



High Consequence Area Analysis

Enhanced Value through Applied Analysis

Regulatory Rationale

Regulations for pipeline operators within the Oil and Gas Pipeline Industry are becoming increasingly rigorous, especially in the fields of pipeline integrity and emergency response. The requirements for reporting of High Consequence Areas (HCAs) has uncovered a need for better tools that aid in the management and assessment of both directly and indirectly affected HCAs.

The aim of High Consequence Area analysis is to identify all segments of a pipeline system having the potential to affect an HCA either directly or indirectly.

Direct and Indirect HCAs

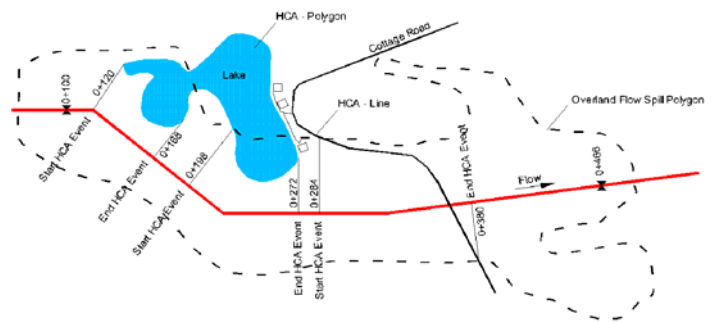
Directly affected HCAs are those that intersect the pipeline centerline. Indirectly affected HCAs are those that are affected by liquid pooling, thermal radiation or fall within a predefined analysis area (ie. risk-based distance).

Determining directly affected HCAs is a relatively straightforward analysis and one that the pipeline industry has conquered. On the other hand, effectively determining indirectly affected HCAs within an analysis area, while possible to accomplish, does remain a challenge to the pipeline industry.

Example where the user has specified an Analysis area using an event based Analysis area (i.e. Thermal Radiation)



Example where the user has specified an Analysis area using a predefined Analysis area (i.e. Overland Flow)



HCA Analysis Automation

Integrated Informatics has developed its High Consequence Area Analysis Tool to support the assessment and reporting of both directly and indirectly affected HCAs within simple or complex analysis areas.

The tool allows the user to define an analysis area by utilizing a selected offset distance field or a complicated predefined polygonal geometry (such as a pre-determined spill area) that cannot be represented as a single offset value.

The tool will accept point, line, and polygon features as defined High Consequence Areas and will report directly and indirectly affected HCAs.

Output is in the form of a PODS compatible database table. The database table contains all the necessary HCA analysis results so that the questions "What HCAs are potentially affected by this pipeline segment?" and "What pipeline segments will potentially affect a particular HCA?" can be reported.

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