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## FINAL REPORT – VOLUME I of III

### Fault Evaluation Study and Seismic Hazard Assessment, Revision 1

Private Fuel Storage Facility

Skull Valley, Utah

Prepared for:

Stone & Webster Engineering Corporation

P.O. Box 5406

Denver, Colorado 80217-5406

Prepared by:

Geomatrix Consultants, Inc.

2101 Webster Street, 12<sup>th</sup> Floor

Oakland, California 94612

(510) 663-4100

March 2001

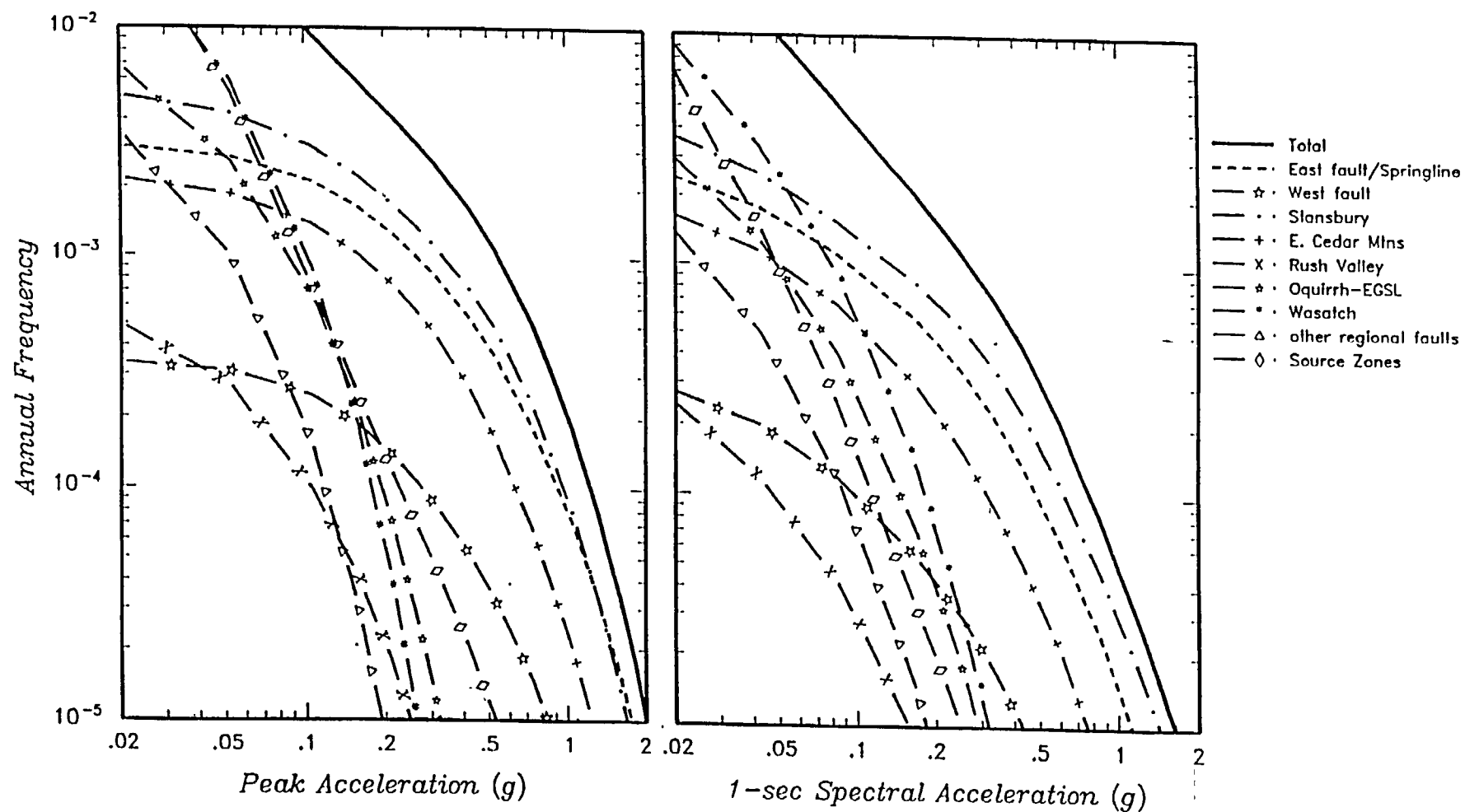
Project No. 4790.002

NUCLEAR REGULATORY COMMISSION

Docket No. \_\_\_\_\_ Official Ex. No. 185  
In the matter of PFS  
Staff \_\_\_\_\_ IDENTIFIED ✓  
Applicant \_\_\_\_\_ RECEIVED \_\_\_\_\_  
Intervenor ✓ REJECTED \_\_\_\_\_  
Other \_\_\_\_\_ WITHDRAWN \_\_\_\_\_  
DATE 5/13/02 Witness \_\_\_\_\_  
Clerk V. McDaniel

Template = SECY-028

SECY-02



CONTRIBUTIONS OF INDIVIDUAL SOURCES TO TOTAL MEAN  
HAZARD FOR HORIZONTAL MOTION AT THE CTB SITE.  
Private Fuel Storage Facility  
Skull Valley, Utah

Project No.  
4790.002

Figure  
6-12

TABLE 6-2

## FAULT SOURCES-SOURCE CHARACTERIZATION PARAMETERS AND WEIGHTS

Private Fuel Storage Facility

Skull Valley, Utah

