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CALCULATION TITLE PAGE

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CLIENT & PROJECT Private Fuel Storage Facility, LLC Private Fuel Storage Facility, Skull Valley, Utah	PAGE 1 OF 55 (+ 36 PGS OF ATTMCNS)
CALCULATION TITLE (Indicative of the Objective): Deterministic Ground Motion Calculations for Skull Valley, Utah	QA CATEGORY (✓) ☒ I - NUCLEAR SAFETY RELATED ☐ II ☐ III ☐ _____ OTHER

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A5010.62

CLIENT / PROJECT	QA CATEGORY / CODE CLASS
Private Fuel Storage Facility, LLC Private Fuel Storage Facility, Skull Valley, Utah	I

SUBJECT / TITLE

Deterministic Ground Motion Calculations for Skull Valley, Utah

OBJECTIVE OF CALCULATION

To develop horizontal and vertical elastic response spectra representative of ground motions from the maximum earthquake on the adjacent earthquake sources.

CALCULATION METHOD/ASSUMPTIONS

Assess maximum earthquakes based on geologic assessments of maximum rupture dimensions.

Assess response spectra using empirical ground motion relationships.

SOURCES OF DATA / EQUATIONS

Documented in Geomatrix (1997), see reference list page 54.

CONCLUSIONS

Envelope ground motion response spectra listed in Tables 4-11 and 4-12, page 53.

REVIEWER (S) COMMENTS

PREPARER	DATE 3/17/97
REVIEWER / CHECKER	DATE 3/31/97
INDEPENDENT REVIEWER	DATE

CALCULATION SHEET	J.O./W.O./CALCULATION NO. 05996.01-G(PO5)-2	REVISION 0	PAGE 3 of 55

PREPARER/DATE	REVIEWER/CHECKER/DATE	INDEPENDENT REVIEWER/DATE
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SUBJECT/TITLE: Private Fuel Storage Facility, LLC
Private Fuel Storage Facility, Skull Valley, Utah

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DETERMINISTIC GROUND MOTION CALCULATION FOR SKULL VALLEY

1.0 APPROACH

Deterministic response spectra were computed by first computing maximum magnitude and minimum source-to-site distances for the three closest sources and then computing the response spectra for the maximum event for each source using empirical attenuation relationships. The uncertainty in the determination of the maximum magnitude and closest distance was incorporated into the analysis.

2.0 MAXIMUM MAGNITUDE CALCULATION

2.1 Summary of Geologic Input

Geologic data from Sections 2 and 3 of deterministic ground motion report (Geomatrix, 1997).Input parameters defined in terms of discrete probability distributions.

Stansbury Fault

Depth to base of seismogenic crust (probability)
15 km (0.4), 18 km (0.4), 20 km (0.2)
Fault dip (probability)
45° (0.333), 55° (0.334), 65° (0.333)
Maximum rupture lengths (probability)
23 km (0.1), 32 km (0.3), 47 km (0.2), 56 km (0.3), 73 km (0.1)
Slip Rate (probability)
0.1 mm/yr (0.3), 0.15 mm/yr (0.5), 0.2 mm/yr (0.2)

Cedar Mountains Fault

Depth to base of seismogenic crust (probability)
15 km (0.4), 18 km (0.4), 20 km (0.2)
Fault dip (probability)
45° (0.333), 55° (0.334), 65° (0.333)
Maximum rupture lengths (probability)
27 km (0.4), 45 km (0.5), 72 km (0.1)
Slip Rate - not available

2.2 Computation of Minimum Distances

Minimum distance to the fault is defined as either minimum distance to rupture, r_{rup}, or minimum distance to surface projection of rupture, r_{JB} (after Joyner and Boore, 1982, who first defined this distance measure). The Stansbury fault trace is located 9.5 km east

of the site and the fault dips to the west. Thus $r_{rup} = 9.5*\sin(dip)$ and $r_{JB} = \max[0, 9.5-h/\tan(dip)]$ as shown on following diagram.

TABLE 2-1 COMPUTATION OF DISTANCE TO STANSBURY FAULT

h	dip	R_{rup}	R_{JB}
15	45	6.7	0.0
15	55	7.8	0.0
15	65	8.6	2.5
18	45	6.7	0.0
18	55	7.8	0.0
18	65	8.6	1.1
20	45	6.7	0.0
20	55	7.8	0.0
20	65	8.6	0.2

The site is located 9 km from the Cedar Mountains fault. Because the Stansbury and Cedar Mountains faults dip toward each other, they intersect at various points depending on the fault dips. The Stansbury is assumed to be the controlling fault because of its greater expression. The depth of the point of intersection of the two faults is y km and the location of the point of intersection is x km from the Stansbury fault, where

y/x=tan(dip Stansbury), y/(18.5-x)=tan(dip Cedar Mtns)
x=18.5*tan(dip Cedar Mtns)/[tan(dip Stansbury)+ tan(dip Cedar Mtns)]

The maximum depth of the Cedar Mountains fault is min(h,y) and the minimum distances to the fault are r_{rup} = 9.0*sin(dip) and r_{JB} = max[0, 9.0- min(h,y)/tan(dip Cedar Mtns)]

TABLE 2-2 COMPUTATION OF DISTANCE TO CEDAR MTNS FAULT

Dip Cedar	wt	Dip Stn	wt	h	wt	x	Min(h,y)	R_{rup}	R_{JB}	Comb wt
45	0.333	45	0.333	15	0.4	9.25	9.25	6.4	0.0	0.0444
45	0.333	45	0.333	18	0.4	9.25	9.25	6.4	0.0	0.0444
45	0.333	45	0.333	20	0.2	9.25	9.25	6.4	0.0	0.0222
45	0.333	55	0.333	15	0.4	7.62	10.88	6.4	0.0	0.0444
45	0.333	55	0.333	18	0.4	7.62	10.88	6.4	0.0	0.0444
45	0.333	55	0.333	20	0.2	7.62	10.88	6.4	0.0	0.0222
45	0.333	65	0.333	15	0.4	5.88	12.62	6.4	0.0	0.0444
45	0.333	65	0.333	18	0.4	5.88	12.62	6.4	0.0	0.0444
45	0.333	65	0.333	20	0.2	5.88	12.62	6.4	0.0	0.0222
55	0.333	45	0.333	15	0.4	10.88	10.88	7.4	1.4	0.0444
55	0.333	45	0.333	18	0.4	10.88	10.88	7.4	1.4	0.0444
55	0.333	45	0.333	20	0.2	10.88	10.88	7.4	1.4	0.0222
55	0.333	55	0.333	15	0.4	9.25	13.21	7.4	0.0	0.0444
55	0.333	55	0.333	18	0.4	9.25	13.21	7.4	0.0	0.0444
55	0.333	55	0.333	20	0.2	9.25	13.21	7.4	0.0	0.0222
55	0.333	65	0.333	15	0.4	7.40	15.00	7.4	0.0	0.0444
55	0.333	65	0.333	18	0.4	7.40	15.86	7.4	0.0	0.0444
55	0.333	65	0.333	20	0.2	7.40	15.86	7.4	0.0	0.0222
65	0.333	45	0.333	15	0.4	12.62	12.62	8.2	3.1	0.0444
65	0.333	45	0.333	18	0.4	12.62	12.62	8.2	3.1	0.0444
65	0.333	45	0.333	20	0.2	12.62	12.62	8.2	3.1	0.0222
65	0.333	55	0.333	15	0.4	11.10	15.00	8.2	2.0	0.0444
65	0.333	55	0.333	18	0.4	11.10	15.86	8.2	1.6	0.0444
65	0.333	55	0.333	20	0.2	11.10	15.86	8.2	1.6	0.0222
65	0.333	65	0.333	15	0.4	9.25	15.00	8.2	2.0	0.0444
65	0.333	65	0.333	18	0.4	9.25	18.00	8.2	0.6	0.0444
65	0.333	65	0.333	20	0.2	9.25	19.84	8.2	0.0	0.0222

Summarizing the results from Table 2-2 by dip of the Cedar Mountains fault gives:

TABLE 2-3 SUMMARY OF CALCULATED DISTANCES TO CEDAR MOUNTAINS FAULT

Dip	h	wt	R_{rup}	R_{JB}
45	9.25	0.1111	6.4	0
	10.88	0.1111	6.4	0
	12.62	0.1111	6.4	0
55	10.88	0.1111	7.4	1.4
	13.21	0.1111	7.4	0
	15	0.0444	7.4	0
	15.86	0.0667	7.4	0
65	12.62	0.1111	8.2	3.1
	15	0.0889	8.2	2
	15.86	0.0667	8.2	1.6
	18	0.0444	8.2	0.6
	20	0.0222	8.2	0

2.3 Calculation of Maximum Magnitude Distribution

Maximum magnitude distributions were calculated for each possible combination of dip, depth, rupture length and fault slip rate using the relationships selected in Geomatrix (1997):

$M = 4.38 + 1.49 \log(RL)$ Wells and Coppersmith (1994)
$M = 4.07 + 0.98 \log(RA)$ Wells and Coppersmith (1994)
$M = 5.12 + 1.16 \log(RL) - 0.2 \log(SR)$ Anderson and others (1996)

where RL is rupture length in km, RA is rupture area (RL*width) in km^2, width = h/sin(dip), and SR is slip rate in mm/yr. A computer program MMAXD was written to compute the maximum magnitude distributions for each combination of fault dip and maximum depth. The program is described in Attachment A. The input consists of the distributions for fault depth, fault dip, rupture length, slip rate. and the weights assigned to the three relationships between magnitude and fault parameters. The relationships were given equal weight (0.33, 0.33, 0.33 if slip rate data are available, 0.5,0.5, 0, if not).

The following is a listing of the input file for the Stansbury Fault

```
**** File: stb-m.in ****
 stb-m.out
 Stansbury
 3 .33333 .33334 .33333
 3 .4 .4 .2
```

```
15 45
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
18 45
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
20 45
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
3 .4 .4 .2
15 55
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
18 55
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
20 55
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
3 .4 .4 .2
15 65
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
18 65
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
20 65
3 .33333 .33334 .33333
'rl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'ra' 5 23 .1 32 .3 47 .2 56 .3 73 .1
'asrrl' 5 23 .1 32 .3 47 .2 56 .3 73 .1
3 0.1 .3 0.15 .5 0.2 .2
```

The resulting output file is listed below and is designated Table 2-4

```
**** File: stb-m.out****
Stansbury
  45.0  15.0 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1
0.13000  7.2 0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
  45.0  18.0 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2
0.18000  7.3 0.15333  7.4 0.02333  7.5 0.01000
  45.0  20.0 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2
0.18000  7.3 0.15333  7.4 0.02333  7.5 0.01000
```

```
  55.0  15.0 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
  55.0  18.0 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1
0.13000  7.2 0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
  55.0  20.0 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2
0.08000  7.3 0.15333  7.4 0.02333  7.5 0.01000
  65.0  15.0 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1
0.06333  7.2 0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
  65.0  18.0 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1
0.13000  7.2 0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
  65.0  20.0 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1
0.13000  7.2 0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
 Combined 22  6.4 0.03333  6.6 0.10889  6.7 0.02889  6.8 0.05556  6.9 0.15111  7.0 0.23444  7.1
0.11000  7.2 0.11556  7.3 0.12889
  7.4 0.02333  7.5 0.01000
```

each line lists the dip, maximum depth, and resulting discrete distribution for maximum magnitude. The last line lists the combined distribution.

The following is a listing of the input file for the Cedar Mountains fault.

```
**** File: cm-m.in ****
cm-m.out
Cedar Mtn
3 .33333 .33334 .33333
3 .33333 .33334 .33333
9.25  45
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
10.88  45
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
12.62  45
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
4 .33333 .33334 .13333 .2
10.88  55
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
13.21  55
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
15.0  55
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
15.86  55
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
5 .33333 .26667 .2 .13333 .06667
12.62  65
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
15  65
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
15.86  65
```

```
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
18  65
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
20.0  65
2 .5 .5
'rl' 3 27 .4 45 .5 72 .1
'ra' 3 27 .4 45 .5 72 .1
```

The resulting output file is listed below and is designated Table 2-5.

```
**** File: cm-m.out****
Cedar Mtn
  45.0   9.2  5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
  45.0  10.9  5  6.5 0.20000  6.6 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
  45.0  12.6  5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
  55.0  10.9  5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
  55.0  13.2  5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
  55.0  15.0  5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
  55.0  15.9  6  6.5 0.20000  6.7 0.20000  6.8 0.25000  7.0 0.25000  7.1 0.05000  7.2 0.05000
  65.0  12.6  5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
  65.0  15.0  5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
  65.0  15.9  5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
  65.0  18.0  6  6.5 0.20000  6.7 0.20000  6.8 0.25000  7.0 0.25000  7.1 0.05000  7.2 0.05000
  65.0  20.0  5  6.5 0.20000  6.8 0.45000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 Combined 13  6.5 0.20000  6.6 0.08889  6.7 0.10667  6.8 0.33778  6.9 0.13333  7.0 0.05000  7.1
0.07667  7.2 0.00667
```

3.0 COMPUTATION OF DETERMINISTIC RESPONSE SPECTRA

3.1 Approach

Response spectra for the two nearby faults, the Stansbury and Cedar Mountains, and the random earthquake were computed using the probability distributions defined in Section 2.2 and 2.3 and a set of attenuation relationships described in Geomatrix (1997). The formulation used is given by the relationship

$$P(Z > z) = \sum_{m} p(m_i) \cdot \sum_{r} p(r_j|m_i) \cdot \sum_{A} p(A_k) \cdot P(Z > z \mid m_i, r_j, A_k) \qquad \textbf{(3-1)}$$

where $p(m_i)$ is the discrete probability density function for maximum magnitude, $p(r_j)$ is the discrete probability density function for minimum distance given a maximum magnitude, $p(A_k)$ is the discrete probability density (weight) assigned to a particular attenuation relationship, and $P(Z>z|\ m_i, r_j, A_k)$ is the probability that ground motion parameter Z exceeds level z given maximum magnitude m_i, minimum distance r_j, and attenuation relationship A_k. This probability is computed assuming that peak ground motions are log normally distributed about the median attenuation relationship with the specified standard error of $\ln(Z)$. Equation **(3-1)** is solved iteratively for the value of z that results in $P(Z>z)$ equal to 0.8416. The median ground motions are computed by setting $P(Z>z)$ equal to 0.5. The mean ground motions, $E[Z]$, are computed using the relationship

$$E[Z] = \sum_{m} p(m_i) \cdot \sum_{r} p(r_j|m_i) \cdot \sum_{A} p(A_k) \cdot E[(Z|m_i, r_j, A_k)] \qquad \textbf{(3-2)}$$

where $E[Z|\ m_i, r_j, A_k]$ is the mean ground motion given by attenuation relationship A_k for maximum magnitude m_i and minimum distance r_j.

3.2 Attenuation Relationships

Attenuation relationships were selected for two generalized site classifications rock and deep soil and for horizontal and vertical motions.

Rock Site Relationships

Abrahamson and Silva (1997)	horizontal and vertical
Campbell (1997)	horizontal and vertical
Idriss (1991, 1993)	horizontal only
Sadigh and others (1993)	horizontal and vertical

Deep Soil Site Relationships

Abrahamson and Silva (1997)	horizontal and vertical
Campbell (1997)	horizontal and vertical
Spudich and others (1997)	horizontal only
Sadigh and others (1997)	horizontal only

3.3 Calculation of Response Spectra

The deterministic response spectra for the Skull Valley site were computed using Equations **(3-1)** and **(3-2)**. A computer program, RFEQRE3, was written to compute the spectra. The program is described in Attachment B. The input values are the maximum magnitude distributions and minimum distances as a function of fault dip. These are listed in Tables 3-1 and 3-4 for the Stansbury fault and Tables 3-3 and 3-5 for the Cedar Mountains fault. For the random earthquake, the maximum magnitude is specified to be uniformly distributed between **M** 5.5 and **M** 6.5 and the distance distribution is defined on the basis that the event occurs with equal likelihood anywhere within a 25-km radius of the site and within a focal depth of 0 to h.

