H.4 Risk Assessment Modeling Results

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Oso Flaco	2.8	1.19E-06	100	250	1.43E-06	8.42E-07	5.85E-07	1.43E-04	8.42E-05	5.85E-05
2	Nipomo	0.6	2.74E-07	1,000	250	3.28E-07	1.93E-07	1.34E-07	3.28E-05	1.93E-05	1.34E-05
3	Nipomo	1.5	6.32E-07	100	250	7.57E-07	4.47E-07	3.11E-07	7.57E-05	4.47E-05	3.11E-05
4	Guadalupe	1.3	5.76E-07	10,000	250	6.90E-07	4.07E-07	2.83E-07	6.90E-05	4.07E-05	2.83E-05
5	SMV	0.3	1.31E-07	100	250	1.57E-07	9.27E-08	6.44E-08	1.57E-05	9.27E-06	6.44E-06
6	Point Sal	13.8	5.93E-06	100	250	7.10E-06	4.19E-06	2.91E-06	7.10E-04	4.19E-04	2.91E-04
7	VAFB	13.5	5.81E-06	100	250	6.96E-06	4.11E-06	2.85E-06	6.96E-04	4.11E-04	2.85E-04
8	Rocky Point	14.7	6.30E-06	100	250	7.55E-06	4.45E-06	3.09E-06	7.55E-04	4.45E-04	3.09E-04
9	Bixby/Hollister	13.0	5.61E-06	100	250	6.72E-06	3.96E-06	2.75E-06	6.72E-04	3.96E-04	2.75E-04
10	Gaviota Beach	0.5	2.00E-07	1,000	250	2.39E-07	1.41E-07	9.81E-08	2.39E-05	1.41E-05	9.81E-06
11	Gaviota	5.9	2.52E-06	100	250	3.01E-06	1.78E-06	1.24E-06	3.01E-04	1.78E-04	1.24E-04
12	Arroyo Quemado	0.3	1.18E-07	1,000	250	1.41E-07	8.33E-08	5.79E-08	1.41E-05	8.33E-06	5.79E-06
13	Tajiquas	2.9	1.26E-06	100	250	1.51E-06	8.93E-07	6.21E-07	1.51E-04	8.93E-05	6.21E-05
14	Refugio	0.2	7.92E-08	1,000	250	9.49E-08	5.60E-08	3.89E-08	9.49E-06	5.60E-06	3.89E-06
15	Canada del Corral	2.0	8.51E-07	100	250	1.02E-06	6.02E-07	4.18E-07	1.02E-04	6.02E-05	4.18E-05
16	El Capitan	0.8	3.43E-07	1,000	250	4.10E-07	2.42E-07	1.68E-07	4.10E-05	2.42E-05	1.68E-05
17	Naples	5.7	2.44E-06	100	250	2.92E-06	1.72E-06	1.20E-06	2.92E-04	1.72E-04	1.20E-04
18	Bacara	0.8	3.24E-07	1,000	250	3.88E-07	2.29E-07	1.59E-07	3.88E-05	2.29E-05	1.59E-05
19	Sandpiper	0.6	2.48E-07	100	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
20	Goleta	2.1	9.03E-07	3,000	250	1.08E-06	6.38E-07	4.43E-07	1.08E-04	6.38E-05	4.43E-05
21	Goleta	1.6	7.01E-07	1,000	250	8.40E-07	4.95E-07	3.44E-07	8.40E-05	4.95E-05	3.44E-05
22	Santa Barbara	9.5	4.08E-06	3,000	250	4.88E-06	2.88E-06	2.00E-06	4.88E-04	2.88E-04	2.00E-04
23	Santa Barbara	3.8	1.64E-06	10,000	250	1.96E-06	1.16E-06	8.05E-07	1.96E-04	1.16E-04	8.05E-05
24	Montecito	4.3	1.83E-06	3,000	250	2.19E-06	1.29E-06	9.00E-07	2.19E-04	1.29E-04	9.00E-05
25	Polo Grounds	0.9	4.07E-07	1,000	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
26	Padero Lane	0.5	2.21E-07	3,000	250	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
27	Carpinteria	2.8	1.20E-06	1,000	250	1.43E-06	8.45E-07	5.87E-07	1.43E-04	8.45E-05	5.87E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
28	Carpinteria	1.3	5.55E-07	3,000	250	6.64E-07	3.92E-07	2.72E-07	6.64E-05	3.92E-05	2.72E-05
29	Carpinteria Bluffs	1.9	8.00E-07	1,000	250	9.58E-07	5.65E-07	3.93E-07	9.58E-05	5.65E-05	3.93E-05
30	Rincon	0.2	1.01E-07	3,000	250	1.21E-07	7.16E-08	4.98E-08	1.21E-05	7.16E-06	4.98E-06
31	La Concita Oil	1.7	7.44E-07	100	250	8.91E-07	5.26E-07	3.65E-07	8.91E-05	5.26E-05	3.65E-05
32	La Conchita	0.4	1.78E-07	3,000	250	2.13E-07	1.26E-07	8.75E-08	2.13E-05	1.26E-05	8.75E-06
33	Mussle Shoals	1.6	6.84E-07	1,000	250	8.19E-07	4.83E-07	3.36E-07	8.19E-05	4.83E-05	3.36E-05
34	Seacliff	0.9	3.71E-07	100	250	4.44E-07	2.62E-07	1.82E-07	4.44E-05	2.62E-05	1.82E-05
35	Faria/Solimar	4.5	1.92E-06	100	250	2.30E-06	1.36E-06	9.42E-07	2.30E-04	1.36E-04	9.42E-05
36	State Beaches	3.6	1.55E-06	100	250	1.86E-06	1.10E-06	7.62E-07	1.86E-04	1.10E-04	7.62E-05
37	Ventura	5.1	2.18E-06	3,000	250	2.62E-06	1.54E-06	1.07E-06	2.62E-04	1.54E-04	1.07E-04
38	Ventura Greenbelt	1.2	4.95E-07	1,000	250	5.92E-07	3.49E-07	2.43E-07	5.92E-05	3.49E-05	2.43E-05
39	Montalvo	1.0	4.27E-07	3,000	250	5.12E-07	3.02E-07	2.10E-07	5.12E-05	3.02E-05	2.10E-05
40	Santa Clara River	0.4	1.68E-07	100	250	2.02E-07	1.19E-07	8.27E-08	2.02E-05	1.19E-05	8.27E-06
41	Oxnard	4.1	1.76E-06	3,000	250	2.11E-06	1.24E-06	8.64E-07	2.11E-04	1.24E-04	8.64E-05
42	Oxnard Industrial	3.0	1.29E-06	1,000	250	1.55E-06	9.12E-07	6.33E-07	1.55E-04	9.12E-05	6.33E-05
43	Oxnard Ag	5.2	2.22E-06	100	250	2.66E-06	1.57E-06	1.09E-06	2.66E-04	1.57E-04	1.09E-04
44	Camarillo Comm	0.5	2.33E-07	1,000	250	2.79E-07	1.65E-07	1.14E-07	2.79E-05	1.65E-05	1.14E-05
45	Camarillo Ag	0.1	3.58E-08	100	250	4.28E-08	2.53E-08	1.76E-08	4.28E-06	2.53E-06	1.76E-06
46	Camarillo	2.5	1.08E-06	3,000	250	1.29E-06	7.63E-07	5.30E-07	1.29E-04	7.63E-05	5.30E-05
47	Somis	7.6	3.25E-06	100	250	3.89E-06	2.29E-06	1.59E-06	3.89E-04	2.29E-04	1.59E-04
48	Moorpark	1.1	4.73E-07	1,000	250	5.67E-07	3.34E-07	2.32E-07	5.67E-05	3.34E-05	2.32E-05
49	Moorpark	1.2	4.95E-07	3,000	250	5.92E-07	3.49E-07	2.43E-07	5.92E-05	3.49E-05	2.43E-05
50	Moorpark	2.1	9.12E-07	1,000	250	1.09E-06	6.44E-07	4.48E-07	1.09E-04	6.44E-05	4.48E-05
51	Los Alamos Cyn	0.8	3.57E-07	100	250	4.27E-07	2.52E-07	1.75E-07	4.27E-05	2.52E-05	1.75E-05
52	Simi Valley	1.1	4.73E-07	1,000	250	5.67E-07	3.34E-07	2.32E-07	5.67E-05	3.34E-05	2.32E-05
53	Simi Valley	6.8	2.94E-06	3,000	250	3.52E-06	2.08E-06	1.44E-06	3.52E-04	2.08E-04	1.44E-04
54	Sta Susana Knolls	1.6	6.75E-07	1,000	250	8.09E-07	4.77E-07	3.32E-07	8.09E-05	4.77E-05	3.32E-05
55	Santa Susana Pass	2.7	1.15E-06	100	250	1.38E-06	8.14E-07	5.66E-07	1.38E-04	8.14E-05	5.66E-05
56	Stoney Point	1.0	4.17E-07	1,000	250	4.99E-07	2.94E-07	2.05E-07	4.99E-05	2.94E-05	2.05E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Proposed Project

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
57	Chatsworth	1.4	5.98E-07	3,000	250	7.16E-07	4.22E-07	2.94E-07	7.16E-05	4.22E-05	2.94E-05
58	Chatsworth	3.6	1.54E-06	10,000	250	1.84E-06	1.08E-06	7.54E-07	1.84E-04	1.08E-04	7.54E-05
59	Northridge	2.5	1.09E-06	10,000	250	1.31E-06	7.72E-07	5.36E-07	1.31E-04	7.72E-05	5.36E-05
60	Van Nyus AP	1.7	7.44E-07	3,000	250	8.91E-07	5.26E-07	3.65E-07	8.91E-05	5.26E-05	3.65E-05
61	North Hollywood	4.0	1.74E-06	10,000	250	2.08E-06	1.23E-06	8.53E-07	2.08E-04	1.23E-04	8.53E-05
62	Burbank	2.5	1.09E-06	10,000	250	1.31E-06	7.72E-07	5.36E-07	1.31E-04	7.72E-05	5.36E-05
63	Valhalla	0.7	3.06E-07	1,000	250	3.66E-07	2.16E-07	1.50E-07	3.66E-05	2.16E-05	1.50E-05
64	Burbank	1.8	7.57E-07	10,000	250	9.06E-07	5.35E-07	3.72E-07	9.06E-05	5.35E-05	3.72E-05
65	Burbank	0.4	1.87E-07	3,000	250	2.24E-07	1.32E-07	9.18E-08	2.24E-05	1.32E-05	9.18E-06
66	Glendale	2.9	1.26E-06	10,000	250	1.50E-06	8.87E-07	6.17E-07	1.50E-04	8.87E-05	6.17E-05
67	Atwater	3.3	1.44E-06	10,000	250	1.72E-06	1.01E-06	7.05E-07	1.72E-04	1.01E-04	7.05E-05
68	Elysian Park	5.8	2.50E-06	10,000	250	2.99E-06	1.77E-06	1.23E-06	2.99E-04	1.77E-04	1.23E-04
69	East Los Angeles	7.5	3.23E-06	10,000	250	3.87E-06	2.29E-06	1.59E-06	3.87E-04	2.29E-04	1.59E-04
70	San Gabriel Vly	6.0	2.58E-06	10,000	250	3.10E-06	1.83E-06	1.27E-06	3.10E-04	1.83E-04	1.27E-04
71	El monte	0.4	1.76E-07	3,000	250	2.11E-07	1.24E-07	8.63E-08	2.11E-05	1.24E-05	8.63E-06
72	San Gabriel River	0.2	1.01E-07	1,000	250	1.21E-07	7.13E-08	4.96E-08	1.21E-05	7.13E-06	4.96E-06
73	La Puente	4.5	1.94E-06	3,000	250	2.32E-06	1.37E-06	9.50E-07	2.32E-04	1.37E-04	9.50E-05
74	La Puente-Walnut	7.9	3.41E-06	3,000	250	4.08E-06	2.41E-06	1.67E-06	4.08E-04	2.41E-04	1.67E-04
75	Walnut-Pomona	3.1	1.35E-06	3,000	250	1.62E-06	9.54E-07	6.63E-07	1.62E-04	9.54E-05	6.63E-05
76	Pomona	16.0	6.87E-06	3,000	250	8.23E-06	4.86E-06	3.37E-06	8.23E-04	4.86E-04	3.37E-04
77	Ontario	9.3	4.02E-06	3,000	250	4.81E-06	2.84E-06	1.97E-06	4.81E-04	2.84E-04	1.97E-04
78	Fontana	1.2	5.24E-07	1,000	250	6.27E-07	3.70E-07	2.57E-07	6.27E-05	3.70E-05	2.57E-05
79	Colton	2.1	5.33E-07	3,000	250	6.39E-07	3.77E-07	2.62E-07	6.39E-05	3.77E-05	2.62E-05
80	Rialto	1.9	4.83E-07	1,000	250	5.79E-07	3.41E-07	2.37E-07	5.79E-05	3.41E-05	2.37E-05
81	Rialto	1.1	2.88E-07	100	250	3.44E-07	2.03E-07	1.41E-07	3.44E-05	2.03E-05	1.41E-05
82	San Bernardino	1.9	4.90E-07	1,000	250	5.86E-07	3.46E-07	2.40E-07	5.86E-05	3.46E-05	2.40E-05
83	San Bernardino	3.2	8.43E-07	100	250	1.01E-06	5.96E-07	4.14E-07	1.01E-04	5.96E-05	4.14E-05
84	Devore	1.6	4.25E-07	1,000	250	5.09E-07	3.00E-07	2.09E-07	5.09E-05	3.00E-05	2.09E-05
85	Cajon Pass	19.5	5.07E-06	100	250	6.08E-06	3.58E-06	2.49E-06	6.08E-04	3.58E-04	2.49E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
86	Hesperia	4.5	1.18E-06	1,000	250	1.41E-06	8.32E-07	5.78E-07	1.41E-04	8.32E-05	5.78E-05
87	Hesperia	1.0	2.70E-07	100	250	3.23E-07	1.91E-07	1.32E-07	3.23E-05	1.91E-05	1.32E-05
88	Victorville	4.3	1.13E-06	1,000	250	1.35E-06	7.97E-07	5.54E-07	1.35E-04	7.97E-05	5.54E-05
89	Victorville	2.1	5.35E-07	100	250	6.40E-07	3.78E-07	2.63E-07	6.40E-05	3.78E-05	2.63E-05
90	Victorville	0.7	1.92E-07	1,000	250	2.30E-07	1.36E-07	9.44E-08	2.30E-05	1.36E-05	9.44E-06
91	Victorville	4.5	1.16E-06	100	250	1.39E-06	8.19E-07	5.69E-07	1.39E-04	8.19E-05	5.69E-05
92	Oro Grande	0.5	1.34E-07	1,000	250	1.60E-07	9.46E-08	6.57E-08	1.60E-05	9.46E-06	6.57E-06
93	Helendale	25.4	6.59E-06	100	250	7.90E-06	4.66E-06	3.24E-06	7.90E-04	4.66E-04	3.24E-04
94	Lenwood	1.1	2.91E-07	1,000	250	3.48E-07	2.05E-07	1.43E-07	3.48E-05	2.05E-05	1.43E-05
95	Barstow	1.8	4.72E-07	100	250	5.65E-07	3.33E-07	2.32E-07	5.65E-05	3.33E-05	2.32E-05
96	Barstow	1.7	4.46E-07	1,000	250	5.34E-07	3.15E-07	2.19E-07	5.34E-05	3.15E-05	2.19E-05
97	Barstow	0.7	1.91E-07	100	250	2.28E-07	1.35E-07	9.36E-08	2.28E-05	1.35E-05	9.36E-06
98	Barstow	6.2	1.61E-06	1,000	250	1.93E-06	1.14E-06	7.89E-07	1.93E-04	1.14E-04	7.89E-05
99	Daggett	2.4	6.32E-07	100	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
100	Daggett	0.8	1.97E-07	1,000	250	2.36E-07	1.39E-07	9.68E-08	2.36E-05	1.39E-05	9.68E-06
101	MCSC	4.3	1.13E-06	100	250	1.35E-06	7.98E-07	5.55E-07	1.35E-04	7.98E-05	5.55E-05
102	Yermo	1.3	3.31E-07	1,000	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
103	Mojave Desert	123.5	3.21E-05	100	250	3.85E-05	2.27E-05	1.58E-05	3.85E-03	2.27E-03	1.58E-03

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	7.24E-07	4.27E-07	2.97E-07	7.24E-05	4.27E-05	2.97E-05
2	Arroyo Grande	0.8	3.11E-07	100	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
3	Arroyo Grande	0.9	3.67E-07	1,000	250	4.39E-07	2.59E-07	1.80E-07	4.39E-05	2.59E-05	1.80E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
4	Arroyo Grande	1.4	5.39E-07	100	250	6.45E-07	3.81E-07	2.65E-07	6.45E-05	3.81E-05	2.65E-05
5	Oceano	0.4	1.57E-07	3,000	250	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
6	Oceano	0.6	2.43E-07	10,000	250	2.92E-07	1.72E-07	1.20E-07	2.92E-05	1.72E-05	1.20E-05
7	Oceano	0.2	9.32E-08	3,000	250	1.12E-07	6.59E-08	4.58E-08	1.12E-05	6.59E-06	4.58E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	9.80E-07	5.78E-07	4.02E-07	9.80E-05	5.78E-05	4.02E-05
9	Pismo	0.3	1.13E-07	3,000	250	1.35E-07	7.96E-08	5.53E-08	1.35E-05	7.96E-06	5.53E-06
10	Pismo	0.4	1.44E-07	1,000	250	1.72E-07	1.02E-07	7.06E-08	1.72E-05	1.02E-05	7.06E-06
11	Price Canyon	5.2	2.02E-06	100	250	2.42E-06	1.43E-06	9.93E-07	2.42E-04	1.43E-04	9.93E-05
12	Edna	0.6	2.34E-07	1,000	250	2.81E-07	1.66E-07	1.15E-07	2.81E-05	1.66E-05	1.15E-05
13	Edna	1.6	6.31E-07	100	250	7.56E-07	4.46E-07	3.10E-07	7.56E-05	4.46E-05	3.10E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	250	2.18E-06	1.29E-06	8.94E-07	2.18E-04	1.29E-04	8.94E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
16	Chorro	0.4	1.66E-07	1,000	250	1.99E-07	1.17E-07	8.16E-08	1.99E-05	1.17E-05	8.16E-06
17	Chorro	1.6	6.10E-07	100	250	7.31E-07	4.31E-07	3.00E-07	7.31E-05	4.31E-05	3.00E-05
18	CMC	0.8	2.98E-07	3,000	250	3.56E-07	2.10E-07	1.46E-07	3.56E-05	2.10E-05	1.46E-05
19	Santa Lucia	11.2	4.36E-06	100	250	5.22E-06	3.08E-06	2.14E-06	5.22E-04	3.08E-04	2.14E-04
20	Santa Margarita	0.9	3.44E-07	3,000	250	4.12E-07	2.43E-07	1.69E-07	4.12E-05	2.43E-05	1.69E-05
21	Phillips PS	0.9	3.32E-07	100	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
22	Atascadero	7.4	2.89E-06	1,000	250	3.46E-06	2.04E-06	1.42E-06	3.46E-04	2.04E-04	1.42E-04
23	Atascadero	1.6	6.24E-07	3,000	250	7.47E-07	4.41E-07	3.06E-07	7.47E-05	4.41E-05	3.06E-05
24	Atascadero	1.3	4.96E-07	1,000	250	5.95E-07	3.51E-07	2.44E-07	5.95E-05	3.51E-05	2.44E-05
25	Atascadero	0.4	1.68E-07	3,000	250	2.01E-07	1.19E-07	8.24E-08	2.01E-05	1.19E-05	8.24E-06
26	101	0.4	1.43E-07	1,000	250	1.71E-07	1.01E-07	7.00E-08	1.71E-05	1.01E-05	7.00E-06
27	Templeton	2.1	8.34E-07	3,000	250	9.99E-07	5.90E-07	4.10E-07	9.99E-05	5.90E-05	4.10E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	2.40E-07	1.41E-07	9.83E-08	2.40E-05	1.41E-05	9.83E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	3.93E-07	2.32E-07	1.61E-07	3.93E-05	2.32E-05	1.61E-05
30	Paso Robles	2.7	1.07E-06	1,000	250	1.28E-06	7.57E-07	5.26E-07	1.28E-04	7.57E-05	5.26E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	9.99E-07	5.89E-07	4.10E-07	9.99E-05	5.89E-05	4.10E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	2.03E-07	1.20E-07	8.32E-08	2.03E-05	1.20E-05	8.32E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
33	Paso Robles	1.2	4.54E-07	3,000	250	5.43E-07	3.20E-07	2.23E-07	5.43E-05	3.20E-05	2.23E-05
34	101	2.1	8.27E-07	100	250	9.91E-07	5.84E-07	4.06E-07	9.91E-05	5.84E-05	4.06E-05
35	Wellsona	2.4	9.53E-07	1,000	250	1.14E-06	6.73E-07	4.68E-07	1.14E-04	6.73E-05	4.68E-05
36	101	1.9	7.27E-07	100	250	8.71E-07	5.14E-07	3.57E-07	8.71E-05	5.14E-05	3.57E-05
37	San Miguel	1.5	5.73E-07	3,000	250	6.86E-07	4.05E-07	2.81E-07	6.86E-05	4.05E-05	2.81E-05
38	101	2.7	1.03E-06	100	250	1.24E-06	7.31E-07	5.08E-07	1.24E-04	7.31E-05	5.08E-05
39	Camp Roberts	5.7	2.23E-06	100	250	2.67E-06	1.57E-06	1.09E-06	2.67E-04	1.57E-04	1.09E-04
40	Bradley	15.3	5.97E-06	100	250	7.15E-06	4.22E-06	2.93E-06	7.15E-04	4.22E-04	2.93E-04
41	San Lucas	18.5	7.22E-06	100	250	8.65E-06	5.10E-06	3.55E-06	8.65E-04	5.10E-04	3.55E-04
42	King City	1.5	5.69E-07	1,000	250	6.82E-07	4.02E-07	2.80E-07	6.82E-05	4.02E-05	2.80E-05
43	Clark Ranch	18.1	7.06E-06	100	250	8.45E-06	4.99E-06	3.46E-06	8.45E-04	4.99E-04	3.46E-04
44	Soledad	1.4	5.54E-07	1,000	250	6.63E-07	3.91E-07	2.72E-07	6.63E-05	3.91E-05	2.72E-05
45	Salinas Valley Ag	7.3	2.86E-06	100	250	3.43E-06	2.02E-06	1.41E-06	3.43E-04	2.02E-04	1.41E-04
46	Gonzales	1.2	4.52E-07	3,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
47	Salinas Valley Ag	5.0	1.96E-06	100	250	2.35E-06	1.39E-06	9.63E-07	2.35E-04	1.39E-04	9.63E-05
48	Chular	0.6	2.49E-07	1,000	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
49	Sprekles	7.8	3.03E-06	100	250	3.63E-06	2.14E-06	1.49E-06	3.63E-04	2.14E-04	1.49E-04
50	Salinas	3.9	1.53E-06	6,500	250	1.84E-06	1.08E-06	7.53E-07	1.84E-04	1.08E-04	7.53E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	2.89E-06	1.70E-06	1.18E-06	2.89E-04	1.70E-04	1.18E-04
52	Castroville	1.1	4.41E-07	1,000	250	5.28E-07	3.11E-07	2.16E-07	5.28E-05	3.11E-05	2.16E-05
53	Las Lomas	15.4	6.02E-06	100	250	7.21E-06	4.26E-06	2.96E-06	7.21E-04	4.26E-04	2.96E-04
54	Aromas	12.1	4.70E-06	100	250	5.63E-06	3.32E-06	2.31E-06	5.63E-04	3.32E-04	2.31E-04
55	Gilroy	4.2	1.63E-06	3,000	250	1.95E-06	1.15E-06	8.01E-07	1.95E-04	1.15E-04	8.01E-05
56	San Martin	6.1	2.36E-06	100	250	2.83E-06	1.67E-06	1.16E-06	2.83E-04	1.67E-04	1.16E-04
57	Morgan Hill	3.8	1.49E-06	3,000	250	1.79E-06	1.06E-06	7.34E-07	1.79E-04	1.06E-04	7.34E-05
58	Coyote Valley	6.7	2.60E-06	100	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
59	San Jose	6.3	2.47E-06	5,000	250	2.96E-06	1.75E-06	1.21E-06	2.96E-04	1.75E-04	1.21E-04
60	Seven Trees	1.9	7.25E-07	1,000	250	8.69E-07	5.13E-07	3.56E-07	8.69E-05	5.13E-05	3.56E-05
61	San Jose	5.0	1.93E-06	10,000	250	2.32E-06	1.37E-06	9.50E-07	2.32E-04	1.37E-04	9.50E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
62	Santa Clara	5.1	1.99E-06	6,500	250	2.39E-06	1.41E-06	9.79E-07	2.39E-04	1.41E-04	9.79E-05
63	Alviso	1.7	6.71E-07	1,000	250	8.03E-07	4.74E-07	3.29E-07	8.03E-05	4.74E-05	3.29E-05
64	Drawbridge	5.7	2.22E-06	100	250	2.66E-06	1.57E-06	1.09E-06	2.66E-04	1.57E-04	1.09E-04
65	Newark	2.3	8.78E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	5.30E-06	3.13E-06	2.17E-06	5.30E-04	3.13E-04	2.17E-04
67	San Lorenzo	0.8	3.11E-07	3,000	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
68	San Leandro	1.3	4.99E-07	10,000	250	5.98E-07	3.53E-07	2.45E-07	5.98E-05	3.53E-05	2.45E-05
69	San Leandro	0.7	2.81E-07	3,000	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
70	Oakland	5.3	2.05E-06	10,000	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
71	Oakland	1.4	5.34E-07	3,000	250	6.40E-07	3.78E-07	2.62E-07	6.40E-05	3.78E-05	2.62E-05
72	Oakland	1.6	6.32E-07	10,000	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
73	Oakland	1.4	5.27E-07	3,000	250	6.31E-07	3.72E-07	2.59E-07	6.31E-05	3.72E-05	2.59E-05
74	Oakland	1.5	6.01E-07	10,000	250	7.19E-07	4.24E-07	2.95E-07	7.19E-05	4.24E-05	2.95E-05
75	Oakland	2.7	1.04E-06	3,000	250	1.25E-06	7.36E-07	5.11E-07	1.25E-04	7.36E-05	5.11E-05
76	Emeryville	1.5	5.66E-07	10,000	250	6.77E-07	4.00E-07	2.78E-07	6.77E-05	4.00E-05	2.78E-05
77	Berkeley	1.0	3.94E-07	3,000	250	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
78	Berkeley	1.8	6.83E-07	10,000	250	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
79	Richmond	1.5	5.85E-07	3,000	250	7.01E-07	4.13E-07	2.87E-07	7.01E-05	4.13E-05	2.87E-05
80	Richmond	3.8	1.47E-06	10,000	250	1.76E-06	1.04E-06	7.20E-07	1.76E-04	1.04E-04	7.20E-05
81	North Richmond	1.1	4.10E-07	3,000	250	4.90E-07	2.89E-07	2.01E-07	4.90E-05	2.89E-05	2.01E-05
82	San Pablo	2.5	9.71E-07	1,000	250	1.16E-06	6.86E-07	4.77E-07	1.16E-04	6.86E-05	4.77E-05
83	Sobranto	1.8	6.83E-07	100	250	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
84	Hercules	5.6	2.19E-06	1,000	250	2.62E-06	1.55E-06	1.07E-06	2.62E-04	1.55E-04	1.07E-04
85	Selby	1.7	6.59E-07	100	250	7.89E-07	4.66E-07	3.24E-07	7.89E-05	4.66E-05	3.24E-05
86	Crockett	1.6	6.08E-07	1,000	250	7.29E-07	4.30E-07	2.99E-07	7.29E-05	4.30E-05	2.99E-05
87	Port Costa	4.3	1.68E-06	100	250	2.01E-06	1.19E-06	8.25E-07	2.01E-04	1.19E-04	8.25E-05
88	Martinez	0.5	1.89E-07	1,000	250	2.26E-07	1.34E-07	9.28E-08	2.26E-05	1.34E-05	9.28E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	250	1.20E-06	7.08E-07	4.92E-07	1.20E-04	7.08E-05	4.92E-05
90	Benicia	3.5	1.37E-06	1,000	250	1.63E-06	9.65E-07	6.70E-07	1.63E-04	9.65E-05	6.70E-05

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91	Grizzly Bay	10.6	4.13E-06	100	250	4.94E-06	2.92E-06	2.03E-06	4.94E-04	2.92E-04	2.03E-04
92	Fairfield	3.8	1.49E-06	3,000	250	1.78E-06	1.05E-06	7.32E-07	1.78E-04	1.05E-04	7.32E-05
93	Elmira	13.7	5.34E-06	100	250	6.40E-06	3.78E-06	2.62E-06	6.40E-04	3.78E-04	2.62E-04
94	Dixon	2.1	8.35E-07	1,000	250	1.00E-06	5.90E-07	4.10E-07	1.00E-04	5.90E-05	4.10E-05
95	Solano Co Ag	6.6	2.58E-06	100	250	3.09E-06	1.82E-06	1.27E-06	3.09E-04	1.82E-04	1.27E-04
96	Davis	3.5	1.38E-06	1,000	250	1.65E-06	9.73E-07	6.76E-07	1.65E-04	9.73E-05	6.76E-05
97	Yolo Co Ag	7.0	2.73E-06	100	250	3.27E-06	1.93E-06	1.34E-06	3.27E-04	1.93E-04	1.34E-04
98	Sacramento	3.3	1.27E-06	3,000	250	1.52E-06	8.96E-07	6.22E-07	1.52E-04	8.96E-05	6.22E-05
99	Sacramento River	0.4	1.64E-07	100	250	1.96E-07	1.16E-07	8.05E-08	1.96E-05	1.16E-05	8.05E-06
100	Sacramento	2.5	9.59E-07	10,000	250	1.15E-06	6.78E-07	4.71E-07	1.15E-04	6.78E-05	4.71E-05
101	Parkland	1.6	6.32E-07	100	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
102	Sacramento	3.1	1.21E-06	3,000	250	1.45E-06	8.54E-07	5.94E-07	1.45E-04	8.54E-05	5.94E-05
103	North Highlands	2.6	1.01E-06	1,000	250	1.21E-06	7.11E-07	4.94E-07	1.21E-04	7.11E-05	4.94E-05
104	North Highlands	4.4	1.70E-06	3,000	250	2.04E-06	1.20E-06	8.37E-07	2.04E-04	1.20E-04	8.37E-05
105	Roseville Yard	1.3	4.91E-07	100	250	5.89E-07	3.47E-07	2.41E-07	5.89E-05	3.47E-05	2.41E-05
145	Roseville	2.3	6.15E-07	3,000	250	7.37E-07	4.35E-07	3.02E-07	7.37E-05	4.35E-05	3.02E-05
146	Roseville	1.3	3.45E-07	1,000	250	4.13E-07	2.43E-07	1.69E-07	4.13E-05	2.43E-05	1.69E-05
147	Roseville	0.1	4.00E-08	100	250	4.79E-08	2.83E-08	1.96E-08	4.79E-06	2.83E-06	1.96E-06
148	Placer Co	2.9	7.89E-07	1,000	250	9.45E-07	5.58E-07	3.88E-07	9.45E-05	5.58E-05	3.88E-05
149	Lincoln	1.2	3.22E-07	100	250	3.86E-07	2.28E-07	1.58E-07	3.86E-05	2.28E-05	1.58E-05
150	Lincoln	2.9	7.74E-07	3,000	250	9.27E-07	5.47E-07	3.80E-07	9.27E-05	5.47E-05	3.80E-05
151	Sheridan	10.7	2.88E-06	100	250	3.45E-06	2.03E-06	1.41E-06	3.45E-04	2.03E-04	1.41E-04
152	Wheatland	0.9	2.51E-07	1,000	250	3.01E-07	1.78E-07	1.23E-07	3.01E-05	1.78E-05	1.23E-05
153	Yuba County	9.2	2.49E-06	100	250	2.99E-06	1.76E-06	1.22E-06	2.99E-04	1.76E-04	1.22E-04
154	Olivehurst	4.3	1.15E-06	1,000	250	1.38E-06	8.13E-07	5.65E-07	1.38E-04	8.13E-05	5.65E-05
155	Marysville	1.3	3.59E-07	3,000	250	4.29E-07	2.53E-07	1.76E-07	4.29E-05	2.53E-05	1.76E-05
156	Marysville	2.3	6.27E-07	100	250	7.51E-07	4.43E-07	3.08E-07	7.51E-05	4.43E-05	3.08E-05
157	Live Oak	0.3	8.88E-08	1,000	250	1.06E-07	6.27E-08	4.36E-08	1.06E-05	6.27E-06	4.36E-06
158	Live Oak	6.4	1.73E-06	100	250	2.08E-06	1.23E-06	8.51E-07	2.08E-04	1.23E-04	8.51E-05

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159	Live Oak	0.4	9.89E-08	1,000	250	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
160	Live Oak	1.0	2.74E-07	3,000	250	3.28E-07	1.93E-07	1.34E-07	3.28E-05	1.93E-05	1.34E-05
161	Butte Co	5.2	1.41E-06	100	250	1.69E-06	9.97E-07	6.93E-07	1.69E-04	9.97E-05	6.93E-05
162	Gridley	0.5	1.23E-07	1,000	250	1.47E-07	8.68E-08	6.03E-08	1.47E-05	8.68E-06	6.03E-06
163	Gridley	0.8	2.24E-07	3,000	250	2.68E-07	1.58E-07	1.10E-07	2.68E-05	1.58E-05	1.10E-05
164	Gridley	2.5	6.77E-07	100	250	8.11E-07	4.79E-07	3.33E-07	8.11E-05	4.79E-05	3.33E-05
165	Biggs	0.6	1.55E-07	3,000	250	1.85E-07	1.09E-07	7.59E-08	1.85E-05	1.09E-05	7.59E-06
166	Butte Co	5.1	1.39E-06	100	250	1.66E-06	9.79E-07	6.80E-07	1.66E-04	9.79E-05	6.80E-05
167	Richvale	0.8	2.26E-07	1,000	250	2.70E-07	1.59E-07	1.11E-07	2.70E-05	1.59E-05	1.11E-05
168	Nelson	9.3	2.51E-06	100	250	3.00E-06	1.77E-06	1.23E-06	3.00E-04	1.77E-04	1.23E-04
169	Durham	2.4	6.58E-07	1,000	250	7.88E-07	4.65E-07	3.23E-07	7.88E-05	4.65E-05	3.23E-05
170	Chico	4.3	1.17E-06	100	250	1.40E-06	8.25E-07	5.73E-07	1.40E-04	8.25E-05	5.73E-05
171	Chico	4.5	1.22E-06	1,000	250	1.46E-06	8.61E-07	5.98E-07	1.46E-04	8.61E-05	5.98E-05
172	Chico	2.8	7.56E-07	100	250	9.06E-07	5.35E-07	3.71E-07	9.06E-05	5.35E-05	3.71E-05
173	Nord	0.6	1.57E-07	1,000	250	1.89E-07	1.11E-07	7.73E-08	1.89E-05	1.11E-05	7.73E-06
174	Butte Co	11.3	3.06E-06	100	250	3.67E-06	2.16E-06	1.50E-06	3.67E-04	2.16E-04	1.50E-04
175	Vina	0.4	1.20E-07	1,000	250	1.44E-07	8.51E-08	5.91E-08	1.44E-05	8.51E-06	5.91E-06
176	Copeland	6.3	1.70E-06	100	250	2.04E-06	1.20E-06	8.37E-07	2.04E-04	1.20E-04	8.37E-05
177	Los Molinos	0.5	1.40E-07	1,000	250	1.68E-07	9.91E-08	6.89E-08	1.68E-05	9.91E-06	6.89E-06
178	Los Molinos	1.0	2.68E-07	100	250	3.21E-07	1.89E-07	1.32E-07	3.21E-05	1.89E-05	1.32E-05
179	Tehema	0.3	8.98E-08	1,000	250	1.08E-07	6.34E-08	4.41E-08	1.08E-05	6.34E-06	4.41E-06
180	Tehema	2.2	6.04E-07	100	250	7.23E-07	4.27E-07	2.97E-07	7.23E-05	4.27E-05	2.97E-05
181	Gerber	2.3	6.25E-07	1,000	250	7.49E-07	4.42E-07	3.07E-07	7.49E-05	4.42E-05	3.07E-05
182	Tehema Co	1.8	4.83E-07	100	250	5.78E-07	3.41E-07	2.37E-07	5.78E-05	3.41E-05	2.37E-05
183	Red Bluff	0.8	2.08E-07	1,000	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
184	Red Bluff	4.6	1.25E-06	100	250	1.50E-06	8.83E-07	6.14E-07	1.50E-04	8.83E-05	6.14E-05
185	Red Bluff	3.3	8.86E-07	1,000	250	1.06E-06	6.26E-07	4.35E-07	1.06E-04	6.26E-05	4.35E-05
186	Tehema Co	15.3	4.13E-06	100	250	4.94E-06	2.92E-06	2.03E-06	4.94E-04	2.92E-04	2.03E-04
187	Cottonwood	0.6	1.65E-07	1,000	250	1.97E-07	1.16E-07	8.08E-08	1.97E-05	1.16E-05	8.08E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
188	Anderson	5.4	1.45E-06	100	250	1.73E-06	1.02E-06	7.10E-07	1.73E-04	1.02E-04	7.10E-05
189	Anderson	3.5	9.57E-07	1,000	250	1.15E-06	6.77E-07	4.70E-07	1.15E-04	6.77E-05	4.70E-05
190	Anderson	4.1	1.10E-06	100	250	1.32E-06	7.79E-07	5.42E-07	1.32E-04	7.79E-05	5.42E-05
191	Redding	6.0	1.63E-06	1,000	250	1.95E-06	1.15E-06	8.01E-07	1.95E-04	1.15E-04	8.01E-05
192	Redding	0.8	2.06E-07	1,000	250	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
193	Redding	1.1	3.05E-07	100	250	3.65E-07	2.16E-07	1.50E-07	3.65E-05	2.16E-05	1.50E-05
194	Redding	0.4	1.05E-07	1,000	250	1.26E-07	7.45E-08	5.18E-08	1.26E-05	7.45E-06	5.18E-06
195	Redding	2.6	6.97E-07	100	250	8.35E-07	4.92E-07	3.42E-07	8.35E-05	4.92E-05	3.42E-05
196	Shasta Co	0.5	1.41E-07	1,000	250	1.69E-07	9.98E-08	6.93E-08	1.69E-05	9.98E-06	6.93E-06
197	Shasta Lake	1.7	4.46E-07	100	250	5.34E-07	3.15E-07	2.19E-07	5.34E-05	3.15E-05	2.19E-05
198	Shasta Lake	0.8	2.03E-07	1,000	250	2.43E-07	1.43E-07	9.96E-08	2.43E-05	1.43E-05	9.96E-06
199	Shasta Co	16.4	4.44E-06	100	250	5.32E-06	3.14E-06	2.18E-06	5.32E-04	3.14E-04	2.18E-04
200	Lakeshore	0.6	1.64E-07	1,000	250	1.96E-07	1.16E-07	8.05E-08	1.96E-05	1.16E-05	8.05E-06
201	Shasta Co	30.4	8.20E-06	100	250	9.82E-06	5.79E-06	4.03E-06	9.82E-04	5.79E-04	4.03E-04
202	Dunsmuir	1.3	3.52E-07	1,000	250	4.21E-07	2.49E-07	1.73E-07	4.21E-05	2.49E-05	1.73E-05
203	Siskiyou Co	12.8	3.45E-06	100	250	4.13E-06	2.44E-06	1.69E-06	4.13E-04	2.44E-04	1.69E-04
204	Mount Shasta	1.1	3.05E-07	1,000	250	3.66E-07	2.16E-07	1.50E-07	3.66E-05	2.16E-05	1.50E-05
205	Siskiyou Co	69.5	1.88E-05	100	250	2.25E-05	1.33E-05	9.21E-06	2.25E-03	1.33E-03	9.21E-04
206	Dorris	0.9	2.38E-07	100	250	2.85E-07	1.68E-07	1.17E-07	2.85E-05	1.68E-05	1.17E-05
207	Siskiyou Co	3.4	9.21E-07	1,000	250	1.10E-06	6.51E-07	4.52E-07	1.10E-04	6.51E-05	4.52E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	7.24E-07	4.27E-07	2.97E-07	7.24E-05	4.27E-05	2.97E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
2	Arroyo Grande	0.8	3.11E-07	100	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
3	Arroyo Grande	0.9	3.67E-07	1,000	250	4.39E-07	2.59E-07	1.80E-07	4.39E-05	2.59E-05	1.80E-05
4	Arroyo Grande	1.4	5.39E-07	100	250	6.45E-07	3.81E-07	2.65E-07	6.45E-05	3.81E-05	2.65E-05
5	Oceano	0.4	1.57E-07	3,000	250	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
6	Oceano	0.6	2.43E-07	10,000	250	2.92E-07	1.72E-07	1.20E-07	2.92E-05	1.72E-05	1.20E-05
7	Oceano	0.2	9.32E-08	3,000	250	1.12E-07	6.59E-08	4.58E-08	1.12E-05	6.59E-06	4.58E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	9.80E-07	5.78E-07	4.02E-07	9.80E-05	5.78E-05	4.02E-05
9	Pismo	0.3	1.13E-07	3,000	250	1.35E-07	7.96E-08	5.53E-08	1.35E-05	7.96E-06	5.53E-06
10	Pismo	0.4	1.44E-07	1,000	250	1.72E-07	1.02E-07	7.06E-08	1.72E-05	1.02E-05	7.06E-06
11	Price Canyon	5.2	2.02E-06	100	250	2.42E-06	1.43E-06	9.93E-07	2.42E-04	1.43E-04	9.93E-05
12	Edna	0.6	2.34E-07	1,000	250	2.81E-07	1.66E-07	1.15E-07	2.81E-05	1.66E-05	1.15E-05
13	Edna	1.6	6.31E-07	100	250	7.56E-07	4.46E-07	3.10E-07	7.56E-05	4.46E-05	3.10E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	250	2.18E-06	1.29E-06	8.94E-07	2.18E-04	1.29E-04	8.94E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
16	Chorro	0.4	1.66E-07	1,000	250	1.99E-07	1.17E-07	8.16E-08	1.99E-05	1.17E-05	8.16E-06
17	Chorro	1.6	6.10E-07	100	250	7.31E-07	4.31E-07	3.00E-07	7.31E-05	4.31E-05	3.00E-05
18	CMC	0.8	2.98E-07	3,000	250	3.56E-07	2.10E-07	1.46E-07	3.56E-05	2.10E-05	1.46E-05
19	Santa Lucia	11.2	4.36E-06	100	250	5.22E-06	3.08E-06	2.14E-06	5.22E-04	3.08E-04	2.14E-04
20	Santa Margarita	0.9	3.44E-07	3,000	250	4.12E-07	2.43E-07	1.69E-07	4.12E-05	2.43E-05	1.69E-05
21	Phillips PS	0.9	3.32E-07	100	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
22	Atascadero	7.4	2.89E-06	1,000	250	3.46E-06	2.04E-06	1.42E-06	3.46E-04	2.04E-04	1.42E-04
23	Atascadero	1.6	6.24E-07	3,000	250	7.47E-07	4.41E-07	3.06E-07	7.47E-05	4.41E-05	3.06E-05
24	Atascadero	1.3	4.96E-07	1,000	250	5.95E-07	3.51E-07	2.44E-07	5.95E-05	3.51E-05	2.44E-05
25	Atascadero	0.4	1.68E-07	3,000	250	2.01E-07	1.19E-07	8.24E-08	2.01E-05	1.19E-05	8.24E-06
26	101	0.4	1.43E-07	1,000	250	1.71E-07	1.01E-07	7.00E-08	1.71E-05	1.01E-05	7.00E-06
27	Templeton	2.1	8.34E-07	3,000	250	9.99E-07	5.90E-07	4.10E-07	9.99E-05	5.90E-05	4.10E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	2.40E-07	1.41E-07	9.83E-08	2.40E-05	1.41E-05	9.83E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	3.93E-07	2.32E-07	1.61E-07	3.93E-05	2.32E-05	1.61E-05
30	Paso Robles	2.7	1.07E-06	1,000	250	1.28E-06	7.57E-07	5.26E-07	1.28E-04	7.57E-05	5.26E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
31	Paso Robles	2.1	8.34E-07	3,000	250	9.99E-07	5.89E-07	4.10E-07	9.99E-05	5.89E-05	4.10E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	2.03E-07	1.20E-07	8.32E-08	2.03E-05	1.20E-05	8.32E-06
33	Paso Robles	1.2	4.54E-07	3,000	250	5.43E-07	3.20E-07	2.23E-07	5.43E-05	3.20E-05	2.23E-05
34	101	2.1	8.27E-07	100	250	9.91E-07	5.84E-07	4.06E-07	9.91E-05	5.84E-05	4.06E-05
35	Wellsona	2.4	9.53E-07	1,000	250	1.14E-06	6.73E-07	4.68E-07	1.14E-04	6.73E-05	4.68E-05
36	101	1.9	7.27E-07	100	250	8.71E-07	5.14E-07	3.57E-07	8.71E-05	5.14E-05	3.57E-05
37	San Miguel	1.5	5.73E-07	3,000	250	6.86E-07	4.05E-07	2.81E-07	6.86E-05	4.05E-05	2.81E-05
38	101	2.7	1.03E-06	100	250	1.24E-06	7.31E-07	5.08E-07	1.24E-04	7.31E-05	5.08E-05
39	Camp Roberts	5.7	2.23E-06	100	250	2.67E-06	1.57E-06	1.09E-06	2.67E-04	1.57E-04	1.09E-04
40	Bradley	15.3	5.97E-06	100	250	7.15E-06	4.22E-06	2.93E-06	7.15E-04	4.22E-04	2.93E-04
41	San Lucas	18.5	7.22E-06	100	250	8.65E-06	5.10E-06	3.55E-06	8.65E-04	5.10E-04	3.55E-04
42	King City	1.5	5.69E-07	1,000	250	6.82E-07	4.02E-07	2.80E-07	6.82E-05	4.02E-05	2.80E-05
43	Clark Ranch	18.1	7.06E-06	100	250	8.45E-06	4.99E-06	3.46E-06	8.45E-04	4.99E-04	3.46E-04
44	Soledad	1.4	5.54E-07	1,000	250	6.63E-07	3.91E-07	2.72E-07	6.63E-05	3.91E-05	2.72E-05
45	Salinas Valley Ag	7.3	2.86E-06	100	250	3.43E-06	2.02E-06	1.41E-06	3.43E-04	2.02E-04	1.41E-04
46	Gonzales	1.2	4.52E-07	3,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
47	Salinas Valley Ag	5.0	1.96E-06	100	250	2.35E-06	1.39E-06	9.63E-07	2.35E-04	1.39E-04	9.63E-05
48	Chular	0.6	2.49E-07	1,000	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
49	Sprekles	7.8	3.03E-06	100	250	3.63E-06	2.14E-06	1.49E-06	3.63E-04	2.14E-04	1.49E-04
50	Salinas	3.9	1.53E-06	6,500	250	1.84E-06	1.08E-06	7.53E-07	1.84E-04	1.08E-04	7.53E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	2.89E-06	1.70E-06	1.18E-06	2.89E-04	1.70E-04	1.18E-04
52	Castroville	1.1	4.41E-07	1,000	250	5.28E-07	3.11E-07	2.16E-07	5.28E-05	3.11E-05	2.16E-05
53	Las Lomas	15.4	6.02E-06	100	250	7.21E-06	4.26E-06	2.96E-06	7.21E-04	4.26E-04	2.96E-04
54	Aromas	12.1	4.70E-06	100	250	5.63E-06	3.32E-06	2.31E-06	5.63E-04	3.32E-04	2.31E-04
55	Gilroy	4.2	1.63E-06	3,000	250	1.95E-06	1.15E-06	8.01E-07	1.95E-04	1.15E-04	8.01E-05
56	San Martin	6.1	2.36E-06	100	250	2.83E-06	1.67E-06	1.16E-06	2.83E-04	1.67E-04	1.16E-04
57	Morgan Hill	3.8	1.49E-06	3,000	250	1.79E-06	1.06E-06	7.34E-07	1.79E-04	1.06E-04	7.34E-05
58	Coyote Valley	6.7	2.60E-06	100	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
59	San Jose	6.3	2.47E-06	5,000	250	2.96E-06	1.75E-06	1.21E-06	2.96E-04	1.75E-04	1.21E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
60	Seven Trees	1.9	7.25E-07	1,000	250	8.69E-07	5.13E-07	3.56E-07	8.69E-05	5.13E-05	3.56E-05
61	San Jose	5.0	1.93E-06	10,000	250	2.32E-06	1.37E-06	9.50E-07	2.32E-04	1.37E-04	9.50E-05
62	Santa Clara	5.1	1.99E-06	6,500	250	2.39E-06	1.41E-06	9.79E-07	2.39E-04	1.41E-04	9.79E-05
63	Alviso	1.7	6.71E-07	1,000	250	8.03E-07	4.74E-07	3.29E-07	8.03E-05	4.74E-05	3.29E-05
64	Drawbridge	5.7	2.22E-06	100	250	2.66E-06	1.57E-06	1.09E-06	2.66E-04	1.57E-04	1.09E-04
65	Newark	2.3	8.78E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	5.30E-06	3.13E-06	2.17E-06	5.30E-04	3.13E-04	2.17E-04
67	San Lorenzo	0.8	3.11E-07	3,000	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
68	San Leandro	1.3	4.99E-07	10,000	250	5.98E-07	3.53E-07	2.45E-07	5.98E-05	3.53E-05	2.45E-05
69	San Leandro	0.7	2.81E-07	3,000	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
70	Oakland	5.3	2.05E-06	10,000	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
71	Oakland	1.4	5.34E-07	3,000	250	6.40E-07	3.78E-07	2.62E-07	6.40E-05	3.78E-05	2.62E-05
72	Oakland	1.6	6.32E-07	10,000	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
73	Oakland	1.4	5.27E-07	3,000	250	6.31E-07	3.72E-07	2.59E-07	6.31E-05	3.72E-05	2.59E-05
74	Oakland	1.5	6.01E-07	10,000	250	7.19E-07	4.24E-07	2.95E-07	7.19E-05	4.24E-05	2.95E-05
75	Oakland	2.7	1.04E-06	3,000	250	1.25E-06	7.36E-07	5.11E-07	1.25E-04	7.36E-05	5.11E-05
76	Emeryville	1.5	5.66E-07	10,000	250	6.77E-07	4.00E-07	2.78E-07	6.77E-05	4.00E-05	2.78E-05
77	Berkeley	1.0	3.94E-07	3,000	250	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
78	Berkeley	1.8	6.83E-07	10,000	250	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
79	Richmond	1.5	5.85E-07	3,000	250	7.01E-07	4.13E-07	2.87E-07	7.01E-05	4.13E-05	2.87E-05
80	Richmond	3.8	1.47E-06	10,000	250	1.76E-06	1.04E-06	7.20E-07	1.76E-04	1.04E-04	7.20E-05
81	North Richmond	1.1	4.10E-07	3,000	250	4.90E-07	2.89E-07	2.01E-07	4.90E-05	2.89E-05	2.01E-05
82	San Pablo	2.5	9.71E-07	1,000	250	1.16E-06	6.86E-07	4.77E-07	1.16E-04	6.86E-05	4.77E-05
83	Sobranto	1.8	6.83E-07	100	250	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
84	Hercules	5.6	2.19E-06	1,000	250	2.62E-06	1.55E-06	1.07E-06	2.62E-04	1.55E-04	1.07E-04
85	Selby	1.7	6.59E-07	100	250	7.89E-07	4.66E-07	3.24E-07	7.89E-05	4.66E-05	3.24E-05
86	Crockett	1.6	6.08E-07	1,000	250	7.29E-07	4.30E-07	2.99E-07	7.29E-05	4.30E-05	2.99E-05
87	Port Costa	4.3	1.68E-06	100	250	2.01E-06	1.19E-06	8.25E-07	2.01E-04	1.19E-04	8.25E-05
88	Martinez	0.5	1.89E-07	1,000	250	2.26E-07	1.34E-07	9.28E-08	2.26E-05	1.34E-05	9.28E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
89	Suisun Pt Channel	2.6	1.00E-06	100	250	1.20E-06	7.08E-07	4.92E-07	1.20E-04	7.08E-05	4.92E-05
90	Benicia	3.5	1.37E-06	1,000	250	1.63E-06	9.65E-07	6.70E-07	1.63E-04	9.65E-05	6.70E-05
91	Grizzly Bay	10.6	4.13E-06	100	250	4.94E-06	2.92E-06	2.03E-06	4.94E-04	2.92E-04	2.03E-04
92	Fairfield	3.8	1.49E-06	3,000	250	1.78E-06	1.05E-06	7.32E-07	1.78E-04	1.05E-04	7.32E-05
93	Elmira	13.7	5.34E-06	100	250	6.40E-06	3.78E-06	2.62E-06	6.40E-04	3.78E-04	2.62E-04
94	Dixon	2.1	8.35E-07	1,000	250	1.00E-06	5.90E-07	4.10E-07	1.00E-04	5.90E-05	4.10E-05
95	Solano Co Ag	6.6	2.58E-06	100	250	3.09E-06	1.82E-06	1.27E-06	3.09E-04	1.82E-04	1.27E-04
96	Davis	3.5	1.38E-06	1,000	250	1.65E-06	9.73E-07	6.76E-07	1.65E-04	9.73E-05	6.76E-05
97	Yolo Co Ag	7.0	2.73E-06	100	250	3.27E-06	1.93E-06	1.34E-06	3.27E-04	1.93E-04	1.34E-04
98	Sacramento	3.3	1.27E-06	3,000	250	1.52E-06	8.96E-07	6.22E-07	1.52E-04	8.96E-05	6.22E-05
99	Sacramento River	0.4	1.64E-07	100	250	1.96E-07	1.16E-07	8.05E-08	1.96E-05	1.16E-05	8.05E-06
100	Sacramento	2.5	9.59E-07	10,000	250	1.15E-06	6.78E-07	4.71E-07	1.15E-04	6.78E-05	4.71E-05
101	Parkland	1.6	6.32E-07	100	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
102	Sacramento	3.1	1.21E-06	3,000	250	1.45E-06	8.54E-07	5.94E-07	1.45E-04	8.54E-05	5.94E-05
103	North Highlands	2.6	1.01E-06	1,000	250	1.21E-06	7.11E-07	4.94E-07	1.21E-04	7.11E-05	4.94E-05
104	North Highlands	4.4	1.70E-06	3,000	250	2.04E-06	1.20E-06	8.37E-07	2.04E-04	1.20E-04	8.37E-05
105	Roseville Yard	1.3	4.91E-07	100	250	5.89E-07	3.47E-07	2.41E-07	5.89E-05	3.47E-05	2.41E-05
129	Roseville	1.4	1.15E-06	3,000	250	1.38E-06	8.16E-07	5.67E-07	1.38E-04	8.16E-05	5.67E-05
130	Roseville	1.1	9.01E-07	3,000	250	1.08E-06	6.37E-07	4.43E-07	1.08E-04	6.37E-05	4.43E-05
131	Roseville	2.1	1.73E-06	1,000	250	2.08E-06	1.23E-06	8.52E-07	2.08E-04	1.23E-04	8.52E-05
132	Roseville	0.5	3.71E-07	3,000	250	4.44E-07	2.62E-07	1.82E-07	4.44E-05	2.62E-05	1.82E-05
133	Rocklin	2.5	2.06E-06	1,000	250	2.47E-06	1.46E-06	1.01E-06	2.47E-04	1.46E-04	1.01E-04
134	Placer Co	8.0	6.54E-06	100	250	7.83E-06	4.62E-06	3.21E-06	7.83E-04	4.62E-04	3.21E-04
135	Newcastle	0.5	3.70E-07	1,000	250	4.43E-07	2.61E-07	1.82E-07	4.43E-05	2.61E-05	1.82E-05
136	Placer Co	2.5	2.05E-06	100	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
137	Auburn	5.3	4.37E-06	1,000	250	5.24E-06	3.09E-06	2.15E-06	5.24E-04	3.09E-04	2.15E-04
138	Placer Co	13.6	1.11E-05	100	250	1.34E-05	7.88E-06	5.47E-06	1.34E-03	7.88E-04	5.47E-04
139	Colfax	0.7	5.53E-07	1,000	250	6.62E-07	3.91E-07	2.71E-07	6.62E-05	3.91E-05	2.71E-05
140	Placer Co	61.6	5.05E-05	100	250	6.05E-05	3.57E-05	2.48E-05	6.05E-03	3.57E-03	2.48E-03