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Fault	Map Designation	Probability of Activity	Total Length (km)	Downdip Geometry	Maximum Rupture Lengths (km)	Slip Rate (mm/yr) [wt]	Single Event Displacement <sup>1</sup> (m)	Comments <sup>2</sup>
<i>Mid-Valley Faults</i>								
East, West, and Springline faults	EF, WF, and SpF	EF [1.0] WF [1.0] SpF [0.8]	EF 28 [1.0] SpF 18 [1.0] EF/SpF 46 [1.0]	45°W [0.33] 55°W [0.34] 65°W [0.33]  In cases where the West fault is treated as an independent fault source, the dips of the East and West faults are modeled to be parallel to preclude intersections or truncations of the faults at depth.	EF 12 [0.2] 18 [0.5] 28 [0.3]  SpF 18 [1.0]  EF/SpF 12 [0.1] 18 [0.3] 28 [0.5] 46 [0.1]  WF-Model A 12 [0.6] 23 [0.4]  WF-Model B 12 [0.5] 21 [0.4] 36 [0.1]	EF 0.05 [0.1] 0.1 [0.3] 0.2 [0.4] 0.3 [0.19] 0.45 [0.01]  WF 0.01 [0.2] 0.04 [0.5] 0.07 [0.2] 0.1 [0.1]  EF-WF 0.05 [0.1] 0.1 [0.28] 0.2 [0.29] 0.3 [0.28] 0.45 [0.05]  SpF 0.05 [0.2] 0.1 [0.2] 0.2 [0.35] 0.3 [0.2] 0.45 [0.05]  EF/SpF and EF-WF/SpF Variable slip along strike		See Figure 6-4 for logic tree showing alternate mid-valley fault sources included in seismic hazard model
			WF-Model A 23 [1.0]  WF-Model B 36 [1.0]					

TABLE 6-2 (CONTINUED)