Listed below are the input files for horizontal rock and soil spectra for the three faults and vertical spectral for the Stansbury fault. Vertical spectra were not computed for the other two sources because the Stansbury fault produces the largest ground motions.

```
  **** File: stb-hr.in  ****
Stansbury Fault (w/ Anderson et. al., 1996) soft rock
1 1  coupling
 3 .4 .4 .2  depth
  3 .333333 .333334 .333333 dip
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-s45.dfs
as97rs.sac
y
stb-s45.dfs
id91rss.sac
y
stb-s45.dfs
c97sr-ss.sac
y
stb-s45.dfs
s93hss.sac
y
 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2 0.08000  7.3
0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-s55.dfs
as97rs.sac
y
stb-s55.dfs
id91rss.sac
y
```

```
stb-s55.dfs
c97sr-ss.sac
y
stb-s55.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-s65.dfs
as97rs.sac
y
stb-s65.dfs
id91rss.sac
y
stb-s65.dfs
c97sr-ss.sac
y
stb-s65.dfs
s93hss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-m45.dfs
as97rs.sac
y
stb-m45.dfs
id91rss.sac
y
stb-m45.dfs
c97sr-ss.sac
y
stb-m45.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-m55.dfs
as97rs.sac
y
stb-m55.dfs
id91rss.sac
y
stb-m55.dfs
c97sr-ss.sac
y
stb-m55.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-m65.dfs
as97rs.sac
y
stb-m65.dfs
id91rss.sac
y
stb-m65.dfs
c97sr-ss.sac
y
stb-m65.dfs
s93hss.sac
y
  3 .333333 .333334 .333333 dip
```

```
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-d45.dfs
as97rs.sac
y
stb-d45.dfs
id91rss.sac
y
stb-d45.dfs
c97sr-ss.sac
y
stb-d45.dfs
s93hss.sac
y
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2 0.08000  7.3
0.15333  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-d55.dfs
as97rs.sac
y
stb-d55.dfs
id91rss.sac
y
stb-d55.dfs
c97sr-ss.sac
y
stb-d55.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-d65.dfs
as97rs.sac
y
stb-d65.dfs
id91rss.sac
y
stb-d65.dfs
c97sr-ss.sac
y
stb-d65.dfs
s93hss.sac
y
stb-hr.sp
q

  **** File: stb-hs.in  ****
Stansbury Fault (w/ Anderson et. al., 1996) deep soil
1 1  coupling
 3 .4 .4 .2  depth
  3 .333333 .333334 .333333 dip
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-s45.dfs
as97ss.sac
y
stb-s45.dfj
sao97-s.sac
y
stb-s45.dfs
c97s-ss.sac
y
stb-s45.dfs
s97s-s.sac
y
```

```
 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2 0.08000  7.3
0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-s55.dfs
as97ss.sac
y
stb-s55.dfj
sao97-s.sac
y
stb-s55.dfs
c97s-ss.sac
y
stb-s55.dfs
s97s-s.sac
y
 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-s65.dfs
as97ss.sac
y
stb-s65.dfj
sao97-s.sac
y
stb-s65.dfs
c97s-ss.sac
y
stb-s65.dfs
s97s-s.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-m45.dfs
as97ss.sac
y
stb-m45.dfj
sao97-s.sac
y
stb-m45.dfs
c97s-ss.sac
y
stb-m45.dfs
s97s-s.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-m55.dfs
as97ss.sac
y
stb-m55.dfj
sao97-s.sac
y
stb-m55.dfs
c97s-ss.sac
y
stb-m55.dfs
s97s-s.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-m65.dfs
as97ss.sac
y
stb-m65.dfj
sao97-s.sac
```

```
y
stb-m65.dfs
c97s-ss.sac
y
stb-m65.dfs
s97s-s.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-d45.dfs
as97ss.sac
y
stb-d45.dfj
sao97-s.sac
y
stb-d45.dfs
c97s-ss.sac
y
stb-d45.dfs
s97s-s.sac
y
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2 0.08000  7.3
0.15333  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-d55.dfs
as97ss.sac
y
stb-d55.dfj
sao97-s.sac
y
stb-d55.dfs
c97s-ss.sac
y
stb-d55.dfs
s97s-s.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
4 .25 .25 .25 .25
stb-d65.dfs
as97ss.sac
y
stb-d65.dfj
sao97-s.sac
y
stb-d65.dfs
c97s-ss.sac
y
stb-d65.dfs
s97s-s.sac
y
stb-hs.sp
q

  **** File: stb-hrvs.in****
Stansbury Fault (w/ Anderson et. al., 1996) soft rock horizontal vertical set
1 1  coupling
 3 .4 .4 .2  depth
  3 .333333 .333334 .333333 dip
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-s45.dfs
as97rs.sac
y
stb-s45.dfs
c97sr-ss.sac
```

```
y
stb-s45.dfs
s93hss.sac
y
 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2 0.08000  7.3
0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-s55.dfs
as97rs.sac
y
stb-s55.dfs
c97sr-ss.sac
y
stb-s55.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-s65.dfs
as97rs.sac
y
stb-s65.dfs
c97sr-ss.sac
y
stb-s65.dfs
s93hss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-m45.dfs
as97rs.sac
y
stb-m45.dfs
c97sr-ss.sac
y
stb-m45.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-m65.dfs
as97rs.sac
y
stb-m65.dfs
c97sr-ss.sac
y
stb-m65.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-m65.dfs
as97rs.sac
y
stb-m65.dfs
c97sr-ss.sac
y
stb-m65.dfs
s93hss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
```

```
stb-d45.dfs
as97rs.sac
y
stb-d45.dfs
c97sr-ss.sac
y
stb-d45.dfs
s93hss.sac
y
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2 0.08000  7.3
0.15333  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-d55.dfs
as97rs.sac
y
stb-d55.dfs
c97sr-ss.sac
y
stb-d55.dfs
s93hss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-d65.dfs
as97rs.sac
y
stb-d65.dfs
c97sr-ss.sac
y
stb-d65.dfs
s93hss.sac
y
stb-hrvs.sp
q

  **** File: stb-hsvs.in****
Stansbury Fault (w/ Anderson et. al., 1996) deep soil horizontal - vertical set
1 1  coupling
 3 .4 .4 .2  depth
  3 .333333 .333334 .333333 dip
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-s45.dfs
as97ss.sac
y
stb-s45.dfs
c97s-ss.sac
y
 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2 0.08000  7.3
0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-s55.dfs
as97ss.sac
y
stb-s55.dfs
c97s-ss.sac
y
 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-s65.dfs
as97ss.sac
y
stb-s65.dfs
c97s-ss.sac
y
  3 .333333 .333334 .333333 dip
```

```
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-m45.dfs
as97ss.sac
y
stb-m45.dfs
c97s-ss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-m55.dfs
as97ss.sac
y
stb-m55.dfs
c97s-ss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-m65.dfs
as97ss.sac
y
stb-m65.dfs
c97s-ss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-d45.dfs
as97ss.sac
y
stb-d45.dfs
c97s-ss.sac
y
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2 0.08000  7.3
0.15333  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-d55.dfs
as97ss.sac
y
stb-d55.dfs
c97s-ss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-d65.dfs
as97ss.sac
y
stb-d65.dfs
c97s-ss.sac
y
stb-hsvs.sp
q

  **** File: stb-vr.in ****
Stansbury Fault (w/ Anderson et. al., 1996) soft rock vertical
1 1  coupling
 3 .4 .4 .2  depth
  3 .333333 .333334 .333333 dip
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-s45.dfs
as97vrs.sac
y
```

```
stb-s45.dfs
c97vsrss.sac
y
stb-s45.dfs
s93vss.sac
y
 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2 0.08000  7.3
0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-s55.dfs
as97vrs.sac
y
stb-s55.dfs
c97vsrss.sac
y
stb-s55.dfs
s93vss.sac
y
 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-s65.dfs
as97vrs.sac
y
stb-s65.dfs
c97vsrss.sac
y
stb-s65.dfs
s93vss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-m45.dfs
as97vrs.sac
y
stb-m45.dfs
c97vsrss.sac
y
stb-m45.dfs
s93vss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-m55.dfs
as97vrs.sac
y
stb-m55.dfs
c97vsrss.sac
y
stb-m55.dfs
s93vss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-m65.dfs
as97vrs.sac
y
stb-m65.dfs
c97vsrss.sac
y
stb-m65.dfs
s93vss.sac
y
  3 .333333 .333334 .333333 dip
```

```
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-d45.dfs
as97vrs.sac
y
stb-d45.dfs
c97vsrss.sac
y
stb-d45.dfs
s93vss.sac
y
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2 0.08000  7.3
0.15333  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-d55.dfs
as97vrs.sac
y
stb-d55.dfs
c97vsrss.sac
y
stb-d55.dfs
s93vss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
3 .333333 .333334 .333333
stb-d65.dfs
as97vrs.sac
y
stb-d65.dfs
c97vsrss.sac
y
stb-d65.dfs
s93vss.sac
y
stb-vr.sp
q

  **** File: stb-vs.in  ****
Stansbury Fault (w/ Anderson et. al., 1996) deep soil vertical
1 1  coupling
 3 .4 .4 .2  depth
  3 .333333 .333334 .333333 dip
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-s45.dfs
as97vss.sac
y
stb-s45.dfs
c97vs-ss.sac
y
 10  6.4 0.03333  6.6 0.13333  6.8 0.10667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2 0.08000  7.3
0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-s55.dfs
as97vss.sac
y
stb-s55.dfs
c97vs-ss.sac
y
 11  6.4 0.03333  6.6 0.13333  6.7 0.10000  6.8 0.00667  6.9 0.16000  7.0 0.27000  7.1 0.06333  7.2
0.08000  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-s65.dfs
as97vss.sac
y
stb-s65.dfs
```

```
c97vs-ss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-m45.dfs
as97vss.sac
y
stb-m45.dfs
c97vs-ss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-m55.dfs
as97vss.sac
y
stb-m55.dfs
c97vs-ss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.10667  6.9 0.09333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-m65.dfs
as97vss.sac
y
stb-m65.dfs
c97vs-ss.sac
y
  3 .333333 .333334 .333333 dip
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.09333  7.0 0.27000  7.1 0.09667  7.2 0.18000  7.3
0.15333  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-d45.dfs
as97vss.sac
y
stb-d45.dfs
c97vs-ss.sac
y
 10  6.4 0.03333  6.6 0.10000  6.8 0.04000  6.9 0.19333  7.0 0.17000  7.1 0.19667  7.2 0.08000  7.3
0.15333  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-d55.dfs
as97vss.sac
y
stb-d55.dfs
c97vs-ss.sac
y
 11  6.4 0.03333  6.6 0.10000  6.7 0.03333  6.8 0.00667  6.9 0.19333  7.0 0.23667  7.1 0.13000  7.2
0.11333  7.3 0.12000  7.4 0.02333  7.5 0.01000
2 .5 .5
stb-d65.dfs
as97vss.sac
y
stb-d65.dfs
c97vs-ss.sac
y
stb-vs.sp
q

  **** File: cm-hr.in****
 Cedar Mtns Fault rock
 1 1  coupling
  3 .333333 .333334 .333333 dip
3 .333333 .333334 .333333  depth
 5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
  4 .25 .25 .25 .25
 cm-s45.dfs
```

```
as97rs.sac
y
cm-s45.dfs
id91rss.sac
y
cm-s45.dfs
c97sr-ss.sac
y
cm-s45.dfs
s93hss.sac
y
5  6.5 0.20000  6.6 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-m45.dfs
as97rs.sac
y
cm-m45.dfs
id91rss.sac
y
cm-m45.dfs
c97sr-ss.sac
y
cm-m45.dfs
s93hss.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
4 .25 .25 .25 .25
cm-d45.dfs
as97rs.sac
y
cm-d45.dfs
id91rss.sac
y
cm-d45.dfs
c97sr-ss.sac
y
cm-d45.dfs
s93hss.sac
y
4 .333333 .333334 .133333 .2  depth
5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
 4 .25 .25 .25 .25
cm-s55.dfs
as97rs.sac
y
cm-s55.dfs
id91rss.sac
y
cm-s55.dfs
c97sr-ss.sac
y
cm-s55.dfs
s93hss.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-m55.dfs
as97rs.sac
y
cm-m55.dfs
id91rss.sac
y
cm-m55.dfs
c97sr-ss.sac
y
cm-m55.dfs
s93hss.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
```

```
 4 .25 .25 .25 .25
cm-d55.dfs
as97rs.sac
y
cm-d55.dfs
id91rss.sac
y
cm-d55.dfs
c97sr-ss.sac
y
cm-d55.dfs
s93hss.sac
y
6  6.5 0.20000  6.7 0.20000  6.8 0.25000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 4 .25 .25 .25 .25
cm-vd55.dfs
as97rs.sac
y
cm-vd55.dfs
id91rss.sac
y
cm-vd55.dfs
c97sr-ss.sac
y
cm-vd55.dfs
s93hss.sac
y
5 .333333 .266667 .2 .133333 .066667  depth
5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
 4 .25 .25 .25 .25
cm-s65.dfs
as97rs.sac
y
cm-s65.dfs
id91rss.sac
y
cm-s65.dfs
c97sr-ss.sac
y
cm-s65.dfs
s93hss.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-m65.dfs
as97rs.sac
y
cm-m65.dfs
id91rss.sac
y
cm-m65.dfs
c97sr-ss.sac
y
cm-m65.dfs
s93hss.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-ma65.dfs
as97rs.sac
y
cm-ma65.dfs
id91rss.sac
y
cm-ma65.dfs
c97sr-ss.sac
y
cm-ma65.dfs
s93hss.sac
```

```
y
6  6.5 0.20000  6.7 0.20000  6.8 0.25000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 4 .25 .25 .25 .25
cm-d65.dfs
as97rs.sac
y
cm-d65.dfs
id91rss.sac
y
cm-d65.dfs
c97sr-ss.sac
y
cm-d65.dfs
s93hss.sac
y
5  6.5 0.20000  6.8 0.45000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 4 .25 .25 .25 .25
cm-vd65.dfs
as97rs.sac
y
cm-vd65.dfs
id91rss.sac
y
cm-vd65.dfs
c97sr-ss.sac
y
cm-vd65.dfs
s93hss.sac
y
cm-hr.sp
q

 **** File: cm-hs.in****
Cedar Mtns Fault  deep soil
1 1  coupling
 3 .333333 .333334 .333333 dip
3 .333333 .333334 .333333  depth
5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
 4 .25 .25 .25 .25
cm-s45.dfs
as97ss.sac
y
cm-s45.dfj
sao97-s.sac
y
cm-s45.dfs
c97s-ss.sac
y
cm-s45.dfs
s97s-s.sac
y
5  6.5 0.20000  6.6 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-m45.dfs
as97ss.sac
y
cm-m45.dfj
sao97-s.sac
y
cm-m45.dfs
c97s-ss.sac
y
cm-m45.dfs
s97s-s.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
4 .25 .25 .25 .25
cm-d45.dfs
as97ss.sac
```

```
y
cm-d45.dfj
sao97-s.sac
y
cm-d45.dfs
c97s-ss.sac
y
cm-d45.dfs
s97s-s.sac
y
4 .333333 .333334 .133333 .2  depth
5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
 4 .25 .25 .25 .25
cm-s55.dfs
as97ss.sac
y
cm-s55.dfj
sao97-s.sac
y
cm-s55.dfs
c97s-ss.sac
y
cm-s55.dfs
s97s-s.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-m55.dfs
as97ss.sac
y
cm-m55.dfj
sao97-s.sac
y
cm-m55.dfs
c97s-ss.sac
y
cm-m55.dfs
s97s-s.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-d55.dfs
as97ss.sac
y
cm-d55.dfj
sao97-s.sac
y
cm-d55.dfs
c97s-ss.sac
y
cm-d55.dfs
s97s-s.sac
y
6  6.5 0.20000  6.7 0.20000  6.8 0.25000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 4 .25 .25 .25 .25
cm-vd55.dfs
as97ss.sac
y
cm-vd55.dfj
sao97-s.sac
y
cm-vd55.dfs
c97s-ss.sac
y
cm-vd55.dfs
s97s-s.sac
y
5 .333333 .266667 .2 .133333 .066667  depth
5  6.5 0.20000  6.6 0.20000  6.8 0.50000  7.0 0.05000  7.1 0.05000
```

```
 4 .25 .25 .25 .25
cm-s65.dfs
as97ss.sac
y
cm-s65.dfj
sao97-s.sac
y
cm-s65.dfs
c97s-ss.sac
y
cm-s65.dfs
s97s-s.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-m65.dfs
as97ss.sac
y
cm-m65.dfj
sao97-s.sac
y
cm-m65.dfs
c97s-ss.sac
y
cm-m65.dfs
s97s-s.sac
y
5  6.5 0.20000  6.7 0.20000  6.8 0.25000  6.9 0.25000  7.1 0.10000
 4 .25 .25 .25 .25
cm-ma65.dfs
as97ss.sac
y
cm-ma65.dfj
sao97-s.sac
y
cm-ma65.dfs
c97s-ss.sac
y
cm-ma65.dfs
s97s-s.sac
y
6  6.5 0.20000  6.7 0.20000  6.8 0.25000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 4 .25 .25 .25 .25
cm-d65.dfs
as97ss.sac
y
cm-d65.dfj
sao97-s.sac
y
cm-d65.dfs
c97s-ss.sac
y
cm-d65.dfs
s97s-s.sac
y
5  6.5 0.20000  6.8 0.45000  7.0 0.25000  7.1 0.05000  7.2 0.05000
 4 .25 .25 .25 .25
cm-vd65.dfs
as97ss.sac
y
cm-vd65.dfj
sao97-s.sac
y
cm-vd65.dfs
c97s-ss.sac
y
cm-vd65.dfs
s97s-s.sac
y
```

```
cm-hs.sp
q

 **** File: raneq-r.in ****
Random Event Rock
1 1  coupling
 1 1
1 1
 11 5.5 .05 5.6 0.1 5.7 .1 5.8 .1 5.9 .1 6 .1 6.1 .1 6.2 .1 6.3 .1 6.4 .1 6.5 .05
4 .25 .25 .25 .25
ranf-rd.pmf
as97rs.sac
y
ranf-rd.pmf
id91rss.sac
y
ranf-rd.pmf
c97sr-ss.sac
y
ranf-rd.pmf
s93hss.sac
y
raneq-r.sp
q

 **** File: raneq-ds.in****
Random Event Deep Soil
1 1  coupling
 1 1
1 1
 11 5.5 .05 5.6 0.1 5.7 .1 5.8 .1 5.9 .1 6 .1 6.1 .1 6.2 .1 6.3 .1 6.4 .1 6.5 .05
4 .25 .25 .25 .25
ranf-rd.pmf
as97ss.sac
y
ranf-sd.pmf
sao97-s.sac
y
ranf-rd.pmf
c97s-ss.sac
y
ranf-rd.pmf
s97s-s.sac
y
raneq-ds.sp
q

 **** File: as97rs.sac ****
Abrahamson and Silva (1997) rock (C15=0), SS (C16=0), HW (C17=0) SA
abrahamson
14 1      2       3       4    5      6    7    8   9      10       11      12     13     14  15  16  17
18   19    1a     3a   5a   6a  7a   9a n
0.02
3 1 1
 1.640 0.512 -1.1450 -0.144 0.610  0.260 5.60 6.4 0.370 -0.417 -0.230  0.0000 0.17 0.03 0.0 0.0 0.0
0.70 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.05
3 1 1
 1.870 0.512 -1.1450 -0.144 0.610  0.260 5.60 6.4 0.370 -0.620 -0.267  0.0280 0.17 0.03 0.0 0.0 0.0
0.71 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.075
3 1 1
 2.037 0.512 -1.1450 -0.144 0.610  0.260 5.58 6.4 0.370 -0.628 -0.280  0.0300 0.17 0.03 0.0 0.0 0.0
0.73 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.10
3 1 1
 2.160 0.512 -1.1450 -0.144 0.610  0.260 5.50 6.4 0.370 -0.598 -0.280  0.0280 0.17 0.03 0.0 0.0 0.0
0.74 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.15
```

```
3 1 1
 2.407 0.512 -1.1450 -0.144 0.610  0.260 5.27 6.4 0.370 -0.577 -0.280  0.0050 0.17 0.03 0.0 0.0 0.0
0.75 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.20
3 1 1
 2.406 0.512 -1.1150 -0.144 0.610  0.260 5.10 6.4 0.370 -0.445 -0.245 -0.0138 0.17 0.03 0.0 0.0 0.0
0.77 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.30
3 1 1
 2.114 0.512 -1.0350 -0.144 0.610  0.198 4.80 6.4 0.370 -0.219 -0.195 -0.0360 0.17 0.03 0.0 0.0 0.0
0.78 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.50
3 1 1
 1.615 0.512 -0.9515 -0.144 0.581  0.119 4.30 6.4 0.370  0.085 -0.121 -0.0635 0.17 0.03 0.0 0.0 0.0
0.80 0.130 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.75
3 1 1
 1.160 0.512 -0.8852 -0.144 0.528  0.057 3.90 6.4 0.331  0.320 -0.050 -0.0862 0.17 0.03 0.0 0.0 0.0
0.81 0.123 1.64 -1.145 0.61 0.26 5.6 0.37 2
1.0
3 1 1
 0.828 0.512 -0.8383 -0.144 0.490  0.013 3.70 6.4 0.281  0.423  0.000 -0.1020 0.17 0.03 0.0 0.0 0.0
0.83 0.118 1.64 -1.145 0.61 0.26 5.6 0.37 2
1.5
3 1 1
 0.260 0.512 -0.7721 -0.144 0.438 -0.049 3.55 6.4 0.210  0.600  0.040 -0.1200 0.17 0.03 0.0 0.0 0.0
0.84 0.110 1.64 -1.145 0.61 0.26 5.6 0.37 2
2.0
3 1 1
-0.150 0.512 -0.7250 -0.144 0.400 -0.094 3.50 6.4 0.160  0.610  0.040 -0.1400 0.17 0.03 0.0 0.0 0.0
0.85 0.105 1.64 -1.145 0.61 0.26 5.6 0.37 2
3.0
3 1 1
-0.690 0.512 -0.7250 -0.144 0.400 -0.156 3.50 6.4 0.089  0.630  0.040 -0.1726 0.17 0.03 0.0 0.0 0.0
0.87 0.097 1.64 -1.145 0.61 0.26 5.6 0.37 2
4.0
3 1 1
-1.130 0.512 -0.7250 -0.144 0.400 -0.200 3.50 6.4 0.039  0.640  0.040 -0.1956 0.17 0.03 0.0 0.0 0.0
0.88 0.092 1.64 -1.145 0.61 0.26 5.6 0.37 2

  **** File: as97vrs.sac****
Abrahamson and Silva (1997) vertical rock (C15=0), SS (C16=0), HW (C17=0) SA
abrahamson
14 1      2      3      4     5      6     7      8      9     10      11      12     13    14  15  16  17
18     19      1a      3a    5a    6a 7a    9a n
0.02
3 1 1
 1.642 0.909 -1.2520 0.275 0.390 -0.050  6.00 6.4 0.630 -0.140 -0.220  0.0000 0.06 0.3 0.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.05
3 1 1
 2.620 0.909 -1.3700 0.275 0.496 -0.050  6.00 6.4 0.630 -0.140 -0.220 -0.0002 0.06 0.3 0.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.075
3 1 1
 2.750 0.909 -1.3700 0.275 0.545 -0.050  6.00 6.4 0.630 -0.129 -0.220 -0.0007 0.06 0.3 0.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.10
3 1 1
 2.700 0.909 -1.3700 0.275 0.580 -0.050  6.00 6.4 0.630 -0.114 -0.220 -0.0010 0.06 0.3 0.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.15
3 1 1
 2.170 0.909 -1.2113 0.275 0.580  0.024  6.00 6.4 0.630 -0.093 -0.220 -0.0022 0.06 0.3 0.0 0.0 0.0
0.72 0.063 1.642 -1.252 0.39 -0.05 6 0.63 3
0.20
3 1 1
 1.648 0.909 -1.0987 0.275 0.580  0.076  5.35 6.4 0.571 -0.078 -0.220 -0.0030 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
```

```
0.30
3 1 1
 0.878 0.909 -0.9400 0.275 0.580  0.150  4.42 6.4 0.488 -0.057 -0.220 -0.0042 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
0.50
3 1 1
 0.145 0.909 -0.8291 0.275 0.471  0.150  3.26 6.4 0.383 -0.031 -0.220 -0.0060 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
0.75
3 1 1
-0.344 0.909 -0.7488 0.275 0.348  0.150  2.50 6.4 0.299 -0.010 -0.220 -0.0083 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
1.0
3 1 1
-0.602 0.909 -0.7404 0.275 0.260  0.150  2.50 6.4 0.240  0.004 -0.220 -0.0115 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
1.5
3 1 1
-0.966 0.909 -0.7285 0.275 0.260  0.058  2.50 6.4 0.240  0.025 -0.220 -0.0180 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
2.0
3 1 1
-1.244 0.909 -0.7200 0.275 0.260 -0.008  2.50 6.4 0.240  0.040 -0.220 -0.0240 0.06 0.3 0.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
3.0
3 1 1
-1.581 0.909 -0.7200 0.275 0.260 -0.100  2.50 6.4 0.240  0.040 -0.220 -0.0431 0.06 0.3 0.0 0.0 0.0
0.72 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
4.0
3 1 1
-1.857 0.909 -0.7200 0.275 0.260 -0.100  2.50 6.4 0.240  0.040 -0.220 -0.0565 0.06 0.3 0.0 0.0 0.0
0.75 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3

  **** File: as97ss.sac ****
Abrahamson and Silva (1997) soil (C15=1), SS (C16=0), HW (C17=0) SA
abrahamson
14 1      2       3       4    5     6    7    8  9     10      11     12    13    14  15  16  17
18   19    1a     3a   5a   6a  7a   9a n
0.02
3 1 1
 1.640 0.512 -1.1450 -0.144 0.610  0.260 5.60 6.4 0.370 -0.417 -0.230  0.0000 0.17 0.03 1.0 0.0 0.0
0.70 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.05
3 1 1
 1.870 0.512 -1.1450 -0.144 0.610  0.260 5.60 6.4 0.370 -0.620 -0.267  0.0280 0.17 0.03 1.0 0.0 0.0
0.71 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.075
3 1 1
 2.037 0.512 -1.1450 -0.144 0.610  0.260 5.58 6.4 0.370 -0.628 -0.280  0.0300 0.17 0.03 1.0 0.0 0.0
0.73 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.10
3 1 1
 2.160 0.512 -1.1450 -0.144 0.610  0.260 5.50 6.4 0.370 -0.598 -0.280  0.0280 0.17 0.03 1.0 0.0 0.0
0.74 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.15
3 1 1
 2.407 0.512 -1.1450 -0.144 0.610  0.260 5.27 6.4 0.370 -0.577 -0.280  0.0050 0.17 0.03 1.0 0.0 0.0
0.75 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.20
3 1 1
 2.406 0.512 -1.1150 -0.144 0.610  0.260 5.10 6.4 0.370 -0.445 -0.245 -0.0138 0.17 0.03 1.0 0.0 0.0
0.77 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.30
3 1 1
 2.114 0.512 -1.0350 -0.144 0.610  0.198 4.80 6.4 0.370 -0.219 -0.195 -0.0360 0.17 0.03 1.0 0.0 0.0
0.78 0.135 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.50
3 1 1
```

```
 1.615 0.512 -0.9515 -0.144 0.581  0.119 4.30 6.4 0.370  0.085 -0.121 -0.0635 0.17 0.03 1.0 0.0 0.0
0.80 0.130 1.64 -1.145 0.61 0.26 5.6 0.37 2
0.75
3 1 1
 1.160 0.512 -0.8852 -0.144 0.528  0.057 3.90 6.4 0.331  0.320 -0.050 -0.0862 0.17 0.03 1.0 0.0 0.0
0.81 0.123 1.64 -1.145 0.61 0.26 5.6 0.37 2
1.0
3 1 1
 0.828 0.512 -0.8383 -0.144 0.490  0.013 3.70 6.4 0.281  0.423  0.000 -0.1020 0.17 0.03 1.0 0.0 0.0
0.83 0.118 1.64 -1.145 0.61 0.26 5.6 0.37 2
1.5
3 1 1
 0.260 0.512 -0.7721 -0.144 0.438 -0.049 3.55 6.4 0.210  0.600  0.040 -0.1200 0.17 0.03 1.0 0.0 0.0
0.84 0.110 1.64 -1.145 0.61 0.26 5.6 0.37 2
2.0
3 1 1
-0.150 0.512 -0.7250 -0.144 0.400 -0.094 3.50 6.4 0.160  0.610  0.040 -0.1400 0.17 0.03 1.0 0.0 0.0
0.85 0.105 1.64 -1.145 0.61 0.26 5.6 0.37 2
3.0
3 1 1
-0.690 0.512 -0.7250 -0.144 0.400 -0.156 3.50 6.4 0.089  0.630  0.040 -0.1726 0.17 0.03 1.0 0.0 0.0
0.87 0.097 1.64 -1.145 0.61 0.26 5.6 0.37 2
4.0
3 1 1
-1.130 0.512 -0.7250 -0.144 0.400 -0.200 3.50 6.4 0.039  0.640  0.040 -0.1956 0.17 0.03 1.0 0.0 0.0
0.88 0.092 1.64 -1.145 0.61 0.26 5.6 0.37 2

  **** File: as97vss.sac****
Abrahamson and Silva (1997) vertical soil (C15=1), SS (C16=0), HW (C17=0) SA
abrahamson
14 1      2      3     4     5      6     7     8     9     10      11      12     13    14   15   16   17
18    19      1a      3a    5a    6a 7a    9a n
0.02
3 1 1
 1.642 0.909 -1.2520 0.275 0.390 -0.050  6.00 6.4 0.630 -0.140 -0.220  0.0000 0.06 0.3 1.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.05
3 1 1
 2.620 0.909 -1.3700 0.275 0.496 -0.050  6.00 6.4 0.630 -0.140 -0.220 -0.0002 0.06 0.3 1.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.075
3 1 1
 2.750 0.909 -1.3700 0.275 0.545 -0.050  6.00 6.4 0.630 -0.129 -0.220 -0.0007 0.06 0.3 1.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.10
3 1 1
 2.700 0.909 -1.3700 0.275 0.580 -0.050  6.00 6.4 0.630 -0.114 -0.220 -0.0010 0.06 0.3 1.0 0.0 0.0
0.76 0.085 1.642 -1.252 0.39 -0.05 6 0.63 3
0.15
3 1 1
 2.170 0.909 -1.2113 0.275 0.580  0.024  6.00 6.4 0.630 -0.093 -0.220 -0.0022 0.06 0.3 1.0 0.0 0.0
0.72 0.063 1.642 -1.252 0.39 -0.05 6 0.63 3
0.20
3 1 1
 1.648 0.909 -1.0987 0.275 0.580  0.076  5.35 6.4 0.571 -0.078 -0.220 -0.0030 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
0.30
3 1 1
 0.878 0.909 -0.9400 0.275 0.580  0.150  4.42 6.4 0.488 -0.057 -0.220 -0.0042 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
0.50
3 1 1
 0.145 0.909 -0.8291 0.275 0.471  0.150  3.26 6.4 0.383 -0.031 -0.220 -0.0060 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
0.75
3 1 1
-0.344 0.909 -0.7488 0.275 0.348  0.150  2.50 6.4 0.299 -0.010 -0.220 -0.0083 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
1.0
```

```
3 1 1
-0.602 0.909 -0.7404 0.275 0.260  0.150  2.50 6.4 0.240  0.004 -0.220 -0.0115 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
1.5
3 1 1
-0.966 0.909 -0.7285 0.275 0.260  0.058  2.50 6.4 0.240  0.025 -0.220 -0.0180 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
2.0
3 1 1
-1.244 0.909 -0.7200 0.275 0.260 -0.008  2.50 6.4 0.240  0.040 -0.220 -0.0240 0.06 0.3 1.0 0.0 0.0
0.69 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
3.0
3 1 1
-1.581 0.909 -0.7200 0.275 0.260 -0.100  2.50 6.4 0.240  0.040 -0.220 -0.0431 0.06 0.3 1.0 0.0 0.0
0.72 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3
4.0
3 1 1
-1.857 0.909 -0.7200 0.275 0.260 -0.100  2.50 6.4 0.240  0.040 -0.220 -0.0565 0.06 0.3 1.0 0.0 0.0
0.75 0.050 1.642 -1.252 0.39 -0.05 6 0.63 3

  **** File: c97sr-ss.sac  ****
Campbell (1997) strike slip (c9=0), soft rock, D(c19) = 2 km
campbell97
14 c1    2      3     4     5     6      7      8     9 10 11   12   13   14  15    16      17      18
19   20 21  22   23   24    25
 0.03
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.00 0.00 0.66 4.7   0.00
0.00  0.00 0.00 0.62 2 0 0.889 -0.0691 0.00
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.00 0.00 0.66 4.7   0.00
0.00  0.00 0.00 0.62 2 0 0.38   0.0    0.00
0.05
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.05 0.0  0.66 4.7 -0.0011
0.000055 0.10 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.05 0.0  0.66 4.7 -0.0011
0.000055 0.10 0.0  0.62 2 0 0.38   0.0    0.27
0.075
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.27 0.0  0.66 4.7 -0.0024
0.000095 0.11 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.27 0.0  0.66 4.7 -0.0024
0.000095 0.11 0.0  0.62 2 0 0.38   0.0    0.27
0.10
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.48 0.0  0.66 4.7 -0.0024
0.000007 0.07 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.48 0.0  0.66 4.7 -0.0024
0.000007 0.07 0.0  0.62 2 0 0.38   0.0    0.27
0.15
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.72 0.0  0.66 4.7 -0.0010 -
0.00027 -.01 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.72 0.0  0.66 4.7 -0.0010 -
0.00027 -.01 0.0  0.62 2 0 0.38   0.0    0.27
0.2
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.79 0.0  0.66 4.7 0.0011 -
0.00053 -.09 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.79 0.0  0.66 4.7 0.0011 -
0.00053 -.09 0.0  0.62 2 0 0.38   0.0    0.27
0.3
3 1 2
```

```
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.77 0.0  0.66 4.7 0.0035 -
0.00072 -.20 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.77 0.0  0.66 4.7 0.0035 -
0.00072 -.20 0.0  0.62 2 0 0.38   0.0    0.27
0.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -0.28 0.74 0.66 4.7 0.0068 -
0.0010 -0.21 0.25 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -0.28 0.74 0.66 4.7 0.0068 -
0.0010 -0.21 0.25 0.62 2 0 0.38   0.0    0.27
0.75
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.08 1.23 0.66 4.7 0.0077 -
0.0010 -0.22 0.37 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.08 1.23 0.66 4.7 0.0077 -
0.0010 -0.22 0.37 0.62 2 0 0.38   0.0    0.27
 1.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.79 1.59 0.66 4.7 0.0085 -
0.0010 -0.19 0.57 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.79 1.59 0.66 4.7 0.0085 -
0.0010 -0.19 0.57 0.62 2 0 0.38   0.0    0.27
 1.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -2.65 1.98 0.66 4.7 0.0094 -
0.0010 -0.16 0.72 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -2.65 1.98 0.66 4.7 0.0094 -
0.0010 -0.16 0.72 0.62 2 0 0.38   0.0    0.27
 2.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -3.28 2.23 0.66 4.7 0.0100 -
0.0010 -0.18 0.83 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -3.28 2.23 0.66 4.7 0.0100 -
0.0010 -0.18 0.83 0.62 2 0 0.38   0.0    0.27
 3.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.07 2.39 0.66 4.7 0.0108 -
0.0010 -0.11 0.86 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.07 2.39 0.66 4.7 0.0108 -
0.0010 -0.11 0.86 0.62 2 0 0.38   0.0    0.27
 4.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.26 2.03 0.66 4.7 0.0112 -
0.0010 -0.15 1.05 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.26 2.03 0.66 4.7 0.0112 -
0.0010 -0.15 1.05 0.62 2 0 0.38   0.0    0.27

  **** File: c97vsrss.sac  ****
Campbell (1997) vertical strike slip (c9=0), soft rock, D(c19) = 2 km
campbell97v
14 c1    2      3     4    5     6      7      8     9 10 11   12   13   14  15    16      17     18
19   20 21 22    23 24 25 26 27  28    29      30   31
 0.03
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.00 0.00 0.66 4.7   0.00
0.00  0.00 0.00 0.62 2 0 -1.58  0  0  0  0 0.889 -0.0691 0.00 0.36
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.00 0.00 0.66 4.7   0.00
0.00  0.00 0.00 0.62 2 0 -1.58  0  0  0  0 0.38   0.0    0.00 0.36
0.05
3 1 2
```

```
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.05 0.0  0.66 4.7 -0.0011
0.000055 0.10 0.0  0.62 2 0 -1.32 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.05 0.0  0.66 4.7 -0.0011
0.000055 0.10 0.0  0.62 2 0 -1.32 0  0  0  0 0.38   0.0    0.27 0.39
0.075
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.27 0.0  0.66 4.7 -0.0024
0.000095 0.11 0.0  0.62 2 0 -1.21 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.27 0.0  0.66 4.7 -0.0024
0.000095 0.11 0.0  0.62 2 0 -1.21 0  0  0  0 0.38   0.0    0.27 0.39
0.10
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.48 0.0  0.66 4.7 -0.0024
0.000007 0.07 0.0  0.62 2 0 -1.29 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.48 0.0  0.66 4.7 -0.0024
0.000007 0.07 0.0  0.62 2 0 -1.29 0  0  0  0 0.38   0.0    0.27 0.39
0.15
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.72 0.0  0.66 4.7 -0.0010 -
0.00027 -.01 0.0  0.62 2 0 -1.57 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.72 0.0  0.66 4.7 -0.0010 -
0.00027 -.01 0.0  0.62 2 0 -1.57 0  0  0  0 0.38   0.0    0.27 0.39
0.2
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.79 0.0  0.66 4.7 0.0011 -
0.00053 -.09 0.0  0.62 2 0 -1.73 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.79 0.0  0.66 4.7 0.0011 -
0.00053 -.09 0.0  0.62 2 0 -1.73 0  0  0  0 0.38   0.0    0.27 0.39
0.3
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.77 0.0  0.66 4.7 0.0035 -
0.00072 -.20 0.0  0.62 2 0 -1.98 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171  0.77 0.0  0.66 4.7 0.0035 -
0.00072 -.20 0.0  0.62 2 0 -1.98 0  0  0  0 0.38   0.0    0.27 0.39
0.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -0.28 0.74 0.66 4.7 0.0068 -
0.0010 -0.21 0.25 0.62 2 0 -2.03 0.46 -0.74  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -0.28 0.74 0.66 4.7 0.0068 -
0.0010 -0.21 0.25 0.62 2 0 -2.03 0.46 -0.74  0  0 0.38   0.0    0.27 0.39
0.75
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.08 1.23 0.66 4.7 0.0077 -
0.0010 -0.22 0.37 0.62 2 0 -1.79 0.67 -1.23  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.08 1.23 0.66 4.7 0.0077 -
0.0010 -0.22 0.37 0.62 2 0 -1.79 0.67 -1.23  0  0 0.38   0.0    0.27 0.39
 1.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.79 1.59 0.66 4.7 0.0085 -
0.0010 -0.19 0.57 0.62 2 0 -1.82 1.13 -1.59 0.18 -0.18 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -1.79 1.59 0.66 4.7 0.0085 -
0.0010 -0.19 0.57 0.62 2 0 -1.82 1.13 -1.59 0.18 -0.18 0.38   0.0    0.27 0.39
 1.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -2.65 1.98 0.66 4.7 0.0094 -
0.0010 -0.16 0.72 0.62 2 0 -1.81 1.52 -1.98 0.57 -0.49 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -2.65 1.98 0.66 4.7 0.0094 -
0.0010 -0.16 0.72 0.62 2 0 -1.81 1.52 -1.98 0.57 -0.49 0.38   0.0    0.27 0.39
 2.0
```

```
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -3.28 2.23 0.66 4.7 0.0100 -
0.0010 -0.18 0.83 0.62 2 0 -1.65 1.65 -2.23 0.61 -0.63 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -3.28 2.23 0.66 4.7 0.0100 -
0.0010 -0.18 0.83 0.62 2 0 -1.65 1.65 -2.23 0.61 -0.63 0.38   0.0    0.27 0.39
 3.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.07 2.39 0.66 4.7 0.0108 -
0.0010 -0.11 0.86 0.62 2 0 -1.31 1.28 -2.39 1.07 -0.84 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.07 2.39 0.66 4.7 0.0108 -
0.0010 -0.11 0.86 0.62 2 0 -1.31 1.28 -2.39 1.07 -0.84 0.38   0.0    0.27 0.39
 4.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.26 2.03 0.66 4.7 0.0112 -
0.0010 -0.15 1.05 0.62 2 0 -1.35 1.15 -2.03 1.26 -1.17 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0 0.440 -0.171 -4.26 2.03 0.66 4.7 0.0112 -
0.0010 -0.15 1.05 0.62 2 0 -1.35 1.15 -2.03 1.26 -1.17 0.38   0.0    0.27 0.39

  **** File: c97s-ss.sac****
Campbell (1997) strike slip (c9=0), soil, D(c19) = 2 km
campbell97
14 c1    2      3     4    5     6      7      8     9 10 11   12   13   14  15    16      17     18
19   20 21  22   23   24    25
 0.03
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.00 0.00 0.66 4.7   0.00    0.00
0.00 0.00 0.62 2 0 0.889 -0.0691 0.00
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.00 0.00 0.66 4.7   0.00    0.00
0.00 0.00 0.62 2 0 0.38   0.0    0.00
0.05
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.05 0.0  0.66 4.7 -0.0011 0.000055
0.00 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.05 0.0  0.66 4.7 -0.0011 0.000055
0.00 0.0  0.62 2 0 0.38   0.0    0.27
0.075
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.27 0.0  0.66 4.7 -0.0024 0.000095
0.00 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.27 0.0  0.66 4.7 -0.0024 0.000095
0.00 0.0  0.62 2 0 0.38   0.0    0.27
0.10
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.48 0.0  0.66 4.7 -0.0024 0.000007
0.00 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.48 0.0  0.66 4.7 -0.0024 0.000007
0.00 0.0  0.62 2 0 0.38   0.0    0.27
0.15
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.72 0.0  0.66 4.7 -0.0010 -0.00027
0.00 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.72 0.0  0.66 4.7 -0.0010 -0.00027
0.00 0.0  0.62 2 0 0.38   0.0    0.27
0.2
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.79 0.0  0.66 4.7 0.0011 -0.00053
0.00 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.79 0.0  0.66 4.7 0.0011 -0.00053
0.00 0.0  0.62 2 0 0.38   0.0    0.27
0.3
```

```
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.77 0.0  0.66 4.7 0.0035 -0.00072
0.00 0.0  0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.77 0.0  0.66 4.7 0.0035 -0.00072
0.00 0.0  0.62 2 0 0.38   0.0    0.27
0.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -0.28 0.74 0.66 4.7 0.0068 -0.0010
0.00 0.25 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -0.28 0.74 0.66 4.7 0.0068 -0.0010
0.00 0.25 0.62 2 0 0.38   0.0    0.27
0.75
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.08 1.23 0.66 4.7 0.0077 -0.0010
0.00 0.37 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.08 1.23 0.66 4.7 0.0077 -0.0010
0.00 0.37 0.62 2 0 0.38   0.0    0.27
 1.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.79 1.59 0.66 4.7 0.0085 -0.0010
0.00 0.57 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.79 1.59 0.66 4.7 0.0085 -0.0010
0.00 0.57 0.62 2 0 0.38   0.0    0.27
 1.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -2.65 1.98 0.66 4.7 0.0094 -0.0010
0.00 0.72 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -2.65 1.98 0.66 4.7 0.0094 -0.0010
0.00 0.72 0.62 2 0 0.38   0.0    0.27
 2.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -3.28 2.23 0.66 4.7 0.0100 -0.0010
0.00 0.83 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -3.28 2.23 0.66 4.7 0.0100 -0.0010
0.00 0.83 0.62 2 0 0.38   0.0    0.27
 3.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.07 2.39 0.66 4.7 0.0108 -0.0010
0.00 0.86 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.07 2.39 0.66 4.7 0.0108 -0.0010
0.00 0.86 0.62 2 0 0.38   0.0    0.27
 4.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.26 2.03 0.66 4.7 0.0112 -0.0010
0.00 1.05 0.62 2 0 0.889 -0.0691 0.27
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.26 2.03 0.66 4.7 0.0112 -0.0010
0.00 1.05 0.62 2 0 0.38   0.0    0.27

  **** File: c97vs-ss.sac  ****
Campbell (1997) vertical strike slip (c9=0), soil, D(c19) = 2 km
campbell97v
14 c1    2      3     4     5     6      7      8     9 10 11   12   13   14  15    16      17     18
19   20 21 22    23 24 25 26 27  28    29      30   31
 0.03
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.00 0.00 0.66 4.7   0.00    0.00
0.00 0.00 0.62 2 0 -1.58  0  0  0  0 0.889 -0.0691 0.00 0.36
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.00 0.00 0.66 4.7   0.00    0.00
0.00 0.00 0.62 2 0 -1.58  0  0  0  0 0.38   0.0    0.00 0.36
0.05
```

```
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.05 0.0  0.66 4.7 -0.0011 0.000055
0.00 0.0  0.62 2 0 -1.32 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.05 0.0  0.66 4.7 -0.0011 0.000055
0.00 0.0  0.62 2 0 -1.32 0  0  0  0 0.38   0.0    0.27 0.39
0.075
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.27 0.0  0.66 4.7 -0.0024 0.000095
0.00 0.0  0.62 2 0 -1.21 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.27 0.0  0.66 4.7 -0.0024 0.000095
0.00 0.0  0.62 2 0 -1.21 0  0  0  0 0.38   0.0    0.27 0.39
0.10
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.48 0.0  0.66 4.7 -0.0024 0.000007
0.00 0.0  0.62 2 0 -1.29 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.48 0.0  0.66 4.7 -0.0024 0.000007
0.00 0.0  0.62 2 0 -1.29 0  0  0  0 0.38   0.0    0.27 0.39
0.15
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.72 0.0  0.66 4.7 -0.0010 -0.00027
0.00 0.0  0.62 2 0 -1.57 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.72 0.0  0.66 4.7 -0.0010 -0.00027
0.00 0.0  0.62 2 0 -1.57 0  0  0  0 0.38   0.0    0.27 0.39
0.2
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.79 0.0  0.66 4.7 0.0011 -0.00053
0.00 0.0  0.62 2 0 -1.73 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.79 0.0  0.66 4.7 0.0011 -0.00053
0.00 0.0  0.62 2 0 -1.73 0  0  0  0 0.38   0.0    0.27 0.39
0.3
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.77 0.0  0.66 4.7 0.0035 -0.00072
0.00 0.0  0.62 2 0 -1.98 0  0  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0  0.77 0.0  0.66 4.7 0.0035 -0.00072
0.00 0.0  0.62 2 0 -1.98 0  0  0  0 0.38   0.0    0.27 0.39
0.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -0.28 0.74 0.66 4.7 0.0068 -0.0010
0.00 0.25 0.62 2 0 -2.03 0.46 -0.74  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -0.28 0.74 0.66 4.7 0.0068 -0.0010
0.00 0.25 0.62 2 0 -2.03 0.46 -0.74  0  0 0.38   0.0    0.27 0.39
0.75
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.08 1.23 0.66 4.7 0.0077 -0.0010
0.00 0.37 0.62 2 0 -1.79 0.67 -1.23  0  0 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.08 1.23 0.66 4.7 0.0077 -0.0010
0.00 0.37 0.62 2 0 -1.79 0.67 -1.23  0  0 0.38   0.0    0.27 0.39
 1.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.79 1.59 0.66 4.7 0.0085 -0.0010
0.00 0.57 0.62 2 0 -1.82 1.13 -1.59 0.18 -0.18 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -1.79 1.59 0.66 4.7 0.0085 -0.0010
0.00 0.57 0.62 2 0 -1.82 1.13 -1.59 0.18 -0.18 0.38   0.0    0.27 0.39
 1.5
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -2.65 1.98 0.66 4.7 0.0094 -0.0010
0.00 0.72 0.62 2 0 -1.81 1.52 -1.98 0.57 -0.49 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -2.65 1.98 0.66 4.7 0.0094 -0.0010
0.00 0.72 0.62 2 0 -1.81 1.52 -1.98 0.57 -0.49 0.38   0.0    0.27 0.39
```

```
 2.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -3.28 2.23 0.66 4.7 0.0100 -0.0010
0.00 0.83 0.62 2 0 -1.65 1.65 -2.23 0.61 -0.63 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -3.28 2.23 0.66 4.7 0.0100 -0.0010
0.00 0.83 0.62 2 0 -1.65 1.65 -2.23 0.61 -0.63 0.38   0.0    0.27 0.39
 3.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.07 2.39 0.66 4.7 0.0108 -0.0010
0.00 0.86 0.62 2 0 -1.31 1.28 -2.39 1.07 -0.84 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.07 2.39 0.66 4.7 0.0108 -0.0010
0.00 0.86 0.62 2 0 -1.31 1.28 -2.39 1.07 -0.84 0.38   0.0    0.27 0.39
 4.0
3 1 2
7.4
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.26 2.03 0.66 4.7 0.0112 -0.0010
0.00 1.05 0.62 2 0 -1.35 1.15 -2.03 1.26 -1.17 0.889 -0.0691 0.27 0.39
-3.512 0.904 -1.328 0.149 0.647 1.125 -0.112 -0.0957 0  0  0 -4.26 2.03 0.66 4.7 0.0112 -0.0010
0.00 1.05 0.62 2 0 -1.35 1.15 -2.03 1.26 -1.17 0.38   0.0    0.27 0.39


 **** File: id91rss.sac****
Idriss (1991) Hor. Rock , 5% damp, SS
IDRISS91
14 1
0.03
3 1 4
5 6 7.25
-0.150 2.261 -0.083 0.00 1.602 -0.142 20.00.690 0.0
-0.150 2.261 -0.083 0.00 1.602 -0.142 20.01.290 -0.12
-0.050 3.477 -0.284 0.00 2.475 -0.286 20.01.290 -0.12
-0.050 3.477 -0.284 0.00 2.475 -0.286 20.00.420  0.00
0.05
3 1 4
5 6 7.25
-0.278 2.365 -0.092 0.066 1.602 -0.142 20.00.690 0.0
-0.278 2.365 -0.092 0.066 1.602 -0.142 20.01.290 -0.12
-0.278 3.426 -0.269 0.066 2.475 -0.286 20.01.290 -0.12
-0.278 3.426 -0.269 0.066 2.475 -0.286 20.00.420  0.00
0.075
3 1 4
5 6 7.25
-0.308 2.334 -0.081 0.070 1.602 -0.142 20.00.690 0.0
-0.308 2.334 -0.081 0.070 1.602 -0.142 20.01.290 -0.12
-0.308 3.359 -0.252 0.070 2.475 -0.286 20.01.290 -0.12
-0.308 3.359 -0.252 0.070 2.475 -0.286 20.00.420  0.00
0.10
3 1 4
5 6 7.25
-0.318 2.319 -0.075 0.072 1.602 -0.142 20.00.720 0.0
-0.318 2.319 -0.075 0.072 1.602 -0.142 20.01.320 -0.12
-0.318 3.327 -0.243 0.072 2.475 -0.286 20.01.320 -0.12
-0.318 3.327 -0.243 0.072 2.475 -0.286 20.00.450  0.00
0.15
3 1 4
5 6 7.25
-0.348 2.219 -0.055 0.076 1.602 -0.142 20.00.750 0.0
-0.348 2.219 -0.055 0.076 1.602 -0.142 20.01.350 -0.12
-0.348 3.185 -0.216 0.076 2.475 -0.286 20.01.350 -0.12
-0.348 3.185 -0.216 0.076 2.475 -0.286 20.00.480  0.00
0.20
3 1 4
5 6 7.25
-0.358 2.146 -0.042 0.078 1.602 -0.142 20.00.770 0.0
-0.358 2.146 -0.042 0.078 1.602 -0.142 20.01.370 -0.12
-0.358 3.100 -0.201 0.078 2.475 -0.286 20.01.370 -0.12
-0.358 3.100 -0.201 0.078 2.475 -0.286 20.00.500  0.00
```

```
0.30
3 1 4
5 6 7.25
-0.486 2.010 -0.020 0.082 1.602 -0.142 20.00.790 0.0
-0.486 2.010 -0.020 0.082 1.602 -0.142 20.01.390 -0.12
-0.486 2.982 -0.182 0.082 2.475 -0.286 20.01.390 -0.12
-0.486 2.982 -0.182 0.082 2.475 -0.286 20.00.520  0.00
0.50
3 1 4
5 6 7.25
-0.648 1.818  0.003 0.099 1.602 -0.142 20.00.820 0.0
-0.648 1.818  0.003 0.099 1.602 -0.142 20.01.420 -0.12
-0.648 2.850 -0.169 0.099 2.475 -0.286 20.01.420 -0.12
-0.648 2.850 -0.169 0.099 2.475 -0.286 20.00.550  0.00
0.75
3 1 4
5 6 7.25
-0.765 1.605  0.024 0.113 1.602 -0.142 20.00.840 0.0
-0.765 1.605  0.024 0.113 1.602 -0.142 20.01.440 -0.12
-0.765 2.745 -0.165 0.113 2.475 -0.286 20.01.440 -0.12
-0.765 2.745 -0.165 0.113 2.475 -0.286 20.00.570  0.00
1.0
3 1 4
5 6 7.25
-0.867 1.432  0.043 0.123 1.602 -0.142 20.00.870 0.0
-0.867 1.432  0.043 0.123 1.602 -0.142 20.01.470 -0.12
-0.867 2.662 -0.162 0.123 2.475 -0.286 20.01.470 -0.12
-0.867 2.662 -0.162 0.123 2.475 -0.286 20.00.600.00
1.5
3 1 4
5 6 7.25
-0.970 1.072  0.084 0.136 1.602 -0.142 20.00.870 0.0
-0.970 1.072  0.084 0.136 1.602 -0.142 20.01.470 -0.12
-0.970 2.536 -0.160 0.136 2.475 -0.286 20.01.470 -0.12
-0.970 2.536 -0.160 0.136 2.475 -0.286 20.00.600.00
2.0
3 1 4
5 6 7.25
-1.046 0.762  0.121 0.146 1.602 -0.142 20.00.870 0.0
-1.046 0.762  0.121 0.146 1.602 -0.142 20.01.470 -0.12
-1.046 2.447 -0.160 0.146 2.475 -0.286 20.01.470 -0.12
-1.046 2.447 -0.160 0.146 2.475 -0.286 20.00.600  0.00
3.0
3 1 4
5 6 7.25
-1.143 0.194  0.191 0.160 1.602 -0.142 20.00.870 0.0
-1.143 0.194  0.191 0.160 1.602 -0.142 20.01.470 -0.12
-1.143 2.295 -0.159 0.160 2.475 -0.286 20.01.470 -0.12
-1.143 2.295 -0.159 0.160 2.475 -0.286 20.00.600  0.00
4.0
3 1 4
5 6 7.25
-1.177 -0.466  0.280 0.169 1.602 -0.142 20.00.870 0.0
-1.177 -0.466  0.280 0.169 1.602 -0.142 20.01.470 -0.12
-1.177 2.169 -0.159 0.169 2.475 -0.286 20.01.470 -0.12
-1.177 2.169 -0.159 0.169 2.475 -0.286 20.00.600  0.00

 **** File: s93hss.sac ****
Sadigh and others (1993) horizontal, strike slip and normal
CALTRANS
14
0.03 1
3 1 4
4.5 6.5 7.214
-0.624 1.0 0.00 -2.10 1.29649 0.250 0.0 2.5 8.50.76 0.0
-0.624 1.0 0.00 -2.10 1.29649 0.250 0.0 2.5 8.51.390 -0.14
-1.274 1.1 0.00 -2.10 -.48451 0.524 0.0 2.5 8.51.390 -0.14
-1.274 1.1 0.00 -2.10 -.48451 0.524 0.0 2.5 8.50.380 0.000
0.05 1
```

```
3 1 4
4.5 6.5 7.214
-0.090 1.0 0.006 -2.128 1.29649 0.250 -0.082 2.5 8.50.76 0.0
-0.090 1.0 0.006 -2.128 1.29649 0.250 -0.082 2.5 8.51.390 -0.14
-0.740 1.1 0.006 -2.128 -.48451 0.524 -0.082 2.5 8.51.390 -0.14
-0.740 1.1 0.006 -2.128 -.48451 0.524 -0.082 2.5 8.50.380 0.000
0.075 1
3 1 4
4.5 6.5 7.214
 0.140 1.0 0.006 -2.128 1.29649 0.250 -0.082 2.5 8.50.770 0.0
 0.140 1.0 0.006 -2.128 1.29649 0.250 -0.082 2.5 8.51.400 -0.14
-0.510 1.1 0.006 -2.128 -.48451 0.524 -0.082 2.5 8.51.400 -0.14
-0.510 1.1 0.006 -2.128 -.48451 0.524 -0.082 2.5 8.50.390 0.000
0.10 1
3 1 4
4.5 6.5 7.214
 0.275 1.0 0.006 -2.148 1.29649 0.250 -0.041 2.5 8.50.780 0.0
 0.275 1.0 0.006 -2.148 1.29649 0.250 -0.041 2.5 8.51.410 -0.14
-0.375 1.1 0.006 -2.148 -.48451 0.524 -0.041 2.5 8.51.410 -0.14
-0.375 1.1 0.006 -2.148 -.48451 0.524 -0.041 2.5 8.50.400 0.000
0.15 1
3 1 4
4.5 6.5 7.214
 0.285 1.0 0.002 -2.130 1.29649 0.250  0.000 2.5 8.50.790 0.0
 0.285 1.0 0.002 -2.130 1.29649 0.250  0.000 2.5 8.51.420 -0.14
-0.365 1.1 0.002 -2.130 -.48451 0.524  0.000 2.5 8.51.420 -0.14
-0.365 1.1 0.002 -2.130 -.48451 0.524  0.000 2.5 8.50.410  0.00
0.20 1
3 1 4
4.5 6.5 7.214
 0.153 1.0 -0.004 -2.080 1.29649 0.250  0.000 2.5 8.50.800 0.0
 0.153 1.0 -0.004 -2.080 1.29649 0.250  0.000 2.5 8.51.430 -0.14
-0.497 1.1 -0.004 -2.080 -.48451 0.524  0.000 2.5 8.51.430 -0.14
-0.497 1.1 -0.004 -2.080 -.48451 0.524  0.000 2.5 8.50.420  0.00
0.30 1
3 1 4
4.5 6.5 7.214
-0.057 1.0 -0.017 -2.028 1.29649 0.250  0.000 2.5 8.50.820 0.0
-0.057 1.0 -0.017 -2.028 1.29649 0.250  0.000 2.5 8.51.450 -0.14
-0.707 1.1 -0.017 -2.028 -.48451 0.524  0.000 2.5 8.51.450 -0.14
-0.707 1.1 -0.017 -2.028 -.48451 0.524  0.000 2.5 8.50.440  0.00
0.50 1
3 1 4
4.5 6.5 7.214
-0.588 1.0 -0.040 -1.945 1.29649 0.250  0.000 2.5 8.50.870 0.0
-0.588 1.0 -0.040 -1.945 1.29649 0.250  0.000 2.5 8.51.500 -0.14
-1.238 1.1 -0.040 -1.945 -.48451 0.524  0.000 2.5 8.51.500 -0.14
-1.238 1.1 -0.040 -1.945 -.48451 0.524  0.000 2.5 8.50.490  0.00
0.75 1
3 1 4
4.5 6.5 7.214
-1.208 1.0 -0.050 -1.865 1.29649 0.250  0.000 2.5 8.50.890 0.0
-1.208 1.0 -0.050 -1.865 1.29649 0.250  0.000 2.5 8.51.520 -0.14
-1.858 1.1 -0.050 -1.865 -.48451 0.524  0.000 2.5 8.51.520 -0.14
-1.858 1.1 -0.050 -1.865 -.48451 0.524  0.000 2.5 8.50.510  0.00
1.0 1
3 1 4
4.5 6.5 7.214
-1.705 1.0 -0.055 -1.800 1.29649 0.250  0.000 2.5 8.50.900 0.0
-1.705 1.0 -0.055 -1.800 1.29649 0.250  0.000 2.5 8.51.530 -0.14
-2.355 1.1 -0.055 -1.800 -.48451 0.524  0.000 2.5 8.51.530 -0.14
-2.355 1.1 -0.055 -1.800 -.48451 0.524  0.000 2.5 8.50.520  0.00
1.5 1
3 1 4
4.5 6.5 7.214
-2.407 1.0 -0.065 -1.725 1.29649 0.250  0.000 2.5 8.50.900 0.0
-2.407 1.0 -0.065 -1.725 1.29649 0.250  0.000 2.5 8.51.530 -0.14
-3.057 1.1 -0.065 -1.725 -.48451 0.524  0.000 2.5 8.51.530 -0.14
-3.057 1.1 -0.065 -1.725 -.48451 0.524  0.000 2.5 8.50.520  0.00
```

```
2.0 1
3 1 4
4.5 6.5 7.214
-2.945 1.0 -0.070 -1.670 1.29649 0.250  0.000 2.5 8.50.900 0.0
-2.945 1.0 -0.070 -1.670 1.29649 0.250  0.000 2.5 8.51.530 -0.14
-3.595 1.1 -0.070 -1.670 -.48451 0.524  0.000 2.5 8.51.530 -0.14
-3.595 1.1 -0.070 -1.670 -.48451 0.524  0.000 2.5 8.50.520  0.00
3.0 1
3 1 4
4.5 6.5 7.214
-3.700 1.0 -0.080 -1.610 1.29649 0.250  0.000 2.5 8.50.900 0.0
-3.700 1.0 -0.080 -1.610 1.29649 0.250  0.000 2.5 8.51.530 -0.14
-4.350 1.1 -0.080 -1.610 -.48451 0.524  0.000 2.5 8.51.530 -0.14
-4.350 1.1 -0.080 -1.610 -.48451 0.524  0.000 2.5 8.50.520  0.00
4.0 1
3 1 4
4.5 6.5 7.214
-4.230 1.0 -0.100 -1.570 1.29649 0.250  0.000 2.5 8.50.900 0.0
-4.230 1.0 -0.100 -1.570 1.29649 0.250  0.000 2.5 8.51.530 -0.14
-4.880 1.1 -0.100 -1.570 -.48451 0.524  0.000 2.5 8.51.530 -0.14
-4.880 1.1 -0.100 -1.570 -.48451 0.524  0.000 2.5 8.50.520  0.00

 **** File: s93vss.sac ****
Sadigh and others (1993) vertical, strike slip and norma.
CALTRANS
14
0.02 1
3 1 3
6.0 6.5
-0.430 1.0 0.00 -2.30 1.2726 0.228 0.0 2.5 8.50.750  0.00
-0.430 1.0 0.00 -2.30 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-1.080 1.1 0.00 -2.30 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.05 1
3 1 3
6.0 6.5
 0.5041 1.0 0.00 -2.45 1.2726 0.228 0.0 2.5 8.50.750  0.00
 0.5041 1.0 0.00 -2.45 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-0.1459 1.1 0.00 -2.45 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.075 1
3 1 3
6.0 6.5
 0.7200 1.0 0.00 -2.45 1.2726 0.228 0.0 2.5 8.50.750  0.00
 0.7200 1.0 0.00 -2.45 1.2726 0.228 0.0 2.5 8.52.910 -0.36
0.07000 1.1 0.00 -2.45 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.10 1
3 1 3
6.0 6.5
 0.6252 1.0 -0.00468 -2.40 1.2726 0.228 0.0 2.5 8.50.750  0.00
 0.6252 1.0 -0.00468 -2.40 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-0.0248 1.1 -0.00468 -2.40 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.15 1
3 1 3
6.0 6.5
 0.2524 1.0 -0.01000 -2.30 1.2726 0.228 0.0 2.5 8.50.750  0.00
 0.2524 1.0 -0.01000 -2.30 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-0.3976 1.1 -0.01000 -2.30 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.20 1
3 1 3
6.0 6.5
-0.3005 1.0 -0.02061 -2.164 1.2726 0.228 0.0 2.5 8.50.750  0.00
-0.3005 1.0 -0.02061 -2.164 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-0.9505 1.1 -0.02061 -2.164 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.30 1
3 1 3
6.0 6.5
-1.1392 1.0 -0.03558 -1.971 1.2726 0.228 0.0 2.5 8.50.750  0.00
-1.1392 1.0 -0.03558 -1.971 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-1.7893 1.1 -0.03558 -1.971 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.50 1
```

```
3 1 3
6.0 6.5
-2.2748 1.0 -0.05442 -1.729 1.2726 0.228 0.0 2.5 8.50.750  0.00
-2.2748 1.0 -0.05442 -1.729 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-2.9248 1.1 -0.05442 -1.729 -.3524 0.478 0.0 2.5 8.50.570  0.00
0.75 1
3 1 3
6.0 6.5
-3.2062 1.0 -0.06939 -1.536 1.2726 0.228 0.0 2.5 8.50.750  0.00
-3.2062 1.0 -0.06939 -1.536 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-3.8562 1.1 -0.06939 -1.536 -.3524 0.478 0.0 2.5 8.50.570  0.00
1.0 1
3 1 3
6.0 6.5
-3.8818 1.0 -0.08000 -1.40 1.2726 0.228 0.0 2.5 8.50.750  0.00
-3.8818 1.0 -0.08000 -1.40 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-4.5318 1.1 -0.08000 -1.40 -.3524 0.478 0.0 2.5 8.50.570  0.00
1.5 1
3 1 3
6.0 6.5
-4.2618 1.0 -0.08554 -1.40 1.2726 0.228 0.0 2.5 8.50.750  0.00
-4.2618 1.0 -0.08554 -1.40 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-4.9118 1.1 -0.08554 -1.40 -.3524 0.478 0.0 2.5 8.50.570  0.00
2.0 1
3 1 3
6.0 6.5
-4.5719 1.0 -0.08946 -1.40 1.2726 0.228 0.0 2.5 8.50.750  0.00
-4.5719 1.0 -0.08946 -1.40 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-5.2219 1.1 -0.08946 -1.40 -.3524 0.478 0.0 2.5 8.50.570  0.00
3.0 1
3 1 3
6.0 6.5
-5.0364 1.0 -0.09500 -1.40 1.2726 0.228 0.0 2.5 8.50.750  0.00
-5.0364 1.0 -0.09500 -1.40 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-5.6864 1.1 -0.09500 -1.40 -.3524 0.478 0.0 2.5 8.50.570  0.00
4.0 1
3 1 3
6.0 6.5
-5.3864 1.0 -0.09500 -1.40 1.2726 0.228 0.0 2.5 8.50.750  0.00
-5.3864 1.0 -0.09500 -1.40 1.2726 0.228 0.0 2.5 8.52.910 -0.36
-6.0364 1.1 -0.09500 -1.40 -.3524 0.478 0.0 2.5 8.50.570  0.00

 **** File: s97s-s.sac ****
Sadigh 1997 soil SS average horizontal
sadighspec
14
0.03
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.0000  0.000 2.5 8.5  1.520 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.0000  0.000 2.5 8.5  1.520 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.0000  0.000 2.5 8.5  0.400  0.000
0.05
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.2000  0.003 2.5 8.5  1.540 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.2000  0.003 2.5 8.5  1.540 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.2000  0.003 2.5 8.5  0.420  0.000
0.075
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.4572  0.005 2.5 8.5  1.540 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.4572  0.005 2.5 8.5  1.540 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.4572  0.005 2.5 8.5  0.420  0.000
0.1
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.6395  0.005 2.5 8.5  1.540 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.6395  0.005 2.5 8.5  1.540 -0.160
```

```
 -2.170 1.0  1.700  0.3825  0.5882  0.6395  0.005 2.5 8.5  0.420  0.000
0.15
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.8400  0.001 2.5 8.5  1.555 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.8400  0.001 2.5 8.5  1.555 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.8400  0.001 2.5 8.5  0.435  0.000
0.2
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.9187 -0.004 2.5 8.5  1.565 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.9187 -0.004 2.5 8.5  1.565 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.9187 -0.004 2.5 8.5  0.445  0.000
0.3
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.9547 -0.014 2.5 8.5  1.580 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.9547 -0.014 2.5 8.5  1.580 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.9547 -0.014 2.5 8.5  0.460  0.000
0.5
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.8494 -0.033 2.5 8.5  1.610 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.8494 -0.033 2.5 8.5  1.610 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.8494 -0.033 2.5 8.5  0.490  0.000
0.75
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.7010 -0.051 2.5 8.5  1.635 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.7010 -0.051 2.5 8.5  1.635 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.7010 -0.051 2.5 8.5  0.515  0.000
1.0
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.5665 -0.065 2.5 8.5  1.660 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.5665 -0.065 2.5 8.5  1.660 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.5665 -0.065 2.5 8.5  0.540  0.000
1.5
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.3235 -0.090 2.5 8.5  1.690 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.3235 -0.090 2.5 8.5  1.690 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.3235 -0.090 2.5 8.5  0.570  0.000
2.0
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200  0.1001 -0.108 2.5 8.5  1.700 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.1001 -0.108 2.5 8.5  1.700 -0.160
 -2.170 1.0  1.700  0.3825  0.5882  0.1001 -0.108 2.5 8.5  0.580  0.000
3.0
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200 -0.2801 -0.139 2.5 8.5  1.710 -0.160
 -2.170 1.0  1.700  0.3825  0.5882 -0.2801 -0.139 2.5 8.5  1.710 -0.160
 -2.170 1.0  1.700  0.3825  0.5882 -0.2801 -0.139 2.5 8.5  0.590  0.000
4.0
 3 1 3
 6.500 7.0
 -2.170 1.0  1.700  2.1863  0.3200 -0.6274 -0.160 2.5 8.5  1.710 -0.160
 -2.170 1.0  1.700  0.3825  0.5882 -0.6294 -0.160 2.5 8.5  1.710 -0.160
 -2.170 1.0  1.700  0.3825  0.5882 -0.6294 -0.160 2.5 8.5  0.590  0.000

 **** File: sso97-s.sac****
Spudich and others (1997) soil &verage horizontal component
joyner-boore
14
 0.03
 3 1 1
0.233  0.229  0.000  0.945  05.57  0.216
```

```
  0.05
 3 1 1
0.479  0.278 -0.049  1.051  06.27  0.268
 0.075
 3 1 1
0.585  0.327 -0.098  1.051  06.27  0.268
  0.10
 3 1 1
0.658  0.327 -0.098  1.051  06.27  0.268
  0.15
 3 1 1
0.721  0.305 -0.099  1.009  07.23  0.277
  0.20
 3 1 1
0.682  0.309 -0.090  0.972  07.02  0.286
  0.30
 3 1 1
0.542  0.334 -0.070  0.915  05.94  0.301
  0.50
 3 1 1
0.285  0.384 -0.039  0.857  04.13  0.323
  0.75
 3 1 1
0.067  0.425 -0.020  0.833  03.07  0.345
  1.00
 3 1 1
  -0.067  0.450 -0.014  0.837  02.90  0.361
  1.50
 3 1 1
  -0.197  0.471 -0.019  0.879  03.92  0.387
  2.00
 3 1 1
  -0.227  0.471 -0.037  0.940  05.85  0.407
  3.00
 3 1 1
  -0.417  0.485 -0.045  0.940  05.85  0.407
  4.00
 3 1 1
  -0.557  0.500 -0.055  0.940  05.85  0.407

  **** File: stb-s45.dfs****
 Stansbury 45ø 15 km depth
 1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
  6.7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

  **** File: stb-s45.dfj****
 Stansbury 45ø 15 km depth
 1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
  0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

  **** File: stb-s55.dfs****
 Stansbury 55ø 15 km depth
 1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
  7.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

  **** File: stb-s55.dfj****
 Stansbury 55ø 15 km depth
 1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
  0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

  **** File: stb-s65.dfs****
 Stansbury 65ø 15 km depth
 1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
  8.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

  **** File: stb-s65.dfj****
 Stansbury 65ø 15 km depth
 1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
  2.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
```

```
 **** File: stb-m45.dfs****
Stansbury 45ø 18 km depth
1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 6.7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-m45.dfj****
Stansbury 45ø 18 km depth
1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-m55.dfs****
Stansbury 55ø 18 km depth
1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 7.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-m55.dfj****
Stansbury 55ø 18 km depth
1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-m65.dfs****
Stansbury 65ø 18 km depth
1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 8.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-m65.dfj****
Stansbury 65ø 18 km depth
1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-d45.dfs****
Stansbury 45ø 20 km depth
1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 6.7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-d45.dfj****
Stansbury 45ø 20 km depth
1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-d55.dfs****
Stansbury 55ø 20 km depth
1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 7.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-d55.dfj****
Stansbury 55ø 20 km depth
1 10 6.4 6.6 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-d65.dfs****
Stansbury 65ø 20 km depth
1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 8.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: stb-d65.dfj****
Stansbury 65ø 20 km depth
1 11 6.4 6.6 6.7 6.8 6.9 7.0 7.1 7.2 7.3 7.4 7.5
 0.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-s45.dfs ****
Cedar Mountain 45ø 9.25 km depth
1  5 6.5 6.6 6.8 7.0 7.1
 6.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-s45.dfj ****
Cedar Mountain 45ø 9.25 km depth
1  5 6.5 6.6 6.8 7.0 7.1
```

```
 0.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-m45.dfs ****
Cedar Mountain 45ø 10.88 depth
1  5 6.5 6.6 6.8 6.9 7.1
 6.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-m45.dfj ****
Cedar Mountain 45ø 10.88 depth
1  5 6.5 6.6 6.8 6.9 7.1
 0.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-d45.dfs ****
Cedar Mountain 45ø 12.62 depth
1  5 6.5 6.7 6.8 6.9 7.1
 6.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-d45.dfj ****
Cedar Mountain 45ø 12.62 depth
1  5 6.5 6.7 6.8 6.9 7.1
 0.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-s55.dfs ****
Cedar Mountain 55ø 10.88 depth
1  5 6.5 6.6 6.8 7.0 7.1
 7.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-s55.dfj ****
Cedar Mountain 55ø 10.88 depth
1  5 6.5 6.6 6.8 7.0 7.1
 1.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-m55.dfs ****
Cedar Mountain 55ø 13.21 depth
1  5 6.5 6.7 6.8 6.9 7.1
 7.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-m55.dfj ****
Cedar Mountain 55ø 13.21 depth
1  5 6.5 6.7 6.8 6.9 7.1
 0.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-d55.dfs ****
Cedar Mountain 55ø 15.00 depth
1  5 6.5 6.7 6.8 6.9 7.1
 7.4 1.0 1.0 1.0 1.0 1.0

 **** File: cm-d55.dfj ****
Cedar Mountain 55ø 15.00 depth
1  5 6.5 6.7 6.8 6.9 7.1
 0.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-vd55.dfs****
Cedar Mountain 55ø 15.86 depth
1  6 6.5 6.7 6.8 7.0 7.1 7.2
 7.4 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-vd55.dfj****
Cedar Mountain 55ø 15.86 depth
1  6 6.5 6.7 6.8 7.0 7.1 7.2
 0.0 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-s65.dfs ****
Cedar Mountain 65ø 12.62 depth
1  5 6.5 6.6 6.8 7.0 7.1
 8.2 1.0 1.0 1.0 1.0 1.0

 **** File: cm-s65.dfj ****
Cedar Mountain 65ø 12.62 depth
```

```
1  5 6.5 6.6 6.8 7.0 7.1
 3.1 1.0 1.0 1.0 1.0 1.0

 **** File: cm-m65.dfs ****
Cedar Mountain 65ø 15.00 depth
1  5 6.5 6.7 6.8 6.9 7.1
 8.2 1.0 1.0 1.0 1.0 1.0

 **** File: cm-m65.dfj ****
Cedar Mountain 65ø 15.00 depth
1  5 6.5 6.7 6.8 6.9 7.1
 2.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-ma65.dfs****
Cedar Mountain 65ø 15.86 depth
1  5 6.5 6.7 6.8 6.9 7.1
 8.2 1.0 1.0 1.0 1.0 1.0

 **** File: cm-ma65.dfj****
Cedar Mountain 65ø 15.86 depth
1  5 6.5 6.7 6.8 6.9 7.1
 1.6 1.0 1.0 1.0 1.0 1.0

 **** File: cm-d65.dfs ****
Cedar Mountain 65ø 18.00 depth
1  6 6.5 6.7 6.8 7.0 7.1 7.2
 8.2 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-d65.dfj ****
Cedar Mountain 65ø 18.00 depth
1  6 6.5 6.7 6.8 7.0 7.1 7.2
 0.6 1.0 1.0 1.0 1.0 1.0 1.0

 **** File: cm-vd65.dfs****
Cedar Mountain 65ø 18.00 depth
1  5 6.5 6.8 7.0 7.1 7.2
 8.2 1.0 1.0 1.0 1.0 1.0

 **** File: cm-vd65.dfj****
Cedar Mountain 65ø 18.00 depth
1  5 6.5 6.8 7.0 7.1 7.2
 0.0 1.0 1.0 1.0 1.0 1.0

 **** File: ranf-rd.pmf****
 Incremental Distribution for Radius=  25.0
33115.505.605.705.805.906.006.106.206.30
0.000.000370.000520.000770.001020.001410.001920.002510.003260.00415
1.000.001580.002110.002830.003760.004870.006270.007810.009860.01215
2.000.003320.004230.005290.006650.008070.009940.011950.014220.01689
3.000.006010.007140.008580.010040.011820.013430.015790.017760.02028
4.000.009580.011070.012540.014310.016240.018370.020200.022760.02481
5.000.014010.015550.017410.019060.021040.023330.025820.028100.03033
6.000.018660.020160.021730.023640.025650.027650.029710.031450.03302
7.000.023410.025020.026670.028490.030110.031820.033370.036160.03876
8.000.028120.029510.031090.032600.033980.035790.037580.039110.04087
9.000.032610.033990.035100.036490.038090.039470.040890.042520.04445
10.000.037260.038510.040040.041360.042890.044900.046510.048030.05123
11.000.041110.042240.043280.044960.046300.047610.049320.050760.05252
12.000.044880.045910.047140.048140.049610.050580.052370.054090.05480
13.000.048450.049320.050400.051520.052620.054270.055260.056780.05656
14.000.051760.052950.053940.055110.056110.057080.058300.057970.05709
15.000.055640.056500.057490.058120.059180.059890.060590.059990.05995
16.000.058990.059900.060590.061660.062580.063190.063780.063630.06333
17.000.062330.063110.063960.064390.064910.064360.063390.063510.06180
18.000.065310.066160.066400.066320.065750.065280.063740.060890.05778
19.000.068230.068300.067750.067030.066050.064250.060800.056500.05178
20.000.069760.068780.068010.066590.063440.059160.054180.049770.04581
21.000.069730.067830.065020.060830.056050.050980.046380.042170.03845
22.000.065170.061110.056430.051600.047230.043150.039480.036040.03332
```

