HAZOP study (or similar) identifies a risk

BS EN 61511:
Hazard & Risk Analysis

HAZOP study then list all the barriers and safeguards
The “Risk Gap”

BS EN 61511:
Hazard & Risk Analysis

TOLERABLE RISK LEVEL

IDENTIFIED RISK

UNACCEPTABLE RISK LEVEL

Required Risk Reduction

By Other Technology (Relief system / Vessel design etc.)

By External Factors (Location / Bunding etc)

All the barriers and safeguards from the HAZOP study are then evaluated:
......but there is still a gap to reach what is Tolerable
The "Risk Gap"

BS EN 61511:
Hazard & Risk Analysis

TOLERABLE RISK LEVEL

UNACCEPTABLE RISK LEVEL

IDENTIFIED RISK

Required Risk Reduction

By Other Technology
(Relief system / Vessel design etc.)

By External Factors
(Location / Bunding etc)

The SIL rating is decided by the size of the "gap":

Is “Risk Gap” > 10?
Then a SIL is needed

BS EN 61508:
Hazard & Risk Analysis

TOLERABLE RISK LEVEL

UNACCEPTABLE RISK LEVEL

IDENTIFIED RISK

Required Risk Reduction

By SIL System
(Relief system / Vessel design etc.)

By Other Technology

By External Factors
(Location / Bunding etc.)
SIL covering the gap

BS EN 61508: Hazard & Risk Analysis

TOLERABLE RISK LEVEL

UNACCEPTABLE RISK LEVEL

IDENTIFIED RISK

Required Risk Reduction

By Other Technology (Relief system / Vessel design etc.)

By External Factors (Location / Bunding etc.)

If any of these changes then the gap also changes – So the SIL changes