## FAULT SOURCES-SOURCE CHARACTERIZATION PARAMETERS AND WEIGHTS

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Fault	Map Designation	Probability of Activity	Total Length (km)	Downdip Geometry	Rupture Lengths (km)	Slip Rate (mm/yr)	Single Event Displacement <sup>1</sup> (m)	Comments/ <sup>2</sup> References
						based on above distributions		
<i>Stansbury</i>	SZF	1.0	73	45°W [0.33] 55°W [0.34] 65°W [0.33]	23 [0.1] 47 [0.2] 32 [0.3] 56 [0.3] 7.3 [0.1]	0.3 [0.2] 0.4 [0.6] 0.5 [0.2]	<u>AD</u> 1 [0.1] 2 [0.4] 3 [0.4] 4.5 [0.1]	
<i>East Cedar Mountains</i>	ECMF	0.7	72	45°E [0.33] 55°E [0.34] 65°E [0.33]	12 [0.3] 27 [0.4] 45 [0.25] 72 [0.05]	0.01 [0.25] 0.04 [0.25] 0.07 [0.25] 0.1 [0.2] 0.45 [0.05]		
<i>Rush Valley Faults</i>								
Clover Fault [Model A (0.8)]	C	1.0	19 [0.75]	45°E [0.33] 55°E [0.34] 65°E [0.33]	7.0 [1.0]  19 [1.0]	0.01 [0.6] 0.05 [0.4]	<u>MD</u> [0.3] 0.6 [1.0] <u>AD</u> [0.7] 0.6 [1.0]	
Sheeprock [Model A (0.8)]	Sh	1.0	19 [1.0]	45°E [0.33] 55°E [0.34] 65°E [0.33]	19 [1.0]	0.01 [0.4] 0.05 [0.5] 0.1 [0.1]		
West Side Zone [Model B (0.2)]	C & Sh	1.0	52	45°E [0.33] 55°E [0.34] 65°E [0.33]	18 [1.0]	0.01 [0.4] 0.05 [0.5] 0.1 [0.1]	<u>MD</u> [0.3] 0.6 [1.0] <u>AD</u> [0.7] 0.6 [1.0]	

TABLE 6-2 (CONTINUED)

## FAULT SOURCES-SOURCE CHARACTERIZATION PARAMETERS AND WEIGHTS

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Fault	Map Designation	Probability of Activity	Total Length (km)	Downdip Geometry	Rupture Lengths (km)	Slip Rate (mm/yr)	Single Event Displacement <sup>1</sup> (m)	Comments/-References
<b>Oquirrh-East Great Salt Lake Fault Zone</b>								
Mercur [Model A (0.40)]	M	1.0	27	45°W [0.33] 55°W [0.34] 65°W [0.33]	16 [0.4] 27 [0.6]	0.05 [0.5] 0.1 [0.4] 0.2 [0.1]	<u>MD</u> [0.3] 0.9 [0.5] 1.9 [0.5]  <u>AD</u> [0.7] 0.9 [0.5] 1.9 [0.5]	
Topliff Hill [Model A (0.40)]	TH	1.0	24	45°W [0.33] 55°W [0.34] 65°W [0.33]	12 [0.4] 24 [0.6]	0.05 [0.5] 0.1 [0.4] 0.2 [0.1]		
Mercur-Topliff Hill [Model B (0.6)]	M-TH	1.0	56	45°W [0.33] 55°W [0.34] 65°W [0.33]	16 [0.2] 33 [0.5] 56 [0.3]	0.05 [0.5] 0.1 [0.4] 0.2 [0.1]	<u>MD</u> [0.3] 0.9 [0.5] 1.9 [0.5]  <u>AD</u> [0.7] 0.9 [0.5] 1.9 [0.5]	
Oquirrh (Model A [0.9])	O	1.0	35	45°W [0.33] 55°W [0.34] 65°W [0.33]	12 [0.2] 21 [0.4] 35 [0.4]	0.1 [0.3] 0.15 [0.5] 0.2 [0.2]	<u>MD</u> [0.3] 2.2 [0.5] 2.7 [0.5]  <u>AD</u> [0.7] 2.2 [0.5] 2.7 [0.5]	
East Great Salt Lake (Model A [0.9])	EGSL	1.0	100	40°W [0.33] 50°W [0.34] 60°W [0.33]	35 [0.3] 40 [0.4] 52 [0.3]	0.2 [0.4] 0.4 [0.4] 0.7 [0.2]		
Oquirrh & East Great Salt Lake	O & EGSL	1.0	100	40°W [0.33] 50°W [0.34]	21 [0.3] 35 [0.5]	0.1 [0.2] 0.2 [0.4]	<u>MD</u> [0.3] 0.9 [0.5]	

