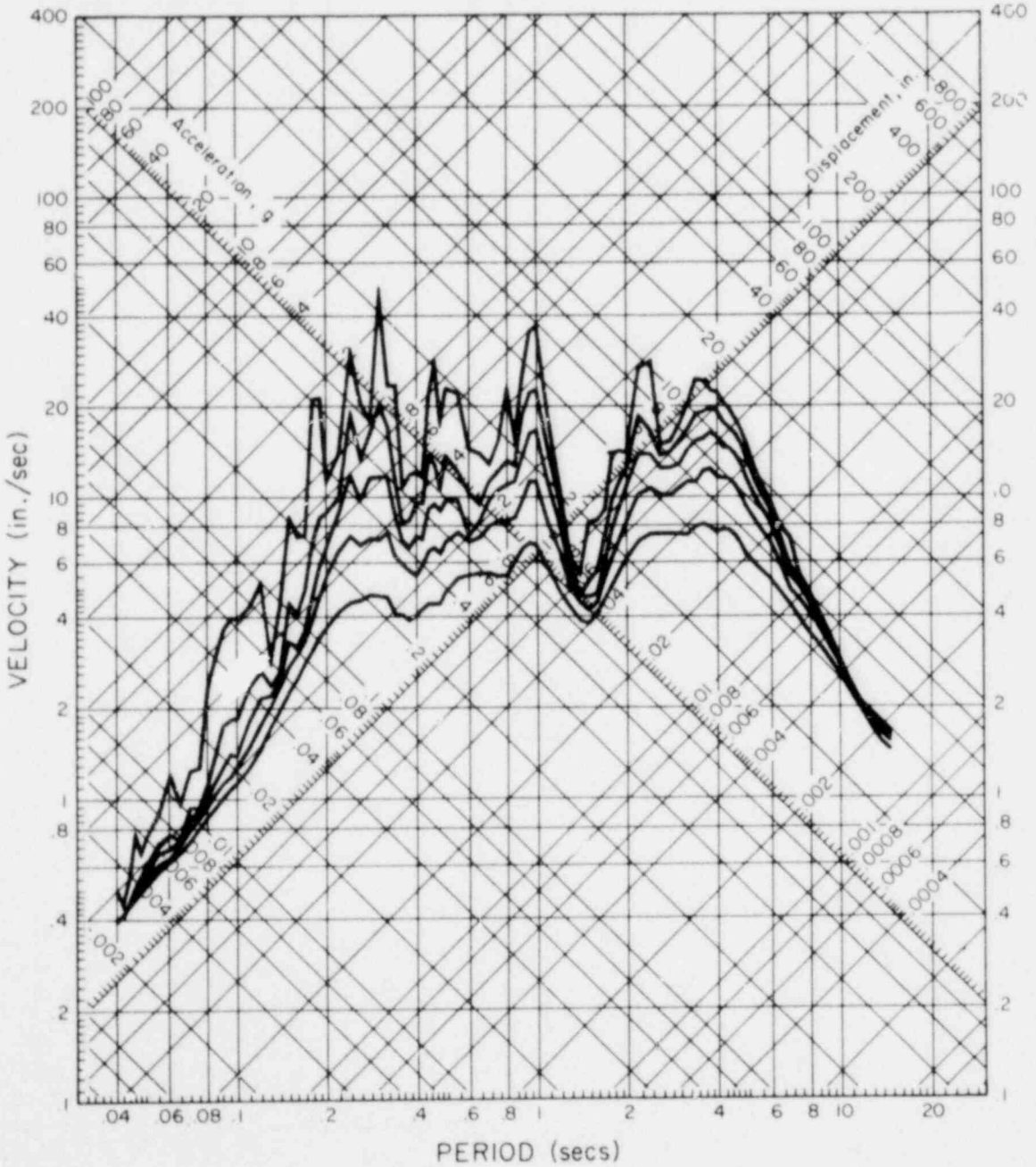


FIG. A7-68

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP214 71.053.0 4867 SUNSET BOULEVARD, BASEMENT, LOS ANGELES, CALIFORNIA COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

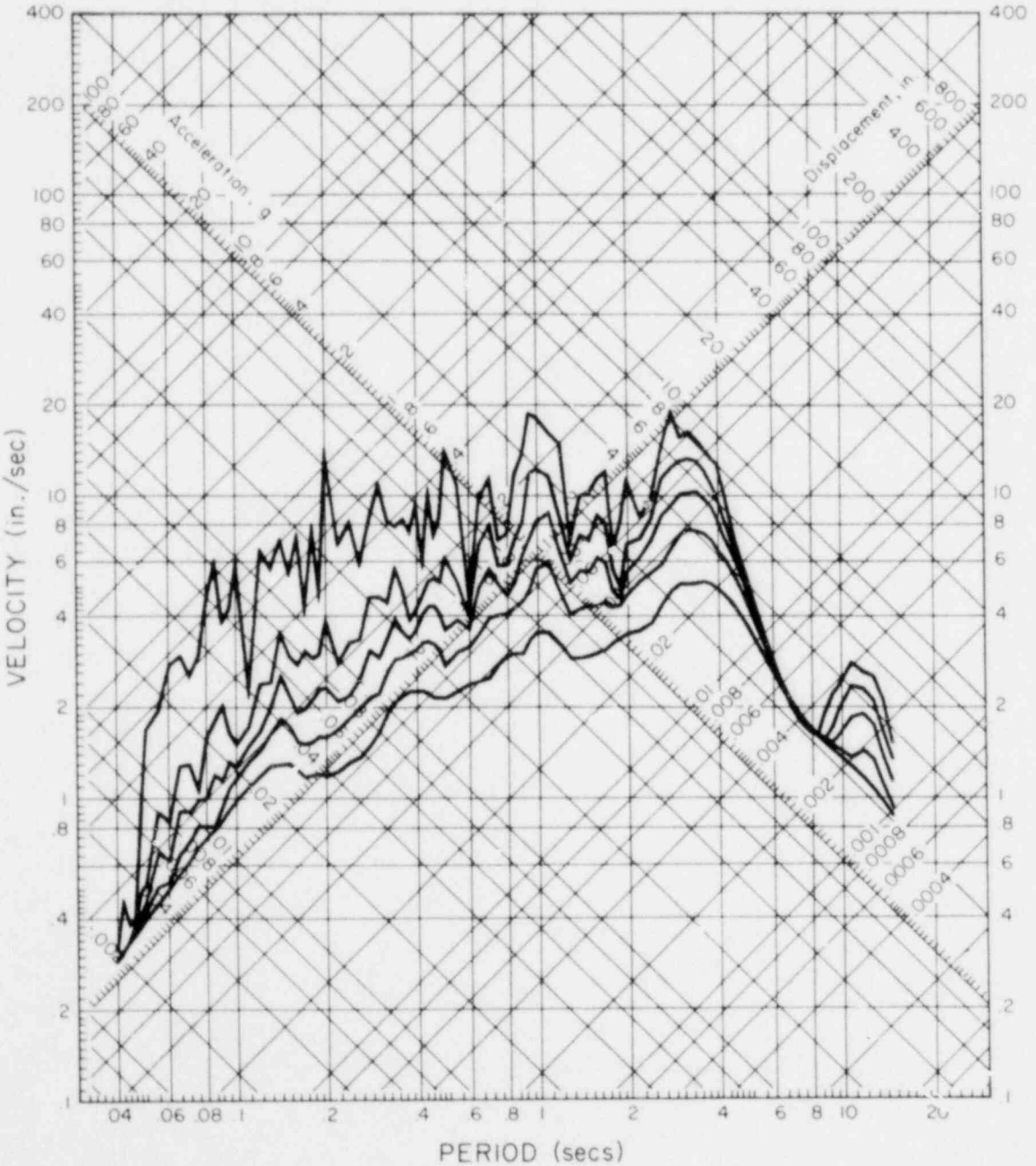


FIG. A7-69

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP223 71.153.0 PUDDINGSTONE RESERVOIR, SAN DIMAS, CAL. COMP N55E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

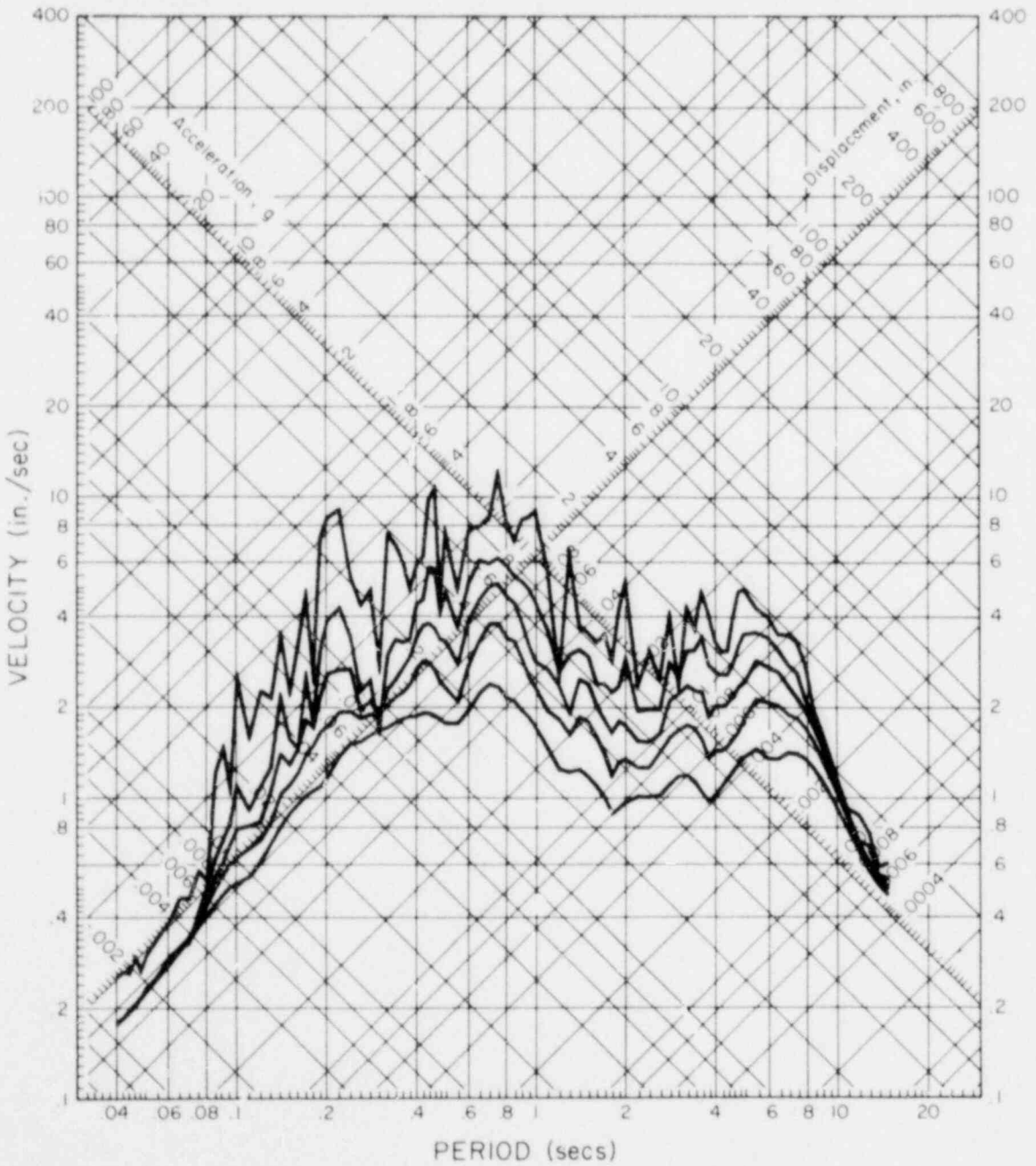


FIG. A7-70

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP223 71.153.0 PUDDINGSTONE RESERVOIR, SAN DIMAS, CAL. COMP N35W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

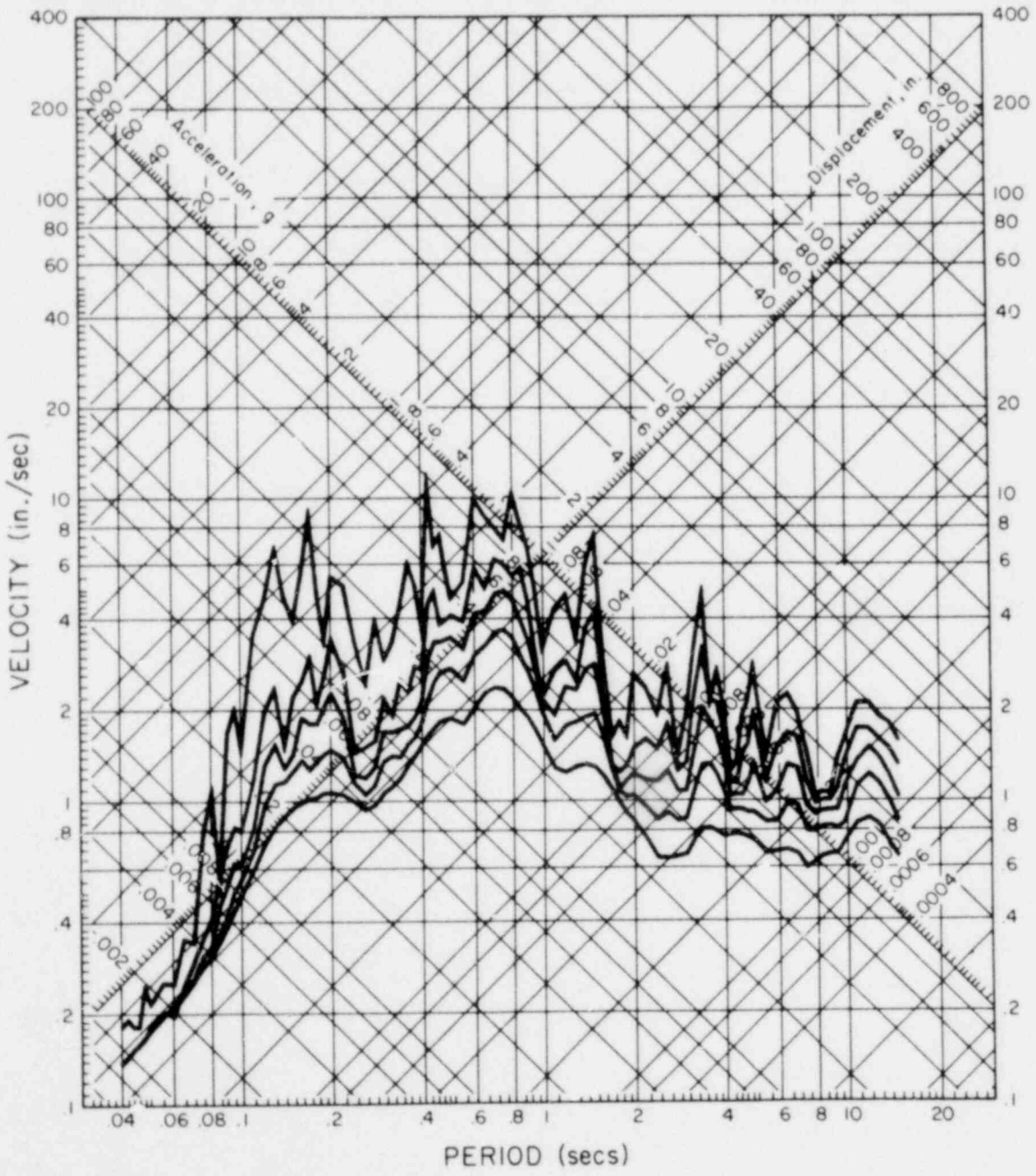


FIG. A7-71

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP223 71.153.0 PUDDINGSTONE RESERVOIR, SAN DIMAS, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

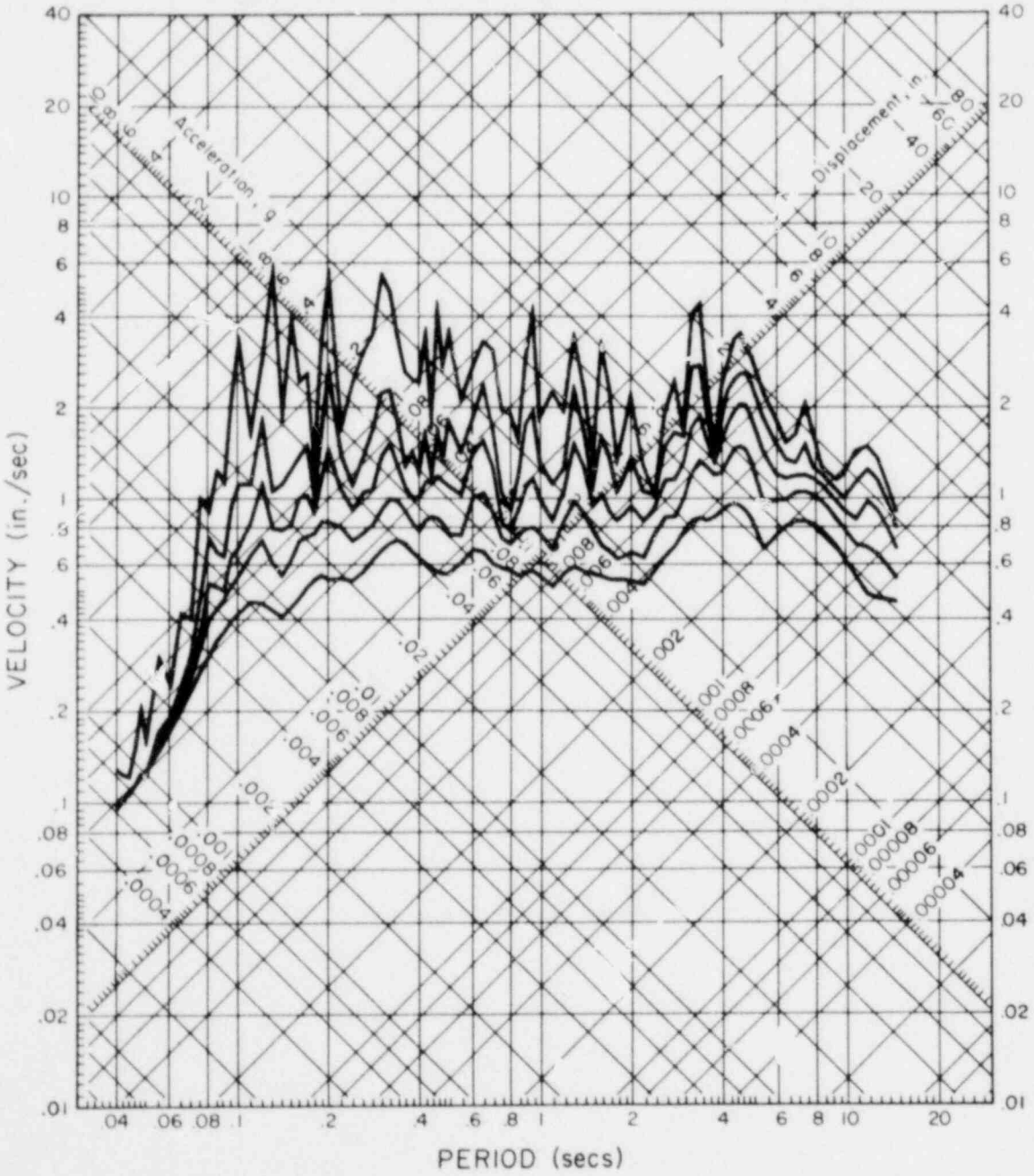


FIG. A7-72

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIK157 71.076.0 420 S. GRAND AVENUE, 2ND FLOOR, LOS ANGELES, CAL. COMP S53E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