23.000.053010.048190.043530.039420.035340.031760.028860.026640.02459
24.000.037030.033320.029840.026610.023620.021180.019290.017790.01657
25.000.020250.017630.015420.013350.011600.010210.008950.007910.00699
26.000.008300.006950.005650.004590.003750.002950.002320.001740.00134
27.000.003320.002680.002130.001670.001250.000930.000660.000460.00031
28.000.001310.001000.000760.000550.000380.000250.000170.000100.00006
29.000.000420.000280.000190.000120.000070.000040.000020.000010.00001
30.000.000060.000040.000020.000010.000010.000000.000000.000000.00000
31.000.000000.000000.000000.000000.000000.000000.000000.000000.00000
32.000.000000.000000.000000.000000.000000.000000.000000.000000.00000

**** File: ranf-sd.pmf****
Incremental Distribution for Radius= 25.0
26115.505.605.705.805.906.006.106.206.30
0.000.003980.004380.004970.005130.005480.006020.006530.007210.00779
1.000.010240.010870.011480.012900.013850.015110.016530.018160.01979
2.000.013430.014300.015490.016670.017510.019260.020230.021940.02413
3.000.017110.017530.018420.018830.020480.020710.022520.023020.02478
4.000.019500.020520.021410.022840.023700.025210.025720.027660.02834
5.000.024150.024510.025650.025930.027420.028720.030940.032150.03339
6.000.025510.026460.027870.029200.030360.031280.032340.033360.03468
7.000.028900.030270.031040.031840.032630.033370.034790.037970.03993
8.000.032710.032930.033490.034800.035130.036940.037980.038750.03953
9.000.035470.036230.036370.037010.038090.039280.040060.041150.04310
10.000.040630.041950.042630.044520.045540.046940.047720.048550.05290
11.000.042780.043040.043870.044710.046220.046710.049040.050520.05165
12.000.045620.046360.047670.047600.048990.049190.051880.053910.05377
13.000.048230.048820.049300.050220.051470.054070.053970.055790.05506
14.000.051500.052770.053260.053750.055340.055420.057000.055930.05551
15.000.055440.055910.056470.056450.057560.058120.059520.058500.05902
16.000.057710.058590.059500.060420.061870.062630.064050.064330.06360
17.000.061180.062090.063340.063620.064810.064140.062330.063040.06050
18.000.064680.065060.065050.065740.064140.065060.062190.057710.05574
19.000.066910.067490.065980.065840.065060.062250.057430.053580.04898
20.000.068150.066750.067200.064610.059380.053820.049120.045620.04266
21.000.066150.062650.058520.053880.048750.044340.040770.037490.03490
22.000.058150.051720.046920.044130.040970.038540.035700.033440.03174
23.000.036620.034940.032130.029140.025920.024540.023840.022980.02144
24.000.019690.018850.017470.015740.014860.013990.013650.013310.01314
25.000.005540.005020.004490.004490.004490.004310.004140.003960.00396

The following tables list the output for specific cases

TABLE 3-1 HORIZONTAL ROCK SPECTRA FOR STANSBURY FAULT

**** File: stb-hr.sp ****
Stansbury Fault (w/ Anderson et. al., 1996) soft rock

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.2030E+01	0.2226E+01	0.3140E+01	0.4334E+00	0.4752E+00	0.6703E+00	0.1000E+01	0.10
0.05000	0.4278E+01	0.4749E+01	0.6779E+01	0.5480E+00	0.6084E+00	0.8683E+00	0.1264E+01	0.12
0.07500	0.7946E+01	0.8848E+01	0.1266E+02	0.6786E+00	0.7556E+00	0.1081E+01	0.1566E+01	0.15
0.10000	0.1232E+02	0.1377E+02	0.1984E+02	0.7890E+00	0.8822E+00	0.1271E+01	0.1821E+01	0.18
0.15000	0.2225E+02	0.2503E+02	0.3627E+02	0.9499E+00	0.1069E+01	0.1549E+01	0.2192E+01	0.22
0.20000	0.3076E+02	0.3491E+02	0.5092E+02	0.9850E+00	0.1118E+01	0.1631E+01	0.2273E+01	0.23
0.30000	0.4199E+02	0.4811E+02	0.7073E+02	0.8965E+00	0.1027E+01	0.1510E+01	0.2069E+01	0.21
0.50000	0.5247E+02	0.6082E+02	0.9064E+02	0.6721E+00	0.7790E+00	0.1161E+01	0.1551E+01	0.16
0.75000	0.5522E+02	0.6431E+02	0.9693E+02	0.4715E+00	0.5492E+00	0.8278E+00	0.1088E+01	0.11
1.00000	0.5643E+02	0.6633E+02	0.1014E+03	0.3614E+00	0.4248E+00	0.6493E+00	0.8340E+00	0.89
1.50000	0.5390E+02	0.6404E+02	0.9940E+02	0.2301E+00	0.2734E+00	0.4244E+00	0.5311E+00	0.57
2.00000	0.5027E+02	0.6014E+02	0.9399E+02	0.1610E+00	0.1926E+00	0.3010E+00	0.3715E+00	0.40
3.00000	0.4257E+02	0.5133E+02	0.8078E+02	0.9089E-01	0.1096E+00	0.1725E+00	0.2097E+00	0.23
4.00000	0.3697E+02	0.4482E+02	0.7103E+02	0.5920E-01	0.7177E-01	0.1137E+00	0.1366E+00	0.15

TABLE 3-2 HORIZONTAL DEEP SOIL SPECTRA FOR STANSBURY FAULT

**** File: stb-hs.sp ****
Stansbury Fault (w/ Anderson et. al., 1996) deep soil

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.1919E+01	0.2194E+01	0.3134E+01	0.4098E+00	0.4685E+00	0.6690E+00	0.1000E+01	0.10
0.05000	0.3673E+01	0.4485E+01	0.6486E+01	0.4705E+00	0.5746E+00	0.8309E+00	0.1148E+01	0.12
0.07500	0.6897E+01	0.8443E+01	0.1228E+02	0.5890E+00	0.7211E+00	0.1049E+01	0.1437E+01	0.15
0.10000	0.1101E+02	0.1344E+02	0.1962E+02	0.7053E+00	0.8611E+00	0.1256E+01	0.1721E+01	0.18
0.15000	0.1983E+02	0.2361E+02	0.3444E+02	0.8467E+00	0.1008E+01	0.1471E+01	0.2066E+01	0.21
0.20000	0.2868E+02	0.3416E+02	0.4991E+02	0.9183E+00	0.1094E+01	0.1598E+01	0.2241E+01	0.23
0.30000	0.4367E+02	0.5296E+02	0.7741E+02	0.9323E+00	0.1131E+01	0.1653E+01	0.2275E+01	0.24
0.50000	0.6452E+02	0.8239E+02	0.1204E+03	0.8264E+00	0.1055E+01	0.1542E+01	0.2017E+01	0.22
0.75000	0.7983E+02	0.1077E+03	0.1565E+03	0.6818E+00	0.9195E+00	0.1336E+01	0.1664E+01	0.19
1.00000	0.8754E+02	0.1207E+03	0.1757E+03	0.5607E+00	0.7728E+00	0.1125E+01	0.1368E+01	0.16
1.50000	0.9032E+02	0.1224E+03	0.1809E+03	0.3857E+00	0.5225E+00	0.7723E+00	0.9412E+00	0.11
2.00000	0.8484E+02	0.1120E+03	0.1682E+03	0.2717E+00	0.3587E+00	0.5387E+00	0.6631E+00	0.76
3.00000	0.7421E+02	0.1018E+03	0.1538E+03	0.1584E+00	0.2174E+00	0.3284E+00	0.3867E+00	0.46
4.00000	0.6694E+02	0.9329E+02	0.1400E+03	0.1072E+00	0.1494E+00	0.2242E+00	0.2616E+00	0.31

TABLE 3-3 HORIZONTAL ROCK SPECTRA FOR STANSBURY FAULT USING ATTENUATION RELATIONSHIPS WITH VERTICAL COMPONENTS.

