

MARINE QUANTITATIVE RISK ANALYSIS

FACT SHEET



Northern Gateway completed a Quantitative Risk Analysis (QRA) of the marine components of the Project. The analysis was completed by Det Norske Veritas (DNV), an independent foundation, which specializes in risk management.

The QRA estimated the probability of tanker incidents and cargo loading and unloading incidents at the marine terminal. For each incident type the conditional probability of a spill was also estimated.

Risk Reduction

To reduce the risk of a spill, the use of escort tugs during tanker transit and the use of closed loading during oil tanker loadings at the marine terminal were examined. Results demonstrated:

- Escort tugs can reduce the risk of grounding by as much as 90% and reduce tanker incidents to approximately one-third the current world average.
- Closed loading virtually substantially reduces the risk of overfilling of a tanker.

Spill Risks

The risk of a spill occurring during tanker transit or at the terminal can be reduced to levels comparable to other operations using best practices.

- For the marine terminal, the maximum credible spill size is estimated to be approximately 250 m³. The return period for a spill of any size from the marine terminal is estimated to be 62 years.
- For tanker transit, the maximum credible spill size is estimated to be approximately 36,000 m³. The return period for a spill of any size from tanker transit is 250 years. For a spill exceeding 40,000 m³, the return period is estimated to be greater than 15,000 years.