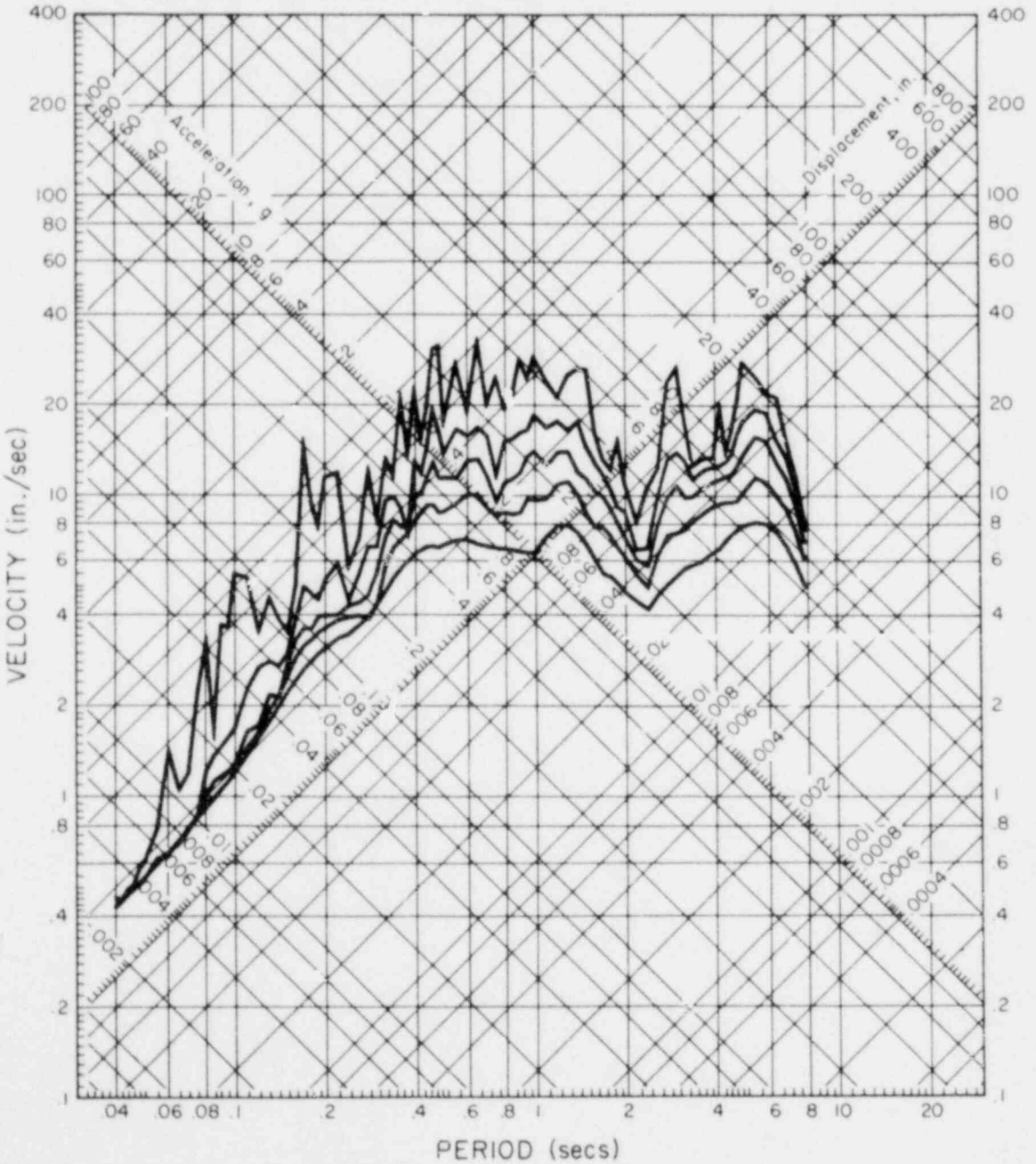


FIG. A7-73

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIK157 71.076.0 420 S. GRAND AVENUE, 2ND FLOOR, LOS ANGELES, CAL. COMP S37W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

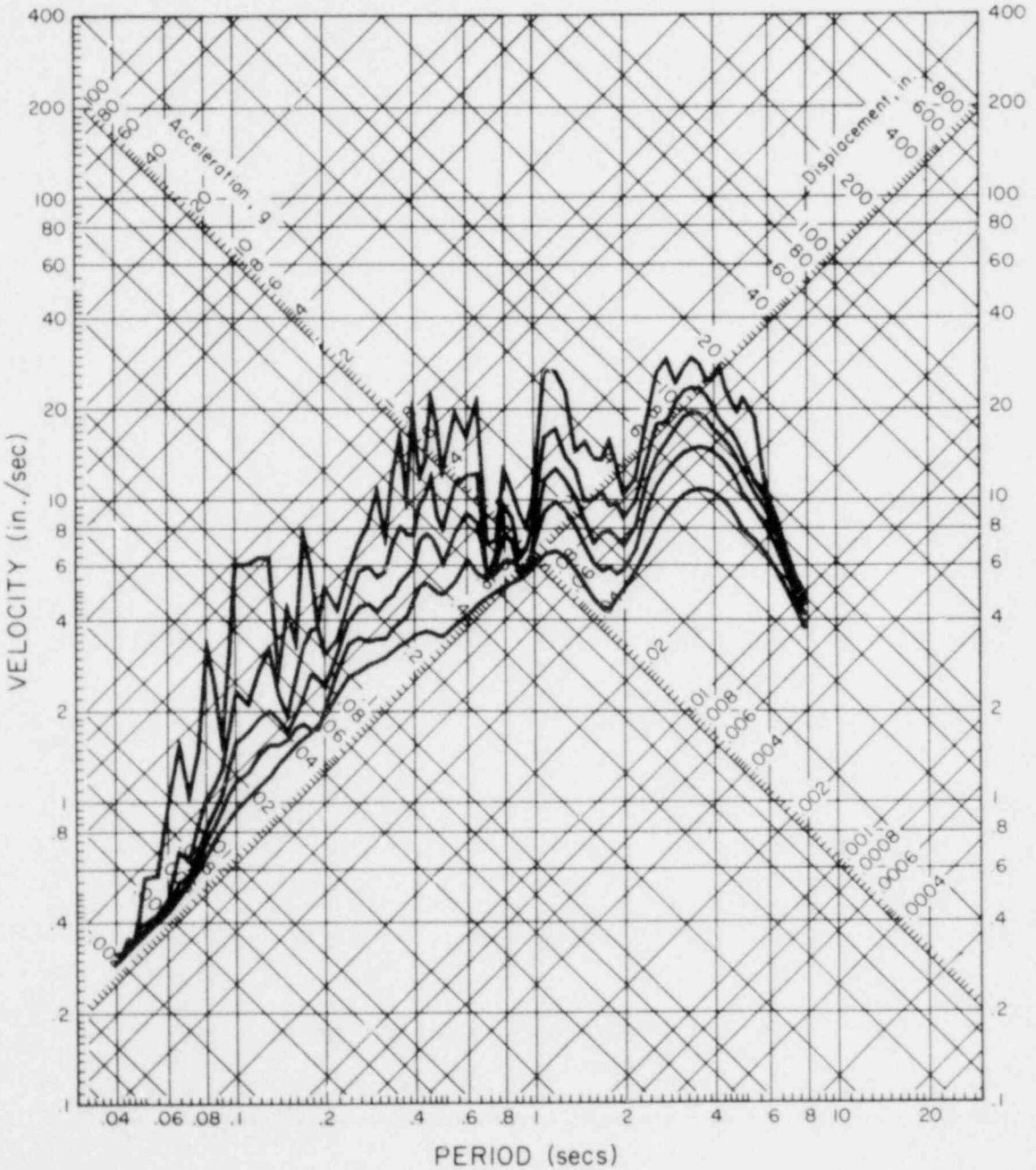


FIG. A7-74

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIK157 71.076.0 420 S. GRAND AVENUE, 2ND FLOOR, LOS ANGELES, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

