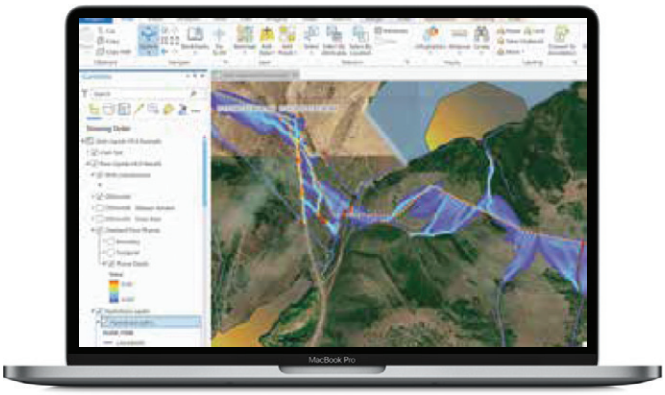
SOFTWARE & TECHNOLOGY: LIQUIDS HCA TOOL

EN Data Solutions, a sector of ENTRUST Solutions Group, empowers pipeline operators to rapidly and efficiently determine "could affect" segments in the event of a hazardous liquids release.

Understanding the transport and fate of hazardous liquids release plumes in a terrestrial setting is a daunting task. Realistic simulation of such release plumes is mathematically complex and computationally intensive. Some liquids HCA software packages currently available are often inaccurate, unscalable, or both.



A GIS DATABASE THAT IS EFFECTIVELY SUPPORTING YOUR OPERATIONS WILL:

- Results are consistent, reproducible, defendable
- All results stored in a structured Esri geodatabase
- Reduced processing cycle times
- Extremely granular understanding of consequence of risk

ENDATA SOLUTIONS

OUR APPROACH

The EN Data Solutions Liquids HCA Tool allows for rapid and efficient determination of regulatory “could affect” segments in a way that is consistent, reliable, reproducible, and defendable. The tool increases accuracy via advanced computational fluid dynamics (CFD) algorithms. It also takes advantage of modern virtualized, containerized computing. The Liquids HCA tool connects directly to USGS web services to obtain topographic and hydrologic data and utilizes Docker® and Microsoft Azure® for unlimited scalability. The Liquids HCA tool works directly inside ArcGIS Pro, providing increased flexibility over stand-alone applications.

The tool is designed to meet all the requirements for “could affect” segment determination for hazardous liquids pipelines (crude, refned products, HVLs, etc.), as specified in 49 CFR §195.452, Pipeline integrity management in high consequence areas.

The most significant advancement of the Liquids HCA tool is its state-of-the-art predictive modeling capabilities. Most industry tools rely on the Manning Equation – an empirical equation designed to model) water or mudflows. Instead, the EN Data Solutions tool relies on the Navier-Stokes equation to model hydrocarbons, leveraging the GeoClaw engine from George Washington University to more accurately model geophysical flows based on friction factor determination

EN DATA SOLUTIONS DELIVERS:

The EN Data Solutions Liquids HCA Tool performs hydrocarbon plume transport simulations that support the following product transport mechanisms:

Overland flow: Simulation of the hydrocarbon release plume over the surface of the Earth, taking topography into account.

Hydrographic transport: Simulation of the downstream transport of a hydrocarbon release plume that has entered a lake, stream/river network or other water body.

ADDITIONAL BENEFITS INCLUDE:

- Esri® UPDM and Esri® APR, plus PODSTM, integration.
- Drain-down analysis including network topology for contributions from connected lines, identified sites, gathering places, and structure locations.