high speed mainline movement) and 1-5 cars (for low speed mainline movement) were calculated. These probabilities are provided in Table 9.

Table 9. Probability of having 'X' number of LNG DOT-113 rail cars involved in a train accident with derailment, by train speed.

'X' Number of LNG DOT-113 Cars Involved in Train Accident with Derailment	Probability of 'X' Number of LNG DOT-113 Cars Involved in Train Accident with Derailment	
	High Speed (25 - 50 mph)	Low Speed[21] (≤ 25 mph)
1	13.4%	2.48%
2	2.17%	2.34%
3	3.06%	2.23%
4	1.54%	1.91%
5	1.60%	60.9%
6	1.40%	
7	1.49%	
8	1.23%	
9	0.943%	
10	1.40%	
11	71.8%	

3.1.3 DOT-113 LOC Probabilities

The prior sections detailed the development of accident rate and derailment probability estimates for LNG DOT-113 cars. Not every accident will lead to an LOC of LNG. The specific dynamics of an individual accident will dictate whether and to what extent an LOC may occur. This section discusses the development of LOC and release size probability estimates for the QRA model based on industry data and guidelines.

LOC probability data for LNG in DOT-113 tank cars does not exist, so general rail industry data was used and reasonable engineering assumptions were made, as necessary. Pressure tank cars and cryogenic tank cars have an extensive history of operation with corresponding accident data, and with some engineering judgement, this type of accident data was applied to shipping

[21] It should be noted that the probability for LNG DOT-113 rail car involvement at low speeds does not equal 100%, unlike at high speeds. This is due to the average number of cars derailed equal to five (5) at low speeds; thus, first car derailment at train positions 1-6 will not result in LNG OT-113 rail car involvement.