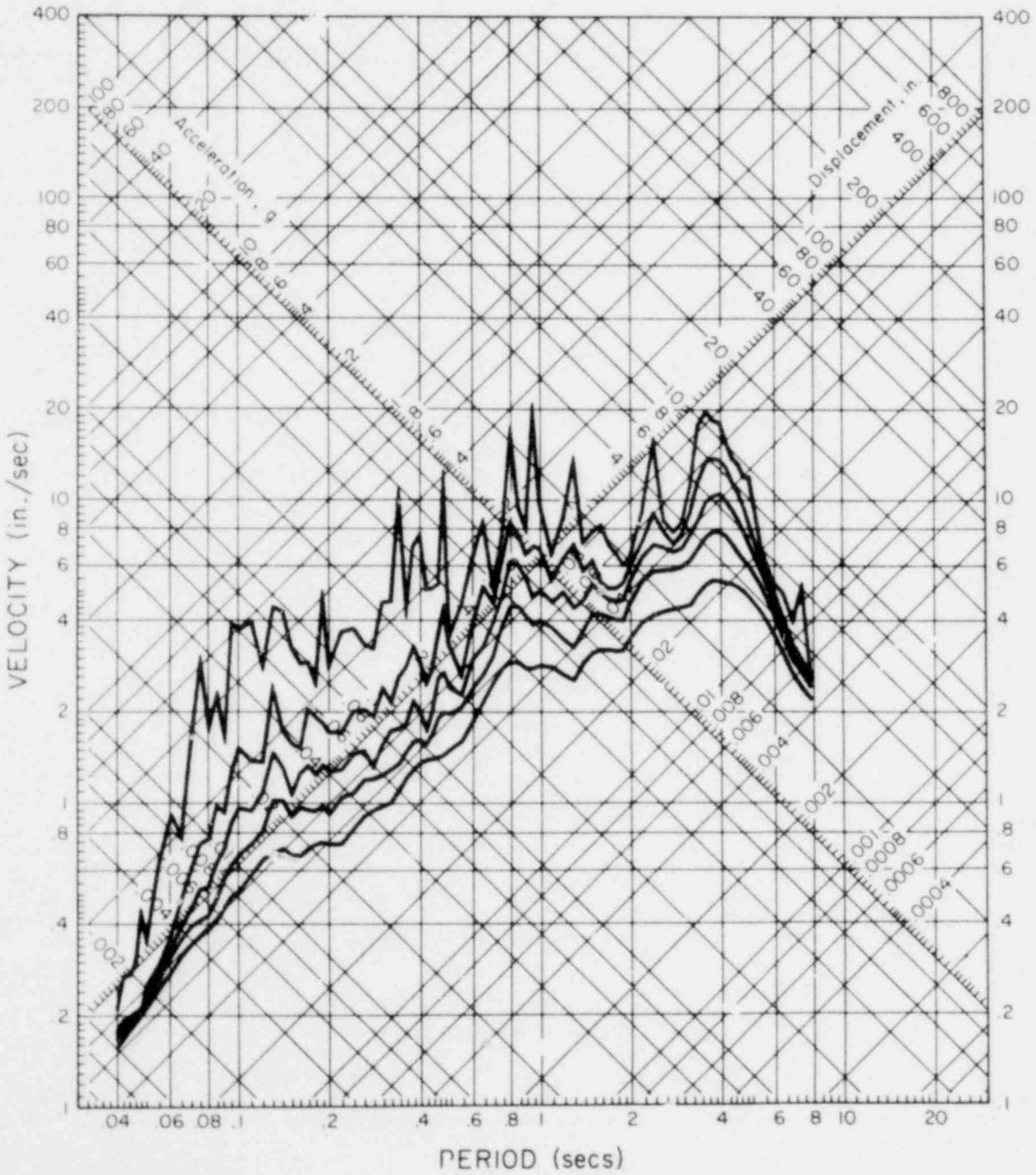


FIG. A7-75

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

III P221 71.150.0 SANTA ANITA RESERVOIR, ARCADIA, CAL. COMP N03E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

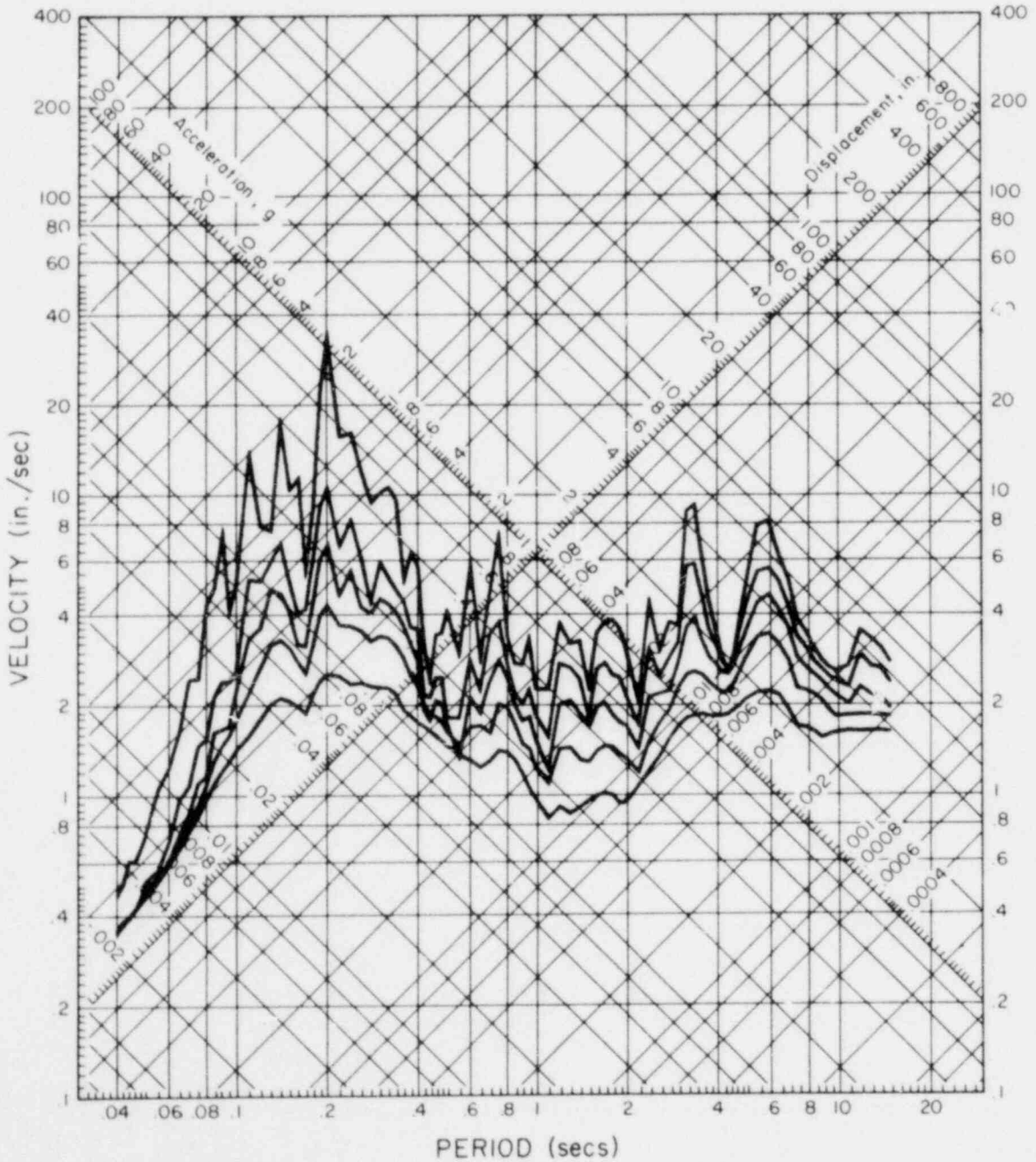


FIG. A7-76

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

I11P221 71.150.0 SANTA ANITA RESERVOIR, ARCADIA, CAL. COMP N87W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

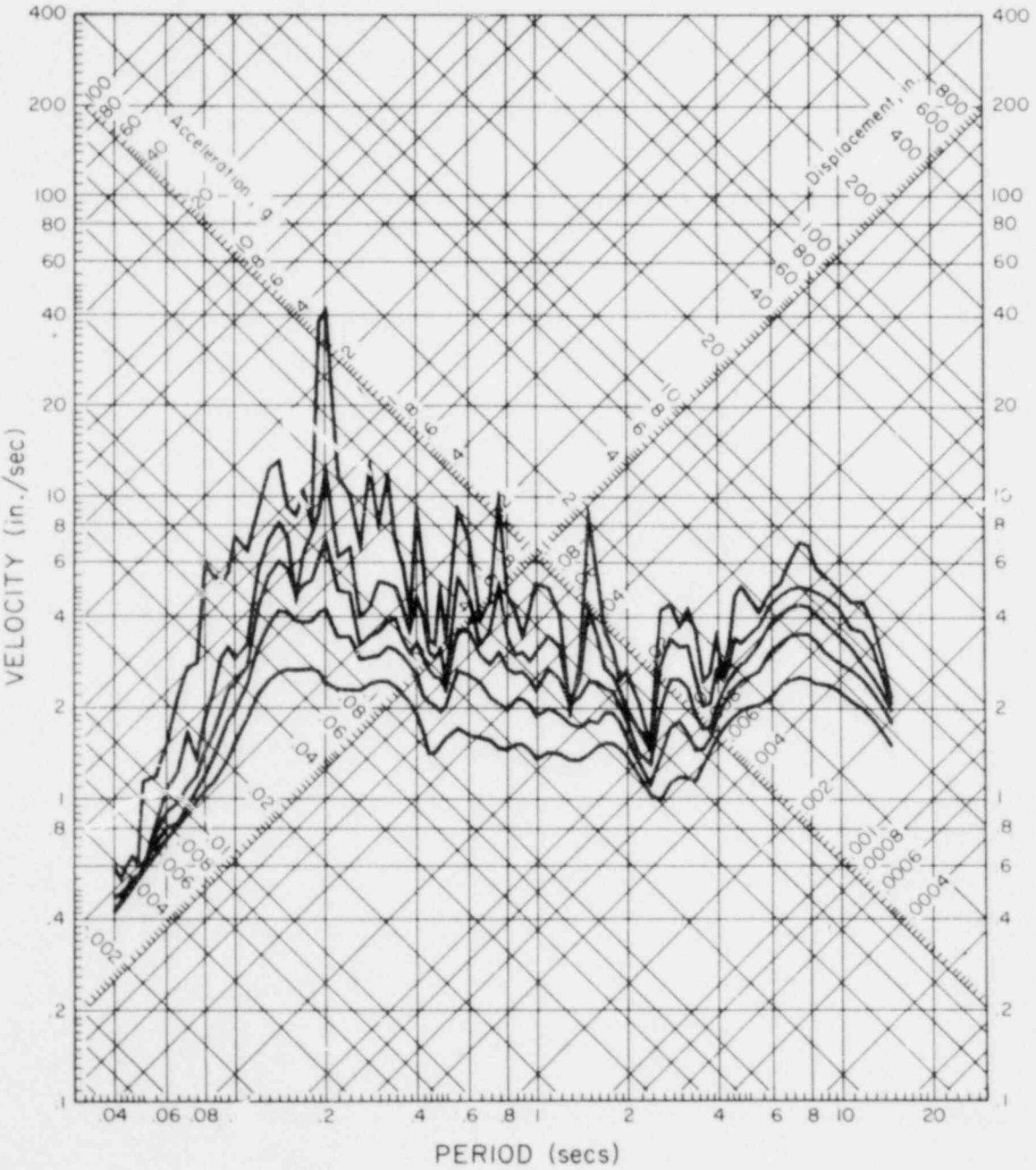


FIG. A7-77

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP221 71.150.0 SANTA ANITA RESERVOIR, ARCADIA, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

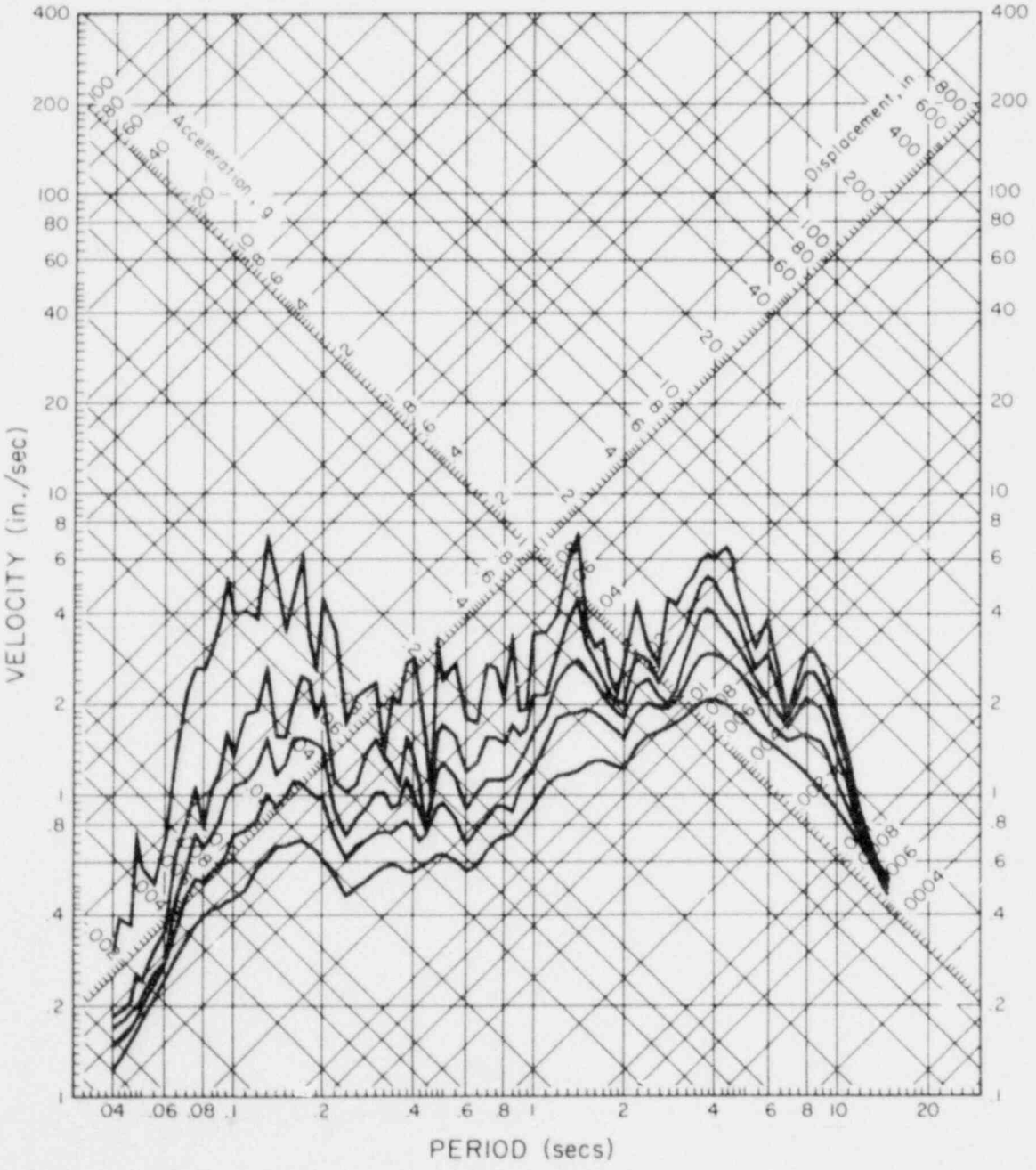


FIG. A7-78

Section A8
Southern Coastal Region

TABLE A8-1

LIST OF SELECTED SEISMIC EVENTS RECORDED AT SOUTHERN COASTAL REGION STRONG-MOTION ACCELEROGRAPH STATIONS

Date of Event Yr	Mo	Day	Time (PST)	Epicentral Location	Magnitude (Richter)	Recording Station	USGS Station Number	Distance From Station (mi.)	Peak Acceleration CIT - cm/sec^2 USGS Files - g's			CIT Record
68	04	08	18:30	Borrego Mountain 33°09'N; 116°08'W	6.5	San Onofre Nuclear Generating Station	280	84	N33E 40.0	N57W 45.5	Down 54.2	B-040
69	04	28	15:21	Southern California 33°21'N; 118°29'W	5.9	San Onofre Nuclear Generating Station	280	53	Maximum accel. <0.01g			
71	02	09	6:00	San Fernando 34°24'N; 118°24'W	6.4	San Onofre Nuclear Generating Station	280	86*	N33E 12.0	N57W 15.9	Down 10.3	L-171
						2516 Via Tejon, Palos Verdes	411	42	N65E 24.7	S25E 40.1	Down 18.9	N-191
						666 W 19th, Costa Mesa	114	59*	S0W 24.2	N90E 34.3	Down 9.3	P-220

Notes:

Data obtained from Hudson, et al. (1969-1975 a and b).

* Distance calculated from station and epicenter coordinates.

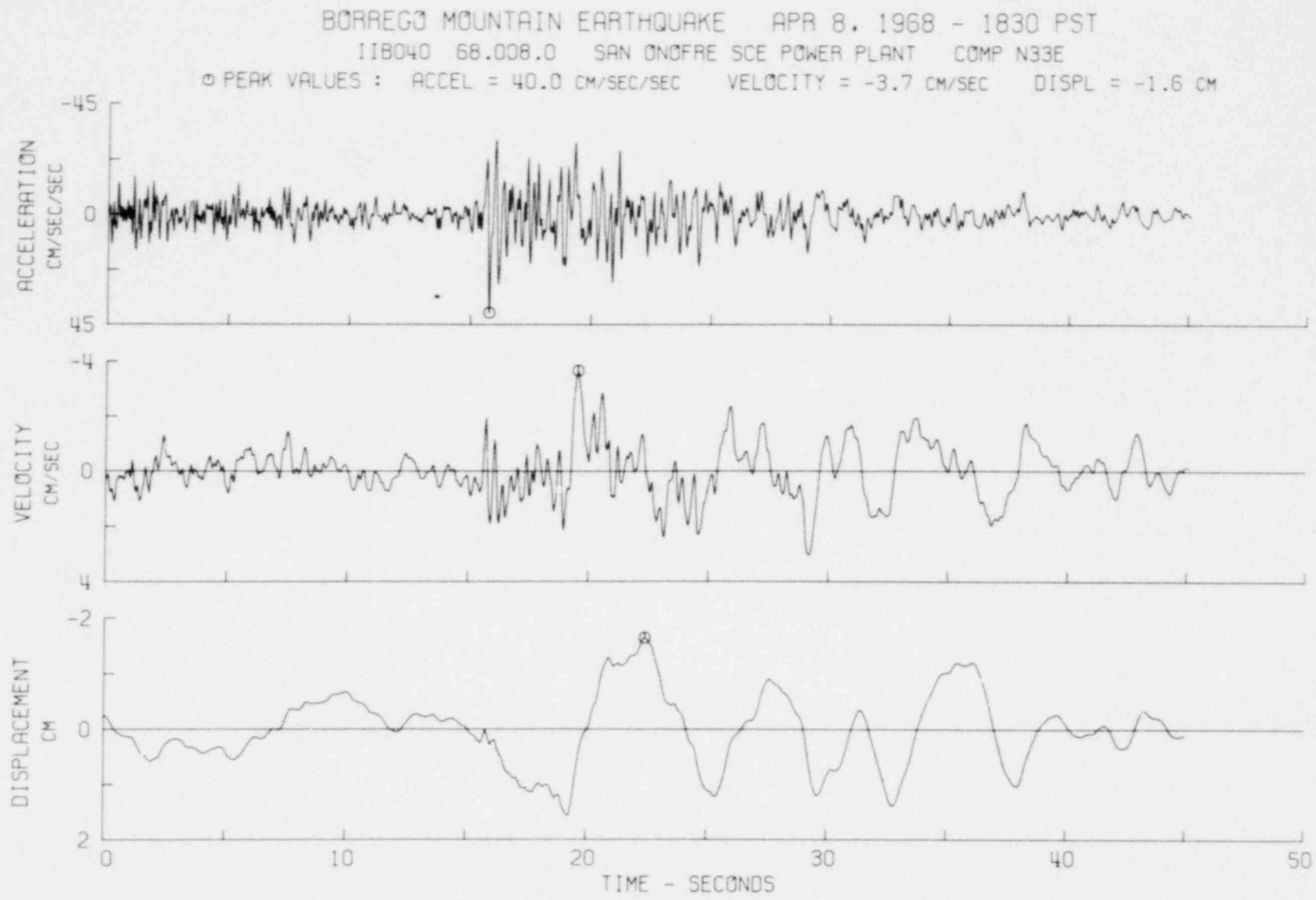

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IIB040 68.008.0 SAN ONOFRE SCE POWER PLANT COMP N33E
⊙ PEAK VALUES : ACCEL = 40.0 CM/SEC/SEC VELOCITY = -3.7 CM/SEC DISPL = -1.6 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
TIME - SECONDS

FIG. A8-1

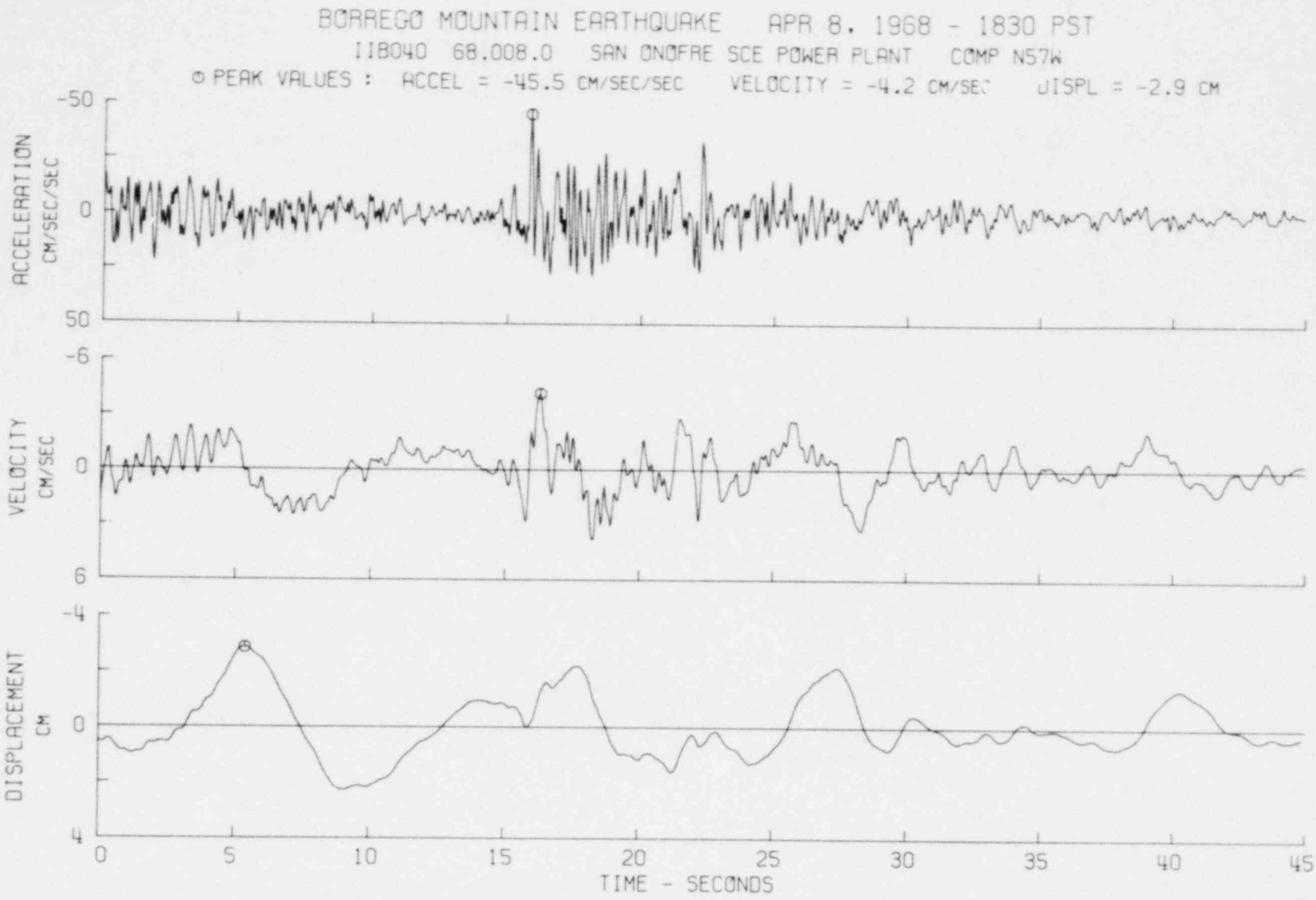

BORREGO MOUNTAIN EARTHQUAKE APR 8. 1968 - 1830 PST
IIB040 68.008.0 SAN ONOFRE SCE POWER PLANT COMP N57W
⊙ PEAK VALUES : ACCEL = -45.5 CM/SEC/SEC VELOCITY = -4.2 CM/SEC DISPL = -2.9 CM
ACCELERATION CM/SEC/SEC
-50
0
50
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
5
10
15
20
25
30
35
40
45
TIME - SECONDS

