Non-traditional Functional Safety (ISA84) Applied to Onshore Gas Production

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ABSTRACT

The onshore US natural gas industry encompasses thousands of small, individual wellsites that contain thousands of separators, tanks, compressors, and other surface facilities. These wellsites are largely unmanned, remotely monitored sites. The layout of these wellsites are generally the same, however due to natural gas composition, age of the wellsite, fabricator of the facility, etc., there are many variations in design across the US. Implementing a semi-quantitative risk assessment process such as LOPA (layer of protection analysis) has proved to be a formidable challenge. Industry RAGAGEP (recognized and generally accepted good engineering practice) calls for protective systems that are installed and maintained to provide protection to personnel and the environment for the full life-cycle of each facility. This paper will review the systematic approach that was conducted by one natural gas company to assure that wellsites meet an equivalent level of risk reduction as the larger gas plants. Key findings, guidelines for implementation of process safety management, and potential future protective design criteria will be presented.