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
141	Truckee	2.1	1.74E-06	1,000	250	2.08E-06	1.23E-06	8.54E-07	2.08E-04	1.23E-04	8.54E-05
142	Nevada Co	13.9	1.14E-05	100	250	1.36E-05	8.04E-06	5.59E-06	1.36E-03	8.04E-04	5.59E-04
143	Floriston	0.2	1.90E-07	1,000	250	2.27E-07	1.34E-07	9.32E-08	2.27E-05	1.34E-05	9.32E-06
144	Sierra Co	5.8	4.75E-06	100	250	5.69E-06	3.36E-06	2.33E-06	5.69E-04	3.36E-04	2.33E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	9.47E-07	5.59E-07	3.88E-07	9.47E-05	5.59E-05	3.88E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
3	Arroyo Grande	0.9	4.79E-07	1,000	250	5.74E-07	3.39E-07	2.35E-07	5.74E-05	3.39E-05	2.35E-05
4	Arroyo Grande	1.4	7.05E-07	100	250	8.44E-07	4.98E-07	3.46E-07	8.44E-05	4.98E-05	3.46E-05
5	Oceano	0.4	2.05E-07	3,000	250	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
6	Oceano	0.6	3.18E-07	10,000	250	3.81E-07	2.25E-07	1.56E-07	3.81E-05	2.25E-05	1.56E-05
7	Oceano	0.2	1.22E-07	3,000	250	1.46E-07	8.61E-08	5.99E-08	1.46E-05	8.61E-06	5.99E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	1.28E-06	7.56E-07	5.25E-07	1.28E-04	7.56E-05	5.25E-05
9	Pismo	0.3	1.47E-07	3,000	250	1.76E-07	1.04E-07	7.23E-08	1.76E-05	1.04E-05	7.23E-06
10	Pismo	0.4	1.88E-07	1,000	250	2.25E-07	1.33E-07	9.23E-08	2.25E-05	1.33E-05	9.23E-06
11	Price Canyon	5.2	2.64E-06	100	250	3.17E-06	1.87E-06	1.30E-06	3.17E-04	1.87E-04	1.30E-04
12	Edna	0.6	3.07E-07	1,000	250	3.67E-07	2.17E-07	1.51E-07	3.67E-05	2.17E-05	1.51E-05
13	Edna	1.6	8.25E-07	100	250	9.89E-07	5.83E-07	4.05E-07	9.89E-05	5.83E-05	4.05E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	2.85E-06	1.68E-06	1.17E-06	2.85E-04	1.68E-04	1.17E-04
15	San Luis Obispo	0.6	2.88E-07	3,000	250	3.45E-07	2.04E-07	1.42E-07	3.45E-05	2.04E-05	1.42E-05
16	Chorro	0.4	2.17E-07	1,000	250	2.60E-07	1.54E-07	1.07E-07	2.60E-05	1.54E-05	1.07E-05
17	Chorro	1.6	7.98E-07	100	250	9.56E-07	5.64E-07	3.92E-07	9.56E-05	5.64E-05	3.92E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
18	CMC	0.8	3.89E-07	3,000	250	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
19	Santa Lucia	11.2	5.70E-06	100	250	6.83E-06	4.03E-06	2.80E-06	6.83E-04	4.03E-04	2.80E-04
20	Santa Margarita	0.9	4.50E-07	3,000	250	5.39E-07	3.18E-07	2.21E-07	5.39E-05	3.18E-05	2.21E-05
21	Phillips PS	0.9	4.34E-07	100	250	5.19E-07	3.06E-07	2.13E-07	5.19E-05	3.06E-05	2.13E-05
22	Atascadero	7.4	3.77E-06	1,000	250	4.52E-06	2.67E-06	1.85E-06	4.52E-04	2.67E-04	1.85E-04
23	Atascadero	1.6	8.16E-07	3,000	250	9.77E-07	5.77E-07	4.01E-07	9.77E-05	5.77E-05	4.01E-05
24	Atascadero	1.3	6.49E-07	1,000	250	7.77E-07	4.59E-07	3.19E-07	7.77E-05	4.59E-05	3.19E-05
25	Atascadero	0.4	2.20E-07	3,000	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
26	101	0.4	1.87E-07	1,000	250	2.23E-07	1.32E-07	9.16E-08	2.23E-05	1.32E-05	9.16E-06
27	Templeton	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	3.14E-07	1.85E-07	1.29E-07	3.14E-05	1.85E-05	1.29E-05
29	Paso Robles	0.8	4.29E-07	3,000	250	5.14E-07	3.03E-07	2.11E-07	5.14E-05	3.03E-05	2.11E-05
30	Paso Robles	2.7	1.40E-06	1,000	250	1.68E-06	9.90E-07	6.88E-07	1.68E-04	9.90E-05	6.88E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	2.65E-07	1.57E-07	1.09E-07	2.65E-05	1.57E-05	1.09E-05
33	Paso Robles	1.2	5.93E-07	3,000	250	7.10E-07	4.19E-07	2.91E-07	7.10E-05	4.19E-05	2.91E-05
34	101	2.1	1.08E-06	100	250	1.30E-06	7.64E-07	5.31E-07	1.30E-04	7.64E-05	5.31E-05
35	Wellsona	2.4	1.25E-06	1,000	250	1.49E-06	8.81E-07	6.12E-07	1.49E-04	8.81E-05	6.12E-05
36	101	1.9	9.51E-07	100	250	1.14E-06	6.72E-07	4.67E-07	1.14E-04	6.72E-05	4.67E-05
37	San Miguel	1.5	7.49E-07	3,000	250	8.97E-07	5.29E-07	3.68E-07	8.97E-05	5.29E-05	3.68E-05
38	101	2.7	1.35E-06	100	250	1.62E-06	9.55E-07	6.64E-07	1.62E-04	9.55E-05	6.64E-05
39	Camp Roberts	5.7	2.91E-06	100	250	3.49E-06	2.06E-06	1.43E-06	3.49E-04	2.06E-04	1.43E-04
40	Bradley	15.3	7.80E-06	100	250	9.35E-06	5.51E-06	3.83E-06	9.35E-04	5.51E-04	3.83E-04
41	San Lucas	18.5	9.45E-06	100	250	1.13E-05	6.67E-06	4.64E-06	1.13E-03	6.67E-04	4.64E-04
42	King City	1.5	7.45E-07	1,000	250	8.92E-07	5.26E-07	3.66E-07	8.92E-05	5.26E-05	3.66E-05
43	Clark Ranch	18.1	9.23E-06	100	250	1.11E-05	6.52E-06	4.53E-06	1.11E-03	6.52E-04	4.53E-04
44	Soledad	1.4	7.24E-07	1,000	250	8.67E-07	5.12E-07	3.56E-07	8.67E-05	5.12E-05	3.56E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	250	4.48E-06	2.65E-06	1.84E-06	4.48E-04	2.65E-04	1.84E-04
46	Gonzales	1.2	5.92E-07	3,000	250	7.09E-07	4.18E-07	2.91E-07	7.09E-05	4.18E-05	2.91E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
47	Salinas Valley Ag	5.0	2.57E-06	100	250	3.07E-06	1.81E-06	1.26E-06	3.07E-04	1.81E-04	1.26E-04
48	Chular	0.6	3.25E-07	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
49	Sprekles	7.8	3.97E-06	100	250	4.75E-06	2.80E-06	1.95E-06	4.75E-04	2.80E-04	1.95E-04
50	Salinas	3.9	2.00E-06	6,500	250	2.40E-06	1.42E-06	9.84E-07	2.40E-04	1.42E-04	9.84E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	3.78E-06	2.23E-06	1.55E-06	3.78E-04	2.23E-04	1.55E-04
52	Castroville	1.1	5.76E-07	1,000	250	6.90E-07	4.07E-07	2.83E-07	6.90E-05	4.07E-05	2.83E-05
53	Las Lomas	15.4	7.87E-06	100	250	9.43E-06	5.56E-06	3.87E-06	9.43E-04	5.56E-04	3.87E-04
54	Aromas	12.1	6.15E-06	100	250	7.36E-06	4.34E-06	3.02E-06	7.36E-04	4.34E-04	3.02E-04
55	Gilroy	4.2	2.13E-06	3,000	250	2.55E-06	1.51E-06	1.05E-06	2.55E-04	1.51E-04	1.05E-04
56	San Martin	6.1	3.09E-06	100	250	3.70E-06	2.18E-06	1.52E-06	3.70E-04	2.18E-04	1.52E-04
57	Morgan Hill	3.8	1.95E-06	3,000	250	2.34E-06	1.38E-06	9.59E-07	2.34E-04	1.38E-04	9.59E-05
58	Coyote Valley	6.7	3.40E-06	100	250	4.07E-06	2.40E-06	1.67E-06	4.07E-04	2.40E-04	1.67E-04
59	San Jose	6.3	3.23E-06	5,000	250	3.87E-06	2.28E-06	1.59E-06	3.87E-04	2.28E-04	1.59E-04
60	Seven Trees	1.9	9.49E-07	1,000	250	1.14E-06	6.70E-07	4.66E-07	1.14E-04	6.70E-05	4.66E-05
61	San Jose	5.0	2.53E-06	10,000	250	3.03E-06	1.79E-06	1.24E-06	3.03E-04	1.79E-04	1.24E-04
62	Santa Clara	5.1	2.61E-06	6,500	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
63	Alviso	1.7	8.77E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
64	Drawbridge	5.7	2.91E-06	100	250	3.48E-06	2.05E-06	1.43E-06	3.48E-04	2.05E-04	1.43E-04
65	Newark	2.3	1.15E-06	1,000	250	1.37E-06	8.11E-07	5.64E-07	1.37E-04	8.11E-05	5.64E-05
107	Newark	3.1	1.59E-06	10,000	250	1.90E-06	1.12E-06	7.79E-07	1.90E-04	1.12E-04	7.79E-05
108	Fremont	3.2	1.64E-06	10,000	250	1.97E-06	1.16E-06	8.06E-07	1.97E-04	1.16E-04	8.06E-05
109	Sunol	6.8	3.48E-06	100	250	4.17E-06	2.46E-06	1.71E-06	4.17E-04	2.46E-04	1.71E-04
110	Pleasanton	1.8	9.08E-07	1,000	250	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	1.52E-06	8.97E-07	6.24E-07	1.52E-04	8.97E-05	6.24E-05
112	Pleasanton	3.0	1.51E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
113	Livermore	5.0	2.57E-06	5,000	250	3.08E-06	1.82E-06	1.26E-06	3.08E-04	1.82E-04	1.26E-04
114	Livermore	2.5	1.26E-06	1,000	250	1.51E-06	8.90E-07	6.19E-07	1.51E-04	8.90E-05	6.19E-05
115	Altamont	14.2	7.24E-06	100	250	8.67E-06	5.12E-06	3.56E-06	8.67E-04	5.12E-04	3.56E-04
116	Tracy	3.9	1.97E-06	3,000	250	2.36E-06	1.39E-06	9.67E-07	2.36E-04	1.39E-04	9.67E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
117	Lathrop	8.2	4.18E-06	100	250	5.01E-06	2.96E-06	2.05E-06	5.01E-04	2.96E-04	2.05E-04
118	French Camp	8.0	4.08E-06	1,000	250	4.89E-06	2.88E-06	2.00E-06	4.89E-04	2.88E-04	2.00E-04
119	Stockton	7.9	4.03E-06	10,000	250	4.83E-06	2.85E-06	1.98E-06	4.83E-04	2.85E-04	1.98E-04
120	Lodi	4.1	2.07E-06	100	250	2.47E-06	1.46E-06	1.01E-06	2.47E-04	1.46E-04	1.01E-04
121	Lodi	3.4	1.73E-06	5,000	250	2.07E-06	1.22E-06	8.49E-07	2.07E-04	1.22E-04	8.49E-05
122	Acampo	5.5	2.81E-06	100	250	3.36E-06	1.98E-06	1.38E-06	3.36E-04	1.98E-04	1.38E-04
123	Galt	1.6	7.96E-07	4,000	250	9.53E-07	5.62E-07	3.91E-07	9.53E-05	5.62E-05	3.91E-05
124	Hicksville	8.6	4.38E-06	100	250	5.24E-06	3.09E-06	2.15E-06	5.24E-04	3.09E-04	2.15E-04
125	Elk Grove	1.0	4.87E-07	100	250	5.83E-07	3.44E-07	2.39E-07	5.83E-05	3.44E-05	2.39E-05
126	Elk Grove	5.8	2.94E-06	5,000	250	3.52E-06	2.08E-06	1.44E-06	3.52E-04	2.08E-04	1.44E-04
127	Sacramento	4.2	2.14E-06	1,000	250	2.57E-06	1.51E-06	1.05E-06	2.57E-04	1.51E-04	1.05E-04
128	Sacramento	4.6	2.32E-06	10,000	250	2.78E-06	1.64E-06	1.14E-06	2.78E-04	1.64E-04	1.14E-04
101	Parkland	0.8	4.12E-07	100	250	4.94E-07	2.91E-07	2.02E-07	4.94E-05	2.91E-05	2.02E-05
102	Sacramento	3.1	1.58E-06	3,000	250	1.89E-06	1.11E-06	7.74E-07	1.89E-04	1.11E-04	7.74E-05
103	North Highlands	2.6	1.31E-06	1,000	250	1.56E-06	9.23E-07	6.41E-07	1.56E-04	9.23E-05	6.41E-05
104	North Highlands	4.4	2.23E-06	3,000	250	2.67E-06	1.57E-06	1.09E-06	2.67E-04	1.57E-04	1.09E-04
105	Roseville Yard	1.3	6.43E-07	100	250	7.70E-07	4.54E-07	3.16E-07	7.70E-05	4.54E-05	3.16E-05
145	Roseville	2.3	6.15E-07	3,000	250	7.37E-07	4.35E-07	3.02E-07	7.37E-05	4.35E-05	3.02E-05
146	Roseville	1.3	3.45E-07	1,000	250	4.13E-07	2.43E-07	1.69E-07	4.13E-05	2.43E-05	1.69E-05
147	Roseville	0.1	4.00E-08	100	250	4.79E-08	2.83E-08	1.96E-08	4.79E-06	2.83E-06	1.96E-06
148	Placer Co	2.9	7.89E-07	1,000	250	9.45E-07	5.58E-07	3.88E-07	9.45E-05	5.58E-05	3.88E-05
149	Lincoln	1.2	3.22E-07	100	250	3.86E-07	2.28E-07	1.58E-07	3.86E-05	2.28E-05	1.58E-05
150	Lincoln	2.9	7.74E-07	3,000	250	9.27E-07	5.47E-07	3.80E-07	9.27E-05	5.47E-05	3.80E-05
151	Sheridan	10.7	2.88E-06	100	250	3.45E-06	2.03E-06	1.41E-06	3.45E-04	2.03E-04	1.41E-04
152	Wheatland	0.9	2.51E-07	1,000	250	3.01E-07	1.78E-07	1.23E-07	3.01E-05	1.78E-05	1.23E-05
153	Yuba County	9.2	2.49E-06	100	250	2.99E-06	1.76E-06	1.22E-06	2.99E-04	1.76E-04	1.22E-04
154	Olivehurst	4.3	1.15E-06	1,000	250	1.38E-06	8.13E-07	5.65E-07	1.38E-04	8.13E-05	5.65E-05
155	Marysville	1.3	3.59E-07	3,000	250	4.29E-07	2.53E-07	1.76E-07	4.29E-05	2.53E-05	1.76E-05
156	Marysville	2.3	6.27E-07	100	250	7.51E-07	4.43E-07	3.08E-07	7.51E-05	4.43E-05	3.08E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
157	Live Oak	0.3	8.88E-08	1,000	250	1.06E-07	6.27E-08	4.36E-08	1.06E-05	6.27E-06	4.36E-06
158	Live Oak	6.4	1.73E-06	100	250	2.08E-06	1.23E-06	8.51E-07	2.08E-04	1.23E-04	8.51E-05
159	Live Oak	0.4	9.89E-08	1,000	250	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
160	Live Oak	1.0	2.74E-07	3,000	250	3.28E-07	1.93E-07	1.34E-07	3.28E-05	1.93E-05	1.34E-05
161	Butte Co	5.2	1.41E-06	100	250	1.69E-06	9.97E-07	6.93E-07	1.69E-04	9.97E-05	6.93E-05
162	Gridley	0.5	1.23E-07	1,000	250	1.47E-07	8.68E-08	6.03E-08	1.47E-05	8.68E-06	6.03E-06
163	Gridley	0.8	2.24E-07	3,000	250	2.68E-07	1.58E-07	1.10E-07	2.68E-05	1.58E-05	1.10E-05
164	Gridley	2.5	6.77E-07	100	250	8.11E-07	4.79E-07	3.33E-07	8.11E-05	4.79E-05	3.33E-05
165	Biggs	0.6	1.55E-07	3,000	250	1.85E-07	1.09E-07	7.59E-08	1.85E-05	1.09E-05	7.59E-06
166	Butte Co	5.1	1.39E-06	100	250	1.66E-06	9.79E-07	6.80E-07	1.66E-04	9.79E-05	6.80E-05
167	Richvale	0.8	2.26E-07	1,000	250	2.70E-07	1.59E-07	1.11E-07	2.70E-05	1.59E-05	1.11E-05
168	Nelson	9.3	2.51E-06	100	250	3.00E-06	1.77E-06	1.23E-06	3.00E-04	1.77E-04	1.23E-04
169	Durham	2.4	6.58E-07	1,000	250	7.88E-07	4.65E-07	3.23E-07	7.88E-05	4.65E-05	3.23E-05
170	Chico	4.3	1.17E-06	100	250	1.40E-06	8.25E-07	5.73E-07	1.40E-04	8.25E-05	5.73E-05
171	Chico	4.5	1.22E-06	1,000	250	1.46E-06	8.61E-07	5.98E-07	1.46E-04	8.61E-05	5.98E-05
172	Chico	2.8	7.56E-07	100	250	9.06E-07	5.35E-07	3.71E-07	9.06E-05	5.35E-05	3.71E-05
173	Nord	0.6	1.57E-07	1,000	250	1.89E-07	1.11E-07	7.73E-08	1.89E-05	1.11E-05	7.73E-06
174	Butte Co	11.3	3.06E-06	100	250	3.67E-06	2.16E-06	1.50E-06	3.67E-04	2.16E-04	1.50E-04
175	Vina	0.4	1.20E-07	1,000	250	1.44E-07	8.51E-08	5.91E-08	1.44E-05	8.51E-06	5.91E-06
176	Copeland	6.3	1.70E-06	100	250	2.04E-06	1.20E-06	8.37E-07	2.04E-04	1.20E-04	8.37E-05
177	Los Molinos	0.5	1.40E-07	1,000	250	1.68E-07	9.91E-08	6.89E-08	1.68E-05	9.91E-06	6.89E-06
178	Los Molinos	1.0	2.68E-07	100	250	3.21E-07	1.89E-07	1.32E-07	3.21E-05	1.89E-05	1.32E-05
179	Tehema	0.3	8.98E-08	1,000	250	1.08E-07	6.34E-08	4.41E-08	1.08E-05	6.34E-06	4.41E-06
180	Tehema	2.2	6.04E-07	100	250	7.23E-07	4.27E-07	2.97E-07	7.23E-05	4.27E-05	2.97E-05
181	Gerber	2.3	6.25E-07	1,000	250	7.49E-07	4.42E-07	3.07E-07	7.49E-05	4.42E-05	3.07E-05
182	Tehema Co	1.8	4.83E-07	100	250	5.78E-07	3.41E-07	2.37E-07	5.78E-05	3.41E-05	2.37E-05
183	Red Bluff	0.8	2.08E-07	1,000	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
184	Red Bluff	4.6	1.25E-06	100	250	1.50E-06	8.83E-07	6.14E-07	1.50E-04	8.83E-05	6.14E-05
185	Red Bluff	3.3	8.86E-07	1,000	250	1.06E-06	6.26E-07	4.35E-07	1.06E-04	6.26E-05	4.35E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
186	Tehema Co	15.3	4.13E-06	100	250	4.94E-06	2.92E-06	2.03E-06	4.94E-04	2.92E-04	2.03E-04
187	Cottonwood	0.6	1.65E-07	1,000	250	1.97E-07	1.16E-07	8.08E-08	1.97E-05	1.16E-05	8.08E-06
188	Anderson	5.4	1.45E-06	100	250	1.73E-06	1.02E-06	7.10E-07	1.73E-04	1.02E-04	7.10E-05
189	Anderson	3.5	9.57E-07	1,000	250	1.15E-06	6.77E-07	4.70E-07	1.15E-04	6.77E-05	4.70E-05
190	Anderson	4.1	1.10E-06	100	250	1.32E-06	7.79E-07	5.42E-07	1.32E-04	7.79E-05	5.42E-05
191	Redding	6.0	1.63E-06	1,000	250	1.95E-06	1.15E-06	8.01E-07	1.95E-04	1.15E-04	8.01E-05
192	Redding	0.8	2.06E-07	1,000	250	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
193	Redding	1.1	3.05E-07	100	250	3.65E-07	2.16E-07	1.50E-07	3.65E-05	2.16E-05	1.50E-05
194	Redding	0.4	1.05E-07	1,000	250	1.26E-07	7.45E-08	5.18E-08	1.26E-05	7.45E-06	5.18E-06
195	Redding	2.6	6.97E-07	100	250	8.35E-07	4.92E-07	3.42E-07	8.35E-05	4.92E-05	3.42E-05
196	Shasta Co	0.5	1.41E-07	1,000	250	1.69E-07	9.98E-08	6.93E-08	1.69E-05	9.98E-06	6.93E-06
197	Shasta Lake	1.7	4.46E-07	100	250	5.34E-07	3.15E-07	2.19E-07	5.34E-05	3.15E-05	2.19E-05
198	Shasta Lake	0.8	2.03E-07	1,000	250	2.43E-07	1.43E-07	9.96E-08	2.43E-05	1.43E-05	9.96E-06
199	Shasta Co	16.4	4.44E-06	100	250	5.32E-06	3.14E-06	2.18E-06	5.32E-04	3.14E-04	2.18E-04
200	Lakeshore	0.6	1.64E-07	1,000	250	1.96E-07	1.16E-07	8.05E-08	1.96E-05	1.16E-05	8.05E-06
201	Shasta Co	30.4	8.20E-06	100	250	9.82E-06	5.79E-06	4.03E-06	9.82E-04	5.79E-04	4.03E-04
202	Dunsmuir	1.3	3.52E-07	1,000	250	4.21E-07	2.49E-07	1.73E-07	4.21E-05	2.49E-05	1.73E-05
203	Siskiyou Co	12.8	3.45E-06	100	250	4.13E-06	2.44E-06	1.69E-06	4.13E-04	2.44E-04	1.69E-04
204	Mount Shasta	1.1	3.05E-07	1,000	250	3.66E-07	2.16E-07	1.50E-07	3.66E-05	2.16E-05	1.50E-05
205	Siskiyou Co	69.5	1.88E-05	100	250	2.25E-05	1.33E-05	9.21E-06	2.25E-03	1.33E-03	9.21E-04
206	Dorris	0.9	2.38E-07	100	250	2.85E-07	1.68E-07	1.17E-07	2.85E-05	1.68E-05	1.17E-05
207	Siskiyou Co	3.4	9.21E-07	1,000	250	1.10E-06	6.51E-07	4.52E-07	1.10E-04	6.51E-05	4.52E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	9.47E-07	5.59E-07	3.88E-07	9.47E-05	5.59E-05	3.88E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
3	Arroyo Grande	0.9	4.79E-07	1,000	250	5.74E-07	3.39E-07	2.35E-07	5.74E-05	3.39E-05	2.35E-05
4	Arroyo Grande	1.4	7.05E-07	100	250	8.44E-07	4.98E-07	3.46E-07	8.44E-05	4.98E-05	3.46E-05
5	Oceano	0.4	2.05E-07	3,000	250	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
6	Oceano	0.6	3.18E-07	10,000	250	3.81E-07	2.25E-07	1.56E-07	3.81E-05	2.25E-05	1.56E-05
7	Oceano	0.2	1.22E-07	3,000	250	1.46E-07	8.61E-08	5.99E-08	1.46E-05	8.61E-06	5.99E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	1.28E-06	7.56E-07	5.25E-07	1.28E-04	7.56E-05	5.25E-05
9	Pismo	0.3	1.47E-07	3,000	250	1.76E-07	1.04E-07	7.23E-08	1.76E-05	1.04E-05	7.23E-06
10	Pismo	0.4	1.88E-07	1,000	250	2.25E-07	1.33E-07	9.23E-08	2.25E-05	1.33E-05	9.23E-06
11	Price Canyon	5.2	2.64E-06	100	250	3.17E-06	1.87E-06	1.30E-06	3.17E-04	1.87E-04	1.30E-04
12	Edna	0.6	3.07E-07	1,000	250	3.67E-07	2.17E-07	1.51E-07	3.67E-05	2.17E-05	1.51E-05
13	Edna	1.6	8.25E-07	100	250	9.89E-07	5.83E-07	4.05E-07	9.89E-05	5.83E-05	4.05E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	2.85E-06	1.68E-06	1.17E-06	2.85E-04	1.68E-04	1.17E-04
15	San Luis Obispo	0.6	2.88E-07	3,000	250	3.45E-07	2.04E-07	1.42E-07	3.45E-05	2.04E-05	1.42E-05
16	Chorro	0.4	2.17E-07	1,000	250	2.60E-07	1.54E-07	1.07E-07	2.60E-05	1.54E-05	1.07E-05
17	Chorro	1.6	7.98E-07	100	250	9.56E-07	5.64E-07	3.92E-07	9.56E-05	5.64E-05	3.92E-05
18	CMC	0.8	3.89E-07	3,000	250	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
19	Santa Lucia	11.2	5.70E-06	100	250	6.83E-06	4.03E-06	2.80E-06	6.83E-04	4.03E-04	2.80E-04
20	Santa Margarita	0.9	4.50E-07	3,000	250	5.39E-07	3.18E-07	2.21E-07	5.39E-05	3.18E-05	2.21E-05
21	Phillips PS	0.9	4.34E-07	100	250	5.19E-07	3.06E-07	2.13E-07	5.19E-05	3.06E-05	2.13E-05
22	Atascadero	7.4	3.77E-06	1,000	250	4.52E-06	2.67E-06	1.85E-06	4.52E-04	2.67E-04	1.85E-04
23	Atascadero	1.6	8.16E-07	3,000	250	9.77E-07	5.77E-07	4.01E-07	9.77E-05	5.77E-05	4.01E-05
24	Atascadero	1.3	6.49E-07	1,000	250	7.77E-07	4.59E-07	3.19E-07	7.77E-05	4.59E-05	3.19E-05
25	Atascadero	0.4	2.20E-07	3,000	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
26	101	0.4	1.87E-07	1,000	250	2.23E-07	1.32E-07	9.16E-08	2.23E-05	1.32E-05	9.16E-06
27	Templeton	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	3.14E-07	1.85E-07	1.29E-07	3.14E-05	1.85E-05	1.29E-05
29	Paso Robles	0.8	4.29E-07	3,000	250	5.14E-07	3.03E-07	2.11E-07	5.14E-05	3.03E-05	2.11E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Paso Robles	2.7	1.40E-06	1,000	250	1.68E-06	9.90E-07	6.88E-07	1.68E-04	9.90E-05	6.88E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	2.65E-07	1.57E-07	1.09E-07	2.65E-05	1.57E-05	1.09E-05
33	Paso Robles	1.2	5.93E-07	3,000	250	7.10E-07	4.19E-07	2.91E-07	7.10E-05	4.19E-05	2.91E-05
34	101	2.1	1.08E-06	100	250	1.30E-06	7.64E-07	5.31E-07	1.30E-04	7.64E-05	5.31E-05
35	Wellsona	2.4	1.25E-06	1,000	250	1.49E-06	8.81E-07	6.12E-07	1.49E-04	8.81E-05	6.12E-05
36	101	1.9	9.51E-07	100	250	1.14E-06	6.72E-07	4.67E-07	1.14E-04	6.72E-05	4.67E-05
37	San Miguel	1.5	7.49E-07	3,000	250	8.97E-07	5.29E-07	3.68E-07	8.97E-05	5.29E-05	3.68E-05
38	101	2.7	1.35E-06	100	250	1.62E-06	9.55E-07	6.64E-07	1.62E-04	9.55E-05	6.64E-05
39	Camp Roberts	5.7	2.91E-06	100	250	3.49E-06	2.06E-06	1.43E-06	3.49E-04	2.06E-04	1.43E-04
40	Bradley	15.3	7.80E-06	100	250	9.35E-06	5.51E-06	3.83E-06	9.35E-04	5.51E-04	3.83E-04
41	San Lucas	18.5	9.45E-06	100	250	1.13E-05	6.67E-06	4.64E-06	1.13E-03	6.67E-04	4.64E-04
42	King City	1.5	7.45E-07	1,000	250	8.92E-07	5.26E-07	3.66E-07	8.92E-05	5.26E-05	3.66E-05
43	Clark Ranch	18.1	9.23E-06	100	250	1.11E-05	6.52E-06	4.53E-06	1.11E-03	6.52E-04	4.53E-04
44	Soledad	1.4	7.24E-07	1,000	250	8.67E-07	5.12E-07	3.56E-07	8.67E-05	5.12E-05	3.56E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	250	4.48E-06	2.65E-06	1.84E-06	4.48E-04	2.65E-04	1.84E-04
46	Gonzales	1.2	5.92E-07	3,000	250	7.09E-07	4.18E-07	2.91E-07	7.09E-05	4.18E-05	2.91E-05
47	Salinas Valley Ag	5.0	2.57E-06	100	250	3.07E-06	1.81E-06	1.26E-06	3.07E-04	1.81E-04	1.26E-04
48	Chular	0.6	3.25E-07	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
49	Sprekles	7.8	3.97E-06	100	250	4.75E-06	2.80E-06	1.95E-06	4.75E-04	2.80E-04	1.95E-04
50	Salinas	3.9	2.00E-06	6,500	250	2.40E-06	1.42E-06	9.84E-07	2.40E-04	1.42E-04	9.84E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	3.78E-06	2.23E-06	1.55E-06	3.78E-04	2.23E-04	1.55E-04
52	Castroville	1.1	5.76E-07	1,000	250	6.90E-07	4.07E-07	2.83E-07	6.90E-05	4.07E-05	2.83E-05
53	Las Lomas	15.4	7.87E-06	100	250	9.43E-06	5.56E-06	3.87E-06	9.43E-04	5.56E-04	3.87E-04
54	Aromas	12.1	6.15E-06	100	250	7.36E-06	4.34E-06	3.02E-06	7.36E-04	4.34E-04	3.02E-04
55	Gilroy	4.2	2.13E-06	3,000	250	2.55E-06	1.51E-06	1.05E-06	2.55E-04	1.51E-04	1.05E-04
56	San Martin	6.1	3.09E-06	100	250	3.70E-06	2.18E-06	1.52E-06	3.70E-04	2.18E-04	1.52E-04
57	Morgan Hill	3.8	1.95E-06	3,000	250	2.34E-06	1.38E-06	9.59E-07	2.34E-04	1.38E-04	9.59E-05
58	Coyote Valley	6.7	3.40E-06	100	250	4.07E-06	2.40E-06	1.67E-06	4.07E-04	2.40E-04	1.67E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	San Jose	6.3	3.23E-06	5,000	250	3.87E-06	2.28E-06	1.59E-06	3.87E-04	2.28E-04	1.59E-04
60	Seven Trees	1.9	9.49E-07	1,000	250	1.14E-06	6.70E-07	4.66E-07	1.14E-04	6.70E-05	4.66E-05
61	San Jose	5.0	2.53E-06	10,000	250	3.03E-06	1.79E-06	1.24E-06	3.03E-04	1.79E-04	1.24E-04
62	Santa Clara	5.1	2.61E-06	6,500	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
63	Alviso	1.7	8.77E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
64	Drawbridge	5.7	2.91E-06	100	250	3.48E-06	2.05E-06	1.43E-06	3.48E-04	2.05E-04	1.43E-04
65	Newark	2.3	1.15E-06	1,000	250	1.37E-06	8.11E-07	5.64E-07	1.37E-04	8.11E-05	5.64E-05
107	Newark	3.1	1.59E-06	10,000	250	1.90E-06	1.12E-06	7.79E-07	1.90E-04	1.12E-04	7.79E-05
108	Fremont	3.2	1.64E-06	10,000	250	1.97E-06	1.16E-06	8.06E-07	1.97E-04	1.16E-04	8.06E-05
109	Sunol	6.8	3.48E-06	100	250	4.17E-06	2.46E-06	1.71E-06	4.17E-04	2.46E-04	1.71E-04
110	Pleasanton	1.8	9.08E-07	1,000	250	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	1.52E-06	8.97E-07	6.24E-07	1.52E-04	8.97E-05	6.24E-05
112	Pleasanton	3.0	1.51E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
113	Livermore	5.0	2.57E-06	5,000	250	3.08E-06	1.82E-06	1.26E-06	3.08E-04	1.82E-04	1.26E-04
114	Livermore	2.5	1.26E-06	1,000	250	1.51E-06	8.90E-07	6.19E-07	1.51E-04	8.90E-05	6.19E-05
115	Altamont	14.2	7.24E-06	100	250	8.67E-06	5.12E-06	3.56E-06	8.67E-04	5.12E-04	3.56E-04
116	Tracy	3.9	1.97E-06	3,000	250	2.36E-06	1.39E-06	9.67E-07	2.36E-04	1.39E-04	9.67E-05
117	Lathrop	8.2	4.18E-06	100	250	5.01E-06	2.96E-06	2.05E-06	5.01E-04	2.96E-04	2.05E-04
118	French Camp	8.0	4.08E-06	1,000	250	4.89E-06	2.88E-06	2.00E-06	4.89E-04	2.88E-04	2.00E-04
119	Stockton	7.9	4.03E-06	10,000	250	4.83E-06	2.85E-06	1.98E-06	4.83E-04	2.85E-04	1.98E-04
120	Lodi	4.1	2.07E-06	100	250	2.47E-06	1.46E-06	1.01E-06	2.47E-04	1.46E-04	1.01E-04
121	Lodi	3.4	1.73E-06	5,000	250	2.07E-06	1.22E-06	8.49E-07	2.07E-04	1.22E-04	8.49E-05
122	Acampo	5.5	2.81E-06	100	250	3.36E-06	1.98E-06	1.38E-06	3.36E-04	1.98E-04	1.38E-04
123	Galt	1.6	7.96E-07	4,000	250	9.53E-07	5.62E-07	3.91E-07	9.53E-05	5.62E-05	3.91E-05
124	Hicksville	8.6	4.38E-06	100	250	5.24E-06	3.09E-06	2.15E-06	5.24E-04	3.09E-04	2.15E-04
125	Elk Grove	1.0	4.87E-07	100	250	5.83E-07	3.44E-07	2.39E-07	5.83E-05	3.44E-05	2.39E-05
126	Elk Grove	5.8	2.94E-06	5,000	250	3.52E-06	2.08E-06	1.44E-06	3.52E-04	2.08E-04	1.44E-04
127	Sacramento	4.2	2.14E-06	1,000	250	2.57E-06	1.51E-06	1.05E-06	2.57E-04	1.51E-04	1.05E-04
128	Sacramento	4.6	2.32E-06	10,000	250	2.78E-06	1.64E-06	1.14E-06	2.78E-04	1.64E-04	1.14E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Proposed Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
101	Parkland	0.8	4.12E-07	100	250	4.94E-07	2.91E-07	2.02E-07	4.94E-05	2.91E-05	2.02E-05
102	Sacramento	3.1	1.58E-06	3,000	250	1.89E-06	1.11E-06	7.74E-07	1.89E-04	1.11E-04	7.74E-05
103	North Highlands	2.6	1.31E-06	1,000	250	1.56E-06	9.23E-07	6.41E-07	1.56E-04	9.23E-05	6.41E-05
104	North Highlands	4.4	2.23E-06	3,000	250	2.67E-06	1.57E-06	1.09E-06	2.67E-04	1.57E-04	1.09E-04
105	Roseville Yard	1.3	6.43E-07	100	250	7.70E-07	4.54E-07	3.16E-07	7.70E-05	4.54E-05	3.16E-05
129	Roseville	1.4	1.15E-06	3,000	250	1.38E-06	8.16E-07	5.67E-07	1.38E-04	8.16E-05	5.67E-05
130	Roseville	1.1	9.01E-07	3,000	250	1.08E-06	6.37E-07	4.43E-07	1.08E-04	6.37E-05	4.43E-05
131	Roseville	2.1	1.73E-06	1,000	250	2.08E-06	1.23E-06	8.52E-07	2.08E-04	1.23E-04	8.52E-05
132	Roseville	0.5	3.71E-07	3,000	250	4.44E-07	2.62E-07	1.82E-07	4.44E-05	2.62E-05	1.82E-05
133	Rocklin	2.5	2.06E-06	1,000	250	2.47E-06	1.46E-06	1.01E-06	2.47E-04	1.46E-04	1.01E-04
134	Placer Co	8.0	6.54E-06	100	250	7.83E-06	4.62E-06	3.21E-06	7.83E-04	4.62E-04	3.21E-04
135	Newcastle	0.5	3.70E-07	1,000	250	4.43E-07	2.61E-07	1.82E-07	4.43E-05	2.61E-05	1.82E-05
136	Placer Co	2.5	2.05E-06	100	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
137	Auburn	5.3	4.37E-06	1,000	250	5.24E-06	3.09E-06	2.15E-06	5.24E-04	3.09E-04	2.15E-04
138	Placer Co	13.6	1.11E-05	100	250	1.34E-05	7.88E-06	5.47E-06	1.34E-03	7.88E-04	5.47E-04
139	Colfax	0.7	5.53E-07	1,000	250	6.62E-07	3.91E-07	2.71E-07	6.62E-05	3.91E-05	2.71E-05
140	Placer Co	61.6	5.05E-05	100	250	6.05E-05	3.57E-05	2.48E-05	6.05E-03	3.57E-03	2.48E-03
141	Truckee	2.1	1.74E-06	1,000	250	2.08E-06	1.23E-06	8.54E-07	2.08E-04	1.23E-04	8.54E-05
142	Nevada Co	13.9	1.14E-05	100	250	1.36E-05	8.04E-06	5.59E-06	1.36E-03	8.04E-04	5.59E-04
143	Floriston	0.2	1.90E-07	1,000	250	2.27E-07	1.34E-07	9.32E-08	2.27E-05	1.34E-05	9.32E-06
144	Sierra Co	5.8	4.75E-06	100	250	5.69E-06	3.36E-06	2.33E-06	5.69E-04	3.36E-04	2.33E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Oso Flaco	2.8	1.19E-06	100	250	3.72E-07	2.19E-07	1.52E-07	3.72E-05	2.19E-05	1.52E-05
2	Nipomo	0.6	2.74E-07	1,000	250	8.54E-08	5.04E-08	3.50E-08	8.54E-06	5.04E-06	3.50E-06
3	Nipomo	1.5	6.32E-07	100	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
4	Guadalupe	1.3	5.76E-07	10,000	250	1.80E-07	1.06E-07	7.37E-08	1.80E-05	1.06E-05	7.37E-06
5	SMV	0.3	1.31E-07	100	250	4.09E-08	2.41E-08	1.68E-08	4.09E-06	2.41E-06	1.68E-06
6	Point Sal	13.8	5.93E-06	100	250	1.85E-06	1.09E-06	7.58E-07	1.85E-04	1.09E-04	7.58E-05
7	VAFB	13.5	5.81E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
8	Rocky Point	14.7	6.30E-06	100	250	1.97E-06	1.16E-06	8.06E-07	1.97E-04	1.16E-04	8.06E-05
9	Bixby/Hollister	13.0	5.61E-06	100	250	1.75E-06	1.03E-06	7.17E-07	1.75E-04	1.03E-04	7.17E-05
10	Gaviota Beach	0.5	2.00E-07	1,000	250	6.24E-08	3.68E-08	2.56E-08	6.24E-06	3.68E-06	2.56E-06
11	Gaviota	5.9	2.52E-06	100	250	7.85E-07	4.63E-07	3.22E-07	7.85E-05	4.63E-05	3.22E-05
12	Arroyo Quemado	0.3	1.18E-07	1,000	250	3.68E-08	2.17E-08	1.51E-08	3.68E-06	2.17E-06	1.51E-06
13	Tajiquas	2.9	1.26E-06	100	250	3.94E-07	2.33E-07	1.62E-07	3.94E-05	2.33E-05	1.62E-05
14	Refugio	0.2	7.92E-08	1,000	250	2.47E-08	1.46E-08	1.01E-08	2.47E-06	1.46E-06	1.01E-06
15	Canada del Corral	2.0	8.51E-07	100	250	2.66E-07	1.57E-07	1.09E-07	2.66E-05	1.57E-05	1.09E-05
16	El Capitan	0.8	3.43E-07	1,000	250	1.07E-07	6.31E-08	4.38E-08	1.07E-05	6.31E-06	4.38E-06
17	Naples	5.7	2.44E-06	100	250	7.61E-07	4.49E-07	3.12E-07	7.61E-05	4.49E-05	3.12E-05
18	Bacara	0.8	3.24E-07	1,000	250	1.01E-07	5.96E-08	4.14E-08	1.01E-05	5.96E-06	4.14E-06
19	Sandpiper	0.6	2.48E-07	100	250	7.75E-08	4.57E-08	3.18E-08	7.75E-06	4.57E-06	3.18E-06
20	Goleta	2.1	9.03E-07	3,000	250	2.82E-07	1.66E-07	1.16E-07	2.82E-05	1.66E-05	1.16E-05
21	Goleta	1.6	7.01E-07	1,000	250	2.19E-07	1.29E-07	8.97E-08	2.19E-05	1.29E-05	8.97E-06
22	Santa Barbara	9.5	4.08E-06	3,000	250	1.27E-06	7.50E-07	5.21E-07	1.27E-04	7.50E-05	5.21E-05
23	Santa Barbara	3.8	1.64E-06	10,000	250	5.11E-07	3.02E-07	2.10E-07	5.11E-05	3.02E-05	2.10E-05
24	Montecito	4.3	1.83E-06	3,000	250	5.72E-07	3.37E-07	2.34E-07	5.72E-05	3.37E-05	2.34E-05
25	Polo Grounds	0.9	4.07E-07	1,000	250	1.27E-07	7.50E-08	5.21E-08	1.27E-05	7.50E-06	5.21E-06
26	Padero Lane	0.5	2.21E-07	3,000	250	6.89E-08	4.06E-08	2.82E-08	6.89E-06	4.06E-06	2.82E-06
27	Carpinteria	2.8	1.20E-06	1,000	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
28	Carpinteria	1.3	5.55E-07	3,000	250	1.73E-07	1.02E-07	7.10E-08	1.73E-05	1.02E-05	7.10E-06
29	Carpinteria Bluffs	1.9	8.00E-07	1,000	250	2.50E-07	1.47E-07	1.02E-07	2.50E-05	1.47E-05	1.02E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Rincon	0.2	1.01E-07	3,000	250	3.16E-08	1.86E-08	1.30E-08	3.16E-06	1.86E-06	1.30E-06
31	La Concita Oil	1.7	7.44E-07	100	250	2.32E-07	1.37E-07	9.52E-08	2.32E-05	1.37E-05	9.52E-06
32	La Conchita	0.4	1.78E-07	3,000	250	5.56E-08	3.28E-08	2.28E-08	5.56E-06	3.28E-06	2.28E-06
33	Mussle Shoals	1.6	6.84E-07	1,000	250	2.13E-07	1.26E-07	8.75E-08	2.13E-05	1.26E-05	8.75E-06
34	Seacliff	0.9	3.71E-07	100	250	1.16E-07	6.82E-08	4.74E-08	1.16E-05	6.82E-06	4.74E-06
35	Faria/Solimar	4.5	1.92E-06	100	250	5.98E-07	3.53E-07	2.45E-07	5.98E-05	3.53E-05	2.45E-05
36	State Beaches	3.6	1.55E-06	100	250	4.84E-07	2.86E-07	1.99E-07	4.84E-05	2.86E-05	1.99E-05
37	Ventura	5.1	2.18E-06	3,000	250	6.82E-07	4.02E-07	2.79E-07	6.82E-05	4.02E-05	2.79E-05
38	Ventura Greenbelt	1.2	4.95E-07	1,000	250	1.54E-07	9.10E-08	6.33E-08	1.54E-05	9.10E-06	6.33E-06
39	Montalvo	1.0	4.27E-07	3,000	250	1.33E-07	7.86E-08	5.47E-08	1.33E-05	7.86E-06	5.47E-06
40	Santa Clara River	0.4	1.68E-07	100	250	5.26E-08	3.10E-08	2.16E-08	5.26E-06	3.10E-06	2.16E-06
41	Oxnard	4.1	1.76E-06	3,000	250	5.49E-07	3.24E-07	2.25E-07	5.49E-05	3.24E-05	2.25E-05
42	Oxnard Industrial	3.0	1.29E-06	1,000	250	4.02E-07	2.37E-07	1.65E-07	4.02E-05	2.37E-05	1.65E-05
43	Oxnard Ag	5.2	2.22E-06	100	250	6.92E-07	4.08E-07	2.84E-07	6.92E-05	4.08E-05	2.84E-05
44	Camarillo Comm	0.5	2.33E-07	1,000	250	7.27E-08	4.29E-08	2.98E-08	7.27E-06	4.29E-06	2.98E-06
45	Camarillo Ag	0.1	3.58E-08	100	250	1.12E-08	6.58E-09	4.57E-09	1.12E-06	6.58E-07	4.57E-07
46	Camarillo	2.5	1.08E-06	3,000	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
47	Somis	7.6	3.25E-06	100	250	1.01E-06	5.98E-07	4.15E-07	1.01E-04	5.98E-05	4.15E-05
48	Moorpark	1.1	4.73E-07	1,000	250	1.48E-07	8.71E-08	6.05E-08	1.48E-05	8.71E-06	6.05E-06
49	Moorpark	1.2	4.95E-07	3,000	250	1.54E-07	9.10E-08	6.33E-08	1.54E-05	9.10E-06	6.33E-06
50	Moorpark	2.1	9.12E-07	1,000	250	2.84E-07	1.68E-07	1.17E-07	2.84E-05	1.68E-05	1.17E-05
51	Los Alamos Cyn	0.8	3.57E-07	100	250	1.11E-07	6.57E-08	4.57E-08	1.11E-05	6.57E-06	4.57E-06
52	Simi Valley	1.1	4.73E-07	1,000	250	1.48E-07	8.71E-08	6.05E-08	1.48E-05	8.71E-06	6.05E-06
53	Simi Valley	6.8	2.94E-06	3,000	250	9.18E-07	5.41E-07	3.76E-07	9.18E-05	5.41E-05	3.76E-05
54	Sta Susana Knolls	1.6	6.75E-07	1,000	250	2.11E-07	1.24E-07	8.64E-08	2.11E-05	1.24E-05	8.64E-06
55	Santa Susana Pass	2.7	1.15E-06	100	250	3.60E-07	2.12E-07	1.47E-07	3.60E-05	2.12E-05	1.47E-05
56	Stoney Point	1.0	4.17E-07	1,000	250	1.30E-07	7.67E-08	5.33E-08	1.30E-05	7.67E-06	5.33E-06
57	Chatsworth	1.4	5.98E-07	3,000	250	1.86E-07	1.10E-07	7.65E-08	1.86E-05	1.10E-05	7.65E-06
58	Chatsworth	3.6	1.54E-06	10,000	250	4.79E-07	2.83E-07	1.96E-07	4.79E-05	2.83E-05	1.96E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	Northridge	2.5	1.09E-06	10,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
60	Van Nyus AP	1.7	7.44E-07	3,000	250	2.32E-07	1.37E-07	9.52E-08	2.32E-05	1.37E-05	9.52E-06
61	North Hollywood	4.0	1.74E-06	10,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
62	Burbank	2.5	1.09E-06	10,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
63	Valhalla	0.7	3.06E-07	1,000	250	9.54E-08	5.63E-08	3.91E-08	9.54E-06	5.63E-06	3.91E-06
64	Burbank	1.8	7.57E-07	10,000	250	2.36E-07	1.39E-07	9.68E-08	2.36E-05	1.39E-05	9.68E-06
65	Burbank	0.4	1.87E-07	3,000	250	5.83E-08	3.44E-08	2.39E-08	5.83E-06	3.44E-06	2.39E-06
66	Glendale	2.9	1.26E-06	10,000	250	3.92E-07	2.31E-07	1.61E-07	3.92E-05	2.31E-05	1.61E-05
67	Atwater	3.3	1.44E-06	10,000	250	4.48E-07	2.64E-07	1.84E-07	4.48E-05	2.64E-05	1.84E-05
68	Elysian Park	5.8	2.50E-06	10,000	250	7.79E-07	4.60E-07	3.20E-07	7.79E-05	4.60E-05	3.20E-05
69	East Los Angeles	7.5	3.23E-06	10,000	250	1.01E-06	5.95E-07	4.14E-07	1.01E-04	5.95E-05	4.14E-05
70	San Gabriel Vly	6.0	2.58E-06	10,000	250	8.06E-07	4.76E-07	3.31E-07	8.06E-05	4.76E-05	3.31E-05
71	El monte	0.4	1.76E-07	3,000	250	5.48E-08	3.24E-08	2.25E-08	5.48E-06	3.24E-06	2.25E-06
72	San Gabriel River	0.2	1.01E-07	1,000	250	3.15E-08	1.86E-08	1.29E-08	3.15E-06	1.86E-06	1.29E-06
73	La Puente	4.5	1.94E-06	3,000	250	6.04E-07	3.56E-07	2.48E-07	6.04E-05	3.56E-05	2.48E-05
74	La Puente-Walnut	7.9	3.41E-06	3,000	250	1.06E-06	6.28E-07	4.36E-07	1.06E-04	6.28E-05	4.36E-05
75	Walnut-Pomona	3.1	1.35E-06	3,000	250	4.21E-07	2.49E-07	1.73E-07	4.21E-05	2.49E-05	1.73E-05
76	Pomona	16.0	6.87E-06	3,000	250	2.14E-06	1.26E-06	8.79E-07	2.14E-04	1.26E-04	8.79E-05
77	Ontario	9.3	4.02E-06	3,000	250	1.25E-06	7.39E-07	5.14E-07	1.25E-04	7.39E-05	5.14E-05
78	Fontana	1.2	5.24E-07	1,000	250	1.63E-07	9.64E-08	6.70E-08	1.63E-05	9.64E-06	6.70E-06
79	Colton	2.1	5.33E-07	3,000	250	1.66E-07	9.81E-08	6.82E-08	1.66E-05	9.81E-06	6.82E-06
80	Rialto	1.9	4.83E-07	1,000	250	1.51E-07	8.89E-08	6.18E-08	1.51E-05	8.89E-06	6.18E-06
81	Rialto	1.1	2.88E-07	100	250	8.97E-08	5.29E-08	3.68E-08	8.97E-06	5.29E-06	3.68E-06
82	San Bernardino	1.9	4.90E-07	1,000	250	1.53E-07	9.01E-08	6.26E-08	1.53E-05	9.01E-06	6.26E-06
83	San Bernardino	3.2	8.43E-07	100	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
84	Devore	1.6	4.25E-07	1,000	250	1.33E-07	7.82E-08	5.44E-08	1.33E-05	7.82E-06	5.44E-06
85	Cajon Pass	19.5	5.07E-06	100	250	1.58E-06	9.34E-07	6.49E-07	1.58E-04	9.34E-05	6.49E-05
86	Hesperia	4.5	1.18E-06	1,000	250	3.67E-07	2.17E-07	1.51E-07	3.67E-05	2.17E-05	1.51E-05
87	Hesperia	1.0	2.70E-07	100	250	8.42E-08	4.97E-08	3.45E-08	8.42E-06	4.97E-06	3.45E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
88	Victorville	4.3	1.13E-06	1,000	250	3.52E-07	2.08E-07	1.44E-07	3.52E-05	2.08E-05	1.44E-05
89	Victorville	2.1	5.35E-07	100	250	1.67E-07	9.84E-08	6.84E-08	1.67E-05	9.84E-06	6.84E-06
90	Victorville	0.7	1.92E-07	1,000	250	6.00E-08	3.54E-08	2.46E-08	6.00E-06	3.54E-06	2.46E-06
91	Victorville	4.5	1.16E-06	100	250	3.61E-07	2.13E-07	1.48E-07	3.61E-05	2.13E-05	1.48E-05
92	Oro Grande	0.5	1.34E-07	1,000	250	4.18E-08	2.46E-08	1.71E-08	4.18E-06	2.46E-06	1.71E-06
93	Helendale	25.4	6.59E-06	100	250	2.06E-06	1.21E-06	8.44E-07	2.06E-04	1.21E-04	8.44E-05
94	Lenwood	1.1	2.91E-07	1,000	250	9.07E-08	5.35E-08	3.72E-08	9.07E-06	5.35E-06	3.72E-06
95	Barstow	1.8	4.72E-07	100	250	1.47E-07	8.68E-08	6.03E-08	1.47E-05	8.68E-06	6.03E-06
96	Barstow	1.7	4.46E-07	1,000	250	1.39E-07	8.21E-08	5.70E-08	1.39E-05	8.21E-06	5.70E-06
97	Barstow	0.7	1.91E-07	100	250	5.95E-08	3.51E-08	2.44E-08	5.95E-06	3.51E-06	2.44E-06
98	Barstow	6.2	1.61E-06	1,000	250	5.02E-07	2.96E-07	2.06E-07	5.02E-05	2.96E-05	2.06E-05
99	Daggett	2.4	6.32E-07	100	250	1.97E-07	1.16E-07	8.08E-08	1.97E-05	1.16E-05	8.08E-06
100	Daggett	0.8	1.97E-07	1,000	250	6.15E-08	3.63E-08	2.52E-08	6.15E-06	3.63E-06	2.52E-06
101	MCSC	4.3	1.13E-06	100	250	3.52E-07	2.08E-07	1.44E-07	3.52E-05	2.08E-05	1.44E-05
102	Yermo	1.3	3.31E-07	1,000	250	1.03E-07	6.10E-08	4.24E-08	1.03E-05	6.10E-06	4.24E-06
103	Mojave Desert	123.5	3.21E-05	100	250	1.00E-05	5.91E-06	4.11E-06	1.00E-03	5.91E-04	4.11E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	1.89E-07	1.11E-07	7.75E-08	1.89E-05	1.11E-05	7.75E-06
2	Arroyo Grande	0.8	3.11E-07	100	250	9.73E-08	5.74E-08	3.99E-08	9.73E-06	5.74E-06	3.99E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	250	1.15E-07	6.76E-08	4.70E-08	1.15E-05	6.76E-06	4.70E-06
4	Arroyo Grande	1.4	5.39E-07	100	250	1.68E-07	9.93E-08	6.90E-08	1.68E-05	9.93E-06	6.90E-06
5	Oceano	0.4	1.57E-07	3,000	250	4.91E-08	2.89E-08	2.01E-08	4.91E-06	2.89E-06	2.01E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
6	Oceano	0.6	2.43E-07	10,000	250	7.61E-08	4.49E-08	3.12E-08	7.61E-06	4.49E-06	3.12E-06
7	Oceano	0.2	9.32E-08	3,000	250	2.91E-08	1.72E-08	1.19E-08	2.91E-06	1.72E-06	1.19E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05
9	Pismo	0.3	1.13E-07	3,000	250	3.52E-08	2.08E-08	1.44E-08	3.52E-06	2.08E-06	1.44E-06
10	Pismo	0.4	1.44E-07	1,000	250	4.49E-08	2.65E-08	1.84E-08	4.49E-06	2.65E-06	1.84E-06
11	Price Canyon	5.2	2.02E-06	100	250	6.32E-07	3.73E-07	2.59E-07	6.32E-05	3.73E-05	2.59E-05
12	Edna	0.6	2.34E-07	1,000	250	7.33E-08	4.32E-08	3.00E-08	7.33E-06	4.32E-06	3.00E-06
13	Edna	1.6	6.31E-07	100	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
14	San Luis Obispo	4.7	1.82E-06	10,000	250	5.69E-07	3.36E-07	2.33E-07	5.69E-05	3.36E-05	2.33E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	6.89E-08	4.06E-08	2.82E-08	6.89E-06	4.06E-06	2.82E-06
16	Chorro	0.4	1.66E-07	1,000	250	5.19E-08	3.06E-08	2.13E-08	5.19E-06	3.06E-06	2.13E-06
17	Chorro	1.6	6.10E-07	100	250	1.91E-07	1.12E-07	7.82E-08	1.91E-05	1.12E-05	7.82E-06
18	CMC	0.8	2.98E-07	3,000	250	9.30E-08	5.49E-08	3.81E-08	9.30E-06	5.49E-06	3.81E-06
19	Santa Lucia	11.2	4.36E-06	100	250	1.36E-06	8.04E-07	5.58E-07	1.36E-04	8.04E-05	5.58E-05
20	Santa Margarita	0.9	3.44E-07	3,000	250	1.07E-07	6.34E-08	4.41E-08	1.07E-05	6.34E-06	4.41E-06
21	Phillips PS	0.9	3.32E-07	100	250	1.04E-07	6.11E-08	4.25E-08	1.04E-05	6.11E-06	4.25E-06
22	Atascadero	7.4	2.89E-06	1,000	250	9.02E-07	5.32E-07	3.70E-07	9.02E-05	5.32E-05	3.70E-05
23	Atascadero	1.6	6.24E-07	3,000	250	1.95E-07	1.15E-07	7.99E-08	1.95E-05	1.15E-05	7.99E-06
24	Atascadero	1.3	4.96E-07	1,000	250	1.55E-07	9.15E-08	6.36E-08	1.55E-05	9.15E-06	6.36E-06
25	Atascadero	0.4	1.68E-07	3,000	250	5.25E-08	3.10E-08	2.15E-08	5.25E-06	3.10E-06	2.15E-06
26	101	0.4	1.43E-07	1,000	250	4.46E-08	2.63E-08	1.83E-08	4.46E-06	2.63E-06	1.83E-06
27	Templeton	2.1	8.34E-07	3,000	250	2.61E-07	1.54E-07	1.07E-07	2.61E-05	1.54E-05	1.07E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	6.26E-08	3.69E-08	2.56E-08	6.26E-06	3.69E-06	2.56E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	1.03E-07	6.05E-08	4.20E-08	1.03E-05	6.05E-06	4.20E-06
30	Paso Robles	2.7	1.07E-06	1,000	250	3.35E-07	1.98E-07	1.37E-07	3.35E-05	1.98E-05	1.37E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	2.61E-07	1.54E-07	1.07E-07	2.61E-05	1.54E-05	1.07E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	5.29E-08	3.12E-08	2.17E-08	5.29E-06	3.12E-06	2.17E-06
33	Paso Robles	1.2	4.54E-07	3,000	250	1.42E-07	8.36E-08	5.81E-08	1.42E-05	8.36E-06	5.81E-06
34	101	2.1	8.27E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
35	Wellsona	2.4	9.53E-07	1,000	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
36	101	1.9	7.27E-07	100	250	2.27E-07	1.34E-07	9.32E-08	2.27E-05	1.34E-05	9.32E-06
37	San Miguel	1.5	5.73E-07	3,000	250	1.79E-07	1.06E-07	7.34E-08	1.79E-05	1.06E-05	7.34E-06
38	101	2.7	1.03E-06	100	250	3.23E-07	1.91E-07	1.32E-07	3.23E-05	1.91E-05	1.32E-05
39	Camp Roberts	5.7	2.23E-06	100	250	6.96E-07	4.11E-07	2.85E-07	6.96E-05	4.11E-05	2.85E-05
40	Bradley	15.3	5.97E-06	100	250	1.86E-06	1.10E-06	7.65E-07	1.86E-04	1.10E-04	7.65E-05
41	San Lucas	18.5	7.22E-06	100	250	2.26E-06	1.33E-06	9.25E-07	2.26E-04	1.33E-04	9.25E-05
42	King City	1.5	5.69E-07	1,000	250	1.78E-07	1.05E-07	7.30E-08	1.78E-05	1.05E-05	7.30E-06
43	Clark Ranch	18.1	7.06E-06	100	250	2.20E-06	1.30E-06	9.04E-07	2.20E-04	1.30E-04	9.04E-05
44	Soledad	1.4	5.54E-07	1,000	250	1.73E-07	1.02E-07	7.10E-08	1.73E-05	1.02E-05	7.10E-06
45	Salinas Valley Ag	7.3	2.86E-06	100	250	8.95E-07	5.28E-07	3.67E-07	8.95E-05	5.28E-05	3.67E-05
46	Gonzales	1.2	4.52E-07	3,000	250	1.41E-07	8.34E-08	5.80E-08	1.41E-05	8.34E-06	5.80E-06
47	Salinas Valley Ag	5.0	1.96E-06	100	250	6.13E-07	3.62E-07	2.51E-07	6.13E-05	3.62E-05	2.51E-05
48	Chular	0.6	2.49E-07	1,000	250	7.77E-08	4.58E-08	3.19E-08	7.77E-06	4.58E-06	3.19E-06
49	Sprekles	7.8	3.03E-06	100	250	9.48E-07	5.59E-07	3.89E-07	9.48E-05	5.59E-05	3.89E-05
50	Salinas	3.9	1.53E-06	6,500	250	4.79E-07	2.83E-07	1.96E-07	4.79E-05	2.83E-05	1.96E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	7.53E-07	4.44E-07	3.09E-07	7.53E-05	4.44E-05	3.09E-05
52	Castroville	1.1	4.41E-07	1,000	250	1.38E-07	8.13E-08	5.65E-08	1.38E-05	8.13E-06	5.65E-06
53	Las Lomas	15.4	6.02E-06	100	250	1.88E-06	1.11E-06	7.72E-07	1.88E-04	1.11E-04	7.72E-05
54	Aromas	12.1	4.70E-06	100	250	1.47E-06	8.66E-07	6.02E-07	1.47E-04	8.66E-05	6.02E-05
55	Gilroy	4.2	1.63E-06	3,000	250	5.09E-07	3.01E-07	2.09E-07	5.09E-05	3.01E-05	2.09E-05
56	San Martin	6.1	2.36E-06	100	250	7.37E-07	4.35E-07	3.02E-07	7.37E-05	4.35E-05	3.02E-05
57	Morgan Hill	3.8	1.49E-06	3,000	250	4.67E-07	2.75E-07	1.91E-07	4.67E-05	2.75E-05	1.91E-05
58	Coyote Valley	6.7	2.60E-06	100	250	8.13E-07	4.80E-07	3.33E-07	8.13E-05	4.80E-05	3.33E-05
59	San Jose	6.3	2.47E-06	5,000	250	7.73E-07	4.56E-07	3.17E-07	7.73E-05	4.56E-05	3.17E-05
60	Seven Trees	1.9	7.25E-07	1,000	250	2.27E-07	1.34E-07	9.29E-08	2.27E-05	1.34E-05	9.29E-06
61	San Jose	5.0	1.93E-06	10,000	250	6.05E-07	3.57E-07	2.48E-07	6.05E-05	3.57E-05	2.48E-05
62	Santa Clara	5.1	1.99E-06	6,500	250	6.23E-07	3.67E-07	2.55E-07	6.23E-05	3.67E-05	2.55E-05
63	Alviso	1.7	6.71E-07	1,000	250	2.10E-07	1.24E-07	8.59E-08	2.10E-05	1.24E-05	8.59E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
64	Drawbridge	5.7	2.22E-06	100	250	6.95E-07	4.10E-07	2.85E-07	6.95E-05	4.10E-05	2.85E-05
65	Newark	2.3	8.78E-07	1,000	250	2.74E-07	1.62E-07	1.12E-07	2.74E-05	1.62E-05	1.12E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	1.38E-06	8.15E-07	5.67E-07	1.38E-04	8.15E-05	5.67E-05
67	San Lorenzo	0.8	3.11E-07	3,000	250	9.73E-08	5.74E-08	3.99E-08	9.73E-06	5.74E-06	3.99E-06
68	San Leandro	1.3	4.99E-07	10,000	250	1.56E-07	9.20E-08	6.40E-08	1.56E-05	9.20E-06	6.40E-06
69	San Leandro	0.7	2.81E-07	3,000	250	8.78E-08	5.18E-08	3.60E-08	8.78E-06	5.18E-06	3.60E-06
70	Oakland	5.3	2.05E-06	10,000	250	6.41E-07	3.78E-07	2.63E-07	6.41E-05	3.78E-05	2.63E-05
71	Oakland	1.4	5.34E-07	3,000	250	1.67E-07	9.85E-08	6.85E-08	1.67E-05	9.85E-06	6.85E-06
72	Oakland	1.6	6.32E-07	10,000	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
73	Oakland	1.4	5.27E-07	3,000	250	1.65E-07	9.71E-08	6.75E-08	1.65E-05	9.71E-06	6.75E-06
74	Oakland	1.5	6.01E-07	10,000	250	1.88E-07	1.11E-07	7.70E-08	1.88E-05	1.11E-05	7.70E-06
75	Oakland	2.7	1.04E-06	3,000	250	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
76	Emeryville	1.5	5.66E-07	10,000	250	1.77E-07	1.04E-07	7.25E-08	1.77E-05	1.04E-05	7.25E-06
77	Berkeley	1.0	3.94E-07	3,000	250	1.23E-07	7.26E-08	5.05E-08	1.23E-05	7.26E-06	5.05E-06
78	Berkeley	1.8	6.83E-07	10,000	250	2.13E-07	1.26E-07	8.74E-08	2.13E-05	1.26E-05	8.74E-06
79	Richmond	1.5	5.85E-07	3,000	250	1.83E-07	1.08E-07	7.50E-08	1.83E-05	1.08E-05	7.50E-06
80	Richmond	3.8	1.47E-06	10,000	250	4.58E-07	2.70E-07	1.88E-07	4.58E-05	2.70E-05	1.88E-05
81	North Richmond	1.1	4.10E-07	3,000	250	1.28E-07	7.55E-08	5.25E-08	1.28E-05	7.55E-06	5.25E-06
82	San Pablo	2.5	9.71E-07	1,000	250	3.03E-07	1.79E-07	1.24E-07	3.03E-05	1.79E-05	1.24E-05
83	Sobranto	1.8	6.83E-07	100	250	2.13E-07	1.26E-07	8.74E-08	2.13E-05	1.26E-05	8.74E-06
84	Hercules	5.6	2.19E-06	1,000	250	6.84E-07	4.03E-07	2.80E-07	6.84E-05	4.03E-05	2.80E-05
85	Selby	1.7	6.59E-07	100	250	2.06E-07	1.22E-07	8.44E-08	2.06E-05	1.22E-05	8.44E-06
86	Crockett	1.6	6.08E-07	1,000	250	1.90E-07	1.12E-07	7.80E-08	1.90E-05	1.12E-05	7.80E-06
87	Port Costa	4.3	1.68E-06	100	250	5.25E-07	3.10E-07	2.15E-07	5.25E-05	3.10E-05	2.15E-05
88	Martinez	0.5	1.89E-07	1,000	250	5.90E-08	3.48E-08	2.42E-08	5.90E-06	3.48E-06	2.42E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	250	3.13E-07	1.85E-07	1.28E-07	3.13E-05	1.85E-05	1.28E-05
90	Benicia	3.5	1.37E-06	1,000	250	4.27E-07	2.52E-07	1.75E-07	4.27E-05	2.52E-05	1.75E-05
91	Grizzly Bay	10.6	4.13E-06	100	250	1.29E-06	7.61E-07	5.29E-07	1.29E-04	7.61E-05	5.29E-05
92	Fairfield	3.8	1.49E-06	3,000	250	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05

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93	Elmira	13.7	5.34E-06	100	250	1.67E-06	9.85E-07	6.85E-07	1.67E-04	9.85E-05	6.85E-05
94	Dixon	2.1	8.35E-07	1,000	250	2.61E-07	1.54E-07	1.07E-07	2.61E-05	1.54E-05	1.07E-05
95	Solano Co Ag	6.6	2.58E-06	100	250	8.06E-07	4.75E-07	3.30E-07	8.06E-05	4.75E-05	3.30E-05
96	Davis	3.5	1.38E-06	1,000	250	4.30E-07	2.54E-07	1.76E-07	4.30E-05	2.54E-05	1.76E-05
97	Yolo Co Ag	7.0	2.73E-06	100	250	8.52E-07	5.03E-07	3.49E-07	8.52E-05	5.03E-05	3.49E-05
98	Sacramento	3.3	1.27E-06	3,000	250	3.96E-07	2.34E-07	1.62E-07	3.96E-05	2.34E-05	1.62E-05
99	Sacramento River	0.4	1.64E-07	100	250	5.12E-08	3.02E-08	2.10E-08	5.12E-06	3.02E-06	2.10E-06
100	Sacramento	2.5	9.59E-07	10,000	250	3.00E-07	1.77E-07	1.23E-07	3.00E-05	1.77E-05	1.23E-05
101	Parkland	1.6	6.32E-07	100	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
102	Sacramento	3.1	1.21E-06	3,000	250	3.78E-07	2.23E-07	1.55E-07	3.78E-05	2.23E-05	1.55E-05
103	North Highlands	2.6	1.01E-06	1,000	250	3.14E-07	1.86E-07	1.29E-07	3.14E-05	1.86E-05	1.29E-05
104	North Highlands	4.4	1.70E-06	3,000	250	5.33E-07	3.14E-07	2.18E-07	5.33E-05	3.14E-05	2.18E-05
105	Roseville Yard	1.3	4.91E-07	100	250	1.54E-07	9.06E-08	6.30E-08	1.54E-05	9.06E-06	6.30E-06
145	Roseville	2.3	6.15E-07	3,000	250	1.92E-07	1.13E-07	7.88E-08	1.92E-05	1.13E-05	7.88E-06
146	Roseville	1.3	3.45E-07	1,000	250	1.08E-07	6.35E-08	4.41E-08	1.08E-05	6.35E-06	4.41E-06
147	Roseville	0.1	4.00E-08	100	250	1.25E-08	7.38E-09	5.13E-09	1.25E-06	7.38E-07	5.13E-07
148	Placer Co	2.9	7.89E-07	1,000	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
149	Lincoln	1.2	3.22E-07	100	250	1.01E-07	5.94E-08	4.13E-08	1.01E-05	5.94E-06	4.13E-06
150	Lincoln	2.9	7.74E-07	3,000	250	2.42E-07	1.43E-07	9.92E-08	2.42E-05	1.43E-05	9.92E-06
151	Sheridan	10.7	2.88E-06	100	250	9.00E-07	5.31E-07	3.69E-07	9.00E-05	5.31E-05	3.69E-05
152	Wheatland	0.9	2.51E-07	1,000	250	7.85E-08	4.63E-08	3.22E-08	7.85E-06	4.63E-06	3.22E-06
153	Yuba County	9.2	2.49E-06	100	250	7.79E-07	4.60E-07	3.20E-07	7.79E-05	4.60E-05	3.20E-05
154	Olivehurst	4.3	1.15E-06	1,000	250	3.59E-07	2.12E-07	1.47E-07	3.59E-05	2.12E-05	1.47E-05
155	Marysville	1.3	3.59E-07	3,000	250	1.12E-07	6.61E-08	4.59E-08	1.12E-05	6.61E-06	4.59E-06
156	Marysville	2.3	6.27E-07	100	250	1.96E-07	1.16E-07	8.03E-08	1.96E-05	1.16E-05	8.03E-06
157	Live Oak	0.3	8.88E-08	1,000	250	2.77E-08	1.64E-08	1.14E-08	2.77E-06	1.64E-06	1.14E-06
158	Live Oak	6.4	1.73E-06	100	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
159	Live Oak	0.4	9.89E-08	1,000	250	3.09E-08	1.82E-08	1.27E-08	3.09E-06	1.82E-06	1.27E-06
160	Live Oak	1.0	2.74E-07	3,000	250	8.55E-08	5.05E-08	3.51E-08	8.55E-06	5.05E-06	3.51E-06