FIG. A8-2

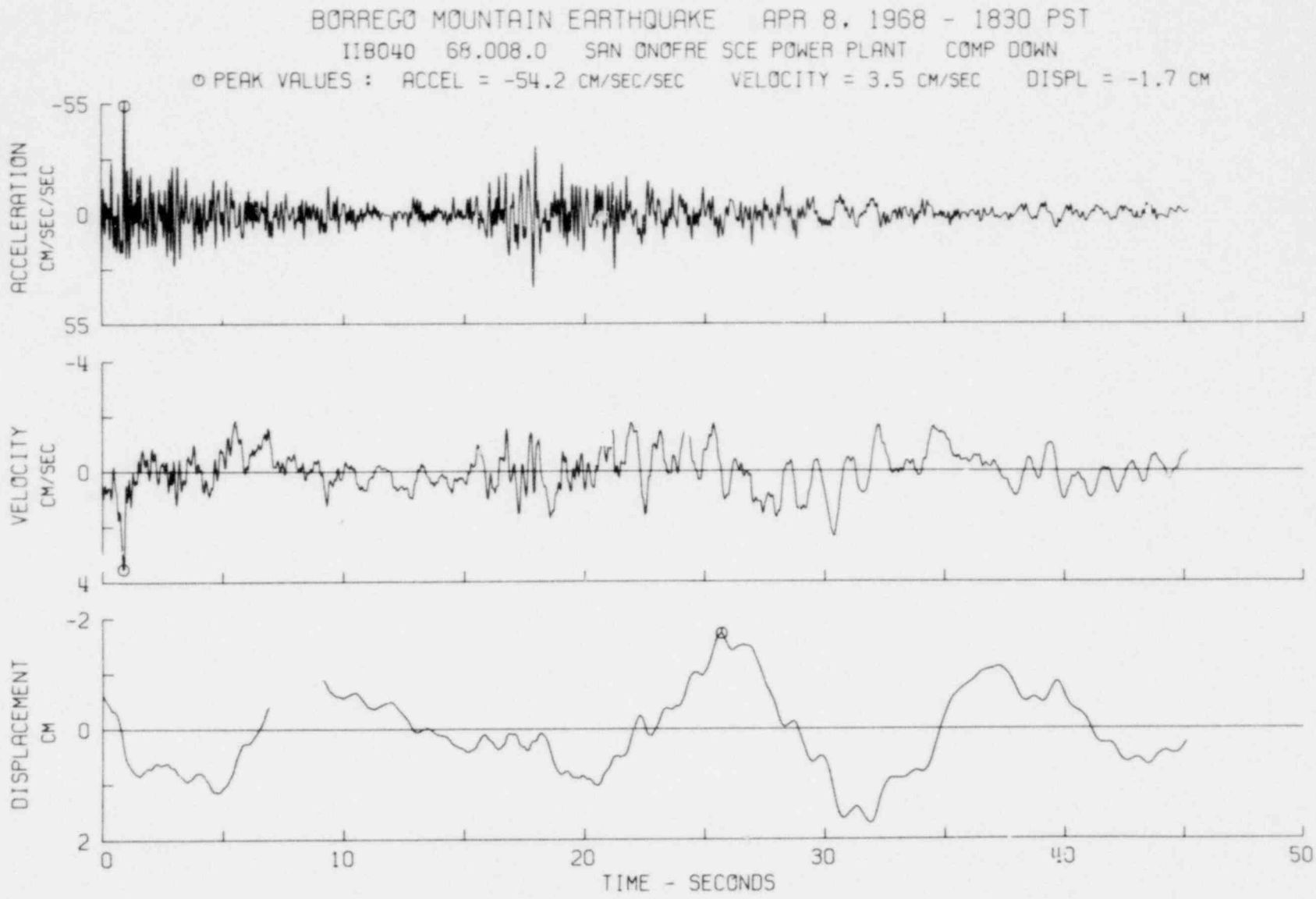

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IIB040 68.008.0 SAN ONOFRE SCE POWER PLANT COMP DOWN
⊙ PEAK VALUES : ACCEL = -54.2 CM/SEC/SEC VELOCITY = 3.5 CM/SEC DISPL = -1.7 CM
ACCELERATION CM/SEC/SEC
-55
0
55
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
TIME - SECONDS

FIG. A8-3

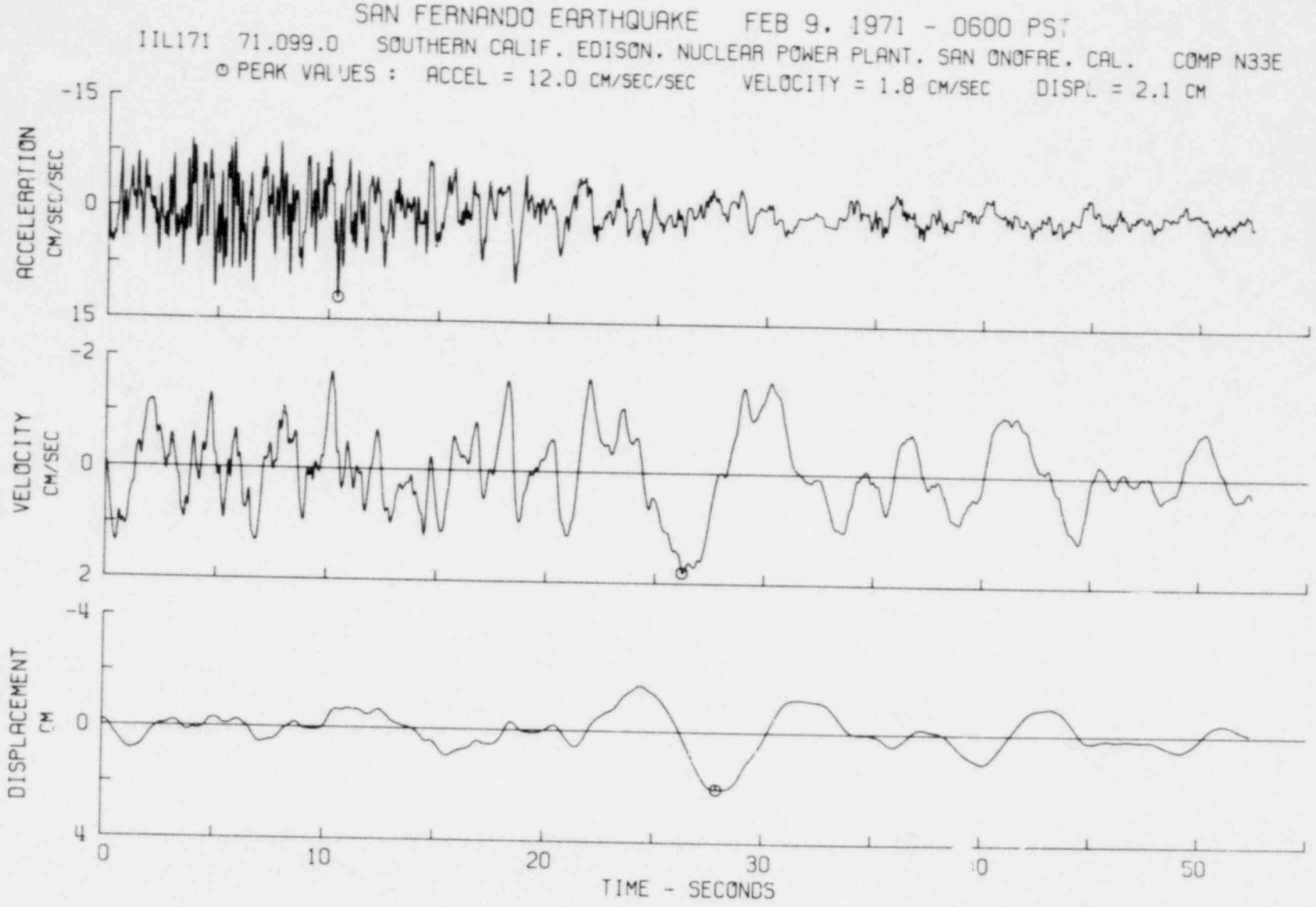

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIL171 71.099.0 SOUTHERN CALIF. EDISON. NUCLEAR POWER PLANT. SAN ONOFRE. CAL. COMP N33E
PEAK VALUES : ACCEL = 12.0 CM/SEC/SEC VELOCITY = 1.8 CM/SEC DISPL = 2.1 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
TIME - SECONDS

FIG. A8-4

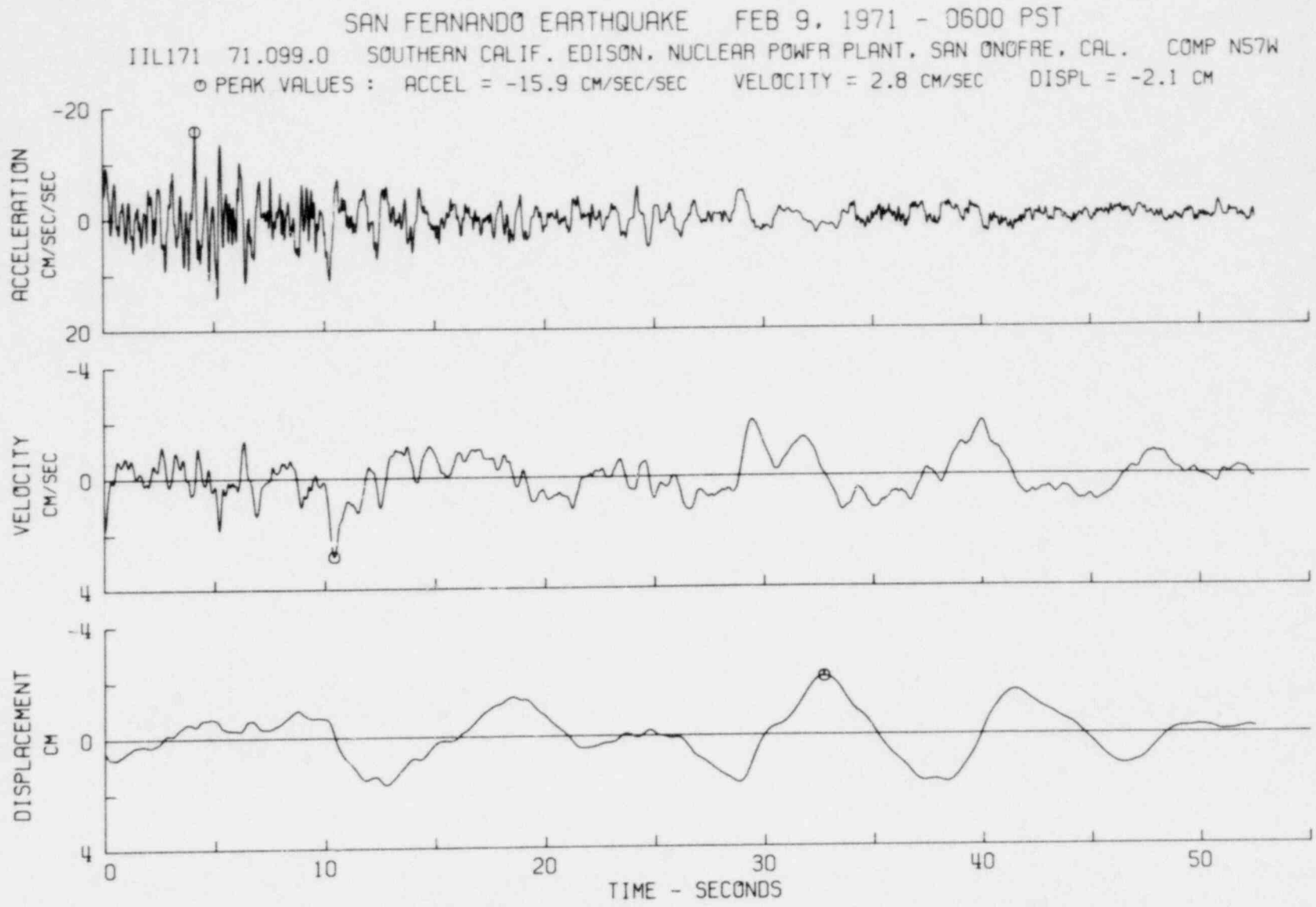

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIL171 71.099.0 SOUTHERN CALIF. EDISON. NUCLEAR POWER PLANT. SAN ONOFRE, CAL. COMP N57W
⊙ PEAK VALUES : ACCEL = -15.9 CM/SEC/SEC VELOCITY = 2.8 CM/SEC DISPL = -2.1 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
TIME - SECONDS

FIG. A8-5

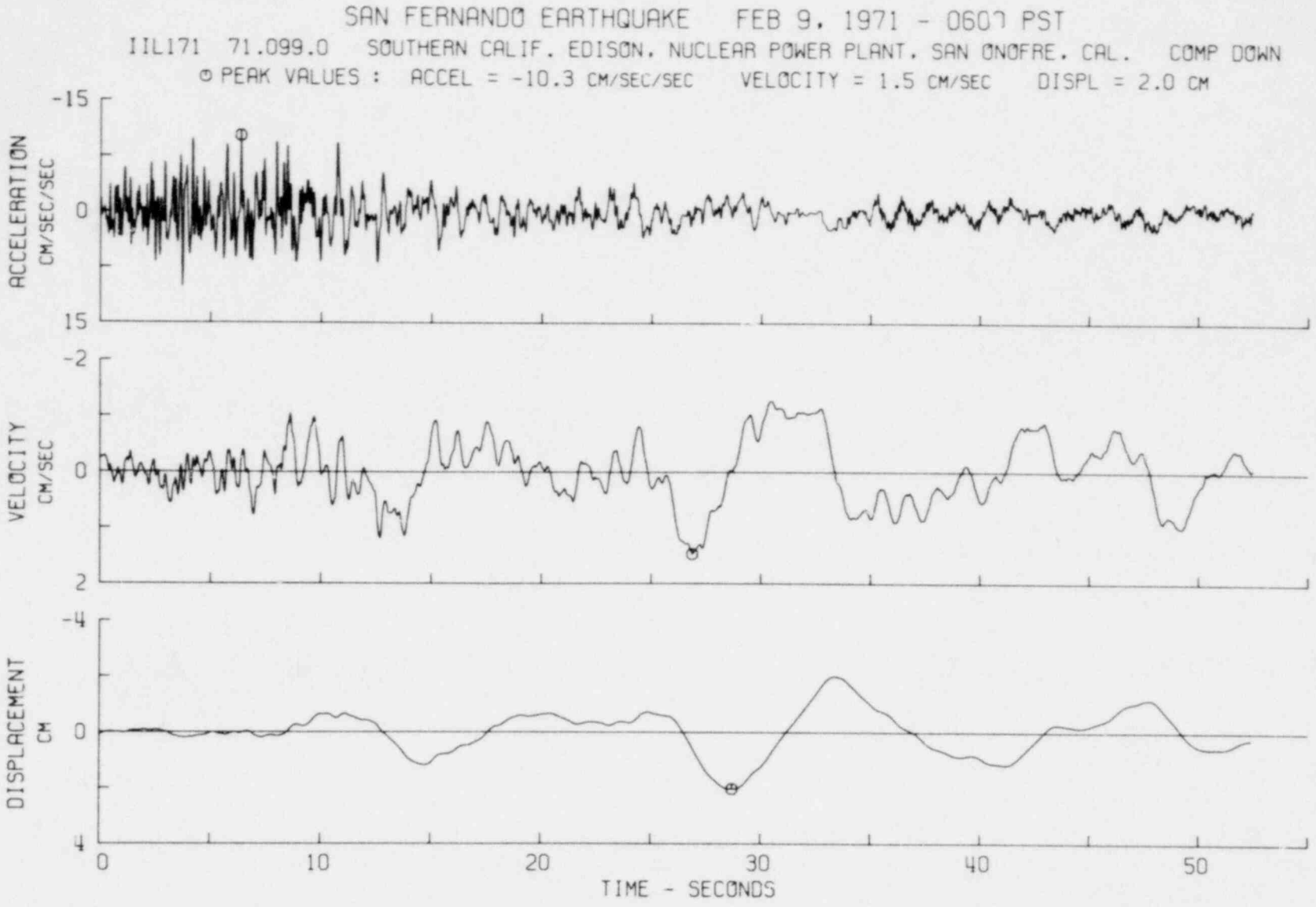

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0607 PST
IIL171 71.099.0 SOUTHERN CALIF. EDISON, NUCLEAR POWER PLANT, SAN ONOFRE, CAL. COMP DOWN
⊕ PEAK VALUES : ACCEL = -10.3 CM/SEC/SEC VELOCITY = 1.5 CM/SEC DISPL = 2.0 CM
ACCELERATION CM/SEC/SEC
-15
0
15
VELOCITY CM/SEC
-2
0
2
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
TIME - SECONDS

FIG. A8-6

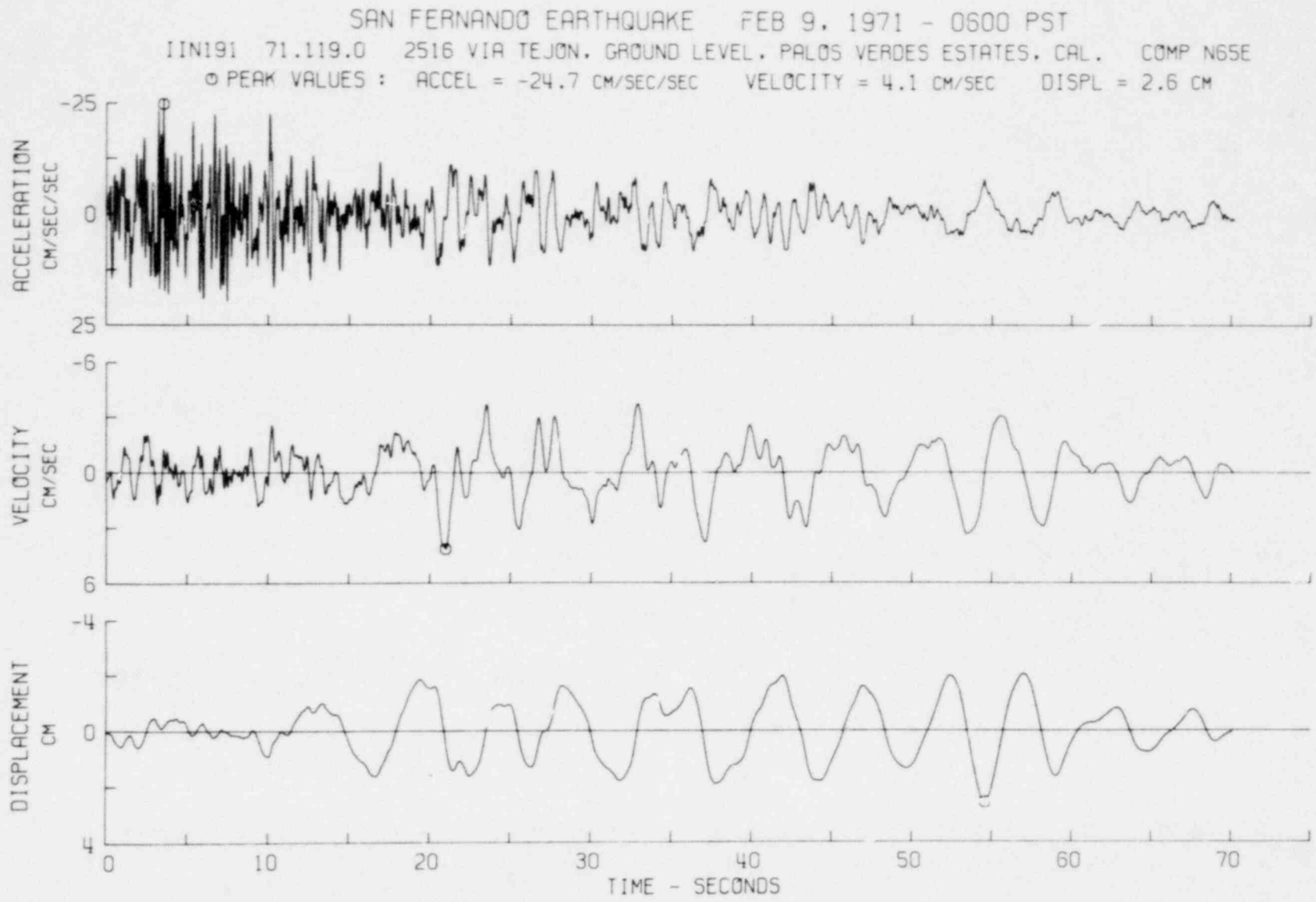

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIN191 71.119.0 2516 VIA TEJON, GROUND LEVEL, PALOS VERDES ESTATES, CAL. COMP N65E
⊙ PEAK VALUES : ACCEL = -24.7 CM/SEC/SEC VELOCITY = 4.1 CM/SEC DISPL = 2.6 CM
ACCELERATION CM/SEC/SEC
-25
0
25
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A8-7

