

**Table A1.** Representative time histories for each case history

No.	Case history Location	Earthquake events	Time history	PGA (g)	Distance from the case history (km)	NEHRP site classification (Chiou et al. 2008)
1	Juvenile Hall	1971 San Fernando	PAS-000	0.088	38.67	D
			PAS-090	0.110		
			PDL-120	0.121	44.74	D
			PDL-210	0.151		
2	Heber Road	1979 Imperial Valley	BCR-140	0.588	7.40	D
			BCR-230	0.775		
			AGR-003	0.370	15.67	D
			SHP-270	0.506	13.44	C
3	Whiskey springs fan	1983 Borah Peaks	BOR-000	0.055	8.26	C
			BOR-090	0.073		
4	Wildlife site	1987 Superstition Hills	IVW-090	0.177	0	D
			WSM-090	0.172	10.87	D
			WSM-180	0.211		
5	Moss Landing MBARI Bldg 4	1989 Loma Prieta	GOF-160	0.284	30.15	D
			GOF-250	0.241		
			HCH-090	0.247	34.80	D
			HCH-180	0.215		

6	Moss Landing MBARI Bldg. 3	1989 Loma Prieta	HDA-165	0.269	34.72	D
			HDA-255	0.279		
			GOF-160	0.284	30.15	D
			GOF-250	0.241		
			HCH-090	0.247	34.80	D
			HCH-180	0.215		
7	Moss Landing MLML Bldg	1989 Loma Prieta	HDA-165	0.269	34.72	D
			HDA-255	0.279		
			AND-250	0.244	43.17	D
			AND-340	0.240		
			G02-000	0.367	29.00	D
			GO2-090	0.322		
8	Moss Landing MLML Bldg	1989 Loma Prieta	HCH-090	0.247	34.92	D
			HCH-180	0.215		
			AND-250	0.244	43.17	D
			AND-340	0.240		
			G02-000	0.367	29.00	D
			GO2-090	0.322		
9	Leonardini Farm	1989 Loma Prieta	HCH-090	0.247	34.92	D
			HCH-180	0.215		
			G02-000	0.367	34.16	D

			G02-090	0.322		
			HCH-090	0.247	36.32	D
			HCH-180	0.215		
10	Treasure Island	1989 Loma Prieta	TRI-000	0.10	0.813	E
			TRI-090	0.159		
11	Rudbaneh Town canal	1990 Manjil, Iran	188040	0.097	29.06	D
			188310	0.086		
12	Balboa Blvd	1994 Northridge	PAR-L	0.657	4.01	D
			PAR-T	0.406		
			SYL-090	0.604	7.34	D
			SYL-360	0.843		
13	Wynne Ave.	1994 Northridge	CNP-106	0.358	7.01	D
			CNP-196	0.392		
			SCE-288	0.493	11.44	D
			STC-090	0.368	2.11	D
			STC-180	0.477		
14	Wufeng Site C (A-A')	1999 Chi-Chi, Taiwan	TCU065-000	0.603	0.80	D
			TCU065-090	0.814		
15	Wufeng Site C (B-B')	1999 Chi-Chi, Taiwan	TCU065-000	0.603	0.80	D
			TCU065-090	0.814		
16	Wufeng Site C1	1999 Chi-Chi, Taiwan	TCU065-000	0.603	0.801	D

			TCU065-090	0.814		
17	Wufeng Site B	1999 Chi-Chi, Taiwan	TCU065-000	0.603	0.96	D
			TCU065-090	0.814		
18	Wufeng Site M	1999 Chi-Chi, Taiwan	TCU065-000	0.603	0.73	D
			TCU065-090	0.814		
19	Nantou Site N	1999 Chi-Chi, Taiwan	TCU076-000	0.416	1.97	D
			TCU076-090	0.303		
20	Hotel Sapanca	1999 Kocaeli, Turkey	YPT-060	0.268	43.15	D
			YPT-330	0.349		
21	Police Station	1999 Kocaeli, Turkey	YPT-060	0.268	15.68	D
			YPT-330	0.349		
22	Soccer Field	1999 Kocaeli, Turkey	YPT-060	0.268	14.95	D
			YPT-330	0.349		
23	Yalova Harbor	1999 Kocaeli, Turkey	YPT-060	0.268	43.10	D
			YPT-330	0.349		

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