TABLE 6-2 (CONTINUED)

## FAULT SOURCES-SOURCE CHARACTERIZATION PARAMETERS AND WEIGHTS

Private Fuel Storage Facility

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Fault	Map Designation	Probability of Activity	Total Length (km)	Downdip Geometry	Rupture Lengths (km)	Slip Rate (mm/yr)	Single Event Displacement <sup>1</sup> (m)	Comments/ <sup>2</sup> References
(Model B [0.1])				60°W [0.33]	52 [0.2]	0.4[0.3] 0.7[0.1]	1.9 [0.5]	
East Tintic Mountains	ETM	1.0	36	40°W [0.33] 50°W [0.34] 60°W [0.33]	20 [0.4] 36 [0.6]	0.005 [0.1] 0.01[0.4] 0.05 [0.4] 0.1 [0.1]	<u>AD</u> [0.7] 0.9 [0.5] 1.9 [0.5]	
West Valley Fault Zone	WVZ	0.6	18	45°E [0.33] 55°E [0.34] 65°E [0.33]	18 [1.0]	0.3 [0.5] 0.5 [0.5]		
Utah Lake faults	UL	0.6	30	45°E [0.33] 55°E [0.34] 65°E [0.33]	20[0.5] 30[0.5]	0.3 [0.5] 0.5 [0.5]		
Drum Mountains	DM	1.0	36	45°E [0.33] 55°E [0.34] 65°E [0.33]	36[1.0]	0.02 [0.3] 0.05 [0.4] 0.2 [0.3]	<u>AD</u> [0.7] 2.4 [1.0] <u>MD</u> [0.3] 3.7 [1.0]	
Fish Springs	FS	1.0	30	45°E [0.33] 55°E [0.34] 65°E [0.33]	15 [0.5] 30 [0.5]	0.02 [0.3] 0.05 [0.4] 0.2 [0.3]	<u>MD</u> 3.3 [1.0]	
Wasatch Fault Zone	WFZ	1.0	370	45°E [0.33] 55°E [0.34] 65°E [0.33] 0.35				Seismic source model modified from Youngs and others (1987) and using recurrence data from McCalpin and Nishenko (1996)