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161	Butte Co	5.2	1.41E-06	100	250	4.41E-07	2.60E-07	1.81E-07	4.41E-05	2.60E-05	1.81E-05
162	Gridley	0.5	1.23E-07	1,000	250	3.84E-08	2.26E-08	1.57E-08	3.84E-06	2.26E-06	1.57E-06
163	Gridley	0.8	2.24E-07	3,000	250	6.99E-08	4.13E-08	2.87E-08	6.99E-06	4.13E-06	2.87E-06
164	Gridley	2.5	6.77E-07	100	250	2.12E-07	1.25E-07	8.68E-08	2.12E-05	1.25E-05	8.68E-06
165	Biggs	0.6	1.55E-07	3,000	250	4.83E-08	2.85E-08	1.98E-08	4.83E-06	2.85E-06	1.98E-06
166	Butte Co	5.1	1.39E-06	100	250	4.33E-07	2.55E-07	1.78E-07	4.33E-05	2.55E-05	1.78E-05
167	Richvale	0.8	2.26E-07	1,000	250	7.05E-08	4.16E-08	2.89E-08	7.05E-06	4.16E-06	2.89E-06
168	Nelson	9.3	2.51E-06	100	250	7.83E-07	4.62E-07	3.21E-07	7.83E-05	4.62E-05	3.21E-05
169	Durham	2.4	6.58E-07	1,000	250	2.06E-07	1.21E-07	8.43E-08	2.06E-05	1.21E-05	8.43E-06
170	Chico	4.3	1.17E-06	100	250	3.65E-07	2.15E-07	1.49E-07	3.65E-05	2.15E-05	1.49E-05
171	Chico	4.5	1.22E-06	1,000	250	3.81E-07	2.25E-07	1.56E-07	3.81E-05	2.25E-05	1.56E-05
172	Chico	2.8	7.56E-07	100	250	2.36E-07	1.39E-07	9.69E-08	2.36E-05	1.39E-05	9.69E-06
173	Nord	0.6	1.57E-07	1,000	250	4.92E-08	2.90E-08	2.02E-08	4.92E-06	2.90E-06	2.02E-06
174	Butte Co	11.3	3.06E-06	100	250	9.57E-07	5.65E-07	3.92E-07	9.57E-05	5.65E-05	3.92E-05
175	Vina	0.4	1.20E-07	1,000	250	3.76E-08	2.22E-08	1.54E-08	3.76E-06	2.22E-06	1.54E-06
176	Copeland	6.3	1.70E-06	100	250	5.32E-07	3.14E-07	2.18E-07	5.32E-05	3.14E-05	2.18E-05
177	Los Molinos	0.5	1.40E-07	1,000	250	4.38E-08	2.59E-08	1.80E-08	4.38E-06	2.59E-06	1.80E-06
178	Los Molinos	1.0	2.68E-07	100	250	8.38E-08	4.94E-08	3.44E-08	8.38E-06	4.94E-06	3.44E-06
179	Tehema	0.3	8.98E-08	1,000	250	2.81E-08	1.65E-08	1.15E-08	2.81E-06	1.65E-06	1.15E-06
180	Tehema	2.2	6.04E-07	100	250	1.89E-07	1.11E-07	7.74E-08	1.89E-05	1.11E-05	7.74E-06
181	Gerber	2.3	6.25E-07	1,000	250	1.95E-07	1.15E-07	8.01E-08	1.95E-05	1.15E-05	8.01E-06
182	Tehema Co	1.8	4.83E-07	100	250	1.51E-07	8.90E-08	6.18E-08	1.51E-05	8.90E-06	6.18E-06
183	Red Bluff	0.8	2.08E-07	1,000	250	6.51E-08	3.84E-08	2.67E-08	6.51E-06	3.84E-06	2.67E-06
184	Red Bluff	4.6	1.25E-06	100	250	3.90E-07	2.30E-07	1.60E-07	3.90E-05	2.30E-05	1.60E-05
185	Red Bluff	3.3	8.86E-07	1,000	250	2.77E-07	1.63E-07	1.14E-07	2.77E-05	1.63E-05	1.14E-05
186	Tehema Co	15.3	4.13E-06	100	250	1.29E-06	7.61E-07	5.29E-07	1.29E-04	7.61E-05	5.29E-05
187	Cottonwood	0.6	1.65E-07	1,000	250	5.14E-08	3.03E-08	2.11E-08	5.14E-06	3.03E-06	2.11E-06
188	Anderson	5.4	1.45E-06	100	250	4.52E-07	2.67E-07	1.85E-07	4.52E-05	2.67E-05	1.85E-05
189	Anderson	3.5	9.57E-07	1,000	250	2.99E-07	1.77E-07	1.23E-07	2.99E-05	1.77E-05	1.23E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
190	Anderson	4.1	1.10E-06	100	250	3.45E-07	2.03E-07	1.41E-07	3.45E-05	2.03E-05	1.41E-05
191	Redding	6.0	1.63E-06	1,000	250	5.10E-07	3.01E-07	2.09E-07	5.10E-05	3.01E-05	2.09E-05
192	Redding	0.8	2.06E-07	1,000	250	6.43E-08	3.79E-08	2.64E-08	6.43E-06	3.79E-06	2.64E-06
193	Redding	1.1	3.05E-07	100	250	9.53E-08	5.62E-08	3.91E-08	9.53E-06	5.62E-06	3.91E-06
194	Redding	0.4	1.05E-07	1,000	250	3.30E-08	1.94E-08	1.35E-08	3.30E-06	1.94E-06	1.35E-06
195	Redding	2.6	6.97E-07	100	250	2.18E-07	1.28E-07	8.93E-08	2.18E-05	1.28E-05	8.93E-06
196	Shasta Co	0.5	1.41E-07	1,000	250	4.41E-08	2.60E-08	1.81E-08	4.41E-06	2.60E-06	1.81E-06
197	Shasta Lake	1.7	4.46E-07	100	250	1.39E-07	8.21E-08	5.71E-08	1.39E-05	8.21E-06	5.71E-06
198	Shasta Lake	0.8	2.03E-07	1,000	250	6.34E-08	3.74E-08	2.60E-08	6.34E-06	3.74E-06	2.60E-06
199	Shasta Co	16.4	4.44E-06	100	250	1.39E-06	8.19E-07	5.69E-07	1.39E-04	8.19E-05	5.69E-05
200	Lakeshore	0.6	1.64E-07	1,000	250	5.12E-08	3.02E-08	2.10E-08	5.12E-06	3.02E-06	2.10E-06
201	Shasta Co	30.4	8.20E-06	100	250	2.56E-06	1.51E-06	1.05E-06	2.56E-04	1.51E-04	1.05E-04
202	Dunsmuir	1.3	3.52E-07	1,000	250	1.10E-07	6.49E-08	4.51E-08	1.10E-05	6.49E-06	4.51E-06
203	Siskiyou Co	12.8	3.45E-06	100	250	1.08E-06	6.36E-07	4.42E-07	1.08E-04	6.36E-05	4.42E-05
204	Mount Shasta	1.1	3.05E-07	1,000	250	9.54E-08	5.63E-08	3.91E-08	9.54E-06	5.63E-06	3.91E-06
205	Siskiyou Co	69.5	1.88E-05	100	250	5.86E-06	3.46E-06	2.40E-06	5.86E-04	3.46E-04	2.40E-04
206	Dorris	0.9	2.38E-07	100	250	7.44E-08	4.39E-08	3.05E-08	7.44E-06	4.39E-06	3.05E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	250	2.88E-07	1.70E-07	1.18E-07	2.88E-05	1.70E-05	1.18E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	1.89E-07	1.11E-07	7.75E-08	1.89E-05	1.11E-05	7.75E-06
2	Arroyo Grande	0.8	3.11E-07	100	250	9.73E-08	5.74E-08	3.99E-08	9.73E-06	5.74E-06	3.99E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	250	1.15E-07	6.76E-08	4.70E-08	1.15E-05	6.76E-06	4.70E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
4	Arroyo Grande	1.4	5.39E-07	100	250	1.68E-07	9.93E-08	6.90E-08	1.68E-05	9.93E-06	6.90E-06
5	Oceano	0.4	1.57E-07	3,000	250	4.91E-08	2.89E-08	2.01E-08	4.91E-06	2.89E-06	2.01E-06
6	Oceano	0.6	2.43E-07	10,000	250	7.61E-08	4.49E-08	3.12E-08	7.61E-06	4.49E-06	3.12E-06
7	Oceano	0.2	9.32E-08	3,000	250	2.91E-08	1.72E-08	1.19E-08	2.91E-06	1.72E-06	1.19E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05
9	Pismo	0.3	1.13E-07	3,000	250	3.52E-08	2.08E-08	1.44E-08	3.52E-06	2.08E-06	1.44E-06
10	Pismo	0.4	1.44E-07	1,000	250	4.49E-08	2.65E-08	1.84E-08	4.49E-06	2.65E-06	1.84E-06
11	Price Canyon	5.2	2.02E-06	100	250	6.32E-07	3.73E-07	2.59E-07	6.32E-05	3.73E-05	2.59E-05
12	Edna	0.6	2.34E-07	1,000	250	7.33E-08	4.32E-08	3.00E-08	7.33E-06	4.32E-06	3.00E-06
13	Edna	1.6	6.31E-07	100	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
14	San Luis Obispo	4.7	1.82E-06	10,000	250	5.69E-07	3.36E-07	2.33E-07	5.69E-05	3.36E-05	2.33E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	6.89E-08	4.06E-08	2.82E-08	6.89E-06	4.06E-06	2.82E-06
16	Chorro	0.4	1.66E-07	1,000	250	5.19E-08	3.06E-08	2.13E-08	5.19E-06	3.06E-06	2.13E-06
17	Chorro	1.6	6.10E-07	100	250	1.91E-07	1.12E-07	7.82E-08	1.91E-05	1.12E-05	7.82E-06
18	CMC	0.8	2.98E-07	3,000	250	9.30E-08	5.49E-08	3.81E-08	9.30E-06	5.49E-06	3.81E-06
19	Santa Lucia	11.2	4.36E-06	100	250	1.36E-06	8.04E-07	5.58E-07	1.36E-04	8.04E-05	5.58E-05
20	Santa Margarita	0.9	3.44E-07	3,000	250	1.07E-07	6.34E-08	4.41E-08	1.07E-05	6.34E-06	4.41E-06
21	Phillips PS	0.9	3.32E-07	100	250	1.04E-07	6.11E-08	4.25E-08	1.04E-05	6.11E-06	4.25E-06
22	Atascadero	7.4	2.89E-06	1,000	250	9.02E-07	5.32E-07	3.70E-07	9.02E-05	5.32E-05	3.70E-05
23	Atascadero	1.6	6.24E-07	3,000	250	1.95E-07	1.15E-07	7.99E-08	1.95E-05	1.15E-05	7.99E-06
24	Atascadero	1.3	4.96E-07	1,000	250	1.55E-07	9.15E-08	6.36E-08	1.55E-05	9.15E-06	6.36E-06
25	Atascadero	0.4	1.68E-07	3,000	250	5.25E-08	3.10E-08	2.15E-08	5.25E-06	3.10E-06	2.15E-06
26	101	0.4	1.43E-07	1,000	250	4.46E-08	2.63E-08	1.83E-08	4.46E-06	2.63E-06	1.83E-06
27	Templeton	2.1	8.34E-07	3,000	250	2.61E-07	1.54E-07	1.07E-07	2.61E-05	1.54E-05	1.07E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	6.26E-08	3.69E-08	2.56E-08	6.26E-06	3.69E-06	2.56E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	1.03E-07	6.05E-08	4.20E-08	1.03E-05	6.05E-06	4.20E-06
30	Paso Robles	2.7	1.07E-06	1,000	250	3.35E-07	1.98E-07	1.37E-07	3.35E-05	1.98E-05	1.37E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	2.61E-07	1.54E-07	1.07E-07	2.61E-05	1.54E-05	1.07E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	5.29E-08	3.12E-08	2.17E-08	5.29E-06	3.12E-06	2.17E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
33	Paso Robles	1.2	4.54E-07	3,000	250	1.42E-07	8.36E-08	5.81E-08	1.42E-05	8.36E-06	5.81E-06
34	101	2.1	8.27E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
35	Wellsona	2.4	9.53E-07	1,000	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
36	101	1.9	7.27E-07	100	250	2.27E-07	1.34E-07	9.32E-08	2.27E-05	1.34E-05	9.32E-06
37	San Miguel	1.5	5.73E-07	3,000	250	1.79E-07	1.06E-07	7.34E-08	1.79E-05	1.06E-05	7.34E-06
38	101	2.7	1.03E-06	100	250	3.23E-07	1.91E-07	1.32E-07	3.23E-05	1.91E-05	1.32E-05
39	Camp Roberts	5.7	2.23E-06	100	250	6.96E-07	4.11E-07	2.85E-07	6.96E-05	4.11E-05	2.85E-05
40	Bradley	15.3	5.97E-06	100	250	1.86E-06	1.10E-06	7.65E-07	1.86E-04	1.10E-04	7.65E-05
41	San Lucas	18.5	7.22E-06	100	250	2.26E-06	1.33E-06	9.25E-07	2.26E-04	1.33E-04	9.25E-05
42	King City	1.5	5.69E-07	1,000	250	1.78E-07	1.05E-07	7.30E-08	1.78E-05	1.05E-05	7.30E-06
43	Clark Ranch	18.1	7.06E-06	100	250	2.20E-06	1.30E-06	9.04E-07	2.20E-04	1.30E-04	9.04E-05
44	Soledad	1.4	5.54E-07	1,000	250	1.73E-07	1.02E-07	7.10E-08	1.73E-05	1.02E-05	7.10E-06
45	Salinas Valley Ag	7.3	2.86E-06	100	250	8.95E-07	5.28E-07	3.67E-07	8.95E-05	5.28E-05	3.67E-05
46	Gonzales	1.2	4.52E-07	3,000	250	1.41E-07	8.34E-08	5.80E-08	1.41E-05	8.34E-06	5.80E-06
47	Salinas Valley Ag	5.0	1.96E-06	100	250	6.13E-07	3.62E-07	2.51E-07	6.13E-05	3.62E-05	2.51E-05
48	Chular	0.6	2.49E-07	1,000	250	7.77E-08	4.58E-08	3.19E-08	7.77E-06	4.58E-06	3.19E-06
49	Sprekles	7.8	3.03E-06	100	250	9.48E-07	5.59E-07	3.89E-07	9.48E-05	5.59E-05	3.89E-05
50	Salinas	3.9	1.53E-06	6,500	250	4.79E-07	2.83E-07	1.96E-07	4.79E-05	2.83E-05	1.96E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	7.53E-07	4.44E-07	3.09E-07	7.53E-05	4.44E-05	3.09E-05
52	Castroville	1.1	4.41E-07	1,000	250	1.38E-07	8.13E-08	5.65E-08	1.38E-05	8.13E-06	5.65E-06
53	Las Lomas	15.4	6.02E-06	100	250	1.88E-06	1.11E-06	7.72E-07	1.88E-04	1.11E-04	7.72E-05
54	Aromas	12.1	4.70E-06	100	250	1.47E-06	8.66E-07	6.02E-07	1.47E-04	8.66E-05	6.02E-05
55	Gilroy	4.2	1.63E-06	3,000	250	5.09E-07	3.01E-07	2.09E-07	5.09E-05	3.01E-05	2.09E-05
56	San Martin	6.1	2.36E-06	100	250	7.37E-07	4.35E-07	3.02E-07	7.37E-05	4.35E-05	3.02E-05
57	Morgan Hill	3.8	1.49E-06	3,000	250	4.67E-07	2.75E-07	1.91E-07	4.67E-05	2.75E-05	1.91E-05
58	Coyote Valley	6.7	2.60E-06	100	250	8.13E-07	4.80E-07	3.33E-07	8.13E-05	4.80E-05	3.33E-05
59	San Jose	6.3	2.47E-06	5,000	250	7.73E-07	4.56E-07	3.17E-07	7.73E-05	4.56E-05	3.17E-05
60	Seven Trees	1.9	7.25E-07	1,000	250	2.27E-07	1.34E-07	9.29E-08	2.27E-05	1.34E-05	9.29E-06
61	San Jose	5.0	1.93E-06	10,000	250	6.05E-07	3.57E-07	2.48E-07	6.05E-05	3.57E-05	2.48E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
62	Santa Clara	5.1	1.99E-06	6,500	250	6.23E-07	3.67E-07	2.55E-07	6.23E-05	3.67E-05	2.55E-05
63	Alviso	1.7	6.71E-07	1,000	250	2.10E-07	1.24E-07	8.59E-08	2.10E-05	1.24E-05	8.59E-06
64	Drawbridge	5.7	2.22E-06	100	250	6.95E-07	4.10E-07	2.85E-07	6.95E-05	4.10E-05	2.85E-05
65	Newark	2.3	8.78E-07	1,000	250	2.74E-07	1.62E-07	1.12E-07	2.74E-05	1.62E-05	1.12E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	1.38E-06	8.15E-07	5.67E-07	1.38E-04	8.15E-05	5.67E-05
67	San Lorenzo	0.8	3.11E-07	3,000	250	9.73E-08	5.74E-08	3.99E-08	9.73E-06	5.74E-06	3.99E-06
68	San Leandro	1.3	4.99E-07	10,000	250	1.56E-07	9.20E-08	6.40E-08	1.56E-05	9.20E-06	6.40E-06
69	San Leandro	0.7	2.81E-07	3,000	250	8.78E-08	5.18E-08	3.60E-08	8.78E-06	5.18E-06	3.60E-06
70	Oakland	5.3	2.05E-06	10,000	250	6.41E-07	3.78E-07	2.63E-07	6.41E-05	3.78E-05	2.63E-05
71	Oakland	1.4	5.34E-07	3,000	250	1.67E-07	9.85E-08	6.85E-08	1.67E-05	9.85E-06	6.85E-06
72	Oakland	1.6	6.32E-07	10,000	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
73	Oakland	1.4	5.27E-07	3,000	250	1.65E-07	9.71E-08	6.75E-08	1.65E-05	9.71E-06	6.75E-06
74	Oakland	1.5	6.01E-07	10,000	250	1.88E-07	1.11E-07	7.70E-08	1.88E-05	1.11E-05	7.70E-06
75	Oakland	2.7	1.04E-06	3,000	250	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
76	Emeryville	1.5	5.66E-07	10,000	250	1.77E-07	1.04E-07	7.25E-08	1.77E-05	1.04E-05	7.25E-06
77	Berkeley	1.0	3.94E-07	3,000	250	1.23E-07	7.26E-08	5.05E-08	1.23E-05	7.26E-06	5.05E-06
78	Berkeley	1.8	6.83E-07	10,000	250	2.13E-07	1.26E-07	8.74E-08	2.13E-05	1.26E-05	8.74E-06
79	Richmond	1.5	5.85E-07	3,000	250	1.83E-07	1.08E-07	7.50E-08	1.83E-05	1.08E-05	7.50E-06
80	Richmond	3.8	1.47E-06	10,000	250	4.58E-07	2.70E-07	1.88E-07	4.58E-05	2.70E-05	1.88E-05
81	North Richmond	1.1	4.10E-07	3,000	250	1.28E-07	7.55E-08	5.25E-08	1.28E-05	7.55E-06	5.25E-06
82	San Pablo	2.5	9.71E-07	1,000	250	3.03E-07	1.79E-07	1.24E-07	3.03E-05	1.79E-05	1.24E-05
83	Sobranto	1.8	6.83E-07	100	250	2.13E-07	1.26E-07	8.74E-08	2.13E-05	1.26E-05	8.74E-06
84	Hercules	5.6	2.19E-06	1,000	250	6.84E-07	4.03E-07	2.80E-07	6.84E-05	4.03E-05	2.80E-05
85	Selby	1.7	6.59E-07	100	250	2.06E-07	1.22E-07	8.44E-08	2.06E-05	1.22E-05	8.44E-06
86	Crockett	1.6	6.08E-07	1,000	250	1.90E-07	1.12E-07	7.80E-08	1.90E-05	1.12E-05	7.80E-06
87	Port Costa	4.3	1.68E-06	100	250	5.25E-07	3.10E-07	2.15E-07	5.25E-05	3.10E-05	2.15E-05
88	Martinez	0.5	1.89E-07	1,000	250	5.90E-08	3.48E-08	2.42E-08	5.90E-06	3.48E-06	2.42E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	250	3.13E-07	1.85E-07	1.28E-07	3.13E-05	1.85E-05	1.28E-05
90	Benicia	3.5	1.37E-06	1,000	250	4.27E-07	2.52E-07	1.75E-07	4.27E-05	2.52E-05	1.75E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
91	Grizzly Bay	10.6	4.13E-06	100	250	1.29E-06	7.61E-07	5.29E-07	1.29E-04	7.61E-05	5.29E-05
92	Fairfield	3.8	1.49E-06	3,000	250	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
93	Elmira	13.7	5.34E-06	100	250	1.67E-06	9.85E-07	6.85E-07	1.67E-04	9.85E-05	6.85E-05
94	Dixon	2.1	8.35E-07	1,000	250	2.61E-07	1.54E-07	1.07E-07	2.61E-05	1.54E-05	1.07E-05
95	Solano Co Ag	6.6	2.58E-06	100	250	8.06E-07	4.75E-07	3.30E-07	8.06E-05	4.75E-05	3.30E-05
96	Davis	3.5	1.38E-06	1,000	250	4.30E-07	2.54E-07	1.76E-07	4.30E-05	2.54E-05	1.76E-05
97	Yolo Co Ag	7.0	2.73E-06	100	250	8.52E-07	5.03E-07	3.49E-07	8.52E-05	5.03E-05	3.49E-05
98	Sacramento	3.3	1.27E-06	3,000	250	3.96E-07	2.34E-07	1.62E-07	3.96E-05	2.34E-05	1.62E-05
99	Sacramento River	0.4	1.64E-07	100	250	5.12E-08	3.02E-08	2.10E-08	5.12E-06	3.02E-06	2.10E-06
100	Sacramento	2.5	9.59E-07	10,000	250	3.00E-07	1.77E-07	1.23E-07	3.00E-05	1.77E-05	1.23E-05
101	Parkland	1.6	6.32E-07	100	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
102	Sacramento	3.1	1.21E-06	3,000	250	3.78E-07	2.23E-07	1.55E-07	3.78E-05	2.23E-05	1.55E-05
103	North Highlands	2.6	1.01E-06	1,000	250	3.14E-07	1.86E-07	1.29E-07	3.14E-05	1.86E-05	1.29E-05
104	North Highlands	4.4	1.70E-06	3,000	250	5.33E-07	3.14E-07	2.18E-07	5.33E-05	3.14E-05	2.18E-05
105	Roseville Yard	1.3	4.91E-07	100	250	1.54E-07	9.06E-08	6.30E-08	1.54E-05	9.06E-06	6.30E-06
129	Roseville	1.4	1.15E-06	3,000	250	3.61E-07	2.13E-07	1.48E-07	3.61E-05	2.13E-05	1.48E-05
130	Roseville	1.1	9.01E-07	3,000	250	2.82E-07	1.66E-07	1.15E-07	2.82E-05	1.66E-05	1.15E-05
131	Roseville	2.1	1.73E-06	1,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
132	Roseville	0.5	3.71E-07	3,000	250	1.16E-07	6.84E-08	4.75E-08	1.16E-05	6.84E-06	4.75E-06
133	Rocklin	2.5	2.06E-06	1,000	250	6.44E-07	3.80E-07	2.64E-07	6.44E-05	3.80E-05	2.64E-05
134	Placer Co	8.0	6.54E-06	100	250	2.04E-06	1.21E-06	8.38E-07	2.04E-04	1.21E-04	8.38E-05
135	Newcastle	0.5	3.70E-07	1,000	250	1.16E-07	6.82E-08	4.74E-08	1.16E-05	6.82E-06	4.74E-06
136	Placer Co	2.5	2.05E-06	100	250	6.42E-07	3.79E-07	2.63E-07	6.42E-05	3.79E-05	2.63E-05
137	Auburn	5.3	4.37E-06	1,000	250	1.37E-06	8.07E-07	5.60E-07	1.37E-04	8.07E-05	5.60E-05
138	Placer Co	13.6	1.11E-05	100	250	3.48E-06	2.06E-06	1.43E-06	3.48E-04	2.06E-04	1.43E-04
139	Colfax	0.7	5.53E-07	1,000	250	1.73E-07	1.02E-07	7.08E-08	1.73E-05	1.02E-05	7.08E-06
140	Placer Co	61.6	5.05E-05	100	250	1.58E-05	9.31E-06	6.47E-06	1.58E-03	9.31E-04	6.47E-04
141	Truckee	2.1	1.74E-06	1,000	250	5.44E-07	3.21E-07	2.23E-07	5.44E-05	3.21E-05	2.23E-05
142	Nevada Co	13.9	1.14E-05	100	250	3.56E-06	2.10E-06	1.46E-06	3.56E-04	2.10E-04	1.46E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
143	Floriston	0.2	1.90E-07	1,000	250	5.93E-08	3.50E-08	2.43E-08	5.93E-06	3.50E-06	2.43E-06
144	Sierra Co	5.8	4.75E-06	100	250	1.48E-06	8.75E-07	6.08E-07	1.48E-04	8.75E-05	6.08E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	1.27E-07	7.50E-08	5.22E-08	1.27E-05	7.50E-06	5.22E-06
3	Arroyo Grande	0.9	4.79E-07	1,000	250	1.50E-07	8.84E-08	6.14E-08	1.50E-05	8.84E-06	6.14E-06
4	Arroyo Grande	1.4	7.05E-07	100	250	2.20E-07	1.30E-07	9.03E-08	2.20E-05	1.30E-05	9.03E-06
5	Oceano	0.4	2.05E-07	3,000	250	6.41E-08	3.78E-08	2.63E-08	6.41E-06	3.78E-06	2.63E-06
6	Oceano	0.6	3.18E-07	10,000	250	9.95E-08	5.87E-08	4.08E-08	9.95E-06	5.87E-06	4.08E-06
7	Oceano	0.2	1.22E-07	3,000	250	3.81E-08	2.25E-08	1.56E-08	3.81E-06	2.25E-06	1.56E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	3.34E-07	1.97E-07	1.37E-07	3.34E-05	1.97E-05	1.37E-05
9	Pismo	0.3	1.47E-07	3,000	250	4.60E-08	2.72E-08	1.89E-08	4.60E-06	2.72E-06	1.89E-06
10	Pismo	0.4	1.88E-07	1,000	250	5.87E-08	3.47E-08	2.41E-08	5.87E-06	3.47E-06	2.41E-06
11	Price Canyon	5.2	2.64E-06	100	250	8.26E-07	4.87E-07	3.39E-07	8.26E-05	4.87E-05	3.39E-05
12	Edna	0.6	3.07E-07	1,000	250	9.58E-08	5.65E-08	3.93E-08	9.58E-06	5.65E-06	3.93E-06
13	Edna	1.6	8.25E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	7.44E-07	4.39E-07	3.05E-07	7.44E-05	4.39E-05	3.05E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	250	9.01E-08	5.31E-08	3.69E-08	9.01E-06	5.31E-06	3.69E-06
16	Chorro	0.4	2.17E-07	1,000	250	6.79E-08	4.01E-08	2.78E-08	6.79E-06	4.01E-06	2.78E-06
17	Chorro	1.6	7.98E-07	100	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
18	CMC	0.8	3.89E-07	3,000	250	1.22E-07	7.17E-08	4.98E-08	1.22E-05	7.17E-06	4.98E-06
19	Santa Lucia	11.2	5.70E-06	100	250	1.78E-06	1.05E-06	7.30E-07	1.78E-04	1.05E-04	7.30E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
20	Santa Margarita	0.9	4.50E-07	3,000	250	1.41E-07	8.29E-08	5.76E-08	1.41E-05	8.29E-06	5.76E-06
21	Phillips PS	0.9	4.34E-07	100	250	1.35E-07	7.99E-08	5.56E-08	1.35E-05	7.99E-06	5.56E-06
22	Atascadero	7.4	3.77E-06	1,000	250	1.18E-06	6.96E-07	4.84E-07	1.18E-04	6.96E-05	4.84E-05
23	Atascadero	1.6	8.16E-07	3,000	250	2.55E-07	1.50E-07	1.05E-07	2.55E-05	1.50E-05	1.05E-05
24	Atascadero	1.3	6.49E-07	1,000	250	2.03E-07	1.20E-07	8.32E-08	2.03E-05	1.20E-05	8.32E-06
25	Atascadero	0.4	2.20E-07	3,000	250	6.86E-08	4.05E-08	2.81E-08	6.86E-06	4.05E-06	2.81E-06
26	101	0.4	1.87E-07	1,000	250	5.83E-08	3.44E-08	2.39E-08	5.83E-06	3.44E-06	2.39E-06
27	Templeton	2.1	1.09E-06	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	8.18E-08	4.83E-08	3.35E-08	8.18E-06	4.83E-06	3.35E-06
29	Paso Robles	0.8	4.29E-07	3,000	250	1.34E-07	7.91E-08	5.50E-08	1.34E-05	7.91E-06	5.50E-06
30	Paso Robles	2.7	1.40E-06	1,000	250	4.38E-07	2.58E-07	1.80E-07	4.38E-05	2.58E-05	1.80E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	6.92E-08	4.08E-08	2.84E-08	6.92E-06	4.08E-06	2.84E-06
33	Paso Robles	1.2	5.93E-07	3,000	250	1.85E-07	1.09E-07	7.60E-08	1.85E-05	1.09E-05	7.60E-06
34	101	2.1	1.08E-06	100	250	3.38E-07	1.99E-07	1.39E-07	3.38E-05	1.99E-05	1.39E-05
35	Wellsona	2.4	1.25E-06	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
36	101	1.9	9.51E-07	100	250	2.97E-07	1.75E-07	1.22E-07	2.97E-05	1.75E-05	1.22E-05
37	San Miguel	1.5	7.49E-07	3,000	250	2.34E-07	1.38E-07	9.60E-08	2.34E-05	1.38E-05	9.60E-06
38	101	2.7	1.35E-06	100	250	4.22E-07	2.49E-07	1.73E-07	4.22E-05	2.49E-05	1.73E-05
39	Camp Roberts	5.7	2.91E-06	100	250	9.10E-07	5.37E-07	3.73E-07	9.10E-05	5.37E-05	3.73E-05
40	Bradley	15.3	7.80E-06	100	250	2.44E-06	1.44E-06	1.00E-06	2.44E-04	1.44E-04	1.00E-04
41	San Lucas	18.5	9.45E-06	100	250	2.95E-06	1.74E-06	1.21E-06	2.95E-04	1.74E-04	1.21E-04
42	King City	1.5	7.45E-07	1,000	250	2.33E-07	1.37E-07	9.54E-08	2.33E-05	1.37E-05	9.54E-06
43	Clark Ranch	18.1	9.23E-06	100	250	2.88E-06	1.70E-06	1.18E-06	2.88E-04	1.70E-04	1.18E-04
44	Soledad	1.4	7.24E-07	1,000	250	2.26E-07	1.34E-07	9.28E-08	2.26E-05	1.34E-05	9.28E-06
45	Salinas Valley Ag	7.3	3.74E-06	100	250	1.17E-06	6.90E-07	4.80E-07	1.17E-04	6.90E-05	4.80E-05
46	Gonzales	1.2	5.92E-07	3,000	250	1.85E-07	1.09E-07	7.58E-08	1.85E-05	1.09E-05	7.58E-06
47	Salinas Valley Ag	5.0	2.57E-06	100	250	8.02E-07	4.73E-07	3.29E-07	8.02E-05	4.73E-05	3.29E-05
48	Chular	0.6	3.25E-07	1,000	250	1.02E-07	5.99E-08	4.17E-08	1.02E-05	5.99E-06	4.17E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
49	Sprekles	7.8	3.97E-06	100	250	1.24E-06	7.32E-07	5.08E-07	1.24E-04	7.32E-05	5.08E-05
50	Salinas	3.9	2.00E-06	6,500	250	6.26E-07	3.70E-07	2.57E-07	6.26E-05	3.70E-05	2.57E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	9.85E-07	5.81E-07	4.04E-07	9.85E-05	5.81E-05	4.04E-05
52	Castroville	1.1	5.76E-07	1,000	250	1.80E-07	1.06E-07	7.38E-08	1.80E-05	1.06E-05	7.38E-06
53	Las Lomas	15.4	7.87E-06	100	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
54	Aromas	12.1	6.15E-06	100	250	1.92E-06	1.13E-06	7.87E-07	1.92E-04	1.13E-04	7.87E-05
55	Gilroy	4.2	2.13E-06	3,000	250	6.66E-07	3.93E-07	2.73E-07	6.66E-05	3.93E-05	2.73E-05
56	San Martin	6.1	3.09E-06	100	250	9.64E-07	5.69E-07	3.95E-07	9.64E-05	5.69E-05	3.95E-05
57	Morgan Hill	3.8	1.95E-06	3,000	250	6.10E-07	3.60E-07	2.50E-07	6.10E-05	3.60E-05	2.50E-05
58	Coyote Valley	6.7	3.40E-06	100	250	1.06E-06	6.27E-07	4.36E-07	1.06E-04	6.27E-05	4.36E-05
59	San Jose	6.3	3.23E-06	5,000	250	1.01E-06	5.96E-07	4.14E-07	1.01E-04	5.96E-05	4.14E-05
60	Seven Trees	1.9	9.49E-07	1,000	250	2.96E-07	1.75E-07	1.22E-07	2.96E-05	1.75E-05	1.22E-05
61	San Jose	5.0	2.53E-06	10,000	250	7.91E-07	4.66E-07	3.24E-07	7.91E-05	4.66E-05	3.24E-05
62	Santa Clara	5.1	2.61E-06	6,500	250	8.14E-07	4.80E-07	3.34E-07	8.14E-05	4.80E-05	3.34E-05
63	Alviso	1.7	8.77E-07	1,000	250	2.74E-07	1.62E-07	1.12E-07	2.74E-05	1.62E-05	1.12E-05
64	Drawbridge	5.7	2.91E-06	100	250	9.08E-07	5.36E-07	3.72E-07	9.08E-05	5.36E-05	3.72E-05
65	Newark	2.3	1.15E-06	1,000	250	3.59E-07	2.12E-07	1.47E-07	3.59E-05	2.12E-05	1.47E-05
107	Newark	3.1	1.59E-06	10,000	250	4.96E-07	2.92E-07	2.03E-07	4.96E-05	2.92E-05	2.03E-05
108	Fremont	3.2	1.64E-06	10,000	250	5.13E-07	3.03E-07	2.10E-07	5.13E-05	3.03E-05	2.10E-05
109	Sunol	6.8	3.48E-06	100	250	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
110	Pleasanton	1.8	9.08E-07	1,000	250	2.84E-07	1.67E-07	1.16E-07	2.84E-05	1.67E-05	1.16E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
112	Pleasanton	3.0	1.51E-06	100	250	4.73E-07	2.79E-07	1.94E-07	4.73E-05	2.79E-05	1.94E-05
113	Livermore	5.0	2.57E-06	5,000	250	8.03E-07	4.74E-07	3.29E-07	8.03E-05	4.74E-05	3.29E-05
114	Livermore	2.5	1.26E-06	1,000	250	3.94E-07	2.32E-07	1.61E-07	3.94E-05	2.32E-05	1.61E-05
115	Altamont	14.2	7.24E-06	100	250	2.26E-06	1.34E-06	9.28E-07	2.26E-04	1.34E-04	9.28E-05
116	Tracy	3.9	1.97E-06	3,000	250	6.15E-07	3.63E-07	2.52E-07	6.15E-05	3.63E-05	2.52E-05
117	Lathrop	8.2	4.18E-06	100	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
118	French Camp	8.0	4.08E-06	1,000	250	1.28E-06	7.52E-07	5.23E-07	1.28E-04	7.52E-05	5.23E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
119	Stockton	7.9	4.03E-06	10,000	250	1.26E-06	7.44E-07	5.17E-07	1.26E-04	7.44E-05	5.17E-05
120	Lodi	4.1	2.07E-06	100	250	6.45E-07	3.81E-07	2.65E-07	6.45E-05	3.81E-05	2.65E-05
121	Lodi	3.4	1.73E-06	5,000	250	5.40E-07	3.19E-07	2.22E-07	5.40E-05	3.19E-05	2.22E-05
122	Acampo	5.5	2.81E-06	100	250	8.77E-07	5.17E-07	3.59E-07	8.77E-05	5.17E-05	3.59E-05
123	Galt	1.6	7.96E-07	4,000	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
124	Hicksville	8.6	4.38E-06	100	250	1.37E-06	8.07E-07	5.61E-07	1.37E-04	8.07E-05	5.61E-05
125	Elk Grove	1.0	4.87E-07	100	250	1.52E-07	8.98E-08	6.24E-08	1.52E-05	8.98E-06	6.24E-06
126	Elk Grove	5.8	2.94E-06	5,000	250	9.18E-07	5.42E-07	3.76E-07	9.18E-05	5.42E-05	3.76E-05
127	Sacramento	4.2	2.14E-06	1,000	250	6.69E-07	3.95E-07	2.74E-07	6.69E-05	3.95E-05	2.74E-05
128	Sacramento	4.6	2.32E-06	10,000	250	7.25E-07	4.28E-07	2.97E-07	7.25E-05	4.28E-05	2.97E-05
101	Parkland	0.8	4.12E-07	100	250	1.29E-07	7.60E-08	5.28E-08	1.29E-05	7.60E-06	5.28E-06
102	Sacramento	3.1	1.58E-06	3,000	250	4.92E-07	2.91E-07	2.02E-07	4.92E-05	2.91E-05	2.02E-05
103	North Highlands	2.6	1.31E-06	1,000	250	4.08E-07	2.41E-07	1.67E-07	4.08E-05	2.41E-05	1.67E-05
104	North Highlands	4.4	2.23E-06	3,000	250	6.96E-07	4.11E-07	2.86E-07	6.96E-05	4.11E-05	2.86E-05
105	Roseville Yard	1.3	6.43E-07	100	250	2.01E-07	1.18E-07	8.23E-08	2.01E-05	1.18E-05	8.23E-06
145	Roseville	2.3	6.15E-07	3,000	250	1.92E-07	1.13E-07	7.88E-08	1.92E-05	1.13E-05	7.88E-06
146	Roseville	1.3	3.45E-07	1,000	250	1.08E-07	6.35E-08	4.41E-08	1.08E-05	6.35E-06	4.41E-06
147	Roseville	0.1	4.00E-08	100	250	1.25E-08	7.38E-09	5.13E-09	1.25E-06	7.38E-07	5.13E-07
148	Placer Co	2.9	7.89E-07	1,000	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
149	Lincoln	1.2	3.22E-07	100	250	1.01E-07	5.94E-08	4.13E-08	1.01E-05	5.94E-06	4.13E-06
150	Lincoln	2.9	7.74E-07	3,000	250	2.42E-07	1.43E-07	9.92E-08	2.42E-05	1.43E-05	9.92E-06
151	Sheridan	10.7	2.88E-06	100	250	9.00E-07	5.31E-07	3.69E-07	9.00E-05	5.31E-05	3.69E-05
152	Wheatland	0.9	2.51E-07	1,000	250	7.85E-08	4.63E-08	3.22E-08	7.85E-06	4.63E-06	3.22E-06
153	Yuba County	9.2	2.49E-06	100	250	7.79E-07	4.60E-07	3.20E-07	7.79E-05	4.60E-05	3.20E-05
154	Olivehurst	4.3	1.15E-06	1,000	250	3.59E-07	2.12E-07	1.47E-07	3.59E-05	2.12E-05	1.47E-05
155	Marysville	1.3	3.59E-07	3,000	250	1.12E-07	6.61E-08	4.59E-08	1.12E-05	6.61E-06	4.59E-06
156	Marysville	2.3	6.27E-07	100	250	1.96E-07	1.16E-07	8.03E-08	1.96E-05	1.16E-05	8.03E-06
157	Live Oak	0.3	8.88E-08	1,000	250	2.77E-08	1.64E-08	1.14E-08	2.77E-06	1.64E-06	1.14E-06
158	Live Oak	6.4	1.73E-06	100	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Project

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
159	Live Oak	0.4	9.89E-08	1,000	250	3.09E-08	1.82E-08	1.27E-08	3.09E-06	1.82E-06	1.27E-06
160	Live Oak	1.0	2.74E-07	3,000	250	8.55E-08	5.05E-08	3.51E-08	8.55E-06	5.05E-06	3.51E-06
161	Butte Co	5.2	1.41E-06	100	250	4.41E-07	2.60E-07	1.81E-07	4.41E-05	2.60E-05	1.81E-05
162	Gridley	0.5	1.23E-07	1,000	250	3.84E-08	2.26E-08	1.57E-08	3.84E-06	2.26E-06	1.57E-06
163	Gridley	0.8	2.24E-07	3,000	250	6.99E-08	4.13E-08	2.87E-08	6.99E-06	4.13E-06	2.87E-06
164	Gridley	2.5	6.77E-07	100	250	2.12E-07	1.25E-07	8.68E-08	2.12E-05	1.25E-05	8.68E-06
165	Biggs	0.6	1.55E-07	3,000	250	4.83E-08	2.85E-08	1.98E-08	4.83E-06	2.85E-06	1.98E-06
166	Butte Co	5.1	1.39E-06	100	250	4.33E-07	2.55E-07	1.78E-07	4.33E-05	2.55E-05	1.78E-05
167	Richvale	0.8	2.26E-07	1,000	250	7.05E-08	4.16E-08	2.89E-08	7.05E-06	4.16E-06	2.89E-06
168	Nelson	9.3	2.51E-06	100	250	7.83E-07	4.62E-07	3.21E-07	7.83E-05	4.62E-05	3.21E-05
169	Durham	2.4	6.58E-07	1,000	250	2.06E-07	1.21E-07	8.43E-08	2.06E-05	1.21E-05	8.43E-06
170	Chico	4.3	1.17E-06	100	250	3.65E-07	2.15E-07	1.49E-07	3.65E-05	2.15E-05	1.49E-05
171	Chico	4.5	1.22E-06	1,000	250	3.81E-07	2.25E-07	1.56E-07	3.81E-05	2.25E-05	1.56E-05
172	Chico	2.8	7.56E-07	100	250	2.36E-07	1.39E-07	9.69E-08	2.36E-05	1.39E-05	9.69E-06
173	Nord	0.6	1.57E-07	1,000	250	4.92E-08	2.90E-08	2.02E-08	4.92E-06	2.90E-06	2.02E-06
174	Butte Co	11.3	3.06E-06	100	250	9.57E-07	5.65E-07	3.92E-07	9.57E-05	5.65E-05	3.92E-05
175	Vina	0.4	1.20E-07	1,000	250	3.76E-08	2.22E-08	1.54E-08	3.76E-06	2.22E-06	1.54E-06
176	Copeland	6.3	1.70E-06	100	250	5.32E-07	3.14E-07	2.18E-07	5.32E-05	3.14E-05	2.18E-05
177	Los Molinos	0.5	1.40E-07	1,000	250	4.38E-08	2.59E-08	1.80E-08	4.38E-06	2.59E-06	1.80E-06
178	Los Molinos	1.0	2.68E-07	100	250	8.38E-08	4.94E-08	3.44E-08	8.38E-06	4.94E-06	3.44E-06
179	Tehema	0.3	8.98E-08	1,000	250	2.81E-08	1.65E-08	1.15E-08	2.81E-06	1.65E-06	1.15E-06
180	Tehema	2.2	6.04E-07	100	250	1.89E-07	1.11E-07	7.74E-08	1.89E-05	1.11E-05	7.74E-06
181	Gerber	2.3	6.25E-07	1,000	250	1.95E-07	1.15E-07	8.01E-08	1.95E-05	1.15E-05	8.01E-06
182	Tehema Co	1.8	4.83E-07	100	250	1.51E-07	8.90E-08	6.18E-08	1.51E-05	8.90E-06	6.18E-06
183	Red Bluff	0.8	2.08E-07	1,000	250	6.51E-08	3.84E-08	2.67E-08	6.51E-06	3.84E-06	2.67E-06
184	Red Bluff	4.6	1.25E-06	100	250	3.90E-07	2.30E-07	1.60E-07	3.90E-05	2.30E-05	1.60E-05
185	Red Bluff	3.3	8.86E-07	1,000	250	2.77E-07	1.63E-07	1.14E-07	2.77E-05	1.63E-05	1.14E-05
186	Tehema Co	15.3	4.13E-06	100	250	1.29E-06	7.61E-07	5.29E-07	1.29E-04	7.61E-05	5.29E-05
187	Cottonwood	0.6	1.65E-07	1,000	250	5.14E-08	3.03E-08	2.11E-08	5.14E-06	3.03E-06	2.11E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
188	Anderson	5.4	1.45E-06	100	250	4.52E-07	2.67E-07	1.85E-07	4.52E-05	2.67E-05	1.85E-05
189	Anderson	3.5	9.57E-07	1,000	250	2.99E-07	1.77E-07	1.23E-07	2.99E-05	1.77E-05	1.23E-05
190	Anderson	4.1	1.10E-06	100	250	3.45E-07	2.03E-07	1.41E-07	3.45E-05	2.03E-05	1.41E-05
191	Redding	6.0	1.63E-06	1,000	250	5.10E-07	3.01E-07	2.09E-07	5.10E-05	3.01E-05	2.09E-05
192	Redding	0.8	2.06E-07	1,000	250	6.43E-08	3.79E-08	2.64E-08	6.43E-06	3.79E-06	2.64E-06
193	Redding	1.1	3.05E-07	100	250	9.53E-08	5.62E-08	3.91E-08	9.53E-06	5.62E-06	3.91E-06
194	Redding	0.4	1.05E-07	1,000	250	3.30E-08	1.94E-08	1.35E-08	3.30E-06	1.94E-06	1.35E-06
195	Redding	2.6	6.97E-07	100	250	2.18E-07	1.28E-07	8.93E-08	2.18E-05	1.28E-05	8.93E-06
196	Shasta Co	0.5	1.41E-07	1,000	250	4.41E-08	2.60E-08	1.81E-08	4.41E-06	2.60E-06	1.81E-06
197	Shasta Lake	1.7	4.46E-07	100	250	1.39E-07	8.21E-08	5.71E-08	1.39E-05	8.21E-06	5.71E-06
198	Shasta Lake	0.8	2.03E-07	1,000	250	6.34E-08	3.74E-08	2.60E-08	6.34E-06	3.74E-06	2.60E-06
199	Shasta Co	16.4	4.44E-06	100	250	1.39E-06	8.19E-07	5.69E-07	1.39E-04	8.19E-05	5.69E-05
200	Lakeshore	0.6	1.64E-07	1,000	250	5.12E-08	3.02E-08	2.10E-08	5.12E-06	3.02E-06	2.10E-06
201	Shasta Co	30.4	8.20E-06	100	250	2.56E-06	1.51E-06	1.05E-06	2.56E-04	1.51E-04	1.05E-04
202	Dunsmuir	1.3	3.52E-07	1,000	250	1.10E-07	6.49E-08	4.51E-08	1.10E-05	6.49E-06	4.51E-06
203	Siskiyou Co	12.8	3.45E-06	100	250	1.08E-06	6.36E-07	4.42E-07	1.08E-04	6.36E-05	4.42E-05
204	Mount Shasta	1.1	3.05E-07	1,000	250	9.54E-08	5.63E-08	3.91E-08	9.54E-06	5.63E-06	3.91E-06
205	Siskiyou Co	69.5	1.88E-05	100	250	5.86E-06	3.46E-06	2.40E-06	5.86E-04	3.46E-04	2.40E-04
206	Dorris	0.9	2.38E-07	100	250	7.44E-08	4.39E-08	3.05E-08	7.44E-06	4.39E-06	3.05E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	250	2.88E-07	1.70E-07	1.18E-07	2.88E-05	1.70E-05	1.18E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	1.27E-07	7.50E-08	5.22E-08	1.27E-05	7.50E-06	5.22E-06
3	Arroyo Grande	0.9	4.79E-07	1,000	250	1.50E-07	8.84E-08	6.14E-08	1.50E-05	8.84E-06	6.14E-06
4	Arroyo Grande	1.4	7.05E-07	100	250	2.20E-07	1.30E-07	9.03E-08	2.20E-05	1.30E-05	9.03E-06
5	Oceano	0.4	2.05E-07	3,000	250	6.41E-08	3.78E-08	2.63E-08	6.41E-06	3.78E-06	2.63E-06
6	Oceano	0.6	3.18E-07	10,000	250	9.95E-08	5.87E-08	4.08E-08	9.95E-06	5.87E-06	4.08E-06
7	Oceano	0.2	1.22E-07	3,000	250	3.81E-08	2.25E-08	1.56E-08	3.81E-06	2.25E-06	1.56E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	3.34E-07	1.97E-07	1.37E-07	3.34E-05	1.97E-05	1.37E-05
9	Pismo	0.3	1.47E-07	3,000	250	4.60E-08	2.72E-08	1.89E-08	4.60E-06	2.72E-06	1.89E-06
10	Pismo	0.4	1.88E-07	1,000	250	5.87E-08	3.47E-08	2.41E-08	5.87E-06	3.47E-06	2.41E-06
11	Price Canyon	5.2	2.64E-06	100	250	8.26E-07	4.87E-07	3.39E-07	8.26E-05	4.87E-05	3.39E-05
12	Edna	0.6	3.07E-07	1,000	250	9.58E-08	5.65E-08	3.93E-08	9.58E-06	5.65E-06	3.93E-06
13	Edna	1.6	8.25E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	7.44E-07	4.39E-07	3.05E-07	7.44E-05	4.39E-05	3.05E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	250	9.01E-08	5.31E-08	3.69E-08	9.01E-06	5.31E-06	3.69E-06
16	Chorro	0.4	2.17E-07	1,000	250	6.79E-08	4.01E-08	2.78E-08	6.79E-06	4.01E-06	2.78E-06
17	Chorro	1.6	7.98E-07	100	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
18	CMC	0.8	3.89E-07	3,000	250	1.22E-07	7.17E-08	4.98E-08	1.22E-05	7.17E-06	4.98E-06
19	Santa Lucia	11.2	5.70E-06	100	250	1.78E-06	1.05E-06	7.30E-07	1.78E-04	1.05E-04	7.30E-05
20	Santa Margarita	0.9	4.50E-07	3,000	250	1.41E-07	8.29E-08	5.76E-08	1.41E-05	8.29E-06	5.76E-06
21	Phillips PS	0.9	4.34E-07	100	250	1.35E-07	7.99E-08	5.56E-08	1.35E-05	7.99E-06	5.56E-06
22	Atascadero	7.4	3.77E-06	1,000	250	1.18E-06	6.96E-07	4.84E-07	1.18E-04	6.96E-05	4.84E-05
23	Atascadero	1.6	8.16E-07	3,000	250	2.55E-07	1.50E-07	1.05E-07	2.55E-05	1.50E-05	1.05E-05
24	Atascadero	1.3	6.49E-07	1,000	250	2.03E-07	1.20E-07	8.32E-08	2.03E-05	1.20E-05	8.32E-06
25	Atascadero	0.4	2.20E-07	3,000	250	6.86E-08	4.05E-08	2.81E-08	6.86E-06	4.05E-06	2.81E-06
26	101	0.4	1.87E-07	1,000	250	5.83E-08	3.44E-08	2.39E-08	5.83E-06	3.44E-06	2.39E-06
27	Templeton	2.1	1.09E-06	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	8.18E-08	4.83E-08	3.35E-08	8.18E-06	4.83E-06	3.35E-06
29	Paso Robles	0.8	4.29E-07	3,000	250	1.34E-07	7.91E-08	5.50E-08	1.34E-05	7.91E-06	5.50E-06

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30	Paso Robles	2.7	1.40E-06	1,000	250	4.38E-07	2.58E-07	1.80E-07	4.38E-05	2.58E-05	1.80E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	6.92E-08	4.08E-08	2.84E-08	6.92E-06	4.08E-06	2.84E-06
33	Paso Robles	1.2	5.93E-07	3,000	250	1.85E-07	1.09E-07	7.60E-08	1.85E-05	1.09E-05	7.60E-06
34	101	2.1	1.08E-06	100	250	3.38E-07	1.99E-07	1.39E-07	3.38E-05	1.99E-05	1.39E-05
35	Wellsona	2.4	1.25E-06	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
36	101	1.9	9.51E-07	100	250	2.97E-07	1.75E-07	1.22E-07	2.97E-05	1.75E-05	1.22E-05
37	San Miguel	1.5	7.49E-07	3,000	250	2.34E-07	1.38E-07	9.60E-08	2.34E-05	1.38E-05	9.60E-06
38	101	2.7	1.35E-06	100	250	4.22E-07	2.49E-07	1.73E-07	4.22E-05	2.49E-05	1.73E-05
39	Camp Roberts	5.7	2.91E-06	100	250	9.10E-07	5.37E-07	3.73E-07	9.10E-05	5.37E-05	3.73E-05
40	Bradley	15.3	7.80E-06	100	250	2.44E-06	1.44E-06	1.00E-06	2.44E-04	1.44E-04	1.00E-04
41	San Lucas	18.5	9.45E-06	100	250	2.95E-06	1.74E-06	1.21E-06	2.95E-04	1.74E-04	1.21E-04
42	King City	1.5	7.45E-07	1,000	250	2.33E-07	1.37E-07	9.54E-08	2.33E-05	1.37E-05	9.54E-06
43	Clark Ranch	18.1	9.23E-06	100	250	2.88E-06	1.70E-06	1.18E-06	2.88E-04	1.70E-04	1.18E-04
44	Soledad	1.4	7.24E-07	1,000	250	2.26E-07	1.34E-07	9.28E-08	2.26E-05	1.34E-05	9.28E-06
45	Salinas Valley Ag	7.3	3.74E-06	100	250	1.17E-06	6.90E-07	4.80E-07	1.17E-04	6.90E-05	4.80E-05
46	Gonzales	1.2	5.92E-07	3,000	250	1.85E-07	1.09E-07	7.58E-08	1.85E-05	1.09E-05	7.58E-06
47	Salinas Valley Ag	5.0	2.57E-06	100	250	8.02E-07	4.73E-07	3.29E-07	8.02E-05	4.73E-05	3.29E-05
48	Chular	0.6	3.25E-07	1,000	250	1.02E-07	5.99E-08	4.17E-08	1.02E-05	5.99E-06	4.17E-06
49	Sprekles	7.8	3.97E-06	100	250	1.24E-06	7.32E-07	5.08E-07	1.24E-04	7.32E-05	5.08E-05
50	Salinas	3.9	2.00E-06	6,500	250	6.26E-07	3.70E-07	2.57E-07	6.26E-05	3.70E-05	2.57E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	9.85E-07	5.81E-07	4.04E-07	9.85E-05	5.81E-05	4.04E-05
52	Castroville	1.1	5.76E-07	1,000	250	1.80E-07	1.06E-07	7.38E-08	1.80E-05	1.06E-05	7.38E-06
53	Las Lomas	15.4	7.87E-06	100	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
54	Aromas	12.1	6.15E-06	100	250	1.92E-06	1.13E-06	7.87E-07	1.92E-04	1.13E-04	7.87E-05
55	Gilroy	4.2	2.13E-06	3,000	250	6.66E-07	3.93E-07	2.73E-07	6.66E-05	3.93E-05	2.73E-05
56	San Martin	6.1	3.09E-06	100	250	9.64E-07	5.69E-07	3.95E-07	9.64E-05	5.69E-05	3.95E-05
57	Morgan Hill	3.8	1.95E-06	3,000	250	6.10E-07	3.60E-07	2.50E-07	6.10E-05	3.60E-05	2.50E-05
58	Coyote Valley	6.7	3.40E-06	100	250	1.06E-06	6.27E-07	4.36E-07	1.06E-04	6.27E-05	4.36E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	San Jose	6.3	3.23E-06	5,000	250	1.01E-06	5.96E-07	4.14E-07	1.01E-04	5.96E-05	4.14E-05
60	Seven Trees	1.9	9.49E-07	1,000	250	2.96E-07	1.75E-07	1.22E-07	2.96E-05	1.75E-05	1.22E-05
61	San Jose	5.0	2.53E-06	10,000	250	7.91E-07	4.66E-07	3.24E-07	7.91E-05	4.66E-05	3.24E-05
62	Santa Clara	5.1	2.61E-06	6,500	250	8.14E-07	4.80E-07	3.34E-07	8.14E-05	4.80E-05	3.34E-05
63	Alviso	1.7	8.77E-07	1,000	250	2.74E-07	1.62E-07	1.12E-07	2.74E-05	1.62E-05	1.12E-05
64	Drawbridge	5.7	2.91E-06	100	250	9.08E-07	5.36E-07	3.72E-07	9.08E-05	5.36E-05	3.72E-05
65	Newark	2.3	1.15E-06	1,000	250	3.59E-07	2.12E-07	1.47E-07	3.59E-05	2.12E-05	1.47E-05
107	Newark	3.1	1.59E-06	10,000	250	4.96E-07	2.92E-07	2.03E-07	4.96E-05	2.92E-05	2.03E-05
108	Fremont	3.2	1.64E-06	10,000	250	5.13E-07	3.03E-07	2.10E-07	5.13E-05	3.03E-05	2.10E-05
109	Sunol	6.8	3.48E-06	100	250	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
110	Pleasanton	1.8	9.08E-07	1,000	250	2.84E-07	1.67E-07	1.16E-07	2.84E-05	1.67E-05	1.16E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
112	Pleasanton	3.0	1.51E-06	100	250	4.73E-07	2.79E-07	1.94E-07	4.73E-05	2.79E-05	1.94E-05
113	Livermore	5.0	2.57E-06	5,000	250	8.03E-07	4.74E-07	3.29E-07	8.03E-05	4.74E-05	3.29E-05
114	Livermore	2.5	1.26E-06	1,000	250	3.94E-07	2.32E-07	1.61E-07	3.94E-05	2.32E-05	1.61E-05
115	Altamont	14.2	7.24E-06	100	250	2.26E-06	1.34E-06	9.28E-07	2.26E-04	1.34E-04	9.28E-05
116	Tracy	3.9	1.97E-06	3,000	250	6.15E-07	3.63E-07	2.52E-07	6.15E-05	3.63E-05	2.52E-05
117	Lathrop	8.2	4.18E-06	100	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
118	French Camp	8.0	4.08E-06	1,000	250	1.28E-06	7.52E-07	5.23E-07	1.28E-04	7.52E-05	5.23E-05
119	Stockton	7.9	4.03E-06	10,000	250	1.26E-06	7.44E-07	5.17E-07	1.26E-04	7.44E-05	5.17E-05
120	Lodi	4.1	2.07E-06	100	250	6.45E-07	3.81E-07	2.65E-07	6.45E-05	3.81E-05	2.65E-05
121	Lodi	3.4	1.73E-06	5,000	250	5.40E-07	3.19E-07	2.22E-07	5.40E-05	3.19E-05	2.22E-05
122	Acampo	5.5	2.81E-06	100	250	8.77E-07	5.17E-07	3.59E-07	8.77E-05	5.17E-05	3.59E-05
123	Galt	1.6	7.96E-07	4,000	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
124	Hicksville	8.6	4.38E-06	100	250	1.37E-06	8.07E-07	5.61E-07	1.37E-04	8.07E-05	5.61E-05
125	Elk Grove	1.0	4.87E-07	100	250	1.52E-07	8.98E-08	6.24E-08	1.52E-05	8.98E-06	6.24E-06
126	Elk Grove	5.8	2.94E-06	5,000	250	9.18E-07	5.42E-07	3.76E-07	9.18E-05	5.42E-05	3.76E-05
127	Sacramento	4.2	2.14E-06	1,000	250	6.69E-07	3.95E-07	2.74E-07	6.69E-05	3.95E-05	2.74E-05
128	Sacramento	4.6	2.32E-06	10,000	250	7.25E-07	4.28E-07	2.97E-07	7.25E-05	4.28E-05	2.97E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Mitigated Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
101	Parkland	0.8	4.12E-07	100	250	1.29E-07	7.60E-08	5.28E-08	1.29E-05	7.60E-06	5.28E-06
102	Sacramento	3.1	1.58E-06	3,000	250	4.92E-07	2.91E-07	2.02E-07	4.92E-05	2.91E-05	2.02E-05
103	North Highlands	2.6	1.31E-06	1,000	250	4.08E-07	2.41E-07	1.67E-07	4.08E-05	2.41E-05	1.67E-05
104	North Highlands	4.4	2.23E-06	3,000	250	6.96E-07	4.11E-07	2.86E-07	6.96E-05	4.11E-05	2.86E-05
105	Roseville Yard	1.3	6.43E-07	100	250	2.01E-07	1.18E-07	8.23E-08	2.01E-05	1.18E-05	8.23E-06
129	Roseville	1.4	1.15E-06	3,000	250	3.61E-07	2.13E-07	1.48E-07	3.61E-05	2.13E-05	1.48E-05
130	Roseville	1.1	9.01E-07	3,000	250	2.82E-07	1.66E-07	1.15E-07	2.82E-05	1.66E-05	1.15E-05
131	Roseville	2.1	1.73E-06	1,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
132	Roseville	0.5	3.71E-07	3,000	250	1.16E-07	6.84E-08	4.75E-08	1.16E-05	6.84E-06	4.75E-06
133	Rocklin	2.5	2.06E-06	1,000	250	6.44E-07	3.80E-07	2.64E-07	6.44E-05	3.80E-05	2.64E-05
134	Placer Co	8.0	6.54E-06	100	250	2.04E-06	1.21E-06	8.38E-07	2.04E-04	1.21E-04	8.38E-05
135	Newcastle	0.5	3.70E-07	1,000	250	1.16E-07	6.82E-08	4.74E-08	1.16E-05	6.82E-06	4.74E-06
136	Placer Co	2.5	2.05E-06	100	250	6.42E-07	3.79E-07	2.63E-07	6.42E-05	3.79E-05	2.63E-05
137	Auburn	5.3	4.37E-06	1,000	250	1.37E-06	8.07E-07	5.60E-07	1.37E-04	8.07E-05	5.60E-05
138	Placer Co	13.6	1.11E-05	100	250	3.48E-06	2.06E-06	1.43E-06	3.48E-04	2.06E-04	1.43E-04
139	Colfax	0.7	5.53E-07	1,000	250	1.73E-07	1.02E-07	7.08E-08	1.73E-05	1.02E-05	7.08E-06
140	Placer Co	61.6	5.05E-05	100	250	1.58E-05	9.31E-06	6.47E-06	1.58E-03	9.31E-04	6.47E-04
141	Truckee	2.1	1.74E-06	1,000	250	5.44E-07	3.21E-07	2.23E-07	5.44E-05	3.21E-05	2.23E-05
142	Nevada Co	13.9	1.14E-05	100	250	3.56E-06	2.10E-06	1.46E-06	3.56E-04	2.10E-04	1.46E-04
143	Floriston	0.2	1.90E-07	1,000	250	5.93E-08	3.50E-08	2.43E-08	5.93E-06	3.50E-06	2.43E-06
144	Sierra Co	5.8	4.75E-06	100	250	1.48E-06	8.75E-07	6.08E-07	1.48E-04	8.75E-05	6.08E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Oso Flaco	2.8	1.19E-06	100	250	4.87E-07	2.87E-07	1.99E-07	4.87E-05	2.87E-05	1.99E-05
2	Nipomo	0.6	2.74E-07	1,000	250	1.12E-07	6.60E-08	4.58E-08	1.12E-05	6.60E-06	4.58E-06
3	Nipomo	1.5	6.32E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
4	Guadalupe	1.3	5.76E-07	10,000	250	2.35E-07	1.39E-07	9.65E-08	2.35E-05	1.39E-05	9.65E-06
5	SMV	0.3	1.31E-07	100	250	5.36E-08	3.16E-08	2.20E-08	5.36E-06	3.16E-06	2.20E-06
6	Point Sal	13.8	5.93E-06	100	250	2.42E-06	1.43E-06	9.92E-07	2.42E-04	1.43E-04	9.92E-05
7	VAFB	13.5	5.81E-06	100	250	2.37E-06	1.40E-06	9.74E-07	2.37E-04	1.40E-04	9.74E-05
8	Rocky Point	14.7	6.30E-06	100	250	2.57E-06	1.52E-06	1.06E-06	2.57E-04	1.52E-04	1.06E-04
9	Bixby/Hollister	13.0	5.61E-06	100	250	2.29E-06	1.35E-06	9.39E-07	2.29E-04	1.35E-04	9.39E-05
10	Gaviota Beach	0.5	2.00E-07	1,000	250	8.16E-08	4.82E-08	3.35E-08	8.16E-06	4.82E-06	3.35E-06
11	Gaviota	5.9	2.52E-06	100	250	1.03E-06	6.06E-07	4.21E-07	1.03E-04	6.06E-05	4.21E-05
12	Arroyo Quemado	0.3	1.18E-07	1,000	250	4.81E-08	2.84E-08	1.97E-08	4.81E-06	2.84E-06	1.97E-06
13	Tajiquas	2.9	1.26E-06	100	250	5.16E-07	3.05E-07	2.12E-07	5.16E-05	3.05E-05	2.12E-05
14	Refugio	0.2	7.92E-08	1,000	250	3.24E-08	1.91E-08	1.33E-08	3.24E-06	1.91E-06	1.33E-06
15	Canada del Corral	2.0	8.51E-07	100	250	3.48E-07	2.05E-07	1.43E-07	3.48E-05	2.05E-05	1.43E-05
16	El Capitan	0.8	3.43E-07	1,000	250	1.40E-07	8.26E-08	5.74E-08	1.40E-05	8.26E-06	5.74E-06
17	Naples	5.7	2.44E-06	100	250	9.96E-07	5.88E-07	4.08E-07	9.96E-05	5.88E-05	4.08E-05
18	Bacara	0.8	3.24E-07	1,000	250	1.32E-07	7.80E-08	5.42E-08	1.32E-05	7.80E-06	5.42E-06
19	Sandpiper	0.6	2.48E-07	100	250	1.01E-07	5.99E-08	4.16E-08	1.01E-05	5.99E-06	4.16E-06
20	Goleta	2.1	9.03E-07	3,000	250	3.69E-07	2.18E-07	1.51E-07	3.69E-05	2.18E-05	1.51E-05
21	Goleta	1.6	7.01E-07	1,000	250	2.86E-07	1.69E-07	1.17E-07	2.86E-05	1.69E-05	1.17E-05
22	Santa Barbara	9.5	4.08E-06	3,000	250	1.67E-06	9.82E-07	6.83E-07	1.67E-04	9.82E-05	6.83E-05
23	Santa Barbara	3.8	1.64E-06	10,000	250	6.69E-07	3.95E-07	2.74E-07	6.69E-05	3.95E-05	2.74E-05
24	Montecito	4.3	1.83E-06	3,000	250	7.48E-07	4.41E-07	3.07E-07	7.48E-05	4.41E-05	3.07E-05
25	Polo Grounds	0.9	4.07E-07	1,000	250	1.66E-07	9.81E-08	6.82E-08	1.66E-05	9.81E-06	6.82E-06
26	Padero Lane	0.5	2.21E-07	3,000	250	9.02E-08	5.32E-08	3.70E-08	9.02E-06	5.32E-06	3.70E-06
27	Carpinteria	2.8	1.20E-06	1,000	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
28	Carpinteria	1.3	5.55E-07	3,000	250	2.27E-07	1.34E-07	9.29E-08	2.27E-05	1.34E-05	9.29E-06
29	Carpinteria Bluffs	1.9	8.00E-07	1,000	250	3.27E-07	1.93E-07	1.34E-07	3.27E-05	1.93E-05	1.34E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Rincon	0.2	1.01E-07	3,000	250	4.14E-08	2.44E-08	1.70E-08	4.14E-06	2.44E-06	1.70E-06
31	La Concita Oil	1.7	7.44E-07	100	250	3.04E-07	1.79E-07	1.25E-07	3.04E-05	1.79E-05	1.25E-05
32	La Conchita	0.4	1.78E-07	3,000	250	7.28E-08	4.29E-08	2.98E-08	7.28E-06	4.29E-06	2.98E-06
33	Mussle Shoals	1.6	6.84E-07	1,000	250	2.79E-07	1.65E-07	1.15E-07	2.79E-05	1.65E-05	1.15E-05
34	Seacliff	0.9	3.71E-07	100	250	1.51E-07	8.93E-08	6.21E-08	1.51E-05	8.93E-06	6.21E-06
35	Faria/Solimar	4.5	1.92E-06	100	250	7.83E-07	4.62E-07	3.21E-07	7.83E-05	4.62E-05	3.21E-05
36	State Beaches	3.6	1.55E-06	100	250	6.34E-07	3.74E-07	2.60E-07	6.34E-05	3.74E-05	2.60E-05
37	Ventura	5.1	2.18E-06	3,000	250	8.92E-07	5.26E-07	3.66E-07	8.92E-05	5.26E-05	3.66E-05
38	Ventura Greenbelt	1.2	4.95E-07	1,000	250	2.02E-07	1.19E-07	8.28E-08	2.02E-05	1.19E-05	8.28E-06
39	Montalvo	1.0	4.27E-07	3,000	250	1.75E-07	1.03E-07	7.16E-08	1.75E-05	1.03E-05	7.16E-06
40	Santa Clara River	0.4	1.68E-07	100	250	6.88E-08	4.06E-08	2.82E-08	6.88E-06	4.06E-06	2.82E-06
41	Oxnard	4.1	1.76E-06	3,000	250	7.18E-07	4.24E-07	2.95E-07	7.18E-05	4.24E-05	2.95E-05
42	Oxnard Industrial	3.0	1.29E-06	1,000	250	5.27E-07	3.11E-07	2.16E-07	5.27E-05	3.11E-05	2.16E-05
43	Oxnard Ag	5.2	2.22E-06	100	250	9.06E-07	5.35E-07	3.72E-07	9.06E-05	5.35E-05	3.72E-05
44	Camarillo Comm	0.5	2.33E-07	1,000	250	9.52E-08	5.62E-08	3.90E-08	9.52E-06	5.62E-06	3.90E-06
45	Camarillo Ag	0.1	3.58E-08	100	250	1.46E-08	8.62E-09	5.99E-09	1.46E-06	8.62E-07	5.99E-07
46	Camarillo	2.5	1.08E-06	3,000	250	4.41E-07	2.60E-07	1.81E-07	4.41E-05	2.60E-05	1.81E-05
47	Somis	7.6	3.25E-06	100	250	1.33E-06	7.82E-07	5.44E-07	1.33E-04	7.82E-05	5.44E-05
48	Moorpark	1.1	4.73E-07	1,000	250	1.93E-07	1.14E-07	7.92E-08	1.93E-05	1.14E-05	7.92E-06
49	Moorpark	1.2	4.95E-07	3,000	250	2.02E-07	1.19E-07	8.28E-08	2.02E-05	1.19E-05	8.28E-06
50	Moorpark	2.1	9.12E-07	1,000	250	3.72E-07	2.20E-07	1.53E-07	3.72E-05	2.20E-05	1.53E-05
51	Los Alamos Cyn	0.8	3.57E-07	100	250	1.46E-07	8.60E-08	5.98E-08	1.46E-05	8.60E-06	5.98E-06
52	Simi Valley	1.1	4.73E-07	1,000	250	1.93E-07	1.14E-07	7.92E-08	1.93E-05	1.14E-05	7.92E-06
53	Simi Valley	6.8	2.94E-06	3,000	250	1.20E-06	7.09E-07	4.93E-07	1.20E-04	7.09E-05	4.93E-05
54	Sta Susana Knolls	1.6	6.75E-07	1,000	250	2.76E-07	1.63E-07	1.13E-07	2.76E-05	1.63E-05	1.13E-05
55	Santa Susana Pass	2.7	1.15E-06	100	250	4.71E-07	2.78E-07	1.93E-07	4.71E-05	2.78E-05	1.93E-05
56	Stoney Point	1.0	4.17E-07	1,000	250	1.70E-07	1.00E-07	6.98E-08	1.70E-05	1.00E-05	6.98E-06
57	Chatsworth	1.4	5.98E-07	3,000	250	2.44E-07	1.44E-07	1.00E-07	2.44E-05	1.44E-05	1.00E-05
58	Chatsworth	3.6	1.54E-06	10,000	250	6.27E-07	3.70E-07	2.57E-07	6.27E-05	3.70E-05	2.57E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	Northridge	2.5	1.09E-06	10,000	250	4.46E-07	2.63E-07	1.83E-07	4.46E-05	2.63E-05	1.83E-05
60	Van Nyus AP	1.7	7.44E-07	3,000	250	3.04E-07	1.79E-07	1.25E-07	3.04E-05	1.79E-05	1.25E-05
61	North Hollywood	4.0	1.74E-06	10,000	250	7.10E-07	4.19E-07	2.91E-07	7.10E-05	4.19E-05	2.91E-05
62	Burbank	2.5	1.09E-06	10,000	250	4.46E-07	2.63E-07	1.83E-07	4.46E-05	2.63E-05	1.83E-05
63	Valhalla	0.7	3.06E-07	1,000	250	1.25E-07	7.37E-08	5.12E-08	1.25E-05	7.37E-06	5.12E-06
64	Burbank	1.8	7.57E-07	10,000	250	3.09E-07	1.82E-07	1.27E-07	3.09E-05	1.82E-05	1.27E-05
65	Burbank	0.4	1.87E-07	3,000	250	7.64E-08	4.50E-08	3.13E-08	7.64E-06	4.50E-06	3.13E-06
66	Glendale	2.9	1.26E-06	10,000	250	5.13E-07	3.03E-07	2.10E-07	5.13E-05	3.03E-05	2.10E-05
67	Atwater	3.3	1.44E-06	10,000	250	5.87E-07	3.46E-07	2.41E-07	5.87E-05	3.46E-05	2.41E-05
68	Elysian Park	5.8	2.50E-06	10,000	250	1.02E-06	6.02E-07	4.18E-07	1.02E-04	6.02E-05	4.18E-05
69	East Los Angeles	7.5	3.23E-06	10,000	250	1.32E-06	7.79E-07	5.42E-07	1.32E-04	7.79E-05	5.42E-05
70	San Gabriel Vly	6.0	2.58E-06	10,000	250	1.06E-06	6.23E-07	4.33E-07	1.06E-04	6.23E-05	4.33E-05
71	El monte	0.4	1.76E-07	3,000	250	7.18E-08	4.24E-08	2.94E-08	7.18E-06	4.24E-06	2.94E-06
72	San Gabriel River	0.2	1.01E-07	1,000	250	4.12E-08	2.43E-08	1.69E-08	4.12E-06	2.43E-06	1.69E-06
73	La Puente	4.5	1.94E-06	3,000	250	7.90E-07	4.66E-07	3.24E-07	7.90E-05	4.66E-05	3.24E-05
74	La Puente-Walnut	7.9	3.41E-06	3,000	250	1.39E-06	8.22E-07	5.71E-07	1.39E-04	8.22E-05	5.71E-05
75	Walnut-Pomona	3.1	1.35E-06	3,000	250	5.52E-07	3.25E-07	2.26E-07	5.52E-05	3.25E-05	2.26E-05
76	Pomona	16.0	6.87E-06	3,000	250	2.81E-06	1.66E-06	1.15E-06	2.81E-04	1.66E-04	1.15E-04
77	Ontario	9.3	4.02E-06	3,000	250	1.64E-06	9.68E-07	6.73E-07	1.64E-04	9.68E-05	6.73E-05
78	Fontana	1.2	5.24E-07	1,000	250	2.14E-07	1.26E-07	8.77E-08	2.14E-05	1.26E-05	8.77E-06
79	Colton	2.1	5.33E-07	3,000	250	2.18E-07	1.28E-07	8.93E-08	2.18E-05	1.28E-05	8.93E-06
80	Rialto	1.9	4.83E-07	1,000	250	1.97E-07	1.16E-07	8.09E-08	1.97E-05	1.16E-05	8.09E-06
81	Rialto	1.1	2.88E-07	100	250	1.17E-07	6.93E-08	4.82E-08	1.17E-05	6.93E-06	4.82E-06
82	San Bernardino	1.9	4.90E-07	1,000	250	2.00E-07	1.18E-07	8.20E-08	2.00E-05	1.18E-05	8.20E-06
83	San Bernardino	3.2	8.43E-07	100	250	3.44E-07	2.03E-07	1.41E-07	3.44E-05	2.03E-05	1.41E-05
84	Devore	1.6	4.25E-07	1,000	250	1.74E-07	1.02E-07	7.12E-08	1.74E-05	1.02E-05	7.12E-06
85	Cajon Pass	19.5	5.07E-06	100	250	2.07E-06	1.22E-06	8.50E-07	2.07E-04	1.22E-04	8.50E-05
86	Hesperia	4.5	1.18E-06	1,000	250	4.81E-07	2.84E-07	1.97E-07	4.81E-05	2.84E-05	1.97E-05
87	Hesperia	1.0	2.70E-07	100	250	1.10E-07	6.50E-08	4.52E-08	1.10E-05	6.50E-06	4.52E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
88	Victorville	4.3	1.13E-06	1,000	250	4.61E-07	2.72E-07	1.89E-07	4.61E-05	2.72E-05	1.89E-05
89	Victorville	2.1	5.35E-07	100	250	2.18E-07	1.29E-07	8.96E-08	2.18E-05	1.29E-05	8.96E-06
90	Victorville	0.7	1.92E-07	1,000	250	7.85E-08	4.63E-08	3.22E-08	7.85E-06	4.63E-06	3.22E-06
91	Victorville	4.5	1.16E-06	100	250	4.73E-07	2.79E-07	1.94E-07	4.73E-05	2.79E-05	1.94E-05
92	Oro Grande	0.5	1.34E-07	1,000	250	5.47E-08	3.23E-08	2.24E-08	5.47E-06	3.23E-06	2.24E-06
93	Helendale	25.4	6.59E-06	100	250	2.69E-06	1.59E-06	1.10E-06	2.69E-04	1.59E-04	1.10E-04
94	Lenwood	1.1	2.91E-07	1,000	250	1.19E-07	7.01E-08	4.87E-08	1.19E-05	7.01E-06	4.87E-06
95	Barstow	1.8	4.72E-07	100	250	1.93E-07	1.14E-07	7.90E-08	1.93E-05	1.14E-05	7.90E-06
96	Barstow	1.7	4.46E-07	1,000	250	1.82E-07	1.07E-07	7.47E-08	1.82E-05	1.07E-05	7.47E-06
97	Barstow	0.7	1.91E-07	100	250	7.79E-08	4.59E-08	3.19E-08	7.79E-06	4.59E-06	3.19E-06
98	Barstow	6.2	1.61E-06	1,000	250	6.57E-07	3.87E-07	2.69E-07	6.57E-05	3.87E-05	2.69E-05
99	Daggett	2.4	6.32E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
100	Daggett	0.8	1.97E-07	1,000	250	8.05E-08	4.75E-08	3.30E-08	8.05E-06	4.75E-06	3.30E-06
101	MCSC	4.3	1.13E-06	100	250	4.61E-07	2.72E-07	1.89E-07	4.61E-05	2.72E-05	1.89E-05
102	Yermo	1.3	3.31E-07	1,000	250	1.35E-07	7.98E-08	5.55E-08	1.35E-05	7.98E-06	5.55E-06
103	Mojave Desert	123.5	3.21E-05	100	250	1.31E-05	7.74E-06	5.38E-06	1.31E-03	7.74E-04	5.38E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
2	Arroyo Grande	0.8	3.11E-07	100	250	1.27E-07	7.50E-08	5.21E-08	1.27E-05	7.50E-06	5.21E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	250	1.50E-07	8.84E-08	6.14E-08	1.50E-05	8.84E-06	6.14E-06
4	Arroyo Grande	1.4	5.39E-07	100	250	2.20E-07	1.30E-07	9.02E-08	2.20E-05	1.30E-05	9.02E-06
5	Oceano	0.4	1.57E-07	3,000	250	6.41E-08	3.78E-08	2.63E-08	6.41E-06	3.78E-06	2.63E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
6	Oceano	0.6	2.43E-07	10,000	250	9.95E-08	5.87E-08	4.08E-08	9.95E-06	5.87E-06	4.08E-06
7	Oceano	0.2	9.32E-08	3,000	250	3.81E-08	2.25E-08	1.56E-08	3.81E-06	2.25E-06	1.56E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	3.34E-07	1.97E-07	1.37E-07	3.34E-05	1.97E-05	1.37E-05
9	Pismo	0.3	1.13E-07	3,000	250	4.60E-08	2.71E-08	1.89E-08	4.60E-06	2.71E-06	1.89E-06
10	Pismo	0.4	1.44E-07	1,000	250	5.87E-08	3.46E-08	2.41E-08	5.87E-06	3.46E-06	2.41E-06
11	Price Canyon	5.2	2.02E-06	100	250	8.26E-07	4.87E-07	3.39E-07	8.26E-05	4.87E-05	3.39E-05
12	Edna	0.6	2.34E-07	1,000	250	9.58E-08	5.65E-08	3.93E-08	9.58E-06	5.65E-06	3.93E-06
13	Edna	1.6	6.31E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	250	7.44E-07	4.39E-07	3.05E-07	7.44E-05	4.39E-05	3.05E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	9.00E-08	5.31E-08	3.69E-08	9.00E-06	5.31E-06	3.69E-06
16	Chorro	0.4	1.66E-07	1,000	250	6.79E-08	4.01E-08	2.78E-08	6.79E-06	4.01E-06	2.78E-06
17	Chorro	1.6	6.10E-07	100	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
18	CMC	0.8	2.98E-07	3,000	250	1.22E-07	7.17E-08	4.98E-08	1.22E-05	7.17E-06	4.98E-06
19	Santa Lucia	11.2	4.36E-06	100	250	1.78E-06	1.05E-06	7.30E-07	1.78E-04	1.05E-04	7.30E-05
20	Santa Margarita	0.9	3.44E-07	3,000	250	1.41E-07	8.29E-08	5.76E-08	1.41E-05	8.29E-06	5.76E-06
21	Phillips PS	0.9	3.32E-07	100	250	1.35E-07	7.99E-08	5.55E-08	1.35E-05	7.99E-06	5.55E-06
22	Atascadero	7.4	2.89E-06	1,000	250	1.18E-06	6.96E-07	4.83E-07	1.18E-04	6.96E-05	4.83E-05
23	Atascadero	1.6	6.24E-07	3,000	250	2.55E-07	1.50E-07	1.04E-07	2.55E-05	1.50E-05	1.04E-05
24	Atascadero	1.3	4.96E-07	1,000	250	2.03E-07	1.20E-07	8.31E-08	2.03E-05	1.20E-05	8.31E-06
25	Atascadero	0.4	1.68E-07	3,000	250	6.86E-08	4.05E-08	2.81E-08	6.86E-06	4.05E-06	2.81E-06
26	101	0.4	1.43E-07	1,000	250	5.83E-08	3.44E-08	2.39E-08	5.83E-06	3.44E-06	2.39E-06
27	Templeton	2.1	8.34E-07	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	8.18E-08	4.82E-08	3.35E-08	8.18E-06	4.82E-06	3.35E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	1.34E-07	7.91E-08	5.50E-08	1.34E-05	7.91E-06	5.50E-06
30	Paso Robles	2.7	1.07E-06	1,000	250	4.38E-07	2.58E-07	1.80E-07	4.38E-05	2.58E-05	1.80E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	6.92E-08	4.08E-08	2.84E-08	6.92E-06	4.08E-06	2.84E-06
33	Paso Robles	1.2	4.54E-07	3,000	250	1.85E-07	1.09E-07	7.60E-08	1.85E-05	1.09E-05	7.60E-06
34	101	2.1	8.27E-07	100	250	3.38E-07	1.99E-07	1.39E-07	3.38E-05	1.99E-05	1.39E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
35	Wellsona	2.4	9.53E-07	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
36	101	1.9	7.27E-07	100	250	2.97E-07	1.75E-07	1.22E-07	2.97E-05	1.75E-05	1.22E-05
37	San Miguel	1.5	5.73E-07	3,000	250	2.34E-07	1.38E-07	9.59E-08	2.34E-05	1.38E-05	9.59E-06
38	101	2.7	1.03E-06	100	250	4.22E-07	2.49E-07	1.73E-07	4.22E-05	2.49E-05	1.73E-05
39	Camp Roberts	5.7	2.23E-06	100	250	9.10E-07	5.37E-07	3.73E-07	9.10E-05	5.37E-05	3.73E-05
40	Bradley	15.3	5.97E-06	100	250	2.44E-06	1.44E-06	9.99E-07	2.44E-04	1.44E-04	9.99E-05
41	San Lucas	18.5	7.22E-06	100	250	2.95E-06	1.74E-06	1.21E-06	2.95E-04	1.74E-04	1.21E-04
42	King City	1.5	5.69E-07	1,000	250	2.33E-07	1.37E-07	9.54E-08	2.33E-05	1.37E-05	9.54E-06
43	Clark Ranch	18.1	7.06E-06	100	250	2.88E-06	1.70E-06	1.18E-06	2.88E-04	1.70E-04	1.18E-04
44	Soledad	1.4	5.54E-07	1,000	250	2.26E-07	1.33E-07	9.28E-08	2.26E-05	1.33E-05	9.28E-06
45	Salinas Valley Ag	7.3	2.86E-06	100	250	1.17E-06	6.90E-07	4.79E-07	1.17E-04	6.90E-05	4.79E-05
46	Gonzales	1.2	4.52E-07	3,000	250	1.85E-07	1.09E-07	7.58E-08	1.85E-05	1.09E-05	7.58E-06
47	Salinas Valley Ag	5.0	1.96E-06	100	250	8.01E-07	4.73E-07	3.29E-07	8.01E-05	4.73E-05	3.29E-05
48	Chular	0.6	2.49E-07	1,000	250	1.02E-07	5.99E-08	4.16E-08	1.02E-05	5.99E-06	4.16E-06
49	Sprekles	7.8	3.03E-06	100	250	1.24E-06	7.31E-07	5.08E-07	1.24E-04	7.31E-05	5.08E-05
50	Salinas	3.9	1.53E-06	6,500	250	6.26E-07	3.69E-07	2.57E-07	6.26E-05	3.69E-05	2.57E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	9.85E-07	5.81E-07	4.04E-07	9.85E-05	5.81E-05	4.04E-05
52	Castroville	1.1	4.41E-07	1,000	250	1.80E-07	1.06E-07	7.38E-08	1.80E-05	1.06E-05	7.38E-06
53	Las Lomas	15.4	6.02E-06	100	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
54	Aromas	12.1	4.70E-06	100	250	1.92E-06	1.13E-06	7.87E-07	1.92E-04	1.13E-04	7.87E-05
55	Gilroy	4.2	1.63E-06	3,000	250	6.66E-07	3.93E-07	2.73E-07	6.66E-05	3.93E-05	2.73E-05
56	San Martin	6.1	2.36E-06	100	250	9.64E-07	5.69E-07	3.95E-07	9.64E-05	5.69E-05	3.95E-05
57	Morgan Hill	3.8	1.49E-06	3,000	250	6.10E-07	3.60E-07	2.50E-07	6.10E-05	3.60E-05	2.50E-05
58	Coyote Valley	6.7	2.60E-06	100	250	1.06E-06	6.27E-07	4.36E-07	1.06E-04	6.27E-05	4.36E-05
59	San Jose	6.3	2.47E-06	5,000	250	1.01E-06	5.96E-07	4.14E-07	1.01E-04	5.96E-05	4.14E-05
60	Seven Trees	1.9	7.25E-07	1,000	250	2.96E-07	1.75E-07	1.21E-07	2.96E-05	1.75E-05	1.21E-05
61	San Jose	5.0	1.93E-06	10,000	250	7.90E-07	4.66E-07	3.24E-07	7.90E-05	4.66E-05	3.24E-05
62	Santa Clara	5.1	1.99E-06	6,500	250	8.14E-07	4.80E-07	3.34E-07	8.14E-05	4.80E-05	3.34E-05
63	Alviso	1.7	6.71E-07	1,000	250	2.74E-07	1.62E-07	1.12E-07	2.74E-05	1.62E-05	1.12E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
64	Drawbridge	5.7	2.22E-06	100	250	9.08E-07	5.36E-07	3.72E-07	9.08E-05	5.36E-05	3.72E-05
65	Newark	2.3	8.78E-07	1,000	250	3.58E-07	2.11E-07	1.47E-07	3.58E-05	2.11E-05	1.47E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	1.81E-06	1.07E-06	7.41E-07	1.81E-04	1.07E-04	7.41E-05
67	San Lorenzo	0.8	3.11E-07	3,000	250	1.27E-07	7.50E-08	5.21E-08	1.27E-05	7.50E-06	5.21E-06
68	San Leandro	1.3	4.99E-07	10,000	250	2.04E-07	1.20E-07	8.36E-08	2.04E-05	1.20E-05	8.36E-06
69	San Leandro	0.7	2.81E-07	3,000	250	1.15E-07	6.77E-08	4.71E-08	1.15E-05	6.77E-06	4.71E-06
70	Oakland	5.3	2.05E-06	10,000	250	8.38E-07	4.94E-07	3.44E-07	8.38E-05	4.94E-05	3.44E-05
71	Oakland	1.4	5.34E-07	3,000	250	2.18E-07	1.29E-07	8.95E-08	2.18E-05	1.29E-05	8.95E-06
72	Oakland	1.6	6.32E-07	10,000	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
73	Oakland	1.4	5.27E-07	3,000	250	2.15E-07	1.27E-07	8.82E-08	2.15E-05	1.27E-05	8.82E-06
74	Oakland	1.5	6.01E-07	10,000	250	2.45E-07	1.45E-07	1.01E-07	2.45E-05	1.45E-05	1.01E-05
75	Oakland	2.7	1.04E-06	3,000	250	4.25E-07	2.51E-07	1.74E-07	4.25E-05	2.51E-05	1.74E-05
76	Emeryville	1.5	5.66E-07	10,000	250	2.31E-07	1.36E-07	9.47E-08	2.31E-05	1.36E-05	9.47E-06
77	Berkeley	1.0	3.94E-07	3,000	250	1.61E-07	9.49E-08	6.60E-08	1.61E-05	9.49E-06	6.60E-06
78	Berkeley	1.8	6.83E-07	10,000	250	2.79E-07	1.64E-07	1.14E-07	2.79E-05	1.64E-05	1.14E-05
79	Richmond	1.5	5.85E-07	3,000	250	2.39E-07	1.41E-07	9.80E-08	2.39E-05	1.41E-05	9.80E-06
80	Richmond	3.8	1.47E-06	10,000	250	5.99E-07	3.53E-07	2.46E-07	5.99E-05	3.53E-05	2.46E-05
81	North Richmond	1.1	4.10E-07	3,000	250	1.67E-07	9.87E-08	6.86E-08	1.67E-05	9.87E-06	6.86E-06
82	San Pablo	2.5	9.71E-07	1,000	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
83	Sobranto	1.8	6.83E-07	100	250	2.79E-07	1.64E-07	1.14E-07	2.79E-05	1.64E-05	1.14E-05
84	Hercules	5.6	2.19E-06	1,000	250	8.94E-07	5.27E-07	3.66E-07	8.94E-05	5.27E-05	3.66E-05
85	Selby	1.7	6.59E-07	100	250	2.69E-07	1.59E-07	1.10E-07	2.69E-05	1.59E-05	1.10E-05
86	Crockett	1.6	6.08E-07	1,000	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
87	Port Costa	4.3	1.68E-06	100	250	6.87E-07	4.05E-07	2.82E-07	6.87E-05	4.05E-05	2.82E-05
88	Martinez	0.5	1.89E-07	1,000	250	7.72E-08	4.55E-08	3.16E-08	7.72E-06	4.55E-06	3.16E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	250	4.09E-07	2.42E-07	1.68E-07	4.09E-05	2.42E-05	1.68E-05
90	Benicia	3.5	1.37E-06	1,000	250	5.58E-07	3.29E-07	2.29E-07	5.58E-05	3.29E-05	2.29E-05
91	Grizzly Bay	10.6	4.13E-06	100	250	1.69E-06	9.94E-07	6.91E-07	1.69E-04	9.94E-05	6.91E-05
92	Fairfield	3.8	1.49E-06	3,000	250	6.09E-07	3.59E-07	2.50E-07	6.09E-05	3.59E-05	2.50E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
93	Elmira	13.7	5.34E-06	100	250	2.18E-06	1.29E-06	8.95E-07	2.18E-04	1.29E-04	8.95E-05
94	Dixon	2.1	8.35E-07	1,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
95	Solano Co Ag	6.6	2.58E-06	100	250	1.05E-06	6.21E-07	4.32E-07	1.05E-04	6.21E-05	4.32E-05
96	Davis	3.5	1.38E-06	1,000	250	5.62E-07	3.32E-07	2.31E-07	5.62E-05	3.32E-05	2.31E-05
97	Yolo Co Ag	7.0	2.73E-06	100	250	1.11E-06	6.57E-07	4.57E-07	1.11E-04	6.57E-05	4.57E-05
98	Sacramento	3.3	1.27E-06	3,000	250	5.18E-07	3.05E-07	2.12E-07	5.18E-05	3.05E-05	2.12E-05
99	Sacramento River	0.4	1.64E-07	100	250	6.70E-08	3.95E-08	2.75E-08	6.70E-06	3.95E-06	2.75E-06
100	Sacramento	2.5	9.59E-07	10,000	250	3.92E-07	2.31E-07	1.61E-07	3.92E-05	2.31E-05	1.61E-05
101	Parkland	1.6	6.32E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
102	Sacramento	3.1	1.21E-06	3,000	250	4.94E-07	2.91E-07	2.02E-07	4.94E-05	2.91E-05	2.02E-05
103	North Highlands	2.6	1.01E-06	1,000	250	4.11E-07	2.43E-07	1.69E-07	4.11E-05	2.43E-05	1.69E-05
104	North Highlands	4.4	1.70E-06	3,000	250	6.96E-07	4.11E-07	2.85E-07	6.96E-05	4.11E-05	2.85E-05
105	Roseville Yard	1.3	4.91E-07	100	250	2.01E-07	1.18E-07	8.23E-08	2.01E-05	1.18E-05	8.23E-06
145	Roseville	2.3	6.15E-07	3,000	250	2.51E-07	1.48E-07	1.03E-07	2.51E-05	1.48E-05	1.03E-05
146	Roseville	1.3	3.45E-07	1,000	250	1.41E-07	8.30E-08	5.77E-08	1.41E-05	8.30E-06	5.77E-06
147	Roseville	0.1	4.00E-08	100	250	1.63E-08	9.64E-09	6.70E-09	1.63E-06	9.64E-07	6.70E-07
148	Placer Co	2.9	7.89E-07	1,000	250	3.22E-07	1.90E-07	1.32E-07	3.22E-05	1.90E-05	1.32E-05
149	Lincoln	1.2	3.22E-07	100	250	1.32E-07	7.77E-08	5.40E-08	1.32E-05	7.77E-06	5.40E-06
150	Lincoln	2.9	7.74E-07	3,000	250	3.16E-07	1.87E-07	1.30E-07	3.16E-05	1.87E-05	1.30E-05
151	Sheridan	10.7	2.88E-06	100	250	1.18E-06	6.94E-07	4.82E-07	1.18E-04	6.94E-05	4.82E-05
152	Wheatland	0.9	2.51E-07	1,000	250	1.03E-07	6.06E-08	4.21E-08	1.03E-05	6.06E-06	4.21E-06
153	Yuba County	9.2	2.49E-06	100	250	1.02E-06	6.01E-07	4.18E-07	1.02E-04	6.01E-05	4.18E-05
154	Olivehurst	4.3	1.15E-06	1,000	250	4.70E-07	2.77E-07	1.93E-07	4.70E-05	2.77E-05	1.93E-05
155	Marysville	1.3	3.59E-07	3,000	250	1.46E-07	8.64E-08	6.00E-08	1.46E-05	8.64E-06	6.00E-06
156	Marysville	2.3	6.27E-07	100	250	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05
157	Live Oak	0.3	8.88E-08	1,000	250	3.63E-08	2.14E-08	1.49E-08	3.63E-06	2.14E-06	1.49E-06
158	Live Oak	6.4	1.73E-06	100	250	7.08E-07	4.18E-07	2.90E-07	7.08E-05	4.18E-05	2.90E-05
159	Live Oak	0.4	9.89E-08	1,000	250	4.04E-08	2.38E-08	1.66E-08	4.04E-06	2.38E-06	1.66E-06
160	Live Oak	1.0	2.74E-07	3,000	250	1.12E-07	6.60E-08	4.58E-08	1.12E-05	6.60E-06	4.58E-06

