

IBM NALAIYA THIRAN

Project Topic : Gas Leakage Monitoring and Alerting System

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PROPOSED SOLUTION

Explosion Risk Reduction:

To reduce the risk of explosion, the first priority is to reduce the frequency of its occurrence. This may be achieved by the following three measures (Vinnem, 1999).

SOLUTION:

Prevent Ignitable Concentrations:

The next step to reduce the explosion risk is to prevent the formation of any ignitable atmospheres (e.g., through extensive natural ventilation). In the design phase, good natural ventilation is normally provided. During operation, ventilation may have been purposely reduced (e.g., by temporary equipment being installed or left in the openings, or to improve the working environment). It is therefore a difficult trade-off between the increased natural ventilation and the deteriorated working conditions. Mechanical ventilation systems may be effective for small gas leaks. However, for massive gas releases, the forced ventilation is generally insufficient.

Prevent Gas Leakage:

The most effective action for the prevention of gas leakage is to reduce the number of sources for potential leakage (e.g., the number of flanges). This can easily be accomplished for a new platform. However, it is generally more difficult for existing platforms. The number of gas leaks may also be reduced by:

- ✓ Improving the maintenance quality in the process area
- ✓ Selecting high-quality material for gaskets
- ✓ Following up the minor leakage to identify trends and unwanted tendencies