**** File: stb-hrvs.sp****
Stansbury Fault (w/ Anderson et. al., 1996) soft rock horizontal vertical s

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.2102E+01	0.2298E+01	0.3221E+01	0.4487E+00	0.4907E+00	0.6876E+00	0.1000E+01	0.10
0.05000	0.4437E+01	0.4919E+01	0.7005E+01	0.5684E+00	0.6302E+00	0.8973E+00	0.1267E+01	0.12
0.07500	0.8196E+01	0.9123E+01	0.1305E+02	0.7000E+00	0.7791E+00	0.1114E+01	0.1560E+01	0.15
0.10000	0.1269E+02	0.1416E+02	0.2032E+02	0.8125E+00	0.9069E+00	0.1302E+01	0.1811E+01	0.18
0.15000	0.2260E+02	0.2534E+02	0.3652E+02	0.9649E+00	0.1082E+01	0.1559E+01	0.2150E+01	0.22
0.20000	0.3061E+02	0.3454E+02	0.5007E+02	0.9801E+00	0.1106E+01	0.1604E+01	0.2184E+01	0.22
0.30000	0.4104E+02	0.4652E+02	0.6792E+02	0.8763E+00	0.9931E+00	0.1450E+01	0.1953E+01	0.20
0.50000	0.5190E+02	0.5951E+02	0.8811E+02	0.6648E+00	0.7623E+00	0.1129E+01	0.1482E+01	0.15
0.75000	0.5640E+02	0.6510E+02	0.9734E+02	0.4817E+00	0.5560E+00	0.8313E+00	0.1073E+01	0.11
1.00000	0.5929E+02	0.6892E+02	0.1041E+03	0.3797E+00	0.4414E+00	0.6667E+00	0.8462E+00	0.89
1.50000	0.5836E+02	0.6841E+02	0.1047E+03	0.2492E+00	0.2921E+00	0.4469E+00	0.5554E+00	0.59
2.00000	0.5509E+02	0.6490E+02	0.9984E+02	0.1764E+00	0.2079E+00	0.3197E+00	0.3931E+00	0.42
3.00000	0.4659E+02	0.5529E+02	0.8584E+02	0.9948E-01	0.1180E+00	0.1833E+00	0.2217E+00	0.24
4.00000	0.4011E+02	0.4786E+02	0.7512E+02	0.6422E-01	0.7664E-01	0.1203E+00	0.1431E+00	0.15

TABLE 3-4 HORIZONTAL DEEP SOIL SPECTRA FOR STANSBURY FAULT USING ATTENUATION RELATIONSHIPS WITH VERTICAL COMPONENTS

**** File: stb-hsvs.sp****
Stansbury Fault (w/ Anderson et. al., 1996) deep soil horizontal - vertical

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.1816E+01	0.1988E+01	0.2804E+01	0.3878E+00	0.4244E+00	0.5986E+00	0.1000E+01	0.10
0.05000	0.3264E+01	0.3664E+01	0.5267E+01	0.4181E+00	0.4693E+00	0.6747E+00	0.1078E+01	0.11
0.07500	0.5944E+01	0.6706E+01	0.9708E+01	0.5076E+00	0.5727E+00	0.8290E+00	0.1309E+01	0.13
0.10000	0.9488E+01	0.1075E+02	0.1564E+02	0.6077E+00	0.6883E+00	0.1002E+01	0.1567E+01	0.16
0.15000	0.1798E+02	0.2039E+02	0.2977E+02	0.7678E+00	0.8708E+00	0.1271E+01	0.1980E+01	0.20
0.20000	0.2669E+02	0.3028E+02	0.4431E+02	0.8546E+00	0.9697E+00	0.1419E+01	0.2204E+01	0.22
0.30000	0.4061E+02	0.4614E+02	0.6759E+02	0.8669E+00	0.9850E+00	0.1443E+01	0.2236E+01	0.23
0.50000	0.5928E+02	0.6795E+02	0.1002E+03	0.7593E+00	0.8704E+00	0.1284E+01	0.1958E+01	0.20
0.75000	0.7213E+02	0.8369E+02	0.1240E+03	0.6160E+00	0.7147E+00	0.1059E+01	0.1588E+01	0.16
1.00000	0.7851E+02	0.9221E+02	0.1373E+03	0.5028E+00	0.5906E+00	0.8795E+00	0.1297E+01	0.13
1.50000	0.8308E+02	0.9921E+02	0.1483E+03	0.3548E+00	0.4236E+00	0.6332E+00	0.9148E+00	0.99
2.00000	0.8016E+02	0.9612E+02	0.1440E+03	0.2567E+00	0.3078E+00	0.4613E+00	0.6619E+00	0.72
3.00000	0.6549E+02	0.8001E+02	0.1202E+03	0.1398E+00	0.1708E+00	0.2566E+00	0.3606E+00	0.40
4.00000	0.5816E+02	0.7046E+02	0.1062E+03	0.9313E-01	0.1128E+00	0.1700E+00	0.2402E+00	0.26

TABLE 3-5 VERTICAL ROCK SPECTRA FOR STANSBURY FAULT

**** File: stb-vr.sp ****
Stansbury Fault (w/ Anderson et. al., 1996) soft rock vertical

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.02000	0.1201E+01	0.1421E+01	0.2151E+01	0.3845E+00	0.4550E+00	0.6888E+00	0.1000E+01	0.10
0.05000	0.5010E+01	0.6104E+01	0.9380E+01	0.6418E+00	0.7819E+00	0.1202E+01	0.1669E+01	0.17
0.07500	0.9408E+01	0.1144E+02	0.1753E+02	0.8034E+00	0.9766E+00	0.1497E+01	0.2090E+01	0.21
0.10000	0.1293E+02	0.1571E+02	0.2406E+02	0.8279E+00	0.1007E+01	0.1541E+01	0.2153E+01	0.22
0.15000	0.1725E+02	0.2092E+02	0.3200E+02	0.7365E+00	0.8931E+00	0.1366E+01	0.1916E+01	0.19
0.20000	0.1931E+02	0.2341E+02	0.3584E+02	0.6184E+00	0.7498E+00	0.1148E+01	0.1609E+01	0.16
0.30000	0.2091E+02	0.2533E+02	0.3887E+02	0.4465E+00	0.5408E+00	0.8300E+00	0.1161E+01	0.11
0.50000	0.2260E+02	0.2746E+02	0.4229E+02	0.2895E+00	0.3518E+00	0.5417E+00	0.7531E+00	0.77
0.75000	0.2504E+02	0.3052E+02	0.4706E+02	0.2139E+00	0.2607E+00	0.4019E+00	0.5563E+00	0.57
1.00000	0.2707E+02	0.3331E+02	0.5158E+02	0.1733E+00	0.2133E+00	0.3304E+00	0.4509E+00	0.46
1.50000	0.2867E+02	0.3561E+02	0.5534E+02	0.1224E+00	0.1521E+00	0.2363E+00	0.3185E+00	0.33
2.00000	0.2780E+02	0.3433E+02	0.5322E+02	0.8901E-01	0.1099E+00	0.1704E+00	0.2315E+00	0.24
3.00000	0.2629E+02	0.3238E+02	0.5033E+02	0.5613E-01	0.6913E-01	0.1074E+00	0.1460E+00	0.15
4.00000	0.2497E+02	0.3087E+02	0.4816E+02	0.3998E-01	0.4943E-01	0.7711E-01	0.1040E+00	0.10

TABLE 3-6 VERTICAL DEEP SOIL SPECTRA FOR STANSBURY FAULT

**** File: stb-vs.sp ****
Stansbury Fault (w/ Anderson et. al., 1996) deep soil vertical

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.1728E+01	0.2040E+01	0.3083E+01	0.3689E+00	0.4355E+00	0.6581E+00	0.1000E+01	0.10
0.05000	0.4790E+01	0.5865E+01	0.9111E+01	0.6136E+00	0.7513E+00	0.1167E+01	0.1663E+01	0.17
0.07500	0.9032E+01	0.1095E+02	0.1688E+02	0.7713E+00	0.9355E+00	0.1441E+01	0.2091E+01	0.21
0.10000	0.1257E+02	0.1522E+02	0.2339E+02	0.8051E+00	0.9751E+00	0.1498E+01	0.2183E+01	0.22
0.15000	0.1707E+02	0.2074E+02	0.3188E+02	0.7289E+00	0.8856E+00	0.1361E+01	0.1976E+01	0.20
0.20000	0.1957E+02	0.2391E+02	0.3680E+02	0.6268E+00	0.7659E+00	0.1179E+01	0.1699E+01	0.17
0.30000	0.2161E+02	0.2660E+02	0.4106E+02	0.4615E+00	0.5678E+00	0.8767E+00	0.1251E+01	0.13
0.50000	0.2324E+02	0.2853E+02	0.4402E+02	0.2976E+00	0.3655E+00	0.5638E+00	0.8069E+00	0.83
0.75000	0.2659E+02	0.3273E+02	0.5056E+02	0.2271E+00	0.2795E+00	0.4318E+00	0.6155E+00	0.64
1.00000	0.2917E+02	0.3629E+02	0.5634E+02	0.1868E+00	0.2324E+00	0.3609E+00	0.5065E+00	0.53
1.50000	0.3158E+02	0.3948E+02	0.6149E+02	0.1349E+00	0.1686E+00	0.2625E+00	0.3656E+00	0.38
2.00000	0.3119E+02	0.3870E+02	0.6006E+02	0.9988E-01	0.1239E+00	0.1923E+00	0.2708E+00	0.28
3.00000	0.2876E+02	0.3540E+02	0.5500E+02	0.6140E-01	0.7558E-01	0.1174E+00	0.1664E+00	0.17
4.00000	0.2801E+02	0.3475E+02	0.5437E+02	0.4484E-01	0.5565E-01	0.8705E-01	0.1216E+00	0.12

TABLE 3-7 HORIZONTAL ROCK SPECTRA FOR CEDAR MOUNTAINS FAULT

**** File: cm-hr.sp****
Cedar Mtns Fault rock

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.1965E+01	0.2177E+01	0.3106E+01	0.4195E+00	0.4648E+00	0.6632E+00	0.1000E+01	0.10
0.05000	0.4173E+01	0.4688E+01	0.6774E+01	0.5346E+00	0.6005E+00	0.8677E+00	0.1274E+01	0.12
0.07500	0.7745E+01	0.8729E+01	0.1264E+02	0.6614E+00	0.7454E+00	0.1080E+01	0.1577E+01	0.16
0.10000	0.1200E+02	0.1358E+02	0.1979E+02	0.7689E+00	0.8701E+00	0.1268E+01	0.1833E+01	0.18
0.15000	0.2145E+02	0.2442E+02	0.3578E+02	0.9161E+00	0.1043E+01	0.1528E+01	0.2184E+01	0.22
0.20000	0.2937E+02	0.3371E+02	0.4964E+02	0.9407E+00	0.1080E+01	0.1590E+01	0.2242E+01	0.23
0.30000	0.3953E+02	0.4573E+02	0.6774E+02	0.8439E+00	0.9763E+00	0.1446E+01	0.2012E+01	0.21
0.50000	0.4818E+02	0.5638E+02	0.8463E+02	0.6172E+00	0.7222E+00	0.1084E+01	0.1471E+01	0.15
0.75000	0.4982E+02	0.5866E+02	0.8912E+02	0.4254E+00	0.5010E+00	0.7611E+00	0.1014E+01	0.10
1.00000	0.5030E+02	0.5984E+02	0.9227E+02	0.3222E+00	0.3833E+00	0.5910E+00	0.7680E+00	0.82
1.50000	0.4722E+02	0.5693E+02	0.8925E+02	0.2016E+00	0.2431E+00	0.3811E+00	0.4807E+00	0.52
2.00000	0.4350E+02	0.5287E+02	0.8349E+02	0.1393E+00	0.1693E+00	0.2674E+00	0.3321E+00	0.36
3.00000	0.3618E+02	0.4442E+02	0.7070E+02	0.7723E-01	0.9483E-01	0.1509E+00	0.1841E+00	0.20
4.00000	0.3095E+02	0.3844E+02	0.6178E+02	0.4956E-01	0.6155E-01	0.9892E-01	0.1181E+00	0.13

TABLE 3-8 HORIZONTAL DEEP SOIL SPECTRA FOR CEDAR MOUNTAINS FAULT

**** File: cm-hs.sp****
Cedar Mtns Fault deep soil

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.1833E+01	0.2075E+01	0.2976E+01	0.3912E+00	0.4430E+00	0.6354E+00	0.1000E+01	0.10
0.05000	0.3554E+01	0.4283E+01	0.6241E+01	0.4553E+00	0.5487E+00	0.7995E+00	0.1164E+01	0.12
0.07500	0.6703E+01	0.8137E+01	0.1192E+02	0.5724E+00	0.6949E+00	0.1018E+01	0.1463E+01	0.15
0.10000	0.1070E+02	0.1296E+02	0.1903E+02	0.6850E+00	0.8298E+00	0.1219E+01	0.1751E+01	0.18
0.15000	0.1918E+02	0.2281E+02	0.3354E+02	0.8190E+00	0.9741E+00	0.1432E+01	0.2093E+01	0.21
0.20000	0.2753E+02	0.3278E+02	0.4830E+02	0.8816E+00	0.1050E+01	0.1547E+01	0.2254E+01	0.23
0.30000	0.4136E+02	0.4991E+02	0.7367E+02	0.8831E+00	0.1065E+01	0.1573E+01	0.2257E+01	0.24
0.50000	0.5953E+02	0.7470E+02	0.1105E+03	0.7625E+00	0.9569E+00	0.1416E+01	0.1949E+01	0.21
0.75000	0.7220E+02	0.9453E+02	0.1395E+03	0.6165E+00	0.8073E+00	0.1191E+01	0.1576E+01	0.18
1.00000	0.7802E+02	0.1041E+03	0.1542E+03	0.4997E+00	0.6669E+00	0.9875E+00	0.1277E+01	0.15
1.50000	0.7904E+02	0.1047E+03	0.1570E+03	0.3375E+00	0.4472E+00	0.6703E+00	0.8627E+00	0.10
2.00000	0.7351E+02	0.9599E+02	0.1456E+03	0.2354E+00	0.3074E+00	0.4662E+00	0.6017E+00	0.69
3.00000	0.6326E+02	0.8564E+02	0.1299E+03	0.1351E+00	0.1828E+00	0.2774E+00	0.3452E+00	0.41
4.00000	0.5674E+02	0.7782E+02	0.1172E+03	0.9085E-01	0.1246E+00	0.1877E+00	0.2322E+00	0.28

TABLE 3-9 HORIZONTAL ROCK SPECTRA FOR RANDOM EARTHQUAKE

**** File: RANEQ-R.SP ****
Random Event Rock

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp	
0.03000	0.7003E+00	0.1108E+01	0.1932E+01	0.1495E+00	0.2366E+00	0.4125E+00	0.1000E+01	0.10
0.05000	0.1567E+01	0.2505E+01	0.4355E+01	0.2008E+00	0.3209E+00	0.5579E+00	0.1343E+01	0.13
0.07500	0.2889E+01	0.4646E+01	0.8070E+01	0.2467E+00	0.3968E+00	0.6892E+00	0.1650E+01	0.16
0.10000	0.4464E+01	0.7207E+01	0.1251E+02	0.2859E+00	0.4616E+00	0.8015E+00	0.1912E+01	0.19
0.15000	0.7621E+01	0.1239E+02	0.2149E+02	0.3254E+00	0.5289E+00	0.9178E+00	0.2177E+01	0.22
0.20000	0.1011E+02	0.1648E+02	0.2856E+02	0.3237E+00	0.5277E+00	0.9145E+00	0.2165E+01	0.22
0.30000	0.1296E+02	0.2117E+02	0.3659E+02	0.2767E+00	0.4520E+00	0.7812E+00	0.1851E+01	0.19
0.50000	0.1413E+02	0.2350E+02	0.4041E+02	0.1810E+00	0.3010E+00	0.5176E+00	0.1211E+01	0.12
0.75000	0.1351E+02	0.2276E+02	0.3893E+02	0.1154E+00	0.1944E+00	0.3324E+00	0.7719E+00	0.82
1.00000	0.1303E+02	0.2223E+02	0.3784E+02	0.8344E-01	0.1424E+00	0.2423E+00	0.5581E+00	0.60
1.50000	0.1149E+02	0.1987E+02	0.3357E+02	0.4907E-01	0.8484E-01	0.1433E+00	0.3282E+00	0.35
2.00000	0.1016E+02	0.1763E+02	0.2970E+02	0.3253E-01	0.5646E-01	0.9511E-01	0.2176E+00	0.23
3.00000	0.7883E+01	0.1393E+02	0.2336E+02	0.1683E-01	0.2973E-01	0.4987E-01	0.1126E+00	0.12
4.00000	0.6425E+01	0.1182E+02	0.1959E+02	0.1029E-01	0.1893E-01	0.3137E-01	0.6881E-01	0.80

TABLE 3-9 HORIZONTAL DEEP SOIL SPECTRA FOR RANDOM EARTHQUAKE

**** File: RANEQ-DS.SP****
Random Event Deep Soil

14Sv med	Sv mean	Sv 84th	Sa med	Sa mean	Sa 84th	Amp med	Amp		
0.03000	0.6896E+00	0.9701E+00	0.1630E+01	0.1472E+00	0.2071E+00	0.3480E+00	0.1000E+01	0.10
0.05000	0.1413E+01	0.2032E+01	0.3422E+01	0.1811E+00	0.2604E+00	0.4383E+00	0.1230E+01	0.12
0.07500	0.2671E+01	0.3857E+01	0.6498E+01	0.2281E+00	0.3294E+00	0.5549E+00	0.1549E+01	0.15
0.10000	0.4233E+01	0.6137E+01	0.1035E+02	0.2711E+00	0.3930E+00	0.6627E+00	0.1842E+01	0.18
0.15000	0.7621E+01	0.1106E+02	0.1865E+02	0.3254E+00	0.4724E+00	0.7964E+00	0.2210E+01	0.22
0.20000	0.1058E+02	0.1552E+02	0.2620E+02	0.3387E+00	0.4971E+00	0.8390E+00	0.2300E+01	0.24
0.30000	0.1486E+02	0.2220E+02	0.3752E+02	0.3174E+00	0.4739E+00	0.8011E+00	0.2156E+01	0.22
0.50000	0.1825E+02	0.2830E+02	0.4795E+02	0.2338E+00	0.3625E+00	0.6142E+00	0.1588E+01	0.17
0.75000	0.1943E+02	0.3129E+02	0.5291E+02	0.1659E+00	0.2672E+00	0.4518E+00	0.1127E+01	0.12
1.00000	0.1943E+02	0.3208E+02	0.5413E+02	0.1244E+00	0.2055E+00	0.3467E+00	0.8451E+00	0.99
1.50000	0.1863E+02	0.3130E+02	0.5270E+02	0.7953E-01	0.1336E+00	0.2250E+00	0.5402E+00	0.64
2.00000	0.1714E+02	0.2886E+02	0.4861E+02	0.5490E-01	0.9242E-01	0.1557E+00	0.3729E+00	0.44
3.00000	0.1372E+02	0.2372E+02	0.3973E+02	0.2929E-01	0.5064E-01	0.8482E-01	0.1989E+00	0.24
4.00000	0.1195E+02	0.2103E+02	0.3541E+02	0.1914E-01	0.3367E-01	0.5669E-01	0.1300E+00	0.16

Comparison of the horizontal motions in Tables 3-1, 3-2,3-7, 3-8, 3-9, and 3-10 indicate that the Stansbury fault is the controlling fault. Therefore, vertical motions were computed for this fault alone. Because only some of the selected attenuation relationships for horizontal motions also provided coefficients for vertical motions, two approaches were used to develop the vertical spectra.

(1) Use the available vertical attenuation relationships to compute a vertical spectra

(2) Compute horizontal and vertical spectra using only those attenuation relationships that provide coefficients for both components of motion. Use the results to compute ratios of vertical to horizontal motion. Use the resulting spectral ratio to scale the horizontal motion from the full set of attenuation relationships. The vertical to horizontal spectral ratios were also limited to have a minimum value of 0.5 at long periods.

The following tables summaries the results of these spectral computations.

TABLE 3-11 STANSBURY 84TH-PERCENTILE HORIZONTAL SPECTRAL ACCELERATION (G)

Period (sec)	Deep Soil	Rock	Envelope
0.03	0.669	0.670	0.670
0.05	0.831	0.868	0.868
0.075	1.049	1.081	1.081
0.1	1.256	1.271	1.271
0.15	1.471	1.549	1.549
0.2	1.598	1.631	1.631
0.3	1.653	1.510	1.653
0.5	1.542	1.161	1.542
0.75	1.336	0.828	1.336
1.0	1.125	0.649	1.125
1.5	0.772	0.424	0.772
2.0	0.539	0.301	0.539
3.0	0.328	0.172	0.328
4.0	0.224	0.114	0.224

TABLE 3-12 STANSBURY 84TH-PERCENTILE VERTICAL SPECTRAL ACCELERATION (G)

Period (sec)	hsvs T3-4	vs T3-6	vs/hsvs	cvs*	hrvs T3-3	vr T3-5	vr/hrvs	cvr**	Envelope
0.03	0.599	0.658	1.099	0.658	0.688	0.689	1.002	0.689	0.689
0.05	0.675	1.167	1.730	1.175	0.897	1.202	1.340	1.202	1.202
0.075	0.829	1.441	1.738	1.483	1.114	1.497	1.344	1.497	1.497
0.1	1.002	1.498	1.495	1.537	1.302	1.541	1.184	1.541	1.541
0.15	1.271	1.361	1.071	1.379	1.559	1.366	0.876	1.366	1.379
0.2	1.419	1.179	0.831	1.179	1.604	1.148	0.716	1.167	1.179
0.3	1.443	0.877	0.608	0.879	1.450	0.830	0.572	0.864	0.879
0.5	1.284	0.564	0.500	0.641	1.129	0.542	0.500	0.581	0.641
0.75	1.059	0.432	0.500	0.532	0.831	0.402	0.500	0.414	0.532
1.0	0.879	0.361	0.500	0.448	0.667	0.330	0.500	0.330	0.448
1.5	0.633	0.263	0.500	0.328	0.447	0.236	0.529	0.236	0.328
2.0	0.461	0.192	0.500	0.244	0.320	0.170	0.533	0.170	0.244
3.0	0.257	0.117	0.500	0.144	0.183	0.107	0.586	0.107	0.144
4.0	0.170	0.087	0.512	0.098	0.120	0.077	0.641	0.077	0.098

* vs is the envelop of the vertical motion, vs, and the product of the spectral ratio for soil sites, vs/hsvs and the horizontal soil spectral values from Table 3-11.

** vr is the envelop of the vertical motion, vr, and the product of the spectral ratio for rock sites, vr/hsvr and the horizontal rock spectral values from Table 3-11.

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ATTACHMENT A
Computer Program MMAXD

Required Platform

IBM Compatible PC, 486 or Pentium, Fortran 77

Description

The program MMAXD computes distributions of maximum magnitude give distributions for fault dip, fault depth, rupture length, and slip rate. The empirical relationships between moment magnitude M and the fault rupture parameters use are:

$M = 4.38 + 1.49 \log(RL)$ Wells and Coppersmith (1994)
$M = 4.07 + 0.98 \log(RA)$ Wells and Coppersmith (1994)
$M = 5.12 + 1.16 \log(RL) - 0.2 \log(SR)$ Anderson and others (1996)

where RL is rupture length in km, RA is rupture area (RL*width) in km^2, width = h/sin(dip), and SR is slip rate in mm/yr. The program listing is printed below.

```
program MMAXD
c
c
      parameter(mxb=40,mxd=100)
      real pdip(mxb),pdep(mxb),cmmd(mxd),mmd(mxd),pmmm(mxb),rl(mxb),
     , prl(mxb),sr(mxb),psr(mxb),mmax(mxb),pmmax(mxb),mag,maxmagm
      character ifile*40,ofile*40,fault*40,maxmm*5
c
99    print*,' enter input file (q to quit): '
      read(5,'(a)') ifile
      IF(ifile.eq.'q'.or.ifile.eq.'Q') STOP
      open(7,file=ifile)
      read(7,'(a)') ofile
      open(8,file=ofile)
      read(7,'(a)') fault
      write(8,'(a)') fault
c.....zero combined Mmax distribution file cmmd
      DO 10 i=1,mxd
10      cmmd(i)=0.0
c.....read ndip and start dip loop
      read(7,*) ndip,(pdip(idip),idip=1,ndip)
      call brck(ndip,pdip,'Fault Dip')
      DO 70 idip=1,ndip
c.....read ndepth and start depth loop
        read(7,*) ndepth,(pdep(idep),idep=1,ndepth)
        call brck(ndepth,pdep,'Fault Depth')
        DO 70 idep=1,ndepth
c.....zero branch Mmax distribution file mmd
          DO 15 i=1,mxd
15          mmd(i)=0.0
          read(7,*) depth,dipd
          dip=dipd*asin(1.0)/90.0
```

```
          w=depth/sin(dip)
c......read Mmax approaches and start approach loop
          read(7,*) nmmm,(pmmm(imm),imm=1,nmmm)
          call brck(nmmm,pmmm,'Max Mag methods')
          DO 30 imm=1,nmmm
c......read rupture lengths
            read(7,*) maxmm,nrl,(rl(irl),prl(irl),irl=1,nrl)
            call brck(nrl,prl,'rupture lengthhs')
            IF(maxmm.eq.'asrrl'.or.maxmm.eq.'ASRRL')  then
c.....read slip rates if Anderson and others 1996 method
              read(7,*) nsr,(sr(isr),psr(isr),isr=1,nsr)
              call brck(nsr,psr,'slip rates')
             ELSE
              nsr=1
              sr(1)=0.0
              psr(1)=1.0
            ENDIF
c....start rl&sr loops
            DO 25 isr=1,nsr
              DO 25 irl=1,nrl
c....compute mmax, location in array and branch probabilities
                mag=maxmagm(maxmm,w,rl(irl),dip,sr(isr))
                k=nint(mag*10.0)
                pb=pmmm(imm)*prl(irl)*psr(isr)
                ptbr=pb*pdip(idip)*pdep(idep)
                mmd(k)=mmd(k)+pb
                cmmd(k)=cmmd(k)+ptbr
25          CONTINUE
c.........print out mmax distribution for dip and depth
          nmm=0
          DO 30 k=1,100
            IF(mmd(k).gt.0.0) then
              nmm=nmm+1
              pmmax(nmm)=mmd(k)
              mmax(nmm)=real(k)/10.
            ENDIF
30        CONTINUE
          write(8,'(2f6.1,i3,30(f5.1,f8.5))') dipd,depth,nmm,
     ,     (mmax(imm),pmmax(imm),imm=1,nmm)
70    CONTINUE
c..........print combined distribution
      DO 80 k=1,100
        IF(cmmd(k).gt.0.0) then
          nmm=nmm+1
          pmmax(nmm)=cmmd(k)
          mmax(nmm)=real(k)/10.
        ENDIF
80    CONTINUE
      write(8,'('' Combined'',i3,20(f5.1,f8.5))') nmm,
     , (mmax(imm),pmmax(imm),imm=1,nmm)
      close(8)
      go to 99
      END
c
      function MAXMAGM(maxmm,w,rl,dip,sr)
      real maxmagm
      character maxmm*5
      IF(maxmm.eq.'RA'.or.maxmm.eq.'ra') then
c.............Wells and Coppersmith rupture area
        maxmagm=4.07+0.98*log10(w*rl)
       elseIF(maxmm.eq.'RL'.or.maxmm.eq.'rl') then
c.............Wells and Coppersmith rupture length
        maxmagm=4.38+1.49*log10(rl)
       elseIF(maxmm.eq.'asrrl'.or.maxmm.eq.'ASRRL') then
c.............Anderson and others rupture length-slip rate
       maxmagm=5.12+1.16*log10(rl)-0.2*log10(sr)
       else
```

```
        print'('' *** max mag method< '',a4,'' > not found'')',maxmm
        STOP
      ENDIF
c      print'('' method '',a2,'' mag'',f7.2)', maxmm,maxmagm
      return
      END
c
      subroutine BRCK(nb,pb,level)
c.................BRCK checks that probability array pb sums to 1
      real pb(*)
      character level*(*)
      ps=0.0
      do 10 i=1,nb
10      ps=ps+pb(i)
      pck=abs(ps-1.0)
      if(pck.gt.0.001) print 1,level,ps,nb,(pb(i),i=1,nb)
      return
1     format(' branch prob at level <',a20,'> sum to ',f10.3,
     , ' nb =',i3,(/,' pb =',8f10.4))
      end
```

The user is prompted for the following input data:

Output file name
Title
number of fault dips, probability assigned to each dip
looping over each dip:
    number of fault depths, probability assigned to each depth
    looping over each depth
        fault depth, fault dip
        number of magnitude-parameter relationships, weights assigned to each
        looping over each relationship
            relationship form (e.g. 'rl' for rupture length, 'ra' for rupture area, 'asrrl' or slip rate-rupture length), number of parameters, parameter, weight pairs

The output consists of a conditional magnitude distribution for each depth and dip and a summary combined distribution.

Alternate calculations of the maximum magnitude distributions were performed using spreadsheet program EXCEL. The three empirical relationships and input file "stb-m.in" specified in Section 2.3 were implemented in the spreadsheet. Results of the spreadsheet calculations (listed in Tables 2-? and 2-?) were organized in pivotal tables by dip angle. The agreement between these results with those given in Tables 2-4 and 2-5 verifies the maximum magnitude distribution computed by program MMAXD.

Stansbury Fault

WT of Dip	Dip (deg)	WT of Depth	Depth (km)	WT of Relation	Relation Type	WT of Length	Length (RL) (km)	WT of (Slip Rate)	Slip Rate (mm/yr)	Combined WT	Magnitude	Magnitude Bin
0.33333	45	0.40	15	0.33333	RL	0.10	23	1.00	0.00	0.00444	6.4090	6.4
0.33333	45	0.40	15	0.33333	RL	0.30	32	1.00	0.00	0.01333	6.6227	6.6
0.33333	45	0.40	15	0.33333	RL	0.20	47	1.00	0.00	0.00889	6.8714	6.9
0.33333	45	0.40	15	0.33333	RL	0.30	56	1.00	0.00	0.01333	6.9848	7.0
0.33333	45	0.40	15	0.33333	RL	0.10	73	1.00	0.00	0.00444	7.1564	7.2
0.33333	45	0.40	15	0.33334	RA	0.10	23	1.00	0.00	0.00444	6.7046	6.7
0.33333	45	0.40	15	0.33334	RA	0.30	32	1.00	0.00	0.01333	6.8451	6.8
0.33333	45	0.40	15	0.33334	RA	0.20	47	1.00	0.00	0.00889	7.0087	7.0
0.33333	45	0.40	15	0.33334	RA	0.30	56	1.00	0.00	0.01333	7.0833	7.1
0.33333	45	0.40	15	0.33334	RA	0.10	73	1.00	0.00	0.00444	7.1961	7.2
0.33333	45	0.40	15	0.33333	ASRRL	0.10	23	0.30	0.10	0.00133	6.8996	6.9
0.33333	45	0.40	15	0.33333	ASRRL	0.10	23	0.50	0.15	0.00222	6.8644	6.9
0.33333	45	0.40	15	0.33333	ASRRL	0.10	23	0.20	0.20	0.00089	6.8394	6.8
0.33333	45	0.40	15	0.33333	ASRRL	0.30	32	0.30	0.10	0.00400	7.0660	7.1
0.33333	45	0.40	15	0.33333	ASRRL	0.30	32	0.50	0.15	0.00667	7.0308	7.0
0.33333	45	0.40	15	0.33333	ASRRL	0.30	32	0.20	0.20	0.00267	7.0058	7.0
0.33333	45	0.40	15	0.33333	ASRRL	0.20	47	0.30	0.10	0.00267	7.2596	7.3
0.33333	45	0.40	15	0.33333	ASRRL	0.20	47	0.50	0.15	0.00444	7.2244	7.2
0.33333	45	0.40	15	0.33333	ASRRL	0.20	47	0.20	0.20	0.00178	7.1994	7.2
0.33333	45	0.40	15	0.33333	ASRRL	0.30	56	0.30	0.10	0.00400	7.3479	7.3
0.33333	45	0.40	15	0.33333	ASRRL	0.30	56	0.50	0.15	0.00667	7.3127	7.3
0.33333	45	0.40	15	0.33333	ASRRL	0.30	56	0.20	0.20	0.00267	7.2877	7.3
0.33333	45	0.40	15	0.33333	ASRRL	0.10	73	0.30	0.10	0.00133	7.4815	7.5
0.33333	45	0.40	15	0.33333	ASRRL	0.10	73	0.50	0.15	0.00222	7.4462	7.4
0.33333	45	0.40	15	0.33333	ASRRL	0.10	73	0.20	0.20	0.00089	7.4212	7.4
0.33334	45	0.40	18	0.33333	RL	0.10	23	1.00	0.00	0.00444	6.4090	6.4
0.33334	45	0.40	18	0.33333	RL	0.30	32	1.00	0.00	0.01333	6.6227	6.6
0.33334	45	0.40	18	0.33333	RL	0.20	47	1.00	0.00	0.00889	6.8714	6.9
0.33334	45	0.40	18	0.33333	RL	0.30	56	1.00	0.00	0.01333	6.9848	7.0
0.33334	45	0.40	18	0.33333	RL	0.10	73	1.00	0.00	0.00444	7.1564	7.2
0.33334	45	0.40	18	0.33334	RA	0.10	23	1.00	0.00	0.00444	6.7822	6.8
0.33334	45	0.40	18	0.33334	RA	0.30	32	1.00	0.00	0.01333	6.9227	6.9

0.33334	45	0.40	18	0.33334	RA	0.20	47	1.00	0.00	0.00889	7.0863	7.1
0.33334	45	0.40	18	0.33334	RA	0.30	56	1.00	0.00	0.01333	7.1609	7.2
0.33334	45	0.40	18	0.33334	RA	0.10	73	1.00	0.00	0.00444	7.2737	7.3
0.33334	45	0.40	18	0.33333	ASRRL	0.10	23	0.30	0.10	0.00133	6.8996	6.9
0.33334	45	0.40	18	0.33333	ASRRL	0.10	23	0.50	0.15	0.00222	6.8644	6.9
0.33334	45	0.40	18	0.33333	ASRRL	0.10	23	0.20	0.20	0.00089	6.8394	6.8
0.33334	45	0.40	18	0.33333	ASRRL	0.30	32	0.30	0.10	0.00400	7.0660	7.1
0.33334	45	0.40	18	0.33333	ASRRL	0.30	32	0.50	0.15	0.00667	7.0308	7.0
0.33334	45	0.40	18	0.33333	ASRRL	0.30	32	0.20	0.20	0.00267	7.0058	7.0
0.33334	45	0.40	18	0.33333	ASRRL	0.20	47	0.30	0.10	0.00267	7.2596	7.3
0.33334	45	0.40	18	0.33333	ASRRL	0.20	47	0.50	0.15	0.00444	7.2244	7.2
0.33334	45	0.40	18	0.33333	ASRRL	0.20	47	0.20	0.20	0.00178	7.1994	7.2
0.33334	45	0.40	18	0.33333	ASRRL	0.30	56	0.30	0.10	0.00400	7.3479	7.3
0.33334	45	0.40	18	0.33333	ASRRL	0.30	56	0.50	0.15	0.00667	7.3127	7.3
0.33334	45	0.40	18	0.33333	ASRRL	0.30	56	0.20	0.20	0.00267	7.2877	7.3
0.33334	45	0.40	18	0.33333	ASRRL	0.10	73	0.30	0.10	0.00133	7.4815	7.5
0.33334	45	0.40	18	0.33333	ASRRL	0.10	73	0.50	0.15	0.00222	7.4462	7.4
0.33334	45	0.40	18	0.33333	ASRRL	0.10	73	0.20	0.20	0.00089	7.4212	7.4
0.33333	45	0.20	20	0.33333	RL	0.10	23	1.00	0.00	0.00222	6.4090	6.4
0.33333	45	0.20	20	0.33333	RL	0.30	32	1.00	0.00	0.00667	6.6227	6.6
0.33333	45	0.20	20	0.33333	RL	0.20	47	1.00	0.00	0.00444	6.8714	6.9
0.33333	45	0.20	20	0.33333	RL	0.30	56	1.00	0.00	0.00667	6.9848	7.0
0.33333	45	0.20	20	0.33333	RL	0.10	73	1.00	0.00	0.00222	7.1564	7.2
0.33333	45	0.20	20	0.33334	RA	0.10	23	1.00	0.00	0.00222	6.8270	6.8
0.33333	45	0.20	20	0.33334	RA	0.30	32	1.00	0.00	0.00667	6.9676	7.0
0.33333	45	0.20	20	0.33334	RA	0.20	47	1.00	0.00	0.00444	7.1312	7.1
0.33333	45	0.20	20	0.33334	RA	0.30	56	1.00	0.00	0.00667	7.2057	7.2
0.33333	45	0.20	20	0.33334	RA	0.10	73	1.00	0.00	0.00222	7.3186	7.3
0.33333	45	0.20	20	0.33333	ASRRL	0.10	23	0.30	0.10	0.00067	6.8996	6.9
0.33333	45	0.20	20	0.33333	ASRRL	0.10	23	0.50	0.15	0.00111	6.8644	6.9
0.33333	45	0.20	20	0.33333	ASRRL	0.10	23	0.20	0.20	0.00044	6.8394	6.8
0.33333	45	0.20	20	0.33333	ASRRL	0.30	32	0.30	0.10	0.00200	7.0660	7.1
0.33333	45	0.20	20	0.33333	ASRRL	0.30	32	0.50	0.15	0.00333	7.0308	7.0
0.33333	45	0.20	20	0.33333	ASRRL	0.30	32	0.20	0.20	0.00133	7.0058	7.0

0.33333	45	0.20	20	0.33333	ASRRL	0.20	47	0.30	0.10	0.00133	7.2596	7.3
0.33333	45	0.20	20	0.33333	ASRRL	0.20	47	0.50	0.15	0.00222	7.2244	7.2
0.33333	45	0.20	20	0.33333	ASRRL	0.20	47	0.20	0.20	0.00089	7.1994	7.2
0.33333	45	0.20	20	0.33333	ASRRL	0.30	56	0.30	0.10	0.00200	7.3479	7.3
0.33333	45	0.20	20	0.33333	ASRRL	0.30	56	0.50	0.15	0.00333	7.3127	7.3
0.33333	45	0.20	20	0.33333	ASRRL	0.30	56	0.20	0.20	0.00133	7.2877	7.3
0.33333	45	0.20	20	0.33333	ASRRL	0.10	73	0.30	0.10	0.00067	7.4815	7.5
0.33333	45	0.20	20	0.33333	ASRRL	0.10	73	0.50	0.15	0.00111	7.4462	7.4
0.33333	45	0.20	20	0.33333	ASRRL	0.10	73	0.20	0.20	0.00044	7.4212	7.4
0.33333	55	0.40	15	0.33333	RL	0.10	23	1.00	0.00	0.00444	6.4090	6.4
0.33333	55	0.40	15	0.33333	RL	0.30	32	1.00	0.00	0.01333	6.6227	6.6
0.33333	55	0.40	15	0.33333	RL	0.20	47	1.00	0.00	0.00889	6.8714	6.9
0.33333	55	0.40	15	0.33333	RL	0.30	56	1.00	0.00	0.01333	6.9848	7.0
0.33333	55	0.40	15	0.33333	RL	0.10	73	1.00	0.00	0.00444	7.1564	7.2
0.33333	55	0.40	15	0.33334	RA	0.10	23	1.00	0.00	0.00444	6.6420	6.6
0.33333	55	0.40	15	0.33334	RA	0.30	32	1.00	0.00	0.01333	6.7825	6.8
0.33333	55	0.40	15	0.33334	RA	0.20	47	1.00	0.00	0.00889	6.9461	6.9
0.33333	55	0.40	15	0.33334	RA	0.30	56	1.00	0.00	0.01333	7.0207	7.0
0.33333	55	0.40	15	0.33334	RA	0.10	73	1.00	0.00	0.00444	7.1335	7.1
0.33333	55	0.40	15	0.33333	ASRRL	0.10	23	0.30	0.10	0.00133	6.8996	6.9
0.33333	55	0.40	15	0.33333	ASRRL	0.10	23	0.50	0.15	0.00222	6.8644	6.9
0.33333	55	0.40	15	0.33333	ASRRL	0.10	23	0.20	0.20	0.00089	6.8394	6.8
0.33333	55	0.40	15	0.33333	ASRRL	0.30	32	0.30	0.10	0.00400	7.0660	7.1
0.33333	55	0.40	15	0.33333	ASRRL	0.30	32	0.50	0.15	0.00667	7.0308	7.0
0.33333	55	0.40	15	0.33333	ASRRL	0.30	32	0.20	0.20	0.00267	7.0058	7.0
0.33333	55	0.40	15	0.33333	ASRRL	0.20	47	0.30	0.10	0.00267	7.2596	7.3
0.33333	55	0.40	15	0.33333	ASRRL	0.20	47	0.50	0.15	0.00444	7.2244	7.2
0.33333	55	0.40	15	0.33333	ASRRL	0.20	47	0.20	0.20	0.00178	7.1994	7.2
0.33333	55	0.40	15	0.33333	ASRRL	0.30	56	0.30	0.10	0.00400	7.3479	7.3
0.33333	55	0.40	15	0.33333	ASRRL	0.30	56	0.50	0.15	0.00667	7.3127	7.3
0.33333	55	0.40	15	0.33333	ASRRL	0.30	56	0.20	0.20	0.00267	7.2877	7.3
0.33333	55	0.40	15	0.33333	ASRRL	0.10	73	0.30	0.10	0.00133	7.4815	7.5
0.33333	55	0.40	15	0.33333	ASRRL	0.10	73	0.50	0.15	0.00222	7.4462	7.4
0.33333	55	0.40	15	0.33333	ASRRL	0.10	73	0.20	0.20	0.00089	7.4212	7.4