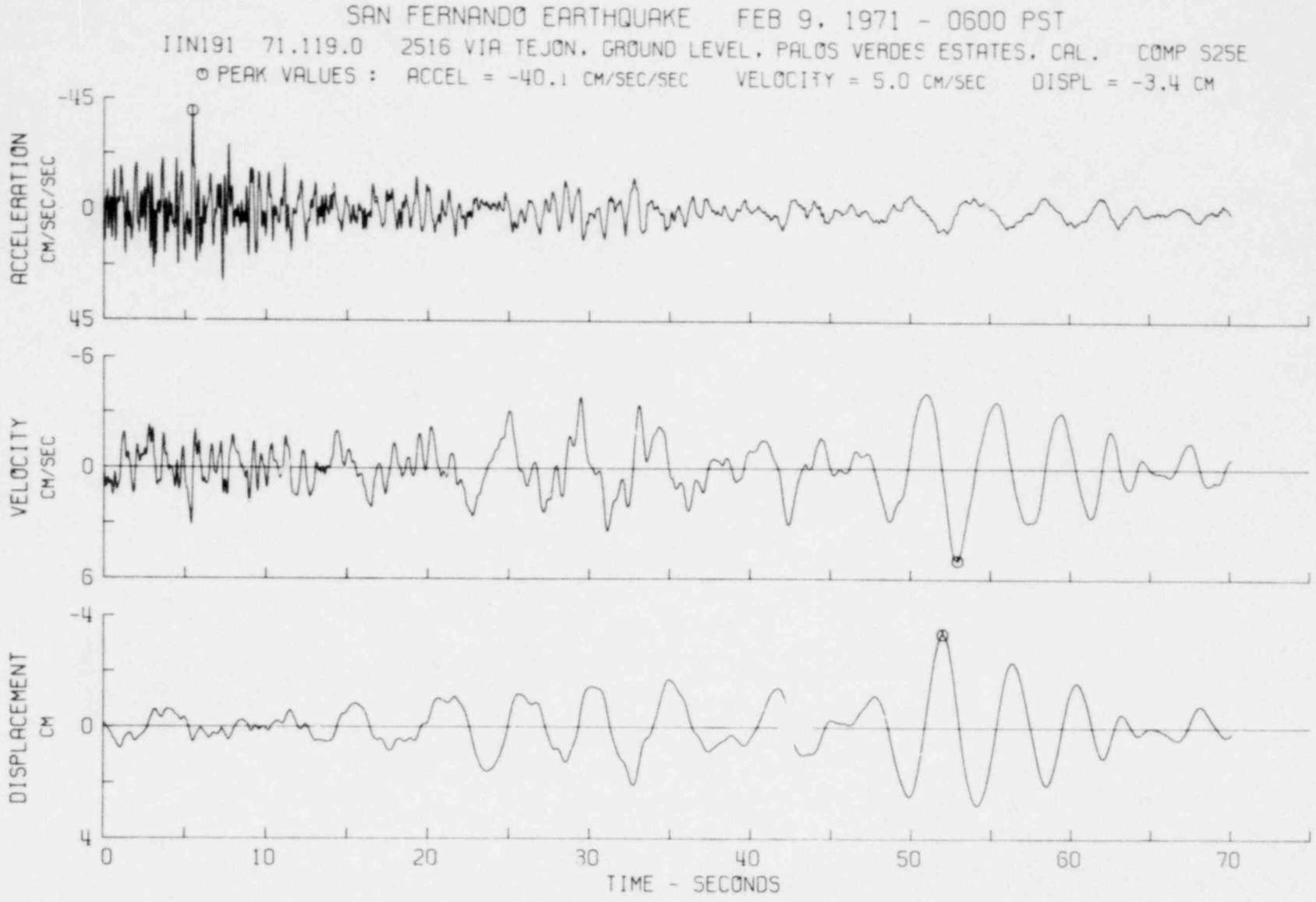

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIN191 71.119.0 2516 VIA TEJON, GROUND LEVEL, PALOS VERDES ESTATES, CAL. COMP S25E
⊙ PEAK VALUES : ACCEL = -40.1 CM/SEC/SEC VELOCITY = 5.0 CM/SEC DISPL = -3.4 CM
ACCELERATION CM/SEC/SEC
-45
0
45
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-4
0
4
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A8-8

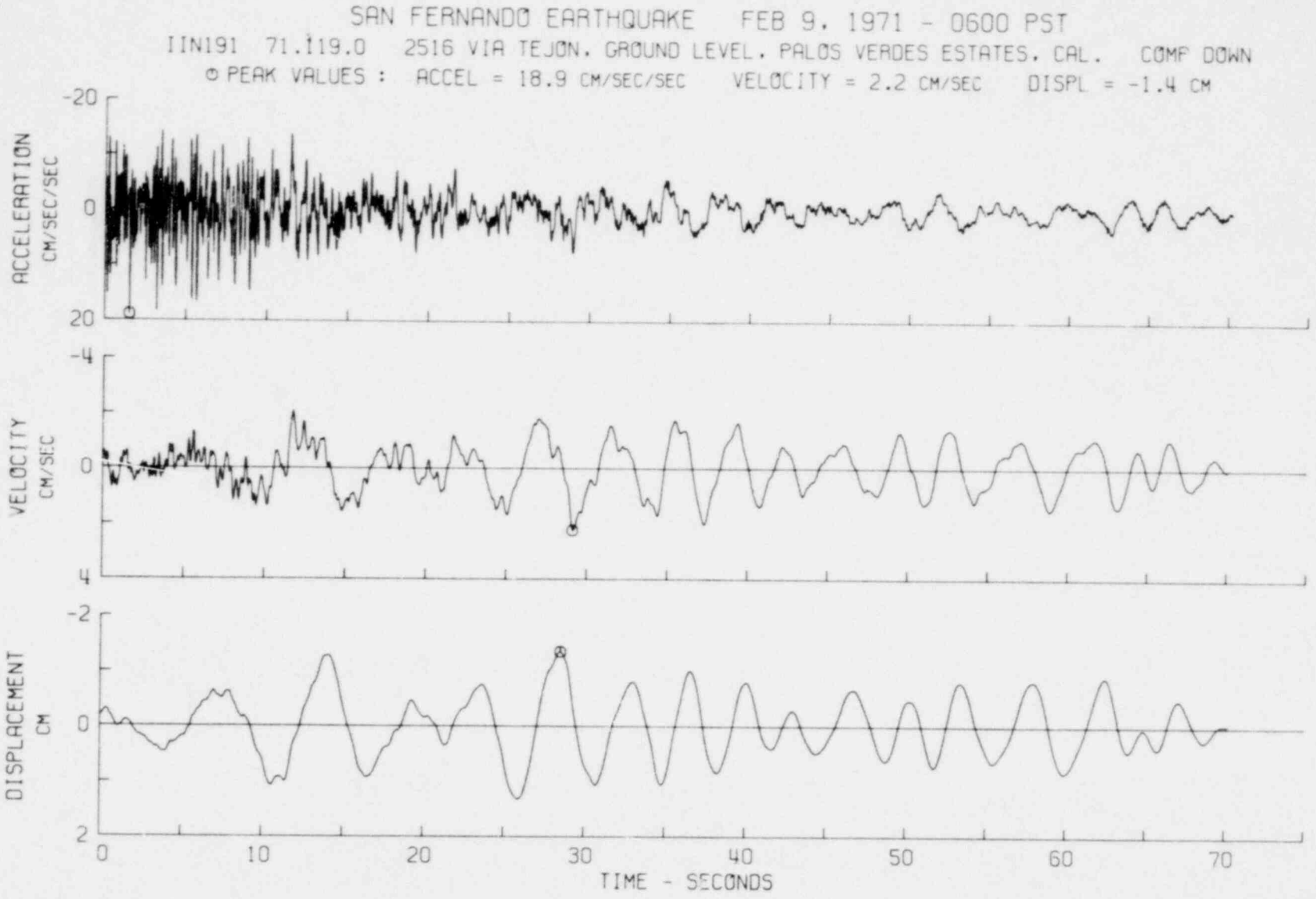

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIN191 71.119.0 2516 VIA TEJON, GROUND LEVEL, PALOS VERDES ESTATES, CAL. COMP DOWN
PEAK VALUES : ACCEL = 18.9 CM/SEC/SEC VELOCITY = 2.2 CM/SEC DISPL = -1.4 CM
ACCELERATION CM/SEC/SEC
-20
0
20
VELOCITY CM/SEC
-4
0
4
DISPLACEMENT CM
-2
0
2
0
10
20
30
40
50
60
70
TIME - SECONDS

FIG. A8-9

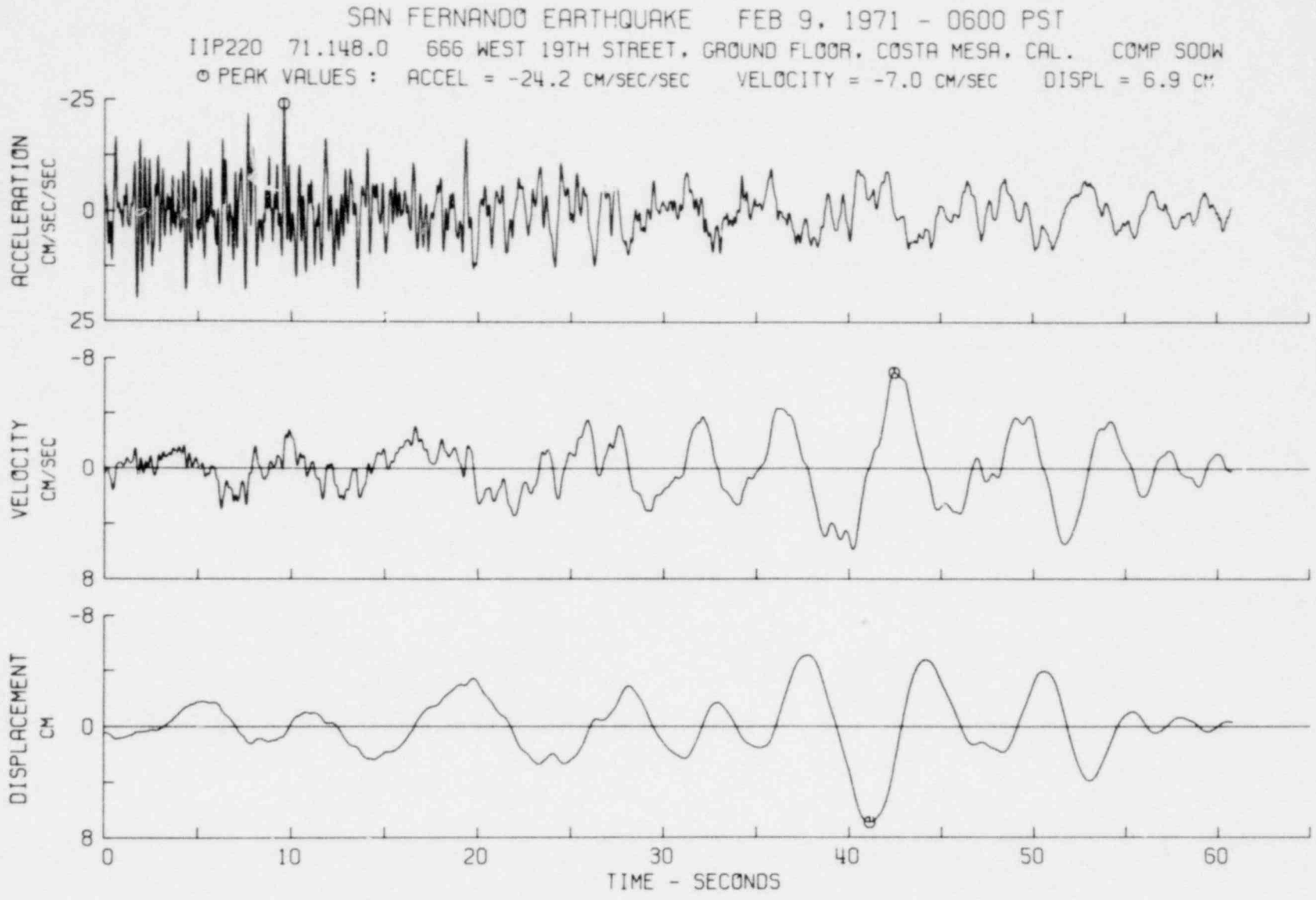

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP220 71.148.0 666 WEST 19TH STREET, GROUND FLOOR, COSTA MESA, CAL. COMP S00W
⊙ PEAK VALUES : ACCEL = -24.2 CM/SEC/SEC VELOCITY = -7.0 CM/SEC DISPL = 6.9 CM
ACCELERATION CM/SEC/SEC
-25
0
25
VELOCITY CM/SEC
-8
0
8
DISPLACEMENT CM
-8
0
8
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A8-10

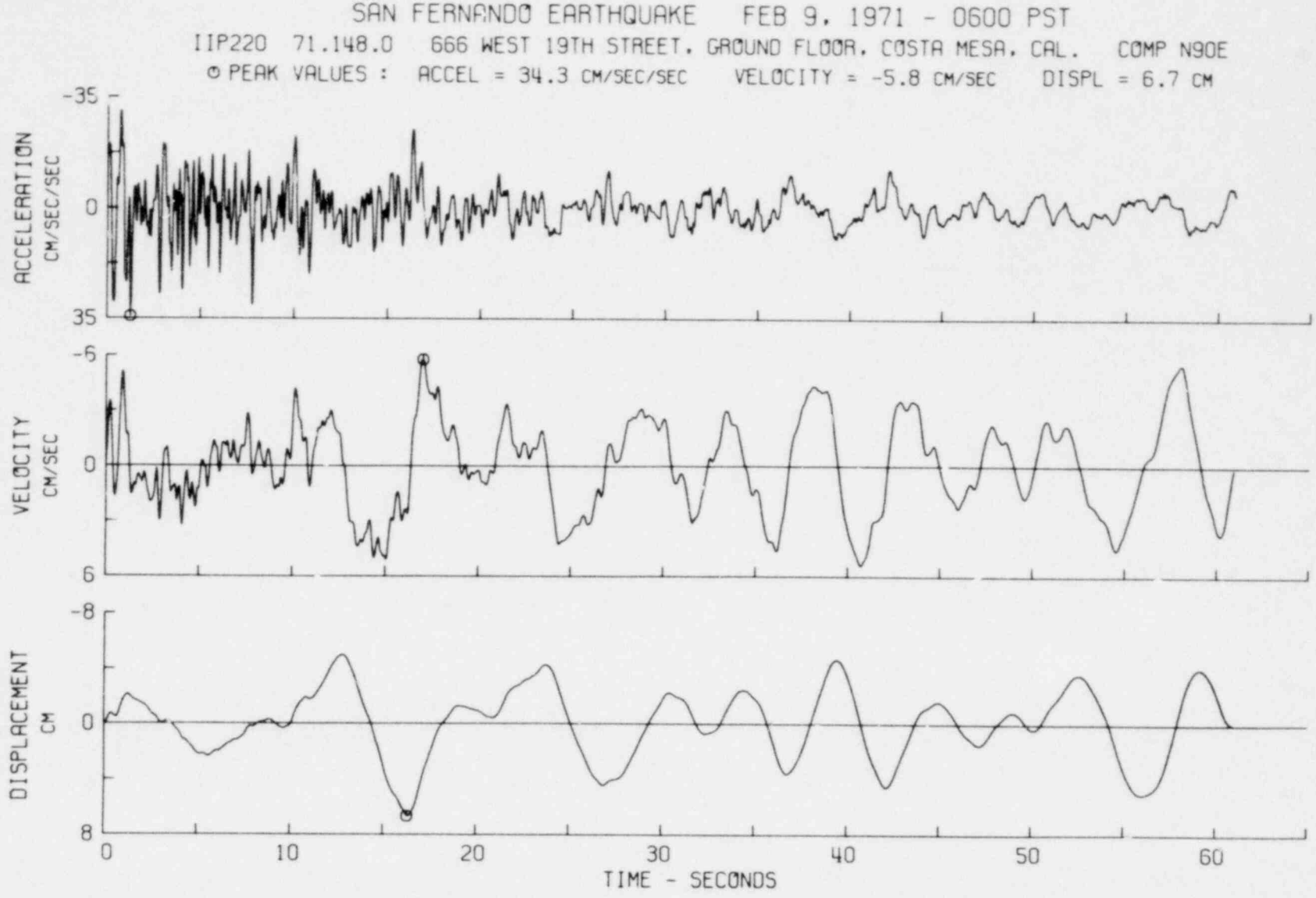

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP220 71.148.0 666 WEST 19TH STREET, GROUND FLOOR, COSTA MESA, CAL. COMP N90E
PEAK VALUES : ACCEL = 34.3 CM/SEC/SEC VELOCITY = -5.8 CM/SEC DISPL = 6.7 CM
ACCELERATION CM/SEC/SEC
-35
0
35
VELOCITY CM/SEC
-6
0
6
DISPLACEMENT CM
-8
0
8
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A8-11