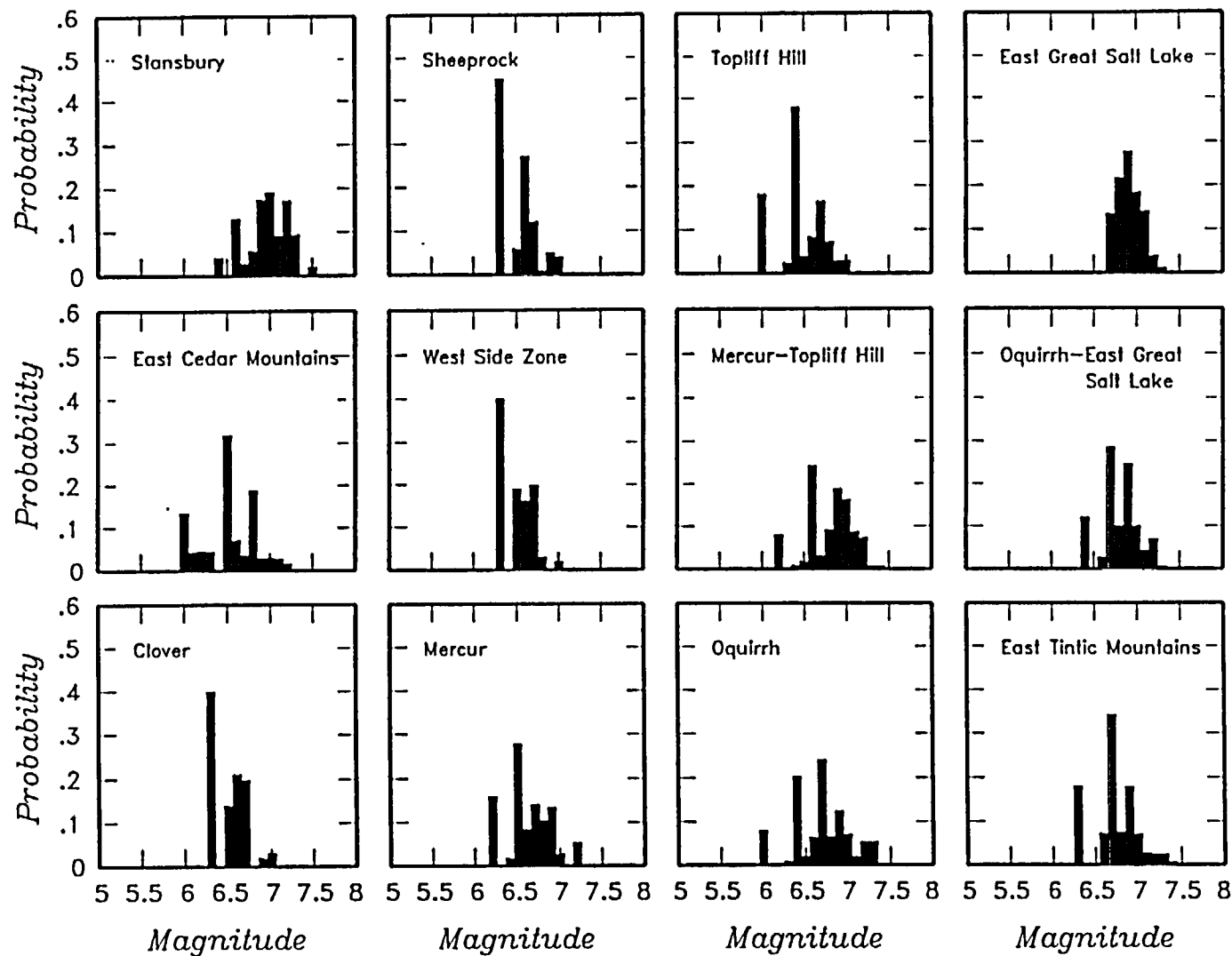
TABLE 6-2 (CONTINUED)

**FAULT SOURCES-SOURCE CHARACTERIZATION PARAMETERS AND WEIGHTS**  
**Private Fuel Storage Facility**  
**Skull Valley, Utah**

