As companies move progressively toward quantifying risks, there becomes a greater need for developing the data necessary to populate the risk analysis. The consequences associated with a failure are one aspect of the “risk equation”, and people have devoted many years to developing models of the manner in which chemicals may be released and dispersed, and the impacts that result.

Less attention has been paid by risk analysts to the equally important frequency side of the risk equation. Historically, equipment reliability has been the realm of reliability gurus in companies, each of whom generally has collected information in a specific equipment niche such as compressors. Frequently, this storehouse of knowledge is maintained in this person’s filing cabinet, and leaves when that person retires.

Much of the value of sophisticated consequence models is lost to the risk analyst when the frequency side of the risk equation may be in error by an order of magnitude or more. This paper describes the basis and development of an equipment failure rate database, with an emphasis on loss of containment failures. Many useful sources of failure rate data are also provided.