

2 Systems Description

Unit train LNG DOT-113 tank car movements were evaluated along mainline rail track as a function of train speed and exposed population density. The QRA assumed an average daily movement rate of eleven or more DOT-113 tank cars with a capacity of 30,000 gallons. As will be discussed below, although more containers may be shipped within the same train, the overall risk is adequately represented by modeling this annual average movement capacity.

The following sections will provide more details on the DOT-113 tank cars and the proposed train route.

2.1 DOT-113 Rail Tank Cars

The LNG will be transported in DOT-113 cryogenic liquid rail tank cars. The DOT-113 is typically comprised of an interior pressure vessel to contain the cryogenic liquid, surrounded by an exterior tank with the intermediate space insulated by vacuum. The interior pressure vessel is commonly constructed of stainless steel and fabricated to DOT requirements.

The DOT-113 containers are capable of LNG service. Example design parameters are listed in Table 2.¹²

Table 2. DOT-113 tank container parameters used in this study.

Parameter	Value
MAWP (psig)	90
LNG Capacity (gallon)	30,000 (nominal)
Net Volume (gal)	10,830

¹² LNG Tank Car SR-603, Bulk Transport Unit, Chart Industries. <www.ChartLNG.com>