

8.1.3.4 Bowden Yard

A summary of the baseline risk metrics for the LNG ISO car Bowden Yard lifting and movement cases is provided in Table 45. The maximum contribution to the IR and SR is from the Lift Off activities. The SR Integral representing the total Societal Risk with the surrounding population (from approximately 478 to 5,720 people per square mile) is the same order of magnitude as the mainline route segments with high population.

Table 45. Bowden Yard - summary of the risk metrics for LNG ISO car movement and ISO lifting.

Risk Metric	Bowden Yard
	C-1
SR Integral (total risk, yr ⁻¹)	2.27×10 ⁻⁴
Maximum IR (yr ⁻¹)	4.20×10 ⁻⁵
Train Movement (from Track):	
Maximum Distance to Zone 1 - 1×10 ⁻⁵ IR (ft)	N/A
Maximum Distance to Zone 2 - 1×10 ⁻⁶ IR (ft)	N/A
Maximum Distance to Zone 3 - 3×10 ⁻⁷ IR (ft)	185
ISO Lifting (from Point):	
Maximum Distance to Zone 1 - 1×10 ⁻⁵ IR (ft)	290
Maximum Distance to Zone 2 - 1×10 ⁻⁶ IR (ft)	530
Maximum Distance to Zone 3 - 3×10 ⁻⁷ IR (ft)	560

An IR contour plot for the Bowden Yard is provided in Figure 53 for train configuration C-1. The frequency contours correspond to the summed individual risks for release scenarios occurring from the Lift Off operations and yard train movements. The highest IR is centered around the assumed point of Lift Off operations.

Moving away from the lifting operations, the IR decreases rapidly with distance. Zone 1 IR values higher than 1×10⁻⁵ yr⁻¹ are maintained onsite, with the edge of the Zone 3 IR contour (3×10⁻⁷ yr⁻¹) traveling at most 100 feet from the FECR property line around the point of lifting. Areas offsite where IR falls within Zone 2 and Zone 3 (IR between 1×10⁻⁵ and 3×10⁻⁷ yr⁻¹) contain residential structures and commercial/industrial structures. The population density in this area is less than the Zone 2 threshold criterion of 7,250 to 23,300 persons/mile² for permitted populations. Given this analysis, the Individual Risk profiles for the Bowden Yard are calculated to align with the fixed facility IR acceptability criteria stated in NFPA 59A (see Table 1).