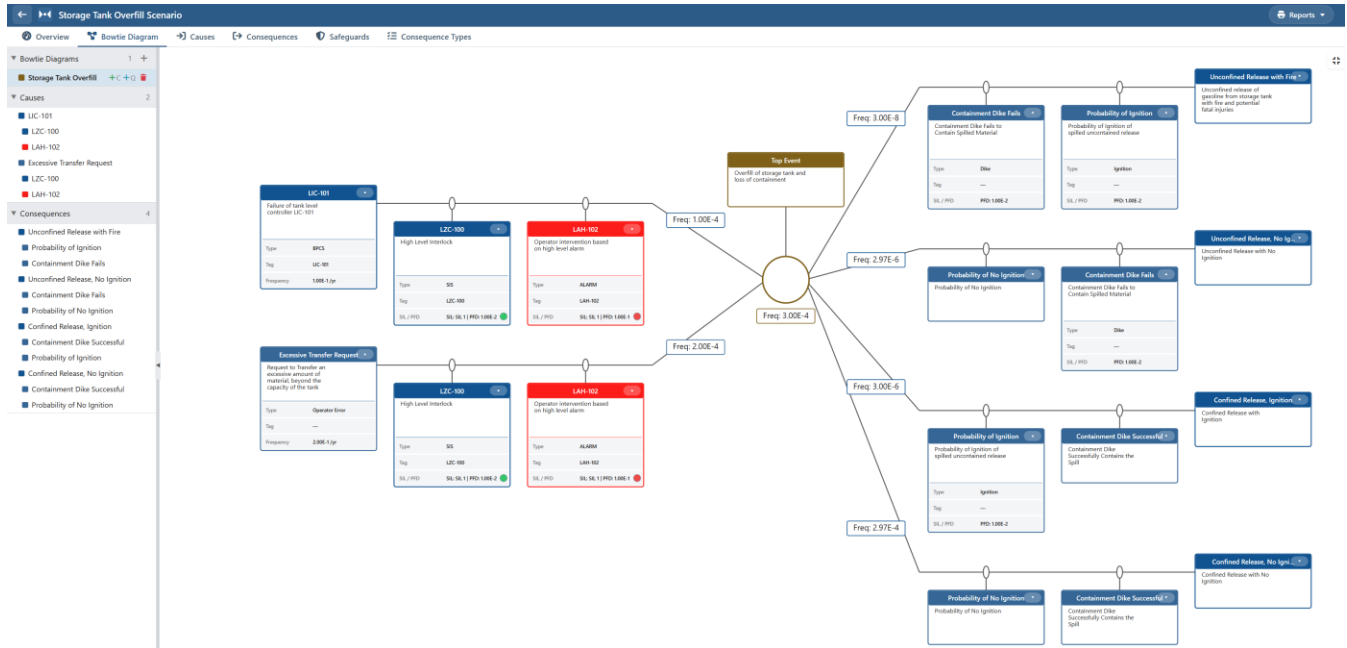


Understand, Mitigate, and Master Your Industrial Risks

In the complex world of industrial facilities, ensuring safety and tolerability of risk isn't just a goal, it's a necessity. That's where [Kenexis® Bowtie](#) comes in. As a powerful module within the [Kenexis Integrated Safety Suite](#), Kenexis® Bowtie provides technical safety professionals with an intuitive, cloud-based, multi-user platform for comprehensive safety and risk analysis.



What is Kenexis® Bowtie?

Kenexis® Bowtie leverages the widely recognized bowtie analysis methodology to help you visualize and quantify risk. It allows you to clearly map out causes (threats/initiating events), safeguards (preventative and mitigative barriers, including Independent Protection Layers – IPLs), top events, and consequences.

Most bowtie tools stop at the diagram — the picture that communicates major-accident risk to leadership and regulators. That diagram matters, but it doesn't tell you whether the barriers are enough. Kenexis® Bowtie does the frequency math behind the picture: it calculates Mitigated Cause Frequency, Top Event Frequency, and Consequence Frequency and checks each against your Target Mitigated Event Likelihood (TMEL) criteria, so you can answer the question a board or regulator will ask — 'and are those barriers sufficient?' — with calculation, not assertion.