0.33334	55	0.40	18	0.33333	RL	0.10	23	1.00	0.00	0.00444	6.4090	6.4
0.33334	55	0.40	18	0.33333	RL	0.30	32	1.00	0.00	0.01333	6.6227	6.6
0.33334	55	0.40	18	0.33333	RL	0.20	47	1.00	0.00	0.00889	6.8714	6.9
0.33334	55	0.40	18	0.33333	RL	0.30	56	1.00	0.00	0.01333	6.9848	7.0
0.33334	55	0.40	18	0.33333	RL	0.10	73	1.00	0.00	0.00444	7.1564	7.2
0.33334	55	0.40	18	0.33334	RA	0.10	23	1.00	0.00	0.00444	6.7196	6.7
0.33334	55	0.40	18	0.33334	RA	0.30	32	1.00	0.00	0.01333	6.8601	6.9
0.33334	55	0.40	18	0.33334	RA	0.20	47	1.00	0.00	0.00889	7.0237	7.0
0.33334	55	0.40	18	0.33334	RA	0.30	56	1.00	0.00	0.01333	7.0983	7.1
0.33334	55	0.40	18	0.33334	RA	0.10	73	1.00	0.00	0.00444	7.2111	7.2
0.33334	55	0.40	18	0.33333	ASRRL	0.10	23	0.30	0.10	0.00133	6.8996	6.9
0.33334	55	0.40	18	0.33333	ASRRL	0.10	23	0.50	0.15	0.00222	6.8644	6.9
0.33334	55	0.40	18	0.33333	ASRRL	0.10	23	0.20	0.20	0.00089	6.8394	6.8
0.33334	55	0.40	18	0.33333	ASRRL	0.30	32	0.30	0.10	0.00400	7.0660	7.1
0.33334	55	0.40	18	0.33333	ASRRL	0.30	32	0.50	0.15	0.00667	7.0308	7.0
0.33334	55	0.40	18	0.33333	ASRRL	0.30	32	0.20	0.20	0.00267	7.0058	7.0
0.33334	55	0.40	18	0.33333	ASRRL	0.20	47	0.30	0.10	0.00267	7.2596	7.3
0.33334	55	0.40	18	0.33333	ASRRL	0.20	47	0.50	0.15	0.00444	7.2244	7.2
0.33334	55	0.40	18	0.33333	ASRRL	0.20	47	0.20	0.20	0.00178	7.1994	7.2
0.33334	55	0.40	18	0.33333	ASRRL	0.30	56	0.30	0.10	0.00400	7.3479	7.3
0.33334	55	0.40	18	0.33333	ASRRL	0.30	56	0.50	0.15	0.00667	7.3127	7.3
0.33334	55	0.40	18	0.33333	ASRRL	0.30	56	0.20	0.20	0.00267	7.2877	7.3
0.33334	55	0.40	18	0.33333	ASRRL	0.10	73	0.30	0.10	0.00133	7.4815	7.5
0.33334	55	0.40	18	0.33333	ASRRL	0.10	73	0.50	0.15	0.00222	7.4462	7.4
0.33334	55	0.40	18	0.33333	ASRRL	0.10	73	0.20	0.20	0.00089	7.4212	7.4
0.33333	55	0.20	20	0.33333	RL	0.10	23	1.00	0.00	0.00222	6.4090	6.4
0.33333	55	0.20	20	0.33333	RL	0.30	32	1.00	0.00	0.00667	6.6227	6.6
0.33333	55	0.20	20	0.33333	RL	0.20	47	1.00	0.00	0.00444	6.8714	6.9
0.33333	55	0.20	20	0.33333	RL	0.30	56	1.00	0.00	0.00667	6.9848	7.0
0.33333	55	0.20	20	0.33333	RL	0.10	73	1.00	0.00	0.00222	7.1564	7.2
0.33333	55	0.20	20	0.33334	RA	0.10	23	1.00	0.00	0.00222	6.7644	6.8
0.33333	55	0.20	20	0.33334	RA	0.30	32	1.00	0.00	0.00667	6.9050	6.9
0.33333	55	0.20	20	0.33334	RA	0.20	47	1.00	0.00	0.00444	7.0686	7.1
0.33333	55	0.20	20	0.33334	RA	0.30	56	1.00	0.00	0.00667	7.1431	7.1

0.33333	55	0.20	20	0.33334	RA	0.10	73	1.00	0.00	0.00222	7.2560	7.3
0.33333	55	0.20	20	0.33333	ASRRL	0.10	23	0.30	0.10	0.00067	6.8996	6.9
0.33333	55	0.20	20	0.33333	ASRRL	0.10	23	0.50	0.15	0.00111	6.8644	6.9
0.33333	55	0.20	20	0.33333	ASRRL	0.10	23	0.20	0.20	0.00044	6.8394	6.8
0.33333	55	0.20	20	0.33333	ASRRL	0.30	32	0.30	0.10	0.00200	7.0660	7.1
0.33333	55	0.20	20	0.33333	ASRRL	0.30	32	0.50	0.15	0.00333	7.0308	7.0
0.33333	55	0.20	20	0.33333	ASRRL	0.30	32	0.20	0.20	0.00133	7.0058	7.0
0.33333	55	0.20	20	0.33333	ASRRL	0.20	47	0.30	0.10	0.00133	7.2596	7.3
0.33333	55	0.20	20	0.33333	ASRRL	0.20	47	0.50	0.15	0.00222	7.2244	7.2
0.33333	55	0.20	20	0.33333	ASRRL	0.20	47	0.20	0.20	0.00089	7.1994	7.2
0.33333	55	0.20	20	0.33333	ASRRL	0.30	56	0.30	0.10	0.00200	7.3479	7.3
0.33333	55	0.20	20	0.33333	ASRRL	0.30	56	0.50	0.15	0.00333	7.3127	7.3
0.33333	55	0.20	20	0.33333	ASRRL	0.30	56	0.20	0.20	0.00133	7.2877	7.3
0.33333	55	0.20	20	0.33333	ASRRL	0.10	73	0.30	0.10	0.00067	7.4815	7.5
0.33333	55	0.20	20	0.33333	ASRRL	0.10	73	0.50	0.15	0.00111	7.4462	7.4
0.33333	55	0.20	20	0.33333	ASRRL	0.10	73	0.20	0.20	0.00044	7.4212	7.4
0.33333	65	0.40	15	0.33333	RL	0.10	23	1.00	0.00	0.00444	6.4090	6.4
0.33333	65	0.40	15	0.33333	RL	0.30	32	1.00	0.00	0.01333	6.6227	6.6
0.33333	65	0.40	15	0.33333	RL	0.20	47	1.00	0.00	0.00889	6.8714	6.9
0.33333	65	0.40	15	0.33333	RL	0.30	56	1.00	0.00	0.01333	6.9848	7.0
0.33333	65	0.40	15	0.33333	RL	0.10	73	1.00	0.00	0.00444	7.1564	7.2
0.33333	65	0.40	15	0.33334	RA	0.10	23	1.00	0.00	0.00444	6.5989	6.6
0.33333	65	0.40	15	0.33334	RA	0.30	32	1.00	0.00	0.01333	6.7395	6.7
0.33333	65	0.40	15	0.33334	RA	0.20	47	1.00	0.00	0.00889	6.9031	6.9
0.33333	65	0.40	15	0.33334	RA	0.30	56	1.00	0.00	0.01333	6.9777	7.0
0.33333	65	0.40	15	0.33334	RA	0.10	73	1.00	0.00	0.00444	7.0905	7.1
0.33333	65	0.40	15	0.33333	ASRRL	0.10	23	0.30	0.10	0.00133	6.8996	6.9
0.33333	65	0.40	15	0.33333	ASRRL	0.10	23	0.50	0.15	0.00222	6.8644	6.9
0.33333	65	0.40	15	0.33333	ASRRL	0.10	23	0.20	0.20	0.00089	6.8394	6.8
0.33333	65	0.40	15	0.33333	ASRRL	0.30	32	0.30	0.10	0.00400	7.0660	7.1
0.33333	65	0.40	15	0.33333	ASRRL	0.30	32	0.50	0.15	0.00667	7.0308	7.0
0.33333	65	0.40	15	0.33333	ASRRL	0.30	32	0.20	0.20	0.00267	7.0058	7.0
0.33333	65	0.40	15	0.33333	ASRRL	0.20	47	0.30	0.10	0.00267	7.2596	7.3
0.33333	65	0.40	15	0.33333	ASRRL	0.20	47	0.50	0.15	0.00444	7.2244	7.2

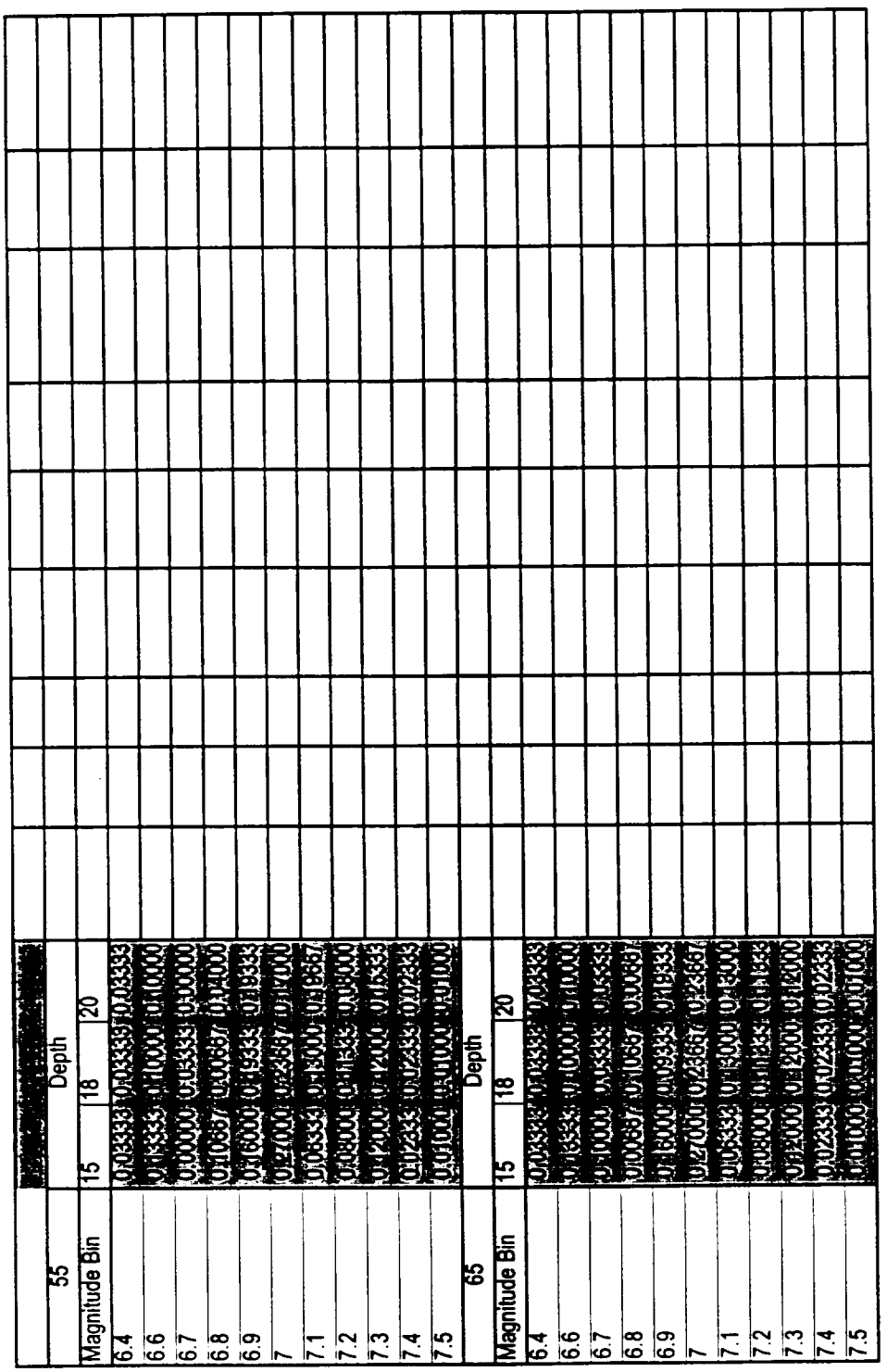
0.33333	65	0.40	15	0.33333	ASRRL	0.20	47	0.20	0.20	0.00178	7.1994	7.2
0.33333	65	0.40	15	0.33333	ASRRL	0.30	56	0.30	0.10	0.00400	7.3479	7.3
0.33333	65	0.40	15	0.33333	ASRRL	0.30	56	0.50	0.15	0.00667	7.3127	7.3
0.33333	65	0.40	15	0.33333	ASRRL	0.30	56	0.20	0.20	0.00267	7.2877	7.3
0.33333	65	0.40	15	0.33333	ASRRL	0.10	73	0.30	0.10	0.00133	7.4815	7.5
0.33333	65	0.40	15	0.33333	ASRRL	0.10	73	0.50	0.15	0.00222	7.4462	7.4
0.33333	65	0.40	15	0.33333	ASRRL	0.10	73	0.20	0.20	0.00089	7.4212	7.4
0.33334	65	0.40	18	0.33333	RL	0.10	23	1.00	0.00	0.00444	6.4090	6.4
0.33334	65	0.40	18	0.33333	RL	0.30	32	1.00	0.00	0.01333	6.6227	6.6
0.33334	65	0.40	18	0.33333	RL	0.20	47	1.00	0.00	0.00889	6.8714	6.9
0.33334	65	0.40	18	0.33333	RL	0.30	56	1.00	0.00	0.01333	6.9848	7.0
0.33334	65	0.40	18	0.33333	RL	0.10	73	1.00	0.00	0.00444	7.1564	7.2
0.33334	65	0.40	18	0.33334	RA	0.10	23	1.00	0.00	0.00444	6.6765	6.7
0.33334	65	0.40	18	0.33334	RA	0.30	32	1.00	0.00	0.01333	6.8171	6.8
0.33334	65	0.40	18	0.33334	RA	0.20	47	1.00	0.00	0.00889	6.9807	7.0
0.33334	65	0.40	18	0.33334	RA	0.30	56	1.00	0.00	0.01333	7.0553	7.1
0.33334	65	0.40	18	0.33334	RA	0.10	73	1.00	0.00	0.00444	7.1681	7.2
0.33334	65	0.40	18	0.33333	ASRRL	0.10	23	0.30	0.10	0.00133	6.8996	6.9
0.33334	65	0.40	18	0.33333	ASRRL	0.10	23	0.50	0.15	0.00222	6.8644	6.9
0.33334	65	0.40	18	0.33333	ASRRL	0.10	23	0.20	0.20	0.00089	6.8394	6.8
0.33334	65	0.40	18	0.33333	ASRRL	0.30	32	0.30	0.10	0.00400	7.0660	7.1
0.33334	65	0.40	18	0.33333	ASRRL	0.30	32	0.50	0.15	0.00667	7.0308	7.0
0.33334	65	0.40	18	0.33333	ASRRL	0.30	32	0.20	0.20	0.00267	7.0058	7.0
0.33334	65	0.40	18	0.33333	ASRRL	0.20	47	0.30	0.10	0.00267	7.2596	7.3
0.33334	65	0.40	18	0.33333	ASRRL	0.20	47	0.50	0.15	0.00444	7.2244	7.2
0.33334	65	0.40	18	0.33333	ASRRL	0.20	47	0.20	0.20	0.00178	7.1994	7.2
0.33334	65	0.40	18	0.33333	ASRRL	0.30	56	0.30	0.10	0.00400	7.3479	7.3
0.33334	65	0.40	18	0.33333	ASRRL	0.30	56	0.50	0.15	0.00667	7.3127	7.3
0.33334	65	0.40	18	0.33333	ASRRL	0.30	56	0.20	0.20	0.00267	7.2877	7.3
0.33334	65	0.40	18	0.33333	ASRRL	0.10	73	0.30	0.10	0.00133	7.4815	7.5
0.33334	65	0.40	18	0.33333	ASRRL	0.10	73	0.50	0.15	0.00222	7.4462	7.4
0.33334	65	0.40	18	0.33333	ASRRL	0.10	73	0.20	0.20	0.00089	7.4212	7.4
0.33333	65	0.20	20	0.33333	RL	0.10	23	1.00	0.00	0.00222	6.4090	6.4
0.33333	65	0.20	20	0.33333	RL	0.30	32	1.00	0.00	0.00667	6.6227	6.6

0.33333	65	0.20	20	0.33333	RL	0.20	47	1.00	0.00	0.00444	6.8714	6.9
0.33333	65	0.20	20	0.33333	RL	0.30	56	1.00	0.00	0.00667	6.9848	7.0
0.33333	65	0.20	20	0.33333	RL	0.10	73	1.00	0.00	0.00222	7.1564	7.2
0.33333	65	0.20	20	0.33334	RA	0.10	23	1.00	0.00	0.00222	6.7214	6.7
0.33333	65	0.20	20	0.33334	RA	0.30	32	1.00	0.00	0.00667	6.8619	6.9
0.33333	65	0.20	20	0.33334	RA	0.20	47	1.00	0.00	0.00444	7.0255	7.0
0.33333	65	0.20	20	0.33334	RA	0.30	56	1.00	0.00	0.00667	7.1001	7.1
0.33333	65	0.20	20	0.33334	RA	0.10	73	1.00	0.00	0.00222	7.2129	7.2
0.33333	65	0.20	20	0.33333	ASRRL	0.10	23	0.30	0.10	0.00067	6.8996	6.9
0.33333	65	0.20	20	0.33333	ASRRL	0.10	23	0.50	0.15	0.00111	6.8644	6.9
0.33333	65	0.20	20	0.33333	ASRRL	0.10	23	0.20	0.20	0.00044	6.8394	6.8
0.33333	65	0.20	20	0.33333	ASRRL	0.30	32	0.30	0.10	0.00200	7.0660	7.1
0.33333	65	0.20	20	0.33333	ASRRL	0.30	32	0.50	0.15	0.00333	7.0308	7.0
0.33333	65	0.20	20	0.33333	ASRRL	0.30	32	0.20	0.20	0.00133	7.0058	7.0
0.33333	65	0.20	20	0.33333	ASRRL	0.20	47	0.30	0.10	0.00133	7.2596	7.3
0.33333	65	0.20	20	0.33333	ASRRL	0.20	47	0.50	0.15	0.00222	7.2244	7.2
0.33333	65	0.20	20	0.33333	ASRRL	0.20	47	0.20	0.20	0.00089	7.1994	7.2
0.33333	65	0.20	20	0.33333	ASRRL	0.30	56	0.30	0.10	0.00200	7.3479	7.3
0.33333	65	0.20	20	0.33333	ASRRL	0.30	56	0.50	0.15	0.00333	7.3127	7.3
0.33333	65	0.20	20	0.33333	ASRRL	0.30	56	0.20	0.20	0.00133	7.2877	7.3
0.33333	65	0.20	20	0.33333	ASRRL	0.10	73	0.30	0.10	0.00067	7.4815	7.5
0.33333	65	0.20	20	0.33333	ASRRL	0.10	73	0.50	0.15	0.00111	7.4462	7.4
0.33333	65	0.20	20	0.33333	ASRRL	0.10	73	0.20	0.20	0.00044	7.4212	7.4

Stansbury Fault

Dip	(All)											
Sum of Combined WT	Depth											
Magnitude Bin	15	18	20	Grand Total								
6.4	0.03333	0.03333	0.03333	[illegible]								
6.6	0.12222	0.10000	0.10000	[illegible]								
6.7	0.04445	0.02222	0.01111	[illegible]								
6.8	0.07333	0.05111	0.02889	[illegible]								
6.9	0.13778	0.16000	0.16000	[illegible]								
7	0.25889	0.21444	0.22555	[illegible]								
7.1	0.08556	0.11889	0.14111	[illegible]								
7.2	0.09111	0.13556	0.12444	[illegible]								
7.3	0.12000	0.13111	0.14222	[illegible]								
7.4	0.02333	0.02333	0.02333	[illegible]								
7.5	0.01000	0.01000	0.01000	[illegible]								
Grand Total	1.00000	1.00000	1.00000	1.00000								
45	Depth											
Magnitude Bin	15	18	20									
6.4	[illegible]											
6.6	[illegible]											
6.7	[illegible]											
6.8	[illegible]											
6.9	[illegible]											
7	[illegible]											
7.1	[illegible]											
7.2	[illegible]											
7.3	[illegible]											
7.4	[illegible]											
7.5	[illegible]											

Stansbury Fault



55	Depth		
Magnitude Bin	15	18	20
6.4	0.003333	0.003333	0.003333
6.6	0.016333	0.010000	0.010000
6.7	0.000000	0.003333	0.000000
6.8	0.010667	0.006667	0.004000
6.9	0.016000	0.009333	0.018333
7	0.027000	0.026667	0.017000
7.1	0.006333	0.018000	0.018667
7.2	0.008000	0.011333	0.008000
7.3	0.012000	0.012000	0.016333
7.4	0.002333	0.002333	0.002333
7.5	0.001000	0.001000	0.001000

65	Depth		
Magnitude Bin	15	18	20
6.4	0.003333	0.003333	0.003333
6.6	0.016333	0.010000	0.010000
6.7	0.000000	0.003333	0.000000
6.8	0.010667	0.006667	0.004000
6.9	0.016000	0.009333	0.018333
7	0.027000	0.026667	0.017000
7.1	0.006333	0.018000	0.018667
7.2	0.008000	0.011333	0.008000
7.3	0.012000	0.012000	0.016333
7.4	0.002333	0.002333	0.002333
7.5	0.001000	0.001000	0.001000

Cedar Moutain Fault

WT of Dip	Dip (deg)	WT of Depth	Depth (km)	WT of Relation	Relation Type	WT of Length	Length (RL) (km)	WT of (Slip Rate)	Slip Rate (mm/yr)	Combined WT	Magnitude	Magnitude Bin
0.33333	45	0.33333	9.25	0.5	RL	0.40	27	1.00	0.00	0.02222	6.5127	6.5
0.33333	45	0.33333	9.25	0.5	RL	0.50	45	1.00	0.00	0.02778	6.8433	6.8
0.33333	45	0.33333	9.25	0.5	RL	0.10	72	1.00	0.00	0.00556	7.1474	7.1
0.33333	45	0.33333	9.25	0.5	RA	0.40	27	1.00	0.00	0.02222	6.5671	6.6
0.33333	45	0.33333	9.25	0.5	RA	0.50	45	1.00	0.00	0.02778	6.7845	6.8
0.33333	45	0.33333	9.25	0.5	RA	0.10	72	1.00	0.00	0.00556	6.9845	7.0
0.33333	45	0.33334	10.88	0.5	RL	0.40	27	1.00	0.00	0.02222	6.5127	6.5
0.33333	45	0.33334	10.88	0.5	RL	0.50	45	1.00	0.00	0.02778	6.8433	6.8
0.33333	45	0.33334	10.88	0.5	RL	0.10	72	1.00	0.00	0.00556	7.1474	7.1
0.33333	45	0.33334	10.88	0.5	RA	0.40	27	1.00	0.00	0.02222	6.6361	6.6
0.33333	45	0.33334	10.88	0.5	RA	0.50	45	1.00	0.00	0.02778	6.8535	6.9
0.33333	45	0.33334	10.88	0.5	RA	0.10	72	1.00	0.00	0.00556	7.0536	7.1
0.33333	45	0.33333	12.62	0.5	RL	0.40	27	1.00	0.00	0.02222	6.5127	6.5
0.33333	45	0.33333	12.62	0.5	RL	0.50	45	1.00	0.00	0.02778	6.8433	6.8
0.33333	45	0.33333	12.62	0.5	RL	0.10	72	1.00	0.00	0.00556	7.1474	7.1
0.33333	45	0.33333	12.62	0.5	RA	0.40	27	1.00	0.00	0.02222	6.6993	6.7
0.33333	45	0.33333	12.62	0.5	RA	0.50	45	1.00	0.00	0.02778	6.9167	6.9
0.33333	45	0.33333	12.62	0.5	RA	0.10	72	1.00	0.00	0.00556	7.1167	7.1
0.33334	55	0.33333	10.88	0.5	RL	0.40	27	1.00	0.00	0.02222	6.5127	6.5
0.33334	55	0.33333	10.88	0.5	RL	0.50	45	1.00	0.00	0.02778	6.8433	6.8
0.33334	55	0.33333	10.88	0.5	RL	0.10	72	1.00	0.00	0.00556	7.1474	7.1
0.33334	55	0.33333	10.88	0.5	RA	0.40	27	1.00	0.00	0.02222	6.5735	6.6
0.33334	55	0.33333	10.88	0.5	RA	0.50	45	1.00	0.00	0.02778	6.7909	6.8
0.33334	55	0.33333	10.88	0.5	RA	0.10	72	1.00	0.00	0.00556	6.9910	7.0
0.33334	55	0.33334	13.21	0.5	RL	0.40	27	1.00	0.00	0.02222	6.5127	6.5
0.33334	55	0.33334	13.21	0.5	RL	0.50	45	1.00	0.00	0.02778	6.8433	6.8
0.33334	55	0.33334	13.21	0.5	RL	0.10	72	1.00	0.00	0.00556	7.1474	7.1
0.33334	55	0.33334	13.21	0.5	RA	0.40	27	1.00	0.00	0.02222	6.6561	6.7
0.33334	55	0.33334	13.21	0.5	RA	0.50	45	1.00	0.00	0.02778	6.8735	6.9
0.33334	55	0.33334	13.21	0.5	RA	0.10	72	1.00	0.00	0.00556	7.0736	7.1
0.33334	55	0.13333	15.00	0.5	RL	0.40	27	1.00	0.00	0.00889	6.5127	6.5
0.33334	55	0.13333	15.00	0.5	RL	0.50	45	1.00	0.00	0.01111	6.8433	6.8

0.33334	55	0.13333	15.00	0.5	RL	0.10	72	1.00	0.00	0.00222	7.1474	7.1
0.33334	55	0.13333	15.00	0.5	RA	0.40	27	1.00	0.00	0.00889	6.7102	6.7
0.33334	55	0.13333	15.00	0.5	RA	0.50	45	1.00	0.00	0.01111	6.9276	6.9
0.33334	55	0.13333	15.00	0.5	RA	0.10	72	1.00	0.00	0.00222	7.1277	7.1
0.33334	55	0.20000	15.86	0.5	RL	0.40	27	1.00	0.00	0.01333	6.5127	6.5
0.33334	55	0.20000	15.86	0.5	RL	0.50	45	1.00	0.00	0.01667	6.8433	6.8
0.33334	55	0.20000	15.86	0.5	RL	0.10	72	1.00	0.00	0.00333	7.1474	7.1
0.33334	55	0.20000	15.86	0.5	RA	0.40	27	1.00	0.00	0.01333	6.7339	6.7
0.33334	55	0.20000	15.86	0.5	RA	0.50	45	1.00	0.00	0.01667	6.9513	7.0
0.33334	55	0.20000	15.86	0.5	RA	0.10	72	1.00	0.00	0.00333	7.1514	7.2
0.33333	65	0.33333	12.62	0.5	RL	0.40	27	1.00	0.00	0.02222	6.5127	6.5
0.33333	65	0.33333	12.62	0.5	RL	0.50	45	1.00	0.00	0.02778	6.8433	6.8
0.33333	65	0.33333	12.62	0.5	RL	0.10	72	1.00	0.00	0.00556	7.1474	7.1
0.33333	65	0.33333	12.62	0.5	RA	0.40	27	1.00	0.00	0.02222	6.5936	6.6
0.33333	65	0.33333	12.62	0.5	RA	0.50	45	1.00	0.00	0.02778	6.8111	6.8
0.33333	65	0.33333	12.62	0.5	RA	0.10	72	1.00	0.00	0.00556	7.0111	7.0
0.33333	65	0.26667	15.00	0.5	RL	0.40	27	1.00	0.00	0.01778	6.5127	6.5
0.33333	65	0.26667	15.00	0.5	RL	0.50	45	1.00	0.00	0.02222	6.8433	6.8
0.33333	65	0.26667	15.00	0.5	RL	0.10	72	1.00	0.00	0.00444	7.1474	7.1
0.33333	65	0.26667	15.00	0.5	RA	0.40	27	1.00	0.00	0.01778	6.6672	6.7
0.33333	65	0.26667	15.00	0.5	RA	0.50	45	1.00	0.00	0.02222	6.8846	6.9
0.33333	65	0.26667	15.00	0.5	RA	0.10	72	1.00	0.00	0.00444	7.0846	7.1
0.33333	65	0.20000	15.86	0.5	RL	0.40	27	1.00	0.00	0.01333	6.5127	6.5
0.33333	65	0.20000	15.86	0.5	RL	0.50	45	1.00	0.00	0.01667	6.8433	6.8
0.33333	65	0.20000	15.86	0.5	RL	0.10	72	1.00	0.00	0.00333	7.1474	7.1
0.33333	65	0.20000	15.86	0.5	RA	0.40	27	1.00	0.00	0.01333	6.6909	6.7
0.33333	65	0.20000	15.86	0.5	RA	0.50	45	1.00	0.00	0.01667	6.9083	6.9
0.33333	65	0.20000	15.86	0.5	RA	0.10	72	1.00	0.00	0.00333	7.1084	7.1
0.33333	65	0.13333	18.00	0.5	RL	0.40	27	1.00	0.00	0.00889	6.5127	6.5
0.33333	65	0.13333	18.00	0.5	RL	0.50	45	1.00	0.00	0.01111	6.8433	6.8
0.33333	65	0.13333	18.00	0.5	RL	0.10	72	1.00	0.00	0.00222	7.1474	7.1
0.33333	65	0.13333	18.00	0.5	RA	0.40	27	1.00	0.00	0.00889	6.7448	6.7
0.33333	65	0.13333	18.00	0.5	RA	0.50	45	1.00	0.00	0.01111	6.9622	7.0
0.33333	65	0.13333	18.00	0.5	RA	0.10	72	1.00	0.00	0.00222	7.1622	7.2

0.33333	65	0.06667	20.00	0.5	RL	0.40	27	1.00	0.00	0.00444	6.5127	6.5
0.33333	65	0.06667	20.00	0.5	RL	0.50	45	1.00	0.00	0.00556	6.8433	6.8
0.33333	65	0.06667	20.00	0.5	RL	0.10	72	1.00	0.00	0.00111	7.1474	7.1
0.33333	65	0.06667	20.00	0.5	RA	0.40	27	1.00	0.00	0.00444	6.7896	6.8
0.33333	65	0.06667	20.00	0.5	RA	0.50	45	1.00	0.00	0.00556	7.0070	7.0
0.33333	65	0.06667	20.00	0.5	RA	0.10	72	1.00	0.00	0.00111	7.2071	7.2

Dip	(All)											
Sum of Combined WT	Depth											
Magnitude Bin	9.25	10.88	12.62	13.21	15	15.86	18	20	Grand Total			
6.5	0.20000	0.20000	0.20000	0.20000	0.20000	0.20000	0.20000	0.20000	0.20000			
6.6	0.20000	0.20000	0.10000	0.00000	0.00000	0.00000	0.00000	0.00000	0.08889			
6.7	0.00000	0.00000	0.10000	0.20000	0.20000	0.20000	0.20000	0.00000	0.10667			
6.8	0.50000	0.37500	0.37500	0.25000	0.25000	0.25000	0.25000	0.45000	0.33778			
6.9	0.00000	0.12500	0.12500	0.25000	0.25000	0.12500	0.00000	0.00000	0.13333			
7	0.05000	0.02500	0.02500	0.00000	0.00000	0.12500	0.25000	0.25000	0.05000			
7.1	0.05000	0.07500	0.07500	0.10000	0.10000	0.07500	0.05000	0.05000	0.07667			
7.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.02500	0.05000	0.05000	0.00667			
Grand Total	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000			
45												
Sum of Combined WT	Depth											
Magnitude Bin	9.25	10.88	12.62									
6.5	[illegible]											
6.6	[illegible]											
6.7	[illegible]											
6.8	[illegible]											
6.9	[illegible]											
7	[illegible]											
7.1	[illegible]											
55												

Cedar Moutain Fault

Sum of Combined WT	Depth											
Magnitude Bin	10.88	13.21	15	15.86								
6.5	0.20000	0.20000	0.20000	0.20000								
6.6	0.20000	0.00000	0.00000	0.00000								
6.7	0.00000	0.20000	0.20000	0.20000								
6.8	0.50000	0.25000	0.25000	0.25000								
6.9	0.00000	0.25000	0.25000	0.00000								
7	0.05000	0.00000	0.00000	0.25000								
7.1	0.05000	0.10000	0.10000	0.05000								
7.2	0.00000	0.00000	0.00000	0.05000								
65												
Sum of Combined WT	Depth											
Magnitude Bin	12.62	15	15.86	18	20							
6.5	0.20000	0.20000	0.20000	0.20000	0.20000							
6.6	0.20000	0.00000	0.00000	0.00000	0.00000							
6.7	0.00000	0.20000	0.20000	0.20000	0.00000							
6.8	0.50000	0.25000	0.25000	0.25000	0.25000							
6.9	0.00000	0.25000	0.25000	0.00000	0.00000							
7	0.05000	0.00000	0.00000	0.25000	0.25000							
7.1	0.05000	0.10000	0.10000	0.05000	0.05000							
7.2	0.00000	0.00000	0.00000	0.05000	0.05000							

ATTACHMENT B
Computer Program RFEQRE3

Required Platform

IBM Compatible PC, 486 or Pentium, Fortran 77

Description

The program RFEQRE3 computes median (50th percentile), mean, and 84th percentile response spectra given distribtuions for magnitude, distance, and a set of one or more attenuation relationships with weights. The program uses the following two equations to compute the motions

$$P(Z > z) = \sum_{m} p(m_i) \cdot \sum_{r} p(r_j|m_i) \cdot \sum_{A} p(A_k) \cdot P(Z > z \mid m_i, r_j, A_k) \qquad \textbf{(B-1)}$$

where $p(m_i)$ is the discrete probability density function for maximum magnitude, $p(r_j)$ is the discrete probability density function for minimum distance given a maximum magnitude, $p(A_k)$ is the discrete probability density (weight) assigned to a particular attenuation relationship, and $P(Z>z|\ m_i, r_j, A_k)$ is the probability that ground motion parameter Z exceeds level z given maximum magnitude m_i, minimum distance r_j, and attenuation relationship A_k. This probability is computed assuming that peak ground motions are log normally distributed about the median attenuation relationship with the specified standard error of $\ln(Z)$. Equation **(B-1)** is solved iteratively for the value of z that results in $P(Z>z)$ equal to 0.8416. The median ground motions are computed by setting $P(Z>z)$ equal to 0.5. The mean ground motions, $E[Z]$, are computed using the relationship

$$E[Z] = \sum_{m} p(m_i) \cdot \sum_{r} p(r_j|m_i) \cdot \sum_{A} p(A_k) \cdot E[(Z|m_i, r_j, A_k)] \qquad \textbf{(B-2)}$$

where $E[Z|\ m_i, r_j, A_k]$ is the mean ground motion given by attenuation relationship A_k for maximum magnitude m_i and minimum distance r_j.