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161	Butte Co	5.2	1.41E-06	100	250	5.76E-07	3.40E-07	2.36E-07	5.76E-05	3.40E-05	2.36E-05
162	Gridley	0.5	1.23E-07	1,000	250	5.02E-08	2.96E-08	2.06E-08	5.02E-06	2.96E-06	2.06E-06
163	Gridley	0.8	2.24E-07	3,000	250	9.14E-08	5.39E-08	3.75E-08	9.14E-06	5.39E-06	3.75E-06
164	Gridley	2.5	6.77E-07	100	250	2.77E-07	1.63E-07	1.13E-07	2.77E-05	1.63E-05	1.13E-05
165	Biggs	0.6	1.55E-07	3,000	250	6.32E-08	3.73E-08	2.59E-08	6.32E-06	3.73E-06	2.59E-06
166	Butte Co	5.1	1.39E-06	100	250	5.66E-07	3.34E-07	2.32E-07	5.66E-05	3.34E-05	2.32E-05
167	Richvale	0.8	2.26E-07	1,000	250	9.22E-08	5.44E-08	3.78E-08	9.22E-06	5.44E-06	3.78E-06
168	Nelson	9.3	2.51E-06	100	250	1.02E-06	6.04E-07	4.20E-07	1.02E-04	6.04E-05	4.20E-05
169	Durham	2.4	6.58E-07	1,000	250	2.69E-07	1.59E-07	1.10E-07	2.69E-05	1.59E-05	1.10E-05
170	Chico	4.3	1.17E-06	100	250	4.77E-07	2.81E-07	1.95E-07	4.77E-05	2.81E-05	1.95E-05
171	Chico	4.5	1.22E-06	1,000	250	4.98E-07	2.94E-07	2.04E-07	4.98E-05	2.94E-05	2.04E-05
172	Chico	2.8	7.56E-07	100	250	3.09E-07	1.82E-07	1.27E-07	3.09E-05	1.82E-05	1.27E-05
173	Nord	0.6	1.57E-07	1,000	250	6.43E-08	3.79E-08	2.64E-08	6.43E-06	3.79E-06	2.64E-06
174	Butte Co	11.3	3.06E-06	100	250	1.25E-06	7.38E-07	5.13E-07	1.25E-04	7.38E-05	5.13E-05
175	Vina	0.4	1.20E-07	1,000	250	4.92E-08	2.90E-08	2.02E-08	4.92E-06	2.90E-06	2.02E-06
176	Copeland	6.3	1.70E-06	100	250	6.96E-07	4.11E-07	2.85E-07	6.96E-05	4.11E-05	2.85E-05
177	Los Molinos	0.5	1.40E-07	1,000	250	5.73E-08	3.38E-08	2.35E-08	5.73E-06	3.38E-06	2.35E-06
178	Los Molinos	1.0	2.68E-07	100	250	1.10E-07	6.46E-08	4.49E-08	1.10E-05	6.46E-06	4.49E-06
179	Tehema	0.3	8.98E-08	1,000	250	3.67E-08	2.16E-08	1.50E-08	3.67E-06	2.16E-06	1.50E-06
180	Tehema	2.2	6.04E-07	100	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
181	Gerber	2.3	6.25E-07	1,000	250	2.55E-07	1.51E-07	1.05E-07	2.55E-05	1.51E-05	1.05E-05
182	Tehema Co	1.8	4.83E-07	100	250	1.97E-07	1.16E-07	8.08E-08	1.97E-05	1.16E-05	8.08E-06
183	Red Bluff	0.8	2.08E-07	1,000	250	8.51E-08	5.02E-08	3.49E-08	8.51E-06	5.02E-06	3.49E-06
184	Red Bluff	4.6	1.25E-06	100	250	5.10E-07	3.01E-07	2.09E-07	5.10E-05	3.01E-05	2.09E-05
185	Red Bluff	3.3	8.86E-07	1,000	250	3.62E-07	2.14E-07	1.48E-07	3.62E-05	2.14E-05	1.48E-05
186	Tehema Co	15.3	4.13E-06	100	250	1.69E-06	9.95E-07	6.91E-07	1.69E-04	9.95E-05	6.91E-05
187	Cottonwood	0.6	1.65E-07	1,000	250	6.72E-08	3.97E-08	2.76E-08	6.72E-06	3.97E-06	2.76E-06
188	Anderson	5.4	1.45E-06	100	250	5.91E-07	3.49E-07	2.42E-07	5.91E-05	3.49E-05	2.42E-05
189	Anderson	3.5	9.57E-07	1,000	250	3.91E-07	2.31E-07	1.60E-07	3.91E-05	2.31E-05	1.60E-05

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190	Anderson	4.1	1.10E-06	100	250	4.51E-07	2.66E-07	1.85E-07	4.51E-05	2.66E-05	1.85E-05
191	Redding	6.0	1.63E-06	1,000	250	6.66E-07	3.93E-07	2.73E-07	6.66E-05	3.93E-05	2.73E-05
192	Redding	0.8	2.06E-07	1,000	250	8.40E-08	4.96E-08	3.45E-08	8.40E-06	4.96E-06	3.45E-06
193	Redding	1.1	3.05E-07	100	250	1.25E-07	7.35E-08	5.11E-08	1.25E-05	7.35E-06	5.11E-06
194	Redding	0.4	1.05E-07	1,000	250	4.31E-08	2.54E-08	1.77E-08	4.31E-06	2.54E-06	1.77E-06
195	Redding	2.6	6.97E-07	100	250	2.85E-07	1.68E-07	1.17E-07	2.85E-05	1.68E-05	1.17E-05
196	Shasta Co	0.5	1.41E-07	1,000	250	5.77E-08	3.40E-08	2.36E-08	5.77E-06	3.40E-06	2.36E-06
197	Shasta Lake	1.7	4.46E-07	100	250	1.82E-07	1.07E-07	7.46E-08	1.82E-05	1.07E-05	7.46E-06
198	Shasta Lake	0.8	2.03E-07	1,000	250	8.28E-08	4.89E-08	3.40E-08	8.28E-06	4.89E-06	3.40E-06
199	Shasta Co	16.4	4.44E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
200	Lakeshore	0.6	1.64E-07	1,000	250	6.69E-08	3.95E-08	2.74E-08	6.69E-06	3.95E-06	2.74E-06
201	Shasta Co	30.4	8.20E-06	100	250	3.35E-06	1.98E-06	1.37E-06	3.35E-04	1.98E-04	1.37E-04
202	Dunsmuir	1.3	3.52E-07	1,000	250	1.44E-07	8.48E-08	5.89E-08	1.44E-05	8.48E-06	5.89E-06
203	Siskiyou Co	12.8	3.45E-06	100	250	1.41E-06	8.31E-07	5.77E-07	1.41E-04	8.31E-05	5.77E-05
204	Mount Shasta	1.1	3.05E-07	1,000	250	1.25E-07	7.36E-08	5.11E-08	1.25E-05	7.36E-06	5.11E-06
205	Siskiyou Co	69.5	1.88E-05	100	250	7.67E-06	4.52E-06	3.14E-06	7.67E-04	4.52E-04	3.14E-04
206	Dorris	0.9	2.38E-07	100	250	9.73E-08	5.74E-08	3.99E-08	9.73E-06	5.74E-06	3.99E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	250	3.76E-07	2.22E-07	1.54E-07	3.76E-05	2.22E-05	1.54E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
2	Arroyo Grande	0.8	3.11E-07	100	250	1.27E-07	7.50E-08	5.21E-08	1.27E-05	7.50E-06	5.21E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	250	1.50E-07	8.84E-08	6.14E-08	1.50E-05	8.84E-06	6.14E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
4	Arroyo Grande	1.4	5.39E-07	100	250	2.20E-07	1.30E-07	9.02E-08	2.20E-05	1.30E-05	9.02E-06
5	Oceano	0.4	1.57E-07	3,000	250	6.41E-08	3.78E-08	2.63E-08	6.41E-06	3.78E-06	2.63E-06
6	Oceano	0.6	2.43E-07	10,000	250	9.95E-08	5.87E-08	4.08E-08	9.95E-06	5.87E-06	4.08E-06
7	Oceano	0.2	9.32E-08	3,000	250	3.81E-08	2.25E-08	1.56E-08	3.81E-06	2.25E-06	1.56E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	3.34E-07	1.97E-07	1.37E-07	3.34E-05	1.97E-05	1.37E-05
9	Pismo	0.3	1.13E-07	3,000	250	4.60E-08	2.71E-08	1.89E-08	4.60E-06	2.71E-06	1.89E-06
10	Pismo	0.4	1.44E-07	1,000	250	5.87E-08	3.46E-08	2.41E-08	5.87E-06	3.46E-06	2.41E-06
11	Price Canyon	5.2	2.02E-06	100	250	8.26E-07	4.87E-07	3.39E-07	8.26E-05	4.87E-05	3.39E-05
12	Edna	0.6	2.34E-07	1,000	250	9.58E-08	5.65E-08	3.93E-08	9.58E-06	5.65E-06	3.93E-06
13	Edna	1.6	6.31E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	250	7.44E-07	4.39E-07	3.05E-07	7.44E-05	4.39E-05	3.05E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	9.00E-08	5.31E-08	3.69E-08	9.00E-06	5.31E-06	3.69E-06
16	Chorro	0.4	1.66E-07	1,000	250	6.79E-08	4.01E-08	2.78E-08	6.79E-06	4.01E-06	2.78E-06
17	Chorro	1.6	6.10E-07	100	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
18	CMC	0.8	2.98E-07	3,000	250	1.22E-07	7.17E-08	4.98E-08	1.22E-05	7.17E-06	4.98E-06
19	Santa Lucia	11.2	4.36E-06	100	250	1.78E-06	1.05E-06	7.30E-07	1.78E-04	1.05E-04	7.30E-05
20	Santa Margarita	0.9	3.44E-07	3,000	250	1.41E-07	8.29E-08	5.76E-08	1.41E-05	8.29E-06	5.76E-06
21	Phillips PS	0.9	3.32E-07	100	250	1.35E-07	7.99E-08	5.55E-08	1.35E-05	7.99E-06	5.55E-06
22	Atascadero	7.4	2.89E-06	1,000	250	1.18E-06	6.96E-07	4.83E-07	1.18E-04	6.96E-05	4.83E-05
23	Atascadero	1.6	6.24E-07	3,000	250	2.55E-07	1.50E-07	1.04E-07	2.55E-05	1.50E-05	1.04E-05
24	Atascadero	1.3	4.96E-07	1,000	250	2.03E-07	1.20E-07	8.31E-08	2.03E-05	1.20E-05	8.31E-06
25	Atascadero	0.4	1.68E-07	3,000	250	6.86E-08	4.05E-08	2.81E-08	6.86E-06	4.05E-06	2.81E-06
26	101	0.4	1.43E-07	1,000	250	5.83E-08	3.44E-08	2.39E-08	5.83E-06	3.44E-06	2.39E-06
27	Templeton	2.1	8.34E-07	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	8.18E-08	4.82E-08	3.35E-08	8.18E-06	4.82E-06	3.35E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	1.34E-07	7.91E-08	5.50E-08	1.34E-05	7.91E-06	5.50E-06
30	Paso Robles	2.7	1.07E-06	1,000	250	4.38E-07	2.58E-07	1.80E-07	4.38E-05	2.58E-05	1.80E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	6.92E-08	4.08E-08	2.84E-08	6.92E-06	4.08E-06	2.84E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
33	Paso Robles	1.2	4.54E-07	3,000	250	1.85E-07	1.09E-07	7.60E-08	1.85E-05	1.09E-05	7.60E-06
34	101	2.1	8.27E-07	100	250	3.38E-07	1.99E-07	1.39E-07	3.38E-05	1.99E-05	1.39E-05
35	Wellsona	2.4	9.53E-07	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
36	101	1.9	7.27E-07	100	250	2.97E-07	1.75E-07	1.22E-07	2.97E-05	1.75E-05	1.22E-05
37	San Miguel	1.5	5.73E-07	3,000	250	2.34E-07	1.38E-07	9.59E-08	2.34E-05	1.38E-05	9.59E-06
38	101	2.7	1.03E-06	100	250	4.22E-07	2.49E-07	1.73E-07	4.22E-05	2.49E-05	1.73E-05
39	Camp Roberts	5.7	2.23E-06	100	250	9.10E-07	5.37E-07	3.73E-07	9.10E-05	5.37E-05	3.73E-05
40	Bradley	15.3	5.97E-06	100	250	2.44E-06	1.44E-06	9.99E-07	2.44E-04	1.44E-04	9.99E-05
41	San Lucas	18.5	7.22E-06	100	250	2.95E-06	1.74E-06	1.21E-06	2.95E-04	1.74E-04	1.21E-04
42	King City	1.5	5.69E-07	1,000	250	2.33E-07	1.37E-07	9.54E-08	2.33E-05	1.37E-05	9.54E-06
43	Clark Ranch	18.1	7.06E-06	100	250	2.88E-06	1.70E-06	1.18E-06	2.88E-04	1.70E-04	1.18E-04
44	Soledad	1.4	5.54E-07	1,000	250	2.26E-07	1.33E-07	9.28E-08	2.26E-05	1.33E-05	9.28E-06
45	Salinas Valley Ag	7.3	2.86E-06	100	250	1.17E-06	6.90E-07	4.79E-07	1.17E-04	6.90E-05	4.79E-05
46	Gonzales	1.2	4.52E-07	3,000	250	1.85E-07	1.09E-07	7.58E-08	1.85E-05	1.09E-05	7.58E-06
47	Salinas Valley Ag	5.0	1.96E-06	100	250	8.01E-07	4.73E-07	3.29E-07	8.01E-05	4.73E-05	3.29E-05
48	Chular	0.6	2.49E-07	1,000	250	1.02E-07	5.99E-08	4.16E-08	1.02E-05	5.99E-06	4.16E-06
49	Sprekles	7.8	3.03E-06	100	250	1.24E-06	7.31E-07	5.08E-07	1.24E-04	7.31E-05	5.08E-05
50	Salinas	3.9	1.53E-06	6,500	250	6.26E-07	3.69E-07	2.57E-07	6.26E-05	3.69E-05	2.57E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	9.85E-07	5.81E-07	4.04E-07	9.85E-05	5.81E-05	4.04E-05
52	Castroville	1.1	4.41E-07	1,000	250	1.80E-07	1.06E-07	7.38E-08	1.80E-05	1.06E-05	7.38E-06
53	Las Lomas	15.4	6.02E-06	100	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
54	Aromas	12.1	4.70E-06	100	250	1.92E-06	1.13E-06	7.87E-07	1.92E-04	1.13E-04	7.87E-05
55	Gilroy	4.2	1.63E-06	3,000	250	6.66E-07	3.93E-07	2.73E-07	6.66E-05	3.93E-05	2.73E-05
56	San Martin	6.1	2.36E-06	100	250	9.64E-07	5.69E-07	3.95E-07	9.64E-05	5.69E-05	3.95E-05
57	Morgan Hill	3.8	1.49E-06	3,000	250	6.10E-07	3.60E-07	2.50E-07	6.10E-05	3.60E-05	2.50E-05
58	Coyote Valley	6.7	2.60E-06	100	250	1.06E-06	6.27E-07	4.36E-07	1.06E-04	6.27E-05	4.36E-05
59	San Jose	6.3	2.47E-06	5,000	250	1.01E-06	5.96E-07	4.14E-07	1.01E-04	5.96E-05	4.14E-05
60	Seven Trees	1.9	7.25E-07	1,000	250	2.96E-07	1.75E-07	1.21E-07	2.96E-05	1.75E-05	1.21E-05
61	San Jose	5.0	1.93E-06	10,000	250	7.90E-07	4.66E-07	3.24E-07	7.90E-05	4.66E-05	3.24E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
62	Santa Clara	5.1	1.99E-06	6,500	250	8.14E-07	4.80E-07	3.34E-07	8.14E-05	4.80E-05	3.34E-05
63	Alviso	1.7	6.71E-07	1,000	250	2.74E-07	1.62E-07	1.12E-07	2.74E-05	1.62E-05	1.12E-05
64	Drawbridge	5.7	2.22E-06	100	250	9.08E-07	5.36E-07	3.72E-07	9.08E-05	5.36E-05	3.72E-05
65	Newark	2.3	8.78E-07	1,000	250	3.58E-07	2.11E-07	1.47E-07	3.58E-05	2.11E-05	1.47E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	1.81E-06	1.07E-06	7.41E-07	1.81E-04	1.07E-04	7.41E-05
67	San Lorenzo	0.8	3.11E-07	3,000	250	1.27E-07	7.50E-08	5.21E-08	1.27E-05	7.50E-06	5.21E-06
68	San Leandro	1.3	4.99E-07	10,000	250	2.04E-07	1.20E-07	8.36E-08	2.04E-05	1.20E-05	8.36E-06
69	San Leandro	0.7	2.81E-07	3,000	250	1.15E-07	6.77E-08	4.71E-08	1.15E-05	6.77E-06	4.71E-06
70	Oakland	5.3	2.05E-06	10,000	250	8.38E-07	4.94E-07	3.44E-07	8.38E-05	4.94E-05	3.44E-05
71	Oakland	1.4	5.34E-07	3,000	250	2.18E-07	1.29E-07	8.95E-08	2.18E-05	1.29E-05	8.95E-06
72	Oakland	1.6	6.32E-07	10,000	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
73	Oakland	1.4	5.27E-07	3,000	250	2.15E-07	1.27E-07	8.82E-08	2.15E-05	1.27E-05	8.82E-06
74	Oakland	1.5	6.01E-07	10,000	250	2.45E-07	1.45E-07	1.01E-07	2.45E-05	1.45E-05	1.01E-05
75	Oakland	2.7	1.04E-06	3,000	250	4.25E-07	2.51E-07	1.74E-07	4.25E-05	2.51E-05	1.74E-05
76	Emeryville	1.5	5.66E-07	10,000	250	2.31E-07	1.36E-07	9.47E-08	2.31E-05	1.36E-05	9.47E-06
77	Berkeley	1.0	3.94E-07	3,000	250	1.61E-07	9.49E-08	6.60E-08	1.61E-05	9.49E-06	6.60E-06
78	Berkeley	1.8	6.83E-07	10,000	250	2.79E-07	1.64E-07	1.14E-07	2.79E-05	1.64E-05	1.14E-05
79	Richmond	1.5	5.85E-07	3,000	250	2.39E-07	1.41E-07	9.80E-08	2.39E-05	1.41E-05	9.80E-06
80	Richmond	3.8	1.47E-06	10,000	250	5.99E-07	3.53E-07	2.46E-07	5.99E-05	3.53E-05	2.46E-05
81	North Richmond	1.1	4.10E-07	3,000	250	1.67E-07	9.87E-08	6.86E-08	1.67E-05	9.87E-06	6.86E-06
82	San Pablo	2.5	9.71E-07	1,000	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
83	Sobranto	1.8	6.83E-07	100	250	2.79E-07	1.64E-07	1.14E-07	2.79E-05	1.64E-05	1.14E-05
84	Hercules	5.6	2.19E-06	1,000	250	8.94E-07	5.27E-07	3.66E-07	8.94E-05	5.27E-05	3.66E-05
85	Selby	1.7	6.59E-07	100	250	2.69E-07	1.59E-07	1.10E-07	2.69E-05	1.59E-05	1.10E-05
86	Crockett	1.6	6.08E-07	1,000	250	2.49E-07	1.47E-07	1.02E-07	2.49E-05	1.47E-05	1.02E-05
87	Port Costa	4.3	1.68E-06	100	250	6.87E-07	4.05E-07	2.82E-07	6.87E-05	4.05E-05	2.82E-05
88	Martinez	0.5	1.89E-07	1,000	250	7.72E-08	4.55E-08	3.16E-08	7.72E-06	4.55E-06	3.16E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	250	4.09E-07	2.42E-07	1.68E-07	4.09E-05	2.42E-05	1.68E-05
90	Benicia	3.5	1.37E-06	1,000	250	5.58E-07	3.29E-07	2.29E-07	5.58E-05	3.29E-05	2.29E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
91	Grizzly Bay	10.6	4.13E-06	100	250	1.69E-06	9.94E-07	6.91E-07	1.69E-04	9.94E-05	6.91E-05
92	Fairfield	3.8	1.49E-06	3,000	250	6.09E-07	3.59E-07	2.50E-07	6.09E-05	3.59E-05	2.50E-05
93	Elmira	13.7	5.34E-06	100	250	2.18E-06	1.29E-06	8.95E-07	2.18E-04	1.29E-04	8.95E-05
94	Dixon	2.1	8.35E-07	1,000	250	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
95	Solano Co Ag	6.6	2.58E-06	100	250	1.05E-06	6.21E-07	4.32E-07	1.05E-04	6.21E-05	4.32E-05
96	Davis	3.5	1.38E-06	1,000	250	5.62E-07	3.32E-07	2.31E-07	5.62E-05	3.32E-05	2.31E-05
97	Yolo Co Ag	7.0	2.73E-06	100	250	1.11E-06	6.57E-07	4.57E-07	1.11E-04	6.57E-05	4.57E-05
98	Sacramento	3.3	1.27E-06	3,000	250	5.18E-07	3.05E-07	2.12E-07	5.18E-05	3.05E-05	2.12E-05
99	Sacramento River	0.4	1.64E-07	100	250	6.70E-08	3.95E-08	2.75E-08	6.70E-06	3.95E-06	2.75E-06
100	Sacramento	2.5	9.59E-07	10,000	250	3.92E-07	2.31E-07	1.61E-07	3.92E-05	2.31E-05	1.61E-05
101	Parkland	1.6	6.32E-07	100	250	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
102	Sacramento	3.1	1.21E-06	3,000	250	4.94E-07	2.91E-07	2.02E-07	4.94E-05	2.91E-05	2.02E-05
103	North Highlands	2.6	1.01E-06	1,000	250	4.11E-07	2.43E-07	1.69E-07	4.11E-05	2.43E-05	1.69E-05
104	North Highlands	4.4	1.70E-06	3,000	250	6.96E-07	4.11E-07	2.85E-07	6.96E-05	4.11E-05	2.85E-05
105	Roseville Yard	1.3	4.91E-07	100	250	2.01E-07	1.18E-07	8.23E-08	2.01E-05	1.18E-05	8.23E-06
129	Roseville	1.4	1.15E-06	3,000	250	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
130	Roseville	1.1	9.01E-07	3,000	250	3.68E-07	2.17E-07	1.51E-07	3.68E-05	2.17E-05	1.51E-05
131	Roseville	2.1	1.73E-06	1,000	250	7.08E-07	4.18E-07	2.90E-07	7.08E-05	4.18E-05	2.90E-05
132	Roseville	0.5	3.71E-07	3,000	250	1.52E-07	8.94E-08	6.22E-08	1.52E-05	8.94E-06	6.22E-06
133	Rocklin	2.5	2.06E-06	1,000	250	8.42E-07	4.97E-07	3.45E-07	8.42E-05	4.97E-05	3.45E-05
134	Placer Co	8.0	6.54E-06	100	250	2.67E-06	1.58E-06	1.10E-06	2.67E-04	1.58E-04	1.10E-04
135	Newcastle	0.5	3.70E-07	1,000	250	1.51E-07	8.92E-08	6.20E-08	1.51E-05	8.92E-06	6.20E-06
136	Placer Co	2.5	2.05E-06	100	250	8.39E-07	4.95E-07	3.44E-07	8.39E-05	4.95E-05	3.44E-05
137	Auburn	5.3	4.37E-06	1,000	250	1.79E-06	1.05E-06	7.33E-07	1.79E-04	1.05E-04	7.33E-05
138	Placer Co	13.6	1.11E-05	100	250	4.55E-06	2.69E-06	1.87E-06	4.55E-04	2.69E-04	1.87E-04
139	Colfax	0.7	5.53E-07	1,000	250	2.26E-07	1.33E-07	9.26E-08	2.26E-05	1.33E-05	9.26E-06
140	Placer Co	61.6	5.05E-05	100	250	2.06E-05	1.22E-05	8.46E-06	2.06E-03	1.22E-03	8.46E-04
141	Truckee	2.1	1.74E-06	1,000	250	7.11E-07	4.19E-07	2.91E-07	7.11E-05	4.19E-05	2.91E-05
142	Nevada Co	13.9	1.14E-05	100	250	4.65E-06	2.74E-06	1.91E-06	4.65E-04	2.74E-04	1.91E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
143	Floriston	0.2	1.90E-07	1,000	250	7.75E-08	4.58E-08	3.18E-08	7.75E-06	4.58E-06	3.18E-06
144	Sierra Co	5.8	4.75E-06	100	250	1.94E-06	1.14E-06	7.95E-07	1.94E-04	1.14E-04	7.95E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	3.23E-07	1.91E-07	1.32E-07	3.23E-05	1.91E-05	1.32E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	1.66E-07	9.81E-08	6.82E-08	1.66E-05	9.81E-06	6.82E-06
3	Arroyo Grande	0.9	4.79E-07	1,000	250	1.96E-07	1.16E-07	8.03E-08	1.96E-05	1.16E-05	8.03E-06
4	Arroyo Grande	1.4	7.05E-07	100	250	2.88E-07	1.70E-07	1.18E-07	2.88E-05	1.70E-05	1.18E-05
5	Oceano	0.4	2.05E-07	3,000	250	8.38E-08	4.95E-08	3.44E-08	8.38E-06	4.95E-06	3.44E-06
6	Oceano	0.6	3.18E-07	10,000	250	1.30E-07	7.67E-08	5.33E-08	1.30E-05	7.67E-06	5.33E-06
7	Oceano	0.2	1.22E-07	3,000	250	4.98E-08	2.94E-08	2.04E-08	4.98E-06	2.94E-06	2.04E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	4.37E-07	2.58E-07	1.79E-07	4.37E-05	2.58E-05	1.79E-05
9	Pismo	0.3	1.47E-07	3,000	250	6.02E-08	3.55E-08	2.47E-08	6.02E-06	3.55E-06	2.47E-06
10	Pismo	0.4	1.88E-07	1,000	250	7.68E-08	4.53E-08	3.15E-08	7.68E-06	4.53E-06	3.15E-06
11	Price Canyon	5.2	2.64E-06	100	250	1.08E-06	6.37E-07	4.43E-07	1.08E-04	6.37E-05	4.43E-05
12	Edna	0.6	3.07E-07	1,000	250	1.25E-07	7.39E-08	5.13E-08	1.25E-05	7.39E-06	5.13E-06
13	Edna	1.6	8.25E-07	100	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	9.73E-07	5.74E-07	3.99E-07	9.73E-05	5.74E-05	3.99E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	250	1.18E-07	6.95E-08	4.83E-08	1.18E-05	6.95E-06	4.83E-06
16	Chorro	0.4	2.17E-07	1,000	250	8.88E-08	5.24E-08	3.64E-08	8.88E-06	5.24E-06	3.64E-06
17	Chorro	1.6	7.98E-07	100	250	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
18	CMC	0.8	3.89E-07	3,000	250	1.59E-07	9.38E-08	6.52E-08	1.59E-05	9.38E-06	6.52E-06
19	Santa Lucia	11.2	5.70E-06	100	250	2.33E-06	1.37E-06	9.54E-07	2.33E-04	1.37E-04	9.54E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
20	Santa Margarita	0.9	4.50E-07	3,000	250	1.84E-07	1.08E-07	7.53E-08	1.84E-05	1.08E-05	7.53E-06
21	Phillips PS	0.9	4.34E-07	100	250	1.77E-07	1.05E-07	7.26E-08	1.77E-05	1.05E-05	7.26E-06
22	Atascadero	7.4	3.77E-06	1,000	250	1.54E-06	9.10E-07	6.32E-07	1.54E-04	9.10E-05	6.32E-05
23	Atascadero	1.6	8.16E-07	3,000	250	3.33E-07	1.97E-07	1.37E-07	3.33E-05	1.97E-05	1.37E-05
24	Atascadero	1.3	6.49E-07	1,000	250	2.65E-07	1.56E-07	1.09E-07	2.65E-05	1.56E-05	1.09E-05
25	Atascadero	0.4	2.20E-07	3,000	250	8.97E-08	5.29E-08	3.68E-08	8.97E-06	5.29E-06	3.68E-06
26	101	0.4	1.87E-07	1,000	250	7.62E-08	4.50E-08	3.12E-08	7.62E-06	4.50E-06	3.12E-06
27	Templeton	2.1	1.09E-06	3,000	250	4.46E-07	2.63E-07	1.83E-07	4.46E-05	2.63E-05	1.83E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	1.07E-07	6.31E-08	4.38E-08	1.07E-05	6.31E-06	4.38E-06
29	Paso Robles	0.8	4.29E-07	3,000	250	1.75E-07	1.03E-07	7.19E-08	1.75E-05	1.03E-05	7.19E-06
30	Paso Robles	2.7	1.40E-06	1,000	250	5.73E-07	3.38E-07	2.35E-07	5.73E-05	3.38E-05	2.35E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	4.46E-07	2.63E-07	1.83E-07	4.46E-05	2.63E-05	1.83E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	9.05E-08	5.34E-08	3.71E-08	9.05E-06	5.34E-06	3.71E-06
33	Paso Robles	1.2	5.93E-07	3,000	250	2.42E-07	1.43E-07	9.93E-08	2.42E-05	1.43E-05	9.93E-06
34	101	2.1	1.08E-06	100	250	4.42E-07	2.61E-07	1.81E-07	4.42E-05	2.61E-05	1.81E-05
35	Wellsona	2.4	1.25E-06	1,000	250	5.09E-07	3.00E-07	2.09E-07	5.09E-05	3.00E-05	2.09E-05
36	101	1.9	9.51E-07	100	250	3.89E-07	2.29E-07	1.59E-07	3.89E-05	2.29E-05	1.59E-05
37	San Miguel	1.5	7.49E-07	3,000	250	3.06E-07	1.81E-07	1.25E-07	3.06E-05	1.81E-05	1.25E-05
38	101	2.7	1.35E-06	100	250	5.52E-07	3.26E-07	2.26E-07	5.52E-05	3.26E-05	2.26E-05
39	Camp Roberts	5.7	2.91E-06	100	250	1.19E-06	7.02E-07	4.88E-07	1.19E-04	7.02E-05	4.88E-05
40	Bradley	15.3	7.80E-06	100	250	3.19E-06	1.88E-06	1.31E-06	3.19E-04	1.88E-04	1.31E-04
41	San Lucas	18.5	9.45E-06	100	250	3.86E-06	2.28E-06	1.58E-06	3.86E-04	2.28E-04	1.58E-04
42	King City	1.5	7.45E-07	1,000	250	3.04E-07	1.79E-07	1.25E-07	3.04E-05	1.79E-05	1.25E-05
43	Clark Ranch	18.1	9.23E-06	100	250	3.77E-06	2.22E-06	1.55E-06	3.77E-04	2.22E-04	1.55E-04
44	Soledad	1.4	7.24E-07	1,000	250	2.96E-07	1.75E-07	1.21E-07	2.96E-05	1.75E-05	1.21E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	250	1.53E-06	9.02E-07	6.27E-07	1.53E-04	9.02E-05	6.27E-05
46	Gonzales	1.2	5.92E-07	3,000	250	2.42E-07	1.43E-07	9.91E-08	2.42E-05	1.43E-05	9.91E-06
47	Salinas Valley Ag	5.0	2.57E-06	100	250	1.05E-06	6.18E-07	4.30E-07	1.05E-04	6.18E-05	4.30E-05
48	Chular	0.6	3.25E-07	1,000	250	1.33E-07	7.84E-08	5.45E-08	1.33E-05	7.84E-06	5.45E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
49	Sprekles	7.8	3.97E-06	100	250	1.62E-06	9.56E-07	6.65E-07	1.62E-04	9.56E-05	6.65E-05
50	Salinas	3.9	2.00E-06	6,500	250	8.19E-07	4.83E-07	3.36E-07	8.19E-05	4.83E-05	3.36E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	1.29E-06	7.60E-07	5.28E-07	1.29E-04	7.60E-05	5.28E-05
52	Castroville	1.1	5.76E-07	1,000	250	2.35E-07	1.39E-07	9.65E-08	2.35E-05	1.39E-05	9.65E-06
53	Las Lomas	15.4	7.87E-06	100	250	3.22E-06	1.90E-06	1.32E-06	3.22E-04	1.90E-04	1.32E-04
54	Aromas	12.1	6.15E-06	100	250	2.51E-06	1.48E-06	1.03E-06	2.51E-04	1.48E-04	1.03E-04
55	Gilroy	4.2	2.13E-06	3,000	250	8.71E-07	5.14E-07	3.57E-07	8.71E-05	5.14E-05	3.57E-05
56	San Martin	6.1	3.09E-06	100	250	1.26E-06	7.44E-07	5.17E-07	1.26E-04	7.44E-05	5.17E-05
57	Morgan Hill	3.8	1.95E-06	3,000	250	7.98E-07	4.71E-07	3.27E-07	7.98E-05	4.71E-05	3.27E-05
58	Coyote Valley	6.7	3.40E-06	100	250	1.39E-06	8.20E-07	5.70E-07	1.39E-04	8.20E-05	5.70E-05
59	San Jose	6.3	3.23E-06	5,000	250	1.32E-06	7.79E-07	5.42E-07	1.32E-04	7.79E-05	5.42E-05
60	Seven Trees	1.9	9.49E-07	1,000	250	3.88E-07	2.29E-07	1.59E-07	3.88E-05	2.29E-05	1.59E-05
61	San Jose	5.0	2.53E-06	10,000	250	1.03E-06	6.10E-07	4.24E-07	1.03E-04	6.10E-05	4.24E-05
62	Santa Clara	5.1	2.61E-06	6,500	250	1.06E-06	6.28E-07	4.36E-07	1.06E-04	6.28E-05	4.36E-05
63	Alviso	1.7	8.77E-07	1,000	250	3.58E-07	2.11E-07	1.47E-07	3.58E-05	2.11E-05	1.47E-05
64	Drawbridge	5.7	2.91E-06	100	250	1.19E-06	7.01E-07	4.87E-07	1.19E-04	7.01E-05	4.87E-05
65	Newark	2.3	1.15E-06	1,000	250	4.69E-07	2.77E-07	1.92E-07	4.69E-05	2.77E-05	1.92E-05
107	Newark	3.1	1.59E-06	10,000	250	6.48E-07	3.82E-07	2.66E-07	6.48E-05	3.82E-05	2.66E-05
108	Fremont	3.2	1.64E-06	10,000	250	6.71E-07	3.96E-07	2.75E-07	6.71E-05	3.96E-05	2.75E-05
109	Sunol	6.8	3.48E-06	100	250	1.42E-06	8.40E-07	5.83E-07	1.42E-04	8.40E-05	5.83E-05
110	Pleasanton	1.8	9.08E-07	1,000	250	3.71E-07	2.19E-07	1.52E-07	3.71E-05	2.19E-05	1.52E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	5.19E-07	3.06E-07	2.13E-07	5.19E-05	3.06E-05	2.13E-05
112	Pleasanton	3.0	1.51E-06	100	250	6.19E-07	3.65E-07	2.54E-07	6.19E-05	3.65E-05	2.54E-05
113	Livermore	5.0	2.57E-06	5,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
114	Livermore	2.5	1.26E-06	1,000	250	5.15E-07	3.04E-07	2.11E-07	5.15E-05	3.04E-05	2.11E-05
115	Altamont	14.2	7.24E-06	100	250	2.96E-06	1.75E-06	1.21E-06	2.96E-04	1.75E-04	1.21E-04
116	Tracy	3.9	1.97E-06	3,000	250	8.04E-07	4.74E-07	3.30E-07	8.04E-05	4.74E-05	3.30E-05
117	Lathrop	8.2	4.18E-06	100	250	1.71E-06	1.01E-06	7.00E-07	1.71E-04	1.01E-04	7.00E-05
118	French Camp	8.0	4.08E-06	1,000	250	1.67E-06	9.83E-07	6.83E-07	1.67E-04	9.83E-05	6.83E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
119	Stockton	7.9	4.03E-06	10,000	250	1.65E-06	9.72E-07	6.76E-07	1.65E-04	9.72E-05	6.76E-05
120	Lodi	4.1	2.07E-06	100	250	8.44E-07	4.98E-07	3.46E-07	8.44E-05	4.98E-05	3.46E-05
121	Lodi	3.4	1.73E-06	5,000	250	7.06E-07	4.17E-07	2.90E-07	7.06E-05	4.17E-05	2.90E-05
122	Acampo	5.5	2.81E-06	100	250	1.15E-06	6.76E-07	4.70E-07	1.15E-04	6.76E-05	4.70E-05
123	Galt	1.6	7.96E-07	4,000	250	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
124	Hicksville	8.6	4.38E-06	100	250	1.79E-06	1.05E-06	7.33E-07	1.79E-04	1.05E-04	7.33E-05
125	Elk Grove	1.0	4.87E-07	100	250	1.99E-07	1.17E-07	8.16E-08	1.99E-05	1.17E-05	8.16E-06
126	Elk Grove	5.8	2.94E-06	5,000	250	1.20E-06	7.08E-07	4.92E-07	1.20E-04	7.08E-05	4.92E-05
127	Sacramento	4.2	2.14E-06	1,000	250	8.75E-07	5.16E-07	3.59E-07	8.75E-05	5.16E-05	3.59E-05
128	Sacramento	4.6	2.32E-06	10,000	250	9.48E-07	5.59E-07	3.89E-07	9.48E-05	5.59E-05	3.89E-05
101	Parkland	0.8	4.12E-07	100	250	1.68E-07	9.93E-08	6.90E-08	1.68E-05	9.93E-06	6.90E-06
102	Sacramento	3.1	1.58E-06	3,000	250	6.44E-07	3.80E-07	2.64E-07	6.44E-05	3.80E-05	2.64E-05
103	North Highlands	2.6	1.31E-06	1,000	250	5.33E-07	3.15E-07	2.19E-07	5.33E-05	3.15E-05	2.19E-05
104	North Highlands	4.4	2.23E-06	3,000	250	9.10E-07	5.37E-07	3.73E-07	9.10E-05	5.37E-05	3.73E-05
105	Roseville Yard	1.3	6.43E-07	100	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
145	Roseville	2.3	6.15E-07	3,000	250	2.51E-07	1.48E-07	1.03E-07	2.51E-05	1.48E-05	1.03E-05
146	Roseville	1.3	3.45E-07	1,000	250	1.41E-07	8.30E-08	5.77E-08	1.41E-05	8.30E-06	5.77E-06
147	Roseville	0.1	4.00E-08	100	250	1.63E-08	9.64E-09	6.70E-09	1.63E-06	9.64E-07	6.70E-07
148	Placer Co	2.9	7.89E-07	1,000	250	3.22E-07	1.90E-07	1.32E-07	3.22E-05	1.90E-05	1.32E-05
149	Lincoln	1.2	3.22E-07	100	250	1.32E-07	7.77E-08	5.40E-08	1.32E-05	7.77E-06	5.40E-06
150	Lincoln	2.9	7.74E-07	3,000	250	3.16E-07	1.87E-07	1.30E-07	3.16E-05	1.87E-05	1.30E-05
151	Sheridan	10.7	2.88E-06	100	250	1.18E-06	6.94E-07	4.82E-07	1.18E-04	6.94E-05	4.82E-05
152	Wheatland	0.9	2.51E-07	1,000	250	1.03E-07	6.06E-08	4.21E-08	1.03E-05	6.06E-06	4.21E-06
153	Yuba County	9.2	2.49E-06	100	250	1.02E-06	6.01E-07	4.18E-07	1.02E-04	6.01E-05	4.18E-05
154	Olivehurst	4.3	1.15E-06	1,000	250	4.70E-07	2.77E-07	1.93E-07	4.70E-05	2.77E-05	1.93E-05
155	Marysville	1.3	3.59E-07	3,000	250	1.46E-07	8.64E-08	6.00E-08	1.46E-05	8.64E-06	6.00E-06
156	Marysville	2.3	6.27E-07	100	250	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05
157	Live Oak	0.3	8.88E-08	1,000	250	3.63E-08	2.14E-08	1.49E-08	3.63E-06	2.14E-06	1.49E-06
158	Live Oak	6.4	1.73E-06	100	250	7.08E-07	4.18E-07	2.90E-07	7.08E-05	4.18E-05	2.90E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
159	Live Oak	0.4	9.89E-08	1,000	250	4.04E-08	2.38E-08	1.66E-08	4.04E-06	2.38E-06	1.66E-06
160	Live Oak	1.0	2.74E-07	3,000	250	1.12E-07	6.60E-08	4.58E-08	1.12E-05	6.60E-06	4.58E-06
161	Butte Co	5.2	1.41E-06	100	250	5.76E-07	3.40E-07	2.36E-07	5.76E-05	3.40E-05	2.36E-05
162	Gridley	0.5	1.23E-07	1,000	250	5.02E-08	2.96E-08	2.06E-08	5.02E-06	2.96E-06	2.06E-06
163	Gridley	0.8	2.24E-07	3,000	250	9.14E-08	5.39E-08	3.75E-08	9.14E-06	5.39E-06	3.75E-06
164	Gridley	2.5	6.77E-07	100	250	2.77E-07	1.63E-07	1.13E-07	2.77E-05	1.63E-05	1.13E-05
165	Biggs	0.6	1.55E-07	3,000	250	6.32E-08	3.73E-08	2.59E-08	6.32E-06	3.73E-06	2.59E-06
166	Butte Co	5.1	1.39E-06	100	250	5.66E-07	3.34E-07	2.32E-07	5.66E-05	3.34E-05	2.32E-05
167	Richvale	0.8	2.26E-07	1,000	250	9.22E-08	5.44E-08	3.78E-08	9.22E-06	5.44E-06	3.78E-06
168	Nelson	9.3	2.51E-06	100	250	1.02E-06	6.04E-07	4.20E-07	1.02E-04	6.04E-05	4.20E-05
169	Durham	2.4	6.58E-07	1,000	250	2.69E-07	1.59E-07	1.10E-07	2.69E-05	1.59E-05	1.10E-05
170	Chico	4.3	1.17E-06	100	250	4.77E-07	2.81E-07	1.95E-07	4.77E-05	2.81E-05	1.95E-05
171	Chico	4.5	1.22E-06	1,000	250	4.98E-07	2.94E-07	2.04E-07	4.98E-05	2.94E-05	2.04E-05
172	Chico	2.8	7.56E-07	100	250	3.09E-07	1.82E-07	1.27E-07	3.09E-05	1.82E-05	1.27E-05
173	Nord	0.6	1.57E-07	1,000	250	6.43E-08	3.79E-08	2.64E-08	6.43E-06	3.79E-06	2.64E-06
174	Butte Co	11.3	3.06E-06	100	250	1.25E-06	7.38E-07	5.13E-07	1.25E-04	7.38E-05	5.13E-05
175	Vina	0.4	1.20E-07	1,000	250	4.92E-08	2.90E-08	2.02E-08	4.92E-06	2.90E-06	2.02E-06
176	Copeland	6.3	1.70E-06	100	250	6.96E-07	4.11E-07	2.85E-07	6.96E-05	4.11E-05	2.85E-05
177	Los Molinos	0.5	1.40E-07	1,000	250	5.73E-08	3.38E-08	2.35E-08	5.73E-06	3.38E-06	2.35E-06
178	Los Molinos	1.0	2.68E-07	100	250	1.10E-07	6.46E-08	4.49E-08	1.10E-05	6.46E-06	4.49E-06
179	Tehema	0.3	8.98E-08	1,000	250	3.67E-08	2.16E-08	1.50E-08	3.67E-06	2.16E-06	1.50E-06
180	Tehema	2.2	6.04E-07	100	250	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
181	Gerber	2.3	6.25E-07	1,000	250	2.55E-07	1.51E-07	1.05E-07	2.55E-05	1.51E-05	1.05E-05
182	Tehema Co	1.8	4.83E-07	100	250	1.97E-07	1.16E-07	8.08E-08	1.97E-05	1.16E-05	8.08E-06
183	Red Bluff	0.8	2.08E-07	1,000	250	8.51E-08	5.02E-08	3.49E-08	8.51E-06	5.02E-06	3.49E-06
184	Red Bluff	4.6	1.25E-06	100	250	5.10E-07	3.01E-07	2.09E-07	5.10E-05	3.01E-05	2.09E-05
185	Red Bluff	3.3	8.86E-07	1,000	250	3.62E-07	2.14E-07	1.48E-07	3.62E-05	2.14E-05	1.48E-05
186	Tehema Co	15.3	4.13E-06	100	250	1.69E-06	9.95E-07	6.91E-07	1.69E-04	9.95E-05	6.91E-05
187	Cottonwood	0.6	1.65E-07	1,000	250	6.72E-08	3.97E-08	2.76E-08	6.72E-06	3.97E-06	2.76E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
188	Anderson	5.4	1.45E-06	100	250	5.91E-07	3.49E-07	2.42E-07	5.91E-05	3.49E-05	2.42E-05
189	Anderson	3.5	9.57E-07	1,000	250	3.91E-07	2.31E-07	1.60E-07	3.91E-05	2.31E-05	1.60E-05
190	Anderson	4.1	1.10E-06	100	250	4.51E-07	2.66E-07	1.85E-07	4.51E-05	2.66E-05	1.85E-05
191	Redding	6.0	1.63E-06	1,000	250	6.66E-07	3.93E-07	2.73E-07	6.66E-05	3.93E-05	2.73E-05
192	Redding	0.8	2.06E-07	1,000	250	8.40E-08	4.96E-08	3.45E-08	8.40E-06	4.96E-06	3.45E-06
193	Redding	1.1	3.05E-07	100	250	1.25E-07	7.35E-08	5.11E-08	1.25E-05	7.35E-06	5.11E-06
194	Redding	0.4	1.05E-07	1,000	250	4.31E-08	2.54E-08	1.77E-08	4.31E-06	2.54E-06	1.77E-06
195	Redding	2.6	6.97E-07	100	250	2.85E-07	1.68E-07	1.17E-07	2.85E-05	1.68E-05	1.17E-05
196	Shasta Co	0.5	1.41E-07	1,000	250	5.77E-08	3.40E-08	2.36E-08	5.77E-06	3.40E-06	2.36E-06
197	Shasta Lake	1.7	4.46E-07	100	250	1.82E-07	1.07E-07	7.46E-08	1.82E-05	1.07E-05	7.46E-06
198	Shasta Lake	0.8	2.03E-07	1,000	250	8.28E-08	4.89E-08	3.40E-08	8.28E-06	4.89E-06	3.40E-06
199	Shasta Co	16.4	4.44E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
200	Lakeshore	0.6	1.64E-07	1,000	250	6.69E-08	3.95E-08	2.74E-08	6.69E-06	3.95E-06	2.74E-06
201	Shasta Co	30.4	8.20E-06	100	250	3.35E-06	1.98E-06	1.37E-06	3.35E-04	1.98E-04	1.37E-04
202	Dunsmuir	1.3	3.52E-07	1,000	250	1.44E-07	8.48E-08	5.89E-08	1.44E-05	8.48E-06	5.89E-06
203	Siskiyou Co	12.8	3.45E-06	100	250	1.41E-06	8.31E-07	5.77E-07	1.41E-04	8.31E-05	5.77E-05
204	Mount Shasta	1.1	3.05E-07	1,000	250	1.25E-07	7.36E-08	5.11E-08	1.25E-05	7.36E-06	5.11E-06
205	Siskiyou Co	69.5	1.88E-05	100	250	7.67E-06	4.52E-06	3.14E-06	7.67E-04	4.52E-04	3.14E-04
206	Dorris	0.9	2.38E-07	100	250	9.73E-08	5.74E-08	3.99E-08	9.73E-06	5.74E-06	3.99E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	250	3.76E-07	2.22E-07	1.54E-07	3.76E-05	2.22E-05	1.54E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	3.23E-07	1.91E-07	1.32E-07	3.23E-05	1.91E-05	1.32E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	1.66E-07	9.81E-08	6.82E-08	1.66E-05	9.81E-06	6.82E-06
3	Arroyo Grande	0.9	4.79E-07	1,000	250	1.96E-07	1.16E-07	8.03E-08	1.96E-05	1.16E-05	8.03E-06
4	Arroyo Grande	1.4	7.05E-07	100	250	2.88E-07	1.70E-07	1.18E-07	2.88E-05	1.70E-05	1.18E-05
5	Oceano	0.4	2.05E-07	3,000	250	8.38E-08	4.95E-08	3.44E-08	8.38E-06	4.95E-06	3.44E-06
6	Oceano	0.6	3.18E-07	10,000	250	1.30E-07	7.67E-08	5.33E-08	1.30E-05	7.67E-06	5.33E-06
7	Oceano	0.2	1.22E-07	3,000	250	4.98E-08	2.94E-08	2.04E-08	4.98E-06	2.94E-06	2.04E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	4.37E-07	2.58E-07	1.79E-07	4.37E-05	2.58E-05	1.79E-05
9	Pismo	0.3	1.47E-07	3,000	250	6.02E-08	3.55E-08	2.47E-08	6.02E-06	3.55E-06	2.47E-06
10	Pismo	0.4	1.88E-07	1,000	250	7.68E-08	4.53E-08	3.15E-08	7.68E-06	4.53E-06	3.15E-06
11	Price Canyon	5.2	2.64E-06	100	250	1.08E-06	6.37E-07	4.43E-07	1.08E-04	6.37E-05	4.43E-05
12	Edna	0.6	3.07E-07	1,000	250	1.25E-07	7.39E-08	5.13E-08	1.25E-05	7.39E-06	5.13E-06
13	Edna	1.6	8.25E-07	100	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	9.73E-07	5.74E-07	3.99E-07	9.73E-05	5.74E-05	3.99E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	250	1.18E-07	6.95E-08	4.83E-08	1.18E-05	6.95E-06	4.83E-06
16	Chorro	0.4	2.17E-07	1,000	250	8.88E-08	5.24E-08	3.64E-08	8.88E-06	5.24E-06	3.64E-06
17	Chorro	1.6	7.98E-07	100	250	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
18	CMC	0.8	3.89E-07	3,000	250	1.59E-07	9.38E-08	6.52E-08	1.59E-05	9.38E-06	6.52E-06
19	Santa Lucia	11.2	5.70E-06	100	250	2.33E-06	1.37E-06	9.54E-07	2.33E-04	1.37E-04	9.54E-05
20	Santa Margarita	0.9	4.50E-07	3,000	250	1.84E-07	1.08E-07	7.53E-08	1.84E-05	1.08E-05	7.53E-06
21	Phillips PS	0.9	4.34E-07	100	250	1.77E-07	1.05E-07	7.26E-08	1.77E-05	1.05E-05	7.26E-06
22	Atascadero	7.4	3.77E-06	1,000	250	1.54E-06	9.10E-07	6.32E-07	1.54E-04	9.10E-05	6.32E-05
23	Atascadero	1.6	8.16E-07	3,000	250	3.33E-07	1.97E-07	1.37E-07	3.33E-05	1.97E-05	1.37E-05
24	Atascadero	1.3	6.49E-07	1,000	250	2.65E-07	1.56E-07	1.09E-07	2.65E-05	1.56E-05	1.09E-05
25	Atascadero	0.4	2.20E-07	3,000	250	8.97E-08	5.29E-08	3.68E-08	8.97E-06	5.29E-06	3.68E-06
26	101	0.4	1.87E-07	1,000	250	7.62E-08	4.50E-08	3.12E-08	7.62E-06	4.50E-06	3.12E-06
27	Templeton	2.1	1.09E-06	3,000	250	4.46E-07	2.63E-07	1.83E-07	4.46E-05	2.63E-05	1.83E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	1.07E-07	6.31E-08	4.38E-08	1.07E-05	6.31E-06	4.38E-06
29	Paso Robles	0.8	4.29E-07	3,000	250	1.75E-07	1.03E-07	7.19E-08	1.75E-05	1.03E-05	7.19E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Paso Robles	2.7	1.40E-06	1,000	250	5.73E-07	3.38E-07	2.35E-07	5.73E-05	3.38E-05	2.35E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	4.46E-07	2.63E-07	1.83E-07	4.46E-05	2.63E-05	1.83E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	9.05E-08	5.34E-08	3.71E-08	9.05E-06	5.34E-06	3.71E-06
33	Paso Robles	1.2	5.93E-07	3,000	250	2.42E-07	1.43E-07	9.93E-08	2.42E-05	1.43E-05	9.93E-06
34	101	2.1	1.08E-06	100	250	4.42E-07	2.61E-07	1.81E-07	4.42E-05	2.61E-05	1.81E-05
35	Wellsona	2.4	1.25E-06	1,000	250	5.09E-07	3.00E-07	2.09E-07	5.09E-05	3.00E-05	2.09E-05
36	101	1.9	9.51E-07	100	250	3.89E-07	2.29E-07	1.59E-07	3.89E-05	2.29E-05	1.59E-05
37	San Miguel	1.5	7.49E-07	3,000	250	3.06E-07	1.81E-07	1.25E-07	3.06E-05	1.81E-05	1.25E-05
38	101	2.7	1.35E-06	100	250	5.52E-07	3.26E-07	2.26E-07	5.52E-05	3.26E-05	2.26E-05
39	Camp Roberts	5.7	2.91E-06	100	250	1.19E-06	7.02E-07	4.88E-07	1.19E-04	7.02E-05	4.88E-05
40	Bradley	15.3	7.80E-06	100	250	3.19E-06	1.88E-06	1.31E-06	3.19E-04	1.88E-04	1.31E-04
41	San Lucas	18.5	9.45E-06	100	250	3.86E-06	2.28E-06	1.58E-06	3.86E-04	2.28E-04	1.58E-04
42	King City	1.5	7.45E-07	1,000	250	3.04E-07	1.79E-07	1.25E-07	3.04E-05	1.79E-05	1.25E-05
43	Clark Ranch	18.1	9.23E-06	100	250	3.77E-06	2.22E-06	1.55E-06	3.77E-04	2.22E-04	1.55E-04
44	Soledad	1.4	7.24E-07	1,000	250	2.96E-07	1.75E-07	1.21E-07	2.96E-05	1.75E-05	1.21E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	250	1.53E-06	9.02E-07	6.27E-07	1.53E-04	9.02E-05	6.27E-05
46	Gonzales	1.2	5.92E-07	3,000	250	2.42E-07	1.43E-07	9.91E-08	2.42E-05	1.43E-05	9.91E-06
47	Salinas Valley Ag	5.0	2.57E-06	100	250	1.05E-06	6.18E-07	4.30E-07	1.05E-04	6.18E-05	4.30E-05
48	Chular	0.6	3.25E-07	1,000	250	1.33E-07	7.84E-08	5.45E-08	1.33E-05	7.84E-06	5.45E-06
49	Sprekles	7.8	3.97E-06	100	250	1.62E-06	9.56E-07	6.65E-07	1.62E-04	9.56E-05	6.65E-05
50	Salinas	3.9	2.00E-06	6,500	250	8.19E-07	4.83E-07	3.36E-07	8.19E-05	4.83E-05	3.36E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	1.29E-06	7.60E-07	5.28E-07	1.29E-04	7.60E-05	5.28E-05
52	Castroville	1.1	5.76E-07	1,000	250	2.35E-07	1.39E-07	9.65E-08	2.35E-05	1.39E-05	9.65E-06
53	Las Lomas	15.4	7.87E-06	100	250	3.22E-06	1.90E-06	1.32E-06	3.22E-04	1.90E-04	1.32E-04
54	Aromas	12.1	6.15E-06	100	250	2.51E-06	1.48E-06	1.03E-06	2.51E-04	1.48E-04	1.03E-04
55	Gilroy	4.2	2.13E-06	3,000	250	8.71E-07	5.14E-07	3.57E-07	8.71E-05	5.14E-05	3.57E-05
56	San Martin	6.1	3.09E-06	100	250	1.26E-06	7.44E-07	5.17E-07	1.26E-04	7.44E-05	5.17E-05
57	Morgan Hill	3.8	1.95E-06	3,000	250	7.98E-07	4.71E-07	3.27E-07	7.98E-05	4.71E-05	3.27E-05
58	Coyote Valley	6.7	3.40E-06	100	250	1.39E-06	8.20E-07	5.70E-07	1.39E-04	8.20E-05	5.70E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	San Jose	6.3	3.23E-06	5,000	250	1.32E-06	7.79E-07	5.42E-07	1.32E-04	7.79E-05	5.42E-05
60	Seven Trees	1.9	9.49E-07	1,000	250	3.88E-07	2.29E-07	1.59E-07	3.88E-05	2.29E-05	1.59E-05
61	San Jose	5.0	2.53E-06	10,000	250	1.03E-06	6.10E-07	4.24E-07	1.03E-04	6.10E-05	4.24E-05
62	Santa Clara	5.1	2.61E-06	6,500	250	1.06E-06	6.28E-07	4.36E-07	1.06E-04	6.28E-05	4.36E-05
63	Alviso	1.7	8.77E-07	1,000	250	3.58E-07	2.11E-07	1.47E-07	3.58E-05	2.11E-05	1.47E-05
64	Drawbridge	5.7	2.91E-06	100	250	1.19E-06	7.01E-07	4.87E-07	1.19E-04	7.01E-05	4.87E-05
65	Newark	2.3	1.15E-06	1,000	250	4.69E-07	2.77E-07	1.92E-07	4.69E-05	2.77E-05	1.92E-05
107	Newark	3.1	1.59E-06	10,000	250	6.48E-07	3.82E-07	2.66E-07	6.48E-05	3.82E-05	2.66E-05
108	Fremont	3.2	1.64E-06	10,000	250	6.71E-07	3.96E-07	2.75E-07	6.71E-05	3.96E-05	2.75E-05
109	Sunol	6.8	3.48E-06	100	250	1.42E-06	8.40E-07	5.83E-07	1.42E-04	8.40E-05	5.83E-05
110	Pleasanton	1.8	9.08E-07	1,000	250	3.71E-07	2.19E-07	1.52E-07	3.71E-05	2.19E-05	1.52E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	5.19E-07	3.06E-07	2.13E-07	5.19E-05	3.06E-05	2.13E-05
112	Pleasanton	3.0	1.51E-06	100	250	6.19E-07	3.65E-07	2.54E-07	6.19E-05	3.65E-05	2.54E-05
113	Livermore	5.0	2.57E-06	5,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
114	Livermore	2.5	1.26E-06	1,000	250	5.15E-07	3.04E-07	2.11E-07	5.15E-05	3.04E-05	2.11E-05
115	Altamont	14.2	7.24E-06	100	250	2.96E-06	1.75E-06	1.21E-06	2.96E-04	1.75E-04	1.21E-04
116	Tracy	3.9	1.97E-06	3,000	250	8.04E-07	4.74E-07	3.30E-07	8.04E-05	4.74E-05	3.30E-05
117	Lathrop	8.2	4.18E-06	100	250	1.71E-06	1.01E-06	7.00E-07	1.71E-04	1.01E-04	7.00E-05
118	French Camp	8.0	4.08E-06	1,000	250	1.67E-06	9.83E-07	6.83E-07	1.67E-04	9.83E-05	6.83E-05
119	Stockton	7.9	4.03E-06	10,000	250	1.65E-06	9.72E-07	6.76E-07	1.65E-04	9.72E-05	6.76E-05
120	Lodi	4.1	2.07E-06	100	250	8.44E-07	4.98E-07	3.46E-07	8.44E-05	4.98E-05	3.46E-05
121	Lodi	3.4	1.73E-06	5,000	250	7.06E-07	4.17E-07	2.90E-07	7.06E-05	4.17E-05	2.90E-05
122	Acampo	5.5	2.81E-06	100	250	1.15E-06	6.76E-07	4.70E-07	1.15E-04	6.76E-05	4.70E-05
123	Galt	1.6	7.96E-07	4,000	250	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
124	Hicksville	8.6	4.38E-06	100	250	1.79E-06	1.05E-06	7.33E-07	1.79E-04	1.05E-04	7.33E-05
125	Elk Grove	1.0	4.87E-07	100	250	1.99E-07	1.17E-07	8.16E-08	1.99E-05	1.17E-05	8.16E-06
126	Elk Grove	5.8	2.94E-06	5,000	250	1.20E-06	7.08E-07	4.92E-07	1.20E-04	7.08E-05	4.92E-05
127	Sacramento	4.2	2.14E-06	1,000	250	8.75E-07	5.16E-07	3.59E-07	8.75E-05	5.16E-05	3.59E-05
128	Sacramento	4.6	2.32E-06	10,000	250	9.48E-07	5.59E-07	3.89E-07	9.48E-05	5.59E-05	3.89E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – 117R Rail Cars