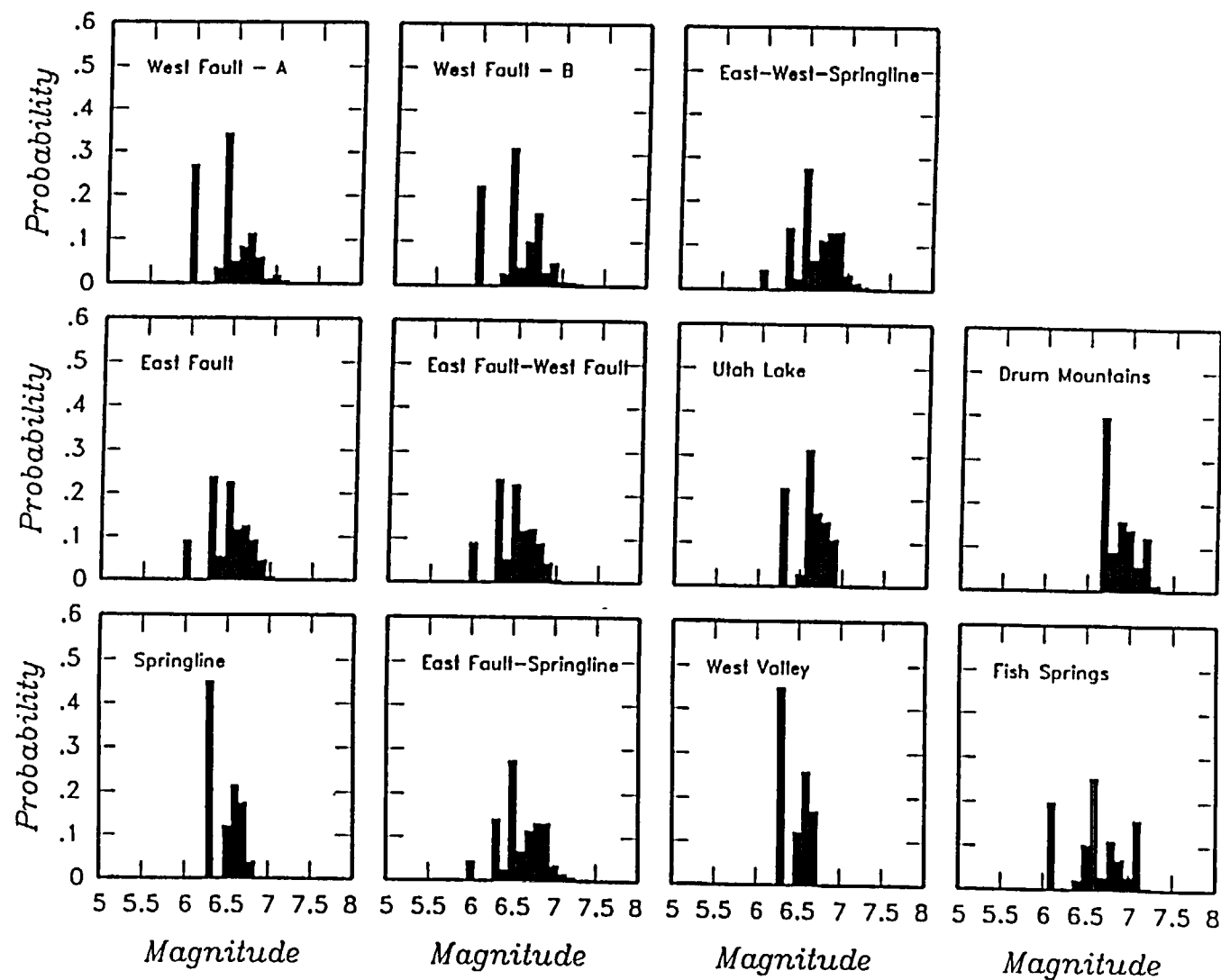
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Fault	Map Designation	Probability of Activity	Total Length (km)	Downdip Geometry	Rupture Lengths (km)	Slip Rate (mm/yr)	Single Event Displacement <sup>1</sup> (m)	Comments/ <sup>2</sup> References
<i>(Unsegmented Model)</i>					35 [0.05] 45 [0.4] 65 [0.5] 100 [0.05]	0.7 [0.1] 0.9 [0.2] 1.1 [0.4] 1.3 [0.25] 1.8 [0.05]		
<i>(Segmented Model)</i>								
<i>Collinston*</i>					30 [1]	0.02 [0.45] 0.04 [0.45] 0.08 [0.1]		
<i>Brigham City</i>					40 [1]	•		
<i>Weber</i>					61 [1]	•		
<i>Salt Lake City</i>					46 [1]	•		
<i>Provo</i>					70 [1]	•		
<i>Nephel</i>					43 [1]	•		
<i>Levan</i>					30 [1]	0.05 [0.1] 0.1 [0.4] 0.2 [0.4] 0.3 [0.1]		

- <sup>1</sup> MD = maximum displacement; AD = average displacement  
<sup>2</sup> Frequency of events based on recurrence intervals from McCalpin and Nishenko (1995).