The listing of the program is provided below, followed by a description of the input.

```
program RFEQRE3
      character ifile*40,ofile*40,fdesc*20,title*75,head*75
      parameter(mxt=25,mxa=9,mxb=5,mxm=20,mxr=50,mxp=10000)
      common elsa(mxp,mxt),slsa(mxp,mxt)
      real t(mxt),ptm(mxb),pseg(mxb),pg(mxb),m(mxm),mr(mxm),pm(mxm),
     , r(mxr),pr(mxr,mxm),pa(mxa),sv(3),sa(3),amp(3),amax(3),mlsa,
     , plevel(2)
```

```
      double precision gauss,u,psa(mxp),sum
      logical stp
      data plevel/0.5,0.8413/
c
      twopig=4*asin(1.0)/981.0
c
99    print*,' enter title (q to quit): '
      read(5,'(a)') title
      IF(title.eq.'q'.or.title.eq.'Q') STOP
      nbr=0
c.............................enter tectonic model loop distribution
      print*,' enter ntm,ptm(1..ntm): '
      read(5,*) ntm,(ptm(itm),itm=1,ntm)
      call brck(ntm,ptm,'tecmod')
      DO 50 itm=1,ntm
c.............................enter segmentation model loop distribution
        print*,' enter nseg,pseg(1..nseg): '
        read(5,*) nseg,(pseg(iseg),iseg=1,nseg)
        call brck(nseg,pseg,'segm')
        DO 50 iseg=1,nseg
c.............................enter geometry model loop distribution
          print*,' enter ng,pg(1..ng): '
          read(5,*) ng,(pg(ig),ig=1,ng)
          call brck(ng,pg,'geom')
          DO 50 ig=1,ng
c.............................enter maximum magnitude loop distribution
            print*,' enter nm,m(im),pm(im),im=1,nm: '
            read(5,*) nm,(m(im),pm(im),im=1,nm)
            call brck(nm,pm,'mag')
c.............................enter attenuation model loop distribution
            print*,' no of atten relationships, weights: '
            read(5,*) na,(pa(ia),ia=1,na)
            call brck(na,pa,'atten')
            do 40 ia=1,na
c
c.......................read in distance distribution for geometry
              fdesc='R distribution'
              call flchk('i',fdesc,ifile,stp)
              IF(stp) STOP
              open(7,file=ifile)
              read(7,'(a)') head
              read(7,*) nr,nmr,(mr(i),i=1,nmr)
              IF(nmr.ne.nm) then
                print'('' Stopped because nmr ='',i5,'' nm ='',i5)',
     ,           nmr,nm
                STOP
              ENDIF
              DO 10 ir=1,nr
10              read(7,*) r(ir),(pr(ir,im),im=1,nmr)
              close(7)
c
              nb=0
c.............compute median and sigma spectral values for each M&R pair
              do 20 ir=1,nr
                do 20 im=1,nm
                nb=nb+1
20              psa(nbr+nb)=ptm(itm)*pseg(iseg)*pg(ig)*pa(ia)*pm(im)*
     ,           pr(ir,im)
c...PSA is array of weights for each possible M&R pair with 3 outer
c... distribution loops
              call gsa(nm,m,nr,r,nt,t,nbr)
              nbr=nbr+nb
              IF(nbr.gt.mxp) then
                print'('' nbr ='',i5,'' > dimension mxp ='',i5)',nbr,
     ,           mxp
                STOP ' stopped because of dimension problem'
              ENDIF
40          CONTINUE
```

```
50    CONTINUE
      sum=0.0
      do 55 ib=1,nbr
55      sum=sum+psa(ib)
      print'('' sum ='',f10.6)',sum
c
      fdesc='output'
      call flchk('o',fdesc,ofile,stp)
      if(stp) STOP
      open(7,file=ofile)
      write(7,'(a)') title
      write(7,'(i5,t15,''Sv med      Sv mean     Sv 84th     Sa med'',
     , ''      Sa mean     Sa 84th     Amp med     Amp mean    Amp 84th''
     , )') nt
c.....................compute spectral values for each period
      do 100 it=1,nt
        mlsa=0.0
        sa(2)=0.0
        DO 60 ib=1,nbr
          mlsa=mlsa+elsa(ib,it)*psa(ib)
          sa(2)=sa(2)+exp(elsa(ib,it)+slsa(ib,it)**2/2.0)*psa(ib)
c.................sa(2) is the mean value
60      CONTINUE
        plevel1=0.0
        do 61 ib=1,nbr
          u=(mlsa-elsa(ib,it))/slsa(ib,it)
61        plevel1=plevel1+gauss(u)*psa(ib)
c................use nonlinear solution to fine SA(50th) and SA (84th)
        DO 65 k=1,2
          x1=mlsa
          y1=plevel1-plevel(k)
          x2=x1+slsa(1,it)*real(k)/2.
          ncount=0
62        y2=0.0
          do 63 ib=1,nbr
            u=(x2-elsa(ib,it))/slsa(ib,it)
63          y2=y2+gauss(u)*psa(ib)
          y2=y2-plevel(k)
          IF(y2-y1.eq.0.0) then
            print*,' y1 =  y2',y1,y2
            IF(abs(y2).gt.0.000001) STOP 'stopped because y2 too big'
            x3=x2
           else
            x3=x2-y2*(x2-x1)/(y2-y1)
          ENDIF
          div=x3
          IF(abs(div).eq.0.0) div=x2
          IF(abs(div).eq.0.0) div=x1
          if(abs((x3-x2)/div).gt.0.00001) then
            x1=x2
            y1=y2
            x2=x3
            ncount=ncount+1
            if(ncount.gt.20) then
              print*,' ncount',ncount
              pause
            ENDIF
            go to 62
          ENDif
          sa(k/2*2+1)=exp(x3)
65      CONTINUE
        do 70 j=1,3
70        sv(j)=sa(j)*t(it)/twopig
        IF(it.eq.1) then
          DO 75, j=1,3
75          amax(j)=sa(j)
        ENDIF
        DO 80 j=1,3
```

```
80        amp(j)=sa(j)/amax(j)
c
        write(7,'(f10.5,9e12.4)') t(it),sv,sa,amp
100   CONTINUE
      close(7)
      go to 99
      END
c
      subroutine GSA(nm,m,nr,r,nt,t,nbr)
c.....GSA computes response spectra values for a specified attenuation
c.....relationship
      parameter(mxt=25,mxrl=4,mxml=20,natmx=20,mxm=20,mxr=50,mxp=10000)
      common elsa(mxp,mxt),slsa(mxp,mxt)
      real coef(mxt,mxrl,mxml,31),rlmt(mxt,mxrl),mlmt(mxt,mxml),m(*),
     , t(*),r(*)
      character title*38,ifile*40,attn*20,attntp(natmx,2)*20,fdesc*20
      logical stp,coefsa,ansr
      integer nacoef(natmx),nrr(mxt),nmr(mxt)
      data nacoef/7,11,10,7,7,5,8,7,10,9,11,13,8,9,18,24,26,24,25,31/
      data ((attntp(i,j),j=1,2),i=1,natmx)/'sadigh','SADIGH',
     , 'sadighspec','SADIGHSPEC','modcamp','MODCAMP','joyner-boore',
     , 'JOYNER-BOORE','nuttli','NUTTLI','inpres','INPRES','mjb','MJB',
     , 'crouse','CROUSE','boore-atkinson','BOORE-ATKINSON',
     , 'campbellspec','CAMPBELLSPEC','caltrans','CALTRANS','caltbounce',
     , 'CALTBOUNCE','boore-joyner','BOORE-JOYNER','idriss91','IDRISS91',
     , 'campbell93','CAMPBELL93','campbell94','CAMPBELL94',
     , 'abrahamson','ABRAHAMSON','campbell94vs','CAMPBELL94VS',
     , 'campbell97','CAMPBELL97','campbell97v','CAMPBELL97V'/
c
      twopig=4*asin(1.0)/981.0
c
      fdesc='spec attenuation '
      call flchk('i',fdesc,ifile,stp)
      if(stp) STOP
      print*,' are spectral coefficients in terms of sa? '
      coefsa=ansr(5)
      open(7,file=ifile)
      read(7,'(a38)') title
      read(7,'(a20)') attn
      do 15 natten=1,natmx
        if(attn.eq.attntp(natten,1).or.attn.eq.attntp(natten,2))
     ,    go to 16
15    CONTINUE
      print'(1x,a20,'' type attenuation not found'')',attn
      STOP
16    read(7,*) nt
      do 30 it=1,nt
        read(7,*) t(it)
        read(7,*) tr,nrr(it),nmr(it)
        rlmt(it,1)=0.0
        rlmt(it,nrr(it)+1)=100000.
        if(nrr(it).gt.1) read(7,*) (rlmt(it,i),i=2,nrr(it))
        mlmt(it,1)=0.0
        mlmt(it,nmr(it)+1)=100.
        if(nmr(it).gt.1) read(7,*) (mlmt(it,i),i=2,nmr(it))
        do 20 irl=1,nrr(it)
          do 20 iml=1,nmr(it)
20          read(7,*) (coef(it,irl,iml,i),i=1,nacoef(natten))
30    CONTINUE
      close(7)
c
      if(natten.eq.8) then
        print*,' enter depth: '
        read(5,*) depth
      ENDIF
      nb=0
      do 100 im=1,nm
      do 100 ir=1,nr
```

```
      nb=nb+1
      do 100 it=1,nt
        do 42 iml=1,nmr(it)
          if(m(im).lt.mlmt(it,iml+1)) go to 43
42      CONTINUE
43      do 44 irl=1,nrr(it)
          if(r(ir).lt.rlmt(it,irl+1)) go to 45
44      CONTINUE
45      CONTINUE
c
c compute sv
c
        go to (111,121,131,141,151,161,171,181,191,201,211,221,231,241,
     ,   251,261,271,281,291,301) natten
c.....                                          Sadigh atten
111     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        slsa(nbr+nb,it)=coef(it,irl,iml,6)+coef(it,irl,iml,7)*m(im)
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)
        elsa(nbr+nb,it)=term-coef(it,irl,iml,3)*log(r(ir)+c)
        go to 400
c.....                                          Sadigh Spectra
121     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        slsa(nbr+nb,it)=coef(it,irl,iml,10)+coef(it,irl,iml,11)*m(im)
        if(coef(it,irl,iml,9).gt.m(im)) then
          saog=coef(it,irl,iml,6)+coef(it,irl,iml,7)*
     ,     (coef(it,irl,iml,9)-m(im))**coef(it,irl,iml,8)
         else
          saog=coef(it,irl,iml,6)
        ENDif
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+saog
        elsa(nbr+nb,it)=term-coef(it,irl,iml,3)*log(r(ir)+c)
        go to 400
c.....                                          modified Campbell
131     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        gamma=coef(it,irl,iml,6)+coef(it,irl,iml,7)*m(im)+
     ,   coef(it,irl,iml,8)*m(im)**2
        slsa(nbr+nb,it)=coef(it,irl,iml,9)+coef(it,irl,iml,10)*m(im)
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)
        elsa(nbr+nb,it)=term-coef(it,irl,iml,3)*log(r(ir)+c)-
     ,   gamma*r(ir)
        go to 400
c.....                                          Joyner-Boore
141     term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*(m(im)-6.0)+
     ,   coef(it,irl,iml,3)*(m(im)-6.0)**2
        rr=sqrt(r(ir)**2+coef(it,irl,iml,6)**2)
        elsa(nbr+nb,it)=(term-coef(it,irl,iml,4)*log10(rr)-
     ,   coef(it,irl,iml,5)*rr)*log(10.0)
        slsa(nbr+nb,it)=coef(it,irl,iml,7)*log(10.0)
        go to 400
c.....                                          Nuttli
151     term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)
        hh=10.**(coef(it,irl,iml,5)+coef(it,irl,iml,6)*m(im))
        rr=sqrt(r(ir)**2+hh**2)
        elogz=(term-coef(it,irl,iml,3)*log10(rr)-coef(it,irl,iml,4)*
     ,   (r(ir)-1.))*log(10.0)
        slsa(nbr+nb,it)=coef(it,irl,iml,7)*log(10.0)
        go to 400
c.....                                          INPRES
161     c=coef(it,irl,iml,4)*m(im)
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)
        elsa(nbr+nb,it)=term-coef(it,irl,iml,3)*log(r(ir)+c)
        slsa(nbr+nb,it)=coef(it,irl,iml,5)
        go to 400
c.....                                          modified Joyner-Boore
171     term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+
     ,   coef(it,irl,iml,3)*m(im)**2
        rr=sqrt(r(ir)**2+10.0**(2.0*(coef(it,irl,iml,5)+
     ,   m(im)*coef(it,irl,iml,6))))
```

```
        elsa(nbr+nb,it)=(term-coef(it,irl,iml,4)*log10(rr)-
     ,   coef(it,irl,iml,7)*rr)*log(10.0)
        slsa(nbr+nb,it)=coef(it,irl,iml,8)*log(10.0)
        go to 400
c.....................................................  Crouse et al
181     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        slsa(nbr+nb,it)=coef(it,irl,iml,7)
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)
        elsa(nbr+nb,it)=term-coef(it,irl,iml,3)*log(r(ir)+c)+
     ,   coef(it,irl,iml,6)*depth
        go to 400
c.....................................................  Boore-Atkinson
191     term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*(m(im)-6.0)+
     ,   coef(it,irl,iml,3)*(m(im)-6.0)**2+coef(it,irl,iml,4)*
     ,   (m(im)-6.0)**3
        gamma=coef(it,irl,iml,5)+coef(it,irl,iml,6)*(m(im)-6.0)+
     ,   coef(it,irl,iml,7)*(m(im)-6.0)**2+coef(it,irl,iml,8)*
     ,   (m(im)-6.0)**3
        elsa(nbr+nb,it)=(term-coef(it,irl,iml,9)*log10(r(ir))+
     ,   gamma*r(ir))*log(10.0)
        slsa(nbr+nb,it)=coef(it,irl,iml,10)*log(10.0)
      go to 400
c.....................................................  Campbell 89 spectra
201     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+
     ,   coef(it,irl,iml,6)*tanh(coef(it,irl,iml,7)*(m(im)+
     ,   coef(it,irl,iml,8)))
        elsa(nbr+nb,it)=term+coef(it,irl,iml,3)*log(r(ir)+c)
        slsa(nbr+nb,it)=coef(it,irl,iml,9)
        go to 400
c.....................................................  CalTrans
211     c=exp(coef(it,irl,iml,5)+coef(it,irl,iml,6)*m(im))
        slsa(nbr+nb,it)=coef(it,irl,iml,10)+coef(it,irl,iml,11)*m(im)
        saog=coef(it,irl,iml,3)*(coef(it,irl,iml,9)-m(im))**
     ,   coef(it,irl,iml,8)
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+saog
        elsa(nbr+nb,it)=term+coef(it,irl,iml,4)*log(r(ir)+c)+
     ,   coef(it,irl,iml,7)*log(r(ir)+2.0)
        go to 400
c.....................................................  CalTrans with bounce
221     c=exp(coef(it,irl,iml,5)+coef(it,irl,iml,6)*m(im))
        if(r(ir).le.coef(it,irl,iml,12)) then
          effr=r(ir)
         elseif(r(ir).gt.coef(it,irl,iml,12).and.
     ,      r(ir).le.coef(it,irl,iml,13)) then
          effr=coef(it,irl,iml,12)
         else
          effr=r(ir)-coef(it,irl,iml,13)+coef(it,irl,iml,12)
        ENDif
        slsa(nbr+nb,it)=coef(it,irl,iml,10)+coef(it,irl,iml,11)*m(im)
        saog=coef(it,irl,iml,3)*(coef(it,irl,iml,9)-m(im))
     ,   **coef(it,irl,iml,8)
        term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+saog
        elsa(nbr+nb,it)=term+coef(it,irl,iml,4)*log(effr+c)+
     ,   coef(it,irl,iml,7)*log(r(ir)+2.0)
        go to 400
c.....................................  Boore-Joyner 91 eastern US deep soil
231     term=coef(it,irl,iml,1)+coef(it,irl,iml,2)*(m(im)-6.0)+
     ,   coef(it,irl,iml,3)*(m(im)-6.0)**2+coef(it,irl,iml,4)*
     ,   (m(im)-6.0)**3
        rr=sqrt(r(ir)**2+coef(it,irl,iml,7)**2)
        elogz=term-coef(it,irl,iml,5)*log10(rr)-coef(it,irl,iml,6)*rr
        slsa(nbr+nb,it)=coef(it,irl,iml,8)*log(10.0)
        elsa(nbr+nb,it)=log(10.)*elogz
        go to 400
c.....................................................Idriss, 1991
241     alfa=coef(it,irl,iml,1)+exp(coef(it,irl,iml,2)+
     ,   coef(it,irl,iml,3)*m(im))
```

```
        beta=coef(it,irl,iml,4)-exp(coef(it,irl,iml,5)+
     ,   coef(it,irl,iml,6)*m(im))
        elsa(nbr+nb,it)=alfa+beta*log(r(ir)+coef(it,irl,iml,7))
        slsa(nbr+nb,it)=coef(it,irl,iml,8)+coef(it,irl,iml,9)*m(im)
        go to 400
c.....................................Campbell, 1993
251     c=coef(it,irl,iml,11)*exp(coef(it,irl,iml,12)*m(im))
        alpha=coef(it,irl,iml,5)+coef(it,irl,iml,6)*m(im)
        soilterm=coef(it,irl,iml,3)+coef(it,irl,iml,14)*log(r(ir))
        depterm=coef(it,irl,iml,4)*tanh(coef(it,irl,iml,15)*
     ,   coef(it,irl,iml,16))
        term=coef(it,irl,iml,1)+coef(it,irl,iml,7)*m(im)+
     ,   coef(it,irl,iml,2)*tanh(coef(it,irl,iml,8)*
     ,   (m(im)-coef(it,irl,iml,9)))+coef(it,irl,iml,13)+
     ,   coef(it,irl,iml,17)*soilterm+depterm
        elsa(nbr+nb,it)=term-coef(it,irl,iml,10)*log(r(ir)*r(ir)+c*c)/
     ,   2.0-alpha*r(ir)
        slsa(nbr+nb,it)=coef(it,irl,iml,18)
        go to 400
c..................................... Campbell 94 spectra
261     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        rs=max(r(ir),1.0)
        faultterm=(coef(it,irl,iml,6)+coef(it,irl,iml,7)*log(rs)+
     ,   coef(it,irl,iml,8)*m(im))*coef(it,irl,iml,9)
        siteterm=coef(it,irl,iml,10)+coef(it,irl,iml,11)*log(rs)
        ampterm=coef(it,irl,iml,12)+coef(it,irl,iml,13)*
     ,   tanh(coef(it,irl,iml,14)*(m(im)-coef(it,irl,iml,15)))+
     ,   coef(it,irl,iml,16)
        depterm=coef(it,irl,iml,17)*tanh(coef(it,irl,iml,18)*
     ,   coef(it,irl,iml,19))
        alpha=coef(it,irl,iml,20)+coef(it,irl,iml,21)*m(im)
        elsa(nbr+nb,it)=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+
     ,   coef(it,irl,iml,3)*log(r(ir)*r(ir)+c*c)/2.0+faultterm+
     ,   siteterm+ampterm+depterm-alpha*r(ir)
        slsa(nbr+nb,it)=coef(it,irl,iml,22)+coef(it,irl,iml,23)*m(im)+
     ,   coef(it,irl,iml,24)
        go to 400
c..................................... Abrahamson and Silva 95
271     rr=sqrt(r(ir)*r(ir)+coef(it,irl,iml,7)*coef(it,irl,iml,7))
        rrar=sqrt(r(ir)*r(ir)+coef(it,irl,iml,24)*coef(it,irl,iml,24))
        IF(m(im).ge.coef(it,irl,iml,8)) then
          ampterm=coef(it,irl,iml,1)+coef(it,irl,iml,4)*(m(im)-
     ,     coef(it,irl,iml,8))+coef(it,irl,iml,12)*
     ,     (8.5-m(im))**coef(it,irl,iml,26)
          atar=coef(it,irl,iml,20)+coef(it,irl,iml,4)*(m(im)-
     ,     coef(it,irl,iml,8))
          faultterm=coef(it,irl,iml,16)*coef(it,irl,iml,6)
          ftar=coef(it,irl,iml,16)*coef(it,irl,iml,23)
         ELSE
          ampterm=coef(it,irl,iml,1)+coef(it,irl,iml,2)*(m(im)-
     ,     coef(it,irl,iml,8))+coef(it,irl,iml,12)*
     ,     (8.5-m(im))**coef(it,irl,iml,26)
          atar=coef(it,irl,iml,20)+coef(it,irl,iml,2)*(m(im)-
     ,     coef(it,irl,iml,8))
          IF(m(im).le.5.8) then
            faultterm=coef(it,irl,iml,16)*coef(it,irl,iml,5)
            ftar=coef(it,irl,iml,16)*coef(it,irl,iml,22)
           ELSE
            faultterm=coef(it,irl,iml,16)*(coef(it,irl,iml,5)+
     ,       (coef(it,irl,iml,6)-coef(it,irl,iml,5))*(m(im)-5.8)/
     ,       (coef(it,irl,iml,8)-5.8))
            ftar=coef(it,irl,iml,16)*(coef(it,irl,iml,22)+
     ,       (coef(it,irl,iml,23)-coef(it,irl,iml,22))*(m(im)-5.8)/
     ,       (coef(it,irl,iml,8)-5.8))
          ENDIF
        ENDIF
        disterm=(coef(it,irl,iml,3)+coef(it,irl,iml,13)*
     ,   (m(im)-coef(it,irl,iml,8)))*log(rr)
```

```
        dtar=(coef(it,irl,iml,21)+coef(it,irl,iml,13)*
     ,   (m(im)-coef(it,irl,iml,8)))*log(rrar)
        IF(r(ir).gt.4.0.and.r(ir).lt.25.0) then
          hwf=min(1.0,max(m(im)-5.5,0.0))*coef(it,irl,iml,17)
          hwdt=min(1.0,(r(ir)-4.0)/4.0,(25.0-r(ir))/7.0)
          hangw=hwf*hwdt*coef(it,irl,iml,9)
          hangwar=hwf*hwdt*coef(it,irl,iml,25)
         ELSE
          hwf=0.0
          hwdt=0.0
          hangw=0.0
          hangwar=0.0
        ENDIF
        elogzr=ampterm+faultterm+disterm+hangw
        elogzar=atar+ftar+dtar+hangwar
        soilf=coef(it,irl,iml,15)*(coef(it,irl,iml,10)+
     ,   coef(it,irl,iml,11)*log(exp(elogzar)+coef(it,irl,iml,14)))
        elsa(nbr+nb,it)=elogzr+soilf
        IF(m(im).le.5.0) then
          slsa(nbr+nb,it)=coef(it,irl,iml,18)
         ELSE
          slsa(nbr+nb,it)=coef(it,irl,iml,18)-min(2.0,m(im)-5.0)*
     ,     coef(it,irl,iml,19)
        ENDIF
        go to 400
c..................................... Campbell 94 vertical soil spectra
281     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        rs=max(r(ir),1.0)
        vohpgar=-1.584-0.099*m(im)-1.5*log(r(ir)+0.079*
     ,   exp(0.661*m(im)))+1.89*log(r(ir)+0.361*exp(0.576*m(im)))-
     ,   0.107*coef(it,irl,iml,9)
        faultterm=(coef(it,irl,iml,6)+coef(it,irl,iml,7)*log(rs)+
     ,   coef(it,irl,iml,8)*m(im))*coef(it,irl,iml,9)
        siteterm=coef(it,irl,iml,10)+coef(it,irl,iml,11)*log(rs)
        ampterm=coef(it,irl,iml,12)+coef(it,irl,iml,13)*
     ,   tanh(coef(it,irl,iml,14)*(m(im)-coef(it,irl,iml,15)))+
     ,   coef(it,irl,iml,16)
        depterm=coef(it,irl,iml,17)*tanh(coef(it,irl,iml,18)*
     ,   coef(it,irl,iml,19))
        alpha=coef(it,irl,iml,20)+coef(it,irl,iml,21)*m(im)
        elsa(nbr+nb,it)=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+
     ,   coef(it,irl,iml,3)*log(r(ir)*r(ir)+c*c)/2.0+faultterm+
     ,   siteterm+ampterm+depterm-alpha*r(ir)+vohpgar
        slsa(nbr+nb,it)=coef(it,irl,iml,22)+coef(it,irl,iml,23)*m(im)+
     ,   coef(it,irl,iml,24)
c
        go to 400
c..................................... Campbell 97 spectra
291     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        rs=max(r(ir),1.0)
        faultterm=(coef(it,irl,iml,6)+coef(it,irl,iml,7)*log(rs)+
     ,   coef(it,irl,iml,8)*m(im))*coef(it,irl,iml,9)
        siteterm=coef(it,irl,iml,10)+coef(it,irl,iml,11)*log(rs)
        ampterm=coef(it,irl,iml,12)+coef(it,irl,iml,13)*
     ,   tanh(coef(it,irl,iml,14)*(m(im)-coef(it,irl,iml,15)))+
     ,   coef(it,irl,iml,18)
        depterm=coef(it,irl,iml,19)*tanh(coef(it,irl,iml,20)*
     ,   coef(it,irl,iml,21))+coef(it,irl,iml,22)
        alpha=coef(it,irl,iml,16)+coef(it,irl,iml,17)*m(im)
        elsa(nbr+nb,it)=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+
     ,   coef(it,irl,iml,3)*log(r(ir)*r(ir)+c*c)/2.0+faultterm+
     ,   siteterm+ampterm+depterm+alpha*r(ir)
        slsa(nbr+nb,it)=sqrt((coef(it,irl,iml,23)+coef(it,irl,iml,24)*
     ,   m(im))**2+coef(it,irl,iml,25)**2)
c
c       print'(2f6.2,i3,f10.4,f8.3)', m(im),r(ir),it,
c     , exp(elsa(nbr+nb,it)),slsa(nbr+nb,it)
c
```

```
        go to 400
c..................................... Campbell 97 vertical spectra
301     c=coef(it,irl,iml,4)*exp(coef(it,irl,iml,5)*m(im))
        rs=max(r(ir),1.0)
        faultterm=(coef(it,irl,iml,6)+coef(it,irl,iml,7)*log(rs)+
     ,   coef(it,irl,iml,8)*m(im))*coef(it,irl,iml,9)
        siteterm=coef(it,irl,iml,10)+coef(it,irl,iml,11)*log(rs)
        ampterm=coef(it,irl,iml,12)+coef(it,irl,iml,13)*
     ,   tanh(coef(it,irl,iml,14)*(m(im)-coef(it,irl,iml,15)))+
     ,   coef(it,irl,iml,18)
        depterm=coef(it,irl,iml,19)*tanh(coef(it,irl,iml,20)*
     ,   coef(it,irl,iml,21))+coef(it,irl,iml,22)
        alpha=coef(it,irl,iml,16)+coef(it,irl,iml,17)*m(im)
        voh=coef(it,irl,iml,23)-0.1*m(im)-1.5*log(r(ir)+0.079*
     ,   exp(0.661*m(im)))+1.89*log(r(ir)+0.361*exp(0.576*m(im)))-
     ,   0.11*coef(it,irl,iml,9)+coef(it,irl,iml,24)*
     ,   tanh(0.71*(m(im)-4.7))+coef(it,irl,iml,25)*
     ,   tanh(0.66*(m(im)-4.7))+coef(it,irl,iml,26)*
     ,   tanh(0.51*coef(it,irl,iml,21))+coef(it,irl,iml,27)*
     ,   tanh(0.57*coef(it,irl,iml,21))
        elsa(nbr+nb,it)=coef(it,irl,iml,1)+coef(it,irl,iml,2)*m(im)+
     ,   coef(it,irl,iml,3)*log(r(ir)*r(ir)+c*c)/2.0+faultterm+
     ,   siteterm+ampterm+depterm+alpha*r(ir)+voh
        slsa(nbr+nb,it)=sqrt((coef(it,irl,iml,28)+coef(it,irl,iml,29)*
     ,   m(im))**2+coef(it,irl,iml,30)**2+coef(it,irl,iml,31)**2)
c
c       print'(2f6.2,i3,f10.4,f8.3)', m(im),r(ir),it,
c      , exp(elsa(nbr+nb,it)),slsa(nbr+nb,it)
c
400     CONTINUE
c       write(6,*) m(im),r(ir),elsa(nbr+nb,it)
        if(.not.coefsa) then
          elsa(nbr+nb,it)=elsa(nbr+nb,it)+log(twopig/t(it))
c       write(6,*) m(im),r(ir),elsa(nbr+nb,it)
        ENDif
100   CONTINUE
      return
      END
c
      subroutine BRCK(nb,pb,level)
c.................BRCK checks that probability array pb sums to 1
      real pb(*)
      character level*(*)
      ps=0.0
      DO 10 i=1,nb
10      ps=ps+pb(i)
      pck=abs(ps-1.0)
      if(pck.gt.0.001) print 1,level,ps,nb,(pb(i),i=1,nb)
      return
1     format(' branch prob at level <',a20,'> sum to ',f10.3,
     , ' nb =',i3,(/,' pb =',8f10.4))
      END
```

The user is prompted for the following input data:

Title
number of fault models, probability assigned to each model
looping over each model:
    number of fault depths, probability assigned to each depth
    looping over each depth
        number of fault dips, probability assigned to each dip
        looping over each dip

number of magnitudes, magnituude-weight pairs
number of attenuation models, weights assigned to attenuation models
looping over each attenuation model
file name for distance distribution for this dip, depth, and attenuation model
file name for attenuation model coefficients for each spectral period
enter y for spectral acceleration coefficients, n for spectral velocity

at end of all loops
output file name
q to stop

The distance distribtion file contains the following input data:

Title
number of distances, number of magnitudes, list of magnitudes
loop over distanes
distance, probability of each magnitude occurring at this distance

The attenuation parameter file contains the following input data:

Title
attenuation type (e.g.) 'sadighspec' or 'abrahamson'
number of spectral periods
loop over each period
spectral period
dummy variable, number of distance ranges, number of magnitude ranges
if more than one distance range then input intermediate points
if more than one magnitude range then input intermediate points
loop over distance ranges
loop over magnitud ranges
input attenuation equation coefficients

The output consists of a table of values, each row corresponding to a spectral period. The columns are period, median, mean, and 84th percential pseudo-spectral velocity, median, mean, and 84th speectral acceleration, and median, mean, and 84th spectral amplification.

To verify the program RFEQRE3, we performed an alternate calculation of soft rock PGA from Stansbury fault (i.e. 0.03 Sec period in Table 3-1). For this alternate calculation, Equations (3-1) and (3-2) were implemented in an EXCEL spreadsheet along with the input file "stb-hr.in". The computed mean PGA (see Table 3-?) agrees with the value given in

Table 3-1. To verify the median PGA and the 84th PGA, we plugged in the RFEQRE3 values given in Table 3-1 and computed the probability of exceedance using Equation (3-1). The resulting probabilities of 0.5 and 0.84 verify that the median PGA and 84th PGA given in Table 3-1 were correctly computed by RFEQRE3.