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
101	Parkland	0.8	4.12E-07	100	250	1.68E-07	9.93E-08	6.90E-08	1.68E-05	9.93E-06	6.90E-06
102	Sacramento	3.1	1.58E-06	3,000	250	6.44E-07	3.80E-07	2.64E-07	6.44E-05	3.80E-05	2.64E-05
103	North Highlands	2.6	1.31E-06	1,000	250	5.33E-07	3.15E-07	2.19E-07	5.33E-05	3.15E-05	2.19E-05
104	North Highlands	4.4	2.23E-06	3,000	250	9.10E-07	5.37E-07	3.73E-07	9.10E-05	5.37E-05	3.73E-05
105	Roseville Yard	1.3	6.43E-07	100	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
129	Roseville	1.4	1.15E-06	3,000	250	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
130	Roseville	1.1	9.01E-07	3,000	250	3.68E-07	2.17E-07	1.51E-07	3.68E-05	2.17E-05	1.51E-05
131	Roseville	2.1	1.73E-06	1,000	250	7.08E-07	4.18E-07	2.90E-07	7.08E-05	4.18E-05	2.90E-05
132	Roseville	0.5	3.71E-07	3,000	250	1.52E-07	8.94E-08	6.22E-08	1.52E-05	8.94E-06	6.22E-06
133	Rocklin	2.5	2.06E-06	1,000	250	8.42E-07	4.97E-07	3.45E-07	8.42E-05	4.97E-05	3.45E-05
134	Placer Co	8.0	6.54E-06	100	250	2.67E-06	1.58E-06	1.10E-06	2.67E-04	1.58E-04	1.10E-04
135	Newcastle	0.5	3.70E-07	1,000	250	1.51E-07	8.92E-08	6.20E-08	1.51E-05	8.92E-06	6.20E-06
136	Placer Co	2.5	2.05E-06	100	250	8.39E-07	4.95E-07	3.44E-07	8.39E-05	4.95E-05	3.44E-05
137	Auburn	5.3	4.37E-06	1,000	250	1.79E-06	1.05E-06	7.33E-07	1.79E-04	1.05E-04	7.33E-05
138	Placer Co	13.6	1.11E-05	100	250	4.55E-06	2.69E-06	1.87E-06	4.55E-04	2.69E-04	1.87E-04
139	Colfax	0.7	5.53E-07	1,000	250	2.26E-07	1.33E-07	9.26E-08	2.26E-05	1.33E-05	9.26E-06
140	Placer Co	61.6	5.05E-05	100	250	2.06E-05	1.22E-05	8.46E-06	2.06E-03	1.22E-03	8.46E-04
141	Truckee	2.1	1.74E-06	1,000	250	7.11E-07	4.19E-07	2.91E-07	7.11E-05	4.19E-05	2.91E-05
142	Nevada Co	13.9	1.14E-05	100	250	4.65E-06	2.74E-06	1.91E-06	4.65E-04	2.74E-04	1.91E-04
143	Floriston	0.2	1.90E-07	1,000	250	7.75E-08	4.58E-08	3.18E-08	7.75E-06	4.58E-06	3.18E-06
144	Sierra Co	5.8	4.75E-06	100	250	1.94E-06	1.14E-06	7.95E-07	1.94E-04	1.14E-04	7.95E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Oso Flaco	2.8	1.19E-06	100	150	8.56E-07	5.05E-07	3.51E-07	8.56E-05	5.05E-05	3.51E-05
2	Nipomo	0.6	2.74E-07	1,000	150	1.97E-07	1.16E-07	8.06E-08	1.97E-05	1.16E-05	8.06E-06
3	Nipomo	1.5	6.32E-07	100	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
4	Guadalupe	1.3	5.76E-07	10,000	150	4.14E-07	2.44E-07	1.70E-07	4.14E-05	2.44E-05	1.70E-05
5	SMV	0.3	1.31E-07	100	150	9.42E-08	5.56E-08	3.86E-08	9.42E-06	5.56E-06	3.86E-06
6	Point Sal	13.8	5.93E-06	100	150	4.26E-06	2.51E-06	1.75E-06	4.26E-04	2.51E-04	1.75E-04
7	VAFB	13.5	5.81E-06	100	150	4.18E-06	2.46E-06	1.71E-06	4.18E-04	2.46E-04	1.71E-04
8	Rocky Point	14.7	6.30E-06	100	150	4.53E-06	2.67E-06	1.86E-06	4.53E-04	2.67E-04	1.86E-04
9	Bixby/Hollister	13.0	5.61E-06	100	150	4.03E-06	2.38E-06	1.65E-06	4.03E-04	2.38E-04	1.65E-04
10	Gaviota Beach	0.5	2.00E-07	1,000	150	1.44E-07	8.47E-08	5.89E-08	1.44E-05	8.47E-06	5.89E-06
11	Gaviota	5.9	2.52E-06	100	150	1.81E-06	1.07E-06	7.41E-07	1.81E-04	1.07E-04	7.41E-05
12	Arroyo Quemado	0.3	1.18E-07	1,000	150	8.47E-08	5.00E-08	3.47E-08	8.47E-06	5.00E-06	3.47E-06
13	Tajiquas	2.9	1.26E-06	100	150	9.09E-07	5.36E-07	3.72E-07	9.09E-05	5.36E-05	3.72E-05
14	Refugio	0.2	7.92E-08	1,000	150	5.69E-08	3.36E-08	2.33E-08	5.69E-06	3.36E-06	2.33E-06
15	Canada del Corral	2.0	8.51E-07	100	150	6.12E-07	3.61E-07	2.51E-07	6.12E-05	3.61E-05	2.51E-05
16	El Capitan	0.8	3.43E-07	1,000	150	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
17	Naples	5.7	2.44E-06	100	150	1.75E-06	1.03E-06	7.18E-07	1.75E-04	1.03E-04	7.18E-05
18	Bacara	0.8	3.24E-07	1,000	150	2.33E-07	1.37E-07	9.54E-08	2.33E-05	1.37E-05	9.54E-06
19	Sandpiper	0.6	2.48E-07	100	150	1.79E-07	1.05E-07	7.32E-08	1.79E-05	1.05E-05	7.32E-06
20	Goleta	2.1	9.03E-07	3,000	150	6.49E-07	3.83E-07	2.66E-07	6.49E-05	3.83E-05	2.66E-05
21	Goleta	1.6	7.01E-07	1,000	150	5.04E-07	2.97E-07	2.07E-07	5.04E-05	2.97E-05	2.07E-05
22	Santa Barbara	9.5	4.08E-06	3,000	150	2.93E-06	1.73E-06	1.20E-06	2.93E-04	1.73E-04	1.20E-04
23	Santa Barbara	3.8	1.64E-06	10,000	150	1.18E-06	6.95E-07	4.83E-07	1.18E-04	6.95E-05	4.83E-05
24	Montecito	4.3	1.83E-06	3,000	150	1.32E-06	7.77E-07	5.40E-07	1.32E-04	7.77E-05	5.40E-05
25	Polo Grounds	0.9	4.07E-07	1,000	150	2.93E-07	1.73E-07	1.20E-07	2.93E-05	1.73E-05	1.20E-05
26	Padero Lane	0.5	2.21E-07	3,000	150	1.59E-07	9.36E-08	6.50E-08	1.59E-05	9.36E-06	6.50E-06
27	Carpinteria	2.8	1.20E-06	1,000	150	8.59E-07	5.07E-07	3.52E-07	8.59E-05	5.07E-05	3.52E-05
28	Carpinteria	1.3	5.55E-07	3,000	150	3.99E-07	2.35E-07	1.63E-07	3.99E-05	2.35E-05	1.63E-05
29	Carpinteria Bluffs	1.9	8.00E-07	1,000	150	5.75E-07	3.39E-07	2.36E-07	5.75E-05	3.39E-05	2.36E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Rincon	0.2	1.01E-07	3,000	150	7.28E-08	4.30E-08	2.99E-08	7.28E-06	4.30E-06	2.99E-06
31	La Concita Oil	1.7	7.44E-07	100	150	5.35E-07	3.15E-07	2.19E-07	5.35E-05	3.15E-05	2.19E-05
32	La Conchita	0.4	1.78E-07	3,000	150	1.28E-07	7.56E-08	5.25E-08	1.28E-05	7.56E-06	5.25E-06
33	Mussle Shoals	1.6	6.84E-07	1,000	150	4.91E-07	2.90E-07	2.01E-07	4.91E-05	2.90E-05	2.01E-05
34	Seacliff	0.9	3.71E-07	100	150	2.66E-07	1.57E-07	1.09E-07	2.66E-05	1.57E-05	1.09E-05
35	Faria/Solimar	4.5	1.92E-06	100	150	1.38E-06	8.13E-07	5.65E-07	1.38E-04	8.13E-05	5.65E-05
36	State Beaches	3.6	1.55E-06	100	150	1.12E-06	6.58E-07	4.57E-07	1.12E-04	6.58E-05	4.57E-05
37	Ventura	5.1	2.18E-06	3,000	150	1.57E-06	9.26E-07	6.44E-07	1.57E-04	9.26E-05	6.44E-05
38	Ventura Greenbelt	1.2	4.95E-07	1,000	150	3.55E-07	2.10E-07	1.46E-07	3.55E-05	2.10E-05	1.46E-05
39	Montalvo	1.0	4.27E-07	3,000	150	3.07E-07	1.81E-07	1.26E-07	3.07E-05	1.81E-05	1.26E-05
40	Santa Clara River	0.4	1.68E-07	100	150	1.21E-07	7.14E-08	4.96E-08	1.21E-05	7.14E-06	4.96E-06
41	Oxnard	4.1	1.76E-06	3,000	150	1.26E-06	7.46E-07	5.18E-07	1.26E-04	7.46E-05	5.18E-05
42	Oxnard Industrial	3.0	1.29E-06	1,000	150	9.27E-07	5.47E-07	3.80E-07	9.27E-05	5.47E-05	3.80E-05
43	Oxnard Ag	5.2	2.22E-06	100	150	1.59E-06	9.41E-07	6.54E-07	1.59E-04	9.41E-05	6.54E-05
44	Camarillo Comm	0.5	2.33E-07	1,000	150	1.68E-07	9.88E-08	6.87E-08	1.68E-05	9.88E-06	6.87E-06
45	Camarillo Ag	0.1	3.58E-08	100	150	2.57E-08	1.52E-08	1.05E-08	2.57E-06	1.52E-06	1.05E-06
46	Camarillo	2.5	1.08E-06	3,000	150	7.76E-07	4.58E-07	3.18E-07	7.76E-05	4.58E-05	3.18E-05
47	Somis	7.6	3.25E-06	100	150	2.33E-06	1.38E-06	9.57E-07	2.33E-04	1.38E-04	9.57E-05
48	Moorpark	1.1	4.73E-07	1,000	150	3.40E-07	2.01E-07	1.39E-07	3.40E-05	2.01E-05	1.39E-05
49	Moorpark	1.2	4.95E-07	3,000	150	3.55E-07	2.10E-07	1.46E-07	3.55E-05	2.10E-05	1.46E-05
50	Moorpark	2.1	9.12E-07	1,000	150	6.55E-07	3.87E-07	2.69E-07	6.55E-05	3.87E-05	2.69E-05
51	Los Alamos Cyn	0.8	3.57E-07	100	150	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05
52	Simi Valley	1.1	4.73E-07	1,000	150	3.40E-07	2.01E-07	1.39E-07	3.40E-05	2.01E-05	1.39E-05
53	Simi Valley	6.8	2.94E-06	3,000	150	2.11E-06	1.25E-06	8.67E-07	2.11E-04	1.25E-04	8.67E-05
54	Sta Susana Knolls	1.6	6.75E-07	1,000	150	4.85E-07	2.86E-07	1.99E-07	4.85E-05	2.86E-05	1.99E-05
55	Santa Susana Pass	2.7	1.15E-06	100	150	8.28E-07	4.89E-07	3.40E-07	8.28E-05	4.89E-05	3.40E-05
56	Stoney Point	1.0	4.17E-07	1,000	150	2.99E-07	1.77E-07	1.23E-07	2.99E-05	1.77E-05	1.23E-05
57	Chatsworth	1.4	5.98E-07	3,000	150	4.30E-07	2.53E-07	1.76E-07	4.30E-05	2.53E-05	1.76E-05
58	Chatsworth	3.6	1.54E-06	10,000	150	1.10E-06	6.51E-07	4.52E-07	1.10E-04	6.51E-05	4.52E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	Northridge	2.5	1.09E-06	10,000	150	7.85E-07	4.63E-07	3.22E-07	7.85E-05	4.63E-05	3.22E-05
60	Van Nyus AP	1.7	7.44E-07	3,000	150	5.35E-07	3.15E-07	2.19E-07	5.35E-05	3.15E-05	2.19E-05
61	North Hollywood	4.0	1.74E-06	10,000	150	1.25E-06	7.37E-07	5.12E-07	1.25E-04	7.37E-05	5.12E-05
62	Burbank	2.5	1.09E-06	10,000	150	7.85E-07	4.63E-07	3.22E-07	7.85E-05	4.63E-05	3.22E-05
63	Valhalla	0.7	3.06E-07	1,000	150	2.20E-07	1.30E-07	9.01E-08	2.20E-05	1.30E-05	9.01E-06
64	Burbank	1.8	7.57E-07	10,000	150	5.44E-07	3.21E-07	2.23E-07	5.44E-05	3.21E-05	2.23E-05
65	Burbank	0.4	1.87E-07	3,000	150	1.34E-07	7.92E-08	5.51E-08	1.34E-05	7.92E-06	5.51E-06
66	Glendale	2.9	1.26E-06	10,000	150	9.02E-07	5.32E-07	3.70E-07	9.02E-05	5.32E-05	3.70E-05
67	Atwater	3.3	1.44E-06	10,000	150	1.03E-06	6.09E-07	4.23E-07	1.03E-04	6.09E-05	4.23E-05
68	Elysian Park	5.8	2.50E-06	10,000	150	1.80E-06	1.06E-06	7.36E-07	1.80E-04	1.06E-04	7.36E-05
69	East Los Angeles	7.5	3.23E-06	10,000	150	2.32E-06	1.37E-06	9.53E-07	2.32E-04	1.37E-04	9.53E-05
70	San Gabriel Vly	6.0	2.58E-06	10,000	150	1.86E-06	1.10E-06	7.61E-07	1.86E-04	1.10E-04	7.61E-05
71	El monte	0.4	1.76E-07	3,000	150	1.26E-07	7.45E-08	5.18E-08	1.26E-05	7.45E-06	5.18E-06
72	San Gabriel River	0.2	1.01E-07	1,000	150	7.25E-08	4.28E-08	2.97E-08	7.25E-06	4.28E-06	2.97E-06
73	La Puente	4.5	1.94E-06	3,000	150	1.39E-06	8.20E-07	5.70E-07	1.39E-04	8.20E-05	5.70E-05
74	La Puente-Walnut	7.9	3.41E-06	3,000	150	2.45E-06	1.45E-06	1.00E-06	2.45E-04	1.45E-04	1.00E-04
75	Walnut-Pomona	3.1	1.35E-06	3,000	150	9.70E-07	5.72E-07	3.98E-07	9.70E-05	5.72E-05	3.98E-05
76	Pomona	16.0	6.87E-06	3,000	150	4.94E-06	2.91E-06	2.02E-06	4.94E-04	2.91E-04	2.02E-04
77	Ontario	9.3	4.02E-06	3,000	150	2.89E-06	1.70E-06	1.18E-06	2.89E-04	1.70E-04	1.18E-04
78	Fontana	1.2	5.24E-07	1,000	150	3.76E-07	2.22E-07	1.54E-07	3.76E-05	2.22E-05	1.54E-05
79	Colton	2.1	5.33E-07	3,000	150	3.83E-07	2.26E-07	1.57E-07	3.83E-05	2.26E-05	1.57E-05
80	Rialto	1.9	4.83E-07	1,000	150	3.47E-07	2.05E-07	1.42E-07	3.47E-05	2.05E-05	1.42E-05
81	Rialto	1.1	2.88E-07	100	150	2.07E-07	1.22E-07	8.47E-08	2.07E-05	1.22E-05	8.47E-06
82	San Bernardino	1.9	4.90E-07	1,000	150	3.52E-07	2.08E-07	1.44E-07	3.52E-05	2.08E-05	1.44E-05
83	San Bernardino	3.2	8.43E-07	100	150	6.06E-07	3.58E-07	2.48E-07	6.06E-05	3.58E-05	2.48E-05
84	Devore	1.6	4.25E-07	1,000	150	3.05E-07	1.80E-07	1.25E-07	3.05E-05	1.80E-05	1.25E-05
85	Cajon Pass	19.5	5.07E-06	100	150	3.65E-06	2.15E-06	1.49E-06	3.65E-04	2.15E-04	1.49E-04
86	Hesperia	4.5	1.18E-06	1,000	150	8.46E-07	4.99E-07	3.47E-07	8.46E-05	4.99E-05	3.47E-05
87	Hesperia	1.0	2.70E-07	100	150	1.94E-07	1.14E-07	7.95E-08	1.94E-05	1.14E-05	7.95E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
88	Victorville	4.3	1.13E-06	1,000	150	8.10E-07	4.78E-07	3.32E-07	8.10E-05	4.78E-05	3.32E-05
89	Victorville	2.1	5.35E-07	100	150	3.84E-07	2.27E-07	1.58E-07	3.84E-05	2.27E-05	1.58E-05
90	Victorville	0.7	1.92E-07	1,000	150	1.38E-07	8.15E-08	5.66E-08	1.38E-05	8.15E-06	5.66E-06
91	Victorville	4.5	1.16E-06	100	150	8.32E-07	4.91E-07	3.41E-07	8.32E-05	4.91E-05	3.41E-05
92	Oro Grande	0.5	1.34E-07	1,000	150	9.62E-08	5.67E-08	3.94E-08	9.62E-06	5.67E-06	3.94E-06
93	Helendale	25.4	6.59E-06	100	150	4.74E-06	2.80E-06	1.94E-06	4.74E-04	2.80E-04	1.94E-04
94	Lenwood	1.1	2.91E-07	1,000	150	2.09E-07	1.23E-07	8.57E-08	2.09E-05	1.23E-05	8.57E-06
95	Barstow	1.8	4.72E-07	100	150	3.39E-07	2.00E-07	1.39E-07	3.39E-05	2.00E-05	1.39E-05
96	Barstow	1.7	4.46E-07	1,000	150	3.20E-07	1.89E-07	1.31E-07	3.20E-05	1.89E-05	1.31E-05
97	Barstow	0.7	1.91E-07	100	150	1.37E-07	8.08E-08	5.62E-08	1.37E-05	8.08E-06	5.62E-06
98	Barstow	6.2	1.61E-06	1,000	150	1.16E-06	6.82E-07	4.74E-07	1.16E-04	6.82E-05	4.74E-05
99	Daggett	2.4	6.32E-07	100	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
100	Daggett	0.8	1.97E-07	1,000	150	1.42E-07	8.36E-08	5.81E-08	1.42E-05	8.36E-06	5.81E-06
101	MCSC	4.3	1.13E-06	100	150	8.12E-07	4.79E-07	3.33E-07	8.12E-05	4.79E-05	3.33E-05
102	Yermo	1.3	3.31E-07	1,000	150	2.38E-07	1.40E-07	9.76E-08	2.38E-05	1.40E-05	9.76E-06
103	Mojave Desert	123.5	3.21E-05	100	150	2.31E-05	1.36E-05	9.46E-06	2.31E-03	1.36E-03	9.46E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	150	4.34E-07	2.56E-07	1.78E-07	4.34E-05	2.56E-05	1.78E-05
2	Arroyo Grande	0.8	3.11E-07	100	150	2.24E-07	1.32E-07	9.17E-08	2.24E-05	1.32E-05	9.17E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	150	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
4	Arroyo Grande	1.4	5.39E-07	100	150	3.87E-07	2.28E-07	1.59E-07	3.87E-05	2.28E-05	1.59E-05
5	Oceano	0.4	1.57E-07	3,000	150	1.13E-07	6.66E-08	4.62E-08	1.13E-05	6.66E-06	4.62E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
6	Oceano	0.6	2.43E-07	10,000	150	1.75E-07	1.03E-07	7.17E-08	1.75E-05	1.03E-05	7.17E-06
7	Oceano	0.2	9.32E-08	3,000	150	6.70E-08	3.95E-08	2.75E-08	6.70E-06	3.95E-06	2.75E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	150	5.88E-07	3.47E-07	2.41E-07	5.88E-05	3.47E-05	2.41E-05
9	Pismo	0.3	1.13E-07	3,000	150	8.10E-08	4.78E-08	3.32E-08	8.10E-06	4.78E-06	3.32E-06
10	Pismo	0.4	1.44E-07	1,000	150	1.03E-07	6.09E-08	4.24E-08	1.03E-05	6.09E-06	4.24E-06
11	Price Canyon	5.2	2.02E-06	100	150	1.45E-06	8.57E-07	5.96E-07	1.45E-04	8.57E-05	5.96E-05
12	Edna	0.6	2.34E-07	1,000	150	1.68E-07	9.94E-08	6.91E-08	1.68E-05	9.94E-06	6.91E-06
13	Edna	1.6	6.31E-07	100	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	150	1.31E-06	7.72E-07	5.37E-07	1.31E-04	7.72E-05	5.37E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	150	1.58E-07	9.35E-08	6.49E-08	1.58E-05	9.35E-06	6.49E-06
16	Chorro	0.4	1.66E-07	1,000	150	1.19E-07	7.05E-08	4.90E-08	1.19E-05	7.05E-06	4.90E-06
17	Chorro	1.6	6.10E-07	100	150	4.38E-07	2.59E-07	1.80E-07	4.38E-05	2.59E-05	1.80E-05
18	CMC	0.8	2.98E-07	3,000	150	2.14E-07	1.26E-07	8.77E-08	2.14E-05	1.26E-05	8.77E-06
19	Santa Lucia	11.2	4.36E-06	100	150	3.13E-06	1.85E-06	1.28E-06	3.13E-04	1.85E-04	1.28E-04
20	Santa Margarita	0.9	3.44E-07	3,000	150	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
21	Phillips PS	0.9	3.32E-07	100	150	2.38E-07	1.41E-07	9.77E-08	2.38E-05	1.41E-05	9.77E-06
22	Atascadero	7.4	2.89E-06	1,000	150	2.07E-06	1.22E-06	8.50E-07	2.07E-04	1.22E-04	8.50E-05
23	Atascadero	1.6	6.24E-07	3,000	150	4.48E-07	2.65E-07	1.84E-07	4.48E-05	2.65E-05	1.84E-05
24	Atascadero	1.3	4.96E-07	1,000	150	3.57E-07	2.10E-07	1.46E-07	3.57E-05	2.10E-05	1.46E-05
25	Atascadero	0.4	1.68E-07	3,000	150	1.21E-07	7.12E-08	4.95E-08	1.21E-05	7.12E-06	4.95E-06
26	101	0.4	1.43E-07	1,000	150	1.03E-07	6.05E-08	4.20E-08	1.03E-05	6.05E-06	4.20E-06
27	Templeton	2.1	8.34E-07	3,000	150	6.00E-07	3.54E-07	2.46E-07	6.00E-05	3.54E-05	2.46E-05
28	Paso Robles	0.5	2.00E-07	1,000	150	1.44E-07	8.49E-08	5.90E-08	1.44E-05	8.49E-06	5.90E-06
29	Paso Robles	0.8	3.28E-07	3,000	150	2.36E-07	1.39E-07	9.67E-08	2.36E-05	1.39E-05	9.67E-06
30	Paso Robles	2.7	1.07E-06	1,000	150	7.70E-07	4.54E-07	3.16E-07	7.70E-05	4.54E-05	3.16E-05
31	Paso Robles	2.1	8.34E-07	3,000	150	5.99E-07	3.54E-07	2.46E-07	5.99E-05	3.54E-05	2.46E-05
32	Paso Robles	0.4	1.69E-07	10,000	150	1.22E-07	7.18E-08	4.99E-08	1.22E-05	7.18E-06	4.99E-06
33	Paso Robles	1.2	4.54E-07	3,000	150	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
34	101	2.1	8.27E-07	100	150	5.94E-07	3.51E-07	2.44E-07	5.94E-05	3.51E-05	2.44E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
35	Wellsona	2.4	9.53E-07	1,000	150	6.85E-07	4.04E-07	2.81E-07	6.85E-05	4.04E-05	2.81E-05
36	101	1.9	7.27E-07	100	150	5.23E-07	3.08E-07	2.14E-07	5.23E-05	3.08E-05	2.14E-05
37	San Miguel	1.5	5.73E-07	3,000	150	4.12E-07	2.43E-07	1.69E-07	4.12E-05	2.43E-05	1.69E-05
38	101	2.7	1.03E-06	100	150	7.43E-07	4.38E-07	3.05E-07	7.43E-05	4.38E-05	3.05E-05
39	Camp Roberts	5.7	2.23E-06	100	150	1.60E-06	9.44E-07	6.56E-07	1.60E-04	9.44E-05	6.56E-05
40	Bradley	15.3	5.97E-06	100	150	4.29E-06	2.53E-06	1.76E-06	4.29E-04	2.53E-04	1.76E-04
41	San Lucas	18.5	7.22E-06	100	150	5.19E-06	3.06E-06	2.13E-06	5.19E-04	3.06E-04	2.13E-04
42	King City	1.5	5.69E-07	1,000	150	4.09E-07	2.41E-07	1.68E-07	4.09E-05	2.41E-05	1.68E-05
43	Clark Ranch	18.1	7.06E-06	100	150	5.07E-06	2.99E-06	2.08E-06	5.07E-04	2.99E-04	2.08E-04
44	Soledad	1.4	5.54E-07	1,000	150	3.98E-07	2.35E-07	1.63E-07	3.98E-05	2.35E-05	1.63E-05
45	Salinas Valley Ag	7.3	2.86E-06	100	150	2.06E-06	1.21E-06	8.43E-07	2.06E-04	1.21E-04	8.43E-05
46	Gonzales	1.2	4.52E-07	3,000	150	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
47	Salinas Valley Ag	5.0	1.96E-06	100	150	1.41E-06	8.32E-07	5.78E-07	1.41E-04	8.32E-05	5.78E-05
48	Chular	0.6	2.49E-07	1,000	150	1.79E-07	1.05E-07	7.33E-08	1.79E-05	1.05E-05	7.33E-06
49	Sprekles	7.8	3.03E-06	100	150	2.18E-06	1.29E-06	8.94E-07	2.18E-04	1.29E-04	8.94E-05
50	Salinas	3.9	1.53E-06	6,500	150	1.10E-06	6.50E-07	4.52E-07	1.10E-04	6.50E-05	4.52E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	150	1.73E-06	1.02E-06	7.10E-07	1.73E-04	1.02E-04	7.10E-05
52	Castroville	1.1	4.41E-07	1,000	150	3.17E-07	1.87E-07	1.30E-07	3.17E-05	1.87E-05	1.30E-05
53	Las Lomas	15.4	6.02E-06	100	150	4.33E-06	2.55E-06	1.77E-06	4.33E-04	2.55E-04	1.77E-04
54	Aromas	12.1	4.70E-06	100	150	3.38E-06	1.99E-06	1.38E-06	3.38E-04	1.99E-04	1.38E-04
55	Gilroy	4.2	1.63E-06	3,000	150	1.17E-06	6.91E-07	4.80E-07	1.17E-04	6.91E-05	4.80E-05
56	San Martin	6.1	2.36E-06	100	150	1.70E-06	1.00E-06	6.95E-07	1.70E-04	1.00E-04	6.95E-05
57	Morgan Hill	3.8	1.49E-06	3,000	150	1.07E-06	6.33E-07	4.40E-07	1.07E-04	6.33E-05	4.40E-05
58	Coyote Valley	6.7	2.60E-06	100	150	1.87E-06	1.10E-06	7.66E-07	1.87E-04	1.10E-04	7.66E-05
59	San Jose	6.3	2.47E-06	5,000	150	1.78E-06	1.05E-06	7.29E-07	1.78E-04	1.05E-04	7.29E-05
60	Seven Trees	1.9	7.25E-07	1,000	150	5.21E-07	3.08E-07	2.14E-07	5.21E-05	3.08E-05	2.14E-05
61	San Jose	5.0	1.93E-06	10,000	150	1.39E-06	8.20E-07	5.70E-07	1.39E-04	8.20E-05	5.70E-05
62	Santa Clara	5.1	1.99E-06	6,500	150	1.43E-06	8.45E-07	5.87E-07	1.43E-04	8.45E-05	5.87E-05
63	Alviso	1.7	6.71E-07	1,000	150	4.82E-07	2.84E-07	1.98E-07	4.82E-05	2.84E-05	1.98E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
64	Drawbridge	5.7	2.22E-06	100	150	1.60E-06	9.43E-07	6.55E-07	1.60E-04	9.43E-05	6.55E-05
65	Newark	2.3	8.78E-07	1,000	150	6.31E-07	3.72E-07	2.59E-07	6.31E-05	3.72E-05	2.59E-05
66	Newark to Russell	11.3	4.42E-06	10,000	150	3.18E-06	1.88E-06	1.30E-06	3.18E-04	1.88E-04	1.30E-04
67	San Lorenzo	0.8	3.11E-07	3,000	150	2.24E-07	1.32E-07	9.17E-08	2.24E-05	1.32E-05	9.17E-06
68	San Leandro	1.3	4.99E-07	10,000	150	3.59E-07	2.12E-07	1.47E-07	3.59E-05	2.12E-05	1.47E-05
69	San Leandro	0.7	2.81E-07	3,000	150	2.02E-07	1.19E-07	8.28E-08	2.02E-05	1.19E-05	8.28E-06
70	Oakland	5.3	2.05E-06	10,000	150	1.47E-06	8.70E-07	6.04E-07	1.47E-04	8.70E-05	6.04E-05
71	Oakland	1.4	5.34E-07	3,000	150	3.84E-07	2.27E-07	1.57E-07	3.84E-05	2.27E-05	1.57E-05
72	Oakland	1.6	6.32E-07	10,000	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
73	Oakland	1.4	5.27E-07	3,000	150	3.78E-07	2.23E-07	1.55E-07	3.78E-05	2.23E-05	1.55E-05
74	Oakland	1.5	6.01E-07	10,000	150	4.32E-07	2.55E-07	1.77E-07	4.32E-05	2.55E-05	1.77E-05
75	Oakland	2.7	1.04E-06	3,000	150	7.48E-07	4.42E-07	3.07E-07	7.48E-05	4.42E-05	3.07E-05
76	Emeryville	1.5	5.66E-07	10,000	150	4.06E-07	2.40E-07	1.67E-07	4.06E-05	2.40E-05	1.67E-05
77	Berkeley	1.0	3.94E-07	3,000	150	2.83E-07	1.67E-07	1.16E-07	2.83E-05	1.67E-05	1.16E-05
78	Berkeley	1.8	6.83E-07	10,000	150	4.90E-07	2.89E-07	2.01E-07	4.90E-05	2.89E-05	2.01E-05
79	Richmond	1.5	5.85E-07	3,000	150	4.20E-07	2.48E-07	1.72E-07	4.20E-05	2.48E-05	1.72E-05
80	Richmond	3.8	1.47E-06	10,000	150	1.05E-06	6.22E-07	4.32E-07	1.05E-04	6.22E-05	4.32E-05
81	North Richmond	1.1	4.10E-07	3,000	150	2.94E-07	1.74E-07	1.21E-07	2.94E-05	1.74E-05	1.21E-05
82	San Pablo	2.5	9.71E-07	1,000	150	6.98E-07	4.12E-07	2.86E-07	6.98E-05	4.12E-05	2.86E-05
83	Sobranto	1.8	6.83E-07	100	150	4.90E-07	2.89E-07	2.01E-07	4.90E-05	2.89E-05	2.01E-05
84	Hercules	5.6	2.19E-06	1,000	150	1.57E-06	9.28E-07	6.45E-07	1.57E-04	9.28E-05	6.45E-05
85	Selby	1.7	6.59E-07	100	150	4.74E-07	2.79E-07	1.94E-07	4.74E-05	2.79E-05	1.94E-05
86	Crockett	1.6	6.08E-07	1,000	150	4.37E-07	2.58E-07	1.79E-07	4.37E-05	2.58E-05	1.79E-05
87	Port Costa	4.3	1.68E-06	100	150	1.21E-06	7.13E-07	4.95E-07	1.21E-04	7.13E-05	4.95E-05
88	Martinez	0.5	1.89E-07	1,000	150	1.36E-07	8.01E-08	5.57E-08	1.36E-05	8.01E-06	5.57E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	150	7.20E-07	4.25E-07	2.95E-07	7.20E-05	4.25E-05	2.95E-05
90	Benicia	3.5	1.37E-06	1,000	150	9.81E-07	5.79E-07	4.02E-07	9.81E-05	5.79E-05	4.02E-05
91	Grizzly Bay	10.6	4.13E-06	100	150	2.97E-06	1.75E-06	1.22E-06	2.97E-04	1.75E-04	1.22E-04
92	Fairfield	3.8	1.49E-06	3,000	150	1.07E-06	6.32E-07	4.39E-07	1.07E-04	6.32E-05	4.39E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
93	Elmira	13.7	5.34E-06	100	150	3.84E-06	2.27E-06	1.57E-06	3.84E-04	2.27E-04	1.57E-04
94	Dixon	2.1	8.35E-07	1,000	150	6.00E-07	3.54E-07	2.46E-07	6.00E-05	3.54E-05	2.46E-05
95	Solano Co Ag	6.6	2.58E-06	100	150	1.85E-06	1.09E-06	7.60E-07	1.85E-04	1.09E-04	7.60E-05
96	Davis	3.5	1.38E-06	1,000	150	9.89E-07	5.84E-07	4.06E-07	9.89E-05	5.84E-05	4.06E-05
97	Yolo Co Ag	7.0	2.73E-06	100	150	1.96E-06	1.16E-06	8.03E-07	1.96E-04	1.16E-04	8.03E-05
98	Sacramento	3.3	1.27E-06	3,000	150	9.11E-07	5.37E-07	3.73E-07	9.11E-05	5.37E-05	3.73E-05
99	Sacramento River	0.4	1.64E-07	100	150	1.18E-07	6.95E-08	4.83E-08	1.18E-05	6.95E-06	4.83E-06
100	Sacramento	2.5	9.59E-07	10,000	150	6.89E-07	4.07E-07	2.83E-07	6.89E-05	4.07E-05	2.83E-05
101	Parkland	1.6	6.32E-07	100	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
102	Sacramento	3.1	1.21E-06	3,000	150	8.69E-07	5.13E-07	3.56E-07	8.69E-05	5.13E-05	3.56E-05
103	North Highlands	2.6	1.01E-06	1,000	150	7.23E-07	4.27E-07	2.96E-07	7.23E-05	4.27E-05	2.96E-05
104	North Highlands	4.4	1.70E-06	3,000	150	1.22E-06	7.23E-07	5.02E-07	1.22E-04	7.23E-05	5.02E-05
105	Roseville Yard	1.3	4.91E-07	100	150	3.53E-07	2.08E-07	1.45E-07	3.53E-05	2.08E-05	1.45E-05
145	Roseville	2.3	6.15E-07	3,000	150	4.42E-07	2.61E-07	1.81E-07	4.42E-05	2.61E-05	1.81E-05
146	Roseville	1.3	3.45E-07	1,000	150	2.48E-07	1.46E-07	1.02E-07	2.48E-05	1.46E-05	1.02E-05
147	Roseville	0.1	4.00E-08	100	150	2.88E-08	1.70E-08	1.18E-08	2.88E-06	1.70E-06	1.18E-06
148	Placer Co	2.9	7.89E-07	1,000	150	5.67E-07	3.35E-07	2.33E-07	5.67E-05	3.35E-05	2.33E-05
149	Lincoln	1.2	3.22E-07	100	150	2.32E-07	1.37E-07	9.50E-08	2.32E-05	1.37E-05	9.50E-06
150	Lincoln	2.9	7.74E-07	3,000	150	5.56E-07	3.28E-07	2.28E-07	5.56E-05	3.28E-05	2.28E-05
151	Sheridan	10.7	2.88E-06	100	150	2.07E-06	1.22E-06	8.48E-07	2.07E-04	1.22E-04	8.48E-05
152	Wheatland	0.9	2.51E-07	1,000	150	1.81E-07	1.07E-07	7.41E-08	1.81E-05	1.07E-05	7.41E-06
153	Yuba County	9.2	2.49E-06	100	150	1.79E-06	1.06E-06	7.35E-07	1.79E-04	1.06E-04	7.35E-05
154	Olivehurst	4.3	1.15E-06	1,000	150	8.27E-07	4.88E-07	3.39E-07	8.27E-05	4.88E-05	3.39E-05
155	Marysville	1.3	3.59E-07	3,000	150	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
156	Marysville	2.3	6.27E-07	100	150	4.50E-07	2.66E-07	1.85E-07	4.50E-05	2.66E-05	1.85E-05
157	Live Oak	0.3	8.88E-08	1,000	150	6.38E-08	3.76E-08	2.62E-08	6.38E-06	3.76E-06	2.62E-06
158	Live Oak	6.4	1.73E-06	100	150	1.25E-06	7.35E-07	5.11E-07	1.25E-04	7.35E-05	5.11E-05
159	Live Oak	0.4	9.89E-08	1,000	150	7.11E-08	4.19E-08	2.91E-08	7.11E-06	4.19E-06	2.91E-06
160	Live Oak	1.0	2.74E-07	3,000	150	1.97E-07	1.16E-07	8.06E-08	1.97E-05	1.16E-05	8.06E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
161	Butte Co	5.2	1.41E-06	100	150	1.01E-06	5.98E-07	4.16E-07	1.01E-04	5.98E-05	4.16E-05
162	Gridley	0.5	1.23E-07	1,000	150	8.83E-08	5.21E-08	3.62E-08	8.83E-06	5.21E-06	3.62E-06
163	Gridley	0.8	2.24E-07	3,000	150	1.61E-07	9.49E-08	6.59E-08	1.61E-05	9.49E-06	6.59E-06
164	Gridley	2.5	6.77E-07	100	150	4.87E-07	2.87E-07	2.00E-07	4.87E-05	2.87E-05	2.00E-05
165	Biggs	0.6	1.55E-07	3,000	150	1.11E-07	6.56E-08	4.56E-08	1.11E-05	6.56E-06	4.56E-06
166	Butte Co	5.1	1.39E-06	100	150	9.96E-07	5.88E-07	4.08E-07	9.96E-05	5.88E-05	4.08E-05
167	Richvale	0.8	2.26E-07	1,000	150	1.62E-07	9.57E-08	6.65E-08	1.62E-05	9.57E-06	6.65E-06
168	Nelson	9.3	2.51E-06	100	150	1.80E-06	1.06E-06	7.38E-07	1.80E-04	1.06E-04	7.38E-05
169	Durham	2.4	6.58E-07	1,000	150	4.73E-07	2.79E-07	1.94E-07	4.73E-05	2.79E-05	1.94E-05
170	Chico	4.3	1.17E-06	100	150	8.39E-07	4.95E-07	3.44E-07	8.39E-05	4.95E-05	3.44E-05
171	Chico	4.5	1.22E-06	1,000	150	8.76E-07	5.17E-07	3.59E-07	8.76E-05	5.17E-05	3.59E-05
172	Chico	2.8	7.56E-07	100	150	5.44E-07	3.21E-07	2.23E-07	5.44E-05	3.21E-05	2.23E-05
173	Nord	0.6	1.57E-07	1,000	150	1.13E-07	6.68E-08	4.64E-08	1.13E-05	6.68E-06	4.64E-06
174	Butte Co	11.3	3.06E-06	100	150	2.20E-06	1.30E-06	9.02E-07	2.20E-04	1.30E-04	9.02E-05
175	Vina	0.4	1.20E-07	1,000	150	8.65E-08	5.10E-08	3.55E-08	8.65E-06	5.10E-06	3.55E-06
176	Copeland	6.3	1.70E-06	100	150	1.22E-06	7.22E-07	5.02E-07	1.22E-04	7.22E-05	5.02E-05
177	Los Molinos	0.5	1.40E-07	1,000	150	1.01E-07	5.95E-08	4.13E-08	1.01E-05	5.95E-06	4.13E-06
178	Los Molinos	1.0	2.68E-07	100	150	1.93E-07	1.14E-07	7.90E-08	1.93E-05	1.14E-05	7.90E-06
179	Tehema	0.3	8.98E-08	1,000	150	6.45E-08	3.81E-08	2.64E-08	6.45E-06	3.81E-06	2.64E-06
180	Tehema	2.2	6.04E-07	100	150	4.34E-07	2.56E-07	1.78E-07	4.34E-05	2.56E-05	1.78E-05
181	Gerber	2.3	6.25E-07	1,000	150	4.49E-07	2.65E-07	1.84E-07	4.49E-05	2.65E-05	1.84E-05
182	Tehema Co	1.8	4.83E-07	100	150	3.47E-07	2.05E-07	1.42E-07	3.47E-05	2.05E-05	1.42E-05
183	Red Bluff	0.8	2.08E-07	1,000	150	1.50E-07	8.83E-08	6.14E-08	1.50E-05	8.83E-06	6.14E-06
184	Red Bluff	4.6	1.25E-06	100	150	8.98E-07	5.30E-07	3.68E-07	8.98E-05	5.30E-05	3.68E-05
185	Red Bluff	3.3	8.86E-07	1,000	150	6.37E-07	3.76E-07	2.61E-07	6.37E-05	3.76E-05	2.61E-05
186	Tehema Co	15.3	4.13E-06	100	150	2.97E-06	1.75E-06	1.22E-06	2.97E-04	1.75E-04	1.22E-04
187	Cottonwood	0.6	1.65E-07	1,000	150	1.18E-07	6.98E-08	4.85E-08	1.18E-05	6.98E-06	4.85E-06
188	Anderson	5.4	1.45E-06	100	150	1.04E-06	6.13E-07	4.26E-07	1.04E-04	6.13E-05	4.26E-05
189	Anderson	3.5	9.57E-07	1,000	150	6.88E-07	4.06E-07	2.82E-07	6.88E-05	4.06E-05	2.82E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
190	Anderson	4.1	1.10E-06	100	150	7.93E-07	4.68E-07	3.25E-07	7.93E-05	4.68E-05	3.25E-05
191	Redding	6.0	1.63E-06	1,000	150	1.17E-06	6.92E-07	4.81E-07	1.17E-04	6.92E-05	4.81E-05
192	Redding	0.8	2.06E-07	1,000	150	1.48E-07	8.72E-08	6.06E-08	1.48E-05	8.72E-06	6.06E-06
193	Redding	1.1	3.05E-07	100	150	2.19E-07	1.29E-07	8.99E-08	2.19E-05	1.29E-05	8.99E-06
194	Redding	0.4	1.05E-07	1,000	150	7.58E-08	4.47E-08	3.11E-08	7.58E-06	4.47E-06	3.11E-06
195	Redding	2.6	6.97E-07	100	150	5.01E-07	2.95E-07	2.05E-07	5.01E-05	2.95E-05	2.05E-05
196	Shasta Co	0.5	1.41E-07	1,000	150	1.01E-07	5.99E-08	4.16E-08	1.01E-05	5.99E-06	4.16E-06
197	Shasta Lake	1.7	4.46E-07	100	150	3.20E-07	1.89E-07	1.31E-07	3.20E-05	1.89E-05	1.31E-05
198	Shasta Lake	0.8	2.03E-07	1,000	150	1.46E-07	8.60E-08	5.97E-08	1.46E-05	8.60E-06	5.97E-06
199	Shasta Co	16.4	4.44E-06	100	150	3.19E-06	1.88E-06	1.31E-06	3.19E-04	1.88E-04	1.31E-04
200	Lakeshore	0.6	1.64E-07	1,000	150	1.18E-07	6.95E-08	4.83E-08	1.18E-05	6.95E-06	4.83E-06
201	Shasta Co	30.4	8.20E-06	100	150	5.89E-06	3.48E-06	2.42E-06	5.89E-04	3.48E-04	2.42E-04
202	Dunsmuir	1.3	3.52E-07	1,000	150	2.53E-07	1.49E-07	1.04E-07	2.53E-05	1.49E-05	1.04E-05
203	Siskiyou Co	12.8	3.45E-06	100	150	2.48E-06	1.46E-06	1.02E-06	2.48E-04	1.46E-04	1.02E-04
204	Mount Shasta	1.1	3.05E-07	1,000	150	2.19E-07	1.29E-07	9.00E-08	2.19E-05	1.29E-05	9.00E-06
205	Siskiyou Co	69.5	1.88E-05	100	150	1.35E-05	7.96E-06	5.53E-06	1.35E-03	7.96E-04	5.53E-04
206	Dorris	0.9	2.38E-07	100	150	1.71E-07	1.01E-07	7.02E-08	1.71E-05	1.01E-05	7.02E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	150	6.62E-07	3.91E-07	2.71E-07	6.62E-05	3.91E-05	2.71E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	150	4.34E-07	2.56E-07	1.78E-07	4.34E-05	2.56E-05	1.78E-05
2	Arroyo Grande	0.8	3.11E-07	100	150	2.24E-07	1.32E-07	9.17E-08	2.24E-05	1.32E-05	9.17E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	150	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
4	Arroyo Grande	1.4	5.39E-07	100	150	3.87E-07	2.28E-07	1.59E-07	3.87E-05	2.28E-05	1.59E-05
5	Oceano	0.4	1.57E-07	3,000	150	1.13E-07	6.66E-08	4.62E-08	1.13E-05	6.66E-06	4.62E-06
6	Oceano	0.6	2.43E-07	10,000	150	1.75E-07	1.03E-07	7.17E-08	1.75E-05	1.03E-05	7.17E-06
7	Oceano	0.2	9.32E-08	3,000	150	6.70E-08	3.95E-08	2.75E-08	6.70E-06	3.95E-06	2.75E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	150	5.88E-07	3.47E-07	2.41E-07	5.88E-05	3.47E-05	2.41E-05
9	Pismo	0.3	1.13E-07	3,000	150	8.10E-08	4.78E-08	3.32E-08	8.10E-06	4.78E-06	3.32E-06
10	Pismo	0.4	1.44E-07	1,000	150	1.03E-07	6.09E-08	4.24E-08	1.03E-05	6.09E-06	4.24E-06
11	Price Canyon	5.2	2.02E-06	100	150	1.45E-06	8.57E-07	5.96E-07	1.45E-04	8.57E-05	5.96E-05
12	Edna	0.6	2.34E-07	1,000	150	1.68E-07	9.94E-08	6.91E-08	1.68E-05	9.94E-06	6.91E-06
13	Edna	1.6	6.31E-07	100	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	150	1.31E-06	7.72E-07	5.37E-07	1.31E-04	7.72E-05	5.37E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	150	1.58E-07	9.35E-08	6.49E-08	1.58E-05	9.35E-06	6.49E-06
16	Chorro	0.4	1.66E-07	1,000	150	1.19E-07	7.05E-08	4.90E-08	1.19E-05	7.05E-06	4.90E-06
17	Chorro	1.6	6.10E-07	100	150	4.38E-07	2.59E-07	1.80E-07	4.38E-05	2.59E-05	1.80E-05
18	CMC	0.8	2.98E-07	3,000	150	2.14E-07	1.26E-07	8.77E-08	2.14E-05	1.26E-05	8.77E-06
19	Santa Lucia	11.2	4.36E-06	100	150	3.13E-06	1.85E-06	1.28E-06	3.13E-04	1.85E-04	1.28E-04
20	Santa Margarita	0.9	3.44E-07	3,000	150	2.47E-07	1.46E-07	1.01E-07	2.47E-05	1.46E-05	1.01E-05
21	Phillips PS	0.9	3.32E-07	100	150	2.38E-07	1.41E-07	9.77E-08	2.38E-05	1.41E-05	9.77E-06
22	Atascadero	7.4	2.89E-06	1,000	150	2.07E-06	1.22E-06	8.50E-07	2.07E-04	1.22E-04	8.50E-05
23	Atascadero	1.6	6.24E-07	3,000	150	4.48E-07	2.65E-07	1.84E-07	4.48E-05	2.65E-05	1.84E-05
24	Atascadero	1.3	4.96E-07	1,000	150	3.57E-07	2.10E-07	1.46E-07	3.57E-05	2.10E-05	1.46E-05
25	Atascadero	0.4	1.68E-07	3,000	150	1.21E-07	7.12E-08	4.95E-08	1.21E-05	7.12E-06	4.95E-06
26	101	0.4	1.43E-07	1,000	150	1.03E-07	6.05E-08	4.20E-08	1.03E-05	6.05E-06	4.20E-06
27	Templeton	2.1	8.34E-07	3,000	150	6.00E-07	3.54E-07	2.46E-07	6.00E-05	3.54E-05	2.46E-05
28	Paso Robles	0.5	2.00E-07	1,000	150	1.44E-07	8.49E-08	5.90E-08	1.44E-05	8.49E-06	5.90E-06
29	Paso Robles	0.8	3.28E-07	3,000	150	2.36E-07	1.39E-07	9.67E-08	2.36E-05	1.39E-05	9.67E-06
30	Paso Robles	2.7	1.07E-06	1,000	150	7.70E-07	4.54E-07	3.16E-07	7.70E-05	4.54E-05	3.16E-05
31	Paso Robles	2.1	8.34E-07	3,000	150	5.99E-07	3.54E-07	2.46E-07	5.99E-05	3.54E-05	2.46E-05
32	Paso Robles	0.4	1.69E-07	10,000	150	1.22E-07	7.18E-08	4.99E-08	1.22E-05	7.18E-06	4.99E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
33	Paso Robles	1.2	4.54E-07	3,000	150	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
34	101	2.1	8.27E-07	100	150	5.94E-07	3.51E-07	2.44E-07	5.94E-05	3.51E-05	2.44E-05
35	Wellsona	2.4	9.53E-07	1,000	150	6.85E-07	4.04E-07	2.81E-07	6.85E-05	4.04E-05	2.81E-05
36	101	1.9	7.27E-07	100	150	5.23E-07	3.08E-07	2.14E-07	5.23E-05	3.08E-05	2.14E-05
37	San Miguel	1.5	5.73E-07	3,000	150	4.12E-07	2.43E-07	1.69E-07	4.12E-05	2.43E-05	1.69E-05
38	101	2.7	1.03E-06	100	150	7.43E-07	4.38E-07	3.05E-07	7.43E-05	4.38E-05	3.05E-05
39	Camp Roberts	5.7	2.23E-06	100	150	1.60E-06	9.44E-07	6.56E-07	1.60E-04	9.44E-05	6.56E-05
40	Bradley	15.3	5.97E-06	100	150	4.29E-06	2.53E-06	1.76E-06	4.29E-04	2.53E-04	1.76E-04
41	San Lucas	18.5	7.22E-06	100	150	5.19E-06	3.06E-06	2.13E-06	5.19E-04	3.06E-04	2.13E-04
42	King City	1.5	5.69E-07	1,000	150	4.09E-07	2.41E-07	1.68E-07	4.09E-05	2.41E-05	1.68E-05
43	Clark Ranch	18.1	7.06E-06	100	150	5.07E-06	2.99E-06	2.08E-06	5.07E-04	2.99E-04	2.08E-04
44	Soledad	1.4	5.54E-07	1,000	150	3.98E-07	2.35E-07	1.63E-07	3.98E-05	2.35E-05	1.63E-05
45	Salinas Valley Ag	7.3	2.86E-06	100	150	2.06E-06	1.21E-06	8.43E-07	2.06E-04	1.21E-04	8.43E-05
46	Gonzales	1.2	4.52E-07	3,000	150	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
47	Salinas Valley Ag	5.0	1.96E-06	100	150	1.41E-06	8.32E-07	5.78E-07	1.41E-04	8.32E-05	5.78E-05
48	Chular	0.6	2.49E-07	1,000	150	1.79E-07	1.05E-07	7.33E-08	1.79E-05	1.05E-05	7.33E-06
49	Sprekles	7.8	3.03E-06	100	150	2.18E-06	1.29E-06	8.94E-07	2.18E-04	1.29E-04	8.94E-05
50	Salinas	3.9	1.53E-06	6,500	150	1.10E-06	6.50E-07	4.52E-07	1.10E-04	6.50E-05	4.52E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	150	1.73E-06	1.02E-06	7.10E-07	1.73E-04	1.02E-04	7.10E-05
52	Castroville	1.1	4.41E-07	1,000	150	3.17E-07	1.87E-07	1.30E-07	3.17E-05	1.87E-05	1.30E-05
53	Las Lomas	15.4	6.02E-06	100	150	4.33E-06	2.55E-06	1.77E-06	4.33E-04	2.55E-04	1.77E-04
54	Aromas	12.1	4.70E-06	100	150	3.38E-06	1.99E-06	1.38E-06	3.38E-04	1.99E-04	1.38E-04
55	Gilroy	4.2	1.63E-06	3,000	150	1.17E-06	6.91E-07	4.80E-07	1.17E-04	6.91E-05	4.80E-05
56	San Martin	6.1	2.36E-06	100	150	1.70E-06	1.00E-06	6.95E-07	1.70E-04	1.00E-04	6.95E-05
57	Morgan Hill	3.8	1.49E-06	3,000	150	1.07E-06	6.33E-07	4.40E-07	1.07E-04	6.33E-05	4.40E-05
58	Coyote Valley	6.7	2.60E-06	100	150	1.87E-06	1.10E-06	7.66E-07	1.87E-04	1.10E-04	7.66E-05
59	San Jose	6.3	2.47E-06	5,000	150	1.78E-06	1.05E-06	7.29E-07	1.78E-04	1.05E-04	7.29E-05
60	Seven Trees	1.9	7.25E-07	1,000	150	5.21E-07	3.08E-07	2.14E-07	5.21E-05	3.08E-05	2.14E-05
61	San Jose	5.0	1.93E-06	10,000	150	1.39E-06	8.20E-07	5.70E-07	1.39E-04	8.20E-05	5.70E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
62	Santa Clara	5.1	1.99E-06	6,500	150	1.43E-06	8.45E-07	5.87E-07	1.43E-04	8.45E-05	5.87E-05
63	Alviso	1.7	6.71E-07	1,000	150	4.82E-07	2.84E-07	1.98E-07	4.82E-05	2.84E-05	1.98E-05
64	Drawbridge	5.7	2.22E-06	100	150	1.60E-06	9.43E-07	6.55E-07	1.60E-04	9.43E-05	6.55E-05
65	Newark	2.3	8.78E-07	1,000	150	6.31E-07	3.72E-07	2.59E-07	6.31E-05	3.72E-05	2.59E-05
66	Newark to Russell	11.3	4.42E-06	10,000	150	3.18E-06	1.88E-06	1.30E-06	3.18E-04	1.88E-04	1.30E-04
67	San Lorenzo	0.8	3.11E-07	3,000	150	2.24E-07	1.32E-07	9.17E-08	2.24E-05	1.32E-05	9.17E-06
68	San Leandro	1.3	4.99E-07	10,000	150	3.59E-07	2.12E-07	1.47E-07	3.59E-05	2.12E-05	1.47E-05
69	San Leandro	0.7	2.81E-07	3,000	150	2.02E-07	1.19E-07	8.28E-08	2.02E-05	1.19E-05	8.28E-06
70	Oakland	5.3	2.05E-06	10,000	150	1.47E-06	8.70E-07	6.04E-07	1.47E-04	8.70E-05	6.04E-05
71	Oakland	1.4	5.34E-07	3,000	150	3.84E-07	2.27E-07	1.57E-07	3.84E-05	2.27E-05	1.57E-05
72	Oakland	1.6	6.32E-07	10,000	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
73	Oakland	1.4	5.27E-07	3,000	150	3.78E-07	2.23E-07	1.55E-07	3.78E-05	2.23E-05	1.55E-05
74	Oakland	1.5	6.01E-07	10,000	150	4.32E-07	2.55E-07	1.77E-07	4.32E-05	2.55E-05	1.77E-05
75	Oakland	2.7	1.04E-06	3,000	150	7.48E-07	4.42E-07	3.07E-07	7.48E-05	4.42E-05	3.07E-05
76	Emeryville	1.5	5.66E-07	10,000	150	4.06E-07	2.40E-07	1.67E-07	4.06E-05	2.40E-05	1.67E-05
77	Berkeley	1.0	3.94E-07	3,000	150	2.83E-07	1.67E-07	1.16E-07	2.83E-05	1.67E-05	1.16E-05
78	Berkeley	1.8	6.83E-07	10,000	150	4.90E-07	2.89E-07	2.01E-07	4.90E-05	2.89E-05	2.01E-05
79	Richmond	1.5	5.85E-07	3,000	150	4.20E-07	2.48E-07	1.72E-07	4.20E-05	2.48E-05	1.72E-05
80	Richmond	3.8	1.47E-06	10,000	150	1.05E-06	6.22E-07	4.32E-07	1.05E-04	6.22E-05	4.32E-05
81	North Richmond	1.1	4.10E-07	3,000	150	2.94E-07	1.74E-07	1.21E-07	2.94E-05	1.74E-05	1.21E-05
82	San Pablo	2.5	9.71E-07	1,000	150	6.98E-07	4.12E-07	2.86E-07	6.98E-05	4.12E-05	2.86E-05
83	Sobranto	1.8	6.83E-07	100	150	4.90E-07	2.89E-07	2.01E-07	4.90E-05	2.89E-05	2.01E-05
84	Hercules	5.6	2.19E-06	1,000	150	1.57E-06	9.28E-07	6.45E-07	1.57E-04	9.28E-05	6.45E-05
85	Selby	1.7	6.59E-07	100	150	4.74E-07	2.79E-07	1.94E-07	4.74E-05	2.79E-05	1.94E-05
86	Crockett	1.6	6.08E-07	1,000	150	4.37E-07	2.58E-07	1.79E-07	4.37E-05	2.58E-05	1.79E-05
87	Port Costa	4.3	1.68E-06	100	150	1.21E-06	7.13E-07	4.95E-07	1.21E-04	7.13E-05	4.95E-05
88	Martinez	0.5	1.89E-07	1,000	150	1.36E-07	8.01E-08	5.57E-08	1.36E-05	8.01E-06	5.57E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	150	7.20E-07	4.25E-07	2.95E-07	7.20E-05	4.25E-05	2.95E-05
90	Benicia	3.5	1.37E-06	1,000	150	9.81E-07	5.79E-07	4.02E-07	9.81E-05	5.79E-05	4.02E-05

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91	Grizzly Bay	10.6	4.13E-06	100	150	2.97E-06	1.75E-06	1.22E-06	2.97E-04	1.75E-04	1.22E-04
92	Fairfield	3.8	1.49E-06	3,000	150	1.07E-06	6.32E-07	4.39E-07	1.07E-04	6.32E-05	4.39E-05
93	Elmira	13.7	5.34E-06	100	150	3.84E-06	2.27E-06	1.57E-06	3.84E-04	2.27E-04	1.57E-04
94	Dixon	2.1	8.35E-07	1,000	150	6.00E-07	3.54E-07	2.46E-07	6.00E-05	3.54E-05	2.46E-05
95	Solano Co Ag	6.6	2.58E-06	100	150	1.85E-06	1.09E-06	7.60E-07	1.85E-04	1.09E-04	7.60E-05
96	Davis	3.5	1.38E-06	1,000	150	9.89E-07	5.84E-07	4.06E-07	9.89E-05	5.84E-05	4.06E-05
97	Yolo Co Ag	7.0	2.73E-06	100	150	1.96E-06	1.16E-06	8.03E-07	1.96E-04	1.16E-04	8.03E-05
98	Sacramento	3.3	1.27E-06	3,000	150	9.11E-07	5.37E-07	3.73E-07	9.11E-05	5.37E-05	3.73E-05
99	Sacramento River	0.4	1.64E-07	100	150	1.18E-07	6.95E-08	4.83E-08	1.18E-05	6.95E-06	4.83E-06
100	Sacramento	2.5	9.59E-07	10,000	150	6.89E-07	4.07E-07	2.83E-07	6.89E-05	4.07E-05	2.83E-05
101	Parkland	1.6	6.32E-07	100	150	4.54E-07	2.68E-07	1.86E-07	4.54E-05	2.68E-05	1.86E-05
102	Sacramento	3.1	1.21E-06	3,000	150	8.69E-07	5.13E-07	3.56E-07	8.69E-05	5.13E-05	3.56E-05
103	North Highlands	2.6	1.01E-06	1,000	150	7.23E-07	4.27E-07	2.96E-07	7.23E-05	4.27E-05	2.96E-05
104	North Highlands	4.4	1.70E-06	3,000	150	1.22E-06	7.23E-07	5.02E-07	1.22E-04	7.23E-05	5.02E-05
105	Roseville Yard	1.3	4.91E-07	100	150	3.53E-07	2.08E-07	1.45E-07	3.53E-05	2.08E-05	1.45E-05
129	Roseville	1.4	1.15E-06	3,000	150	8.30E-07	4.90E-07	3.40E-07	8.30E-05	4.90E-05	3.40E-05
130	Roseville	1.1	9.01E-07	3,000	150	6.48E-07	3.82E-07	2.66E-07	6.48E-05	3.82E-05	2.66E-05
131	Roseville	2.1	1.73E-06	1,000	150	1.25E-06	7.35E-07	5.11E-07	1.25E-04	7.35E-05	5.11E-05
132	Roseville	0.5	3.71E-07	3,000	150	2.67E-07	1.57E-07	1.09E-07	2.67E-05	1.57E-05	1.09E-05
133	Rocklin	2.5	2.06E-06	1,000	150	1.48E-06	8.74E-07	6.07E-07	1.48E-04	8.74E-05	6.07E-05
134	Placer Co	8.0	6.54E-06	100	150	4.70E-06	2.77E-06	1.93E-06	4.70E-04	2.77E-04	1.93E-04
135	Newcastle	0.5	3.70E-07	1,000	150	2.66E-07	1.57E-07	1.09E-07	2.66E-05	1.57E-05	1.09E-05
136	Placer Co	2.5	2.05E-06	100	150	1.48E-06	8.71E-07	6.05E-07	1.48E-04	8.71E-05	6.05E-05
137	Auburn	5.3	4.37E-06	1,000	150	3.14E-06	1.85E-06	1.29E-06	3.14E-04	1.85E-04	1.29E-04
138	Placer Co	13.6	1.11E-05	100	150	8.01E-06	4.73E-06	3.28E-06	8.01E-04	4.73E-04	3.28E-04
139	Colfax	0.7	5.53E-07	1,000	150	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
140	Placer Co	61.6	5.05E-05	100	150	3.63E-05	2.14E-05	1.49E-05	3.63E-03	2.14E-03	1.49E-03
141	Truckee	2.1	1.74E-06	1,000	150	1.25E-06	7.38E-07	5.13E-07	1.25E-04	7.38E-05	5.13E-05
142	Nevada Co	13.9	1.14E-05	100	150	8.18E-06	4.82E-06	3.35E-06	8.18E-04	4.82E-04	3.35E-04

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143	Floriston	0.2	1.90E-07	1,000	150	1.36E-07	8.05E-08	5.59E-08	1.36E-05	8.05E-06	5.59E-06
144	Sierra Co	5.8	4.75E-06	100	150	3.41E-06	2.01E-06	1.40E-06	3.41E-04	2.01E-04	1.40E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	150	5.68E-07	3.35E-07	2.33E-07	5.68E-05	3.35E-05	2.33E-05
2	Arroyo Grande	0.8	4.07E-07	100	150	2.93E-07	1.73E-07	1.20E-07	2.93E-05	1.73E-05	1.20E-05
3	Arroyo Grande	0.9	4.79E-07	1,000	150	3.45E-07	2.03E-07	1.41E-07	3.45E-05	2.03E-05	1.41E-05
4	Arroyo Grande	1.4	7.05E-07	100	150	5.06E-07	2.99E-07	2.08E-07	5.06E-05	2.99E-05	2.08E-05
5	Oceano	0.4	2.05E-07	3,000	150	1.48E-07	8.70E-08	6.05E-08	1.48E-05	8.70E-06	6.05E-06
6	Oceano	0.6	3.18E-07	10,000	150	2.29E-07	1.35E-07	9.38E-08	2.29E-05	1.35E-05	9.38E-06
7	Oceano	0.2	1.22E-07	3,000	150	8.76E-08	5.17E-08	3.59E-08	8.76E-06	5.17E-06	3.59E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	150	7.69E-07	4.54E-07	3.15E-07	7.69E-05	4.54E-05	3.15E-05
9	Pismo	0.3	1.47E-07	3,000	150	1.06E-07	6.25E-08	4.34E-08	1.06E-05	6.25E-06	4.34E-06
10	Pismo	0.4	1.88E-07	1,000	150	1.35E-07	7.97E-08	5.54E-08	1.35E-05	7.97E-06	5.54E-06
11	Price Canyon	5.2	2.64E-06	100	150	1.90E-06	1.12E-06	7.79E-07	1.90E-04	1.12E-04	7.79E-05
12	Edna	0.6	3.07E-07	1,000	150	2.20E-07	1.30E-07	9.03E-08	2.20E-05	1.30E-05	9.03E-06
13	Edna	1.6	8.25E-07	100	150	5.93E-07	3.50E-07	2.43E-07	5.93E-05	3.50E-05	2.43E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	150	1.71E-06	1.01E-06	7.02E-07	1.71E-04	1.01E-04	7.02E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	150	2.07E-07	1.22E-07	8.49E-08	2.07E-05	1.22E-05	8.49E-06
16	Chorro	0.4	2.17E-07	1,000	150	1.56E-07	9.21E-08	6.40E-08	1.56E-05	9.21E-06	6.40E-06
17	Chorro	1.6	7.98E-07	100	150	5.73E-07	3.38E-07	2.35E-07	5.73E-05	3.38E-05	2.35E-05
18	CMC	0.8	3.89E-07	3,000	150	2.80E-07	1.65E-07	1.15E-07	2.80E-05	1.65E-05	1.15E-05
19	Santa Lucia	11.2	5.70E-06	100	150	4.10E-06	2.42E-06	1.68E-06	4.10E-04	2.42E-04	1.68E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
20	Santa Margarita	0.9	4.50E-07	3,000	150	3.23E-07	1.91E-07	1.33E-07	3.23E-05	1.91E-05	1.33E-05
21	Phillips PS	0.9	4.34E-07	100	150	3.12E-07	1.84E-07	1.28E-07	3.12E-05	1.84E-05	1.28E-05
22	Atascadero	7.4	3.77E-06	1,000	150	2.71E-06	1.60E-06	1.11E-06	2.71E-04	1.60E-04	1.11E-04
23	Atascadero	1.6	8.16E-07	3,000	150	5.86E-07	3.46E-07	2.40E-07	5.86E-05	3.46E-05	2.40E-05
24	Atascadero	1.3	6.49E-07	1,000	150	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
25	Atascadero	0.4	2.20E-07	3,000	150	1.58E-07	9.31E-08	6.47E-08	1.58E-05	9.31E-06	6.47E-06
26	101	0.4	1.87E-07	1,000	150	1.34E-07	7.91E-08	5.50E-08	1.34E-05	7.91E-06	5.50E-06
27	Templeton	2.1	1.09E-06	3,000	150	7.84E-07	4.63E-07	3.21E-07	7.84E-05	4.63E-05	3.21E-05
28	Paso Robles	0.5	2.62E-07	1,000	150	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
29	Paso Robles	0.8	4.29E-07	3,000	150	3.08E-07	1.82E-07	1.26E-07	3.08E-05	1.82E-05	1.26E-05
30	Paso Robles	2.7	1.40E-06	1,000	150	1.01E-06	5.94E-07	4.13E-07	1.01E-04	5.94E-05	4.13E-05
31	Paso Robles	2.1	1.09E-06	3,000	150	7.84E-07	4.62E-07	3.21E-07	7.84E-05	4.62E-05	3.21E-05
32	Paso Robles	0.4	2.21E-07	10,000	150	1.59E-07	9.39E-08	6.53E-08	1.59E-05	9.39E-06	6.53E-06
33	Paso Robles	1.2	5.93E-07	3,000	150	4.26E-07	2.51E-07	1.75E-07	4.26E-05	2.51E-05	1.75E-05
34	101	2.1	1.08E-06	100	150	7.77E-07	4.59E-07	3.19E-07	7.77E-05	4.59E-05	3.19E-05
35	Wellsona	2.4	1.25E-06	1,000	150	8.96E-07	5.28E-07	3.67E-07	8.96E-05	5.28E-05	3.67E-05
36	101	1.9	9.51E-07	100	150	6.84E-07	4.03E-07	2.80E-07	6.84E-05	4.03E-05	2.80E-05
37	San Miguel	1.5	7.49E-07	3,000	150	5.38E-07	3.18E-07	2.21E-07	5.38E-05	3.18E-05	2.21E-05
38	101	2.7	1.35E-06	100	150	9.72E-07	5.73E-07	3.98E-07	9.72E-05	5.73E-05	3.98E-05
39	Camp Roberts	5.7	2.91E-06	100	150	2.09E-06	1.23E-06	8.58E-07	2.09E-04	1.23E-04	8.58E-05
40	Bradley	15.3	7.80E-06	100	150	5.61E-06	3.31E-06	2.30E-06	5.61E-04	3.31E-04	2.30E-04
41	San Lucas	18.5	9.45E-06	100	150	6.79E-06	4.00E-06	2.78E-06	6.79E-04	4.00E-04	2.78E-04
42	King City	1.5	7.45E-07	1,000	150	5.35E-07	3.16E-07	2.19E-07	5.35E-05	3.16E-05	2.19E-05
43	Clark Ranch	18.1	9.23E-06	100	150	6.63E-06	3.91E-06	2.72E-06	6.63E-04	3.91E-04	2.72E-04
44	Soledad	1.4	7.24E-07	1,000	150	5.20E-07	3.07E-07	2.13E-07	5.20E-05	3.07E-05	2.13E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	150	2.69E-06	1.59E-06	1.10E-06	2.69E-04	1.59E-04	1.10E-04
46	Gonzales	1.2	5.92E-07	3,000	150	4.25E-07	2.51E-07	1.74E-07	4.25E-05	2.51E-05	1.74E-05
47	Salinas Valley Ag	5.0	2.57E-06	100	150	1.84E-06	1.09E-06	7.56E-07	1.84E-04	1.09E-04	7.56E-05
48	Chular	0.6	3.25E-07	1,000	150	2.34E-07	1.38E-07	9.58E-08	2.34E-05	1.38E-05	9.58E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
49	Sprekles	7.8	3.97E-06	100	150	2.85E-06	1.68E-06	1.17E-06	2.85E-04	1.68E-04	1.17E-04
50	Salinas	3.9	2.00E-06	6,500	150	1.44E-06	8.50E-07	5.91E-07	1.44E-04	8.50E-05	5.91E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	150	2.27E-06	1.34E-06	9.29E-07	2.27E-04	1.34E-04	9.29E-05
52	Castroville	1.1	5.76E-07	1,000	150	4.14E-07	2.44E-07	1.70E-07	4.14E-05	2.44E-05	1.70E-05
53	Las Lomas	15.4	7.87E-06	100	150	5.66E-06	3.34E-06	2.32E-06	5.66E-04	3.34E-04	2.32E-04
54	Aromas	12.1	6.15E-06	100	150	4.42E-06	2.61E-06	1.81E-06	4.42E-04	2.61E-04	1.81E-04
55	Gilroy	4.2	2.13E-06	3,000	150	1.53E-06	9.04E-07	6.28E-07	1.53E-04	9.04E-05	6.28E-05
56	San Martin	6.1	3.09E-06	100	150	2.22E-06	1.31E-06	9.09E-07	2.22E-04	1.31E-04	9.09E-05
57	Morgan Hill	3.8	1.95E-06	3,000	150	1.40E-06	8.28E-07	5.76E-07	1.40E-04	8.28E-05	5.76E-05
58	Coyote Valley	6.7	3.40E-06	100	150	2.44E-06	1.44E-06	1.00E-06	2.44E-04	1.44E-04	1.00E-04
59	San Jose	6.3	3.23E-06	5,000	150	2.32E-06	1.37E-06	9.53E-07	2.32E-04	1.37E-04	9.53E-05
60	Seven Trees	1.9	9.49E-07	1,000	150	6.82E-07	4.02E-07	2.80E-07	6.82E-05	4.02E-05	2.80E-05
61	San Jose	5.0	2.53E-06	10,000	150	1.82E-06	1.07E-06	7.45E-07	1.82E-04	1.07E-04	7.45E-05
62	Santa Clara	5.1	2.61E-06	6,500	150	1.87E-06	1.10E-06	7.68E-07	1.87E-04	1.10E-04	7.68E-05
63	Alviso	1.7	8.77E-07	1,000	150	6.30E-07	3.72E-07	2.58E-07	6.30E-05	3.72E-05	2.58E-05
64	Drawbridge	5.7	2.91E-06	100	150	2.09E-06	1.23E-06	8.57E-07	2.09E-04	1.23E-04	8.57E-05
65	Newark	2.3	1.15E-06	1,000	150	8.25E-07	4.87E-07	3.38E-07	8.25E-05	4.87E-05	3.38E-05
107	Newark	3.1	1.59E-06	10,000	150	1.14E-06	6.73E-07	4.67E-07	1.14E-04	6.73E-05	4.67E-05
108	Fremont	3.2	1.64E-06	10,000	150	1.18E-06	6.96E-07	4.84E-07	1.18E-04	6.96E-05	4.84E-05
109	Sunol	6.8	3.48E-06	100	150	2.50E-06	1.48E-06	1.03E-06	2.50E-04	1.48E-04	1.03E-04
110	Pleasanton	1.8	9.08E-07	1,000	150	6.52E-07	3.85E-07	2.67E-07	6.52E-05	3.85E-05	2.67E-05
111	Pleasanton	2.5	1.27E-06	3,000	150	9.13E-07	5.38E-07	3.74E-07	9.13E-05	5.38E-05	3.74E-05
112	Pleasanton	3.0	1.51E-06	100	150	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
113	Livermore	5.0	2.57E-06	5,000	150	1.85E-06	1.09E-06	7.57E-07	1.85E-04	1.09E-04	7.57E-05
114	Livermore	2.5	1.26E-06	1,000	150	9.05E-07	5.34E-07	3.71E-07	9.05E-05	5.34E-05	3.71E-05
115	Altamont	14.2	7.24E-06	100	150	5.20E-06	3.07E-06	2.13E-06	5.20E-04	3.07E-04	2.13E-04
116	Tracy	3.9	1.97E-06	3,000	150	1.41E-06	8.35E-07	5.80E-07	1.41E-04	8.35E-05	5.80E-05
117	Lathrop	8.2	4.18E-06	100	150	3.01E-06	1.77E-06	1.23E-06	3.01E-04	1.77E-04	1.23E-04
118	French Camp	8.0	4.08E-06	1,000	150	2.93E-06	1.73E-06	1.20E-06	2.93E-04	1.73E-04	1.20E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
119	Stockton	7.9	4.03E-06	10,000	150	2.90E-06	1.71E-06	1.19E-06	2.90E-04	1.71E-04	1.19E-04
120	Lodi	4.1	2.07E-06	100	150	1.48E-06	8.76E-07	6.09E-07	1.48E-04	8.76E-05	6.09E-05
121	Lodi	3.4	1.73E-06	5,000	150	1.24E-06	7.33E-07	5.09E-07	1.24E-04	7.33E-05	5.09E-05
122	Acampo	5.5	2.81E-06	100	150	2.02E-06	1.19E-06	8.26E-07	2.02E-04	1.19E-04	8.26E-05
123	Galt	1.6	7.96E-07	4,000	150	5.72E-07	3.37E-07	2.34E-07	5.72E-05	3.37E-05	2.34E-05
124	Hicksville	8.6	4.38E-06	100	150	3.14E-06	1.86E-06	1.29E-06	3.14E-04	1.86E-04	1.29E-04
125	Elk Grove	1.0	4.87E-07	100	150	3.50E-07	2.07E-07	1.44E-07	3.50E-05	2.07E-05	1.44E-05
126	Elk Grove	5.8	2.94E-06	5,000	150	2.11E-06	1.25E-06	8.66E-07	2.11E-04	1.25E-04	8.66E-05
127	Sacramento	4.2	2.14E-06	1,000	150	1.54E-06	9.08E-07	6.31E-07	1.54E-04	9.08E-05	6.31E-05
128	Sacramento	4.6	2.32E-06	10,000	150	1.67E-06	9.84E-07	6.84E-07	1.67E-04	9.84E-05	6.84E-05
101	Parkland	0.8	4.12E-07	100	150	2.96E-07	1.75E-07	1.21E-07	2.96E-05	1.75E-05	1.21E-05
102	Sacramento	3.1	1.58E-06	3,000	150	1.13E-06	6.68E-07	4.64E-07	1.13E-04	6.68E-05	4.64E-05
103	North Highlands	2.6	1.31E-06	1,000	150	9.38E-07	5.54E-07	3.85E-07	9.38E-05	5.54E-05	3.85E-05
104	North Highlands	4.4	2.23E-06	3,000	150	1.60E-06	9.45E-07	6.57E-07	1.60E-04	9.45E-05	6.57E-05
105	Roseville Yard	1.3	6.43E-07	100	150	4.62E-07	2.72E-07	1.89E-07	4.62E-05	2.72E-05	1.89E-05
145	Roseville	2.3	6.15E-07	3,000	150	4.42E-07	2.61E-07	1.81E-07	4.42E-05	2.61E-05	1.81E-05
146	Roseville	1.3	3.45E-07	1,000	150	2.48E-07	1.46E-07	1.02E-07	2.48E-05	1.46E-05	1.02E-05
147	Roseville	0.1	4.00E-08	100	150	2.88E-08	1.70E-08	1.18E-08	2.88E-06	1.70E-06	1.18E-06
148	Placer Co	2.9	7.89E-07	1,000	150	5.67E-07	3.35E-07	2.33E-07	5.67E-05	3.35E-05	2.33E-05
149	Lincoln	1.2	3.22E-07	100	150	2.32E-07	1.37E-07	9.50E-08	2.32E-05	1.37E-05	9.50E-06
150	Lincoln	2.9	7.74E-07	3,000	150	5.56E-07	3.28E-07	2.28E-07	5.56E-05	3.28E-05	2.28E-05
151	Sheridan	10.7	2.88E-06	100	150	2.07E-06	1.22E-06	8.48E-07	2.07E-04	1.22E-04	8.48E-05
152	Wheatland	0.9	2.51E-07	1,000	150	1.81E-07	1.07E-07	7.41E-08	1.81E-05	1.07E-05	7.41E-06
153	Yuba County	9.2	2.49E-06	100	150	1.79E-06	1.06E-06	7.35E-07	1.79E-04	1.06E-04	7.35E-05
154	Olivehurst	4.3	1.15E-06	1,000	150	8.27E-07	4.88E-07	3.39E-07	8.27E-05	4.88E-05	3.39E-05
155	Marysville	1.3	3.59E-07	3,000	150	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
156	Marysville	2.3	6.27E-07	100	150	4.50E-07	2.66E-07	1.85E-07	4.50E-05	2.66E-05	1.85E-05
157	Live Oak	0.3	8.88E-08	1,000	150	6.38E-08	3.76E-08	2.62E-08	6.38E-06	3.76E-06	2.62E-06
158	Live Oak	6.4	1.73E-06	100	150	1.25E-06	7.35E-07	5.11E-07	1.25E-04	7.35E-05	5.11E-05