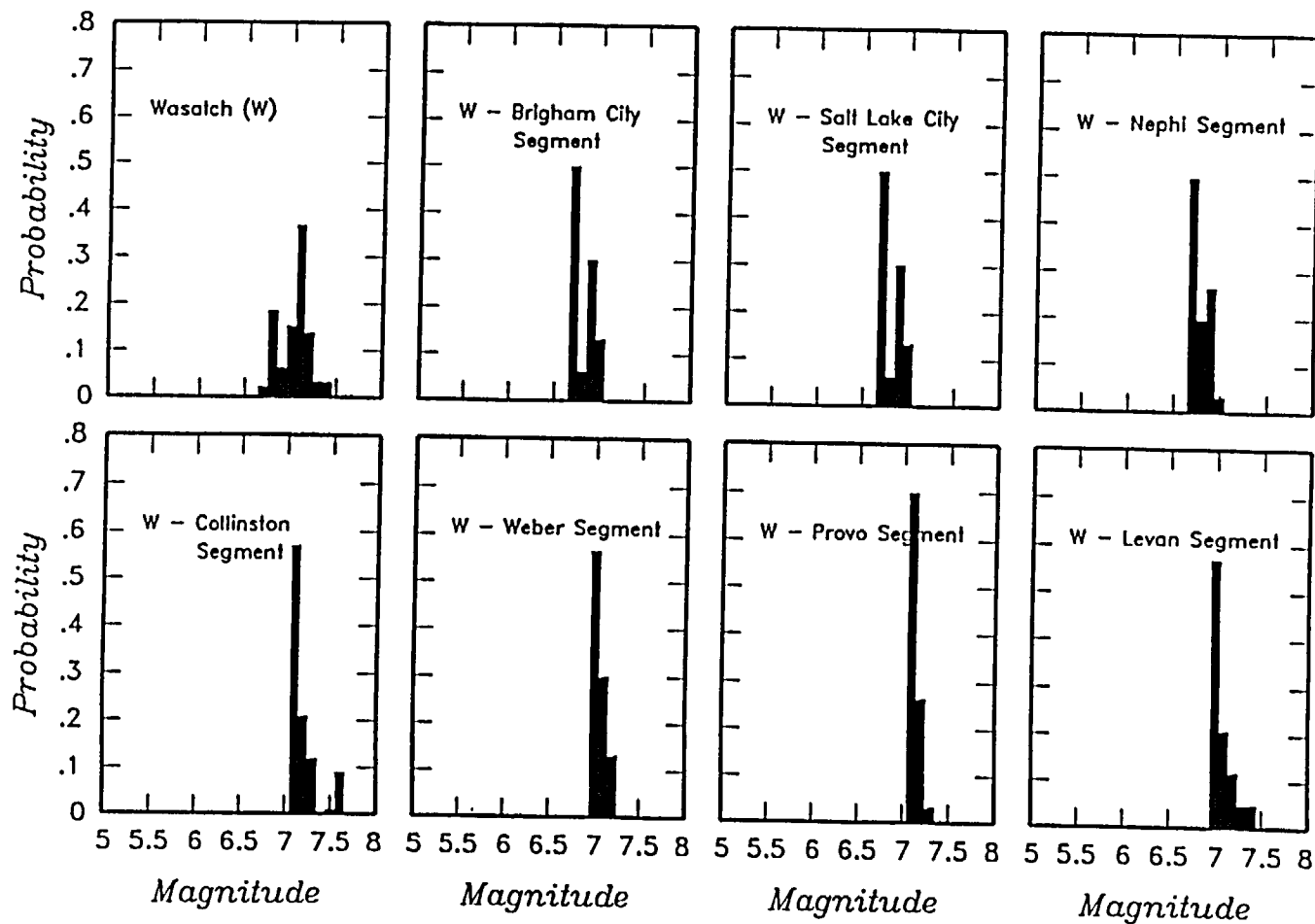






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