Shared barriers with LOPA

Build Your Barriers Once. The barriers and IPLs in Kenexis® Bowtie carry SIL, probability of failure, and LOPA-credible status — the same objects used in LOPA ([Kenexis® Open-PHA®](#)), SIL verification ([Kenexis® SIS – formerly Vertigo™](#)), and complex frequency math ([Kenexis® Fault Tree](#)) on the same Kenexis Integrated Safety Suite platform. The IPL you credit in a bowtie is the IPL in your LOPA; the barrier that is a safety instrumented function is the SIF in your verification.

Why Choose Kenexis® Bowtie?

- **Cloud-Based & Multi-User:** Collaborate seamlessly with your team from anywhere, anytime. KISS provides an enterprise-level platform for all your technical safety and risk analysis activities.
- **Comprehensive Risk Visualization:** Clearly understand complex incident scenarios, identifying potential failure points and the effectiveness of your existing safeguards.
- **Quantitative Insights:** Go beyond qualitative assessments. Kenexis® Bowtie calculates critical frequencies, helping you make data-driven decisions about risk reduction measures and whether your **Target Mitigated Event Likelihood (TMEL)** criteria are met.
- **Robust Documentation:** Track revisions, add recommendations, and document personnel responses for a complete audit trail of your safety studies.
- **Intuitive Interface:** Designed for safety professionals, the Kenexis® Bowtie interface makes data entry and diagram construction straightforward.
- **Integrated Quantitative Analysis:** Shares barrier and IPL data with our Fault-tree Analysis Tool ([Kenexis® Fault Tree](#)) and SIS Lifecycle Management System ([Kenexis® SIS - formerly Vertigo™](#)) for a holistic, built once approach to risk assessment.

Key Features at a Glance

Study Management & Collaboration

- **Study Dashboard:** Get a high-level overview of your bowtie studies, including administrative information and a summary of results.
- **Revisions Grid View:** Track changes to your bowtie analysis model, documenting who made changes, when, and who checked and approved them.
- **Recommendations Grid View:** Document proposed changes to system designs based on your analysis, including priority, responsible party, and status.

Powerful Bowtie Diagramming

- **Interactive Bowtie Interface:** The central hub for building and visualizing your bowtie diagrams.
- **Study Data Tree View:** Easily navigate between different bowtie diagrams and their associated safeguards within a study.



- **Flexible Workspace Controls:** Add, edit, delete, and rearrange causes, safeguards, degradation factors, degradation controls, top events, and consequences with ease.
- **Zoom & Export:** Adjust the diagram zoom for optimal viewing and save your bowtie diagrams as high-quality image files (.png).

Detailed Data Entry & Analysis

- **Detailed Forms:** Input comprehensive information for each element of your bowtie diagram, including:
 - **Causes:** Title, description, type, instrument tags, and frequency.
 - **Safeguards:** Title, type, instrument tags, Safety Integrity Levels (SILs), probability of failure, and LOPA creditable status.
 - **Degradation Factors & Controls:** Analyze factors that can degrade safeguard performance and implement controls to mitigate them.
 - **Consequences:** Title, description, severity categories, and TMEL frequencies with clear indicators of compliance.
 - **Top Events:** Define and manage the central hazardous event.
- **Risk Criteria View:** Define and manage associated risk matrices, likelihood categories, consequence categories, and risk rankings to standardize your numerical risk analysis.
- **Automatic Quantitative Calculations:**
 - **Mitigated Cause Frequency**
 - **Top Event Frequency**
 - **Consequence Frequency**
 - **TMEL Criteria Compliance**

Credentials

Kenexis® Bowtie is built by the authors of the methodology behind it: founder Ed Marszal is an ISA Fellow, co-developer of the LOPA method, and an ISA84 member since 1994 — and the LOPA credit rules that govern barrier sufficiency are the same authority behind the bowtie quantification.

About Kenexis

Kenexis is a process safety consulting and engineering firm that delivers specialized technical safety services for both new and existing facilities. Our offerings include performance-based fire and gas mapping, as well as risk analysis for industries managing chemical and stored energy risks. With a strong focus on process safety, we provide a range of solutions, including consulting engineering services, software, and training.