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159	Live Oak	0.4	9.89E-08	1,000	150	7.11E-08	4.19E-08	2.91E-08	7.11E-06	4.19E-06	2.91E-06
160	Live Oak	1.0	2.74E-07	3,000	150	1.97E-07	1.16E-07	8.06E-08	1.97E-05	1.16E-05	8.06E-06
161	Butte Co	5.2	1.41E-06	100	150	1.01E-06	5.98E-07	4.16E-07	1.01E-04	5.98E-05	4.16E-05
162	Gridley	0.5	1.23E-07	1,000	150	8.83E-08	5.21E-08	3.62E-08	8.83E-06	5.21E-06	3.62E-06
163	Gridley	0.8	2.24E-07	3,000	150	1.61E-07	9.49E-08	6.59E-08	1.61E-05	9.49E-06	6.59E-06
164	Gridley	2.5	6.77E-07	100	150	4.87E-07	2.87E-07	2.00E-07	4.87E-05	2.87E-05	2.00E-05
165	Biggs	0.6	1.55E-07	3,000	150	1.11E-07	6.56E-08	4.56E-08	1.11E-05	6.56E-06	4.56E-06
166	Butte Co	5.1	1.39E-06	100	150	9.96E-07	5.88E-07	4.08E-07	9.96E-05	5.88E-05	4.08E-05
167	Richvale	0.8	2.26E-07	1,000	150	1.62E-07	9.57E-08	6.65E-08	1.62E-05	9.57E-06	6.65E-06
168	Nelson	9.3	2.51E-06	100	150	1.80E-06	1.06E-06	7.38E-07	1.80E-04	1.06E-04	7.38E-05
169	Durham	2.4	6.58E-07	1,000	150	4.73E-07	2.79E-07	1.94E-07	4.73E-05	2.79E-05	1.94E-05
170	Chico	4.3	1.17E-06	100	150	8.39E-07	4.95E-07	3.44E-07	8.39E-05	4.95E-05	3.44E-05
171	Chico	4.5	1.22E-06	1,000	150	8.76E-07	5.17E-07	3.59E-07	8.76E-05	5.17E-05	3.59E-05
172	Chico	2.8	7.56E-07	100	150	5.44E-07	3.21E-07	2.23E-07	5.44E-05	3.21E-05	2.23E-05
173	Nord	0.6	1.57E-07	1,000	150	1.13E-07	6.68E-08	4.64E-08	1.13E-05	6.68E-06	4.64E-06
174	Butte Co	11.3	3.06E-06	100	150	2.20E-06	1.30E-06	9.02E-07	2.20E-04	1.30E-04	9.02E-05
175	Vina	0.4	1.20E-07	1,000	150	8.65E-08	5.10E-08	3.55E-08	8.65E-06	5.10E-06	3.55E-06
176	Copeland	6.3	1.70E-06	100	150	1.22E-06	7.22E-07	5.02E-07	1.22E-04	7.22E-05	5.02E-05
177	Los Molinos	0.5	1.40E-07	1,000	150	1.01E-07	5.95E-08	4.13E-08	1.01E-05	5.95E-06	4.13E-06
178	Los Molinos	1.0	2.68E-07	100	150	1.93E-07	1.14E-07	7.90E-08	1.93E-05	1.14E-05	7.90E-06
179	Tehema	0.3	8.98E-08	1,000	150	6.45E-08	3.81E-08	2.64E-08	6.45E-06	3.81E-06	2.64E-06
180	Tehema	2.2	6.04E-07	100	150	4.34E-07	2.56E-07	1.78E-07	4.34E-05	2.56E-05	1.78E-05
181	Gerber	2.3	6.25E-07	1,000	150	4.49E-07	2.65E-07	1.84E-07	4.49E-05	2.65E-05	1.84E-05
182	Tehema Co	1.8	4.83E-07	100	150	3.47E-07	2.05E-07	1.42E-07	3.47E-05	2.05E-05	1.42E-05
183	Red Bluff	0.8	2.08E-07	1,000	150	1.50E-07	8.83E-08	6.14E-08	1.50E-05	8.83E-06	6.14E-06
184	Red Bluff	4.6	1.25E-06	100	150	8.98E-07	5.30E-07	3.68E-07	8.98E-05	5.30E-05	3.68E-05
185	Red Bluff	3.3	8.86E-07	1,000	150	6.37E-07	3.76E-07	2.61E-07	6.37E-05	3.76E-05	2.61E-05
186	Tehema Co	15.3	4.13E-06	100	150	2.97E-06	1.75E-06	1.22E-06	2.97E-04	1.75E-04	1.22E-04
187	Cottonwood	0.6	1.65E-07	1,000	150	1.18E-07	6.98E-08	4.85E-08	1.18E-05	6.98E-06	4.85E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
188	Anderson	5.4	1.45E-06	100	150	1.04E-06	6.13E-07	4.26E-07	1.04E-04	6.13E-05	4.26E-05
189	Anderson	3.5	9.57E-07	1,000	150	6.88E-07	4.06E-07	2.82E-07	6.88E-05	4.06E-05	2.82E-05
190	Anderson	4.1	1.10E-06	100	150	7.93E-07	4.68E-07	3.25E-07	7.93E-05	4.68E-05	3.25E-05
191	Redding	6.0	1.63E-06	1,000	150	1.17E-06	6.92E-07	4.81E-07	1.17E-04	6.92E-05	4.81E-05
192	Redding	0.8	2.06E-07	1,000	150	1.48E-07	8.72E-08	6.06E-08	1.48E-05	8.72E-06	6.06E-06
193	Redding	1.1	3.05E-07	100	150	2.19E-07	1.29E-07	8.99E-08	2.19E-05	1.29E-05	8.99E-06
194	Redding	0.4	1.05E-07	1,000	150	7.58E-08	4.47E-08	3.11E-08	7.58E-06	4.47E-06	3.11E-06
195	Redding	2.6	6.97E-07	100	150	5.01E-07	2.95E-07	2.05E-07	5.01E-05	2.95E-05	2.05E-05
196	Shasta Co	0.5	1.41E-07	1,000	150	1.01E-07	5.99E-08	4.16E-08	1.01E-05	5.99E-06	4.16E-06
197	Shasta Lake	1.7	4.46E-07	100	150	3.20E-07	1.89E-07	1.31E-07	3.20E-05	1.89E-05	1.31E-05
198	Shasta Lake	0.8	2.03E-07	1,000	150	1.46E-07	8.60E-08	5.97E-08	1.46E-05	8.60E-06	5.97E-06
199	Shasta Co	16.4	4.44E-06	100	150	3.19E-06	1.88E-06	1.31E-06	3.19E-04	1.88E-04	1.31E-04
200	Lakeshore	0.6	1.64E-07	1,000	150	1.18E-07	6.95E-08	4.83E-08	1.18E-05	6.95E-06	4.83E-06
201	Shasta Co	30.4	8.20E-06	100	150	5.89E-06	3.48E-06	2.42E-06	5.89E-04	3.48E-04	2.42E-04
202	Dunsmuir	1.3	3.52E-07	1,000	150	2.53E-07	1.49E-07	1.04E-07	2.53E-05	1.49E-05	1.04E-05
203	Siskiyou Co	12.8	3.45E-06	100	150	2.48E-06	1.46E-06	1.02E-06	2.48E-04	1.46E-04	1.02E-04
204	Mount Shasta	1.1	3.05E-07	1,000	150	2.19E-07	1.29E-07	9.00E-08	2.19E-05	1.29E-05	9.00E-06
205	Siskiyou Co	69.5	1.88E-05	100	150	1.35E-05	7.96E-06	5.53E-06	1.35E-03	7.96E-04	5.53E-04
206	Dorris	0.9	2.38E-07	100	150	1.71E-07	1.01E-07	7.02E-08	1.71E-05	1.01E-05	7.02E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	150	6.62E-07	3.91E-07	2.71E-07	6.62E-05	3.91E-05	2.71E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	150	5.68E-07	3.35E-07	2.33E-07	5.68E-05	3.35E-05	2.33E-05
2	Arroyo Grande	0.8	4.07E-07	100	150	2.93E-07	1.73E-07	1.20E-07	2.93E-05	1.73E-05	1.20E-05
3	Arroyo Grande	0.9	4.79E-07	1,000	150	3.45E-07	2.03E-07	1.41E-07	3.45E-05	2.03E-05	1.41E-05
4	Arroyo Grande	1.4	7.05E-07	100	150	5.06E-07	2.99E-07	2.08E-07	5.06E-05	2.99E-05	2.08E-05
5	Oceano	0.4	2.05E-07	3,000	150	1.48E-07	8.70E-08	6.05E-08	1.48E-05	8.70E-06	6.05E-06
6	Oceano	0.6	3.18E-07	10,000	150	2.29E-07	1.35E-07	9.38E-08	2.29E-05	1.35E-05	9.38E-06
7	Oceano	0.2	1.22E-07	3,000	150	8.76E-08	5.17E-08	3.59E-08	8.76E-06	5.17E-06	3.59E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	150	7.69E-07	4.54E-07	3.15E-07	7.69E-05	4.54E-05	3.15E-05
9	Pismo	0.3	1.47E-07	3,000	150	1.06E-07	6.25E-08	4.34E-08	1.06E-05	6.25E-06	4.34E-06
10	Pismo	0.4	1.88E-07	1,000	150	1.35E-07	7.97E-08	5.54E-08	1.35E-05	7.97E-06	5.54E-06
11	Price Canyon	5.2	2.64E-06	100	150	1.90E-06	1.12E-06	7.79E-07	1.90E-04	1.12E-04	7.79E-05
12	Edna	0.6	3.07E-07	1,000	150	2.20E-07	1.30E-07	9.03E-08	2.20E-05	1.30E-05	9.03E-06
13	Edna	1.6	8.25E-07	100	150	5.93E-07	3.50E-07	2.43E-07	5.93E-05	3.50E-05	2.43E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	150	1.71E-06	1.01E-06	7.02E-07	1.71E-04	1.01E-04	7.02E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	150	2.07E-07	1.22E-07	8.49E-08	2.07E-05	1.22E-05	8.49E-06
16	Chorro	0.4	2.17E-07	1,000	150	1.56E-07	9.21E-08	6.40E-08	1.56E-05	9.21E-06	6.40E-06
17	Chorro	1.6	7.98E-07	100	150	5.73E-07	3.38E-07	2.35E-07	5.73E-05	3.38E-05	2.35E-05
18	CMC	0.8	3.89E-07	3,000	150	2.80E-07	1.65E-07	1.15E-07	2.80E-05	1.65E-05	1.15E-05
19	Santa Lucia	11.2	5.70E-06	100	150	4.10E-06	2.42E-06	1.68E-06	4.10E-04	2.42E-04	1.68E-04
20	Santa Margarita	0.9	4.50E-07	3,000	150	3.23E-07	1.91E-07	1.33E-07	3.23E-05	1.91E-05	1.33E-05
21	Phillips PS	0.9	4.34E-07	100	150	3.12E-07	1.84E-07	1.28E-07	3.12E-05	1.84E-05	1.28E-05
22	Atascadero	7.4	3.77E-06	1,000	150	2.71E-06	1.60E-06	1.11E-06	2.71E-04	1.60E-04	1.11E-04
23	Atascadero	1.6	8.16E-07	3,000	150	5.86E-07	3.46E-07	2.40E-07	5.86E-05	3.46E-05	2.40E-05
24	Atascadero	1.3	6.49E-07	1,000	150	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
25	Atascadero	0.4	2.20E-07	3,000	150	1.58E-07	9.31E-08	6.47E-08	1.58E-05	9.31E-06	6.47E-06
26	101	0.4	1.87E-07	1,000	150	1.34E-07	7.91E-08	5.50E-08	1.34E-05	7.91E-06	5.50E-06
27	Templeton	2.1	1.09E-06	3,000	150	7.84E-07	4.63E-07	3.21E-07	7.84E-05	4.63E-05	3.21E-05
28	Paso Robles	0.5	2.62E-07	1,000	150	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
29	Paso Robles	0.8	4.29E-07	3,000	150	3.08E-07	1.82E-07	1.26E-07	3.08E-05	1.82E-05	1.26E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Paso Robles	2.7	1.40E-06	1,000	150	1.01E-06	5.94E-07	4.13E-07	1.01E-04	5.94E-05	4.13E-05
31	Paso Robles	2.1	1.09E-06	3,000	150	7.84E-07	4.62E-07	3.21E-07	7.84E-05	4.62E-05	3.21E-05
32	Paso Robles	0.4	2.21E-07	10,000	150	1.59E-07	9.39E-08	6.53E-08	1.59E-05	9.39E-06	6.53E-06
33	Paso Robles	1.2	5.93E-07	3,000	150	4.26E-07	2.51E-07	1.75E-07	4.26E-05	2.51E-05	1.75E-05
34	101	2.1	1.08E-06	100	150	7.77E-07	4.59E-07	3.19E-07	7.77E-05	4.59E-05	3.19E-05
35	Wellsona	2.4	1.25E-06	1,000	150	8.96E-07	5.28E-07	3.67E-07	8.96E-05	5.28E-05	3.67E-05
36	101	1.9	9.51E-07	100	150	6.84E-07	4.03E-07	2.80E-07	6.84E-05	4.03E-05	2.80E-05
37	San Miguel	1.5	7.49E-07	3,000	150	5.38E-07	3.18E-07	2.21E-07	5.38E-05	3.18E-05	2.21E-05
38	101	2.7	1.35E-06	100	150	9.72E-07	5.73E-07	3.98E-07	9.72E-05	5.73E-05	3.98E-05
39	Camp Roberts	5.7	2.91E-06	100	150	2.09E-06	1.23E-06	8.58E-07	2.09E-04	1.23E-04	8.58E-05
40	Bradley	15.3	7.80E-06	100	150	5.61E-06	3.31E-06	2.30E-06	5.61E-04	3.31E-04	2.30E-04
41	San Lucas	18.5	9.45E-06	100	150	6.79E-06	4.00E-06	2.78E-06	6.79E-04	4.00E-04	2.78E-04
42	King City	1.5	7.45E-07	1,000	150	5.35E-07	3.16E-07	2.19E-07	5.35E-05	3.16E-05	2.19E-05
43	Clark Ranch	18.1	9.23E-06	100	150	6.63E-06	3.91E-06	2.72E-06	6.63E-04	3.91E-04	2.72E-04
44	Soledad	1.4	7.24E-07	1,000	150	5.20E-07	3.07E-07	2.13E-07	5.20E-05	3.07E-05	2.13E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	150	2.69E-06	1.59E-06	1.10E-06	2.69E-04	1.59E-04	1.10E-04
46	Gonzales	1.2	5.92E-07	3,000	150	4.25E-07	2.51E-07	1.74E-07	4.25E-05	2.51E-05	1.74E-05
47	Salinas Valley Ag	5.0	2.57E-06	100	150	1.84E-06	1.09E-06	7.56E-07	1.84E-04	1.09E-04	7.56E-05
48	Chular	0.6	3.25E-07	1,000	150	2.34E-07	1.38E-07	9.58E-08	2.34E-05	1.38E-05	9.58E-06
49	Sprekles	7.8	3.97E-06	100	150	2.85E-06	1.68E-06	1.17E-06	2.85E-04	1.68E-04	1.17E-04
50	Salinas	3.9	2.00E-06	6,500	150	1.44E-06	8.50E-07	5.91E-07	1.44E-04	8.50E-05	5.91E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	150	2.27E-06	1.34E-06	9.29E-07	2.27E-04	1.34E-04	9.29E-05
52	Castroville	1.1	5.76E-07	1,000	150	4.14E-07	2.44E-07	1.70E-07	4.14E-05	2.44E-05	1.70E-05
53	Las Lomas	15.4	7.87E-06	100	150	5.66E-06	3.34E-06	2.32E-06	5.66E-04	3.34E-04	2.32E-04
54	Aromas	12.1	6.15E-06	100	150	4.42E-06	2.61E-06	1.81E-06	4.42E-04	2.61E-04	1.81E-04
55	Gilroy	4.2	2.13E-06	3,000	150	1.53E-06	9.04E-07	6.28E-07	1.53E-04	9.04E-05	6.28E-05
56	San Martin	6.1	3.09E-06	100	150	2.22E-06	1.31E-06	9.09E-07	2.22E-04	1.31E-04	9.09E-05
57	Morgan Hill	3.8	1.95E-06	3,000	150	1.40E-06	8.28E-07	5.76E-07	1.40E-04	8.28E-05	5.76E-05
58	Coyote Valley	6.7	3.40E-06	100	150	2.44E-06	1.44E-06	1.00E-06	2.44E-04	1.44E-04	1.00E-04

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	San Jose	6.3	3.23E-06	5,000	150	2.32E-06	1.37E-06	9.53E-07	2.32E-04	1.37E-04	9.53E-05
60	Seven Trees	1.9	9.49E-07	1,000	150	6.82E-07	4.02E-07	2.80E-07	6.82E-05	4.02E-05	2.80E-05
61	San Jose	5.0	2.53E-06	10,000	150	1.82E-06	1.07E-06	7.45E-07	1.82E-04	1.07E-04	7.45E-05
62	Santa Clara	5.1	2.61E-06	6,500	150	1.87E-06	1.10E-06	7.68E-07	1.87E-04	1.10E-04	7.68E-05
63	Alviso	1.7	8.77E-07	1,000	150	6.30E-07	3.72E-07	2.58E-07	6.30E-05	3.72E-05	2.58E-05
64	Drawbridge	5.7	2.91E-06	100	150	2.09E-06	1.23E-06	8.57E-07	2.09E-04	1.23E-04	8.57E-05
65	Newark	2.3	1.15E-06	1,000	150	8.25E-07	4.87E-07	3.38E-07	8.25E-05	4.87E-05	3.38E-05
107	Newark	3.1	1.59E-06	10,000	150	1.14E-06	6.73E-07	4.67E-07	1.14E-04	6.73E-05	4.67E-05
108	Fremont	3.2	1.64E-06	10,000	150	1.18E-06	6.96E-07	4.84E-07	1.18E-04	6.96E-05	4.84E-05
109	Sunol	6.8	3.48E-06	100	150	2.50E-06	1.48E-06	1.03E-06	2.50E-04	1.48E-04	1.03E-04
110	Pleasanton	1.8	9.08E-07	1,000	150	6.52E-07	3.85E-07	2.67E-07	6.52E-05	3.85E-05	2.67E-05
111	Pleasanton	2.5	1.27E-06	3,000	150	9.13E-07	5.38E-07	3.74E-07	9.13E-05	5.38E-05	3.74E-05
112	Pleasanton	3.0	1.51E-06	100	150	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
113	Livermore	5.0	2.57E-06	5,000	150	1.85E-06	1.09E-06	7.57E-07	1.85E-04	1.09E-04	7.57E-05
114	Livermore	2.5	1.26E-06	1,000	150	9.05E-07	5.34E-07	3.71E-07	9.05E-05	5.34E-05	3.71E-05
115	Altamont	14.2	7.24E-06	100	150	5.20E-06	3.07E-06	2.13E-06	5.20E-04	3.07E-04	2.13E-04
116	Tracy	3.9	1.97E-06	3,000	150	1.41E-06	8.35E-07	5.80E-07	1.41E-04	8.35E-05	5.80E-05
117	Lathrop	8.2	4.18E-06	100	150	3.01E-06	1.77E-06	1.23E-06	3.01E-04	1.77E-04	1.23E-04
118	French Camp	8.0	4.08E-06	1,000	150	2.93E-06	1.73E-06	1.20E-06	2.93E-04	1.73E-04	1.20E-04
119	Stockton	7.9	4.03E-06	10,000	150	2.90E-06	1.71E-06	1.19E-06	2.90E-04	1.71E-04	1.19E-04
120	Lodi	4.1	2.07E-06	100	150	1.48E-06	8.76E-07	6.09E-07	1.48E-04	8.76E-05	6.09E-05
121	Lodi	3.4	1.73E-06	5,000	150	1.24E-06	7.33E-07	5.09E-07	1.24E-04	7.33E-05	5.09E-05
122	Acampo	5.5	2.81E-06	100	150	2.02E-06	1.19E-06	8.26E-07	2.02E-04	1.19E-04	8.26E-05
123	Galt	1.6	7.96E-07	4,000	150	5.72E-07	3.37E-07	2.34E-07	5.72E-05	3.37E-05	2.34E-05
124	Hicksville	8.6	4.38E-06	100	150	3.14E-06	1.86E-06	1.29E-06	3.14E-04	1.86E-04	1.29E-04
125	Elk Grove	1.0	4.87E-07	100	150	3.50E-07	2.07E-07	1.44E-07	3.50E-05	2.07E-05	1.44E-05
126	Elk Grove	5.8	2.94E-06	5,000	150	2.11E-06	1.25E-06	8.66E-07	2.11E-04	1.25E-04	8.66E-05
127	Sacramento	4.2	2.14E-06	1,000	150	1.54E-06	9.08E-07	6.31E-07	1.54E-04	9.08E-05	6.31E-05
128	Sacramento	4.6	2.32E-06	10,000	150	1.67E-06	9.84E-07	6.84E-07	1.67E-04	9.84E-05	6.84E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
101	Parkland	0.8	4.12E-07	100	150	2.96E-07	1.75E-07	1.21E-07	2.96E-05	1.75E-05	1.21E-05
102	Sacramento	3.1	1.58E-06	3,000	150	1.13E-06	6.68E-07	4.64E-07	1.13E-04	6.68E-05	4.64E-05
103	North Highlands	2.6	1.31E-06	1,000	150	9.38E-07	5.54E-07	3.85E-07	9.38E-05	5.54E-05	3.85E-05
104	North Highlands	4.4	2.23E-06	3,000	150	1.60E-06	9.45E-07	6.57E-07	1.60E-04	9.45E-05	6.57E-05
105	Roseville Yard	1.3	6.43E-07	100	150	4.62E-07	2.72E-07	1.89E-07	4.62E-05	2.72E-05	1.89E-05
129	Roseville	1.4	1.15E-06	3,000	150	8.30E-07	4.90E-07	3.40E-07	8.30E-05	4.90E-05	3.40E-05
130	Roseville	1.1	9.01E-07	3,000	150	6.48E-07	3.82E-07	2.66E-07	6.48E-05	3.82E-05	2.66E-05
131	Roseville	2.1	1.73E-06	1,000	150	1.25E-06	7.35E-07	5.11E-07	1.25E-04	7.35E-05	5.11E-05
132	Roseville	0.5	3.71E-07	3,000	150	2.67E-07	1.57E-07	1.09E-07	2.67E-05	1.57E-05	1.09E-05
133	Rocklin	2.5	2.06E-06	1,000	150	1.48E-06	8.74E-07	6.07E-07	1.48E-04	8.74E-05	6.07E-05
134	Placer Co	8.0	6.54E-06	100	150	4.70E-06	2.77E-06	1.93E-06	4.70E-04	2.77E-04	1.93E-04
135	Newcastle	0.5	3.70E-07	1,000	150	2.66E-07	1.57E-07	1.09E-07	2.66E-05	1.57E-05	1.09E-05
136	Placer Co	2.5	2.05E-06	100	150	1.48E-06	8.71E-07	6.05E-07	1.48E-04	8.71E-05	6.05E-05
137	Auburn	5.3	4.37E-06	1,000	150	3.14E-06	1.85E-06	1.29E-06	3.14E-04	1.85E-04	1.29E-04
138	Placer Co	13.6	1.11E-05	100	150	8.01E-06	4.73E-06	3.28E-06	8.01E-04	4.73E-04	3.28E-04
139	Colfax	0.7	5.53E-07	1,000	150	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
140	Placer Co	61.6	5.05E-05	100	150	3.63E-05	2.14E-05	1.49E-05	3.63E-03	2.14E-03	1.49E-03
141	Truckee	2.1	1.74E-06	1,000	150	1.25E-06	7.38E-07	5.13E-07	1.25E-04	7.38E-05	5.13E-05
142	Nevada Co	13.9	1.14E-05	100	150	8.18E-06	4.82E-06	3.35E-06	8.18E-04	4.82E-04	3.35E-04
143	Floriston	0.2	1.90E-07	1,000	150	1.36E-07	8.05E-08	5.59E-08	1.36E-05	8.05E-06	5.59E-06
144	Sierra Co	5.8	4.75E-06	100	150	3.41E-06	2.01E-06	1.40E-06	3.41E-04	2.01E-04	1.40E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Oso Flaco	2.8	1.19E-06	100	150	2.23E-07	1.32E-07	9.16E-08	2.23E-05	1.32E-05	9.16E-06
2	Nipomo	0.6	2.74E-07	1,000	150	5.13E-08	3.03E-08	2.10E-08	5.13E-06	3.03E-06	2.10E-06
3	Nipomo	1.5	6.32E-07	100	150	1.19E-07	7.00E-08	4.86E-08	1.19E-05	7.00E-06	4.86E-06
4	Guadalupe	1.3	5.76E-07	10,000	150	1.08E-07	6.37E-08	4.43E-08	1.08E-05	6.37E-06	4.43E-06
5	SMV	0.3	1.31E-07	100	150	2.46E-08	1.45E-08	1.01E-08	2.46E-06	1.45E-06	1.01E-06
6	Point Sal	13.8	5.93E-06	100	150	1.11E-06	6.55E-07	4.56E-07	1.11E-04	6.55E-05	4.56E-05
7	VAFB	13.5	5.81E-06	100	150	1.09E-06	6.43E-07	4.47E-07	1.09E-04	6.43E-05	4.47E-05
8	Rocky Point	14.7	6.30E-06	100	150	1.18E-06	6.97E-07	4.84E-07	1.18E-04	6.97E-05	4.84E-05
9	Bixby/Hollister	13.0	5.61E-06	100	150	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
10	Gaviota Beach	0.5	2.00E-07	1,000	150	3.75E-08	2.21E-08	1.54E-08	3.75E-06	2.21E-06	1.54E-06
11	Gaviota	5.9	2.52E-06	100	150	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
12	Arroyo Quemado	0.3	1.18E-07	1,000	150	2.21E-08	1.30E-08	9.06E-09	2.21E-06	1.30E-06	9.06E-07
13	Tajiquas	2.9	1.26E-06	100	150	2.37E-07	1.40E-07	9.72E-08	2.37E-05	1.40E-05	9.72E-06
14	Refugio	0.2	7.92E-08	1,000	150	1.49E-08	8.77E-09	6.09E-09	1.49E-06	8.77E-07	6.09E-07
15	Canada del Corral	2.0	8.51E-07	100	150	1.60E-07	9.42E-08	6.55E-08	1.60E-05	9.42E-06	6.55E-06
16	El Capitan	0.8	3.43E-07	1,000	150	6.42E-08	3.79E-08	2.63E-08	6.42E-06	3.79E-06	2.63E-06
17	Naples	5.7	2.44E-06	100	150	4.57E-07	2.70E-07	1.87E-07	4.57E-05	2.70E-05	1.87E-05
18	Bacara	0.8	3.24E-07	1,000	150	6.07E-08	3.58E-08	2.49E-08	6.07E-06	3.58E-06	2.49E-06
19	Sandpiper	0.6	2.48E-07	100	150	4.66E-08	2.75E-08	1.91E-08	4.66E-06	2.75E-06	1.91E-06
20	Goleta	2.1	9.03E-07	3,000	150	1.69E-07	9.99E-08	6.94E-08	1.69E-05	9.99E-06	6.94E-06
21	Goleta	1.6	7.01E-07	1,000	150	1.31E-07	7.75E-08	5.39E-08	1.31E-05	7.75E-06	5.39E-06
22	Santa Barbara	9.5	4.08E-06	3,000	150	7.64E-07	4.51E-07	3.13E-07	7.64E-05	4.51E-05	3.13E-05
23	Santa Barbara	3.8	1.64E-06	10,000	150	3.07E-07	1.81E-07	1.26E-07	3.07E-05	1.81E-05	1.26E-05
24	Montecito	4.3	1.83E-06	3,000	150	3.43E-07	2.03E-07	1.41E-07	3.43E-05	2.03E-05	1.41E-05
25	Polo Grounds	0.9	4.07E-07	1,000	150	7.63E-08	4.50E-08	3.13E-08	7.63E-06	4.50E-06	3.13E-06
26	Padero Lane	0.5	2.21E-07	3,000	150	4.14E-08	2.44E-08	1.70E-08	4.14E-06	2.44E-06	1.70E-06
27	Carpinteria	2.8	1.20E-06	1,000	150	2.24E-07	1.32E-07	9.19E-08	2.24E-05	1.32E-05	9.19E-06
28	Carpinteria	1.3	5.55E-07	3,000	150	1.04E-07	6.14E-08	4.26E-08	1.04E-05	6.14E-06	4.26E-06
29	Carpinteria Bluffs	1.9	8.00E-07	1,000	150	1.50E-07	8.85E-08	6.15E-08	1.50E-05	8.85E-06	6.15E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Rincon	0.2	1.01E-07	3,000	150	1.90E-08	1.12E-08	7.79E-09	1.90E-06	1.12E-06	7.79E-07
31	La Concita Oil	1.7	7.44E-07	100	150	1.39E-07	8.23E-08	5.72E-08	1.39E-05	8.23E-06	5.72E-06
32	La Conchita	0.4	1.78E-07	3,000	150	3.34E-08	1.97E-08	1.37E-08	3.34E-06	1.97E-06	1.37E-06
33	Mussle Shoals	1.6	6.84E-07	1,000	150	1.28E-07	7.56E-08	5.26E-08	1.28E-05	7.56E-06	5.26E-06
34	Seacliff	0.9	3.71E-07	100	150	6.95E-08	4.10E-08	2.85E-08	6.95E-06	4.10E-06	2.85E-06
35	Faria/Solimar	4.5	1.92E-06	100	150	3.60E-07	2.12E-07	1.47E-07	3.60E-05	2.12E-05	1.47E-05
36	State Beaches	3.6	1.55E-06	100	150	2.91E-07	1.72E-07	1.19E-07	2.91E-05	1.72E-05	1.19E-05
37	Ventura	5.1	2.18E-06	3,000	150	4.10E-07	2.42E-07	1.68E-07	4.10E-05	2.42E-05	1.68E-05
38	Ventura Greenbelt	1.2	4.95E-07	1,000	150	9.27E-08	5.47E-08	3.80E-08	9.27E-06	5.47E-06	3.80E-06
39	Montalvo	1.0	4.27E-07	3,000	150	8.01E-08	4.73E-08	3.28E-08	8.01E-06	4.73E-06	3.28E-06
40	Santa Clara River	0.4	1.68E-07	100	150	3.16E-08	1.86E-08	1.30E-08	3.16E-06	1.86E-06	1.30E-06
41	Oxnard	4.1	1.76E-06	3,000	150	3.30E-07	1.95E-07	1.35E-07	3.30E-05	1.95E-05	1.35E-05
42	Oxnard Industrial	3.0	1.29E-06	1,000	150	2.42E-07	1.43E-07	9.92E-08	2.42E-05	1.43E-05	9.92E-06
43	Oxnard Ag	5.2	2.22E-06	100	150	4.16E-07	2.45E-07	1.71E-07	4.16E-05	2.45E-05	1.71E-05
44	Camarillo Comm	0.5	2.33E-07	1,000	150	4.37E-08	2.58E-08	1.79E-08	4.37E-06	2.58E-06	1.79E-06
45	Camarillo Ag	0.1	3.58E-08	100	150	6.70E-09	3.96E-09	2.75E-09	6.70E-07	3.96E-07	2.75E-07
46	Camarillo	2.5	1.08E-06	3,000	150	2.02E-07	1.19E-07	8.30E-08	2.02E-05	1.19E-05	8.30E-06
47	Somis	7.6	3.25E-06	100	150	6.09E-07	3.59E-07	2.50E-07	6.09E-05	3.59E-05	2.50E-05
48	Moorpark	1.1	4.73E-07	1,000	150	8.87E-08	5.23E-08	3.64E-08	8.87E-06	5.23E-06	3.64E-06
49	Moorpark	1.2	4.95E-07	3,000	150	9.27E-08	5.47E-08	3.80E-08	9.27E-06	5.47E-06	3.80E-06
50	Moorpark	2.1	9.12E-07	1,000	150	1.71E-07	1.01E-07	7.01E-08	1.71E-05	1.01E-05	7.01E-06
51	Los Alamos Cyn	0.8	3.57E-07	100	150	6.69E-08	3.95E-08	2.74E-08	6.69E-06	3.95E-06	2.74E-06
52	Simi Valley	1.1	4.73E-07	1,000	150	8.87E-08	5.23E-08	3.64E-08	8.87E-06	5.23E-06	3.64E-06
53	Simi Valley	6.8	2.94E-06	3,000	150	5.51E-07	3.25E-07	2.26E-07	5.51E-05	3.25E-05	2.26E-05
54	Sta Susana Knolls	1.6	6.75E-07	1,000	150	1.27E-07	7.47E-08	5.19E-08	1.27E-05	7.47E-06	5.19E-06
55	Santa Susana Pass	2.7	1.15E-06	100	150	2.16E-07	1.27E-07	8.86E-08	2.16E-05	1.27E-05	8.86E-06
56	Stoney Point	1.0	4.17E-07	1,000	150	7.81E-08	4.61E-08	3.20E-08	7.81E-06	4.61E-06	3.20E-06
57	Chatsworth	1.4	5.98E-07	3,000	150	1.12E-07	6.61E-08	4.59E-08	1.12E-05	6.61E-06	4.59E-06
58	Chatsworth	3.6	1.54E-06	10,000	150	2.88E-07	1.70E-07	1.18E-07	2.88E-05	1.70E-05	1.18E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	Northridge	2.5	1.09E-06	10,000	150	2.05E-07	1.21E-07	8.40E-08	2.05E-05	1.21E-05	8.40E-06
60	Van Nyus AP	1.7	7.44E-07	3,000	150	1.39E-07	8.23E-08	5.72E-08	1.39E-05	8.23E-06	5.72E-06
61	North Hollywood	4.0	1.74E-06	10,000	150	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
62	Burbank	2.5	1.09E-06	10,000	150	2.05E-07	1.21E-07	8.40E-08	2.05E-05	1.21E-05	8.40E-06
63	Valhalla	0.7	3.06E-07	1,000	150	5.73E-08	3.38E-08	2.35E-08	5.73E-06	3.38E-06	2.35E-06
64	Burbank	1.8	7.57E-07	10,000	150	1.42E-07	8.37E-08	5.82E-08	1.42E-05	8.37E-06	5.82E-06
65	Burbank	0.4	1.87E-07	3,000	150	3.50E-08	2.07E-08	1.44E-08	3.50E-06	2.07E-06	1.44E-06
66	Glendale	2.9	1.26E-06	10,000	150	2.35E-07	1.39E-07	9.65E-08	2.35E-05	1.39E-05	9.65E-06
67	Atwater	3.3	1.44E-06	10,000	150	2.69E-07	1.59E-07	1.10E-07	2.69E-05	1.59E-05	1.10E-05
68	Elysian Park	5.8	2.50E-06	10,000	150	4.68E-07	2.76E-07	1.92E-07	4.68E-05	2.76E-05	1.92E-05
69	East Los Angeles	7.5	3.23E-06	10,000	150	6.06E-07	3.58E-07	2.49E-07	6.06E-05	3.58E-05	2.49E-05
70	San Gabriel Vly	6.0	2.58E-06	10,000	150	4.85E-07	2.86E-07	1.99E-07	4.85E-05	2.86E-05	1.99E-05
71	El monte	0.4	1.76E-07	3,000	150	3.30E-08	1.94E-08	1.35E-08	3.30E-06	1.94E-06	1.35E-06
72	San Gabriel River	0.2	1.01E-07	1,000	150	1.89E-08	1.12E-08	7.76E-09	1.89E-06	1.12E-06	7.76E-07
73	La Puente	4.5	1.94E-06	3,000	150	3.63E-07	2.14E-07	1.49E-07	3.63E-05	2.14E-05	1.49E-05
74	La Puente-Walnut	7.9	3.41E-06	3,000	150	6.39E-07	3.77E-07	2.62E-07	6.39E-05	3.77E-05	2.62E-05
75	Walnut-Pomona	3.1	1.35E-06	3,000	150	2.53E-07	1.49E-07	1.04E-07	2.53E-05	1.49E-05	1.04E-05
76	Pomona	16.0	6.87E-06	3,000	150	1.29E-06	7.60E-07	5.28E-07	1.29E-04	7.60E-05	5.28E-05
77	Ontario	9.3	4.02E-06	3,000	150	7.53E-07	4.44E-07	3.09E-07	7.53E-05	4.44E-05	3.09E-05
78	Fontana	1.2	5.24E-07	1,000	150	9.82E-08	5.79E-08	4.03E-08	9.82E-06	5.79E-06	4.03E-06
79	Colton	2.1	5.33E-07	3,000	150	1.00E-07	5.90E-08	4.10E-08	1.00E-05	5.90E-06	4.10E-06
80	Rialto	1.9	4.83E-07	1,000	150	9.06E-08	5.34E-08	3.71E-08	9.06E-06	5.34E-06	3.71E-06
81	Rialto	1.1	2.88E-07	100	150	5.39E-08	3.18E-08	2.21E-08	5.39E-06	3.18E-06	2.21E-06
82	San Bernardino	1.9	4.90E-07	1,000	150	9.18E-08	5.42E-08	3.76E-08	9.18E-06	5.42E-06	3.76E-06
83	San Bernardino	3.2	8.43E-07	100	150	1.58E-07	9.33E-08	6.48E-08	1.58E-05	9.33E-06	6.48E-06
84	Devore	1.6	4.25E-07	1,000	150	7.97E-08	4.70E-08	3.27E-08	7.97E-06	4.70E-06	3.27E-06
85	Cajon Pass	19.5	5.07E-06	100	150	9.51E-07	5.61E-07	3.90E-07	9.51E-05	5.61E-05	3.90E-05
86	Hesperia	4.5	1.18E-06	1,000	150	2.21E-07	1.30E-07	9.05E-08	2.21E-05	1.30E-05	9.05E-06
87	Hesperia	1.0	2.70E-07	100	150	5.06E-08	2.98E-08	2.07E-08	5.06E-06	2.98E-06	2.07E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
88	Victorville	4.3	1.13E-06	1,000	150	2.11E-07	1.25E-07	8.67E-08	2.11E-05	1.25E-05	8.67E-06
89	Victorville	2.1	5.35E-07	100	150	1.00E-07	5.92E-08	4.11E-08	1.00E-05	5.92E-06	4.11E-06
90	Victorville	0.7	1.92E-07	1,000	150	3.60E-08	2.13E-08	1.48E-08	3.60E-06	2.13E-06	1.48E-06
91	Victorville	4.5	1.16E-06	100	150	2.17E-07	1.28E-07	8.90E-08	2.17E-05	1.28E-05	8.90E-06
92	Oro Grande	0.5	1.34E-07	1,000	150	2.51E-08	1.48E-08	1.03E-08	2.51E-06	1.48E-06	1.03E-06
93	Helendale	25.4	6.59E-06	100	150	1.24E-06	7.30E-07	5.07E-07	1.24E-04	7.30E-05	5.07E-05
94	Lenwood	1.1	2.91E-07	1,000	150	5.45E-08	3.22E-08	2.24E-08	5.45E-06	3.22E-06	2.24E-06
95	Barstow	1.8	4.72E-07	100	150	8.85E-08	5.22E-08	3.63E-08	8.85E-06	5.22E-06	3.63E-06
96	Barstow	1.7	4.46E-07	1,000	150	8.36E-08	4.93E-08	3.43E-08	8.36E-06	4.93E-06	3.43E-06
97	Barstow	0.7	1.91E-07	100	150	3.57E-08	2.11E-08	1.47E-08	3.57E-06	2.11E-06	1.47E-06
98	Barstow	6.2	1.61E-06	1,000	150	3.01E-07	1.78E-07	1.24E-07	3.01E-05	1.78E-05	1.24E-05
99	Daggett	2.4	6.32E-07	100	150	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
100	Daggett	0.8	1.97E-07	1,000	150	3.70E-08	2.18E-08	1.52E-08	3.70E-06	2.18E-06	1.52E-06
101	MCSC	4.3	1.13E-06	100	150	2.12E-07	1.25E-07	8.68E-08	2.12E-05	1.25E-05	8.68E-06
102	Yermo	1.3	3.31E-07	1,000	150	6.21E-08	3.66E-08	2.55E-08	6.21E-06	3.66E-06	2.55E-06
103	Mojave Desert	123.5	3.21E-05	100	150	6.02E-06	3.55E-06	2.47E-06	6.02E-04	3.55E-04	2.47E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	150	1.13E-07	6.69E-08	4.65E-08	1.13E-05	6.69E-06	4.65E-06
2	Arroyo Grande	0.8	3.11E-07	100	150	5.84E-08	3.44E-08	2.39E-08	5.84E-06	3.44E-06	2.39E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	150	6.87E-08	4.06E-08	2.82E-08	6.87E-06	4.06E-06	2.82E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
4	Arroyo Grande	1.4	5.39E-07	100	150	1.01E-07	5.96E-08	4.14E-08	1.01E-05	5.96E-06	4.14E-06
5	Oceano	0.4	1.57E-07	3,000	150	2.94E-08	1.74E-08	1.21E-08	2.94E-06	1.74E-06	1.21E-06
6	Oceano	0.6	2.43E-07	10,000	150	4.56E-08	2.69E-08	1.87E-08	4.56E-06	2.69E-06	1.87E-06
7	Oceano	0.2	9.32E-08	3,000	150	1.75E-08	1.03E-08	7.17E-09	1.75E-06	1.03E-06	7.17E-07
8	Pismo/Grover	2.1	8.18E-07	10,000	150	1.53E-07	9.05E-08	6.29E-08	1.53E-05	9.05E-06	6.29E-06
9	Pismo	0.3	1.13E-07	3,000	150	2.11E-08	1.25E-08	8.66E-09	2.11E-06	1.25E-06	8.66E-07
10	Pismo	0.4	1.44E-07	1,000	150	2.70E-08	1.59E-08	1.10E-08	2.70E-06	1.59E-06	1.10E-06
11	Price Canyon	5.2	2.02E-06	100	150	3.79E-07	2.24E-07	1.55E-07	3.79E-05	2.24E-05	1.55E-05
12	Edna	0.6	2.34E-07	1,000	150	4.40E-08	2.59E-08	1.80E-08	4.40E-06	2.59E-06	1.80E-06
13	Edna	1.6	6.31E-07	100	150	1.18E-07	6.98E-08	4.85E-08	1.18E-05	6.98E-06	4.85E-06
14	San Luis Obispo	4.7	1.82E-06	10,000	150	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	150	4.13E-08	2.44E-08	1.69E-08	4.13E-06	2.44E-06	1.69E-06
16	Chorro	0.4	1.66E-07	1,000	150	3.12E-08	1.84E-08	1.28E-08	3.12E-06	1.84E-06	1.28E-06
17	Chorro	1.6	6.10E-07	100	150	1.14E-07	6.75E-08	4.69E-08	1.14E-05	6.75E-06	4.69E-06
18	CMC	0.8	2.98E-07	3,000	150	5.58E-08	3.29E-08	2.29E-08	5.58E-06	3.29E-06	2.29E-06
19	Santa Lucia	11.2	4.36E-06	100	150	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
20	Santa Margarita	0.9	3.44E-07	3,000	150	6.45E-08	3.81E-08	2.64E-08	6.45E-06	3.81E-06	2.64E-06
21	Phillips PS	0.9	3.32E-07	100	150	6.22E-08	3.67E-08	2.55E-08	6.22E-06	3.67E-06	2.55E-06
22	Atascadero	7.4	2.89E-06	1,000	150	5.41E-07	3.19E-07	2.22E-07	5.41E-05	3.19E-05	2.22E-05
23	Atascadero	1.6	6.24E-07	3,000	150	1.17E-07	6.90E-08	4.80E-08	1.17E-05	6.90E-06	4.80E-06
24	Atascadero	1.3	4.96E-07	1,000	150	9.31E-08	5.49E-08	3.82E-08	9.31E-06	5.49E-06	3.82E-06
25	Atascadero	0.4	1.68E-07	3,000	150	3.15E-08	1.86E-08	1.29E-08	3.15E-06	1.86E-06	1.29E-06
26	101	0.4	1.43E-07	1,000	150	2.67E-08	1.58E-08	1.10E-08	2.67E-06	1.58E-06	1.10E-06
27	Templeton	2.1	8.34E-07	3,000	150	1.56E-07	9.23E-08	6.41E-08	1.56E-05	9.23E-06	6.41E-06
28	Paso Robles	0.5	2.00E-07	1,000	150	3.75E-08	2.21E-08	1.54E-08	3.75E-06	2.21E-06	1.54E-06
29	Paso Robles	0.8	3.28E-07	3,000	150	6.15E-08	3.63E-08	2.52E-08	6.15E-06	3.63E-06	2.52E-06
30	Paso Robles	2.7	1.07E-06	1,000	150	2.01E-07	1.19E-07	8.24E-08	2.01E-05	1.19E-05	8.24E-06
31	Paso Robles	2.1	8.34E-07	3,000	150	1.56E-07	9.23E-08	6.41E-08	1.56E-05	9.23E-06	6.41E-06
32	Paso Robles	0.4	1.69E-07	10,000	150	3.18E-08	1.87E-08	1.30E-08	3.18E-06	1.87E-06	1.30E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
33	Paso Robles	1.2	4.54E-07	3,000	150	8.50E-08	5.02E-08	3.49E-08	8.50E-06	5.02E-06	3.49E-06
34	101	2.1	8.27E-07	100	150	1.55E-07	9.15E-08	6.36E-08	1.55E-05	9.15E-06	6.36E-06
35	Wellsona	2.4	9.53E-07	1,000	150	1.79E-07	1.05E-07	7.33E-08	1.79E-05	1.05E-05	7.33E-06
36	101	1.9	7.27E-07	100	150	1.36E-07	8.05E-08	5.59E-08	1.36E-05	8.05E-06	5.59E-06
37	San Miguel	1.5	5.73E-07	3,000	150	1.07E-07	6.34E-08	4.40E-08	1.07E-05	6.34E-06	4.40E-06
38	101	2.7	1.03E-06	100	150	1.94E-07	1.14E-07	7.95E-08	1.94E-05	1.14E-05	7.95E-06
39	Camp Roberts	5.7	2.23E-06	100	150	4.18E-07	2.46E-07	1.71E-07	4.18E-05	2.46E-05	1.71E-05
40	Bradley	15.3	5.97E-06	100	150	1.12E-06	6.60E-07	4.59E-07	1.12E-04	6.60E-05	4.59E-05
41	San Lucas	18.5	7.22E-06	100	150	1.35E-06	7.99E-07	5.55E-07	1.35E-04	7.99E-05	5.55E-05
42	King City	1.5	5.69E-07	1,000	150	1.07E-07	6.30E-08	4.38E-08	1.07E-05	6.30E-06	4.38E-06
43	Clark Ranch	18.1	7.06E-06	100	150	1.32E-06	7.80E-07	5.42E-07	1.32E-04	7.80E-05	5.42E-05
44	Soledad	1.4	5.54E-07	1,000	150	1.04E-07	6.13E-08	4.26E-08	1.04E-05	6.13E-06	4.26E-06
45	Salinas Valley Ag	7.3	2.86E-06	100	150	5.37E-07	3.17E-07	2.20E-07	5.37E-05	3.17E-05	2.20E-05
46	Gonzales	1.2	4.52E-07	3,000	150	8.48E-08	5.00E-08	3.48E-08	8.48E-06	5.00E-06	3.48E-06
47	Salinas Valley Ag	5.0	1.96E-06	100	150	3.68E-07	2.17E-07	1.51E-07	3.68E-05	2.17E-05	1.51E-05
48	Chular	0.6	2.49E-07	1,000	150	4.66E-08	2.75E-08	1.91E-08	4.66E-06	2.75E-06	1.91E-06
49	Sprekles	7.8	3.03E-06	100	150	5.69E-07	3.36E-07	2.33E-07	5.69E-05	3.36E-05	2.33E-05
50	Salinas	3.9	1.53E-06	6,500	150	2.87E-07	1.70E-07	1.18E-07	2.87E-05	1.70E-05	1.18E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	150	4.52E-07	2.67E-07	1.85E-07	4.52E-05	2.67E-05	1.85E-05
52	Castroville	1.1	4.41E-07	1,000	150	8.26E-08	4.88E-08	3.39E-08	8.26E-06	4.88E-06	3.39E-06
53	Las Lomas	15.4	6.02E-06	100	150	1.13E-06	6.66E-07	4.63E-07	1.13E-04	6.66E-05	4.63E-05
54	Aromas	12.1	4.70E-06	100	150	8.81E-07	5.20E-07	3.61E-07	8.81E-05	5.20E-05	3.61E-05
55	Gilroy	4.2	1.63E-06	3,000	150	3.06E-07	1.80E-07	1.25E-07	3.06E-05	1.80E-05	1.25E-05
56	San Martin	6.1	2.36E-06	100	150	4.42E-07	2.61E-07	1.81E-07	4.42E-05	2.61E-05	1.81E-05
57	Morgan Hill	3.8	1.49E-06	3,000	150	2.80E-07	1.65E-07	1.15E-07	2.80E-05	1.65E-05	1.15E-05
58	Coyote Valley	6.7	2.60E-06	100	150	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
59	San Jose	6.3	2.47E-06	5,000	150	4.64E-07	2.74E-07	1.90E-07	4.64E-05	2.74E-05	1.90E-05
60	Seven Trees	1.9	7.25E-07	1,000	150	1.36E-07	8.02E-08	5.58E-08	1.36E-05	8.02E-06	5.58E-06
61	San Jose	5.0	1.93E-06	10,000	150	3.63E-07	2.14E-07	1.49E-07	3.63E-05	2.14E-05	1.49E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
62	Santa Clara	5.1	1.99E-06	6,500	150	3.74E-07	2.20E-07	1.53E-07	3.74E-05	2.20E-05	1.53E-05
63	Alviso	1.7	6.71E-07	1,000	150	1.26E-07	7.42E-08	5.16E-08	1.26E-05	7.42E-06	5.16E-06
64	Drawbridge	5.7	2.22E-06	100	150	4.17E-07	2.46E-07	1.71E-07	4.17E-05	2.46E-05	1.71E-05
65	Newark	2.3	8.78E-07	1,000	150	1.65E-07	9.71E-08	6.75E-08	1.65E-05	9.71E-06	6.75E-06
66	Newark to Russell	11.3	4.42E-06	10,000	150	8.29E-07	4.89E-07	3.40E-07	8.29E-05	4.89E-05	3.40E-05
67	San Lorenzo	0.8	3.11E-07	3,000	150	5.84E-08	3.44E-08	2.39E-08	5.84E-06	3.44E-06	2.39E-06
68	San Leandro	1.3	4.99E-07	10,000	150	9.36E-08	5.52E-08	3.84E-08	9.36E-06	5.52E-06	3.84E-06
69	San Leandro	0.7	2.81E-07	3,000	150	5.27E-08	3.11E-08	2.16E-08	5.27E-06	3.11E-06	2.16E-06
70	Oakland	5.3	2.05E-06	10,000	150	3.85E-07	2.27E-07	1.58E-07	3.85E-05	2.27E-05	1.58E-05
71	Oakland	1.4	5.34E-07	3,000	150	1.00E-07	5.91E-08	4.11E-08	1.00E-05	5.91E-06	4.11E-06
72	Oakland	1.6	6.32E-07	10,000	150	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
73	Oakland	1.4	5.27E-07	3,000	150	9.87E-08	5.82E-08	4.05E-08	9.87E-06	5.82E-06	4.05E-06
74	Oakland	1.5	6.01E-07	10,000	150	1.13E-07	6.64E-08	4.62E-08	1.13E-05	6.64E-06	4.62E-06
75	Oakland	2.7	1.04E-06	3,000	150	1.95E-07	1.15E-07	8.00E-08	1.95E-05	1.15E-05	8.00E-06
76	Emeryville	1.5	5.66E-07	10,000	150	1.06E-07	6.26E-08	4.35E-08	1.06E-05	6.26E-06	4.35E-06
77	Berkeley	1.0	3.94E-07	3,000	150	7.39E-08	4.36E-08	3.03E-08	7.39E-06	4.36E-06	3.03E-06
78	Berkeley	1.8	6.83E-07	10,000	150	1.28E-07	7.55E-08	5.25E-08	1.28E-05	7.55E-06	5.25E-06
79	Richmond	1.5	5.85E-07	3,000	150	1.10E-07	6.47E-08	4.50E-08	1.10E-05	6.47E-06	4.50E-06
80	Richmond	3.8	1.47E-06	10,000	150	2.75E-07	1.62E-07	1.13E-07	2.75E-05	1.62E-05	1.13E-05
81	North Richmond	1.1	4.10E-07	3,000	150	7.68E-08	4.53E-08	3.15E-08	7.68E-06	4.53E-06	3.15E-06
82	San Pablo	2.5	9.71E-07	1,000	150	1.82E-07	1.07E-07	7.47E-08	1.82E-05	1.07E-05	7.47E-06
83	Sobranto	1.8	6.83E-07	100	150	1.28E-07	7.55E-08	5.25E-08	1.28E-05	7.55E-06	5.25E-06
84	Hercules	5.6	2.19E-06	1,000	150	4.10E-07	2.42E-07	1.68E-07	4.10E-05	2.42E-05	1.68E-05
85	Selby	1.7	6.59E-07	100	150	1.24E-07	7.29E-08	5.07E-08	1.24E-05	7.29E-06	5.07E-06
86	Crockett	1.6	6.08E-07	1,000	150	1.14E-07	6.73E-08	4.68E-08	1.14E-05	6.73E-06	4.68E-06
87	Port Costa	4.3	1.68E-06	100	150	3.15E-07	1.86E-07	1.29E-07	3.15E-05	1.86E-05	1.29E-05
88	Martinez	0.5	1.89E-07	1,000	150	3.54E-08	2.09E-08	1.45E-08	3.54E-06	2.09E-06	1.45E-06
89	Suisun Pt Channel	2.6	1.00E-06	100	150	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
90	Benicia	3.5	1.37E-06	1,000	150	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Mitigated Alternative Project

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
91	Grizzly Bay	10.6	4.13E-06	100	150	7.74E-07	4.56E-07	3.17E-07	7.74E-05	4.56E-05	3.17E-05
92	Fairfield	3.8	1.49E-06	3,000	150	2.79E-07	1.65E-07	1.15E-07	2.79E-05	1.65E-05	1.15E-05
93	Elmira	13.7	5.34E-06	100	150	1.00E-06	5.91E-07	4.11E-07	1.00E-04	5.91E-05	4.11E-05
94	Dixon	2.1	8.35E-07	1,000	150	1.56E-07	9.23E-08	6.42E-08	1.56E-05	9.23E-06	6.42E-06
95	Solano Co Ag	6.6	2.58E-06	100	150	4.83E-07	2.85E-07	1.98E-07	4.83E-05	2.85E-05	1.98E-05
96	Davis	3.5	1.38E-06	1,000	150	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
97	Yolo Co Ag	7.0	2.73E-06	100	150	5.11E-07	3.02E-07	2.10E-07	5.11E-05	3.02E-05	2.10E-05
98	Sacramento	3.3	1.27E-06	3,000	150	2.38E-07	1.40E-07	9.74E-08	2.38E-05	1.40E-05	9.74E-06
99	Sacramento River	0.4	1.64E-07	100	150	3.07E-08	1.81E-08	1.26E-08	3.07E-06	1.81E-06	1.26E-06
100	Sacramento	2.5	9.59E-07	10,000	150	1.80E-07	1.06E-07	7.38E-08	1.80E-05	1.06E-05	7.38E-06
101	Parkland	1.6	6.32E-07	100	150	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
102	Sacramento	3.1	1.21E-06	3,000	150	2.27E-07	1.34E-07	9.29E-08	2.27E-05	1.34E-05	9.29E-06
103	North Highlands	2.6	1.01E-06	1,000	150	1.89E-07	1.11E-07	7.74E-08	1.89E-05	1.11E-05	7.74E-06
104	North Highlands	4.4	1.70E-06	3,000	150	3.20E-07	1.89E-07	1.31E-07	3.20E-05	1.89E-05	1.31E-05
105	Roseville Yard	1.3	4.91E-07	100	150	9.21E-08	5.44E-08	3.78E-08	9.21E-06	5.44E-06	3.78E-06
145	Roseville	2.3	6.15E-07	3,000	150	1.15E-07	6.81E-08	4.73E-08	1.15E-05	6.81E-06	4.73E-06
146	Roseville	1.3	3.45E-07	1,000	150	6.46E-08	3.81E-08	2.65E-08	6.46E-06	3.81E-06	2.65E-06
147	Roseville	0.1	4.00E-08	100	150	7.50E-09	4.43E-09	3.08E-09	7.50E-07	4.43E-07	3.08E-07
148	Placer Co	2.9	7.89E-07	1,000	150	1.48E-07	8.73E-08	6.07E-08	1.48E-05	8.73E-06	6.07E-06
149	Lincoln	1.2	3.22E-07	100	150	6.05E-08	3.57E-08	2.48E-08	6.05E-06	3.57E-06	2.48E-06
150	Lincoln	2.9	7.74E-07	3,000	150	1.45E-07	8.56E-08	5.95E-08	1.45E-05	8.56E-06	5.95E-06
151	Sheridan	10.7	2.88E-06	100	150	5.40E-07	3.18E-07	2.21E-07	5.40E-05	3.18E-05	2.21E-05
152	Wheatland	0.9	2.51E-07	1,000	150	4.71E-08	2.78E-08	1.93E-08	4.71E-06	2.78E-06	1.93E-06
153	Yuba County	9.2	2.49E-06	100	150	4.68E-07	2.76E-07	1.92E-07	4.68E-05	2.76E-05	1.92E-05
154	Olivehurst	4.3	1.15E-06	1,000	150	2.16E-07	1.27E-07	8.84E-08	2.16E-05	1.27E-05	8.84E-06
155	Marysville	1.3	3.59E-07	3,000	150	6.72E-08	3.97E-08	2.76E-08	6.72E-06	3.97E-06	2.76E-06
156	Marysville	2.3	6.27E-07	100	150	1.18E-07	6.93E-08	4.82E-08	1.18E-05	6.93E-06	4.82E-06
157	Live Oak	0.3	8.88E-08	1,000	150	1.66E-08	9.82E-09	6.82E-09	1.66E-06	9.82E-07	6.82E-07
158	Live Oak	6.4	1.73E-06	100	150	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
159	Live Oak	0.4	9.89E-08	1,000	150	1.85E-08	1.09E-08	7.60E-09	1.85E-06	1.09E-06	7.60E-07
160	Live Oak	1.0	2.74E-07	3,000	150	5.13E-08	3.03E-08	2.10E-08	5.13E-06	3.03E-06	2.10E-06
161	Butte Co	5.2	1.41E-06	100	150	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
162	Gridley	0.5	1.23E-07	1,000	150	2.30E-08	1.36E-08	9.44E-09	2.30E-06	1.36E-06	9.44E-07
163	Gridley	0.8	2.24E-07	3,000	150	4.20E-08	2.48E-08	1.72E-08	4.20E-06	2.48E-06	1.72E-06
164	Gridley	2.5	6.77E-07	100	150	1.27E-07	7.49E-08	5.21E-08	1.27E-05	7.49E-06	5.21E-06
165	Biggs	0.6	1.55E-07	3,000	150	2.90E-08	1.71E-08	1.19E-08	2.90E-06	1.71E-06	1.19E-06
166	Butte Co	5.1	1.39E-06	100	150	2.60E-07	1.53E-07	1.07E-07	2.60E-05	1.53E-05	1.07E-05
167	Richvale	0.8	2.26E-07	1,000	150	4.23E-08	2.50E-08	1.73E-08	4.23E-06	2.50E-06	1.73E-06
168	Nelson	9.3	2.51E-06	100	150	4.70E-07	2.77E-07	1.93E-07	4.70E-05	2.77E-05	1.93E-05
169	Durham	2.4	6.58E-07	1,000	150	1.23E-07	7.28E-08	5.06E-08	1.23E-05	7.28E-06	5.06E-06
170	Chico	4.3	1.17E-06	100	150	2.19E-07	1.29E-07	8.97E-08	2.19E-05	1.29E-05	8.97E-06
171	Chico	4.5	1.22E-06	1,000	150	2.28E-07	1.35E-07	9.37E-08	2.28E-05	1.35E-05	9.37E-06
172	Chico	2.8	7.56E-07	100	150	1.42E-07	8.37E-08	5.82E-08	1.42E-05	8.37E-06	5.82E-06
173	Nord	0.6	1.57E-07	1,000	150	2.95E-08	1.74E-08	1.21E-08	2.95E-06	1.74E-06	1.21E-06
174	Butte Co	11.3	3.06E-06	100	150	5.74E-07	3.39E-07	2.35E-07	5.74E-05	3.39E-05	2.35E-05
175	Vina	0.4	1.20E-07	1,000	150	2.26E-08	1.33E-08	9.25E-09	2.26E-06	1.33E-06	9.25E-07
176	Copeland	6.3	1.70E-06	100	150	3.19E-07	1.88E-07	1.31E-07	3.19E-05	1.88E-05	1.31E-05
177	Los Molinos	0.5	1.40E-07	1,000	150	2.63E-08	1.55E-08	1.08E-08	2.63E-06	1.55E-06	1.08E-06
178	Los Molinos	1.0	2.68E-07	100	150	5.03E-08	2.97E-08	2.06E-08	5.03E-06	2.97E-06	2.06E-06
179	Tehema	0.3	8.98E-08	1,000	150	1.68E-08	9.93E-09	6.90E-09	1.68E-06	9.93E-07	6.90E-07
180	Tehema	2.2	6.04E-07	100	150	1.13E-07	6.68E-08	4.64E-08	1.13E-05	6.68E-06	4.64E-06
181	Gerber	2.3	6.25E-07	1,000	150	1.17E-07	6.91E-08	4.80E-08	1.17E-05	6.91E-06	4.80E-06
182	Tehema Co	1.8	4.83E-07	100	150	9.05E-08	5.34E-08	3.71E-08	9.05E-06	5.34E-06	3.71E-06
183	Red Bluff	0.8	2.08E-07	1,000	150	3.91E-08	2.30E-08	1.60E-08	3.91E-06	2.30E-06	1.60E-06
184	Red Bluff	4.6	1.25E-06	100	150	2.34E-07	1.38E-07	9.61E-08	2.34E-05	1.38E-05	9.61E-06
185	Red Bluff	3.3	8.86E-07	1,000	150	1.66E-07	9.80E-08	6.81E-08	1.66E-05	9.80E-06	6.81E-06
186	Tehema Co	15.3	4.13E-06	100	150	7.74E-07	4.56E-07	3.17E-07	7.74E-05	4.56E-05	3.17E-05
187	Cottonwood	0.6	1.65E-07	1,000	150	3.09E-08	1.82E-08	1.27E-08	3.09E-06	1.82E-06	1.27E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
188	Anderson	5.4	1.45E-06	100	150	2.71E-07	1.60E-07	1.11E-07	2.71E-05	1.60E-05	1.11E-05
189	Anderson	3.5	9.57E-07	1,000	150	1.80E-07	1.06E-07	7.36E-08	1.80E-05	1.06E-05	7.36E-06
190	Anderson	4.1	1.10E-06	100	150	2.07E-07	1.22E-07	8.48E-08	2.07E-05	1.22E-05	8.48E-06
191	Redding	6.0	1.63E-06	1,000	150	3.06E-07	1.80E-07	1.25E-07	3.06E-05	1.80E-05	1.25E-05
192	Redding	0.8	2.06E-07	1,000	150	3.86E-08	2.28E-08	1.58E-08	3.86E-06	2.28E-06	1.58E-06
193	Redding	1.1	3.05E-07	100	150	5.72E-08	3.37E-08	2.34E-08	5.72E-06	3.37E-06	2.34E-06
194	Redding	0.4	1.05E-07	1,000	150	1.98E-08	1.17E-08	8.11E-09	1.98E-06	1.17E-06	8.11E-07
195	Redding	2.6	6.97E-07	100	150	1.31E-07	7.71E-08	5.36E-08	1.31E-05	7.71E-06	5.36E-06
196	Shasta Co	0.5	1.41E-07	1,000	150	2.65E-08	1.56E-08	1.09E-08	2.65E-06	1.56E-06	1.09E-06
197	Shasta Lake	1.7	4.46E-07	100	150	8.35E-08	4.93E-08	3.42E-08	8.35E-06	4.93E-06	3.42E-06
198	Shasta Lake	0.8	2.03E-07	1,000	150	3.80E-08	2.24E-08	1.56E-08	3.80E-06	2.24E-06	1.56E-06
199	Shasta Co	16.4	4.44E-06	100	150	8.32E-07	4.91E-07	3.41E-07	8.32E-05	4.91E-05	3.41E-05
200	Lakeshore	0.6	1.64E-07	1,000	150	3.07E-08	1.81E-08	1.26E-08	3.07E-06	1.81E-06	1.26E-06
201	Shasta Co	30.4	8.20E-06	100	150	1.54E-06	9.07E-07	6.30E-07	1.54E-04	9.07E-05	6.30E-05
202	Dunsmuir	1.3	3.52E-07	1,000	150	6.60E-08	3.89E-08	2.70E-08	6.60E-06	3.89E-06	2.70E-06
203	Siskiyou Co	12.8	3.45E-06	100	150	6.46E-07	3.81E-07	2.65E-07	6.46E-05	3.81E-05	2.65E-05
204	Mount Shasta	1.1	3.05E-07	1,000	150	5.73E-08	3.38E-08	2.35E-08	5.73E-06	3.38E-06	2.35E-06
205	Siskiyou Co	69.5	1.88E-05	100	150	3.52E-06	2.08E-06	1.44E-06	3.52E-04	2.08E-04	1.44E-04
206	Dorris	0.9	2.38E-07	100	150	4.47E-08	2.63E-08	1.83E-08	4.47E-06	2.63E-06	1.83E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	150	1.73E-07	1.02E-07	7.08E-08	1.73E-05	1.02E-05	7.08E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	150	1.13E-07	6.69E-08	4.65E-08	1.13E-05	6.69E-06	4.65E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
2	Arroyo Grande	0.8	3.11E-07	100	150	5.84E-08	3.44E-08	2.39E-08	5.84E-06	3.44E-06	2.39E-06
3	Arroyo Grande	0.9	3.67E-07	1,000	150	6.87E-08	4.06E-08	2.82E-08	6.87E-06	4.06E-06	2.82E-06
4	Arroyo Grande	1.4	5.39E-07	100	150	1.01E-07	5.96E-08	4.14E-08	1.01E-05	5.96E-06	4.14E-06
5	Oceano	0.4	1.57E-07	3,000	150	2.94E-08	1.74E-08	1.21E-08	2.94E-06	1.74E-06	1.21E-06
6	Oceano	0.6	2.43E-07	10,000	150	4.56E-08	2.69E-08	1.87E-08	4.56E-06	2.69E-06	1.87E-06
7	Oceano	0.2	9.32E-08	3,000	150	1.75E-08	1.03E-08	7.17E-09	1.75E-06	1.03E-06	7.17E-07
8	Pismo/Grover	2.1	8.18E-07	10,000	150	1.53E-07	9.05E-08	6.29E-08	1.53E-05	9.05E-06	6.29E-06
9	Pismo	0.3	1.13E-07	3,000	150	2.11E-08	1.25E-08	8.66E-09	2.11E-06	1.25E-06	8.66E-07
10	Pismo	0.4	1.44E-07	1,000	150	2.70E-08	1.59E-08	1.10E-08	2.70E-06	1.59E-06	1.10E-06
11	Price Canyon	5.2	2.02E-06	100	150	3.79E-07	2.24E-07	1.55E-07	3.79E-05	2.24E-05	1.55E-05
12	Edna	0.6	2.34E-07	1,000	150	4.40E-08	2.59E-08	1.80E-08	4.40E-06	2.59E-06	1.80E-06
13	Edna	1.6	6.31E-07	100	150	1.18E-07	6.98E-08	4.85E-08	1.18E-05	6.98E-06	4.85E-06
14	San Luis Obispo	4.7	1.82E-06	10,000	150	3.41E-07	2.01E-07	1.40E-07	3.41E-05	2.01E-05	1.40E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	150	4.13E-08	2.44E-08	1.69E-08	4.13E-06	2.44E-06	1.69E-06
16	Chorro	0.4	1.66E-07	1,000	150	3.12E-08	1.84E-08	1.28E-08	3.12E-06	1.84E-06	1.28E-06
17	Chorro	1.6	6.10E-07	100	150	1.14E-07	6.75E-08	4.69E-08	1.14E-05	6.75E-06	4.69E-06
18	CMC	0.8	2.98E-07	3,000	150	5.58E-08	3.29E-08	2.29E-08	5.58E-06	3.29E-06	2.29E-06
19	Santa Lucia	11.2	4.36E-06	100	150	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
20	Santa Margarita	0.9	3.44E-07	3,000	150	6.45E-08	3.81E-08	2.64E-08	6.45E-06	3.81E-06	2.64E-06
21	Phillips PS	0.9	3.32E-07	100	150	6.22E-08	3.67E-08	2.55E-08	6.22E-06	3.67E-06	2.55E-06
22	Atascadero	7.4	2.89E-06	1,000	150	5.41E-07	3.19E-07	2.22E-07	5.41E-05	3.19E-05	2.22E-05
23	Atascadero	1.6	6.24E-07	3,000	150	1.17E-07	6.90E-08	4.80E-08	1.17E-05	6.90E-06	4.80E-06
24	Atascadero	1.3	4.96E-07	1,000	150	9.31E-08	5.49E-08	3.82E-08	9.31E-06	5.49E-06	3.82E-06
25	Atascadero	0.4	1.68E-07	3,000	150	3.15E-08	1.86E-08	1.29E-08	3.15E-06	1.86E-06	1.29E-06
26	101	0.4	1.43E-07	1,000	150	2.67E-08	1.58E-08	1.10E-08	2.67E-06	1.58E-06	1.10E-06
27	Templeton	2.1	8.34E-07	3,000	150	1.56E-07	9.23E-08	6.41E-08	1.56E-05	9.23E-06	6.41E-06
28	Paso Robles	0.5	2.00E-07	1,000	150	3.75E-08	2.21E-08	1.54E-08	3.75E-06	2.21E-06	1.54E-06
29	Paso Robles	0.8	3.28E-07	3,000	150	6.15E-08	3.63E-08	2.52E-08	6.15E-06	3.63E-06	2.52E-06
30	Paso Robles	2.7	1.07E-06	1,000	150	2.01E-07	1.19E-07	8.24E-08	2.01E-05	1.19E-05	8.24E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
31	Paso Robles	2.1	8.34E-07	3,000	150	1.56E-07	9.23E-08	6.41E-08	1.56E-05	9.23E-06	6.41E-06
32	Paso Robles	0.4	1.69E-07	10,000	150	3.18E-08	1.87E-08	1.30E-08	3.18E-06	1.87E-06	1.30E-06
33	Paso Robles	1.2	4.54E-07	3,000	150	8.50E-08	5.02E-08	3.49E-08	8.50E-06	5.02E-06	3.49E-06
34	101	2.1	8.27E-07	100	150	1.55E-07	9.15E-08	6.36E-08	1.55E-05	9.15E-06	6.36E-06
35	Wellsona	2.4	9.53E-07	1,000	150	1.79E-07	1.05E-07	7.33E-08	1.79E-05	1.05E-05	7.33E-06
36	101	1.9	7.27E-07	100	150	1.36E-07	8.05E-08	5.59E-08	1.36E-05	8.05E-06	5.59E-06
37	San Miguel	1.5	5.73E-07	3,000	150	1.07E-07	6.34E-08	4.40E-08	1.07E-05	6.34E-06	4.40E-06
38	101	2.7	1.03E-06	100	150	1.94E-07	1.14E-07	7.95E-08	1.94E-05	1.14E-05	7.95E-06
39	Camp Roberts	5.7	2.23E-06	100	150	4.18E-07	2.46E-07	1.71E-07	4.18E-05	2.46E-05	1.71E-05
40	Bradley	15.3	5.97E-06	100	150	1.12E-06	6.60E-07	4.59E-07	1.12E-04	6.60E-05	4.59E-05
41	San Lucas	18.5	7.22E-06	100	150	1.35E-06	7.99E-07	5.55E-07	1.35E-04	7.99E-05	5.55E-05
42	King City	1.5	5.69E-07	1,000	150	1.07E-07	6.30E-08	4.38E-08	1.07E-05	6.30E-06	4.38E-06
43	Clark Ranch	18.1	7.06E-06	100	150	1.32E-06	7.80E-07	5.42E-07	1.32E-04	7.80E-05	5.42E-05
44	Soledad	1.4	5.54E-07	1,000	150	1.04E-07	6.13E-08	4.26E-08	1.04E-05	6.13E-06	4.26E-06
45	Salinas Valley Ag	7.3	2.86E-06	100	150	5.37E-07	3.17E-07	2.20E-07	5.37E-05	3.17E-05	2.20E-05
46	Gonzales	1.2	4.52E-07	3,000	150	8.48E-08	5.00E-08	3.48E-08	8.48E-06	5.00E-06	3.48E-06
47	Salinas Valley Ag	5.0	1.96E-06	100	150	3.68E-07	2.17E-07	1.51E-07	3.68E-05	2.17E-05	1.51E-05
48	Chular	0.6	2.49E-07	1,000	150	4.66E-08	2.75E-08	1.91E-08	4.66E-06	2.75E-06	1.91E-06
49	Sprekles	7.8	3.03E-06	100	150	5.69E-07	3.36E-07	2.33E-07	5.69E-05	3.36E-05	2.33E-05
50	Salinas	3.9	1.53E-06	6,500	150	2.87E-07	1.70E-07	1.18E-07	2.87E-05	1.70E-05	1.18E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	150	4.52E-07	2.67E-07	1.85E-07	4.52E-05	2.67E-05	1.85E-05
52	Castroville	1.1	4.41E-07	1,000	150	8.26E-08	4.88E-08	3.39E-08	8.26E-06	4.88E-06	3.39E-06
53	Las Lomas	15.4	6.02E-06	100	150	1.13E-06	6.66E-07	4.63E-07	1.13E-04	6.66E-05	4.63E-05
54	Aromas	12.1	4.70E-06	100	150	8.81E-07	5.20E-07	3.61E-07	8.81E-05	5.20E-05	3.61E-05
55	Gilroy	4.2	1.63E-06	3,000	150	3.06E-07	1.80E-07	1.25E-07	3.06E-05	1.80E-05	1.25E-05
56	San Martin	6.1	2.36E-06	100	150	4.42E-07	2.61E-07	1.81E-07	4.42E-05	2.61E-05	1.81E-05
57	Morgan Hill	3.8	1.49E-06	3,000	150	2.80E-07	1.65E-07	1.15E-07	2.80E-05	1.65E-05	1.15E-05
58	Coyote Valley	6.7	2.60E-06	100	150	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
59	San Jose	6.3	2.47E-06	5,000	150	4.64E-07	2.74E-07	1.90E-07	4.64E-05	2.74E-05	1.90E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
60	Seven Trees	1.9	7.25E-07	1,000	150	1.36E-07	8.02E-08	5.58E-08	1.36E-05	8.02E-06	5.58E-06
61	San Jose	5.0	1.93E-06	10,000	150	3.63E-07	2.14E-07	1.49E-07	3.63E-05	2.14E-05	1.49E-05
62	Santa Clara	5.1	1.99E-06	6,500	150	3.74E-07	2.20E-07	1.53E-07	3.74E-05	2.20E-05	1.53E-05
63	Alviso	1.7	6.71E-07	1,000	150	1.26E-07	7.42E-08	5.16E-08	1.26E-05	7.42E-06	5.16E-06
64	Drawbridge	5.7	2.22E-06	100	150	4.17E-07	2.46E-07	1.71E-07	4.17E-05	2.46E-05	1.71E-05
65	Newark	2.3	8.78E-07	1,000	150	1.65E-07	9.71E-08	6.75E-08	1.65E-05	9.71E-06	6.75E-06
66	Newark to Russell	11.3	4.42E-06	10,000	150	8.29E-07	4.89E-07	3.40E-07	8.29E-05	4.89E-05	3.40E-05
67	San Lorenzo	0.8	3.11E-07	3,000	150	5.84E-08	3.44E-08	2.39E-08	5.84E-06	3.44E-06	2.39E-06
68	San Leandro	1.3	4.99E-07	10,000	150	9.36E-08	5.52E-08	3.84E-08	9.36E-06	5.52E-06	3.84E-06
69	San Leandro	0.7	2.81E-07	3,000	150	5.27E-08	3.11E-08	2.16E-08	5.27E-06	3.11E-06	2.16E-06
70	Oakland	5.3	2.05E-06	10,000	150	3.85E-07	2.27E-07	1.58E-07	3.85E-05	2.27E-05	1.58E-05
71	Oakland	1.4	5.34E-07	3,000	150	1.00E-07	5.91E-08	4.11E-08	1.00E-05	5.91E-06	4.11E-06
72	Oakland	1.6	6.32E-07	10,000	150	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
73	Oakland	1.4	5.27E-07	3,000	150	9.87E-08	5.82E-08	4.05E-08	9.87E-06	5.82E-06	4.05E-06
74	Oakland	1.5	6.01E-07	10,000	150	1.13E-07	6.64E-08	4.62E-08	1.13E-05	6.64E-06	4.62E-06
75	Oakland	2.7	1.04E-06	3,000	150	1.95E-07	1.15E-07	8.00E-08	1.95E-05	1.15E-05	8.00E-06
76	Emeryville	1.5	5.66E-07	10,000	150	1.06E-07	6.26E-08	4.35E-08	1.06E-05	6.26E-06	4.35E-06
77	Berkeley	1.0	3.94E-07	3,000	150	7.39E-08	4.36E-08	3.03E-08	7.39E-06	4.36E-06	3.03E-06
78	Berkeley	1.8	6.83E-07	10,000	150	1.28E-07	7.55E-08	5.25E-08	1.28E-05	7.55E-06	5.25E-06
79	Richmond	1.5	5.85E-07	3,000	150	1.10E-07	6.47E-08	4.50E-08	1.10E-05	6.47E-06	4.50E-06
80	Richmond	3.8	1.47E-06	10,000	150	2.75E-07	1.62E-07	1.13E-07	2.75E-05	1.62E-05	1.13E-05
81	North Richmond	1.1	4.10E-07	3,000	150	7.68E-08	4.53E-08	3.15E-08	7.68E-06	4.53E-06	3.15E-06
82	San Pablo	2.5	9.71E-07	1,000	150	1.82E-07	1.07E-07	7.47E-08	1.82E-05	1.07E-05	7.47E-06
83	Sobranto	1.8	6.83E-07	100	150	1.28E-07	7.55E-08	5.25E-08	1.28E-05	7.55E-06	5.25E-06
84	Hercules	5.6	2.19E-06	1,000	150	4.10E-07	2.42E-07	1.68E-07	4.10E-05	2.42E-05	1.68E-05
85	Selby	1.7	6.59E-07	100	150	1.24E-07	7.29E-08	5.07E-08	1.24E-05	7.29E-06	5.07E-06
86	Crockett	1.6	6.08E-07	1,000	150	1.14E-07	6.73E-08	4.68E-08	1.14E-05	6.73E-06	4.68E-06
87	Port Costa	4.3	1.68E-06	100	150	3.15E-07	1.86E-07	1.29E-07	3.15E-05	1.86E-05	1.29E-05
88	Martinez	0.5	1.89E-07	1,000	150	3.54E-08	2.09E-08	1.45E-08	3.54E-06	2.09E-06	1.45E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
89	Suisun Pt Channel	2.6	1.00E-06	100	150	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
90	Benicia	3.5	1.37E-06	1,000	150	2.56E-07	1.51E-07	1.05E-07	2.56E-05	1.51E-05	1.05E-05
91	Grizzly Bay	10.6	4.13E-06	100	150	7.74E-07	4.56E-07	3.17E-07	7.74E-05	4.56E-05	3.17E-05
92	Fairfield	3.8	1.49E-06	3,000	150	2.79E-07	1.65E-07	1.15E-07	2.79E-05	1.65E-05	1.15E-05
93	Elmira	13.7	5.34E-06	100	150	1.00E-06	5.91E-07	4.11E-07	1.00E-04	5.91E-05	4.11E-05
94	Dixon	2.1	8.35E-07	1,000	150	1.56E-07	9.23E-08	6.42E-08	1.56E-05	9.23E-06	6.42E-06
95	Solano Co Ag	6.6	2.58E-06	100	150	4.83E-07	2.85E-07	1.98E-07	4.83E-05	2.85E-05	1.98E-05
96	Davis	3.5	1.38E-06	1,000	150	2.58E-07	1.52E-07	1.06E-07	2.58E-05	1.52E-05	1.06E-05
97	Yolo Co Ag	7.0	2.73E-06	100	150	5.11E-07	3.02E-07	2.10E-07	5.11E-05	3.02E-05	2.10E-05
98	Sacramento	3.3	1.27E-06	3,000	150	2.38E-07	1.40E-07	9.74E-08	2.38E-05	1.40E-05	9.74E-06
99	Sacramento River	0.4	1.64E-07	100	150	3.07E-08	1.81E-08	1.26E-08	3.07E-06	1.81E-06	1.26E-06
100	Sacramento	2.5	9.59E-07	10,000	150	1.80E-07	1.06E-07	7.38E-08	1.80E-05	1.06E-05	7.38E-06
101	Parkland	1.6	6.32E-07	100	150	1.18E-07	6.99E-08	4.86E-08	1.18E-05	6.99E-06	4.86E-06
102	Sacramento	3.1	1.21E-06	3,000	150	2.27E-07	1.34E-07	9.29E-08	2.27E-05	1.34E-05	9.29E-06
103	North Highlands	2.6	1.01E-06	1,000	150	1.89E-07	1.11E-07	7.74E-08	1.89E-05	1.11E-05	7.74E-06
104	North Highlands	4.4	1.70E-06	3,000	150	3.20E-07	1.89E-07	1.31E-07	3.20E-05	1.89E-05	1.31E-05
105	Roseville Yard	1.3	4.91E-07	100	150	9.21E-08	5.44E-08	3.78E-08	9.21E-06	5.44E-06	3.78E-06
129	Roseville	1.4	1.15E-06	3,000	150	2.17E-07	1.28E-07	8.88E-08	2.17E-05	1.28E-05	8.88E-06
130	Roseville	1.1	9.01E-07	3,000	150	1.69E-07	9.97E-08	6.93E-08	1.69E-05	9.97E-06	6.93E-06
131	Roseville	2.1	1.73E-06	1,000	150	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
132	Roseville	0.5	3.71E-07	3,000	150	6.96E-08	4.11E-08	2.85E-08	6.96E-06	4.11E-06	2.85E-06
133	Rocklin	2.5	2.06E-06	1,000	150	3.86E-07	2.28E-07	1.58E-07	3.86E-05	2.28E-05	1.58E-05
134	Placer Co	8.0	6.54E-06	100	150	1.23E-06	7.23E-07	5.03E-07	1.23E-04	7.23E-05	5.03E-05
135	Newcastle	0.5	3.70E-07	1,000	150	6.94E-08	4.09E-08	2.84E-08	6.94E-06	4.09E-06	2.84E-06
136	Placer Co	2.5	2.05E-06	100	150	3.85E-07	2.27E-07	1.58E-07	3.85E-05	2.27E-05	1.58E-05
137	Auburn	5.3	4.37E-06	1,000	150	8.20E-07	4.84E-07	3.36E-07	8.20E-05	4.84E-05	3.36E-05
138	Placer Co	13.6	1.11E-05	100	150	2.09E-06	1.23E-06	8.57E-07	2.09E-04	1.23E-04	8.57E-05
139	Colfax	0.7	5.53E-07	1,000	150	1.04E-07	6.11E-08	4.25E-08	1.04E-05	6.11E-06	4.25E-06
140	Placer Co	61.6	5.05E-05	100	150	9.47E-06	5.59E-06	3.88E-06	9.47E-04	5.59E-04	3.88E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
141	Truckee	2.1	1.74E-06	1,000	150	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
142	Nevada Co	13.9	1.14E-05	100	150	2.13E-06	1.26E-06	8.75E-07	2.13E-04	1.26E-04	8.75E-05
143	Floriston	0.2	1.90E-07	1,000	150	3.56E-08	2.10E-08	1.46E-08	3.56E-06	2.10E-06	1.46E-06
144	Sierra Co	5.8	4.75E-06	100	150	8.90E-07	5.25E-07	3.65E-07	8.90E-05	5.25E-05	3.65E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	150	1.48E-07	8.74E-08	6.08E-08	1.48E-05	8.74E-06	6.08E-06
2	Arroyo Grande	0.8	4.07E-07	100	150	7.63E-08	4.50E-08	3.13E-08	7.63E-06	4.50E-06	3.13E-06
3	Arroyo Grande	0.9	4.79E-07	1,000	150	8.99E-08	5.30E-08	3.69E-08	8.99E-06	5.30E-06	3.69E-06
4	Arroyo Grande	1.4	7.05E-07	100	150	1.32E-07	7.79E-08	5.42E-08	1.32E-05	7.79E-06	5.42E-06
5	Oceano	0.4	2.05E-07	3,000	150	3.85E-08	2.27E-08	1.58E-08	3.85E-06	2.27E-06	1.58E-06
6	Oceano	0.6	3.18E-07	10,000	150	5.97E-08	3.52E-08	2.45E-08	5.97E-06	3.52E-06	2.45E-06
7	Oceano	0.2	1.22E-07	3,000	150	2.29E-08	1.35E-08	9.37E-09	2.29E-06	1.35E-06	9.37E-07
8	Pismo/Grover	2.1	1.07E-06	10,000	150	2.01E-07	1.18E-07	8.23E-08	2.01E-05	1.18E-05	8.23E-06
9	Pismo	0.3	1.47E-07	3,000	150	2.76E-08	1.63E-08	1.13E-08	2.76E-06	1.63E-06	1.13E-06
10	Pismo	0.4	1.88E-07	1,000	150	3.52E-08	2.08E-08	1.44E-08	3.52E-06	2.08E-06	1.44E-06
11	Price Canyon	5.2	2.64E-06	100	150	4.96E-07	2.92E-07	2.03E-07	4.96E-05	2.92E-05	2.03E-05
12	Edna	0.6	3.07E-07	1,000	150	5.75E-08	3.39E-08	2.36E-08	5.75E-06	3.39E-06	2.36E-06
13	Edna	1.6	8.25E-07	100	150	1.55E-07	9.13E-08	6.34E-08	1.55E-05	9.13E-06	6.34E-06
14	San Luis Obispo	4.7	2.38E-06	10,000	150	4.47E-07	2.63E-07	1.83E-07	4.47E-05	2.63E-05	1.83E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	150	5.40E-08	3.19E-08	2.22E-08	5.40E-06	3.19E-06	2.22E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
16	Chorro	0.4	2.17E-07	1,000	150	4.07E-08	2.40E-08	1.67E-08	4.07E-06	2.40E-06	1.67E-06
17	Chorro	1.6	7.98E-07	100	150	1.50E-07	8.83E-08	6.13E-08	1.50E-05	8.83E-06	6.13E-06
18	CMC	0.8	3.89E-07	3,000	150	7.30E-08	4.30E-08	2.99E-08	7.30E-06	4.30E-06	2.99E-06
19	Santa Lucia	11.2	5.70E-06	100	150	1.07E-06	6.30E-07	4.38E-07	1.07E-04	6.30E-05	4.38E-05
20	Santa Margarita	0.9	4.50E-07	3,000	150	8.43E-08	4.98E-08	3.46E-08	8.43E-06	4.98E-06	3.46E-06
21	Phillips PS	0.9	4.34E-07	100	150	8.13E-08	4.80E-08	3.33E-08	8.13E-06	4.80E-06	3.33E-06
22	Atascadero	7.4	3.77E-06	1,000	150	7.08E-07	4.18E-07	2.90E-07	7.08E-05	4.18E-05	2.90E-05
23	Atascadero	1.6	8.16E-07	3,000	150	1.53E-07	9.02E-08	6.27E-08	1.53E-05	9.02E-06	6.27E-06
24	Atascadero	1.3	6.49E-07	1,000	150	1.22E-07	7.18E-08	4.99E-08	1.22E-05	7.18E-06	4.99E-06
25	Atascadero	0.4	2.20E-07	3,000	150	4.12E-08	2.43E-08	1.69E-08	4.12E-06	2.43E-06	1.69E-06
26	101	0.4	1.87E-07	1,000	150	3.50E-08	2.06E-08	1.43E-08	3.50E-06	2.06E-06	1.43E-06
27	Templeton	2.1	1.09E-06	3,000	150	2.05E-07	1.21E-07	8.39E-08	2.05E-05	1.21E-05	8.39E-06
28	Paso Robles	0.5	2.62E-07	1,000	150	4.91E-08	2.90E-08	2.01E-08	4.91E-06	2.90E-06	2.01E-06
29	Paso Robles	0.8	4.29E-07	3,000	150	8.05E-08	4.75E-08	3.30E-08	8.05E-06	4.75E-06	3.30E-06
30	Paso Robles	2.7	1.40E-06	1,000	150	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
31	Paso Robles	2.1	1.09E-06	3,000	150	2.05E-07	1.21E-07	8.38E-08	2.05E-05	1.21E-05	8.38E-06
32	Paso Robles	0.4	2.21E-07	10,000	150	4.15E-08	2.45E-08	1.70E-08	4.15E-06	2.45E-06	1.70E-06
33	Paso Robles	1.2	5.93E-07	3,000	150	1.11E-07	6.56E-08	4.56E-08	1.11E-05	6.56E-06	4.56E-06
34	101	2.1	1.08E-06	100	150	2.03E-07	1.20E-07	8.31E-08	2.03E-05	1.20E-05	8.31E-06
35	Wellsona	2.4	1.25E-06	1,000	150	2.34E-07	1.38E-07	9.58E-08	2.34E-05	1.38E-05	9.58E-06
36	101	1.9	9.51E-07	100	150	1.78E-07	1.05E-07	7.31E-08	1.78E-05	1.05E-05	7.31E-06
37	San Miguel	1.5	7.49E-07	3,000	150	1.40E-07	8.29E-08	5.76E-08	1.40E-05	8.29E-06	5.76E-06
38	101	2.7	1.35E-06	100	150	2.53E-07	1.50E-07	1.04E-07	2.53E-05	1.50E-05	1.04E-05
39	Camp Roberts	5.7	2.91E-06	100	150	5.46E-07	3.22E-07	2.24E-07	5.46E-05	3.22E-05	2.24E-05
40	Bradley	15.3	7.80E-06	100	150	1.46E-06	8.63E-07	6.00E-07	1.46E-04	8.63E-05	6.00E-05
41	San Lucas	18.5	9.45E-06	100	150	1.77E-06	1.04E-06	7.26E-07	1.77E-04	1.04E-04	7.26E-05
42	King City	1.5	7.45E-07	1,000	150	1.40E-07	8.24E-08	5.72E-08	1.40E-05	8.24E-06	5.72E-06
43	Clark Ranch	18.1	9.23E-06	100	150	1.73E-06	1.02E-06	7.09E-07	1.73E-04	1.02E-04	7.09E-05
44	Soledad	1.4	7.24E-07	1,000	150	1.36E-07	8.01E-08	5.57E-08	1.36E-05	8.01E-06	5.57E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
45	Salinas Valley Ag	7.3	3.74E-06	100	150	7.02E-07	4.14E-07	2.88E-07	7.02E-05	4.14E-05	2.88E-05
46	Gonzales	1.2	5.92E-07	3,000	150	1.11E-07	6.54E-08	4.55E-08	1.11E-05	6.54E-06	4.55E-06
47	Salinas Valley Ag	5.0	2.57E-06	100	150	4.81E-07	2.84E-07	1.97E-07	4.81E-05	2.84E-05	1.97E-05
48	Chular	0.6	3.25E-07	1,000	150	6.10E-08	3.60E-08	2.50E-08	6.10E-06	3.60E-06	2.50E-06
49	Sprekles	7.8	3.97E-06	100	150	7.44E-07	4.39E-07	3.05E-07	7.44E-05	4.39E-05	3.05E-05
50	Salinas	3.9	2.00E-06	6,500	150	3.76E-07	2.22E-07	1.54E-07	3.76E-05	2.22E-05	1.54E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	150	5.91E-07	3.49E-07	2.42E-07	5.91E-05	3.49E-05	2.42E-05
52	Castroville	1.1	5.76E-07	1,000	150	1.08E-07	6.38E-08	4.43E-08	1.08E-05	6.38E-06	4.43E-06
53	Las Lomas	15.4	7.87E-06	100	150	1.48E-06	8.71E-07	6.05E-07	1.48E-04	8.71E-05	6.05E-05
54	Aromas	12.1	6.15E-06	100	150	1.15E-06	6.80E-07	4.72E-07	1.15E-04	6.80E-05	4.72E-05
55	Gilroy	4.2	2.13E-06	3,000	150	4.00E-07	2.36E-07	1.64E-07	4.00E-05	2.36E-05	1.64E-05
56	San Martin	6.1	3.09E-06	100	150	5.79E-07	3.41E-07	2.37E-07	5.79E-05	3.41E-05	2.37E-05
57	Morgan Hill	3.8	1.95E-06	3,000	150	3.66E-07	2.16E-07	1.50E-07	3.66E-05	2.16E-05	1.50E-05
58	Coyote Valley	6.7	3.40E-06	100	150	6.38E-07	3.76E-07	2.62E-07	6.38E-05	3.76E-05	2.62E-05
59	San Jose	6.3	3.23E-06	5,000	150	6.06E-07	3.58E-07	2.49E-07	6.06E-05	3.58E-05	2.49E-05
60	Seven Trees	1.9	9.49E-07	1,000	150	1.78E-07	1.05E-07	7.29E-08	1.78E-05	1.05E-05	7.29E-06
61	San Jose	5.0	2.53E-06	10,000	150	4.74E-07	2.80E-07	1.94E-07	4.74E-05	2.80E-05	1.94E-05
62	Santa Clara	5.1	2.61E-06	6,500	150	4.89E-07	2.88E-07	2.00E-07	4.89E-05	2.88E-05	2.00E-05
63	Alviso	1.7	8.77E-07	1,000	150	1.64E-07	9.70E-08	6.74E-08	1.64E-05	9.70E-06	6.74E-06
64	Drawbridge	5.7	2.91E-06	100	150	5.45E-07	3.22E-07	2.23E-07	5.45E-05	3.22E-05	2.23E-05
65	Newark	2.3	1.15E-06	1,000	150	2.15E-07	1.27E-07	8.82E-08	2.15E-05	1.27E-05	8.82E-06
107	Newark	3.1	1.59E-06	10,000	150	2.97E-07	1.75E-07	1.22E-07	2.97E-05	1.75E-05	1.22E-05
108	Fremont	3.2	1.64E-06	10,000	150	3.08E-07	1.82E-07	1.26E-07	3.08E-05	1.82E-05	1.26E-05
109	Sunol	6.8	3.48E-06	100	150	6.53E-07	3.85E-07	2.68E-07	6.53E-05	3.85E-05	2.68E-05
110	Pleasanton	1.8	9.08E-07	1,000	150	1.70E-07	1.00E-07	6.98E-08	1.70E-05	1.00E-05	6.98E-06
111	Pleasanton	2.5	1.27E-06	3,000	150	2.38E-07	1.40E-07	9.76E-08	2.38E-05	1.40E-05	9.76E-06
112	Pleasanton	3.0	1.51E-06	100	150	2.84E-07	1.68E-07	1.16E-07	2.84E-05	1.68E-05	1.16E-05
113	Livermore	5.0	2.57E-06	5,000	150	4.82E-07	2.84E-07	1.98E-07	4.82E-05	2.84E-05	1.98E-05
114	Livermore	2.5	1.26E-06	1,000	150	2.36E-07	1.39E-07	9.68E-08	2.36E-05	1.39E-05	9.68E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
115	Altamont	14.2	7.24E-06	100	150	1.36E-06	8.01E-07	5.57E-07	1.36E-04	8.01E-05	5.57E-05
116	Tracy	3.9	1.97E-06	3,000	150	3.69E-07	2.18E-07	1.51E-07	3.69E-05	2.18E-05	1.51E-05
117	Lathrop	8.2	4.18E-06	100	150	7.84E-07	4.63E-07	3.21E-07	7.84E-05	4.63E-05	3.21E-05
118	French Camp	8.0	4.08E-06	1,000	150	7.65E-07	4.51E-07	3.14E-07	7.65E-05	4.51E-05	3.14E-05
119	Stockton	7.9	4.03E-06	10,000	150	7.56E-07	4.46E-07	3.10E-07	7.56E-05	4.46E-05	3.10E-05
120	Lodi	4.1	2.07E-06	100	150	3.87E-07	2.28E-07	1.59E-07	3.87E-05	2.28E-05	1.59E-05
121	Lodi	3.4	1.73E-06	5,000	150	3.24E-07	1.91E-07	1.33E-07	3.24E-05	1.91E-05	1.33E-05
122	Acampo	5.5	2.81E-06	100	150	5.26E-07	3.10E-07	2.16E-07	5.26E-05	3.10E-05	2.16E-05
123	Galt	1.6	7.96E-07	4,000	150	1.49E-07	8.80E-08	6.12E-08	1.49E-05	8.80E-06	6.12E-06
124	Hicksville	8.6	4.38E-06	100	150	8.20E-07	4.84E-07	3.36E-07	8.20E-05	4.84E-05	3.36E-05
125	Elk Grove	1.0	4.87E-07	100	150	9.13E-08	5.39E-08	3.74E-08	9.13E-06	5.39E-06	3.74E-06
126	Elk Grove	5.8	2.94E-06	5,000	150	5.51E-07	3.25E-07	2.26E-07	5.51E-05	3.25E-05	2.26E-05
127	Sacramento	4.2	2.14E-06	1,000	150	4.02E-07	2.37E-07	1.65E-07	4.02E-05	2.37E-05	1.65E-05
128	Sacramento	4.6	2.32E-06	10,000	150	4.35E-07	2.57E-07	1.78E-07	4.35E-05	2.57E-05	1.78E-05
101	Parkland	0.8	4.12E-07	100	150	7.73E-08	4.56E-08	3.17E-08	7.73E-06	4.56E-06	3.17E-06
102	Sacramento	3.1	1.58E-06	3,000	150	2.95E-07	1.74E-07	1.21E-07	2.95E-05	1.74E-05	1.21E-05
103	North Highlands	2.6	1.31E-06	1,000	150	2.45E-07	1.44E-07	1.00E-07	2.45E-05	1.44E-05	1.00E-05
104	North Highlands	4.4	2.23E-06	3,000	150	4.18E-07	2.47E-07	1.71E-07	4.18E-05	2.47E-05	1.71E-05
105	Roseville Yard	1.3	6.43E-07	100	150	1.20E-07	7.11E-08	4.94E-08	1.20E-05	7.11E-06	4.94E-06
145	Roseville	2.3	6.15E-07	3,000	150	1.15E-07	6.81E-08	4.73E-08	1.15E-05	6.81E-06	4.73E-06
146	Roseville	1.3	3.45E-07	1,000	150	6.46E-08	3.81E-08	2.65E-08	6.46E-06	3.81E-06	2.65E-06
147	Roseville	0.1	4.00E-08	100	150	7.50E-09	4.43E-09	3.08E-09	7.50E-07	4.43E-07	3.08E-07
148	Placer Co	2.9	7.89E-07	1,000	150	1.48E-07	8.73E-08	6.07E-08	1.48E-05	8.73E-06	6.07E-06
149	Lincoln	1.2	3.22E-07	100	150	6.05E-08	3.57E-08	2.48E-08	6.05E-06	3.57E-06	2.48E-06
150	Lincoln	2.9	7.74E-07	3,000	150	1.45E-07	8.56E-08	5.95E-08	1.45E-05	8.56E-06	5.95E-06
151	Sheridan	10.7	2.88E-06	100	150	5.40E-07	3.18E-07	2.21E-07	5.40E-05	3.18E-05	2.21E-05
152	Wheatland	0.9	2.51E-07	1,000	150	4.71E-08	2.78E-08	1.93E-08	4.71E-06	2.78E-06	1.93E-06
153	Yuba County	9.2	2.49E-06	100	150	4.68E-07	2.76E-07	1.92E-07	4.68E-05	2.76E-05	1.92E-05
154	Olivehurst	4.3	1.15E-06	1,000	150	2.16E-07	1.27E-07	8.84E-08	2.16E-05	1.27E-05	8.84E-06