WT of Depth	Depth (Km)	WT of Dip	Dip (Deg.)	WT of Magnitude	Magnitude (Mw)	CLD (km)	WT of Relation	Atten. Relation	Combined Weight	Mean of Ln(PGA)	S.D. of Ln(PGA)	Mean of PGA(g)	Equation(3-2) (Mean)	Prob(Z>0.6703) -0.40003	Equation(3-1) (84th)	Prob(Z>0.4334) -0.83609	Equation (3-1) (Median)
0.4	15	0.33333	45	0.03333	6.4	6.7	0.25	as	0.001111	-0.84122	0.51100	0.49132	0.00055	0.80604	0.00090	0.50401	0.00056
0.4	15	0.33333	45	0.10000	6.6	6.7	0.25	as	0.003333	-0.79635	0.48400	0.50701	0.00169	0.79356	0.00265	0.46727	0.00156
0.4	15	0.33333	45	0.03333	6.7	6.7	0.25	as	0.001111	-0.77391	0.47050	0.51519	0.00057	0.78659	0.00087	0.44742	0.00050
0.4	15	0.33333	45	0.10667	6.8	6.7	0.25	as	0.003556	-0.75147	0.45700	0.52359	0.00186	0.77906	0.00277	0.42655	0.00152
0.4	15	0.33333	45	0.09333	6.9	6.7	0.25	as	0.003111	-0.72903	0.44350	0.53223	0.00166	0.77090	0.00240	0.40462	0.00126
0.4	15	0.33333	45	0.23667	7	6.7	0.25	as	0.007889	-0.70659	0.43000	0.54111	0.00427	0.76206	0.00601	0.38164	0.00301
0.4	15	0.33333	45	0.13000	7.1	6.7	0.25	as	0.004333	-0.68415	0.43000	0.55339	0.00240	0.74561	0.00323	0.36191	0.00157
0.4	15	0.33333	45	0.11333	7.2	6.7	0.25	as	0.003778	-0.66171	0.43000	0.56594	0.00214	0.72859	0.00275	0.34254	0.00180
0.4	15	0.33333	45	0.12000	7.3	6.7	0.25	as	0.004000	-0.63927	0.43000	0.57879	0.00232	0.71102	0.00284	0.32358	0.00149
0.4	15	0.33333	45	0.02333	7.4	6.7	0.25	as	0.000778	-0.61683	0.43000	0.59192	0.00046	0.69294	0.00054	0.30506	0.00024
0.4	15	0.33333	45	0.01000	7.5	6.7	0.25	as	0.000333	-0.59439	0.43000	0.60535	0.00020	0.67437	0.00022	0.28703	0.00010
0.4	18	0.33333	45	0.03333	6.4	6.7	0.25	as	0.001111	-0.84122	0.51100	0.49132	0.00055	0.80604	0.00090	0.50401	0.00056
0.4	18	0.33333	45	0.10000	6.6	6.7	0.25	as	0.003333	-0.79635	0.48400	0.50701	0.00169	0.79356	0.00265	0.46727	0.00156
0.4	18	0.33333	45	0.00000	6.7	6.7	0.25	as	0.000000	-0.77391	0.47050	0.51519	0.00000	0.78659	0.00000	0.44742	0.00000
0.4	18	0.33333	45	0.04000	6.8	6.7	0.25	as	0.001333	-0.75147	0.45700	0.52359	0.00070	0.77906	0.00104	0.42655	0.00057
0.4	18	0.33333	45	0.19333	6.9	6.7	0.25	as	0.006444	-0.72903	0.44350	0.53223	0.00343	0.77090	0.00497	0.40462	0.00261
0.4	18	0.33333	45	0.17000	7	6.7	0.25	as	0.005667	-0.70659	0.43000	0.54111	0.00307	0.76206	0.00432	0.38164	0.00216
0.4	18	0.33333	45	0.09667	7.1	6.7	0.25	as	0.003222	-0.68415	0.43000	0.55339	0.00178	0.74561	0.00240	0.36191	0.00117
0.4	18	0.33333	45	0.18000	7.2	6.7	0.25	as	0.006000	-0.66171	0.43000	0.56594	0.00340	0.72859	0.00437	0.34254	0.00206
0.4	18	0.33333	45	0.15333	7.3	6.7	0.25	as	0.005111	-0.63927	0.43000	0.57879	0.00296	0.71102	0.00363	0.32358	0.00165
0.4	18	0.33333	45	0.02333	7.4	6.7	0.25	as	0.000778	-0.61683	0.43000	0.59192	0.00046	0.69294	0.00054	0.30506	0.00024
0.4	18	0.33333	45	0.01000	7.5	6.7	0.25	as	0.000333	-0.59439	0.43000	0.60535	0.00020	0.67437	0.00022	0.28703	0.00010
0.2	20	0.33333	45	0.03333	6.4	6.7	0.25	as	0.000556	-0.84122	0.51100	0.49132	0.00027	0.80604	0.00045	0.50401	0.00028
0.2	20	0.33333	45	0.10000	6.6	6.7	0.25	as	0.001667	-0.79635	0.48400	0.50701	0.00085	0.79356	0.00132	0.46727	0.00078
0.2	20	0.33333	45	0.00000	6.7	6.7	0.25	as	0.000000	-0.77391	0.47050	0.51519	0.00000	0.78659	0.00000	0.44742	0.00000
0.2	20	0.33333	45	0.04000	6.8	6.7	0.25	as	0.000667	-0.75147	0.45700	0.52359	0.00035	0.77906	0.00052	0.42655	0.00028
0.2	20	0.33333	45	0.09333	6.9	6.7	0.25	as	0.001556	-0.72903	0.44350	0.53223	0.00083	0.77090	0.00120	0.40462	0.00063
0.2	20	0.33333	45	0.27000	7	6.7	0.25	as	0.004500	-0.70659	0.43000	0.54111	0.00243	0.76206	0.00343	0.38164	0.00172
0.2	20	0.33333	45	0.09667	7.1	6.7	0.25	as	0.001611	-0.68415	0.43000	0.55339	0.00089	0.74561	0.00120	0.36191	0.00058
0.2	20	0.33333	45	0.18000	7.2	6.7	0.25	as	0.003000	-0.66171	0.43000	0.56594	0.00170	0.72859	0.00219	0.34254	0.00103
0.2	20	0.33333	45	0.15333	7.3	6.7	0.25	as	0.002556	-0.63927	0.43000	0.57879	0.00148	0.71102	0.00182	0.32358	0.00083
0.2	20	0.33333	45	0.02333	7.4	6.7	0.25	as	0.000389	-0.61683	0.43000	0.59192	0.00023	0.69294	0.00027	0.30506	0.00012
0.2	20	0.33333	45	0.01000	7.5	6.7	0.25	as	0.000167	-0.59439	0.43000	0.60535	0.00010	0.67437	0.00011	0.28703	0.00005
0.4	15	0.33333	45	0.03333	6.4	6.7	0.25	id	0.001111	-1.05187	0.52200	0.40027	0.00044	0.89412	0.00099	0.66033	0.00073
0.4	15	0.33333	45	0.10000	6.6	6.7	0.25	id	0.003333	-0.99418	0.49800	0.41888	0.00140	0.88358	0.00295	0.62455	0.00208
0.4	15	0.33333	45	0.03333	6.7	6.7	0.25	id	0.001111	-0.96660	0.48600	0.42806	0.00048	0.87815	0.00098	0.60585	0.00067
0.4	15	0.33333	45	0.10667	6.8	6.7	0.25	id	0.003556	-0.93981	0.47400	0.43715	0.00155	0.87260	0.00310	0.58660	0.00209
0.4	15	0.33333	45	0.09333	6.9	6.7	0.25	id	0.003111	-0.91381	0.46200	0.44615	0.00139	0.86695	0.00270	0.56680	0.00176
0.4	15	0.33333	45	0.23667	7	6.7	0.25	id	0.007889	-0.88857	0.45000	0.45506	0.00359	0.86118	0.00679	0.54642	0.00431
0.4	15	0.33333	45	0.13000	7.1	6.7	0.25	id	0.004333	-0.86407	0.43800	0.46387	0.00201	0.85530	0.00371	0.52546	0.00228
0.4	15	0.33333	45	0.11333	7.2	6.7	0.25	id	0.003778	-0.84028	0.42600	0.47258	0.00179	0.84930	0.00321	0.50392	0.00190
0.4	15	0.33333	45	0.12000	7.3	6.7	0.25	id	0.004000	-0.81718	0.42000	0.48240	0.00193	0.83970	0.00336	0.48204	0.00193
0.4	15	0.33333	45	0.02333	7.4	6.7	0.25	id	0.000778	-0.79476	0.42000	0.49334	0.00038	0.82635	0.00064	0.46080	0.00036
0.4	15	0.33333	45	0.01000	7.5	6.7	0.25	id	0.000333	-0.77299	0.42000	0.50420	0.00017	0.81273	0.00027	0.44029	0.00015
0.4	18	0.33333	45	0.03333	6.4	6.7	0.25	id	0.001111	-1.05187	0.52200	0.40027	0.00044	0.89412	0.00099	0.66033	0.00073
0.4	18	0.33333	45	0.10000	6.6	6.7	0.25	id	0.003333	-0.99418	0.49800	0.41888	0.00140	0.88358	0.00295	0.62455	0.00208
0.4	18	0.33333	45	0.00000	6.7	6.7	0.25	id	0.000000	-0.96660	0.48600	0.42806	0.00000	0.87815	0.00000	0.60585	0.00000

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0.4	18	0.33333	45	0.04000	6.8	6.7	0.25	id	0.001333	-0.93981	0.47400	0.43715	0.00058	0.87260	0.00116	0.58660	0.00078
0.4	18	0.33333	45	0.19333	6.9	6.7	0.25	id	0.006444	-0.91381	0.46200	0.44615	0.00288	0.86695	0.00559	0.56680	0.00365
0.4	18	0.33333	45	0.17000	7	6.7	0.25	id	0.005667	-0.88857	0.45000	0.45506	0.00258	0.86118	0.00488	0.54642	0.00310
0.4	18	0.33333	45	0.09667	7.1	6.7	0.25	id	0.003222	-0.86407	0.43800	0.46387	0.00149	0.85530	0.00276	0.52546	0.00179
0.4	18	0.33333	45	0.18000	7.2	6.7	0.25	id	0.006000	-0.84028	0.42600	0.47258	0.00284	0.84930	0.00510	0.50392	0.00302
0.4	18	0.33333	45	0.15333	7.3	6.7	0.25	id	0.005111	-0.81718	0.42000	0.48240	0.00247	0.83970	0.00429	0.48204	0.00246
0.4	18	0.33333	45	0.02333	7.4	6.7	0.25	id	0.000778	-0.79476	0.42000	0.49334	0.00038	0.82635	0.00064	0.46080	0.00036
0.4	18	0.33333	45	0.01000	7.5	6.7	0.25	id	0.000333	-0.77299	0.42000	0.50420	0.00017	0.81273	0.00027	0.44029	0.00015
0.2	20	0.33333	45	0.03333	6.4	6.7	0.25	id	0.000556	-1.05187	0.52200	0.40027	0.00022	0.89412	0.00050	0.66033	0.00037
0.2	20	0.33333	45	0.10000	6.6	6.7	0.25	id	0.001667	-0.99418	0.49800	0.41888	0.00070	0.88358	0.00147	0.62455	0.00104
0.2	20	0.33333	45	0.00000	6.7	6.7	0.25	id	0.000000	-0.96660	0.48600	0.42806	0.00000	0.87815	0.00000	0.60585	0.00000
0.2	20	0.33333	45	0.04000	6.8	6.7	0.25	id	0.000667	-0.93981	0.47400	0.43715	0.00029	0.87260	0.00058	0.58660	0.00039
0.2	20	0.33333	45	0.09333	6.9	6.7	0.25	id	0.001556	-0.91381	0.46200	0.44615	0.00069	0.86695	0.00135	0.56680	0.00088
0.2	20	0.33333	45	0.27000	7	6.7	0.25	id	0.004500	-0.88857	0.45000	0.45506	0.00205	0.86118	0.00388	0.54642	0.00246
0.2	20	0.33333	45	0.09667	7.1	6.7	0.25	id	0.001611	-0.86407	0.43800	0.46387	0.00075	0.85530	0.00138	0.52546	0.00085
0.2	20	0.33333	45	0.18000	7.2	6.7	0.25	id	0.003000	-0.84028	0.42600	0.47258	0.00142	0.84930	0.00255	0.50392	0.00151
0.2	20	0.33333	45	0.15333	7.3	6.7	0.25	id	0.002556	-0.81718	0.42000	0.48240	0.00123	0.83970	0.00215	0.48204	0.00123
0.2	20	0.33333	45	0.02333	7.4	6.7	0.25	id	0.000389	-0.79476	0.42000	0.49334	0.00019	0.82635	0.00032	0.46080	0.00018
0.2	20	0.33333	45	0.01000	7.5	6.7	0.25	id	0.000167	-0.77299	0.42000	0.50420	0.00008	0.81273	0.00014	0.44029	0.00007
0.4	15	0.33333	45	0.03333	6.4	6.7	0.25	c	0.001111	-0.85683	0.44676	0.46906	0.00052	0.84672	0.00094	0.51851	0.00058
0.4	15	0.33333	45	0.10000	6.6	6.7	0.25	c	0.003333	-0.79453	0.43294	0.49618	0.00165	0.81891	0.00273	0.46176	0.00154
0.4	15	0.33333	45	0.03333	6.7	6.7	0.25	c	0.001111	-0.76682	0.42603	0.50861	0.00057	0.80537	0.00089	0.43542	0.00048
0.4	15	0.33333	45	0.10667	6.8	6.7	0.25	c	0.003556	-0.74124	0.41912	0.52027	0.00185	0.79221	0.00282	0.41048	0.00146
0.4	15	0.33333	45	0.09333	6.9	6.7	0.25	c	0.003111	-0.71765	0.41221	0.53116	0.00165	0.77951	0.00243	0.38693	0.00120
0.4	15	0.33333	45	0.23667	7	6.7	0.25	c	0.007889	-0.69592	0.40530	0.54130	0.00427	0.76732	0.00605	0.36473	0.00288
0.4	15	0.33333	45	0.13000	7.1	6.7	0.25	c	0.004333	-0.67590	0.39839	0.55071	0.00239	0.75568	0.00327	0.34380	0.00149
0.4	15	0.33333	45	0.11333	7.2	6.7	0.25	c	0.003778	-0.65746	0.39148	0.55943	0.00211	0.74460	0.00281	0.32408	0.00122
0.4	15	0.33333	45	0.12000	7.3	6.7	0.25	c	0.004000	-0.64047	0.38457	0.56750	0.00227	0.73408	0.00294	0.30548	0.00122
0.4	15	0.33333	45	0.02333	7.4	6.7	0.25	c	0.000778	-0.62479	0.38000	0.57545	0.00045	0.72290	0.00056	0.28909	0.00022
0.4	15	0.33333	45	0.01000	7.5	6.7	0.25	c	0.000333	-0.61032	0.38000	0.58384	0.00019	0.71001	0.00024	0.27621	0.00009
0.4	18	0.33333	45	0.03333	6.4	6.7	0.25	c	0.001111	-0.85683	0.44676	0.46906	0.00052	0.84672	0.00094	0.51851	0.00058
0.4	18	0.33333	45	0.10000	6.6	6.7	0.25	c	0.003333	-0.79453	0.43294	0.49618	0.00165	0.81891	0.00273	0.46176	0.00154
0.4	18	0.33333	45	0.00000	6.7	6.7	0.25	c	0.000000	-0.76682	0.42603	0.50861	0.00000	0.80537	0.00000	0.43542	0.00000
0.4	18	0.33333	45	0.04000	6.8	6.7	0.25	c	0.001333	-0.74124	0.41912	0.52027	0.00069	0.79221	0.00106	0.41048	0.00055
0.4	18	0.33333	45	0.19333	6.9	6.7	0.25	c	0.006444	-0.71765	0.41221	0.53116	0.00342	0.77951	0.00502	0.38693	0.00249
0.4	18	0.33333	45	0.17000	7	6.7	0.25	c	0.005667	-0.69592	0.40530	0.54130	0.00307	0.76732	0.00435	0.36473	0.00207
0.4	18	0.33333	45	0.09667	7.1	6.7	0.25	c	0.003222	-0.67590	0.39839	0.55071	0.00177	0.75568	0.00243	0.34380	0.00111
0.4	18	0.33333	45	0.18000	7.2	6.7	0.25	c	0.006000	-0.65746	0.39148	0.55943	0.00336	0.74460	0.00447	0.32408	0.00194
0.4	18	0.33333	45	0.15333	7.3	6.7	0.25	c	0.005111	-0.64047	0.38457	0.56750	0.00290	0.73408	0.00375	0.30548	0.00156
0.4	18	0.33333	45	0.02333	7.4	6.7	0.25	c	0.000778	-0.62479	0.38000	0.57545	0.00045	0.72290	0.00056	0.28909	0.00022
0.4	18	0.33333	45	0.01000	7.5	6.7	0.25	c	0.000333	-0.61032	0.38000	0.58384	0.00019	0.71001	0.00024	0.27621	0.00009
0.2	20	0.33333	45	0.03333	6.4	6.7	0.25	c	0.000556	-0.85683	0.44676	0.46906	0.00026	0.84672	0.00047	0.51851	0.00029
0.2	20	0.33333	45	0.10000	6.6	6.7	0.25	c	0.001667	-0.79453	0.43294	0.49618	0.00083	0.81891	0.00136	0.46176	0.00077
0.2	20	0.33333	45	0.00000	6.7	6.7	0.25	c	0.000000	-0.76682	0.42603	0.50861	0.00000	0.80537	0.00000	0.43542	0.00000
0.2	20	0.33333	45	0.04000	6.8	6.7	0.25	c	0.000667	-0.74124	0.41912	0.52027	0.00035	0.79221	0.00053	0.41048	0.00027
0.2	20	0.33333	45	0.09333	6.9	6.7	0.25	c	0.001556	-0.71765	0.41221	0.53116	0.00083	0.77951	0.00121	0.38693	0.00060
0.2	20	0.33333	45	0.27000	7	6.7	0.25	c	0.004500	-0.69592	0.40530	0.54130	0.00244	0.76732	0.00345	0.36473	0.00164
0.2	20	0.33333	45	0.09667	7.1	6.7	0.25	c	0.001611	-0.67590	0.39839	0.55071	0.00089	0.75568	0.00122	0.34380	0.00055
0.2	20	0.33333	45	0.18000	7.2	6.7	0.25	c	0.003000	-0.65746	0.39148	0.55943	0.00168	0.74460	0.00223	0.32408	0.00097

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0.2	20	0.33333	45	0.15333	7.3	6.7	0.25	c	0.002556	-0.64047	0.38457	0.56750	0.00145	0.73408	0.00[illegible]	0.30548	0.00078
0.2	20	0.33333	45	0.02333	7.4	6.7	0.25	c	0.000389	-0.62479	0.38000	0.57545	0.00022	0.72290	0.00028	0.28909	0.00011
0.2	20	0.33333	45	0.01000	7.5	6.7	0.25	c	0.000167	-0.61032	0.38000	0.58384	0.00010	0.71001	0.00012	0.27621	0.00005
0.4	15	0.33333	45	0.03333	6.4	6.7	0.25	sd	0.001111	-0.96766	0.49400	0.42928	0.00048	0.87473	0.00097	0.60500	0.00067
0.4	15	0.33333	45	0.10000	6.6	6.7	0.25	sd	0.003333	-0.87753	0.46600	0.46350	0.00154	0.84724	0.00282	0.53543	0.00178
0.4	15	0.33333	45	0.03333	6.7	6.7	0.25	sd	0.001111	-0.85005	0.45200	0.47336	0.00053	0.84028	0.00093	0.51231	0.00057
0.4	15	0.33333	45	0.10667	6.8	6.7	0.25	sd	0.003556	-0.82363	0.43800	0.48302	0.00172	0.83326	0.00296	0.48865	0.00174
0.4	15	0.33333	45	0.09333	6.9	6.7	0.25	sd	0.003111	-0.79825	0.42400	0.49245	0.00153	0.82619	0.00257	0.46444	0.00144
0.4	15	0.33333	45	0.23667	7	6.7	0.25	sd	0.007889	-0.77388	0.41000	0.50166	0.00396	0.81907	0.00646	0.43970	0.00347
0.4	15	0.33333	45	0.13000	7.1	6.7	0.25	sd	0.004333	-0.75049	0.39600	0.51064	0.00221	0.81192	0.00352	0.41443	0.00180
0.4	15	0.33333	45	0.11333	7.2	6.7	0.25	sd	0.003778	-0.72806	0.38200	0.51939	0.00196	0.80475	0.00304	0.38866	0.00147
0.4	15	0.33333	45	0.12000	7.3	6.7	0.25	sd	0.004000	-0.70654	0.38000	0.53028	0.00212	0.79006	0.00316	0.36658	0.00147
0.4	15	0.33333	45	0.02333	7.4	6.7	0.25	sd	0.000778	-0.68592	0.38000	0.54133	0.00042	0.77408	0.00060	0.34635	0.00027
0.4	15	0.33333	45	0.01000	7.5	6.7	0.25	sd	0.000333	-0.66617	0.38000	0.55213	0.00018	0.75815	0.00025	0.32738	0.00011
0.4	18	0.33333	45	0.03333	6.4	6.7	0.25	sd	0.001111	-0.96766	0.49400	0.42928	0.00048	0.87473	0.00097	0.60500	0.00067
0.4	18	0.33333	45	0.10000	6.6	6.7	0.25	sd	0.003333	-0.87753	0.46600	0.46350	0.00154	0.84724	0.00282	0.53543	0.00178
0.4	18	0.33333	45	0.00000	6.7	6.7	0.25	sd	0.000000	-0.85005	0.45200	0.47336	0.00000	0.84028	0.00000	0.51231	0.00000
0.4	18	0.33333	45	0.04000	6.8	6.7	0.25	sd	0.001333	-0.82363	0.43800	0.48302	0.00064	0.83326	0.00111	0.48865	0.00065
0.4	18	0.33333	45	0.19333	6.9	6.7	0.25	sd	0.006444	-0.79825	0.42400	0.49245	0.00317	0.82619	0.00532	0.46444	0.00299
0.4	18	0.33333	45	0.17000	7	6.7	0.25	sd	0.005667	-0.77388	0.41000	0.50166	0.00284	0.81907	0.00464	0.43970	0.00249
0.4	18	0.33333	45	0.09667	7.1	6.7	0.25	sd	0.003222	-0.75049	0.39600	0.51064	0.00165	0.81192	0.00262	0.41443	0.00134
0.4	18	0.33333	45	0.18000	7.2	6.7	0.25	sd	0.006000	-0.72806	0.38200	0.51939	0.00312	0.80475	0.00483	0.38866	0.00233
0.4	18	0.33333	45	0.15333	7.3	6.7	0.25	sd	0.005111	-0.70654	0.38000	0.53028	0.00271	0.79006	0.00404	0.36658	0.00187
0.4	18	0.33333	45	0.02333	7.4	6.7	0.25	sd	0.000778	-0.68592	0.38000	0.54133	0.00042	0.77408	0.00060	0.34635	0.00027
0.4	18	0.33333	45	0.01000	7.5	6.7	0.25	sd	0.000333	-0.66617	0.38000	0.55213	0.00018	0.75815	0.00025	0.32738	0.00011
0.2	20	0.33333	45	0.03333	6.4	6.7	0.25	sd	0.000556	-0.96756	0.49400	0.42928	0.00024	0.87473	0.00049	0.60500	0.00034
0.2	20	0.33333	45	0.10000	6.6	6.7	0.25	sd	0.001667	-0.87753	0.46600	0.46350	0.00077	0.84724	0.00141	0.53543	0.00089
0.2	20	0.33333	45	0.00000	6.7	6.7	0.25	sd	0.000000	-0.85005	0.45200	0.47336	0.00000	0.84028	0.00000	0.51231	0.00000
0.2	20	0.33333	45	0.04000	6.8	6.7	0.25	sd	0.000667	-0.82363	0.43800	0.48302	0.00032	0.83326	0.00056	0.48865	0.00033
0.2	20	0.33333	45	0.09333	6.9	6.7	0.25	sd	0.001556	-0.79825	0.42400	0.49245	0.00077	0.82619	0.00129	0.46444	0.00072
0.2	20	0.33333	45	0.27000	7	6.7	0.25	sd	0.004500	-0.77388	0.41000	0.50166	0.00226	0.81907	0.00369	0.43970	0.00198
0.2	20	0.33333	45	0.09667	7.1	6.7	0.25	sd	0.001611	-0.75049	0.39600	0.51064	0.00082	0.81192	0.00131	0.41443	0.00067
0.2	20	0.33333	45	0.18000	7.2	6.7	0.25	sd	0.003000	-0.72806	0.38200	0.51939	0.00156	0.80475	0.00241	0.38866	0.00117
0.2	20	0.33333	45	0.15333	7.3	6.7	0.25	sd	0.002556	-0.70654	0.38000	0.53028	0.00136	0.79006	0.00202	0.36658	0.00094
0.2	20	0.33333	45	0.02333	7.4	6.7	0.25	sd	0.000389	-0.68592	0.38000	0.54133	0.00021	0.77408	0.00030	0.34635	0.00013
0.2	20	0.33333	45	0.01000	7.5	6.7	0.25	sd	0.000167	-0.66617	0.38000	0.55213	0.00009	0.75815	0.00013	0.32738	0.00005
0.4	15	0.33334	55	0.03333	6.4	7.8	0.25	as	0.001111	-0.94997	0.51100	0.44069	0.00049	0.85908	0.00095	0.58817	0.00065
0.4	15	0.33334	55	0.13333	6.6	7.8	0.25	as	0.004445	-0.90186	0.48400	0.45624	0.00203	0.85009	0.00378	0.55404	0.00246
0.4	15	0.33334	55	0.00000	6.7	7.8	0.25	as	0.000000	-0.87781	0.47050	0.46435	0.00000	0.84506	0.00000	0.53532	0.00000
0.4	15	0.33334	55	0.10667	6.8	7.8	0.25	as	0.003556	-0.85375	0.45700	0.47268	0.00168	0.83960	0.00299	0.51541	0.00183
0.4	15	0.33334	55	0.16000	6.9	7.8	0.25	as	0.005333	-0.82970	0.44350	0.48126	0.00257	0.83368	0.00445	0.49425	0.00264
0.4	15	0.33334	55	0.27000	7	7.8	0.25	as	0.009000	-0.80565	0.43000	0.49008	0.00441	0.82723	0.00745	0.47177	0.00425
0.4	15	0.33334	55	0.06333	7.1	7.8	0.25	as	0.002111	-0.78159	0.43000	0.50201	0.00106	0.81256	0.00172	0.44957	0.00095
0.4	15	0.33334	55	0.08000	7.2	7.8	0.25	as	0.002667	-0.75754	0.43000	0.51423	0.00137	0.79713	0.00213	0.42752	0.00114
0.4	15	0.33334	55	0.12000	7.3	7.8	0.25	as	0.004000	-0.73348	0.43000	0.52675	0.00211	0.78097	0.00312	0.40570	0.00162
0.4	15	0.33334	55	0.02333	7.4	7.8	0.25	as	0.000778	-0.70943	0.43000	0.53957	0.00042	0.76409	0.00059	0.38416	0.00030
0.4	15	0.33334	55	0.01000	7.5	7.8	0.25	as	0.000333	-0.68538	0.43000	0.55271	0.00018	0.74653	0.00025	0.36298	0.00012
0.4	18	0.33334	55	0.03333	6.4	7.8	0.25	as	0.001111	-0.94997	0.51100	0.44069	0.00049	0.85908	0.00095	0.58817	0.00065
0.4	18	0.33334	55	0.10000	6.6	7.8	0.25	as	0.003333	-0.90186	0.48400	0.45624	0.00152	0.85009	0.00283	0.55404	0.00185

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0.4	18	0.33334	55	0.03333	6.7	7.8	0.25	as	0.001111	-0.87781	0.47050	0.46435	0.00052	0.84506	0.00094	0.53532	0.00059
0.4	18	0.33334	55	0.00667	6.8	7.8	0.25	as	0.000222	-0.85375	0.45700	0.47268	0.00011	0.83960	0.00019	0.51541	0.00011
0.4	18	0.33334	55	0.19333	6.9	7.8	0.25	as	0.006445	-0.82970	0.44350	0.48126	0.00310	0.83368	0.00537	0.49425	0.00319
0.4	18	0.33334	55	0.23667	7	7.8	0.25	as	0.007889	-0.80565	0.43000	0.49008	0.00387	0.82723	0.00653	0.47177	0.00372
0.4	18	0.33334	55	0.13000	7.1	7.8	0.25	as	0.004333	-0.78159	0.43000	0.50201	0.00218	0.81256	0.00352	0.44957	0.00195
0.4	18	0.33334	55	0.11333	7.2	7.8	0.25	as	0.003778	-0.75754	0.43000	0.51423	0.00194	0.79713	0.00301	0.42752	0.00162
0.4	18	0.33334	55	0.12000	7.3	7.8	0.25	as	0.004000	-0.73348	0.43000	0.52675	0.00211	0.78097	0.00312	0.40570	0.00162
0.4	18	0.33334	55	0.02333	7.4	7.8	0.25	as	0.000778	-0.70943	0.43000	0.53957	0.00042	0.76409	0.00059	0.38416	0.00030
0.4	18	0.33334	55	0.01000	7.5	7.8	0.25	as	0.000333	-0.68538	0.43000	0.55271	0.00018	0.74653	0.00025	0.36298	0.00012
0.2	20	0.33334	55	0.03333	6.4	7.8	0.25	as	0.000556	-0.94997	0.51100	0.44069	0.00024	0.85908	0.00048	0.58817	0.00033
0.2	20	0.33334	55	0.10000	6.6	7.8	0.25	as	0.001667	-0.90186	0.48400	0.45624	0.00076	0.85009	0.00142	0.55404	0.00092
0.2	20	0.33334	55	0.00000	6.7	7.8	0.25	as	0.000000	-0.87781	0.47050	0.46435	0.00000	0.84506	0.00000	0.53532	0.00000
0.2	20	0.33334	55	0.04000	6.8	7.8	0.25	as	0.000667	-0.85375	0.45700	0.47268	0.00032	0.83960	0.00056	0.51541	0.00034
0.2	20	0.33334	55	0.19333	6.9	7.8	0.25	as	0.003222	-0.82970	0.44350	0.48126	0.00155	0.83368	0.00269	0.49425	0.00159
0.2	20	0.33334	55	0.17000	7	7.8	0.25	as	0.002833	-0.80565	0.43000	0.49008	0.00139	0.82723	0.00234	0.47177	0.00134
0.2	20	0.33334	55	0.19667	7.1	7.8	0.25	as	0.003278	-0.78159	0.43000	0.50201	0.00165	0.81256	0.00266	0.44957	0.00147
0.2	20	0.33334	55	0.08000	7.2	7.8	0.25	as	0.001333	-0.75754	0.43000	0.51423	0.00069	0.79713	0.00106	0.42752	0.00057
0.2	20	0.33334	55	0.15333	7.3	7.8	0.25	as	0.002556	-0.73348	0.43000	0.52675	0.00135	0.78097	0.00200	0.40570	0.00104
0.2	20	0.33334	55	0.02333	7.4	7.8	0.25	as	0.000389	-0.70943	0.43000	0.53957	0.00021	0.76409	0.00030	0.38416	0.00015
0.2	20	0.33334	55	0.01000	7.5	7.8	0.25	as	0.000167	-0.68538	0.43000	0.55271	0.00009	0.74653	0.00012	0.36298	0.00006
0.4	15	0.33334	55	0.03333	6.4	7.8	0.25	id	0.001111	-1.12878	0.52200	0.37063	0.00041	0.91866	0.00102	0.71250	0.00079
0.4	15	0.33334	55	0.13333	6.6	7.8	0.25	id	0.004445	-1.06682	0.49800	0.38953	0.00173	0.90971	0.00404	0.67843	0.00302
0.4	15	0.33334	55	0.00000	6.7	7.8	0.25	id	0.000000	-1.03719	0.48600	0.39888	0.00000	0.90508	0.00000	0.66048	0.00000
0.4	15	0.33334	55	0.10667	6.8	7.8	0.25	id	0.003556	-1.00842	0.47400	0.40817	0.00145	0.90034	0.00320	0.64190	0.00228
0.4	15	0.33334	55	0.16000	6.9	7.8	0.25	id	0.005333	-0.98048	0.46200	0.41738	0.00223	0.89551	0.00478	0.62268	0.00332
0.4	15	0.33334	55	0.27000	7	7.8	0.25	id	0.009000	-0.95336	0.45000	0.42651	0.00384	0.89058	0.00802	0.60280	0.00543
0.4	15	0.33334	55	0.06333	7.1	7.8	0.25	id	0.002111	-0.92703	0.43800	0.43557	0.00092	0.88555	0.00187	0.58224	0.00123
0.4	15	0.33334	55	0.08000	7.2	7.8	0.25	id	0.002667	-0.90146	0.42600	0.44453	0.00119	0.88042	0.00235	0.56098	0.00150
0.4	15	0.33334	55	0.12000	7.3	7.8	0.25	id	0.004000	-0.87664	0.42000	0.45455	0.00182	0.87177	0.00349	0.53846	0.00215
0.4	15	0.33334	55	0.02333	7.4	7.8	0.25	id	0.000778	-0.85255	0.42000	0.46564	0.00036	0.85935	0.00067	0.51562	0.00040
0.4	15	0.33334	55	0.01000	7.5	7.8	0.25	id	0.000333	-0.82915	0.42000	0.47666	0.00016	0.84654	0.00028	0.49340	0.00016
0.4	18	0.33334	55	0.03333	6.4	7.8	0.25	id	0.001111	-1.12878	0.52200	0.37063	0.00041	0.91866	0.00102	0.71250	0.00079
0.4	18	0.33334	55	0.10000	6.6	7.8	0.25	id	0.003333	-1.06682	0.49800	0.38953	0.00130	0.90971	0.00303	0.67843	0.00226
0.4	18	0.33334	55	0.03333	6.7	7.8	0.25	id	0.001111	-1.03719	0.48600	0.39888	0.00044	0.90508	0.00101	0.66048	0.00073
0.4	18	0.33334	55	0.00667	6.8	7.8	0.25	id	0.000222	-1.00842	0.47400	0.40817	0.00009	0.90034	0.00020	0.64190	0.00014
0.4	18	0.33334	55	0.19333	6.9	7.8	0.25	id	0.006445	-0.98048	0.46200	0.41738	0.00269	0.89551	0.00577	0.62268	0.00401
0.4	18	0.33334	55	0.23667	7	7.8	0.25	id	0.007889	-0.95336	0.45000	0.42651	0.00336	0.89058	0.00703	0.60280	0.00476
0.4	18	0.33334	55	0.13000	7.1	7.8	0.25	id	0.004333	-0.92703	0.43800	0.43557	0.00189	0.88555	0.00384	0.58224	0.00252
0.4	18	0.33334	55	0.11333	7.2	7.8	0.25	id	0.003778	-0.90146	0.42600	0.44453	0.00168	0.88042	0.00333	0.56098	0.00212
0.4	18	0.33334	55	0.12000	7.3	7.8	0.25	id	0.004000	-0.87664	0.42000	0.45455	0.00182	0.87177	0.00349	0.53846	0.00215
0.4	18	0.33334	55	0.02333	7.4	7.8	0.25	id	0.000778	-0.85255	0.42000	0.46564	0.00036	0.85935	0.00067	0.51562	0.00040
0.4	18	0.33334	55	0.01000	7.5	7.8	0.25	id	0.000333	-0.82915	0.42000	0.47666	0.00016	0.84654	0.00028	0.49340	0.00016
0.2	20	0.33334	55	0.03333	6.4	7.8	0.25	id	0.000556	-1.12878	0.52200	0.37063	0.00021	0.91866	0.00051	0.71250	0.00040
0.2	20	0.33334	55	0.10000	6.6	7.8	0.25	id	0.001667	-1.06682	0.49800	0.38953	0.00065	0.90971	0.00152	0.67843	0.00113
0.2	20	0.33334	55	0.00000	6.7	7.8	0.25	id	0.000000	-1.03719	0.48600	0.39888	0.00000	0.90508	0.00000	0.66048	0.00000
0.2	20	0.33334	55	0.04000	6.8	7.8	0.25	id	0.000667	-1.00842	0.47400	0.40817	0.00027	0.90034	0.00060	0.64190	0.00043
0.2	20	0.33334	55	0.19333	6.9	7.8	0.25	id	0.003222	-0.98048	0.46200	0.41738	0.00134	0.89551	0.00289	0.62268	0.00201
0.2	20	0.33334	55	0.17000	7	7.8	0.25	id	0.002833	-0.95336	0.45000	0.42651	0.00121	0.89058	0.00252	0.60280	0.00171
0.2	20	0.33334	55	0.19667	7.1	7.8	0.25	id	0.003278	-0.92703	0.43800	0.43557	0.00143	0.88555	0.00290	0.58224	0.00191