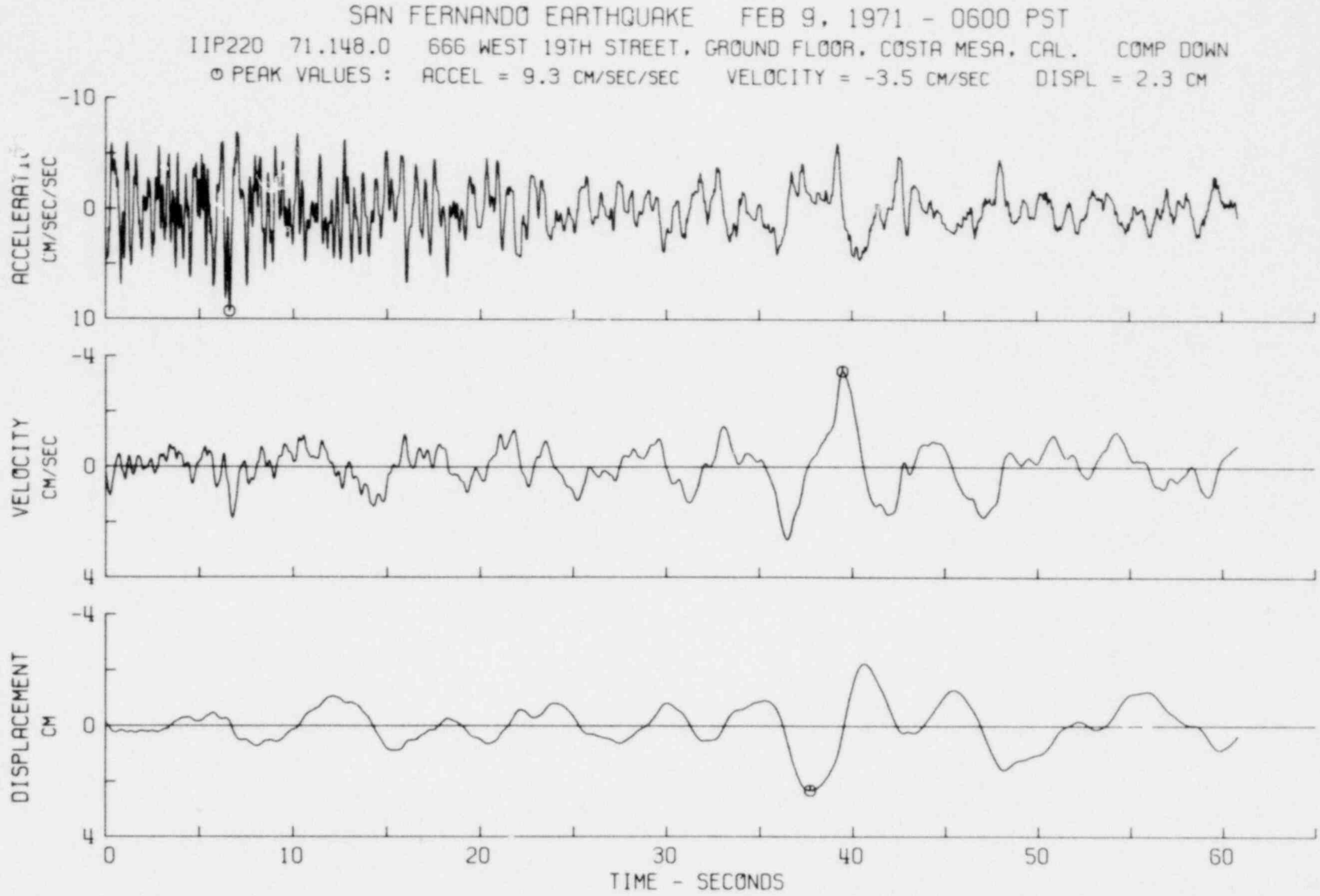

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST
IIP220 71.148.0 666 WEST 19TH STREET, GROUND FLOOR, COSTA MESA, CAL. COMP DOWN
⊙ PEAK VALUES : ACCEL = 9.3 CM/SEC/SEC VELOCITY = -3.5 CM/SEC DISPL = 2.3 CM
ACCELERATION
CM/SEC/SEC
-10
0
10
VELOCITY
CM/SEC
-4
0
4
DISPLACEMENT
CM
-4
0
4
0
10
20
30
40
50
60
TIME - SECONDS

FIG. A8-12

RESPONSE SPECTRUM

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST

III8040 68.008.0 SAN ONOFRE SCE POWER PLANT COMP N33E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

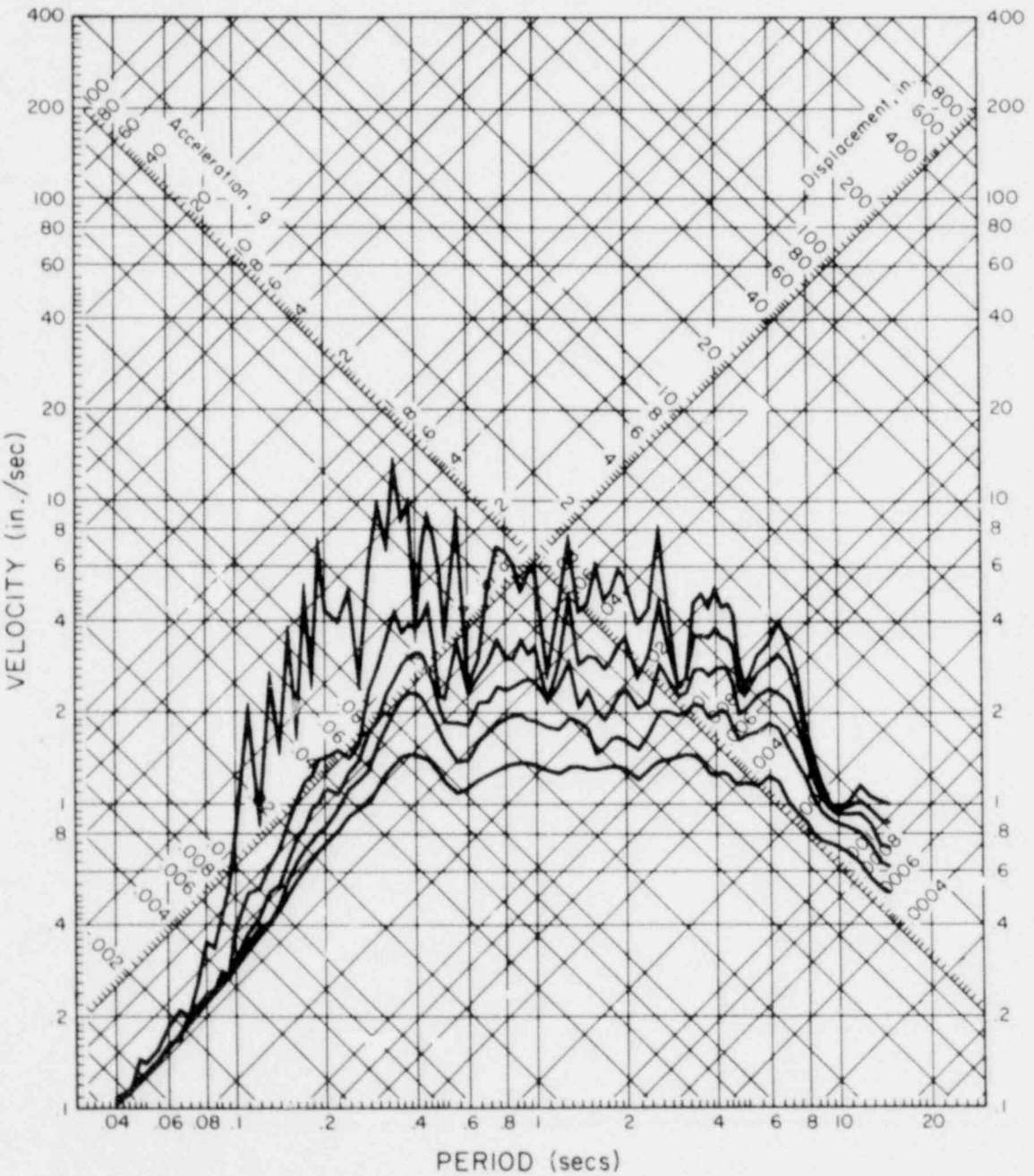


FIG. A8-13

RESPONSE SPECTRUM

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST

III8040 68.008.0 SAN ONOFRE SCE POWER PLANT COMP N57W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

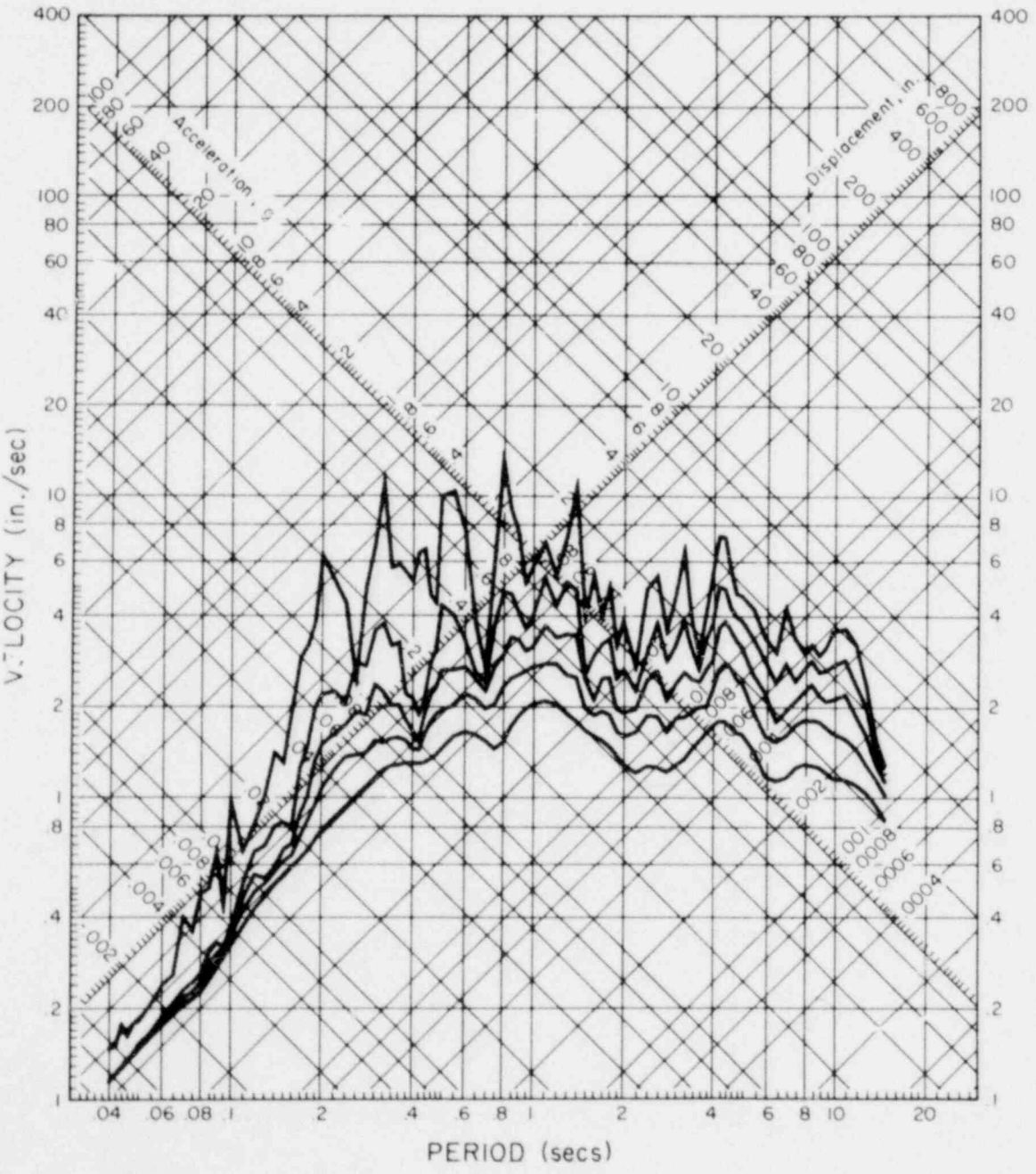


FIG. A8-14

RESPONSE SPECTRUM

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST

III8040 68.008.0 SAN ONOFRE SCE POWER PLANT COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

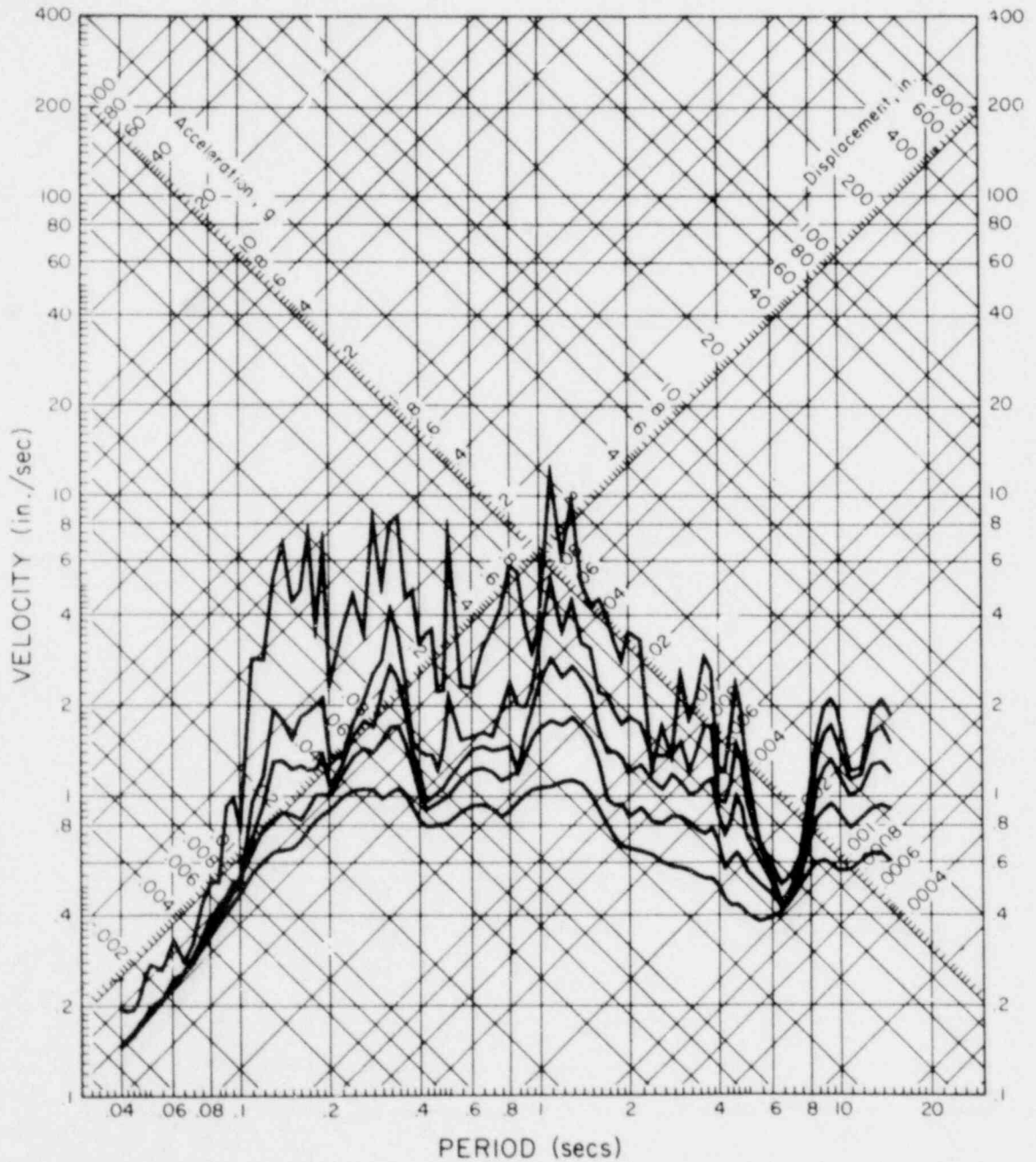


FIG. A8-15

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIL171 71.099.0 SOUTHERN CALIF. EDISON, NUCLEAR POWER PLANT, SAN ONOFRE, CAL. COMP N33E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

