Operational Risk Analysis in Process Plants

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In the Norwegian oil and gas industry, quantitative risk analysis (QRA) has been used for more than 30 years to support safe design of new installations. Generally, these analyses have been accepted as being useful tools to improve the safety of oil and gas plants and experience shows that the risk level has significantly declined over the last three decades. However, experience has also been that these analyses are not very useful for supporting safe operation of installations. The most common explanation that has been given for this is that the analyses are too technical and complicated to be understood by operation people and that they, therefore, are not able to utilize all the information that is contained in such studies.

The lecture will take the above as a starting point and will elaborate on these topics:
- Why can existing QRAs not be used to support operational decisions, when they are so useful for design decisions?
- What types of decisions do we typically make in daily operations, and what information do we need to make these decisions?
- How can we develop new risk analyses that can support the decisions in a better way?

The lecture is mainly based on experience and knowledge developed in the MIRMAP project (Modeling Instantaneous Risk for Major Accident Prevention) that has been ongoing for nearly 4 years. The project is funded by the Norwegian Research Council, Statoil and Gassco and with NTNU as main contractor.