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0.2	20	0.33334	55	0.08000	7.2	7.8	0.25	id	0.001333	-0.90116	0.42600	0.44453	0.00059	0.88042	0.00078	0.56098	0.00075
0.2	20	0.33334	55	0.15333	7.3	7.8	0.25	id	0.002556	-0.87664	0.42000	0.45455	0.00116	0.87177	0.00149	0.53846	0.00138
0.2	20	0.33334	55	0.02333	7.4	7.8	0.25	id	0.000389	-0.85235	0.42000	0.46564	0.00018	0.85935	0.00033	0.51562	0.00020
0.2	20	0.33334	55	0.01000	7.5	7.8	0.25	id	0.000167	-0.82915	0.42000	0.47666	0.00008	0.84654	0.00014	0.49340	0.00008
0.4	15	0.33334	55	0.03333	6.4	7.8	0.25	c	0.001111	-0.95825	0.44676	0.42382	0.00047	0.89425	0.00099	0.60773	0.00068
0.4	15	0.33334	55	0.13333	6.6	7.8	0.25	c	0.004445	-0.88419	0.43294	0.45363	0.00202	0.86828	0.00386	0.54423	0.00242
0.4	15	0.33334	55	0.00000	6.7	7.8	0.25	c	0.000000	-0.85099	0.42603	0.46755	0.00000	0.85509	0.00000	0.51395	0.00000
0.4	15	0.33334	55	0.10667	6.8	7.8	0.25	c	0.003556	-0.82021	0.41912	0.48076	0.00171	0.84196	0.00299	0.48488	0.00172
0.4	15	0.33334	55	0.16000	6.9	7.8	0.25	c	0.005333	-0.79173	0.41221	0.49323	0.00263	0.82901	0.00442	0.45715	0.00244
0.4	15	0.33334	55	0.27000	7	7.8	0.25	c	0.009000	-0.76542	0.40530	0.50495	0.00454	0.81635	0.00735	0.43079	0.00388
0.4	15	0.33334	55	0.06333	7.1	7.8	0.25	c	0.002111	-0.74115	0.39839	0.51592	0.00109	0.80407	0.00170	0.40582	0.00086
0.4	15	0.33334	55	0.08000	7.2	7.8	0.25	c	0.002667	-0.71879	0.39148	0.52616	0.00140	0.79224	0.00211	0.38222	0.00102
0.4	15	0.33334	55	0.12000	7.3	7.8	0.25	c	0.004000	-0.69818	0.38457	0.53567	0.00214	0.78092	0.00312	0.35994	0.00144
0.4	15	0.33334	55	0.02333	7.4	7.8	0.25	c	0.000778	-0.67921	0.38000	0.54498	0.00042	0.76873	0.00060	0.33985	0.00026
0.4	15	0.33334	55	0.01000	7.5	7.8	0.25	c	0.000333	-0.66172	0.38000	0.55459	0.00018	0.75448	0.00025	0.32316	0.00011
0.4	18	0.33334	55	0.03333	6.4	7.8	0.25	c	0.001111	-0.95825	0.44676	0.42382	0.00047	0.89425	0.00099	0.60773	0.00068
0.4	18	0.33334	55	0.10000	6.6	7.8	0.25	c	0.003333	-0.88419	0.43294	0.45363	0.00151	0.86828	0.00289	0.54423	0.00181
0.4	18	0.33334	55	0.03333	6.7	7.8	0.25	c	0.001111	-0.85099	0.42603	0.46755	0.00052	0.85509	0.00095	0.51395	0.00057
0.4	18	0.33334	55	0.00667	6.8	7.8	0.25	c	0.000222	-0.82021	0.41912	0.48076	0.00011	0.84196	0.00019	0.48488	0.00011
0.4	18	0.33334	55	0.19333	6.9	7.8	0.25	c	0.006445	-0.79173	0.41221	0.49323	0.00318	0.82901	0.00534	0.45715	0.00295
0.4	18	0.33334	55	0.23667	7	7.8	0.25	c	0.007889	-0.76542	0.40530	0.50495	0.00398	0.81635	0.00644	0.43079	0.00340
0.4	18	0.33334	55	0.13000	7.1	7.8	0.25	c	0.004333	-0.74115	0.39839	0.51592	0.00224	0.80407	0.00348	0.40582	0.00176
0.4	18	0.33334	55	0.11333	7.2	7.8	0.25	c	0.003778	-0.71879	0.39148	0.52616	0.00199	0.79224	0.00299	0.38222	0.00144
0.4	18	0.33334	55	0.12000	7.3	7.8	0.25	c	0.004000	-0.69818	0.38457	0.53567	0.00214	0.78092	0.00312	0.35994	0.00144
0.4	18	0.33334	55	0.02333	7.4	7.8	0.25	c	0.000778	-0.67921	0.38000	0.54498	0.00042	0.76873	0.00060	0.33985	0.00026
0.4	18	0.33334	55	0.01000	7.5	7.8	0.25	c	0.000333	-0.66172	0.38000	0.55459	0.00018	0.75448	0.00025	0.32316	0.00011
0.2	20	0.33334	55	0.03333	6.4	7.8	0.25	c	0.000556	-0.95825	0.44676	0.42382	0.00024	0.89425	0.00050	0.60773	0.00034
0.2	20	0.33334	55	0.10000	6.6	7.8	0.25	c	0.001667	-0.88419	0.43294	0.45363	0.00076	0.86828	0.00145	0.54423	0.00091
0.2	20	0.33334	55	0.00000	6.7	7.8	0.25	c	0.000000	-0.85099	0.42603	0.46755	0.00000	0.85509	0.00000	0.51395	0.00000
0.2	20	0.33334	55	0.04000	6.8	7.8	0.25	c	0.000667	-0.82021	0.41912	0.48076	0.00032	0.84196	0.00056	0.48488	0.00032
0.2	20	0.33334	55	0.19333	6.9	7.8	0.25	c	0.003222	-0.79173	0.41221	0.49323	0.00159	0.82901	0.00267	0.45715	0.00147
0.2	20	0.33334	55	0.17000	7	7.8	0.25	c	0.002833	-0.76542	0.40530	0.50495	0.00143	0.81635	0.00231	0.43079	0.00122
0.2	20	0.33334	55	0.19667	7.1	7.8	0.25	c	0.003278	-0.74115	0.39839	0.51592	0.00169	0.80407	0.00264	0.40582	0.00133
0.2	20	0.33334	55	0.08000	7.2	7.8	0.25	c	0.001333	-0.71879	0.39148	0.52616	0.00070	0.79224	0.00106	0.38222	0.00051
0.2	20	0.33334	55	0.15333	7.3	7.8	0.25	c	0.002556	-0.69818	0.38457	0.53567	0.00137	0.78092	0.00200	0.35994	0.00092
0.2	20	0.33334	55	0.02333	7.4	7.8	0.25	c	0.000389	-0.67921	0.38000	0.54498	0.00021	0.76873	0.00030	0.33985	0.00013
0.2	20	0.33334	55	0.01000	7.5	7.8	0.25	c	0.000167	-0.66172	0.38000	0.55459	0.00009	0.75448	0.00013	0.32316	0.00005
0.4	15	0.33334	55	0.03333	6.4	7.8	0.25	sd	0.001111	-1.05876	0.49400	0.39190	0.00044	0.90881	0.00101	0.67391	0.00075
0.4	15	0.33334	55	0.13333	6.6	7.8	0.25	sd	0.004445	-0.96368	0.46600	0.42524	0.00189	0.88677	0.00394	0.60787	0.00270
0.4	15	0.33334	55	0.00000	6.7	7.8	0.25	sd	0.000000	-0.93294	0.45200	0.43571	0.00000	0.88080	0.00000	0.58483	0.00000
0.4	15	0.33334	55	0.10667	6.8	7.8	0.25	sd	0.003556	-0.90335	0.43800	0.44600	0.00159	0.87475	0.00311	0.56102	0.00199
0.4	15	0.33334	55	0.16000	6.9	7.8	0.25	sd	0.005333	-0.87488	0.42400	0.45612	0.00243	0.86863	0.00463	0.53644	0.00286
0.4	15	0.33334	55	0.27000	7	7.8	0.25	sd	0.009000	-0.84750	0.41000	0.46606	0.00419	0.86245	0.00776	0.51110	0.00460
0.4	15	0.33334	55	0.06333	7.1	7.8	0.25	sd	0.002111	-0.82119	0.39600	0.47579	0.00100	0.85623	0.00181	0.48499	0.00102
0.4	15	0.33334	55	0.08000	7.2	7.8	0.25	sd	0.002667	-0.79591	0.38200	0.48532	0.00129	0.84998	0.00227	0.45811	0.00122
0.4	15	0.33334	55	0.12000	7.3	7.8	0.25	sd	0.004000	-0.77164	0.38000	0.49686	0.00199	0.83594	0.00334	0.43266	0.00173
0.4	15	0.33334	55	0.02333	7.4	7.8	0.25	sd	0.000778	-0.74835	0.38000	0.50857	0.00040	0.82033	0.00064	0.40869	0.00032
0.4	15	0.33334	55	0.01000	7.5	7.8	0.25	sd	0.000333	-0.72600	0.38000	0.52006	0.00017	0.80451	0.00027	0.38602	0.00013
0.4	18	0.33334	55	0.03333	6.4	7.8	0.25	sd	0.001111	-1.05876	0.49400	0.39190	0.00044	0.90881	0.00101	0.67391	0.00075

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0.4	18	0.33334	55	0.10000	6.6	7.8	0.25	sd	0.003333	-0.96368	0.46600	0.42524	0.00142	0.88677	0.00298	0.60787	0.00203
0.4	18	0.33334	55	0.03333	6.7	7.8	0.25	sd	0.001111	-0.93294	0.45200	0.43571	0.00048	0.88080	0.00099	0.58483	0.00065
0.4	18	0.33334	55	0.00667	6.8	7.8	0.25	sd	0.000222	-0.90335	0.43800	0.44600	0.00010	0.87475	0.00019	0.56102	0.00012
0.4	18	0.33334	55	0.19333	6.9	7.8	0.25	sd	0.006445	-0.87488	0.42400	0.45612	0.00294	0.86863	0.00560	0.53644	0.00346
0.4	18	0.33334	55	0.23667	7	7.8	0.25	sd	0.007889	-0.84750	0.41000	0.46606	0.00368	0.86245	0.00680	0.51110	0.00403
0.4	18	0.33334	55	0.13000	7.1	7.8	0.25	sd	0.004333	-0.82119	0.39600	0.47579	0.00206	0.85623	0.00371	0.48499	0.00210
0.4	18	0.33334	55	0.11333	7.2	7.8	0.25	sd	0.003778	-0.79591	0.38200	0.48532	0.00183	0.84998	0.00321	0.45811	0.00173
0.4	18	0.33334	55	0.12000	7.3	7.8	0.25	sd	0.004000	-0.77164	0.38000	0.49686	0.00199	0.83594	0.00334	0.43266	0.00173
0.4	18	0.33334	55	0.02333	7.4	7.8	0.25	sd	0.000778	-0.74835	0.38000	0.50857	0.00040	0.82033	0.00064	0.40869	0.00032
0.4	18	0.33334	55	0.01000	7.5	7.8	0.25	sd	0.000333	-0.72600	0.38000	0.52006	0.00017	0.80451	0.00027	0.38602	0.00013
0.2	20	0.33334	55	0.03333	6.4	7.8	0.25	sd	0.000556	-1.05876	0.49400	0.39190	0.00022	0.90881	0.00050	0.67391	0.00037
0.2	20	0.33334	55	0.10000	6.6	7.8	0.25	sd	0.001667	-0.96368	0.46600	0.42524	0.00071	0.88677	0.00148	0.60787	0.00101
0.2	20	0.33334	55	0.00000	6.7	7.8	0.25	sd	0.000000	-0.93294	0.45200	0.43571	0.00000	0.88080	0.00000	0.58483	0.00000
0.2	20	0.33334	55	0.04000	6.8	7.8	0.25	sd	0.000667	-0.90335	0.43800	0.44600	0.00030	0.87475	0.00058	0.56102	0.00037
0.2	20	0.33334	55	0.19333	6.9	7.8	0.25	sd	0.003222	-0.87488	0.42400	0.45612	0.00147	0.86863	0.00280	0.53644	0.00173
0.2	20	0.33334	55	0.17000	7	7.8	0.25	sd	0.002833	-0.84750	0.41000	0.46606	0.00132	0.86245	0.00244	0.51110	0.00145
0.2	20	0.33334	55	0.19667	7.1	7.8	0.25	sd	0.003278	-0.82119	0.39600	0.47579	0.00156	0.85623	0.00281	0.48499	0.00159
0.2	20	0.33334	55	0.08000	7.2	7.8	0.25	sd	0.001333	-0.79591	0.38200	0.48532	0.00065	0.84998	0.00113	0.45811	0.00061
0.2	20	0.33334	55	0.15333	7.3	7.8	0.25	sd	0.002556	-0.77164	0.38000	0.49686	0.00127	0.83594	0.00214	0.43266	0.00111
0.2	20	0.33334	55	0.02333	7.4	7.8	0.25	sd	0.000389	-0.74835	0.38000	0.50857	0.00020	0.82033	0.00032	0.40869	0.00016
0.2	20	0.33334	55	0.01000	7.5	7.8	0.25	sd	0.000167	-0.72600	0.38000	0.52006	0.00009	0.80451	0.00013	0.38602	0.00006
0.4	15	0.33333	65	0.03333	6.4	8.6	0.25	as	0.001111	-1.02613	0.51100	0.40837	0.00045	0.88976	0.00099	0.64502	0.00072
0.4	15	0.33333	65	0.13333	6.6	8.6	0.25	as	0.004444	-0.97577	0.48400	0.42374	0.00188	0.88289	0.00392	0.61355	0.00273
0.4	15	0.33333	65	0.10000	6.7	8.6	0.25	as	0.003333	-0.95058	0.47050	0.43176	0.00144	0.87903	0.00293	0.59612	0.00199
0.4	15	0.33333	65	0.00667	6.8	8.6	0.25	as	0.000222	-0.92540	0.45700	0.44000	0.00010	0.87485	0.00019	0.57746	0.00013
0.4	15	0.33333	65	0.16000	6.9	8.6	0.25	as	0.005333	-0.90021	0.44350	0.44849	0.00239	0.87030	0.00464	0.55748	0.00297
0.4	15	0.33333	65	0.27000	7	8.6	0.25	as	0.009000	-0.87503	0.43000	0.45723	0.00411	0.86534	0.00779	0.53607	0.00482
0.4	15	0.33333	65	0.06333	7.1	8.6	0.25	as	0.002111	-0.84984	0.43000	0.46889	0.00099	0.85224	0.00180	0.51275	0.00108
0.4	15	0.33333	65	0.08000	7.2	8.6	0.25	as	0.002667	-0.82466	0.43000	0.48085	0.00128	0.83830	0.00224	0.48939	0.00131
0.4	15	0.33333	65	0.12000	7.3	8.6	0.25	as	0.004000	-0.79947	0.43000	0.49311	0.00197	0.82354	0.00329	0.46607	0.00186
0.4	15	0.33333	65	0.02333	7.4	8.6	0.25	as	0.000778	-0.77429	0.43000	0.50569	0.00039	0.80795	0.00063	0.44286	0.00034
0.4	15	0.33333	65	0.01000	7.5	8.6	0.25	as	0.000333	-0.74910	0.43000	0.51858	0.00017	0.79155	0.00026	0.41984	0.00014
0.4	18	0.33333	65	0.03333	6.4	8.6	0.25	as	0.001111	-1.02613	0.51100	0.40837	0.00045	0.88976	0.00099	0.64502	0.00072
0.4	18	0.33333	65	0.10000	6.6	8.6	0.25	as	0.003333	-0.97577	0.48400	0.42374	0.00141	0.88289	0.00294	0.61355	0.00205
0.4	18	0.33333	65	0.03333	6.7	8.6	0.25	as	0.001111	-0.95058	0.47050	0.43176	0.00048	0.87903	0.00098	0.59612	0.00066
0.4	18	0.33333	65	0.10667	6.8	8.6	0.25	as	0.003556	-0.92540	0.45700	0.44000	0.00156	0.87485	0.00311	0.57746	0.00205
0.4	18	0.33333	65	0.09333	6.9	8.6	0.25	as	0.003111	-0.90021	0.44350	0.44849	0.00140	0.87030	0.00271	0.55748	0.00173
0.4	18	0.33333	65	0.23667	7	8.6	0.25	as	0.007889	-0.87503	0.43000	0.45723	0.00361	0.86534	0.00683	0.53607	0.00423
0.4	18	0.33333	65	0.13000	7.1	8.6	0.25	as	0.004333	-0.84984	0.43000	0.46889	0.00203	0.85224	0.00369	0.51275	0.00222
0.4	18	0.33333	65	0.11333	7.2	8.6	0.25	as	0.003778	-0.82466	0.43000	0.48085	0.00182	0.83830	0.00317	0.48939	0.00185
0.4	18	0.33333	65	0.12000	7.3	8.6	0.25	as	0.004000	-0.79947	0.43000	0.49311	0.00197	0.82354	0.00329	0.46607	0.00186
0.4	18	0.33333	65	0.02333	7.4	8.6	0.25	as	0.000778	-0.77429	0.43000	0.50569	0.00039	0.80795	0.00063	0.44286	0.00034
0.4	18	0.33333	65	0.01000	7.5	8.6	0.25	as	0.000333	-0.74910	0.43000	0.51858	0.00017	0.79155	0.00026	0.41984	0.00014
0.2	20	0.33333	65	0.03333	6.4	8.6	0.25	as	0.000556	-1.02613	0.51100	0.40837	0.00023	0.88976	0.00049	0.64502	0.00036
0.2	20	0.33333	65	0.10000	6.6	8.6	0.25	as	0.001667	-0.97577	0.48400	0.42374	0.00071	0.88289	0.00147	0.61355	0.00102
0.2	20	0.33333	65	0.03333	6.7	8.6	0.25	as	0.000556	-0.95058	0.47050	0.43176	0.00024	0.87903	0.00049	0.59612	0.00033
0.2	20	0.33333	65	0.00667	6.8	8.6	0.25	as	0.000111	-0.92540	0.45700	0.44000	0.00005	0.87485	0.00010	0.57746	0.00006
0.2	20	0.33333	65	0.19333	6.9	8.6	0.25	as	0.003222	-0.90021	0.44350	0.44849	0.00145	0.87030	0.00280	0.55748	0.00180
0.2	20	0.33333	65	0.23667	7	8.6	0.25	as	0.003944	-0.87503	0.43000	0.45723	0.00180	0.86534	0.00341	0.53607	0.00211

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0.2	20	0.33333	65	0.13000	7.1	8.6	0.25	as	0.002167	-0.84984	0.43000	0.46889	0.00102	0.85224	0.00185	0.51275	0.00111
0.2	20	0.33333	65	0.11333	7.2	8.6	0.25	as	0.001889	-0.82466	0.43000	0.48085	0.00091	0.83830	0.00158	0.48939	0.00092
0.2	20	0.33333	65	0.12000	7.3	8.6	0.25	as	0.002000	-0.79947	0.43000	0.49311	0.00099	0.82354	0.00165	0.46607	0.00093
0.2	20	0.33333	65	0.02333	7.4	8.6	0.25	as	0.000389	-0.77429	0.43000	0.50569	0.00020	0.80795	0.00032	0.44286	0.00017
0.2	20	0.33333	65	0.01000	7.5	8.6	0.25	as	0.000167	-0.74910	0.43000	0.51858	0.00009	0.79155	0.00015	0.41984	0.00007
0.4	15	0.33333	65	0.03333	6.4	8.6	0.25	id	0.001111	-1.18284	0.52200	0.35113	0.00039	0.93314	0.00104	0.74674	0.00083
0.4	15	0.33333	65	0.13333	6.6	8.6	0.25	id	0.004444	-1.11787	0.49800	0.37014	0.00165	0.92527	0.00411	0.71424	0.00317
0.4	15	0.33333	65	0.10000	6.7	8.6	0.25	id	0.003333	-1.08680	0.48600	0.37958	0.00127	0.92119	0.00307	0.69702	0.00232
0.4	15	0.33333	65	0.00667	6.8	8.6	0.25	id	0.000222	-1.05663	0.47400	0.38896	0.00009	0.91701	0.00020	0.67913	0.00015
0.4	15	0.33333	65	0.16000	6.9	8.6	0.25	id	0.005333	-1.02733	0.46200	0.39828	0.00212	0.91274	0.00487	0.66054	0.00352
0.4	15	0.33333	65	0.27000	7	8.6	0.25	id	0.009000	-0.99889	0.45000	0.40753	0.00367	0.90837	0.00818	0.64124	0.00577
0.4	15	0.33333	65	0.06333	7.1	8.6	0.25	id	0.002111	-0.97128	0.43800	0.41671	0.00088	0.90392	0.00191	0.62120	0.00131
0.4	15	0.33333	65	0.08000	7.2	8.6	0.25	id	0.002667	-0.94446	0.42600	0.42583	0.00114	0.89938	0.00240	0.60040	0.00160
0.4	15	0.33333	65	0.12000	7.3	8.6	0.25	id	0.004000	-0.91843	0.42000	0.43595	0.00174	0.89145	0.00357	0.57771	0.00231
0.4	15	0.33333	65	0.02333	7.4	8.6	0.25	id	0.000778	-0.89315	0.42000	0.44711	0.00035	0.87982	0.00068	0.55403	0.00043
0.4	15	0.33333	65	0.01000	7.5	8.6	0.25	id	0.000333	-0.86861	0.42000	0.45822	0.00015	0.86772	0.00029	0.53086	0.00018
0.4	18	0.33333	65	0.03333	6.4	8.6	0.25	id	0.001111	-1.18284	0.52200	0.35113	0.00039	0.93314	0.00104	0.74674	0.00083
0.4	18	0.33333	65	0.10000	6.6	8.6	0.25	id	0.003333	-1.11787	0.49800	0.37014	0.00123	0.92527	0.00308	0.71424	0.00238
0.4	18	0.33333	65	0.03333	6.7	8.6	0.25	id	0.001111	-1.08680	0.48600	0.37958	0.00042	0.92119	0.00102	0.69702	0.00077
0.4	18	0.33333	65	0.10667	6.8	8.6	0.25	id	0.003556	-1.05663	0.47400	0.38896	0.00138	0.91701	0.00326	0.67913	0.00241
0.4	18	0.33333	65	0.09333	6.9	8.6	0.25	id	0.003111	-1.02733	0.46200	0.39828	0.00124	0.91274	0.00284	0.66054	0.00205
0.4	18	0.33333	65	0.23667	7	8.6	0.25	id	0.007889	-0.99889	0.45000	0.40753	0.00321	0.90837	0.00717	0.64124	0.00506
0.4	18	0.33333	65	0.13000	7.1	8.6	0.25	id	0.004333	-0.97128	0.43800	0.41671	0.00181	0.90392	0.00392	0.62120	0.00269
0.4	18	0.33333	65	0.11333	7.2	8.6	0.25	id	0.003778	-0.94446	0.42600	0.42583	0.00161	0.89938	0.00340	0.60040	0.00227
0.4	18	0.33333	65	0.12000	7.3	8.6	0.25	id	0.004000	-0.91843	0.42000	0.43595	0.00174	0.89145	0.00357	0.57771	0.00231
0.4	18	0.33333	65	0.02333	7.4	8.6	0.25	id	0.000778	-0.89315	0.42000	0.44711	0.00035	0.87982	0.00068	0.55403	0.00043
0.4	18	0.33333	65	0.01000	7.5	8.6	0.25	id	0.000333	-0.86861	0.42000	0.45822	0.00015	0.86772	0.00029	0.53086	0.00018
0.2	20	0.33333	65	0.03333	6.4	8.6	0.25	id	0.000556	-1.18284	0.52200	0.35113	0.00020	0.93314	0.00052	0.74674	0.00041
0.2	20	0.33333	65	0.10000	6.6	8.6	0.25	id	0.001667	-1.11787	0.49800	0.37014	0.00062	0.92527	0.00154	0.71424	0.00119
0.2	20	0.33333	65	0.03333	6.7	8.6	0.25	id	0.000556	-1.08680	0.48600	0.37958	0.00021	0.92119	0.00051	0.69702	0.00039
0.2	20	0.33333	65	0.00667	6.8	8.6	0.25	id	0.000111	-1.05663	0.47400	0.38896	0.00004	0.91701	0.00010	0.67913	0.00008
0.2	20	0.33333	65	0.19333	6.9	8.6	0.25	id	0.003222	-1.02733	0.46200	0.39828	0.00128	0.91274	0.00294	0.66054	0.00213
0.2	20	0.33333	65	0.23667	7	8.6	0.25	id	0.003944	-0.99889	0.45000	0.40753	0.00161	0.90837	0.00358	0.64124	0.00253
0.2	20	0.33333	65	0.13000	7.1	8.6	0.25	id	0.002167	-0.97128	0.43800	0.41671	0.00090	0.90392	0.00196	0.62120	0.00135
0.2	20	0.33333	65	0.11333	7.2	8.6	0.25	id	0.001889	-0.94446	0.42600	0.42583	0.00080	0.89938	0.00170	0.60040	0.00113
0.2	20	0.33333	65	0.12000	7.3	8.6	0.25	id	0.002000	-0.91843	0.42000	0.43595	0.00087	0.89145	0.00178	0.57771	0.00116
0.2	20	0.33333	65	0.02333	7.4	8.6	0.25	id	0.000389	-0.89315	0.42000	0.44711	0.00017	0.87982	0.00034	0.55403	0.00022
0.2	20	0.33333	65	0.01000	7.5	8.6	0.25	id	0.000167	-0.86861	0.42000	0.45822	0.00008	0.86772	0.00014	0.53086	0.00009
0.4	15	0.33333	65	0.03333	6.4	8.6	0.25	c	0.001111	-1.03114	0.44676	0.39402	0.00044	0.92112	0.00102	0.66879	0.00074
0.4	15	0.33333	65	0.13333	6.6	8.6	0.25	c	0.004444	-0.94903	0.43294	0.42515	0.00189	0.89762	0.00399	0.60290	0.00268
0.4	15	0.33333	65	0.10000	6.7	8.6	0.25	c	0.003333	-0.91199	0.42603	0.43989	0.00147	0.88526	0.00295	0.57070	0.00190
0.4	15	0.33333	65	0.00667	6.8	8.6	0.25	c	0.000222	-0.87752	0.41912	0.45399	0.00010	0.87270	0.00019	0.53937	0.00012
0.4	15	0.33333	65	0.16000	6.9	8.6	0.25	c	0.005333	-0.84552	0.41221	0.46740	0.00249	0.86009	0.00459	0.50912	0.00272
0.4	15	0.33333	65	0.27000	7	8.6	0.25	c	0.009000	-0.81589	0.40530	0.48010	0.00432	0.84757	0.00763	0.48012	0.00432
0.4	15	0.33333	65	0.06333	7.1	8.6	0.25	c	0.002111	-0.78849	0.39839	0.49207	0.00104	0.83524	0.00176	0.45244	0.00096
0.4	15	0.33333	65	0.08000	7.2	8.6	0.25	c	0.002667	-0.76320	0.39148	0.50330	0.00134	0.82321	0.00220	0.42614	0.00114
0.4	15	0.33333	65	0.12000	7.3	8.6	0.25	c	0.004000	-0.73988	0.38457	0.51379	0.00206	0.81158	0.00325	0.40122	0.00160
0.4	15	0.33333	65	0.02333	7.4	8.6	0.25	c	0.000778	-0.71840	0.38000	0.52403	0.00041	0.79893	0.00062	0.37838	0.00029
0.4	15	0.33333	65	0.01000	7.5	8.6	0.25	c	0.000333	-0.69861	0.38000	0.53451	0.00018	0.78399	0.00026	0.35875	0.00012

0.4	18	0.33333	65	0.03333	6.4	8.6	0.25	c	0.001111	-1.03114	0.44676	0.39402	0.00044	0.92112	0.00102	0.66879	0.00074
0.4	18	0.33333	65	0.10000	6.6	8.6	0.25	c	0.003333	-0.94903	0.43294	0.42515	0.00142	0.89762	0.00299	0.60290	0.00201
0.4	18	0.33333	65	0.03333	6.7	8.6	0.25	c	0.001111	-0.91199	0.42603	0.43989	0.00049	0.88526	0.00098	0.57070	0.00063
0.4	18	0.33333	65	0.10667	6.8	8.6	0.25	c	0.003556	-0.87752	0.41912	0.45399	0.00161	0.87270	0.00310	0.53937	0.00192
0.4	18	0.33333	65	0.09333	6.9	8.6	0.25	c	0.003111	-0.84552	0.41221	0.46740	0.00145	0.86009	0.00268	0.50912	0.00158
0.4	18	0.33333	65	0.23667	7	8.6	0.25	c	0.007889	-0.81589	0.40530	0.48010	0.00379	0.84757	0.00669	0.48012	0.00379
0.4	18	0.33333	65	0.13000	7.1	8.6	0.25	c	0.004333	-0.78849	0.39839	0.49207	0.00213	0.83524	0.00362	0.45244	0.00196
0.4	18	0.33333	65	0.11333	7.2	8.6	0.25	c	0.003778	-0.76320	0.39148	0.50330	0.00190	0.82321	0.00311	0.42614	0.00161
0.4	18	0.33333	65	0.12000	7.3	8.6	0.25	c	0.004000	-0.73988	0.38457	0.51379	0.00206	0.81158	0.00325	0.40122	0.00160
0.4	18	0.33333	65	0.02333	7.4	8.6	0.25	c	0.000778	-0.71840	0.38000	0.52403	0.00041	0.79893	0.00062	0.37838	0.00029
0.4	18	0.33333	65	0.01000	7.5	8.6	0.25	c	0.000333	-0.69861	0.38000	0.53451	0.00018	0.78399	0.00026	0.35875	0.00012
0.2	20	0.33333	65	0.03333	6.4	8.6	0.25	c	0.000556	-1.03114	0.44676	0.39402	0.00022	0.92112	0.00051	0.66879	0.00037
0.2	20	0.33333	65	0.10000	6.6	8.6	0.25	c	0.001667	-0.94903	0.43294	0.42515	0.00071	0.89762	0.00150	0.60290	0.00100
0.2	20	0.33333	65	0.03333	6.7	8.6	0.25	c	0.000556	-0.91199	0.42603	0.43989	0.00024	0.88526	0.00049	0.57070	0.00032
0.2	20	0.33333	65	0.00667	6.8	8.6	0.25	c	0.000111	-0.87752	0.41912	0.45399	0.00005	0.87270	0.00010	0.53937	0.00006
0.2	20	0.33333	65	0.19333	6.9	8.6	0.25	c	0.003222	-0.84552	0.41221	0.46740	0.00151	0.86009	0.00277	0.50912	0.00164
0.2	20	0.33333	65	0.23667	7	8.6	0.25	c	0.003944	-0.81589	0.40530	0.48010	0.00189	0.84757	0.00334	0.48012	0.00189
0.2	20	0.33333	65	0.13000	7.1	8.6	0.25	c	0.002167	-0.78849	0.39839	0.49207	0.00107	0.83524	0.00181	0.45244	0.00098
0.2	20	0.33333	65	0.11333	7.2	8.6	0.25	c	0.001889	-0.76320	0.39148	0.50330	0.00095	0.82321	0.00155	0.42614	0.00080
0.2	20	0.33333	65	0.12000	7.3	8.6	0.25	c	0.002000	-0.73988	0.38457	0.51379	0.00103	0.81158	0.00162	0.40122	0.00080
0.2	20	0.33333	65	0.02333	7.4	8.6	0.25	c	0.000389	-0.71840	0.38000	0.52403	0.00020	0.79893	0.00031	0.37838	0.00015
0.2	20	0.33333	65	0.01000	7.5	8.6	0.25	c	0.000167	-0.69861	0.38000	0.53451	0.00009	0.78399	0.00013	0.35875	0.00006
0.4	15	0.33333	65	0.03333	6.4	8.6	0.25	sd	0.001111	-1.12262	0.49400	0.36766	0.00041	0.92823	0.00103	0.71904	0.00080
0.4	15	0.33333	65	0.13333	6.6	8.6	0.25	sd	0.004444	-1.02418	0.46600	0.40027	0.00178	0.90978	0.00404	0.65676	0.00292
0.4	15	0.33333	65	0.10000	6.7	8.6	0.25	sd	0.003333	-0.99123	0.45200	0.41103	0.00137	0.90456	0.00302	0.63429	0.00211
0.4	15	0.33333	65	0.00667	6.8	8.6	0.25	sd	0.000222	-0.95948	0.43800	0.42166	0.00009	0.89925	0.00020	0.61092	0.00014
0.4	15	0.33333	65	0.16000	6.9	8.6	0.25	sd	0.005333	-0.92890	0.42400	0.43214	0.00230	0.89386	0.00477	0.58663	0.00313
0.4	15	0.33333	65	0.27000	7	8.6	0.25	sd	0.009000	-0.89947	0.41000	0.44246	0.00398	0.88841	0.00800	0.56142	0.00505
0.4	15	0.33333	65	0.06333	7.1	8.6	0.25	sd	0.002111	-0.87115	0.39600	0.45260	0.00096	0.88292	0.00186	0.53527	0.00113
0.4	15	0.33333	65	0.08000	7.2	8.6	0.25	sd	0.002667	-0.84392	0.38200	0.46257	0.00123	0.87738	0.00234	0.50817	0.00136
0.4	15	0.33333	65	0.12000	7.3	8.6	0.25	sd	0.004000	-0.81775	0.38000	0.47447	0.00190	0.86417	0.00346	0.48075	0.00192
0.4	15	0.33333	65	0.02333	7.4	8.6	0.25	sd	0.000778	-0.79261	0.38000	0.48655	0.00038	0.84922	0.00066	0.45445	0.00035
0.4	15	0.33333	65	0.01000	7.5	8.6	0.25	sd	0.000333	-0.76847	0.38000	0.49844	0.00017	0.83387	0.00028	0.42938	0.00014
0.4	18	0.33333	65	0.03333	6.4	8.6	0.25	sd	0.001111	-1.12262	0.49400	0.36766	0.00041	0.92823	0.00103	0.71904	0.00080
0.4	18	0.33333	65	0.10000	6.6	8.6	0.25	sd	0.003333	-1.02418	0.46600	0.40027	0.00133	0.90978	0.00303	0.65676	0.00219
0.4	18	0.33333	65	0.03333	6.7	8.6	0.25	sd	0.001111	-0.99123	0.45200	0.41103	0.00046	0.90456	0.00101	0.63429	0.00070
0.4	18	0.33333	65	0.10667	6.8	8.6	0.25	sd	0.003556	-0.95948	0.43800	0.42166	0.00150	0.89925	0.00320	0.61092	0.00217
0.4	18	0.33333	65	0.09333	6.9	8.6	0.25	sd	0.003111	-0.92890	0.42400	0.43214	0.00134	0.89386	0.00278	0.58663	0.00183
0.4	18	0.33333	65	0.23667	7	8.6	0.25	sd	0.007889	-0.89947	0.41000	0.44246	0.00349	0.88841	0.00701	0.56142	0.00443
0.4	18	0.33333	65	0.13000	7.1	8.6	0.25	sd	0.004333	-0.87115	0.39600	0.45260	0.00196	0.88292	0.00383	0.53527	0.00232
0.4	18	0.33333	65	0.11333	7.2	8.6	0.25	sd	0.003778	-0.84392	0.38200	0.46257	0.00175	0.87738	0.00331	0.50817	0.00192
0.4	18	0.33333	65	0.12000	7.3	8.6	0.25	sd	0.004000	-0.81775	0.38000	0.47447	0.00190	0.86417	0.00346	0.48075	0.00192
0.4	18	0.33333	65	0.02333	7.4	8.6	0.25	sd	0.000778	-0.79261	0.38000	0.48655	0.00038	0.84922	0.00066	0.45445	0.00035
0.4	18	0.33333	65	0.01000	7.5	8.6	0.25	sd	0.000333	-0.76847	0.38000	0.49844	0.00017	0.83387	0.00028	0.42938	0.00014
0.2	20	0.33333	65	0.03333	6.4	8.6	0.25	sd	0.000556	-1.12262	0.49400	0.36766	0.00020	0.92823	0.00052	0.71904	0.00040
0.2	20	0.33333	65	0.10000	6.6	8.6	0.25	sd	0.001667	-1.02418	0.46600	0.40027	0.00067	0.90978	0.00152	0.65676	0.00109
0.2	20	0.33333	65	0.03333	6.7	8.6	0.25	sd	0.000556	-0.99123	0.45200	0.41103	0.00023	0.90456	0.00050	0.63429	0.00035
0.2	20	0.33333	65	0.00667	6.8	8.6	0.25	sd	0.000111	-0.95948	0.43800	0.42166	0.00005	0.89925	0.00010	0.61092	0.00007
0.2	20	0.33333	65	0.19333	6.9	8.6	0.25	sd	0.003222	-0.92890	0.42400	0.43214	0.00139	0.89386	0.00288	0.58663	0.00189

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0.2	20	0.33333	65	0.23667	7	8.6	0.25	sd	0.003944	-0.89947	0.41000	0.44246	0.00175	0.88841	0.00350	0.56142	0.00221
0.2	20	0.33333	65	0.13000	7.1	8.6	0.25	sd	0.002167	-0.87115	0.39600	0.45260	0.00098	0.88292	0.00191	0.53527	0.00116
0.2	20	0.33333	65	0.11333	7.2	8.6	0.25	sd	0.001889	-0.84392	0.38200	0.46257	0.00087	0.87738	0.00166	0.50817	0.00096
0.2	20	0.33333	65	0.12000	7.3	8.6	0.25	sd	0.002000	-0.81775	0.38000	0.47447	0.00095	0.86417	0.00173	0.48075	0.00096
0.2	20	0.33333	65	0.02333	7.4	8.6	0.25	sd	0.000389	-0.79261	0.38000	0.48655	0.00019	0.84922	0.00033	0.45445	0.00018
0.2	20	0.33333	65	0.01000	7.5	8.6	0.25	sd	0.000167	-0.76847	0.38000	0.49844	0.00008	0.83387	0.00014	0.42938	0.00007
												SUM(Q3:Q398)= 0.47519		SUM(Q3:Q398)= 0.84131		SUM(S3:S398)= 0.50008	
												MEAN PGA		Prob (Z > 84th PGA)		Prob (Z > Median PGA)	