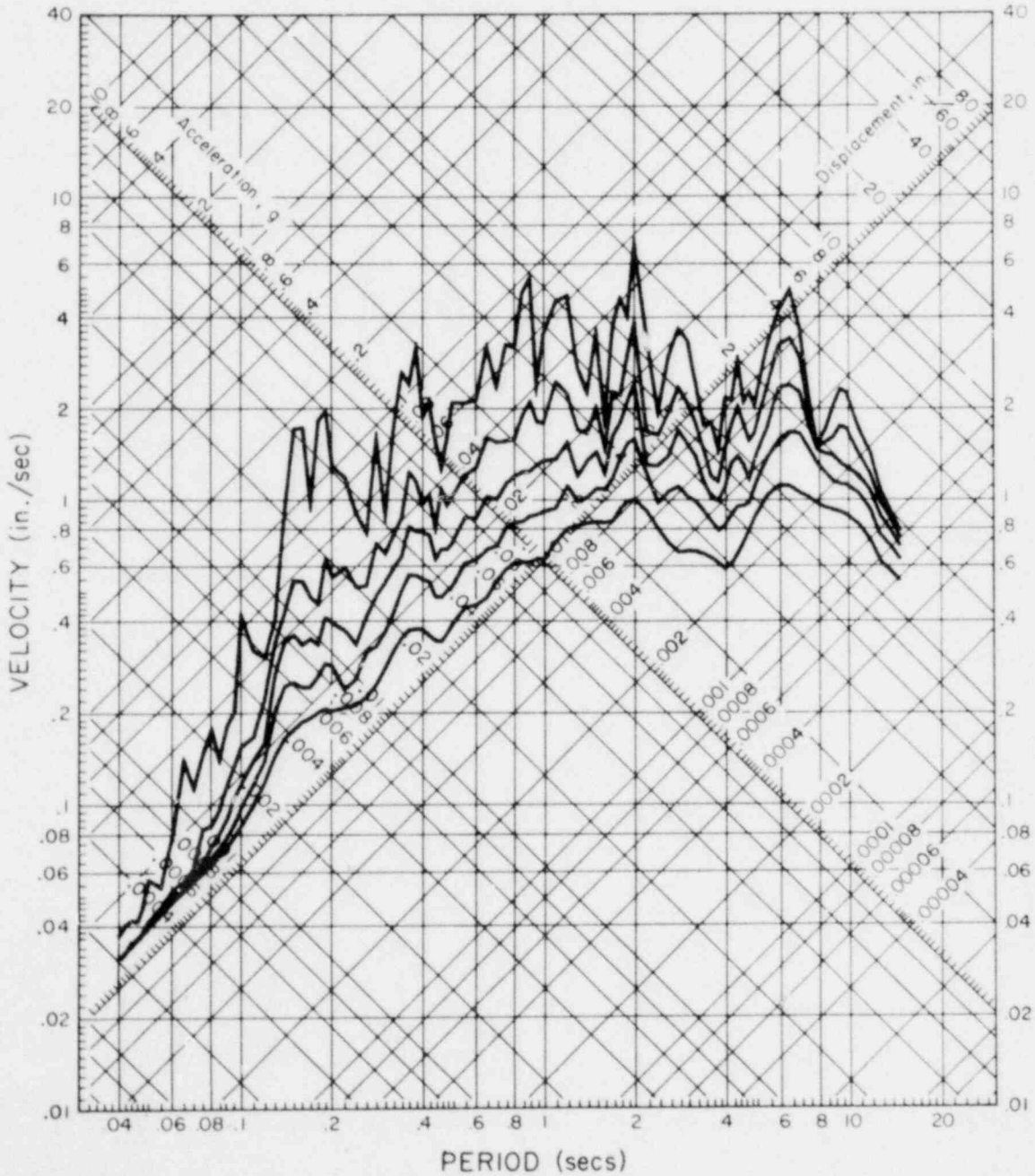


FIG. A8-16

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIL171 71.099.0 SOUTHERN CALIF. EDISON, NUCLEAR POWER PLANT, SAN ONOFRE, CAL. COMP N57W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

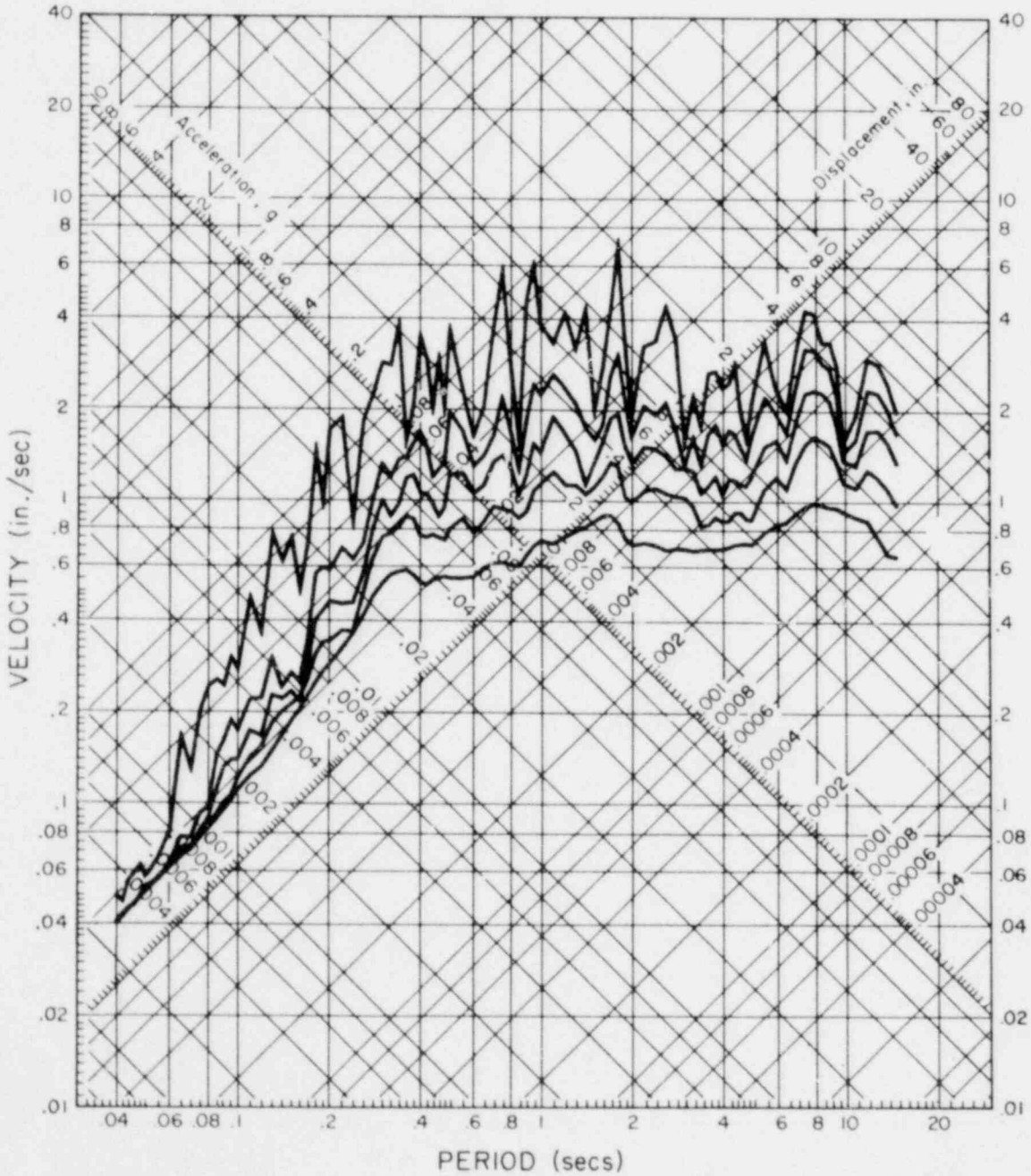


FIG. A8-17

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIL171 71.099.0 SOUTHERN CALIF. EDISON, NUCLEAR POWER PLANT, SAN ONOFRE, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

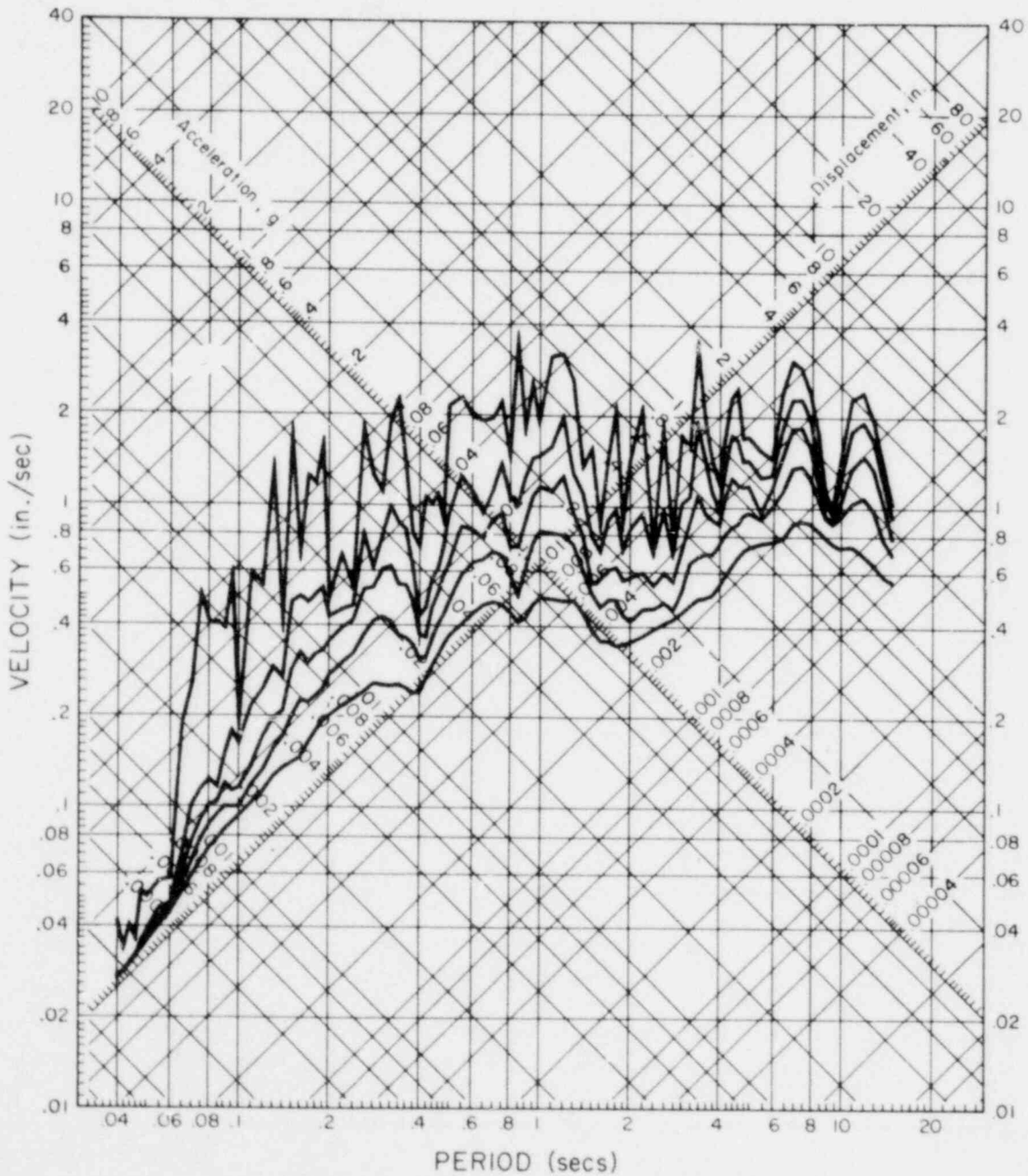


FIG. A8-18

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIN191 71.119.0 2516 VIA TEJON, GROUND LEVEL, PALOS VERDES ESTATES, CAL. COMP N65E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

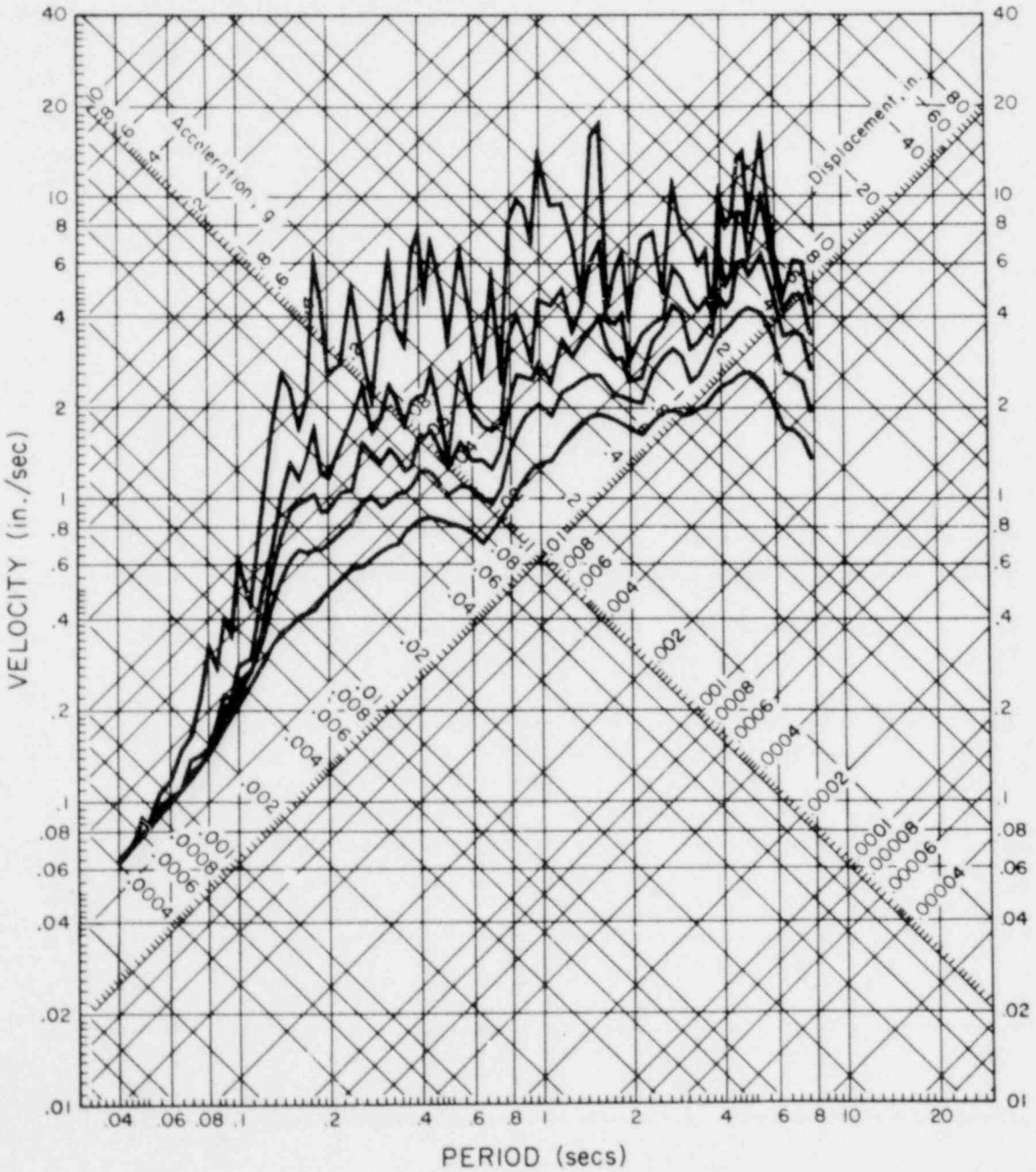


FIG. A8-19

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIN191 71.119.0 2516 VIA TEJON, GROUND LEVEL, PALOS VERDES ESTATES, CAL. COMP S25E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

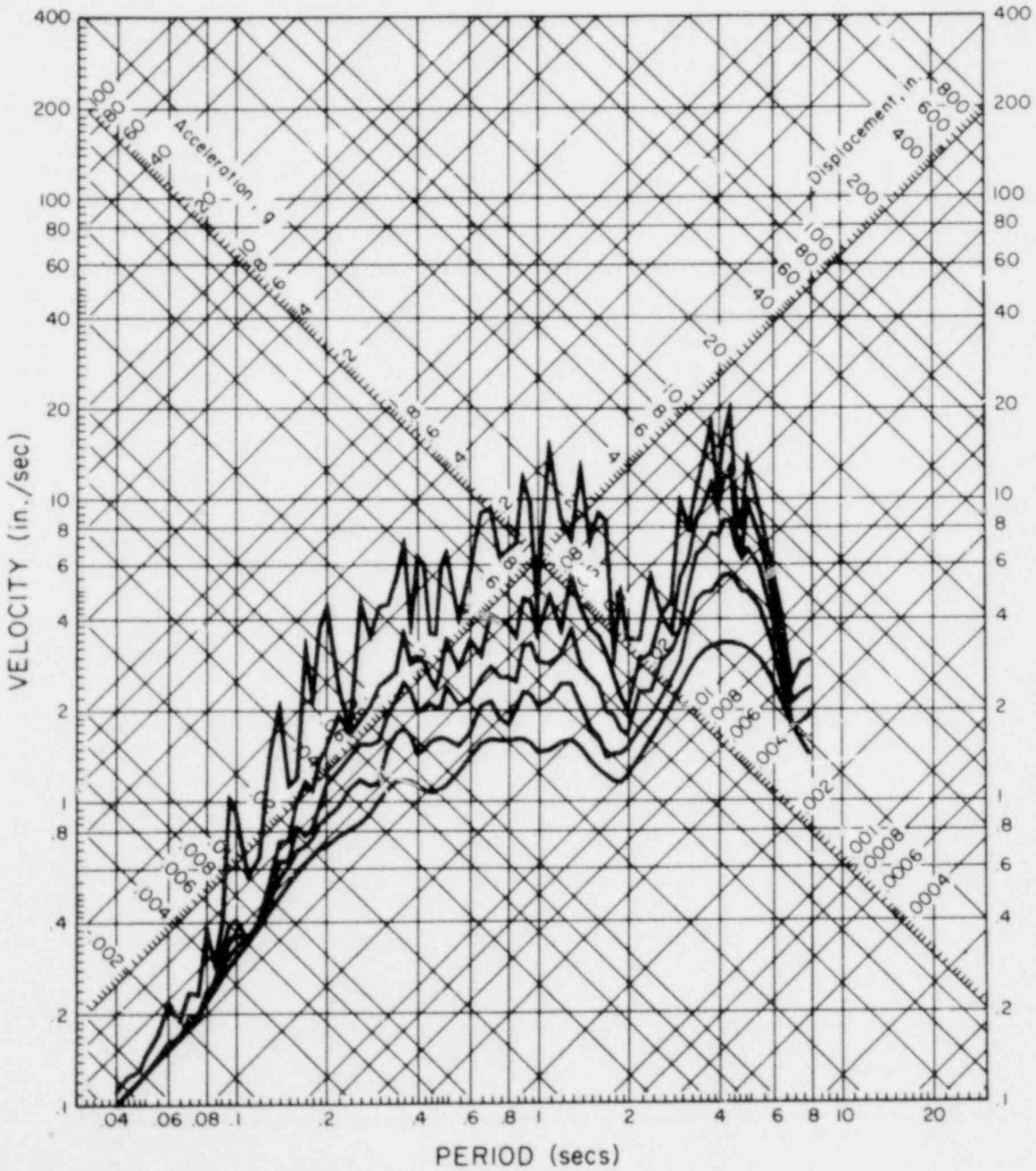


FIG. A8-20

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIN191 71.119.0 2516 VIA TEJON, GROUND LEVEL, PALOS VERDES ESTATES, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

