



**MARY KAY O'CONNOR
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**The Human Error Bowtie as an Effective Tool to Assess Critical Processes
and Human Based Barriers**

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Abstract

Human Error has been noted as a significant contributor to incidents that occur in the Oil and Gas industry. Regardless of the reliability or integrity of the design, the human interface will always be a factor that needs to be considered when identifying ways to defeat or impair a healthy barrier as a part of the risk management program. The Bowtie analysis is a risk assessment methodology that is employed to identify how a Hazard can be released, the potential Consequences and to implement Barriers to prevent and / or mitigate the risk. Human Error is identified as an escalation factor on Bowties for multiple circumstances that can degrade or impair a Barrier and may lead to the partial or full failure of that Barrier.

The Human Performance Bowtie has been developed to examine the aspects that may impede human action and subsequently degrade barriers where they rely on human action (including via Safety Critical Tasks). This Bowtie is intended to remove Human Error as an escalation factor across multiple bowties for one site / facility and instead analyze all aspects of the Human Performance as it relates to the release of the Hazard. The Human Performance Bowtie also aids as a Gap Assessment tool to assure that a site or facility has incorporated the appropriate procedures and Critical Processes to manage the risks being considered.