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155	Marysville	1.3	3.59E-07	3,000	150	6.72E-08	3.97E-08	2.76E-08	6.72E-06	3.97E-06	2.76E-06
156	Marysville	2.3	6.27E-07	100	150	1.18E-07	6.93E-08	4.82E-08	1.18E-05	6.93E-06	4.82E-06
157	Live Oak	0.3	8.88E-08	1,000	150	1.66E-08	9.82E-09	6.82E-09	1.66E-06	9.82E-07	6.82E-07
158	Live Oak	6.4	1.73E-06	100	150	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
159	Live Oak	0.4	9.89E-08	1,000	150	1.85E-08	1.09E-08	7.60E-09	1.85E-06	1.09E-06	7.60E-07
160	Live Oak	1.0	2.74E-07	3,000	150	5.13E-08	3.03E-08	2.10E-08	5.13E-06	3.03E-06	2.10E-06
161	Butte Co	5.2	1.41E-06	100	150	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
162	Gridley	0.5	1.23E-07	1,000	150	2.30E-08	1.36E-08	9.44E-09	2.30E-06	1.36E-06	9.44E-07
163	Gridley	0.8	2.24E-07	3,000	150	4.20E-08	2.48E-08	1.72E-08	4.20E-06	2.48E-06	1.72E-06
164	Gridley	2.5	6.77E-07	100	150	1.27E-07	7.49E-08	5.21E-08	1.27E-05	7.49E-06	5.21E-06
165	Biggs	0.6	1.55E-07	3,000	150	2.90E-08	1.71E-08	1.19E-08	2.90E-06	1.71E-06	1.19E-06
166	Butte Co	5.1	1.39E-06	100	150	2.60E-07	1.53E-07	1.07E-07	2.60E-05	1.53E-05	1.07E-05
167	Richvale	0.8	2.26E-07	1,000	150	4.23E-08	2.50E-08	1.73E-08	4.23E-06	2.50E-06	1.73E-06
168	Nelson	9.3	2.51E-06	100	150	4.70E-07	2.77E-07	1.93E-07	4.70E-05	2.77E-05	1.93E-05
169	Durham	2.4	6.58E-07	1,000	150	1.23E-07	7.28E-08	5.06E-08	1.23E-05	7.28E-06	5.06E-06
170	Chico	4.3	1.17E-06	100	150	2.19E-07	1.29E-07	8.97E-08	2.19E-05	1.29E-05	8.97E-06
171	Chico	4.5	1.22E-06	1,000	150	2.28E-07	1.35E-07	9.37E-08	2.28E-05	1.35E-05	9.37E-06
172	Chico	2.8	7.56E-07	100	150	1.42E-07	8.37E-08	5.82E-08	1.42E-05	8.37E-06	5.82E-06
173	Nord	0.6	1.57E-07	1,000	150	2.95E-08	1.74E-08	1.21E-08	2.95E-06	1.74E-06	1.21E-06
174	Butte Co	11.3	3.06E-06	100	150	5.74E-07	3.39E-07	2.35E-07	5.74E-05	3.39E-05	2.35E-05
175	Vina	0.4	1.20E-07	1,000	150	2.26E-08	1.33E-08	9.25E-09	2.26E-06	1.33E-06	9.25E-07
176	Copeland	6.3	1.70E-06	100	150	3.19E-07	1.88E-07	1.31E-07	3.19E-05	1.88E-05	1.31E-05
177	Los Molinos	0.5	1.40E-07	1,000	150	2.63E-08	1.55E-08	1.08E-08	2.63E-06	1.55E-06	1.08E-06
178	Los Molinos	1.0	2.68E-07	100	150	5.03E-08	2.97E-08	2.06E-08	5.03E-06	2.97E-06	2.06E-06
179	Tehema	0.3	8.98E-08	1,000	150	1.68E-08	9.93E-09	6.90E-09	1.68E-06	9.93E-07	6.90E-07
180	Tehema	2.2	6.04E-07	100	150	1.13E-07	6.68E-08	4.64E-08	1.13E-05	6.68E-06	4.64E-06
181	Gerber	2.3	6.25E-07	1,000	150	1.17E-07	6.91E-08	4.80E-08	1.17E-05	6.91E-06	4.80E-06
182	Tehema Co	1.8	4.83E-07	100	150	9.05E-08	5.34E-08	3.71E-08	9.05E-06	5.34E-06	3.71E-06
183	Red Bluff	0.8	2.08E-07	1,000	150	3.91E-08	2.30E-08	1.60E-08	3.91E-06	2.30E-06	1.60E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
184	Red Bluff	4.6	1.25E-06	100	150	2.34E-07	1.38E-07	9.61E-08	2.34E-05	1.38E-05	9.61E-06
185	Red Bluff	3.3	8.86E-07	1,000	150	1.66E-07	9.80E-08	6.81E-08	1.66E-05	9.80E-06	6.81E-06
186	Tehema Co	15.3	4.13E-06	100	150	7.74E-07	4.56E-07	3.17E-07	7.74E-05	4.56E-05	3.17E-05
187	Cottonwood	0.6	1.65E-07	1,000	150	3.09E-08	1.82E-08	1.27E-08	3.09E-06	1.82E-06	1.27E-06
188	Anderson	5.4	1.45E-06	100	150	2.71E-07	1.60E-07	1.11E-07	2.71E-05	1.60E-05	1.11E-05
189	Anderson	3.5	9.57E-07	1,000	150	1.80E-07	1.06E-07	7.36E-08	1.80E-05	1.06E-05	7.36E-06
190	Anderson	4.1	1.10E-06	100	150	2.07E-07	1.22E-07	8.48E-08	2.07E-05	1.22E-05	8.48E-06
191	Redding	6.0	1.63E-06	1,000	150	3.06E-07	1.80E-07	1.25E-07	3.06E-05	1.80E-05	1.25E-05
192	Redding	0.8	2.06E-07	1,000	150	3.86E-08	2.28E-08	1.58E-08	3.86E-06	2.28E-06	1.58E-06
193	Redding	1.1	3.05E-07	100	150	5.72E-08	3.37E-08	2.34E-08	5.72E-06	3.37E-06	2.34E-06
194	Redding	0.4	1.05E-07	1,000	150	1.98E-08	1.17E-08	8.11E-09	1.98E-06	1.17E-06	8.11E-07
195	Redding	2.6	6.97E-07	100	150	1.31E-07	7.71E-08	5.36E-08	1.31E-05	7.71E-06	5.36E-06
196	Shasta Co	0.5	1.41E-07	1,000	150	2.65E-08	1.56E-08	1.09E-08	2.65E-06	1.56E-06	1.09E-06
197	Shasta Lake	1.7	4.46E-07	100	150	8.35E-08	4.93E-08	3.42E-08	8.35E-06	4.93E-06	3.42E-06
198	Shasta Lake	0.8	2.03E-07	1,000	150	3.80E-08	2.24E-08	1.56E-08	3.80E-06	2.24E-06	1.56E-06
199	Shasta Co	16.4	4.44E-06	100	150	8.32E-07	4.91E-07	3.41E-07	8.32E-05	4.91E-05	3.41E-05
200	Lakeshore	0.6	1.64E-07	1,000	150	3.07E-08	1.81E-08	1.26E-08	3.07E-06	1.81E-06	1.26E-06
201	Shasta Co	30.4	8.20E-06	100	150	1.54E-06	9.07E-07	6.30E-07	1.54E-04	9.07E-05	6.30E-05
202	Dunsmuir	1.3	3.52E-07	1,000	150	6.60E-08	3.89E-08	2.70E-08	6.60E-06	3.89E-06	2.70E-06
203	Siskiyou Co	12.8	3.45E-06	100	150	6.46E-07	3.81E-07	2.65E-07	6.46E-05	3.81E-05	2.65E-05
204	Mount Shasta	1.1	3.05E-07	1,000	150	5.73E-08	3.38E-08	2.35E-08	5.73E-06	3.38E-06	2.35E-06
205	Siskiyou Co	69.5	1.88E-05	100	150	3.52E-06	2.08E-06	1.44E-06	3.52E-04	2.08E-04	1.44E-04
206	Dorris	0.9	2.38E-07	100	150	4.47E-08	2.63E-08	1.83E-08	4.47E-06	2.63E-06	1.83E-06
207	Siskiyou Co	3.4	9.21E-07	1,000	150	1.73E-07	1.02E-07	7.08E-08	1.73E-05	1.02E-05	7.08E-06

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Mitigated Alternative Project

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	150	1.48E-07	8.74E-08	6.08E-08	1.48E-05	8.74E-06	6.08E-06
2	Arroyo Grande	0.8	4.07E-07	100	150	7.63E-08	4.50E-08	3.13E-08	7.63E-06	4.50E-06	3.13E-06
3	Arroyo Grande	0.9	4.79E-07	1,000	150	8.99E-08	5.30E-08	3.69E-08	8.99E-06	5.30E-06	3.69E-06
4	Arroyo Grande	1.4	7.05E-07	100	150	1.32E-07	7.79E-08	5.42E-08	1.32E-05	7.79E-06	5.42E-06
5	Oceano	0.4	2.05E-07	3,000	150	3.85E-08	2.27E-08	1.58E-08	3.85E-06	2.27E-06	1.58E-06
6	Oceano	0.6	3.18E-07	10,000	150	5.97E-08	3.52E-08	2.45E-08	5.97E-06	3.52E-06	2.45E-06
7	Oceano	0.2	1.22E-07	3,000	150	2.29E-08	1.35E-08	9.37E-09	2.29E-06	1.35E-06	9.37E-07
8	Pismo/Grover	2.1	1.07E-06	10,000	150	2.01E-07	1.18E-07	8.23E-08	2.01E-05	1.18E-05	8.23E-06
9	Pismo	0.3	1.47E-07	3,000	150	2.76E-08	1.63E-08	1.13E-08	2.76E-06	1.63E-06	1.13E-06
10	Pismo	0.4	1.88E-07	1,000	150	3.52E-08	2.08E-08	1.44E-08	3.52E-06	2.08E-06	1.44E-06
11	Price Canyon	5.2	2.64E-06	100	150	4.96E-07	2.92E-07	2.03E-07	4.96E-05	2.92E-05	2.03E-05
12	Edna	0.6	3.07E-07	1,000	150	5.75E-08	3.39E-08	2.36E-08	5.75E-06	3.39E-06	2.36E-06
13	Edna	1.6	8.25E-07	100	150	1.55E-07	9.13E-08	6.34E-08	1.55E-05	9.13E-06	6.34E-06
14	San Luis Obispo	4.7	2.38E-06	10,000	150	4.47E-07	2.63E-07	1.83E-07	4.47E-05	2.63E-05	1.83E-05
15	San Luis Obispo	0.6	2.88E-07	3,000	150	5.40E-08	3.19E-08	2.22E-08	5.40E-06	3.19E-06	2.22E-06
16	Chorro	0.4	2.17E-07	1,000	150	4.07E-08	2.40E-08	1.67E-08	4.07E-06	2.40E-06	1.67E-06
17	Chorro	1.6	7.98E-07	100	150	1.50E-07	8.83E-08	6.13E-08	1.50E-05	8.83E-06	6.13E-06
18	CMC	0.8	3.89E-07	3,000	150	7.30E-08	4.30E-08	2.99E-08	7.30E-06	4.30E-06	2.99E-06
19	Santa Lucia	11.2	5.70E-06	100	150	1.07E-06	6.30E-07	4.38E-07	1.07E-04	6.30E-05	4.38E-05
20	Santa Margarita	0.9	4.50E-07	3,000	150	8.43E-08	4.98E-08	3.46E-08	8.43E-06	4.98E-06	3.46E-06
21	Phillips PS	0.9	4.34E-07	100	150	8.13E-08	4.80E-08	3.33E-08	8.13E-06	4.80E-06	3.33E-06
22	Atascadero	7.4	3.77E-06	1,000	150	7.08E-07	4.18E-07	2.90E-07	7.08E-05	4.18E-05	2.90E-05
23	Atascadero	1.6	8.16E-07	3,000	150	1.53E-07	9.02E-08	6.27E-08	1.53E-05	9.02E-06	6.27E-06
24	Atascadero	1.3	6.49E-07	1,000	150	1.22E-07	7.18E-08	4.99E-08	1.22E-05	7.18E-06	4.99E-06
25	Atascadero	0.4	2.20E-07	3,000	150	4.12E-08	2.43E-08	1.69E-08	4.12E-06	2.43E-06	1.69E-06
26	101	0.4	1.87E-07	1,000	150	3.50E-08	2.06E-08	1.43E-08	3.50E-06	2.06E-06	1.43E-06
27	Templeton	2.1	1.09E-06	3,000	150	2.05E-07	1.21E-07	8.39E-08	2.05E-05	1.21E-05	8.39E-06
28	Paso Robles	0.5	2.62E-07	1,000	150	4.91E-08	2.90E-08	2.01E-08	4.91E-06	2.90E-06	2.01E-06
29	Paso Robles	0.8	4.29E-07	3,000	150	8.05E-08	4.75E-08	3.30E-08	8.05E-06	4.75E-06	3.30E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Paso Robles	2.7	1.40E-06	1,000	150	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
31	Paso Robles	2.1	1.09E-06	3,000	150	2.05E-07	1.21E-07	8.38E-08	2.05E-05	1.21E-05	8.38E-06
32	Paso Robles	0.4	2.21E-07	10,000	150	4.15E-08	2.45E-08	1.70E-08	4.15E-06	2.45E-06	1.70E-06
33	Paso Robles	1.2	5.93E-07	3,000	150	1.11E-07	6.56E-08	4.56E-08	1.11E-05	6.56E-06	4.56E-06
34	101	2.1	1.08E-06	100	150	2.03E-07	1.20E-07	8.31E-08	2.03E-05	1.20E-05	8.31E-06
35	Wellsona	2.4	1.25E-06	1,000	150	2.34E-07	1.38E-07	9.58E-08	2.34E-05	1.38E-05	9.58E-06
36	101	1.9	9.51E-07	100	150	1.78E-07	1.05E-07	7.31E-08	1.78E-05	1.05E-05	7.31E-06
37	San Miguel	1.5	7.49E-07	3,000	150	1.40E-07	8.29E-08	5.76E-08	1.40E-05	8.29E-06	5.76E-06
38	101	2.7	1.35E-06	100	150	2.53E-07	1.50E-07	1.04E-07	2.53E-05	1.50E-05	1.04E-05
39	Camp Roberts	5.7	2.91E-06	100	150	5.46E-07	3.22E-07	2.24E-07	5.46E-05	3.22E-05	2.24E-05
40	Bradley	15.3	7.80E-06	100	150	1.46E-06	8.63E-07	6.00E-07	1.46E-04	8.63E-05	6.00E-05
41	San Lucas	18.5	9.45E-06	100	150	1.77E-06	1.04E-06	7.26E-07	1.77E-04	1.04E-04	7.26E-05
42	King City	1.5	7.45E-07	1,000	150	1.40E-07	8.24E-08	5.72E-08	1.40E-05	8.24E-06	5.72E-06
43	Clark Ranch	18.1	9.23E-06	100	150	1.73E-06	1.02E-06	7.09E-07	1.73E-04	1.02E-04	7.09E-05
44	Soledad	1.4	7.24E-07	1,000	150	1.36E-07	8.01E-08	5.57E-08	1.36E-05	8.01E-06	5.57E-06
45	Salinas Valley Ag	7.3	3.74E-06	100	150	7.02E-07	4.14E-07	2.88E-07	7.02E-05	4.14E-05	2.88E-05
46	Gonzales	1.2	5.92E-07	3,000	150	1.11E-07	6.54E-08	4.55E-08	1.11E-05	6.54E-06	4.55E-06
47	Salinas Valley Ag	5.0	2.57E-06	100	150	4.81E-07	2.84E-07	1.97E-07	4.81E-05	2.84E-05	1.97E-05
48	Chular	0.6	3.25E-07	1,000	150	6.10E-08	3.60E-08	2.50E-08	6.10E-06	3.60E-06	2.50E-06
49	Sprekles	7.8	3.97E-06	100	150	7.44E-07	4.39E-07	3.05E-07	7.44E-05	4.39E-05	3.05E-05
50	Salinas	3.9	2.00E-06	6,500	150	3.76E-07	2.22E-07	1.54E-07	3.76E-05	2.22E-05	1.54E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	150	5.91E-07	3.49E-07	2.42E-07	5.91E-05	3.49E-05	2.42E-05
52	Castroville	1.1	5.76E-07	1,000	150	1.08E-07	6.38E-08	4.43E-08	1.08E-05	6.38E-06	4.43E-06
53	Las Lomas	15.4	7.87E-06	100	150	1.48E-06	8.71E-07	6.05E-07	1.48E-04	8.71E-05	6.05E-05
54	Aromas	12.1	6.15E-06	100	150	1.15E-06	6.80E-07	4.72E-07	1.15E-04	6.80E-05	4.72E-05
55	Gilroy	4.2	2.13E-06	3,000	150	4.00E-07	2.36E-07	1.64E-07	4.00E-05	2.36E-05	1.64E-05
56	San Martin	6.1	3.09E-06	100	150	5.79E-07	3.41E-07	2.37E-07	5.79E-05	3.41E-05	2.37E-05
57	Morgan Hill	3.8	1.95E-06	3,000	150	3.66E-07	2.16E-07	1.50E-07	3.66E-05	2.16E-05	1.50E-05
58	Coyote Valley	6.7	3.40E-06	100	150	6.38E-07	3.76E-07	2.62E-07	6.38E-05	3.76E-05	2.62E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
59	San Jose	6.3	3.23E-06	5,000	150	6.06E-07	3.58E-07	2.49E-07	6.06E-05	3.58E-05	2.49E-05
60	Seven Trees	1.9	9.49E-07	1,000	150	1.78E-07	1.05E-07	7.29E-08	1.78E-05	1.05E-05	7.29E-06
61	San Jose	5.0	2.53E-06	10,000	150	4.74E-07	2.80E-07	1.94E-07	4.74E-05	2.80E-05	1.94E-05
62	Santa Clara	5.1	2.61E-06	6,500	150	4.89E-07	2.88E-07	2.00E-07	4.89E-05	2.88E-05	2.00E-05
63	Alviso	1.7	8.77E-07	1,000	150	1.64E-07	9.70E-08	6.74E-08	1.64E-05	9.70E-06	6.74E-06
64	Drawbridge	5.7	2.91E-06	100	150	5.45E-07	3.22E-07	2.23E-07	5.45E-05	3.22E-05	2.23E-05
65	Newark	2.3	1.15E-06	1,000	150	2.15E-07	1.27E-07	8.82E-08	2.15E-05	1.27E-05	8.82E-06
107	Newark	3.1	1.59E-06	10,000	150	2.97E-07	1.75E-07	1.22E-07	2.97E-05	1.75E-05	1.22E-05
108	Fremont	3.2	1.64E-06	10,000	150	3.08E-07	1.82E-07	1.26E-07	3.08E-05	1.82E-05	1.26E-05
109	Sunol	6.8	3.48E-06	100	150	6.53E-07	3.85E-07	2.68E-07	6.53E-05	3.85E-05	2.68E-05
110	Pleasanton	1.8	9.08E-07	1,000	150	1.70E-07	1.00E-07	6.98E-08	1.70E-05	1.00E-05	6.98E-06
111	Pleasanton	2.5	1.27E-06	3,000	150	2.38E-07	1.40E-07	9.76E-08	2.38E-05	1.40E-05	9.76E-06
112	Pleasanton	3.0	1.51E-06	100	150	2.84E-07	1.68E-07	1.16E-07	2.84E-05	1.68E-05	1.16E-05
113	Livermore	5.0	2.57E-06	5,000	150	4.82E-07	2.84E-07	1.98E-07	4.82E-05	2.84E-05	1.98E-05
114	Livermore	2.5	1.26E-06	1,000	150	2.36E-07	1.39E-07	9.68E-08	2.36E-05	1.39E-05	9.68E-06
115	Altamont	14.2	7.24E-06	100	150	1.36E-06	8.01E-07	5.57E-07	1.36E-04	8.01E-05	5.57E-05
116	Tracy	3.9	1.97E-06	3,000	150	3.69E-07	2.18E-07	1.51E-07	3.69E-05	2.18E-05	1.51E-05
117	Lathrop	8.2	4.18E-06	100	150	7.84E-07	4.63E-07	3.21E-07	7.84E-05	4.63E-05	3.21E-05
118	French Camp	8.0	4.08E-06	1,000	150	7.65E-07	4.51E-07	3.14E-07	7.65E-05	4.51E-05	3.14E-05
119	Stockton	7.9	4.03E-06	10,000	150	7.56E-07	4.46E-07	3.10E-07	7.56E-05	4.46E-05	3.10E-05
120	Lodi	4.1	2.07E-06	100	150	3.87E-07	2.28E-07	1.59E-07	3.87E-05	2.28E-05	1.59E-05
121	Lodi	3.4	1.73E-06	5,000	150	3.24E-07	1.91E-07	1.33E-07	3.24E-05	1.91E-05	1.33E-05
122	Acampo	5.5	2.81E-06	100	150	5.26E-07	3.10E-07	2.16E-07	5.26E-05	3.10E-05	2.16E-05
123	Galt	1.6	7.96E-07	4,000	150	1.49E-07	8.80E-08	6.12E-08	1.49E-05	8.80E-06	6.12E-06
124	Hicksville	8.6	4.38E-06	100	150	8.20E-07	4.84E-07	3.36E-07	8.20E-05	4.84E-05	3.36E-05
125	Elk Grove	1.0	4.87E-07	100	150	9.13E-08	5.39E-08	3.74E-08	9.13E-06	5.39E-06	3.74E-06
126	Elk Grove	5.8	2.94E-06	5,000	150	5.51E-07	3.25E-07	2.26E-07	5.51E-05	3.25E-05	2.26E-05
127	Sacramento	4.2	2.14E-06	1,000	150	4.02E-07	2.37E-07	1.65E-07	4.02E-05	2.37E-05	1.65E-05
128	Sacramento	4.6	2.32E-06	10,000	150	4.35E-07	2.57E-07	1.78E-07	4.35E-05	2.57E-05	1.78E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
101	Parkland	0.8	4.12E-07	100	150	7.73E-08	4.56E-08	3.17E-08	7.73E-06	4.56E-06	3.17E-06
102	Sacramento	3.1	1.58E-06	3,000	150	2.95E-07	1.74E-07	1.21E-07	2.95E-05	1.74E-05	1.21E-05
103	North Highlands	2.6	1.31E-06	1,000	150	2.45E-07	1.44E-07	1.00E-07	2.45E-05	1.44E-05	1.00E-05
104	North Highlands	4.4	2.23E-06	3,000	150	4.18E-07	2.47E-07	1.71E-07	4.18E-05	2.47E-05	1.71E-05
105	Roseville Yard	1.3	6.43E-07	100	150	1.20E-07	7.11E-08	4.94E-08	1.20E-05	7.11E-06	4.94E-06
129	Roseville	1.4	1.15E-06	3,000	150	2.17E-07	1.28E-07	8.88E-08	2.17E-05	1.28E-05	8.88E-06
130	Roseville	1.1	9.01E-07	3,000	150	1.69E-07	9.97E-08	6.93E-08	1.69E-05	9.97E-06	6.93E-06
131	Roseville	2.1	1.73E-06	1,000	150	3.25E-07	1.92E-07	1.33E-07	3.25E-05	1.92E-05	1.33E-05
132	Roseville	0.5	3.71E-07	3,000	150	6.96E-08	4.11E-08	2.85E-08	6.96E-06	4.11E-06	2.85E-06
133	Rocklin	2.5	2.06E-06	1,000	150	3.86E-07	2.28E-07	1.58E-07	3.86E-05	2.28E-05	1.58E-05
134	Placer Co	8.0	6.54E-06	100	150	1.23E-06	7.23E-07	5.03E-07	1.23E-04	7.23E-05	5.03E-05
135	Newcastle	0.5	3.70E-07	1,000	150	6.94E-08	4.09E-08	2.84E-08	6.94E-06	4.09E-06	2.84E-06
136	Placer Co	2.5	2.05E-06	100	150	3.85E-07	2.27E-07	1.58E-07	3.85E-05	2.27E-05	1.58E-05
137	Auburn	5.3	4.37E-06	1,000	150	8.20E-07	4.84E-07	3.36E-07	8.20E-05	4.84E-05	3.36E-05
138	Placer Co	13.6	1.11E-05	100	150	2.09E-06	1.23E-06	8.57E-07	2.09E-04	1.23E-04	8.57E-05
139	Colfax	0.7	5.53E-07	1,000	150	1.04E-07	6.11E-08	4.25E-08	1.04E-05	6.11E-06	4.25E-06
140	Placer Co	61.6	5.05E-05	100	150	9.47E-06	5.59E-06	3.88E-06	9.47E-04	5.59E-04	3.88E-04
141	Truckee	2.1	1.74E-06	1,000	150	3.26E-07	1.92E-07	1.34E-07	3.26E-05	1.92E-05	1.34E-05
142	Nevada Co	13.9	1.14E-05	100	150	2.13E-06	1.26E-06	8.75E-07	2.13E-04	1.26E-04	8.75E-05
143	Floriston	0.2	1.90E-07	1,000	150	3.56E-08	2.10E-08	1.46E-08	3.56E-06	2.10E-06	1.46E-06
144	Sierra Co	5.8	4.75E-06	100	150	8.90E-07	5.25E-07	3.65E-07	8.90E-05	5.25E-05	3.65E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Oso Flaco	2.8	1.19E-06	100	250	1.43E-06	8.42E-07	5.85E-07	1.43E-04	8.42E-05	5.85E-05
2	Nipomo	0.6	2.74E-07	1,000	250	3.28E-07	1.93E-07	1.34E-07	3.28E-05	1.93E-05	1.34E-05
3	Nipomo	1.5	6.32E-07	100	250	7.57E-07	4.47E-07	3.11E-07	7.57E-05	4.47E-05	3.11E-05
4	Guadalupe	1.3	5.76E-07	10,000	250	6.90E-07	4.07E-07	2.83E-07	6.90E-05	4.07E-05	2.83E-05
5	SMV	0.3	1.31E-07	100	250	1.57E-07	9.27E-08	6.44E-08	1.57E-05	9.27E-06	6.44E-06
6	Point Sal	13.8	5.93E-06	100	250	7.10E-06	4.19E-06	2.91E-06	7.10E-04	4.19E-04	2.91E-04
7	VAFB	13.5	5.81E-06	100	250	6.96E-06	4.11E-06	2.85E-06	6.96E-04	4.11E-04	2.85E-04
8	Rocky Point	14.7	6.30E-06	100	250	7.55E-06	4.45E-06	3.09E-06	7.55E-04	4.45E-04	3.09E-04
9	Bixby/Hollister	13.0	5.61E-06	100	250	6.72E-06	3.96E-06	2.75E-06	6.72E-04	3.96E-04	2.75E-04
10	Gaviota Beach	0.5	2.00E-07	1,000	250	2.39E-07	1.41E-07	9.81E-08	2.39E-05	1.41E-05	9.81E-06
11	Gaviota	5.9	2.52E-06	100	250	3.01E-06	1.78E-06	1.24E-06	3.01E-04	1.78E-04	1.24E-04
12	Arroyo Quemado	0.3	1.18E-07	1,000	250	1.41E-07	8.33E-08	5.79E-08	1.41E-05	8.33E-06	5.79E-06
13	Tajiquas	2.9	1.26E-06	100	250	1.51E-06	8.93E-07	6.21E-07	1.51E-04	8.93E-05	6.21E-05
14	Refugio	0.2	7.92E-08	1,000	250	9.49E-08	5.60E-08	3.89E-08	9.49E-06	5.60E-06	3.89E-06
15	Canada del Corral	2.0	8.51E-07	100	250	1.02E-06	6.02E-07	4.18E-07	1.02E-04	6.02E-05	4.18E-05
16	El Capitan	0.8	3.43E-07	1,000	250	4.10E-07	2.42E-07	1.68E-07	4.10E-05	2.42E-05	1.68E-05
17	Naples	5.7	2.44E-06	100	250	2.92E-06	1.72E-06	1.20E-06	2.92E-04	1.72E-04	1.20E-04
18	Bacara	0.8	3.24E-07	1,000	250	3.88E-07	2.29E-07	1.59E-07	3.88E-05	2.29E-05	1.59E-05
19	Sandpiper	0.6	2.48E-07	100	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
20	Goleta	2.1	9.03E-07	3,000	250	1.08E-06	6.38E-07	4.43E-07	1.08E-04	6.38E-05	4.43E-05
21	Goleta	1.6	7.01E-07	1,000	250	8.40E-07	4.95E-07	3.44E-07	8.40E-05	4.95E-05	3.44E-05
22	Santa Barbara	9.5	4.08E-06	3,000	250	4.88E-06	2.88E-06	2.00E-06	4.88E-04	2.88E-04	2.00E-04
23	Santa Barbara	3.8	1.64E-06	10,000	250	1.96E-06	1.16E-06	8.05E-07	1.96E-04	1.16E-04	8.05E-05
24	Montecito	4.3	1.83E-06	3,000	250	2.19E-06	1.29E-06	9.00E-07	2.19E-04	1.29E-04	9.00E-05
25	Polo Grounds	0.9	4.07E-07	1,000	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
26	Padero Lane	0.5	2.21E-07	3,000	250	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
27	Carpinteria	2.8	1.20E-06	1,000	250	1.43E-06	8.45E-07	5.87E-07	1.43E-04	8.45E-05	5.87E-05
28	Carpinteria	1.3	5.55E-07	3,000	250	6.64E-07	3.92E-07	2.72E-07	6.64E-05	3.92E-05	2.72E-05
29	Carpinteria Bluffs	1.9	8.00E-07	1,000	250	9.58E-07	5.65E-07	3.93E-07	9.58E-05	5.65E-05	3.93E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Colton to SMR Route – Cumulative Projects

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
30	Rincon	0.2	1.01E-07	3,000	250	1.21E-07	7.16E-08	4.98E-08	1.21E-05	7.16E-06	4.98E-06
31	La Concita Oil	1.7	7.44E-07	100	250	8.91E-07	5.26E-07	3.65E-07	8.91E-05	5.26E-05	3.65E-05
32	La Conchita	0.4	1.78E-07	3,000	250	2.13E-07	1.26E-07	8.75E-08	2.13E-05	1.26E-05	8.75E-06
33	Mussle Shoals	1.6	6.84E-07	1,000	250	8.19E-07	4.83E-07	3.36E-07	8.19E-05	4.83E-05	3.36E-05
34	Seacliff	0.9	3.71E-07	100	250	4.44E-07	2.62E-07	1.82E-07	4.44E-05	2.62E-05	1.82E-05
35	Faria/Solimar	4.5	1.92E-06	100	250	2.30E-06	1.36E-06	9.42E-07	2.30E-04	1.36E-04	9.42E-05
36	State Beaches	3.6	1.55E-06	100	250	1.86E-06	1.10E-06	7.62E-07	1.86E-04	1.10E-04	7.62E-05
37	Ventura	5.1	2.18E-06	3,000	250	2.62E-06	1.54E-06	1.07E-06	2.62E-04	1.54E-04	1.07E-04
38	Ventura Greenbelt	1.2	4.95E-07	1,000	250	5.92E-07	3.49E-07	2.43E-07	5.92E-05	3.49E-05	2.43E-05
39	Montalvo	1.0	4.27E-07	3,000	250	5.12E-07	3.02E-07	2.10E-07	5.12E-05	3.02E-05	2.10E-05
40	Santa Clara River	0.4	1.68E-07	100	250	2.02E-07	1.19E-07	8.27E-08	2.02E-05	1.19E-05	8.27E-06
41	Oxnard	4.1	1.76E-06	3,000	250	2.11E-06	1.24E-06	8.64E-07	2.11E-04	1.24E-04	8.64E-05
42	Oxnard Industrial	3.0	1.29E-06	1,000	250	1.55E-06	9.12E-07	6.33E-07	1.55E-04	9.12E-05	6.33E-05
43	Oxnard Ag	5.2	2.22E-06	100	250	2.66E-06	1.57E-06	1.09E-06	2.66E-04	1.57E-04	1.09E-04
44	Camarillo Comm	0.5	2.33E-07	1,000	250	2.79E-07	1.65E-07	1.14E-07	2.79E-05	1.65E-05	1.14E-05
45	Camarillo Ag	0.1	3.58E-08	100	250	4.28E-08	2.53E-08	1.76E-08	4.28E-06	2.53E-06	1.76E-06
46	Camarillo	2.5	1.08E-06	3,000	250	1.29E-06	7.63E-07	5.30E-07	1.29E-04	7.63E-05	5.30E-05
47	Somis	7.6	3.25E-06	100	250	3.89E-06	2.29E-06	1.59E-06	3.89E-04	2.29E-04	1.59E-04
48	Moorpark	1.1	4.73E-07	1,000	250	5.67E-07	3.34E-07	2.32E-07	5.67E-05	3.34E-05	2.32E-05
49	Moorpark	1.2	4.95E-07	3,000	250	5.92E-07	3.49E-07	2.43E-07	5.92E-05	3.49E-05	2.43E-05
50	Moorpark	2.1	9.12E-07	1,000	250	1.09E-06	6.44E-07	4.48E-07	1.09E-04	6.44E-05	4.48E-05
51	Los Alamos Cyn	0.8	3.57E-07	100	250	4.27E-07	2.52E-07	1.75E-07	4.27E-05	2.52E-05	1.75E-05
52	Simi Valley	1.1	4.73E-07	1,000	250	5.67E-07	3.34E-07	2.32E-07	5.67E-05	3.34E-05	2.32E-05
53	Simi Valley	6.8	2.94E-06	3,000	250	3.52E-06	2.08E-06	1.44E-06	3.52E-04	2.08E-04	1.44E-04
54	Sta Susana Knolls	1.6	6.75E-07	1,000	250	8.09E-07	4.77E-07	3.32E-07	8.09E-05	4.77E-05	3.32E-05
55	Santa Susana Pass	2.7	1.15E-06	100	250	1.38E-06	8.14E-07	5.66E-07	1.38E-04	8.14E-05	5.66E-05
56	Stoney Point	1.0	4.17E-07	1,000	250	4.99E-07	2.94E-07	2.05E-07	4.99E-05	2.94E-05	2.05E-05
57	Chatsworth	1.4	5.98E-07	3,000	250	7.16E-07	4.22E-07	2.94E-07	7.16E-05	4.22E-05	2.94E-05
58	Chatsworth	3.6	1.54E-06	10,000	250	1.84E-06	1.08E-06	7.54E-07	1.84E-04	1.08E-04	7.54E-05

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59	Northridge	2.5	1.09E-06	10,000	250	1.31E-06	7.72E-07	5.36E-07	1.31E-04	7.72E-05	5.36E-05
60	Van Nyus AP	1.7	7.44E-07	3,000	250	8.91E-07	5.26E-07	3.65E-07	8.91E-05	5.26E-05	3.65E-05
61	North Hollywood	4.0	1.74E-06	10,000	250	2.08E-06	1.23E-06	8.53E-07	2.08E-04	1.23E-04	8.53E-05
62	Burbank	2.5	1.09E-06	10,000	250	1.31E-06	7.72E-07	5.36E-07	1.31E-04	7.72E-05	5.36E-05
63	Valhalla	0.7	3.06E-07	1,000	250	3.66E-07	2.16E-07	1.50E-07	3.66E-05	2.16E-05	1.50E-05
64	Burbank	1.8	7.57E-07	10,000	250	9.06E-07	5.35E-07	3.72E-07	9.06E-05	5.35E-05	3.72E-05
65	Burbank	0.4	1.87E-07	3,000	250	2.24E-07	1.32E-07	9.18E-08	2.24E-05	1.32E-05	9.18E-06
66	Glendale	2.9	1.26E-06	10,000	250	1.50E-06	8.87E-07	6.17E-07	1.50E-04	8.87E-05	6.17E-05
67	Atwater	3.3	1.44E-06	10,000	250	1.72E-06	1.01E-06	7.05E-07	1.72E-04	1.01E-04	7.05E-05
68	Elysian Park	5.8	2.50E-06	10,000	250	2.99E-06	1.77E-06	1.23E-06	2.99E-04	1.77E-04	1.23E-04
69	East Los Angeles	7.5	3.23E-06	10,000	250	3.87E-06	2.29E-06	1.59E-06	3.87E-04	2.29E-04	1.59E-04
70	San Gabriel Vly	6.0	2.58E-06	10,000	250	3.10E-06	1.83E-06	1.27E-06	3.10E-04	1.83E-04	1.27E-04
71	El monte	0.4	1.76E-07	3,000	250	2.11E-07	1.24E-07	8.63E-08	2.11E-05	1.24E-05	8.63E-06
72	San Gabriel River	0.2	1.01E-07	1,000	250	1.21E-07	7.13E-08	4.96E-08	1.21E-05	7.13E-06	4.96E-06
73	La Puente	4.5	1.94E-06	3,000	250	2.32E-06	1.37E-06	9.50E-07	2.32E-04	1.37E-04	9.50E-05
74	La Puente-Walnut	7.9	3.41E-06	3,000	250	4.08E-06	2.41E-06	1.67E-06	4.08E-04	2.41E-04	1.67E-04
75	Walnut-Pomona	3.1	1.35E-06	3,000	250	1.62E-06	9.54E-07	6.63E-07	1.62E-04	9.54E-05	6.63E-05
76	Pomona	16.0	6.87E-06	3,000	250	8.23E-06	4.86E-06	3.37E-06	8.23E-04	4.86E-04	3.37E-04
77	Ontario	9.3	4.02E-06	3,000	250	4.81E-06	2.84E-06	1.97E-06	4.81E-04	2.84E-04	1.97E-04
78	Fontana	1.2	5.24E-07	1,000	250	6.27E-07	3.70E-07	2.57E-07	6.27E-05	3.70E-05	2.57E-05
79	Colton	2.1	5.33E-07	3,000	250	6.39E-07	3.77E-07	2.62E-07	6.39E-05	3.77E-05	2.62E-05
80	Rialto	1.9	4.83E-07	1,000	250	5.79E-07	3.41E-07	2.37E-07	5.79E-05	3.41E-05	2.37E-05
81	Rialto	1.1	2.88E-07	100	250	3.44E-07	2.03E-07	1.41E-07	3.44E-05	2.03E-05	1.41E-05
82	San Bernardino	1.9	4.90E-07	1,000	250	5.86E-07	3.46E-07	2.40E-07	5.86E-05	3.46E-05	2.40E-05
83	San Bernardino	3.2	8.43E-07	100	250	1.01E-06	5.96E-07	4.14E-07	1.01E-04	5.96E-05	4.14E-05
84	Devore	1.6	4.25E-07	1,000	250	5.09E-07	3.00E-07	2.09E-07	5.09E-05	3.00E-05	2.09E-05
85	Cajon Pass	19.5	5.07E-06	100	250	6.08E-06	3.58E-06	2.49E-06	6.08E-04	3.58E-04	2.49E-04
86	Hesperia	4.5	1.18E-06	1,000	250	1.41E-06	8.32E-07	5.78E-07	1.41E-04	8.32E-05	5.78E-05
87	Hesperia	1.0	2.70E-07	100	250	3.23E-07	1.91E-07	1.32E-07	3.23E-05	1.91E-05	1.32E-05

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88	Victorville	4.3	1.13E-06	1,000	250	1.35E-06	7.97E-07	5.54E-07	1.35E-04	7.97E-05	5.54E-05
89	Victorville	2.1	5.35E-07	100	250	6.40E-07	3.78E-07	2.63E-07	6.40E-05	3.78E-05	2.63E-05
90	Victorville	0.7	1.92E-07	1,000	250	2.30E-07	1.36E-07	9.44E-08	2.30E-05	1.36E-05	9.44E-06
91	Victorville	4.5	1.16E-06	100	250	1.39E-06	8.19E-07	5.69E-07	1.39E-04	8.19E-05	5.69E-05
92	Oro Grande	0.5	1.34E-07	1,000	250	1.60E-07	9.46E-08	6.57E-08	1.60E-05	9.46E-06	6.57E-06
93	Helendale	25.4	6.59E-06	100	250	7.90E-06	4.66E-06	3.24E-06	7.90E-04	4.66E-04	3.24E-04
94	Lenwood	1.1	2.91E-07	1,000	250	3.48E-07	2.05E-07	1.43E-07	3.48E-05	2.05E-05	1.43E-05
95	Barstow	1.8	4.72E-07	100	1345	3.04E-06	1.79E-06	1.25E-06	3.04E-04	1.79E-04	1.25E-04
96	Barstow	1.7	4.46E-07	1,000	1345	2.87E-06	1.70E-06	1.18E-06	2.87E-04	1.70E-04	1.18E-04
97	Barstow	0.7	1.91E-07	100	1345	1.23E-06	7.25E-07	5.04E-07	1.23E-04	7.25E-05	5.04E-05
98	Barstow	6.2	1.61E-06	1,000	1345	1.04E-05	6.11E-06	4.25E-06	1.04E-03	6.11E-04	4.25E-04
99	Daggett	2.4	6.32E-07	100	1345	4.07E-06	2.40E-06	1.67E-06	4.07E-04	2.40E-04	1.67E-04
100	Daggett	0.8	1.97E-07	1,000	1345	1.27E-06	7.49E-07	5.21E-07	1.27E-04	7.49E-05	5.21E-05
101	MCSC	4.3	1.13E-06	100	1345	7.28E-06	4.29E-06	2.98E-06	7.28E-04	4.29E-04	2.98E-04
102	Yermo	1.3	3.31E-07	1,000	1345	2.13E-06	1.26E-06	8.75E-07	2.13E-04	1.26E-04	8.75E-05
103	Mojave Desert	123.5	3.21E-05	100	1345	2.07E-04	1.22E-04	8.49E-05	2.07E-02	1.22E-02	8.49E-03