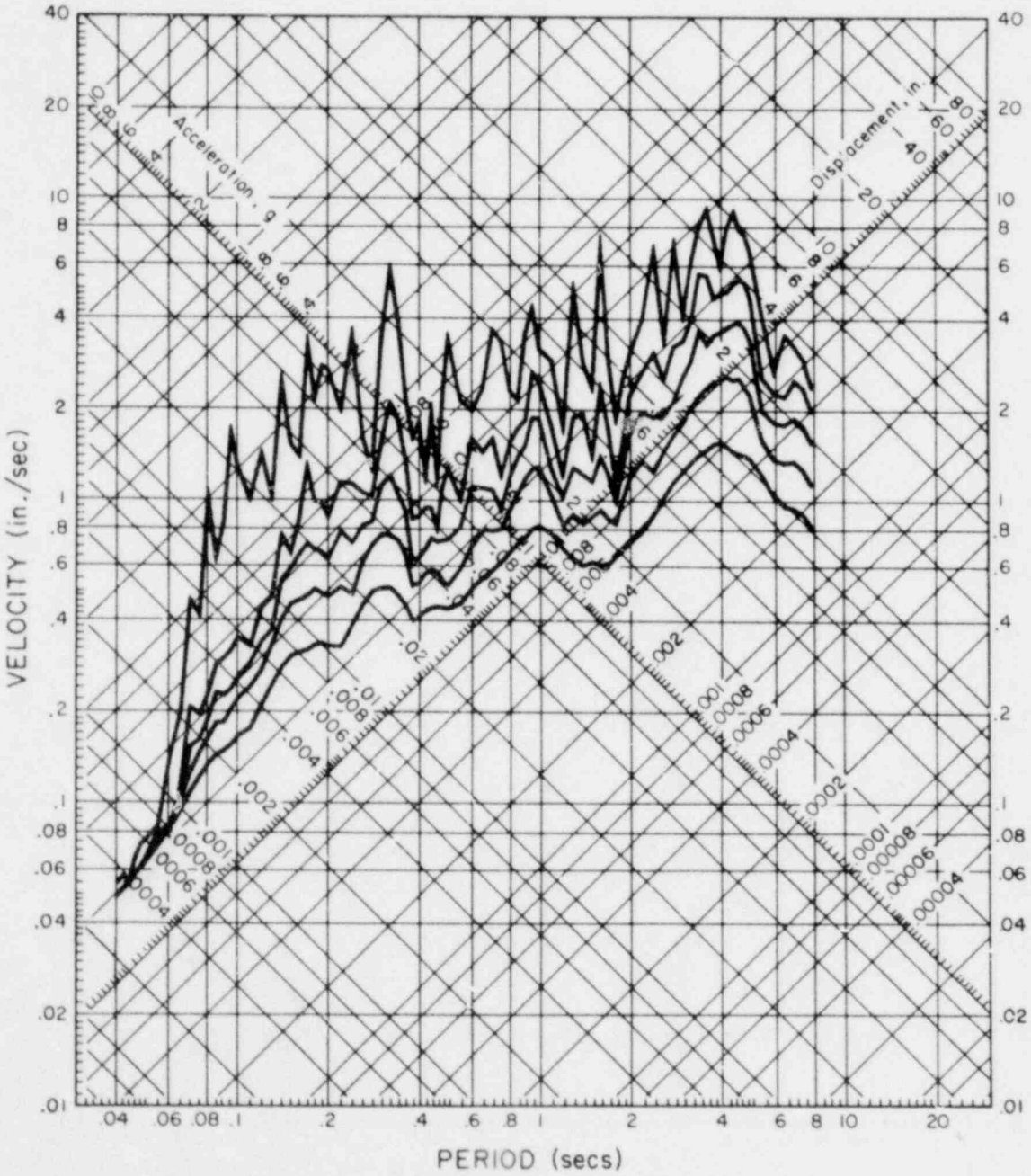


FIG. A8-21

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP220 71.148.0 666 WEST 19TH STREET, GROUND FLOOR, COSTA MESA, CAL. COMP S00W

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

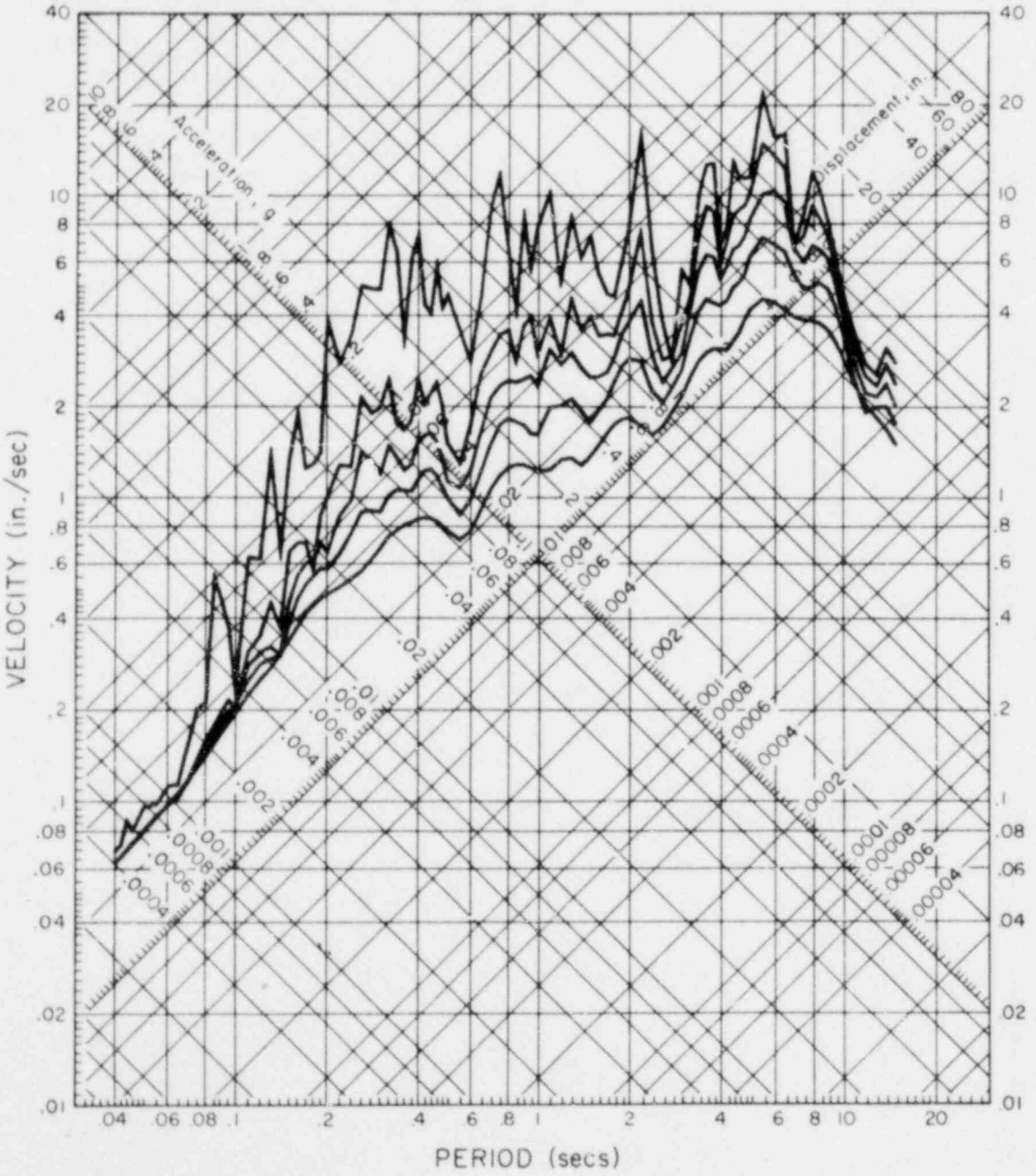


FIG. A8-22

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP220 71.148.0 666 WEST 19TH STREET, GROUND FLOOR, COSTA MESA, CAL. COMP N90E

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

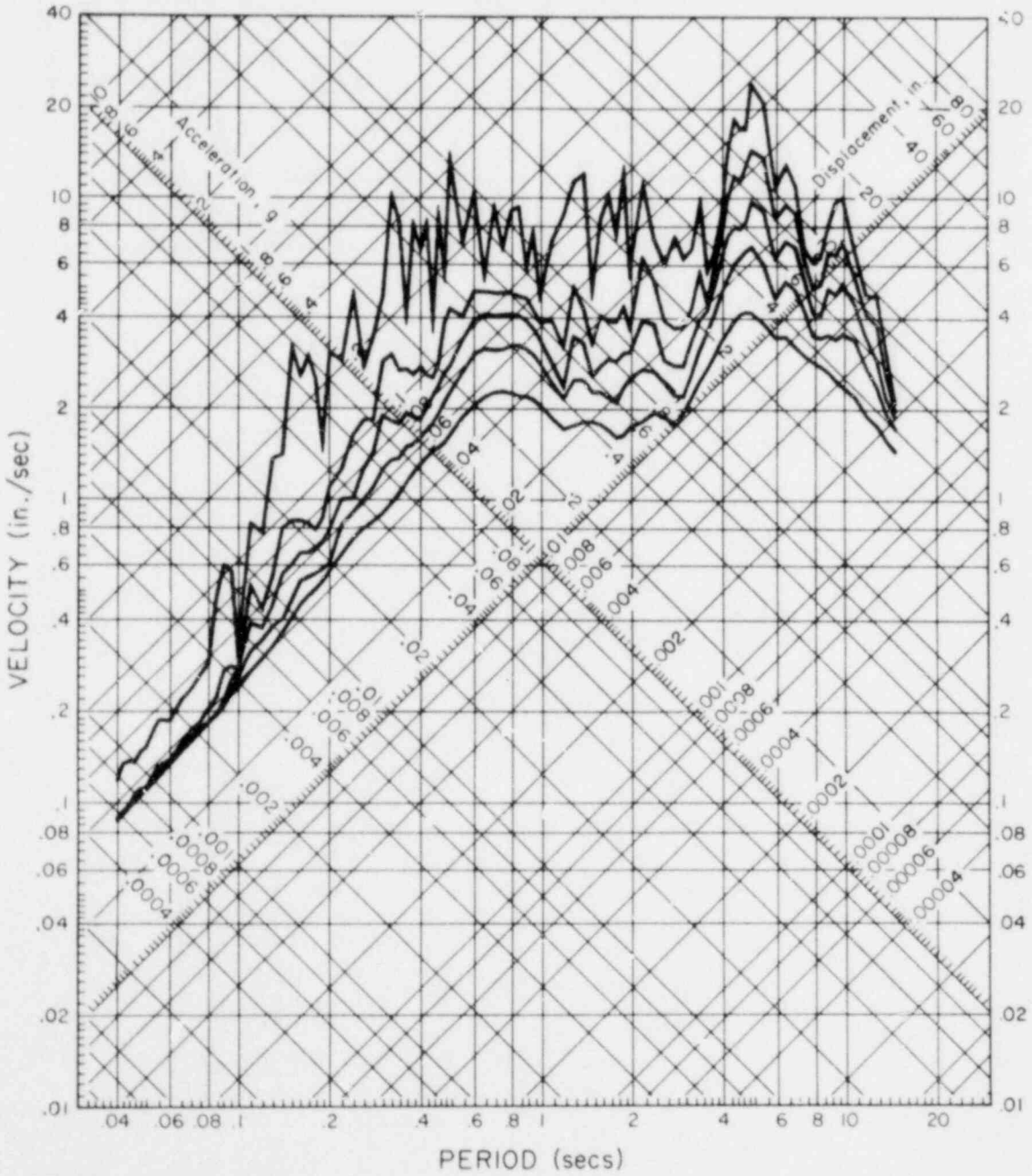


FIG. A8-23

RESPONSE SPECTRUM

SAN FERNANDO EARTHQUAKE FEB 9, 1971 - 0600 PST

IIIP220 71,148.0 666 WEST 19TH STREET, GROUND FLOOR, COSTA MESA, CAL. COMP DOWN

DAMPING VALUES ARE 0, 2, 5, 10 AND 20 PERCENT OF CRITICAL

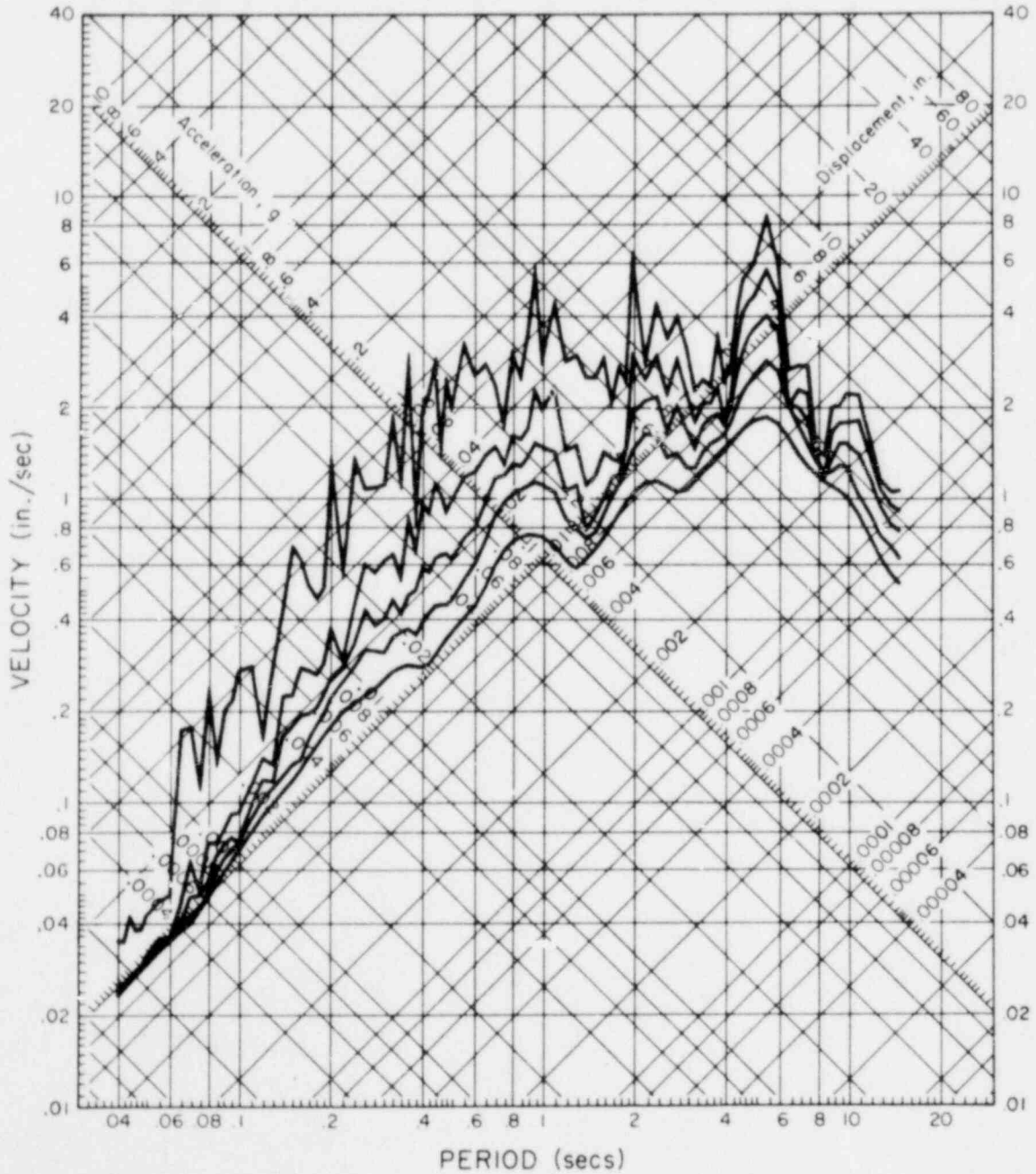


FIG. A8-24

NRC FORM 335 (7-77) U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by DDC)
NUREG/CR-0055
Vol. 2 Appendix

4. TITLE AND SUBTITLE (Add Volume No., if appropriate)
Verification of Subsurface Conditions at Selected "Rock" Accelerograph Stations in California

2. (Leave blank)

3. RECIPIENT'S ACCESSION NO.

7. AUTHOR(S)
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5. DATE REPORT COMPLETED
MONTH March YEAR 1977

9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
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Agbabian Associates
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El Segundo, CA 90245

DATE REPORT ISSUED
MONTH September YEAR 1980

6. (Leave blank)

8. (Leave blank)

12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

10. PROJECT/TASK/WORK UNIT NO.

11. CONTRACT NO.
AT(49-24)-0200
FIN No. B3015

13. TYPE OF REPORT

PERIOD COVERED (Inclusive dates)

15. SUPPLEMENTARY NOTES

14. (Leave blank)

16. ABSTRACT (200 words or less)

Appendix to the second in a series of reports to investigate the subsurface soil conditions at accelerograph stations which have been categorized by other researchers as "rock" sites in California. Appendix to Volume 2 contains the accelerograms which have been recorded at the sites investigated. Subsurface conditions at the sites were investigated with a geologic reconnaissance and a review of available boring data. At three sites, where boring data was not available, a test hole was drilled to better define the depth to rock. Of the 29 "rock" sites that were investigated, less than half could be verified as being founded on or within about 20 feet of rock. This would imply that over half of the stations are really soil sites.

17. KEY WORDS AND DOCUMENT ANALYSIS

17a. DESCRIPTORS

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT
Unlimited

19. SECURITY CLASS (This report)
Unclassified

21. NO. OF PAGES

20. SECURITY CLASS (This page)

22. PRICE
$

NRC FORM 335 (7-77)