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	7.24E-07	4.27E-07	2.97E-07	7.24E-05	4.27E-05	2.97E-05
2	Arroyo Grande	0.8	3.11E-07	100	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
3	Arroyo Grande	0.9	3.67E-07	1,000	250	4.39E-07	2.59E-07	1.80E-07	4.39E-05	2.59E-05	1.80E-05
4	Arroyo Grande	1.4	5.39E-07	100	250	6.45E-07	3.81E-07	2.65E-07	6.45E-05	3.81E-05	2.65E-05
5	Oceano	0.4	1.57E-07	3,000	250	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
6	Oceano	0.6	2.43E-07	10,000	250	2.92E-07	1.72E-07	1.20E-07	2.92E-05	1.72E-05	1.20E-05
7	Oceano	0.2	9.32E-08	3,000	250	1.12E-07	6.59E-08	4.58E-08	1.12E-05	6.59E-06	4.58E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	9.80E-07	5.78E-07	4.02E-07	9.80E-05	5.78E-05	4.02E-05
9	Pismo	0.3	1.13E-07	3,000	250	1.35E-07	7.96E-08	5.53E-08	1.35E-05	7.96E-06	5.53E-06
10	Pismo	0.4	1.44E-07	1,000	250	1.72E-07	1.02E-07	7.06E-08	1.72E-05	1.02E-05	7.06E-06
11	Price Canyon	5.2	2.02E-06	100	250	2.42E-06	1.43E-06	9.93E-07	2.42E-04	1.43E-04	9.93E-05
12	Edna	0.6	2.34E-07	1,000	250	2.81E-07	1.66E-07	1.15E-07	2.81E-05	1.66E-05	1.15E-05
13	Edna	1.6	6.31E-07	100	250	7.56E-07	4.46E-07	3.10E-07	7.56E-05	4.46E-05	3.10E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	250	2.18E-06	1.29E-06	8.94E-07	2.18E-04	1.29E-04	8.94E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
16	Chorro	0.4	1.66E-07	1,000	250	1.99E-07	1.17E-07	8.16E-08	1.99E-05	1.17E-05	8.16E-06
17	Chorro	1.6	6.10E-07	100	250	7.31E-07	4.31E-07	3.00E-07	7.31E-05	4.31E-05	3.00E-05
18	CMC	0.8	2.98E-07	3,000	250	3.56E-07	2.10E-07	1.46E-07	3.56E-05	2.10E-05	1.46E-05
19	Santa Lucia	11.2	4.36E-06	100	250	5.22E-06	3.08E-06	2.14E-06	5.22E-04	3.08E-04	2.14E-04
20	Santa Margarita	0.9	3.44E-07	3,000	250	4.12E-07	2.43E-07	1.69E-07	4.12E-05	2.43E-05	1.69E-05
21	Phillips PS	0.9	3.32E-07	100	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
22	Atascadero	7.4	2.89E-06	1,000	250	3.46E-06	2.04E-06	1.42E-06	3.46E-04	2.04E-04	1.42E-04
23	Atascadero	1.6	6.24E-07	3,000	250	7.47E-07	4.41E-07	3.06E-07	7.47E-05	4.41E-05	3.06E-05
24	Atascadero	1.3	4.96E-07	1,000	250	5.95E-07	3.51E-07	2.44E-07	5.95E-05	3.51E-05	2.44E-05
25	Atascadero	0.4	1.68E-07	3,000	250	2.01E-07	1.19E-07	8.24E-08	2.01E-05	1.19E-05	8.24E-06
26	101	0.4	1.43E-07	1,000	250	1.71E-07	1.01E-07	7.00E-08	1.71E-05	1.01E-05	7.00E-06
27	Templeton	2.1	8.34E-07	3,000	250	9.99E-07	5.90E-07	4.10E-07	9.99E-05	5.90E-05	4.10E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	2.40E-07	1.41E-07	9.83E-08	2.40E-05	1.41E-05	9.83E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	3.93E-07	2.32E-07	1.61E-07	3.93E-05	2.32E-05	1.61E-05
30	Paso Robles	2.7	1.07E-06	1,000	250	1.28E-06	7.57E-07	5.26E-07	1.28E-04	7.57E-05	5.26E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	9.99E-07	5.89E-07	4.10E-07	9.99E-05	5.89E-05	4.10E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	2.03E-07	1.20E-07	8.32E-08	2.03E-05	1.20E-05	8.32E-06
33	Paso Robles	1.2	4.54E-07	3,000	250	5.43E-07	3.20E-07	2.23E-07	5.43E-05	3.20E-05	2.23E-05
34	101	2.1	8.27E-07	100	250	9.91E-07	5.84E-07	4.06E-07	9.91E-05	5.84E-05	4.06E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
35	Wellsona	2.4	9.53E-07	1,000	250	1.14E-06	6.73E-07	4.68E-07	1.14E-04	6.73E-05	4.68E-05
36	101	1.9	7.27E-07	100	250	8.71E-07	5.14E-07	3.57E-07	8.71E-05	5.14E-05	3.57E-05
37	San Miguel	1.5	5.73E-07	3,000	250	6.86E-07	4.05E-07	2.81E-07	6.86E-05	4.05E-05	2.81E-05
38	101	2.7	1.03E-06	100	250	1.24E-06	7.31E-07	5.08E-07	1.24E-04	7.31E-05	5.08E-05
39	Camp Roberts	5.7	2.23E-06	100	250	2.67E-06	1.57E-06	1.09E-06	2.67E-04	1.57E-04	1.09E-04
40	Bradley	15.3	5.97E-06	100	250	7.15E-06	4.22E-06	2.93E-06	7.15E-04	4.22E-04	2.93E-04
41	San Lucas	18.5	7.22E-06	100	250	8.65E-06	5.10E-06	3.55E-06	8.65E-04	5.10E-04	3.55E-04
42	King City	1.5	5.69E-07	1,000	250	6.82E-07	4.02E-07	2.80E-07	6.82E-05	4.02E-05	2.80E-05
43	Clark Ranch	18.1	7.06E-06	100	250	8.45E-06	4.99E-06	3.46E-06	8.45E-04	4.99E-04	3.46E-04
44	Soledad	1.4	5.54E-07	1,000	250	6.63E-07	3.91E-07	2.72E-07	6.63E-05	3.91E-05	2.72E-05
45	Salinas Valley Ag	7.3	2.86E-06	100	250	3.43E-06	2.02E-06	1.41E-06	3.43E-04	2.02E-04	1.41E-04
46	Gonzales	1.2	4.52E-07	3,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
47	Salinas Valley Ag	5.0	1.96E-06	100	250	2.35E-06	1.39E-06	9.63E-07	2.35E-04	1.39E-04	9.63E-05
48	Chular	0.6	2.49E-07	1,000	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
49	Sprekles	7.8	3.03E-06	100	250	3.63E-06	2.14E-06	1.49E-06	3.63E-04	2.14E-04	1.49E-04
50	Salinas	3.9	1.53E-06	6,500	250	1.84E-06	1.08E-06	7.53E-07	1.84E-04	1.08E-04	7.53E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	2.89E-06	1.70E-06	1.18E-06	2.89E-04	1.70E-04	1.18E-04
52	Castroville	1.1	4.41E-07	1,000	250	5.28E-07	3.11E-07	2.16E-07	5.28E-05	3.11E-05	2.16E-05
53	Las Lomas	15.4	6.02E-06	100	250	7.21E-06	4.26E-06	2.96E-06	7.21E-04	4.26E-04	2.96E-04
54	Aromas	12.1	4.70E-06	100	250	5.63E-06	3.32E-06	2.31E-06	5.63E-04	3.32E-04	2.31E-04
55	Gilroy	4.2	1.63E-06	3,000	250	1.95E-06	1.15E-06	8.01E-07	1.95E-04	1.15E-04	8.01E-05
56	San Martin	6.1	2.36E-06	100	250	2.83E-06	1.67E-06	1.16E-06	2.83E-04	1.67E-04	1.16E-04
57	Morgan Hill	3.8	1.49E-06	3,000	250	1.79E-06	1.06E-06	7.34E-07	1.79E-04	1.06E-04	7.34E-05
58	Coyote Valley	6.7	2.60E-06	100	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
59	San Jose	6.3	2.47E-06	5,000	250	2.96E-06	1.75E-06	1.21E-06	2.96E-04	1.75E-04	1.21E-04
60	Seven Trees	1.9	7.25E-07	1,000	250	8.69E-07	5.13E-07	3.56E-07	8.69E-05	5.13E-05	3.56E-05
61	San Jose	5.0	1.93E-06	10,000	250	2.32E-06	1.37E-06	9.50E-07	2.32E-04	1.37E-04	9.50E-05
62	Santa Clara	5.1	1.99E-06	6,500	250	2.39E-06	1.41E-06	9.79E-07	2.39E-04	1.41E-04	9.79E-05
63	Alviso	1.7	6.71E-07	1,000	250	8.03E-07	4.74E-07	3.29E-07	8.03E-05	4.74E-05	3.29E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
64	Drawbridge	5.7	2.22E-06	100	250	2.66E-06	1.57E-06	1.09E-06	2.66E-04	1.57E-04	1.09E-04
65	Newark	2.3	8.78E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	5.30E-06	3.13E-06	2.17E-06	5.30E-04	3.13E-04	2.17E-04
67	San Lorenzo	0.8	3.11E-07	3,000	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
68	San Leandro	1.3	4.99E-07	10,000	250	5.98E-07	3.53E-07	2.45E-07	5.98E-05	3.53E-05	2.45E-05
69	San Leandro	0.7	2.81E-07	3,000	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
70	Oakland	5.3	2.05E-06	10,000	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
71	Oakland	1.4	5.34E-07	3,000	250	6.40E-07	3.78E-07	2.62E-07	6.40E-05	3.78E-05	2.62E-05
72	Oakland	1.6	6.32E-07	10,000	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
73	Oakland	1.4	5.27E-07	3,000	250	6.31E-07	3.72E-07	2.59E-07	6.31E-05	3.72E-05	2.59E-05
74	Oakland	1.5	6.01E-07	10,000	250	7.19E-07	4.24E-07	2.95E-07	7.19E-05	4.24E-05	2.95E-05
75	Oakland	2.7	1.04E-06	3,000	250	1.25E-06	7.36E-07	5.11E-07	1.25E-04	7.36E-05	5.11E-05
76	Emeryville	1.5	5.66E-07	10,000	250	6.77E-07	4.00E-07	2.78E-07	6.77E-05	4.00E-05	2.78E-05
77	Berkeley	1.0	3.94E-07	3,000	250	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
78	Berkeley	1.8	6.83E-07	10,000	250	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
79	Richmond	1.5	5.85E-07	3,000	250	7.01E-07	4.13E-07	2.87E-07	7.01E-05	4.13E-05	2.87E-05
80	Richmond	3.8	1.47E-06	10,000	250	1.76E-06	1.04E-06	7.20E-07	1.76E-04	1.04E-04	7.20E-05
81	North Richmond	1.1	4.10E-07	3,000	615	1.21E-06	7.12E-07	4.95E-07	1.21E-04	7.12E-05	4.95E-05
82	San Pablo	2.5	9.71E-07	1,000	615	2.86E-06	1.69E-06	1.17E-06	2.86E-04	1.69E-04	1.17E-04
83	Sobranto	1.8	6.83E-07	100	615	2.01E-06	1.19E-06	8.24E-07	2.01E-04	1.19E-04	8.24E-05
84	Hercules	5.6	2.19E-06	1,000	615	6.45E-06	3.80E-06	2.64E-06	6.45E-04	3.80E-04	2.64E-04
85	Selby	1.7	6.59E-07	100	615	1.94E-06	1.15E-06	7.96E-07	1.94E-04	1.15E-04	7.96E-05
86	Crockett	1.6	6.08E-07	1,000	615	1.79E-06	1.06E-06	7.35E-07	1.79E-04	1.06E-04	7.35E-05
87	Port Costa	4.3	1.68E-06	100	615	4.95E-06	2.92E-06	2.03E-06	4.95E-04	2.92E-04	2.03E-04
88	Martinez	0.5	1.89E-07	1,000	615	5.57E-07	3.28E-07	2.28E-07	5.57E-05	3.28E-05	2.28E-05
89	Suisun Pt Channel	2.6	1.00E-06	100	615	2.95E-06	1.74E-06	1.21E-06	2.95E-04	1.74E-04	1.21E-04
90	Benicia	3.5	1.37E-06	1,000	1345	8.80E-06	5.19E-06	3.61E-06	8.80E-04	5.19E-04	3.61E-04
91	Grizzly Bay	10.6	4.13E-06	100	1345	2.66E-05	1.57E-05	1.09E-05	2.66E-03	1.57E-03	1.09E-03
92	Fairfield	3.8	1.49E-06	3,000	1345	9.60E-06	5.66E-06	3.94E-06	9.60E-04	5.66E-04	3.94E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
93	Elmira	13.7	5.34E-06	100	1345	3.44E-05	2.03E-05	1.41E-05	3.44E-03	2.03E-03	1.41E-03
94	Dixon	2.1	8.35E-07	1,000	1345	5.38E-06	3.17E-06	2.21E-06	5.38E-04	3.17E-04	2.21E-04
95	Solano Co Ag	6.6	2.58E-06	100	1345	1.66E-05	9.80E-06	6.81E-06	1.66E-03	9.80E-04	6.81E-04
96	Davis	3.5	1.38E-06	1,000	1345	8.87E-06	5.23E-06	3.64E-06	8.87E-04	5.23E-04	3.64E-04
97	Yolo Co Ag	7.0	2.73E-06	100	1345	1.76E-05	1.04E-05	7.20E-06	1.76E-03	1.04E-03	7.20E-04
98	Sacramento	3.3	1.27E-06	3,000	1345	8.17E-06	4.82E-06	3.35E-06	8.17E-04	4.82E-04	3.35E-04
99	Sacramento River	0.4	1.64E-07	100	1345	1.06E-06	6.23E-07	4.33E-07	1.06E-04	6.23E-05	4.33E-05
100	Sacramento	2.5	9.59E-07	10,000	1345	6.18E-06	3.65E-06	2.53E-06	6.18E-04	3.65E-04	2.53E-04
101	Parkland	1.6	6.32E-07	100	2805	8.49E-06	5.01E-06	3.48E-06	8.49E-04	5.01E-04	3.48E-04
102	Sacramento	3.1	1.21E-06	3,000	2805	1.62E-05	9.59E-06	6.66E-06	1.62E-03	9.59E-04	6.66E-04
103	North Highlands	2.6	1.01E-06	1,000	2805	1.35E-05	7.98E-06	5.54E-06	1.35E-03	7.98E-04	5.54E-04
104	North Highlands	4.4	1.70E-06	3,000	2805	2.29E-05	1.35E-05	9.39E-06	2.29E-03	1.35E-03	9.39E-04
105	Roseville Yard	1.3	4.91E-07	100	2805	6.60E-06	3.90E-06	2.71E-06	6.60E-04	3.90E-04	2.71E-04
145	Roseville	2.3	6.15E-07	3,000	2805	8.27E-06	4.88E-06	3.39E-06	8.27E-04	4.88E-04	3.39E-04
146	Roseville	1.3	3.45E-07	1,000	2805	4.63E-06	2.73E-06	1.90E-06	4.63E-04	2.73E-04	1.90E-04
147	Roseville	0.1	4.00E-08	100	2805	5.38E-07	3.17E-07	2.20E-07	5.38E-05	3.17E-05	2.20E-05
148	Placer Co	2.9	7.89E-07	1,000	2805	1.06E-05	6.26E-06	4.35E-06	1.06E-03	6.26E-04	4.35E-04
149	Lincoln	1.2	3.22E-07	100	2805	4.33E-06	2.56E-06	1.78E-06	4.33E-04	2.56E-04	1.78E-04
150	Lincoln	2.9	7.74E-07	3,000	2805	1.04E-05	6.14E-06	4.27E-06	1.04E-03	6.14E-04	4.27E-04
151	Sheridan	10.7	2.88E-06	100	2805	3.87E-05	2.28E-05	1.59E-05	3.87E-03	2.28E-03	1.59E-03
152	Wheatland	0.9	2.51E-07	1,000	2805	3.38E-06	1.99E-06	1.38E-06	3.38E-04	1.99E-04	1.38E-04
153	Yuba County	9.2	2.49E-06	100	2805	3.35E-05	1.98E-05	1.37E-05	3.35E-03	1.98E-03	1.37E-03
154	Olivehurst	4.3	1.15E-06	1,000	2805	1.55E-05	9.12E-06	6.34E-06	1.55E-03	9.12E-04	6.34E-04
155	Marysville	1.3	3.59E-07	3,000	2805	4.82E-06	2.84E-06	1.98E-06	4.82E-04	2.84E-04	1.98E-04
156	Marysville	2.3	6.27E-07	100	2805	8.42E-06	4.97E-06	3.45E-06	8.42E-04	4.97E-04	3.45E-04
157	Live Oak	0.3	8.88E-08	1,000	2805	1.19E-06	7.04E-07	4.89E-07	1.19E-04	7.04E-05	4.89E-05
158	Live Oak	6.4	1.73E-06	100	2805	2.33E-05	1.37E-05	9.55E-06	2.33E-03	1.37E-03	9.55E-04
159	Live Oak	0.4	9.89E-08	1,000	2805	1.33E-06	7.84E-07	5.45E-07	1.33E-04	7.84E-05	5.45E-05
160	Live Oak	1.0	2.74E-07	3,000	2805	3.68E-06	2.17E-06	1.51E-06	3.68E-04	2.17E-04	1.51E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
161	Butte Co	5.2	1.41E-06	100	2805	1.90E-05	1.12E-05	7.77E-06	1.90E-03	1.12E-03	7.77E-04
162	Gridley	0.5	1.23E-07	1,000	2805	1.65E-06	9.74E-07	6.77E-07	1.65E-04	9.74E-05	6.77E-05
163	Gridley	0.8	2.24E-07	3,000	2805	3.01E-06	1.77E-06	1.23E-06	3.01E-04	1.77E-04	1.23E-04
164	Gridley	2.5	6.77E-07	100	2805	9.10E-06	5.37E-06	3.73E-06	9.10E-04	5.37E-04	3.73E-04
165	Biggs	0.6	1.55E-07	3,000	2805	2.08E-06	1.23E-06	8.52E-07	2.08E-04	1.23E-04	8.52E-05
166	Butte Co	5.1	1.39E-06	100	2805	1.86E-05	1.10E-05	7.63E-06	1.86E-03	1.10E-03	7.63E-04
167	Richvale	0.8	2.26E-07	1,000	2805	3.03E-06	1.79E-06	1.24E-06	3.03E-04	1.79E-04	1.24E-04
168	Nelson	9.3	2.51E-06	100	2805	3.37E-05	1.99E-05	1.38E-05	3.37E-03	1.99E-03	1.38E-03
169	Durham	2.4	6.58E-07	1,000	2805	8.85E-06	5.22E-06	3.63E-06	8.85E-04	5.22E-04	3.63E-04
170	Chico	4.3	1.17E-06	100	2805	1.57E-05	9.25E-06	6.43E-06	1.57E-03	9.25E-04	6.43E-04
171	Chico	4.5	1.22E-06	1,000	2805	1.64E-05	9.66E-06	6.71E-06	1.64E-03	9.66E-04	6.71E-04
172	Chico	2.8	7.56E-07	100	2805	1.02E-05	6.00E-06	4.17E-06	1.02E-03	6.00E-04	4.17E-04
173	Nord	0.6	1.57E-07	1,000	2805	2.12E-06	1.25E-06	8.68E-07	2.12E-04	1.25E-04	8.68E-05
174	Butte Co	11.3	3.06E-06	100	2805	4.12E-05	2.43E-05	1.69E-05	4.12E-03	2.43E-03	1.69E-03
175	Vina	0.4	1.20E-07	1,000	2805	1.62E-06	9.55E-07	6.63E-07	1.62E-04	9.55E-05	6.63E-05
176	Copeland	6.3	1.70E-06	100	2805	2.29E-05	1.35E-05	9.39E-06	2.29E-03	1.35E-03	9.39E-04
177	Los Molinos	0.5	1.40E-07	1,000	2805	1.89E-06	1.11E-06	7.73E-07	1.89E-04	1.11E-04	7.73E-05
178	Los Molinos	1.0	2.68E-07	100	2805	3.60E-06	2.13E-06	1.48E-06	3.60E-04	2.13E-04	1.48E-04
179	Tehema	0.3	8.98E-08	1,000	2805	1.21E-06	7.12E-07	4.95E-07	1.21E-04	7.12E-05	4.95E-05
180	Tehema	2.2	6.04E-07	100	2805	8.12E-06	4.79E-06	3.33E-06	8.12E-04	4.79E-04	3.33E-04
181	Gerber	2.3	6.25E-07	1,000	2805	8.40E-06	4.96E-06	3.44E-06	8.40E-04	4.96E-04	3.44E-04
182	Tehema Co	1.8	4.83E-07	100	2805	6.49E-06	3.83E-06	2.66E-06	6.49E-04	3.83E-04	2.66E-04
183	Red Bluff	0.8	2.08E-07	1,000	2805	2.80E-06	1.65E-06	1.15E-06	2.80E-04	1.65E-04	1.15E-04
184	Red Bluff	4.6	1.25E-06	100	2805	1.68E-05	9.91E-06	6.88E-06	1.68E-03	9.91E-04	6.88E-04
185	Red Bluff	3.3	8.86E-07	1,000	2805	1.19E-05	7.03E-06	4.88E-06	1.19E-03	7.03E-04	4.88E-04
186	Tehema Co	15.3	4.13E-06	100	2805	5.55E-05	3.27E-05	2.27E-05	5.55E-03	3.27E-03	2.27E-03
187	Cottonwood	0.6	1.65E-07	1,000	2805	2.21E-06	1.30E-06	9.07E-07	2.21E-04	1.30E-04	9.07E-05
188	Anderson	5.4	1.45E-06	100	2805	1.94E-05	1.15E-05	7.97E-06	1.94E-03	1.15E-03	7.97E-04
189	Anderson	3.5	9.57E-07	1,000	2805	1.29E-05	7.59E-06	5.28E-06	1.29E-03	7.59E-04	5.28E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
190	Anderson	4.1	1.10E-06	100	2805	1.48E-05	8.74E-06	6.08E-06	1.48E-03	8.74E-04	6.08E-04
191	Redding	6.0	1.63E-06	1,000	2805	2.19E-05	1.29E-05	8.99E-06	2.19E-03	1.29E-03	8.99E-04
192	Redding	0.8	2.06E-07	1,000	2805	2.77E-06	1.63E-06	1.13E-06	2.77E-04	1.63E-04	1.13E-04
193	Redding	1.1	3.05E-07	100	2805	4.10E-06	2.42E-06	1.68E-06	4.10E-04	2.42E-04	1.68E-04
194	Redding	0.4	1.05E-07	1,000	2805	1.42E-06	8.36E-07	5.81E-07	1.42E-04	8.36E-05	5.81E-05
195	Redding	2.6	6.97E-07	100	2805	9.36E-06	5.52E-06	3.84E-06	9.36E-04	5.52E-04	3.84E-04
196	Shasta Co	0.5	1.41E-07	1,000	2805	1.90E-06	1.12E-06	7.78E-07	1.90E-04	1.12E-04	7.78E-05
197	Shasta Lake	1.7	4.46E-07	100	2805	5.99E-06	3.53E-06	2.45E-06	5.99E-04	3.53E-04	2.45E-04
198	Shasta Lake	0.8	2.03E-07	1,000	2805	2.72E-06	1.61E-06	1.12E-06	2.72E-04	1.61E-04	1.12E-04
199	Shasta Co	16.4	4.44E-06	100	2805	5.97E-05	3.52E-05	2.45E-05	5.97E-03	3.52E-03	2.45E-03
200	Lakeshore	0.6	1.64E-07	1,000	2805	2.20E-06	1.30E-06	9.03E-07	2.20E-04	1.30E-04	9.03E-05
201	Shasta Co	30.4	8.20E-06	100	2805	1.10E-04	6.50E-05	4.52E-05	1.10E-02	6.50E-03	4.52E-03
202	Dunsmuir	1.3	3.52E-07	1,000	2805	4.73E-06	2.79E-06	1.94E-06	4.73E-04	2.79E-04	1.94E-04
203	Siskiyou Co	12.8	3.45E-06	100	2805	4.63E-05	2.73E-05	1.90E-05	4.63E-03	2.73E-03	1.90E-03
204	Mount Shasta	1.1	3.05E-07	1,000	2805	4.10E-06	2.42E-06	1.68E-06	4.10E-04	2.42E-04	1.68E-04
205	Siskiyou Co	69.5	1.88E-05	100	2805	2.52E-04	1.49E-04	1.03E-04	2.52E-02	1.49E-02	1.03E-02
206	Dorris	0.9	2.38E-07	100	2805	3.20E-06	1.89E-06	1.31E-06	3.20E-04	1.89E-04	1.31E-04
207	Siskiyou Co	3.4	9.21E-07	1,000	2805	1.24E-05	7.30E-06	5.07E-06	1.24E-03	7.30E-04	5.07E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	6.05E-07	1,000	250	7.24E-07	4.27E-07	2.97E-07	7.24E-05	4.27E-05	2.97E-05
2	Arroyo Grande	0.8	3.11E-07	100	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
3	Arroyo Grande	0.9	3.67E-07	1,000	250	4.39E-07	2.59E-07	1.80E-07	4.39E-05	2.59E-05	1.80E-05

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
4	Arroyo Grande	1.4	5.39E-07	100	250	6.45E-07	3.81E-07	2.65E-07	6.45E-05	3.81E-05	2.65E-05
5	Oceano	0.4	1.57E-07	3,000	250	1.88E-07	1.11E-07	7.71E-08	1.88E-05	1.11E-05	7.71E-06
6	Oceano	0.6	2.43E-07	10,000	250	2.92E-07	1.72E-07	1.20E-07	2.92E-05	1.72E-05	1.20E-05
7	Oceano	0.2	9.32E-08	3,000	250	1.12E-07	6.59E-08	4.58E-08	1.12E-05	6.59E-06	4.58E-06
8	Pismo/Grover	2.1	8.18E-07	10,000	250	9.80E-07	5.78E-07	4.02E-07	9.80E-05	5.78E-05	4.02E-05
9	Pismo	0.3	1.13E-07	3,000	250	1.35E-07	7.96E-08	5.53E-08	1.35E-05	7.96E-06	5.53E-06
10	Pismo	0.4	1.44E-07	1,000	250	1.72E-07	1.02E-07	7.06E-08	1.72E-05	1.02E-05	7.06E-06
11	Price Canyon	5.2	2.02E-06	100	250	2.42E-06	1.43E-06	9.93E-07	2.42E-04	1.43E-04	9.93E-05
12	Edna	0.6	2.34E-07	1,000	250	2.81E-07	1.66E-07	1.15E-07	2.81E-05	1.66E-05	1.15E-05
13	Edna	1.6	6.31E-07	100	250	7.56E-07	4.46E-07	3.10E-07	7.56E-05	4.46E-05	3.10E-05
14	San Luis Obispo	4.7	1.82E-06	10,000	250	2.18E-06	1.29E-06	8.94E-07	2.18E-04	1.29E-04	8.94E-05
15	San Luis Obispo	0.6	2.20E-07	3,000	250	2.64E-07	1.56E-07	1.08E-07	2.64E-05	1.56E-05	1.08E-05
16	Chorro	0.4	1.66E-07	1,000	250	1.99E-07	1.17E-07	8.16E-08	1.99E-05	1.17E-05	8.16E-06
17	Chorro	1.6	6.10E-07	100	250	7.31E-07	4.31E-07	3.00E-07	7.31E-05	4.31E-05	3.00E-05
18	CMC	0.8	2.98E-07	3,000	250	3.56E-07	2.10E-07	1.46E-07	3.56E-05	2.10E-05	1.46E-05
19	Santa Lucia	11.2	4.36E-06	100	250	5.22E-06	3.08E-06	2.14E-06	5.22E-04	3.08E-04	2.14E-04
20	Santa Margarita	0.9	3.44E-07	3,000	250	4.12E-07	2.43E-07	1.69E-07	4.12E-05	2.43E-05	1.69E-05
21	Phillips PS	0.9	3.32E-07	100	250	3.97E-07	2.34E-07	1.63E-07	3.97E-05	2.34E-05	1.63E-05
22	Atascadero	7.4	2.89E-06	1,000	250	3.46E-06	2.04E-06	1.42E-06	3.46E-04	2.04E-04	1.42E-04
23	Atascadero	1.6	6.24E-07	3,000	250	7.47E-07	4.41E-07	3.06E-07	7.47E-05	4.41E-05	3.06E-05
24	Atascadero	1.3	4.96E-07	1,000	250	5.95E-07	3.51E-07	2.44E-07	5.95E-05	3.51E-05	2.44E-05
25	Atascadero	0.4	1.68E-07	3,000	250	2.01E-07	1.19E-07	8.24E-08	2.01E-05	1.19E-05	8.24E-06
26	101	0.4	1.43E-07	1,000	250	1.71E-07	1.01E-07	7.00E-08	1.71E-05	1.01E-05	7.00E-06
27	Templeton	2.1	8.34E-07	3,000	250	9.99E-07	5.90E-07	4.10E-07	9.99E-05	5.90E-05	4.10E-05
28	Paso Robles	0.5	2.00E-07	1,000	250	2.40E-07	1.41E-07	9.83E-08	2.40E-05	1.41E-05	9.83E-06
29	Paso Robles	0.8	3.28E-07	3,000	250	3.93E-07	2.32E-07	1.61E-07	3.93E-05	2.32E-05	1.61E-05
30	Paso Robles	2.7	1.07E-06	1,000	250	1.28E-06	7.57E-07	5.26E-07	1.28E-04	7.57E-05	5.26E-05
31	Paso Robles	2.1	8.34E-07	3,000	250	9.99E-07	5.89E-07	4.10E-07	9.99E-05	5.89E-05	4.10E-05
32	Paso Robles	0.4	1.69E-07	10,000	250	2.03E-07	1.20E-07	8.32E-08	2.03E-05	1.20E-05	8.32E-06

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
33	Paso Robles	1.2	4.54E-07	3,000	250	5.43E-07	3.20E-07	2.23E-07	5.43E-05	3.20E-05	2.23E-05
34	101	2.1	8.27E-07	100	250	9.91E-07	5.84E-07	4.06E-07	9.91E-05	5.84E-05	4.06E-05
35	Wellsona	2.4	9.53E-07	1,000	250	1.14E-06	6.73E-07	4.68E-07	1.14E-04	6.73E-05	4.68E-05
36	101	1.9	7.27E-07	100	250	8.71E-07	5.14E-07	3.57E-07	8.71E-05	5.14E-05	3.57E-05
37	San Miguel	1.5	5.73E-07	3,000	250	6.86E-07	4.05E-07	2.81E-07	6.86E-05	4.05E-05	2.81E-05
38	101	2.7	1.03E-06	100	250	1.24E-06	7.31E-07	5.08E-07	1.24E-04	7.31E-05	5.08E-05
39	Camp Roberts	5.7	2.23E-06	100	250	2.67E-06	1.57E-06	1.09E-06	2.67E-04	1.57E-04	1.09E-04
40	Bradley	15.3	5.97E-06	100	250	7.15E-06	4.22E-06	2.93E-06	7.15E-04	4.22E-04	2.93E-04
41	San Lucas	18.5	7.22E-06	100	250	8.65E-06	5.10E-06	3.55E-06	8.65E-04	5.10E-04	3.55E-04
42	King City	1.5	5.69E-07	1,000	250	6.82E-07	4.02E-07	2.80E-07	6.82E-05	4.02E-05	2.80E-05
43	Clark Ranch	18.1	7.06E-06	100	250	8.45E-06	4.99E-06	3.46E-06	8.45E-04	4.99E-04	3.46E-04
44	Soledad	1.4	5.54E-07	1,000	250	6.63E-07	3.91E-07	2.72E-07	6.63E-05	3.91E-05	2.72E-05
45	Salinas Valley Ag	7.3	2.86E-06	100	250	3.43E-06	2.02E-06	1.41E-06	3.43E-04	2.02E-04	1.41E-04
46	Gonzales	1.2	4.52E-07	3,000	250	5.42E-07	3.20E-07	2.22E-07	5.42E-05	3.20E-05	2.22E-05
47	Salinas Valley Ag	5.0	1.96E-06	100	250	2.35E-06	1.39E-06	9.63E-07	2.35E-04	1.39E-04	9.63E-05
48	Chular	0.6	2.49E-07	1,000	250	2.98E-07	1.76E-07	1.22E-07	2.98E-05	1.76E-05	1.22E-05
49	Sprekles	7.8	3.03E-06	100	250	3.63E-06	2.14E-06	1.49E-06	3.63E-04	2.14E-04	1.49E-04
50	Salinas	3.9	1.53E-06	6,500	250	1.84E-06	1.08E-06	7.53E-07	1.84E-04	1.08E-04	7.53E-05
51	Salinas Valley Ag	6.2	2.41E-06	100	250	2.89E-06	1.70E-06	1.18E-06	2.89E-04	1.70E-04	1.18E-04
52	Castroville	1.1	4.41E-07	1,000	250	5.28E-07	3.11E-07	2.16E-07	5.28E-05	3.11E-05	2.16E-05
53	Las Lomas	15.4	6.02E-06	100	250	7.21E-06	4.26E-06	2.96E-06	7.21E-04	4.26E-04	2.96E-04
54	Aromas	12.1	4.70E-06	100	250	5.63E-06	3.32E-06	2.31E-06	5.63E-04	3.32E-04	2.31E-04
55	Gilroy	4.2	1.63E-06	3,000	250	1.95E-06	1.15E-06	8.01E-07	1.95E-04	1.15E-04	8.01E-05
56	San Martin	6.1	2.36E-06	100	250	2.83E-06	1.67E-06	1.16E-06	2.83E-04	1.67E-04	1.16E-04
57	Morgan Hill	3.8	1.49E-06	3,000	250	1.79E-06	1.06E-06	7.34E-07	1.79E-04	1.06E-04	7.34E-05
58	Coyote Valley	6.7	2.60E-06	100	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
59	San Jose	6.3	2.47E-06	5,000	250	2.96E-06	1.75E-06	1.21E-06	2.96E-04	1.75E-04	1.21E-04
60	Seven Trees	1.9	7.25E-07	1,000	250	8.69E-07	5.13E-07	3.56E-07	8.69E-05	5.13E-05	3.56E-05
61	San Jose	5.0	1.93E-06	10,000	250	2.32E-06	1.37E-06	9.50E-07	2.32E-04	1.37E-04	9.50E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
62	Santa Clara	5.1	1.99E-06	6,500	250	2.39E-06	1.41E-06	9.79E-07	2.39E-04	1.41E-04	9.79E-05
63	Alviso	1.7	6.71E-07	1,000	250	8.03E-07	4.74E-07	3.29E-07	8.03E-05	4.74E-05	3.29E-05
64	Drawbridge	5.7	2.22E-06	100	250	2.66E-06	1.57E-06	1.09E-06	2.66E-04	1.57E-04	1.09E-04
65	Newark	2.3	8.78E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
66	Newark to Russell	11.3	4.42E-06	10,000	250	5.30E-06	3.13E-06	2.17E-06	5.30E-04	3.13E-04	2.17E-04
67	San Lorenzo	0.8	3.11E-07	3,000	250	3.73E-07	2.20E-07	1.53E-07	3.73E-05	2.20E-05	1.53E-05
68	San Leandro	1.3	4.99E-07	10,000	250	5.98E-07	3.53E-07	2.45E-07	5.98E-05	3.53E-05	2.45E-05
69	San Leandro	0.7	2.81E-07	3,000	250	3.37E-07	1.99E-07	1.38E-07	3.37E-05	1.99E-05	1.38E-05
70	Oakland	5.3	2.05E-06	10,000	250	2.46E-06	1.45E-06	1.01E-06	2.46E-04	1.45E-04	1.01E-04
71	Oakland	1.4	5.34E-07	3,000	250	6.40E-07	3.78E-07	2.62E-07	6.40E-05	3.78E-05	2.62E-05
72	Oakland	1.6	6.32E-07	10,000	250	7.57E-07	4.46E-07	3.10E-07	7.57E-05	4.46E-05	3.10E-05
73	Oakland	1.4	5.27E-07	3,000	250	6.31E-07	3.72E-07	2.59E-07	6.31E-05	3.72E-05	2.59E-05
74	Oakland	1.5	6.01E-07	10,000	250	7.19E-07	4.24E-07	2.95E-07	7.19E-05	4.24E-05	2.95E-05
75	Oakland	2.7	1.04E-06	3,000	250	1.25E-06	7.36E-07	5.11E-07	1.25E-04	7.36E-05	5.11E-05
76	Emeryville	1.5	5.66E-07	10,000	250	6.77E-07	4.00E-07	2.78E-07	6.77E-05	4.00E-05	2.78E-05
77	Berkeley	1.0	3.94E-07	3,000	250	4.72E-07	2.78E-07	1.93E-07	4.72E-05	2.78E-05	1.93E-05
78	Berkeley	1.8	6.83E-07	10,000	250	8.17E-07	4.82E-07	3.35E-07	8.17E-05	4.82E-05	3.35E-05
79	Richmond	1.5	5.85E-07	3,000	250	7.01E-07	4.13E-07	2.87E-07	7.01E-05	4.13E-05	2.87E-05
80	Richmond	3.8	1.47E-06	10,000	250	1.76E-06	1.04E-06	7.20E-07	1.76E-04	1.04E-04	7.20E-05
81	North Richmond	1.1	4.10E-07	3,000	615	1.21E-06	7.12E-07	4.95E-07	1.21E-04	7.12E-05	4.95E-05
82	San Pablo	2.5	9.71E-07	1,000	615	2.86E-06	1.69E-06	1.17E-06	2.86E-04	1.69E-04	1.17E-04
83	Sobranto	1.8	6.83E-07	100	615	2.01E-06	1.19E-06	8.24E-07	2.01E-04	1.19E-04	8.24E-05
84	Hercules	5.6	2.19E-06	1,000	615	6.45E-06	3.80E-06	2.64E-06	6.45E-04	3.80E-04	2.64E-04
85	Selby	1.7	6.59E-07	100	615	1.94E-06	1.15E-06	7.96E-07	1.94E-04	1.15E-04	7.96E-05
86	Crockett	1.6	6.08E-07	1,000	615	1.79E-06	1.06E-06	7.35E-07	1.79E-04	1.06E-04	7.35E-05
87	Port Costa	4.3	1.68E-06	100	615	4.95E-06	2.92E-06	2.03E-06	4.95E-04	2.92E-04	2.03E-04
88	Martinez	0.5	1.89E-07	1,000	615	5.57E-07	3.28E-07	2.28E-07	5.57E-05	3.28E-05	2.28E-05
89	Suisun Pt Channel	2.6	1.00E-06	100	615	2.95E-06	1.74E-06	1.21E-06	2.95E-04	1.74E-04	1.21E-04
90	Benicia	3.5	1.37E-06	1,000	1345	8.80E-06	5.19E-06	3.61E-06	8.80E-04	5.19E-04	3.61E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
91	Grizzly Bay	10.6	4.13E-06	100	1345	2.66E-05	1.57E-05	1.09E-05	2.66E-03	1.57E-03	1.09E-03
92	Fairfield	3.8	1.49E-06	3,000	1345	9.60E-06	5.66E-06	3.94E-06	9.60E-04	5.66E-04	3.94E-04
93	Elmira	13.7	5.34E-06	100	1345	3.44E-05	2.03E-05	1.41E-05	3.44E-03	2.03E-03	1.41E-03
94	Dixon	2.1	8.35E-07	1,000	1345	5.38E-06	3.17E-06	2.21E-06	5.38E-04	3.17E-04	2.21E-04
95	Solano Co Ag	6.6	2.58E-06	100	1345	1.66E-05	9.80E-06	6.81E-06	1.66E-03	9.80E-04	6.81E-04
96	Davis	3.5	1.38E-06	1,000	1345	8.87E-06	5.23E-06	3.64E-06	8.87E-04	5.23E-04	3.64E-04
97	Yolo Co Ag	7.0	2.73E-06	100	1345	1.76E-05	1.04E-05	7.20E-06	1.76E-03	1.04E-03	7.20E-04
98	Sacramento	3.3	1.27E-06	3,000	1345	8.17E-06	4.82E-06	3.35E-06	8.17E-04	4.82E-04	3.35E-04
99	Sacramento River	0.4	1.64E-07	100	1345	1.06E-06	6.23E-07	4.33E-07	1.06E-04	6.23E-05	4.33E-05
100	Sacramento	2.5	9.59E-07	10,000	1345	6.18E-06	3.65E-06	2.53E-06	6.18E-04	3.65E-04	2.53E-04
101	Parkland	1.6	6.32E-07	100	2805	8.49E-06	5.01E-06	3.48E-06	8.49E-04	5.01E-04	3.48E-04
102	Sacramento	3.1	1.21E-06	3,000	2805	1.62E-05	9.59E-06	6.66E-06	1.62E-03	9.59E-04	6.66E-04
103	North Highlands	2.6	1.01E-06	1,000	2805	1.35E-05	7.98E-06	5.54E-06	1.35E-03	7.98E-04	5.54E-04
104	North Highlands	4.4	1.70E-06	3,000	2805	2.29E-05	1.35E-05	9.39E-06	2.29E-03	1.35E-03	9.39E-04
105	Roseville Yard	1.3	4.91E-07	100	2805	6.60E-06	3.90E-06	2.71E-06	6.60E-04	3.90E-04	2.71E-04
129	Roseville	1.4	1.15E-06	3,000	2805	1.55E-05	9.16E-06	6.36E-06	1.55E-03	9.16E-04	6.36E-04
130	Roseville	1.1	9.01E-07	3,000	2805	1.21E-05	7.15E-06	4.97E-06	1.21E-03	7.15E-04	4.97E-04
131	Roseville	2.1	1.73E-06	1,000	2805	2.33E-05	1.37E-05	9.55E-06	2.33E-03	1.37E-03	9.55E-04
132	Roseville	0.5	3.71E-07	3,000	2805	4.99E-06	2.94E-06	2.04E-06	4.99E-04	2.94E-04	2.04E-04
133	Rocklin	2.5	2.06E-06	1,000	2805	2.77E-05	1.63E-05	1.14E-05	2.77E-03	1.63E-03	1.14E-03
134	Placer Co	8.0	6.54E-06	100	2805	8.79E-05	5.18E-05	3.60E-05	8.79E-03	5.18E-03	3.60E-03
135	Newcastle	0.5	3.70E-07	1,000	2805	4.97E-06	2.93E-06	2.04E-06	4.97E-04	2.93E-04	2.04E-04
136	Placer Co	2.5	2.05E-06	100	2805	2.76E-05	1.63E-05	1.13E-05	2.76E-03	1.63E-03	1.13E-03
137	Auburn	5.3	4.37E-06	1,000	2805	5.88E-05	3.47E-05	2.41E-05	5.88E-03	3.47E-03	2.41E-03
138	Placer Co	13.6	1.11E-05	100	2805	1.50E-04	8.84E-05	6.14E-05	1.50E-02	8.84E-03	6.14E-03
139	Colfax	0.7	5.53E-07	1,000	2805	7.43E-06	4.38E-06	3.05E-06	7.43E-04	4.38E-04	3.05E-04
140	Placer Co	61.6	5.05E-05	100	2805	6.79E-04	4.01E-04	2.78E-04	6.79E-02	4.01E-02	2.78E-02
141	Truckee	2.1	1.74E-06	1,000	2805	2.34E-05	1.38E-05	9.58E-06	2.34E-03	1.38E-03	9.58E-04
142	Nevada Co	13.9	1.14E-05	100	2805	1.53E-04	9.02E-05	6.27E-05	1.53E-02	9.02E-03	6.27E-03

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Oakland – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
143	Floriston	0.2	1.90E-07	1,000	2805	2.55E-06	1.51E-06	1.05E-06	2.55E-04	1.51E-04	1.05E-04
144	Sierra Co	5.8	4.75E-06	100	2805	6.38E-05	3.76E-05	2.62E-05	6.38E-03	3.76E-03	2.62E-03

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	9.47E-07	5.59E-07	3.88E-07	9.47E-05	5.59E-05	3.88E-05
2	Arroyo Grande	0.8	4.07E-07	100	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
3	Arroyo Grande	0.9	4.79E-07	1,000	250	5.74E-07	3.39E-07	2.35E-07	5.74E-05	3.39E-05	2.35E-05
4	Arroyo Grande	1.4	7.05E-07	100	250	8.44E-07	4.98E-07	3.46E-07	8.44E-05	4.98E-05	3.46E-05
5	Oceano	0.4	2.05E-07	3,000	250	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
6	Oceano	0.6	3.18E-07	10,000	250	3.81E-07	2.25E-07	1.56E-07	3.81E-05	2.25E-05	1.56E-05
7	Oceano	0.2	1.22E-07	3,000	250	1.46E-07	8.61E-08	5.99E-08	1.46E-05	8.61E-06	5.99E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	1.28E-06	7.56E-07	5.25E-07	1.28E-04	7.56E-05	5.25E-05
9	Pismo	0.3	1.47E-07	3,000	250	1.76E-07	1.04E-07	7.23E-08	1.76E-05	1.04E-05	7.23E-06
10	Pismo	0.4	1.88E-07	1,000	250	2.25E-07	1.33E-07	9.23E-08	2.25E-05	1.33E-05	9.23E-06
11	Price Canyon	5.2	2.64E-06	100	250	3.17E-06	1.87E-06	1.30E-06	3.17E-04	1.87E-04	1.30E-04
12	Edna	0.6	3.07E-07	1,000	250	3.67E-07	2.17E-07	1.51E-07	3.67E-05	2.17E-05	1.51E-05
13	Edna	1.6	8.25E-07	100	250	9.89E-07	5.83E-07	4.05E-07	9.89E-05	5.83E-05	4.05E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	2.85E-06	1.68E-06	1.17E-06	2.85E-04	1.68E-04	1.17E-04
15	San Luis Obispo	0.6	2.88E-07	3,000	250	3.45E-07	2.04E-07	1.42E-07	3.45E-05	2.04E-05	1.42E-05
16	Chorro	0.4	2.17E-07	1,000	250	2.60E-07	1.54E-07	1.07E-07	2.60E-05	1.54E-05	1.07E-05
17	Chorro	1.6	7.98E-07	100	250	9.56E-07	5.64E-07	3.92E-07	9.56E-05	5.64E-05	3.92E-05
18	CMC	0.8	3.89E-07	3,000	250	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
19	Santa Lucia	11.2	5.70E-06	100	250	6.83E-06	4.03E-06	2.80E-06	6.83E-04	4.03E-04	2.80E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
20	Santa Margarita	0.9	4.50E-07	3,000	250	5.39E-07	3.18E-07	2.21E-07	5.39E-05	3.18E-05	2.21E-05
21	Phillips PS	0.9	4.34E-07	100	250	5.19E-07	3.06E-07	2.13E-07	5.19E-05	3.06E-05	2.13E-05
22	Atascadero	7.4	3.77E-06	1,000	250	4.52E-06	2.67E-06	1.85E-06	4.52E-04	2.67E-04	1.85E-04
23	Atascadero	1.6	8.16E-07	3,000	250	9.77E-07	5.77E-07	4.01E-07	9.77E-05	5.77E-05	4.01E-05
24	Atascadero	1.3	6.49E-07	1,000	250	7.77E-07	4.59E-07	3.19E-07	7.77E-05	4.59E-05	3.19E-05
25	Atascadero	0.4	2.20E-07	3,000	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
26	101	0.4	1.87E-07	1,000	250	2.23E-07	1.32E-07	9.16E-08	2.23E-05	1.32E-05	9.16E-06
27	Templeton	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	3.14E-07	1.85E-07	1.29E-07	3.14E-05	1.85E-05	1.29E-05
29	Paso Robles	0.8	4.29E-07	3,000	250	5.14E-07	3.03E-07	2.11E-07	5.14E-05	3.03E-05	2.11E-05
30	Paso Robles	2.7	1.40E-06	1,000	250	1.68E-06	9.90E-07	6.88E-07	1.68E-04	9.90E-05	6.88E-05
31	Paso Robles	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	2.65E-07	1.57E-07	1.09E-07	2.65E-05	1.57E-05	1.09E-05
33	Paso Robles	1.2	5.93E-07	3,000	250	7.10E-07	4.19E-07	2.91E-07	7.10E-05	4.19E-05	2.91E-05
34	101	2.1	1.08E-06	100	250	1.30E-06	7.64E-07	5.31E-07	1.30E-04	7.64E-05	5.31E-05
35	Wellsona	2.4	1.25E-06	1,000	250	1.49E-06	8.81E-07	6.12E-07	1.49E-04	8.81E-05	6.12E-05
36	101	1.9	9.51E-07	100	250	1.14E-06	6.72E-07	4.67E-07	1.14E-04	6.72E-05	4.67E-05
37	San Miguel	1.5	7.49E-07	3,000	250	8.97E-07	5.29E-07	3.68E-07	8.97E-05	5.29E-05	3.68E-05
38	101	2.7	1.35E-06	100	250	1.62E-06	9.55E-07	6.64E-07	1.62E-04	9.55E-05	6.64E-05
39	Camp Roberts	5.7	2.91E-06	100	250	3.49E-06	2.06E-06	1.43E-06	3.49E-04	2.06E-04	1.43E-04
40	Bradley	15.3	7.80E-06	100	250	9.35E-06	5.51E-06	3.83E-06	9.35E-04	5.51E-04	3.83E-04
41	San Lucas	18.5	9.45E-06	100	250	1.13E-05	6.67E-06	4.64E-06	1.13E-03	6.67E-04	4.64E-04
42	King City	1.5	7.45E-07	1,000	250	8.92E-07	5.26E-07	3.66E-07	8.92E-05	5.26E-05	3.66E-05
43	Clark Ranch	18.1	9.23E-06	100	250	1.11E-05	6.52E-06	4.53E-06	1.11E-03	6.52E-04	4.53E-04
44	Soledad	1.4	7.24E-07	1,000	250	8.67E-07	5.12E-07	3.56E-07	8.67E-05	5.12E-05	3.56E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	250	4.48E-06	2.65E-06	1.84E-06	4.48E-04	2.65E-04	1.84E-04
46	Gonzales	1.2	5.92E-07	3,000	250	7.09E-07	4.18E-07	2.91E-07	7.09E-05	4.18E-05	2.91E-05
47	Salinas Valley Ag	5.0	2.57E-06	100	250	3.07E-06	1.81E-06	1.26E-06	3.07E-04	1.81E-04	1.26E-04
48	Chular	0.6	3.25E-07	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Oregon to Roseville to SMR via Altamont Pass – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
49	Sprekles	7.8	3.97E-06	100	250	4.75E-06	2.80E-06	1.95E-06	4.75E-04	2.80E-04	1.95E-04
50	Salinas	3.9	2.00E-06	6,500	250	2.40E-06	1.42E-06	9.84E-07	2.40E-04	1.42E-04	9.84E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	3.78E-06	2.23E-06	1.55E-06	3.78E-04	2.23E-04	1.55E-04
52	Castroville	1.1	5.76E-07	1,000	250	6.90E-07	4.07E-07	2.83E-07	6.90E-05	4.07E-05	2.83E-05
53	Las Lomas	15.4	7.87E-06	100	250	9.43E-06	5.56E-06	3.87E-06	9.43E-04	5.56E-04	3.87E-04
54	Aromas	12.1	6.15E-06	100	250	7.36E-06	4.34E-06	3.02E-06	7.36E-04	4.34E-04	3.02E-04
55	Gilroy	4.2	2.13E-06	3,000	250	2.55E-06	1.51E-06	1.05E-06	2.55E-04	1.51E-04	1.05E-04
56	San Martin	6.1	3.09E-06	100	250	3.70E-06	2.18E-06	1.52E-06	3.70E-04	2.18E-04	1.52E-04
57	Morgan Hill	3.8	1.95E-06	3,000	250	2.34E-06	1.38E-06	9.59E-07	2.34E-04	1.38E-04	9.59E-05
58	Coyote Valley	6.7	3.40E-06	100	250	4.07E-06	2.40E-06	1.67E-06	4.07E-04	2.40E-04	1.67E-04
59	San Jose	6.3	3.23E-06	5,000	250	3.87E-06	2.28E-06	1.59E-06	3.87E-04	2.28E-04	1.59E-04
60	Seven Trees	1.9	9.49E-07	1,000	250	1.14E-06	6.70E-07	4.66E-07	1.14E-04	6.70E-05	4.66E-05
61	San Jose	5.0	2.53E-06	10,000	250	3.03E-06	1.79E-06	1.24E-06	3.03E-04	1.79E-04	1.24E-04
62	Santa Clara	5.1	2.61E-06	6,500	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
63	Alviso	1.7	8.77E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
64	Drawbridge	5.7	2.91E-06	100	250	3.48E-06	2.05E-06	1.43E-06	3.48E-04	2.05E-04	1.43E-04
65	Newark	2.3	1.15E-06	1,000	250	1.37E-06	8.11E-07	5.64E-07	1.37E-04	8.11E-05	5.64E-05
107	Newark	3.1	1.59E-06	10,000	250	1.90E-06	1.12E-06	7.79E-07	1.90E-04	1.12E-04	7.79E-05
108	Fremont	3.2	1.64E-06	10,000	250	1.97E-06	1.16E-06	8.06E-07	1.97E-04	1.16E-04	8.06E-05
109	Sunol	6.8	3.48E-06	100	250	4.17E-06	2.46E-06	1.71E-06	4.17E-04	2.46E-04	1.71E-04
110	Pleasanton	1.8	9.08E-07	1,000	250	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	1.52E-06	8.97E-07	6.24E-07	1.52E-04	8.97E-05	6.24E-05
112	Pleasanton	3.0	1.51E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
113	Livermore	5.0	2.57E-06	5,000	250	3.08E-06	1.82E-06	1.26E-06	3.08E-04	1.82E-04	1.26E-04
114	Livermore	2.5	1.26E-06	1,000	250	1.51E-06	8.90E-07	6.19E-07	1.51E-04	8.90E-05	6.19E-05
115	Altamont	14.2	7.24E-06	100	250	8.67E-06	5.12E-06	3.56E-06	8.67E-04	5.12E-04	3.56E-04
116	Tracy	3.9	1.97E-06	3,000	250	2.36E-06	1.39E-06	9.67E-07	2.36E-04	1.39E-04	9.67E-05
117	Lathrop	8.2	4.18E-06	100	250	5.01E-06	2.96E-06	2.05E-06	5.01E-04	2.96E-04	2.05E-04
118	French Camp	8.0	4.08E-06	1,000	250	4.89E-06	2.88E-06	2.00E-06	4.89E-04	2.88E-04	2.00E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
119	Stockton	7.9	4.03E-06	10,000	1345	2.60E-05	1.53E-05	1.07E-05	2.60E-03	1.53E-03	1.07E-03
120	Lodi	4.1	2.07E-06	100	1345	1.33E-05	7.85E-06	5.46E-06	1.33E-03	7.85E-04	5.46E-04
121	Lodi	3.4	1.73E-06	5,000	1345	1.11E-05	6.57E-06	4.57E-06	1.11E-03	6.57E-04	4.57E-04
122	Acampo	5.5	2.81E-06	100	1345	1.81E-05	1.07E-05	7.41E-06	1.81E-03	1.07E-03	7.41E-04
123	Galt	1.6	7.96E-07	4,000	1345	5.13E-06	3.02E-06	2.10E-06	5.13E-04	3.02E-04	2.10E-04
124	Hicksville	8.6	4.38E-06	100	1345	2.82E-05	1.66E-05	1.16E-05	2.82E-03	1.66E-03	1.16E-03
125	Elk Grove	1.0	4.87E-07	100	1345	3.14E-06	1.85E-06	1.29E-06	3.14E-04	1.85E-04	1.29E-04
126	Elk Grove	5.8	2.94E-06	5,000	1345	1.89E-05	1.12E-05	7.76E-06	1.89E-03	1.12E-03	7.76E-04
127	Sacramento	4.2	2.14E-06	1,000	1345	1.38E-05	8.14E-06	5.66E-06	1.38E-03	8.14E-04	5.66E-04
128	Sacramento	4.6	2.32E-06	10,000	1345	1.50E-05	8.82E-06	6.13E-06	1.50E-03	8.82E-04	6.13E-04
101	Parkland	0.8	4.12E-07	100	2805	5.54E-06	3.27E-06	2.27E-06	5.54E-04	3.27E-04	2.27E-04
102	Sacramento	3.1	1.58E-06	3,000	2805	2.12E-05	1.25E-05	8.68E-06	2.12E-03	1.25E-03	8.68E-04
103	North Highlands	2.6	1.31E-06	1,000	2805	1.75E-05	1.04E-05	7.19E-06	1.75E-03	1.04E-03	7.19E-04
104	North Highlands	4.4	2.23E-06	3,000	2805	3.00E-05	1.77E-05	1.23E-05	3.00E-03	1.77E-03	1.23E-03
105	Roseville Yard	1.3	6.43E-07	100	2805	8.64E-06	5.10E-06	3.54E-06	8.64E-04	5.10E-04	3.54E-04
145	Roseville	2.3	6.15E-07	3,000	2805	8.27E-06	4.88E-06	3.39E-06	8.27E-04	4.88E-04	3.39E-04
146	Roseville	1.3	3.45E-07	1,000	2805	4.63E-06	2.73E-06	1.90E-06	4.63E-04	2.73E-04	1.90E-04
147	Roseville	0.1	4.00E-08	100	2805	5.38E-07	3.17E-07	2.20E-07	5.38E-05	3.17E-05	2.20E-05
148	Placer Co	2.9	7.89E-07	1,000	2805	1.06E-05	6.26E-06	4.35E-06	1.06E-03	6.26E-04	4.35E-04
149	Lincoln	1.2	3.22E-07	100	2805	4.33E-06	2.56E-06	1.78E-06	4.33E-04	2.56E-04	1.78E-04
150	Lincoln	2.9	7.74E-07	3,000	2805	1.04E-05	6.14E-06	4.27E-06	1.04E-03	6.14E-04	4.27E-04
151	Sheridan	10.7	2.88E-06	100	2805	3.87E-05	2.28E-05	1.59E-05	3.87E-03	2.28E-03	1.59E-03
152	Wheatland	0.9	2.51E-07	1,000	2805	3.38E-06	1.99E-06	1.38E-06	3.38E-04	1.99E-04	1.38E-04
153	Yuba County	9.2	2.49E-06	100	2805	3.35E-05	1.98E-05	1.37E-05	3.35E-03	1.98E-03	1.37E-03
154	Olivehurst	4.3	1.15E-06	1,000	2805	1.55E-05	9.12E-06	6.34E-06	1.55E-03	9.12E-04	6.34E-04
155	Marysville	1.3	3.59E-07	3,000	2805	4.82E-06	2.84E-06	1.98E-06	4.82E-04	2.84E-04	1.98E-04
156	Marysville	2.3	6.27E-07	100	2805	8.42E-06	4.97E-06	3.45E-06	8.42E-04	4.97E-04	3.45E-04
157	Live Oak	0.3	8.88E-08	1,000	2805	1.19E-06	7.04E-07	4.89E-07	1.19E-04	7.04E-05	4.89E-05
158	Live Oak	6.4	1.73E-06	100	2805	2.33E-05	1.37E-05	9.55E-06	2.33E-03	1.37E-03	9.55E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
159	Live Oak	0.4	9.89E-08	1,000	2805	1.33E-06	7.84E-07	5.45E-07	1.33E-04	7.84E-05	5.45E-05
160	Live Oak	1.0	2.74E-07	3,000	2805	3.68E-06	2.17E-06	1.51E-06	3.68E-04	2.17E-04	1.51E-04
161	Butte Co	5.2	1.41E-06	100	2805	1.90E-05	1.12E-05	7.77E-06	1.90E-03	1.12E-03	7.77E-04
162	Gridley	0.5	1.23E-07	1,000	2805	1.65E-06	9.74E-07	6.77E-07	1.65E-04	9.74E-05	6.77E-05
163	Gridley	0.8	2.24E-07	3,000	2805	3.01E-06	1.77E-06	1.23E-06	3.01E-04	1.77E-04	1.23E-04
164	Gridley	2.5	6.77E-07	100	2805	9.10E-06	5.37E-06	3.73E-06	9.10E-04	5.37E-04	3.73E-04
165	Biggs	0.6	1.55E-07	3,000	2805	2.08E-06	1.23E-06	8.52E-07	2.08E-04	1.23E-04	8.52E-05
166	Butte Co	5.1	1.39E-06	100	2805	1.86E-05	1.10E-05	7.63E-06	1.86E-03	1.10E-03	7.63E-04
167	Richvale	0.8	2.26E-07	1,000	2805	3.03E-06	1.79E-06	1.24E-06	3.03E-04	1.79E-04	1.24E-04
168	Nelson	9.3	2.51E-06	100	2805	3.37E-05	1.99E-05	1.38E-05	3.37E-03	1.99E-03	1.38E-03
169	Durham	2.4	6.58E-07	1,000	2805	8.85E-06	5.22E-06	3.63E-06	8.85E-04	5.22E-04	3.63E-04
170	Chico	4.3	1.17E-06	100	2805	1.57E-05	9.25E-06	6.43E-06	1.57E-03	9.25E-04	6.43E-04
171	Chico	4.5	1.22E-06	1,000	2805	1.64E-05	9.66E-06	6.71E-06	1.64E-03	9.66E-04	6.71E-04
172	Chico	2.8	7.56E-07	100	2805	1.02E-05	6.00E-06	4.17E-06	1.02E-03	6.00E-04	4.17E-04
173	Nord	0.6	1.57E-07	1,000	2805	2.12E-06	1.25E-06	8.68E-07	2.12E-04	1.25E-04	8.68E-05
174	Butte Co	11.3	3.06E-06	100	2805	4.12E-05	2.43E-05	1.69E-05	4.12E-03	2.43E-03	1.69E-03
175	Vina	0.4	1.20E-07	1,000	2805	1.62E-06	9.55E-07	6.63E-07	1.62E-04	9.55E-05	6.63E-05
176	Copeland	6.3	1.70E-06	100	2805	2.29E-05	1.35E-05	9.39E-06	2.29E-03	1.35E-03	9.39E-04
177	Los Molinos	0.5	1.40E-07	1,000	2805	1.89E-06	1.11E-06	7.73E-07	1.89E-04	1.11E-04	7.73E-05
178	Los Molinos	1.0	2.68E-07	100	2805	3.60E-06	2.13E-06	1.48E-06	3.60E-04	2.13E-04	1.48E-04
179	Tehema	0.3	8.98E-08	1,000	2805	1.21E-06	7.12E-07	4.95E-07	1.21E-04	7.12E-05	4.95E-05
180	Tehema	2.2	6.04E-07	100	2805	8.12E-06	4.79E-06	3.33E-06	8.12E-04	4.79E-04	3.33E-04
181	Gerber	2.3	6.25E-07	1,000	2805	8.40E-06	4.96E-06	3.44E-06	8.40E-04	4.96E-04	3.44E-04
182	Tehema Co	1.8	4.83E-07	100	2805	6.49E-06	3.83E-06	2.66E-06	6.49E-04	3.83E-04	2.66E-04
183	Red Bluff	0.8	2.08E-07	1,000	2805	2.80E-06	1.65E-06	1.15E-06	2.80E-04	1.65E-04	1.15E-04
184	Red Bluff	4.6	1.25E-06	100	2805	1.68E-05	9.91E-06	6.88E-06	1.68E-03	9.91E-04	6.88E-04
185	Red Bluff	3.3	8.86E-07	1,000	2805	1.19E-05	7.03E-06	4.88E-06	1.19E-03	7.03E-04	4.88E-04
186	Tehema Co	15.3	4.13E-06	100	2805	5.55E-05	3.27E-05	2.27E-05	5.55E-03	3.27E-03	2.27E-03
187	Cottonwood	0.6	1.65E-07	1,000	2805	2.21E-06	1.30E-06	9.07E-07	2.21E-04	1.30E-04	9.07E-05

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188	Anderson	5.4	1.45E-06	100	2805	1.94E-05	1.15E-05	7.97E-06	1.94E-03	1.15E-03	7.97E-04
189	Anderson	3.5	9.57E-07	1,000	2805	1.29E-05	7.59E-06	5.28E-06	1.29E-03	7.59E-04	5.28E-04
190	Anderson	4.1	1.10E-06	100	2805	1.48E-05	8.74E-06	6.08E-06	1.48E-03	8.74E-04	6.08E-04
191	Redding	6.0	1.63E-06	1,000	2805	2.19E-05	1.29E-05	8.99E-06	2.19E-03	1.29E-03	8.99E-04
192	Redding	0.8	2.06E-07	1,000	2805	2.77E-06	1.63E-06	1.13E-06	2.77E-04	1.63E-04	1.13E-04
193	Redding	1.1	3.05E-07	100	2805	4.10E-06	2.42E-06	1.68E-06	4.10E-04	2.42E-04	1.68E-04
194	Redding	0.4	1.05E-07	1,000	2805	1.42E-06	8.36E-07	5.81E-07	1.42E-04	8.36E-05	5.81E-05
195	Redding	2.6	6.97E-07	100	2805	9.36E-06	5.52E-06	3.84E-06	9.36E-04	5.52E-04	3.84E-04
196	Shasta Co	0.5	1.41E-07	1,000	2805	1.90E-06	1.12E-06	7.78E-07	1.90E-04	1.12E-04	7.78E-05
197	Shasta Lake	1.7	4.46E-07	100	2805	5.99E-06	3.53E-06	2.45E-06	5.99E-04	3.53E-04	2.45E-04
198	Shasta Lake	0.8	2.03E-07	1,000	2805	2.72E-06	1.61E-06	1.12E-06	2.72E-04	1.61E-04	1.12E-04
199	Shasta Co	16.4	4.44E-06	100	2805	5.97E-05	3.52E-05	2.45E-05	5.97E-03	3.52E-03	2.45E-03
200	Lakeshore	0.6	1.64E-07	1,000	2805	2.20E-06	1.30E-06	9.03E-07	2.20E-04	1.30E-04	9.03E-05
201	Shasta Co	30.4	8.20E-06	100	2805	1.10E-04	6.50E-05	4.52E-05	1.10E-02	6.50E-03	4.52E-03
202	Dunsmuir	1.3	3.52E-07	1,000	2805	4.73E-06	2.79E-06	1.94E-06	4.73E-04	2.79E-04	1.94E-04
203	Siskiyou Co	12.8	3.45E-06	100	2805	4.63E-05	2.73E-05	1.90E-05	4.63E-03	2.73E-03	1.90E-03
204	Mount Shasta	1.1	3.05E-07	1,000	2805	4.10E-06	2.42E-06	1.68E-06	4.10E-04	2.42E-04	1.68E-04
205	Siskiyou Co	69.5	1.88E-05	100	2805	2.52E-04	1.49E-04	1.03E-04	2.52E-02	1.49E-02	1.03E-02
206	Dorris	0.9	2.38E-07	100	2805	3.20E-06	1.89E-06	1.31E-06	3.20E-04	1.89E-04	1.31E-04
207	Siskiyou Co	3.4	9.21E-07	1,000	2805	1.24E-05	7.30E-06	5.07E-06	1.24E-03	7.30E-04	5.07E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
1	Arroyo Grande	1.6	7.91E-07	1,000	250	9.47E-07	5.59E-07	3.88E-07	9.47E-05	5.59E-05	3.88E-05

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Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
2	Arroyo Grande	0.8	4.07E-07	100	250	4.88E-07	2.88E-07	2.00E-07	4.88E-05	2.88E-05	2.00E-05
3	Arroyo Grande	0.9	4.79E-07	1,000	250	5.74E-07	3.39E-07	2.35E-07	5.74E-05	3.39E-05	2.35E-05
4	Arroyo Grande	1.4	7.05E-07	100	250	8.44E-07	4.98E-07	3.46E-07	8.44E-05	4.98E-05	3.46E-05
5	Oceano	0.4	2.05E-07	3,000	250	2.46E-07	1.45E-07	1.01E-07	2.46E-05	1.45E-05	1.01E-05
6	Oceano	0.6	3.18E-07	10,000	250	3.81E-07	2.25E-07	1.56E-07	3.81E-05	2.25E-05	1.56E-05
7	Oceano	0.2	1.22E-07	3,000	250	1.46E-07	8.61E-08	5.99E-08	1.46E-05	8.61E-06	5.99E-06
8	Pismo/Grover	2.1	1.07E-06	10,000	250	1.28E-06	7.56E-07	5.25E-07	1.28E-04	7.56E-05	5.25E-05
9	Pismo	0.3	1.47E-07	3,000	250	1.76E-07	1.04E-07	7.23E-08	1.76E-05	1.04E-05	7.23E-06
10	Pismo	0.4	1.88E-07	1,000	250	2.25E-07	1.33E-07	9.23E-08	2.25E-05	1.33E-05	9.23E-06
11	Price Canyon	5.2	2.64E-06	100	250	3.17E-06	1.87E-06	1.30E-06	3.17E-04	1.87E-04	1.30E-04
12	Edna	0.6	3.07E-07	1,000	250	3.67E-07	2.17E-07	1.51E-07	3.67E-05	2.17E-05	1.51E-05
13	Edna	1.6	8.25E-07	100	250	9.89E-07	5.83E-07	4.05E-07	9.89E-05	5.83E-05	4.05E-05
14	San Luis Obispo	4.7	2.38E-06	10,000	250	2.85E-06	1.68E-06	1.17E-06	2.85E-04	1.68E-04	1.17E-04
15	San Luis Obispo	0.6	2.88E-07	3,000	250	3.45E-07	2.04E-07	1.42E-07	3.45E-05	2.04E-05	1.42E-05
16	Chorro	0.4	2.17E-07	1,000	250	2.60E-07	1.54E-07	1.07E-07	2.60E-05	1.54E-05	1.07E-05
17	Chorro	1.6	7.98E-07	100	250	9.56E-07	5.64E-07	3.92E-07	9.56E-05	5.64E-05	3.92E-05
18	CMC	0.8	3.89E-07	3,000	250	4.66E-07	2.75E-07	1.91E-07	4.66E-05	2.75E-05	1.91E-05
19	Santa Lucia	11.2	5.70E-06	100	250	6.83E-06	4.03E-06	2.80E-06	6.83E-04	4.03E-04	2.80E-04
20	Santa Margarita	0.9	4.50E-07	3,000	250	5.39E-07	3.18E-07	2.21E-07	5.39E-05	3.18E-05	2.21E-05
21	Phillips PS	0.9	4.34E-07	100	250	5.19E-07	3.06E-07	2.13E-07	5.19E-05	3.06E-05	2.13E-05
22	Atascadero	7.4	3.77E-06	1,000	250	4.52E-06	2.67E-06	1.85E-06	4.52E-04	2.67E-04	1.85E-04
23	Atascadero	1.6	8.16E-07	3,000	250	9.77E-07	5.77E-07	4.01E-07	9.77E-05	5.77E-05	4.01E-05
24	Atascadero	1.3	6.49E-07	1,000	250	7.77E-07	4.59E-07	3.19E-07	7.77E-05	4.59E-05	3.19E-05
25	Atascadero	0.4	2.20E-07	3,000	250	2.63E-07	1.55E-07	1.08E-07	2.63E-05	1.55E-05	1.08E-05
26	101	0.4	1.87E-07	1,000	250	2.23E-07	1.32E-07	9.16E-08	2.23E-05	1.32E-05	9.16E-06
27	Templeton	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
28	Paso Robles	0.5	2.62E-07	1,000	250	3.14E-07	1.85E-07	1.29E-07	3.14E-05	1.85E-05	1.29E-05
29	Paso Robles	0.8	4.29E-07	3,000	250	5.14E-07	3.03E-07	2.11E-07	5.14E-05	3.03E-05	2.11E-05
30	Paso Robles	2.7	1.40E-06	1,000	250	1.68E-06	9.90E-07	6.88E-07	1.68E-04	9.90E-05	6.88E-05

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
31	Paso Robles	2.1	1.09E-06	3,000	250	1.31E-06	7.71E-07	5.36E-07	1.31E-04	7.71E-05	5.36E-05
32	Paso Robles	0.4	2.21E-07	10,000	250	2.65E-07	1.57E-07	1.09E-07	2.65E-05	1.57E-05	1.09E-05
33	Paso Robles	1.2	5.93E-07	3,000	250	7.10E-07	4.19E-07	2.91E-07	7.10E-05	4.19E-05	2.91E-05
34	101	2.1	1.08E-06	100	250	1.30E-06	7.64E-07	5.31E-07	1.30E-04	7.64E-05	5.31E-05
35	Wellsona	2.4	1.25E-06	1,000	250	1.49E-06	8.81E-07	6.12E-07	1.49E-04	8.81E-05	6.12E-05
36	101	1.9	9.51E-07	100	250	1.14E-06	6.72E-07	4.67E-07	1.14E-04	6.72E-05	4.67E-05
37	San Miguel	1.5	7.49E-07	3,000	250	8.97E-07	5.29E-07	3.68E-07	8.97E-05	5.29E-05	3.68E-05
38	101	2.7	1.35E-06	100	250	1.62E-06	9.55E-07	6.64E-07	1.62E-04	9.55E-05	6.64E-05
39	Camp Roberts	5.7	2.91E-06	100	250	3.49E-06	2.06E-06	1.43E-06	3.49E-04	2.06E-04	1.43E-04
40	Bradley	15.3	7.80E-06	100	250	9.35E-06	5.51E-06	3.83E-06	9.35E-04	5.51E-04	3.83E-04
41	San Lucas	18.5	9.45E-06	100	250	1.13E-05	6.67E-06	4.64E-06	1.13E-03	6.67E-04	4.64E-04
42	King City	1.5	7.45E-07	1,000	250	8.92E-07	5.26E-07	3.66E-07	8.92E-05	5.26E-05	3.66E-05
43	Clark Ranch	18.1	9.23E-06	100	250	1.11E-05	6.52E-06	4.53E-06	1.11E-03	6.52E-04	4.53E-04
44	Soledad	1.4	7.24E-07	1,000	250	8.67E-07	5.12E-07	3.56E-07	8.67E-05	5.12E-05	3.56E-05
45	Salinas Valley Ag	7.3	3.74E-06	100	250	4.48E-06	2.65E-06	1.84E-06	4.48E-04	2.65E-04	1.84E-04
46	Gonzales	1.2	5.92E-07	3,000	250	7.09E-07	4.18E-07	2.91E-07	7.09E-05	4.18E-05	2.91E-05
47	Salinas Valley Ag	5.0	2.57E-06	100	250	3.07E-06	1.81E-06	1.26E-06	3.07E-04	1.81E-04	1.26E-04
48	Chular	0.6	3.25E-07	1,000	250	3.89E-07	2.30E-07	1.60E-07	3.89E-05	2.30E-05	1.60E-05
49	Sprekles	7.8	3.97E-06	100	250	4.75E-06	2.80E-06	1.95E-06	4.75E-04	2.80E-04	1.95E-04
50	Salinas	3.9	2.00E-06	6,500	250	2.40E-06	1.42E-06	9.84E-07	2.40E-04	1.42E-04	9.84E-05
51	Salinas Valley Ag	6.2	3.15E-06	100	250	3.78E-06	2.23E-06	1.55E-06	3.78E-04	2.23E-04	1.55E-04
52	Castroville	1.1	5.76E-07	1,000	250	6.90E-07	4.07E-07	2.83E-07	6.90E-05	4.07E-05	2.83E-05
53	Las Lomas	15.4	7.87E-06	100	250	9.43E-06	5.56E-06	3.87E-06	9.43E-04	5.56E-04	3.87E-04
54	Aromas	12.1	6.15E-06	100	250	7.36E-06	4.34E-06	3.02E-06	7.36E-04	4.34E-04	3.02E-04
55	Gilroy	4.2	2.13E-06	3,000	250	2.55E-06	1.51E-06	1.05E-06	2.55E-04	1.51E-04	1.05E-04
56	San Martin	6.1	3.09E-06	100	250	3.70E-06	2.18E-06	1.52E-06	3.70E-04	2.18E-04	1.52E-04
57	Morgan Hill	3.8	1.95E-06	3,000	250	2.34E-06	1.38E-06	9.59E-07	2.34E-04	1.38E-04	9.59E-05
58	Coyote Valley	6.7	3.40E-06	100	250	4.07E-06	2.40E-06	1.67E-06	4.07E-04	2.40E-04	1.67E-04
59	San Jose	6.3	3.23E-06	5,000	250	3.87E-06	2.28E-06	1.59E-06	3.87E-04	2.28E-04	1.59E-04

Summary of Unit Train Accident and Spill Rates by Segment for the Nevada to Roseville to SMR via Altamont Pass – Cumulative Projects

Segment	Segment Description	Length (miles)	Accident Rate (mile-year)	Population Density (per sq.mi.)	# of Trains (per year)	Project Oil Spill with Ignition			Project Oil Spill with no Ignition		
						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
60	Seven Trees	1.9	9.49E-07	1,000	250	1.14E-06	6.70E-07	4.66E-07	1.14E-04	6.70E-05	4.66E-05
61	San Jose	5.0	2.53E-06	10,000	250	3.03E-06	1.79E-06	1.24E-06	3.03E-04	1.79E-04	1.24E-04
62	Santa Clara	5.1	2.61E-06	6,500	250	3.12E-06	1.84E-06	1.28E-06	3.12E-04	1.84E-04	1.28E-04
63	Alviso	1.7	8.77E-07	1,000	250	1.05E-06	6.20E-07	4.31E-07	1.05E-04	6.20E-05	4.31E-05
64	Drawbridge	5.7	2.91E-06	100	250	3.48E-06	2.05E-06	1.43E-06	3.48E-04	2.05E-04	1.43E-04
65	Newark	2.3	1.15E-06	1,000	250	1.37E-06	8.11E-07	5.64E-07	1.37E-04	8.11E-05	5.64E-05
107	Newark	3.1	1.59E-06	10,000	250	1.90E-06	1.12E-06	7.79E-07	1.90E-04	1.12E-04	7.79E-05
108	Fremont	3.2	1.64E-06	10,000	250	1.97E-06	1.16E-06	8.06E-07	1.97E-04	1.16E-04	8.06E-05
109	Sunol	6.8	3.48E-06	100	250	4.17E-06	2.46E-06	1.71E-06	4.17E-04	2.46E-04	1.71E-04
110	Pleasanton	1.8	9.08E-07	1,000	250	1.09E-06	6.42E-07	4.46E-07	1.09E-04	6.42E-05	4.46E-05
111	Pleasanton	2.5	1.27E-06	3,000	250	1.52E-06	8.97E-07	6.24E-07	1.52E-04	8.97E-05	6.24E-05
112	Pleasanton	3.0	1.51E-06	100	250	1.81E-06	1.07E-06	7.44E-07	1.81E-04	1.07E-04	7.44E-05
113	Livermore	5.0	2.57E-06	5,000	250	3.08E-06	1.82E-06	1.26E-06	3.08E-04	1.82E-04	1.26E-04
114	Livermore	2.5	1.26E-06	1,000	250	1.51E-06	8.90E-07	6.19E-07	1.51E-04	8.90E-05	6.19E-05
115	Altamont	14.2	7.24E-06	100	250	8.67E-06	5.12E-06	3.56E-06	8.67E-04	5.12E-04	3.56E-04
116	Tracy	3.9	1.97E-06	3,000	250	2.36E-06	1.39E-06	9.67E-07	2.36E-04	1.39E-04	9.67E-05
117	Lathrop	8.2	4.18E-06	100	250	5.01E-06	2.96E-06	2.05E-06	5.01E-04	2.96E-04	2.05E-04
118	French Camp	8.0	4.08E-06	1,000	250	4.89E-06	2.88E-06	2.00E-06	4.89E-04	2.88E-04	2.00E-04
119	Stockton	7.9	4.03E-06	10,000	1345	2.60E-05	1.53E-05	1.07E-05	2.60E-03	1.53E-03	1.07E-03
120	Lodi	4.1	2.07E-06	100	1345	1.33E-05	7.85E-06	5.46E-06	1.33E-03	7.85E-04	5.46E-04
121	Lodi	3.4	1.73E-06	5,000	1345	1.11E-05	6.57E-06	4.57E-06	1.11E-03	6.57E-04	4.57E-04
122	Acampo	5.5	2.81E-06	100	1345	1.81E-05	1.07E-05	7.41E-06	1.81E-03	1.07E-03	7.41E-04
123	Galt	1.6	7.96E-07	4,000	1345	5.13E-06	3.02E-06	2.10E-06	5.13E-04	3.02E-04	2.10E-04
124	Hicksville	8.6	4.38E-06	100	1345	2.82E-05	1.66E-05	1.16E-05	2.82E-03	1.66E-03	1.16E-03
125	Elk Grove	1.0	4.87E-07	100	1345	3.14E-06	1.85E-06	1.29E-06	3.14E-04	1.85E-04	1.29E-04
126	Elk Grove	5.8	2.94E-06	5,000	1345	1.89E-05	1.12E-05	7.76E-06	1.89E-03	1.12E-03	7.76E-04
127	Sacramento	4.2	2.14E-06	1,000	1345	1.38E-05	8.14E-06	5.66E-06	1.38E-03	8.14E-04	5.66E-04
128	Sacramento	4.6	2.32E-06	10,000	1345	1.50E-05	8.82E-06	6.13E-06	1.50E-03	8.82E-04	6.13E-04
101	Parkland	0.8	4.12E-07	100	2805	5.54E-06	3.27E-06	2.27E-06	5.54E-04	3.27E-04	2.27E-04

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						All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)	All Spill Probability (per year)	Small Spill Probability (per year)	Large Spill Probability (per year)
102	Sacramento	3.1	1.58E-06	3,000	2805	2.12E-05	1.25E-05	8.68E-06	2.12E-03	1.25E-03	8.68E-04
103	North Highlands	2.6	1.31E-06	1,000	2805	1.75E-05	1.04E-05	7.19E-06	1.75E-03	1.04E-03	7.19E-04
104	North Highlands	4.4	2.23E-06	3,000	2805	3.00E-05	1.77E-05	1.23E-05	3.00E-03	1.77E-03	1.23E-03
105	Roseville Yard	1.3	6.43E-07	100	2805	8.64E-06	5.10E-06	3.54E-06	8.64E-04	5.10E-04	3.54E-04
129	Roseville	1.4	1.15E-06	3,000	2805	1.55E-05	9.16E-06	6.36E-06	1.55E-03	9.16E-04	6.36E-04
130	Roseville	1.1	9.01E-07	3,000	2805	1.21E-05	7.15E-06	4.97E-06	1.21E-03	7.15E-04	4.97E-04
131	Roseville	2.1	1.73E-06	1,000	2805	2.33E-05	1.37E-05	9.55E-06	2.33E-03	1.37E-03	9.55E-04
132	Roseville	0.5	3.71E-07	3,000	2805	4.99E-06	2.94E-06	2.04E-06	4.99E-04	2.94E-04	2.04E-04
133	Rocklin	2.5	2.06E-06	1,000	2805	2.77E-05	1.63E-05	1.14E-05	2.77E-03	1.63E-03	1.14E-03
134	Placer Co	8.0	6.54E-06	100	2805	8.79E-05	5.18E-05	3.60E-05	8.79E-03	5.18E-03	3.60E-03
135	Newcastle	0.5	3.70E-07	1,000	2805	4.97E-06	2.93E-06	2.04E-06	4.97E-04	2.93E-04	2.04E-04
136	Placer Co	2.5	2.05E-06	100	2805	2.76E-05	1.63E-05	1.13E-05	2.76E-03	1.63E-03	1.13E-03
137	Auburn	5.3	4.37E-06	1,000	2805	5.88E-05	3.47E-05	2.41E-05	5.88E-03	3.47E-03	2.41E-03
138	Placer Co	13.6	1.11E-05	100	2805	1.50E-04	8.84E-05	6.14E-05	1.50E-02	8.84E-03	6.14E-03
139	Colfax	0.7	5.53E-07	1,000	2805	7.43E-06	4.38E-06	3.05E-06	7.43E-04	4.38E-04	3.05E-04
140	Placer Co	61.6	5.05E-05	100	2805	6.79E-04	4.01E-04	2.78E-04	6.79E-02	4.01E-02	2.78E-02
141	Truckee	2.1	1.74E-06	1,000	2805	2.34E-05	1.38E-05	9.58E-06	2.34E-03	1.38E-03	9.58E-04
142	Nevada Co	13.9	1.14E-05	100	2805	1.53E-04	9.02E-05	6.27E-05	1.53E-02	9.02E-03	6.27E-03
143	Floriston	0.2	1.90E-07	1,000	2805	2.55E-06	1.51E-06	1.05E-06	2.55E-04	1.51E-04	1.05E-04
144	Sierra Co	5.8	4.75E-06	100	2805	6.38E-05	3.76E-05	2.62E-05	6.38E-03	3.76E-03	2.62E-03