

## Risk Before and After Data: Visualized by Risk Alive



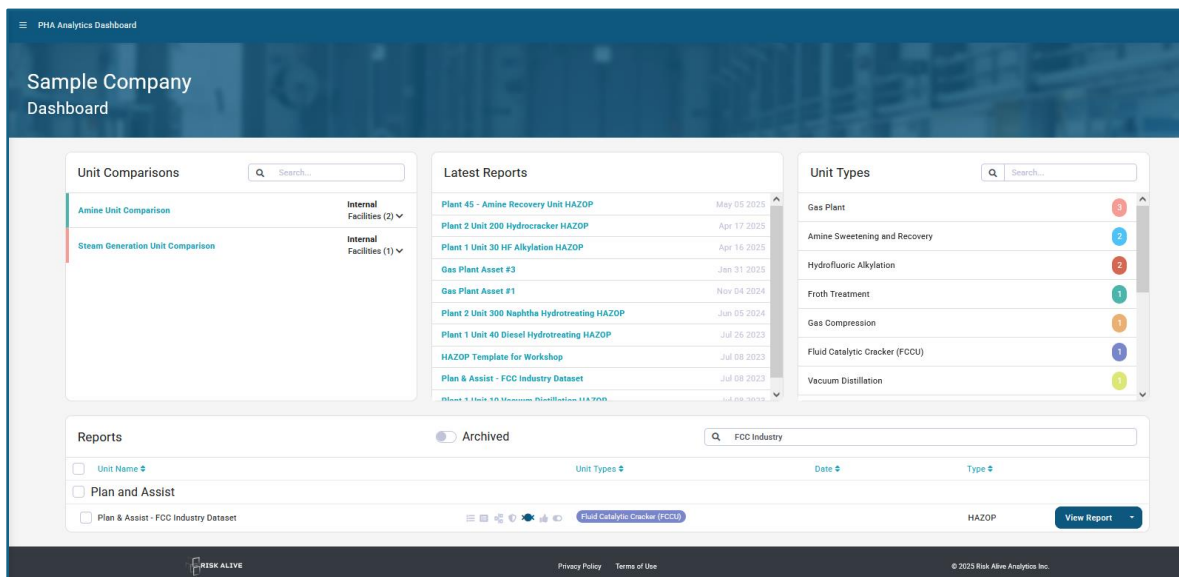
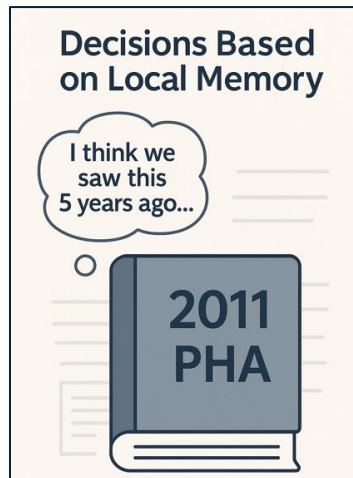
**Before vs. After Risk Data Intelligence**

<div style="background-color: #f8d7da; padding: 5px; margin-bottom: 5px;">Decisions based on local memory</div> <div style="background-color: #f8d7da; padding: 5px; margin-bottom: 5px;">Reactive after incidents</div> <div style="background-color: #f8d7da; padding: 5px; margin-bottom: 5px;">Risk data locked in reports</div> <div style="background-color: #f8d7da; padding: 5px; margin-bottom: 5px;">Siloed assessments</div> <div style="background-color: #f8d7da; padding: 5px; margin-bottom: 5px;">Low visibility of peer insights</div>	<div style="background-color: #d4edda; padding: 5px; margin-bottom: 5px;">Decisions guided by aggregated intelligence</div> <div style="background-color: #d4edda; padding: 5px; margin-bottom: 5px;">Proactive risk prevention</div> <div style="background-color: #d4edda; padding: 5px; margin-bottom: 5px;">Real-time access to risk data</div> <div style="background-color: #d4edda; padding: 5px; margin-bottom: 5px;">Shared learnings across sites</div> <div style="background-color: #d4edda; padding: 5px; margin-bottom: 5px;">Thousand voices in every room</div>
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**Are you ready to see the difference?**  
 → Book a Demo → Host a Workshop → Invite a Guest Speaker  
 Visit: [www.riskalive.com](http://www.riskalive.com)

## Decisions based on local memory → Decisions guided by aggregated intelligence:

With Risk alive, you can leverage industry PHA's through industry aggregated vulnerability assessments in the form of bowtie visuals for high-risk assessments to add full comprehensiveness to your PHA's. Many different unit types are published and currently available. Alternatively, request a specific unit type. We will get it done for you.



Plan & Assist - FCC Industry Dataset

Plan & Assist - FCC Industry Dataset  
Risk Alive Report

Your report is based on

1146  
Causes

1438  
Risk Reducing Safeguards

0  
Risk Reducing Recommendations

1941  
Consequence Scenarios

Fractionator - High Level - Loss of Containment

Control valve on Reactor feed bypass malfunctions open. (Node 10)

Control valve on slurry bottom outlet of Fractionator malfunctions closed. (Node 10)

Slurry Pumparound Pump trips. (Node 10)

Improperly open start-up circulation line on the run. (Node 11)

Level indicator on slurry draw of Fractionator malfunctions reading low level when high. (Node 11)

Level indicator on slurry draw of Fractionator malfunctions reading low level when high. (Node 11)

Control valve on outlet of Certified Oil Pump malfunctions closed. (Node 17)

56732

56732

56732

56732

56732

56732

56732

56732

H&S

Multiple Fatalities

H&S

Single Fatality

CAUSES

SAFEGUARDS

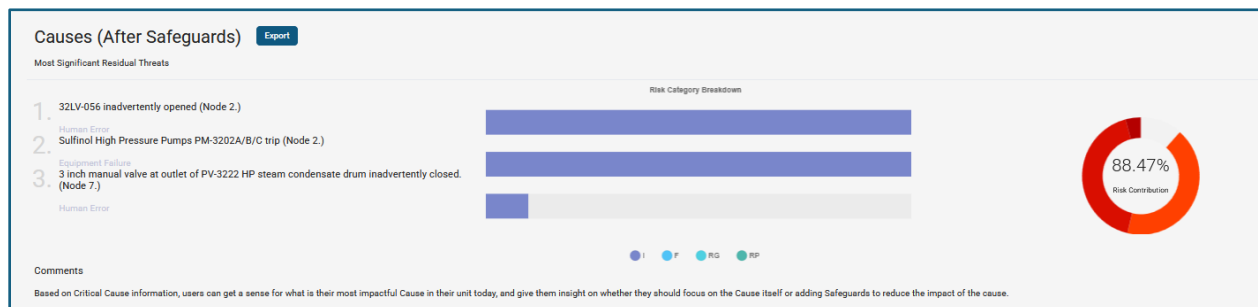
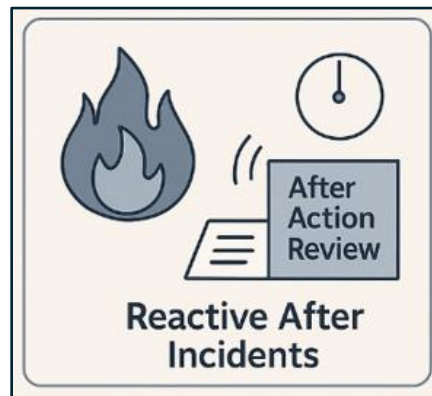
RECOMMENDATIONS

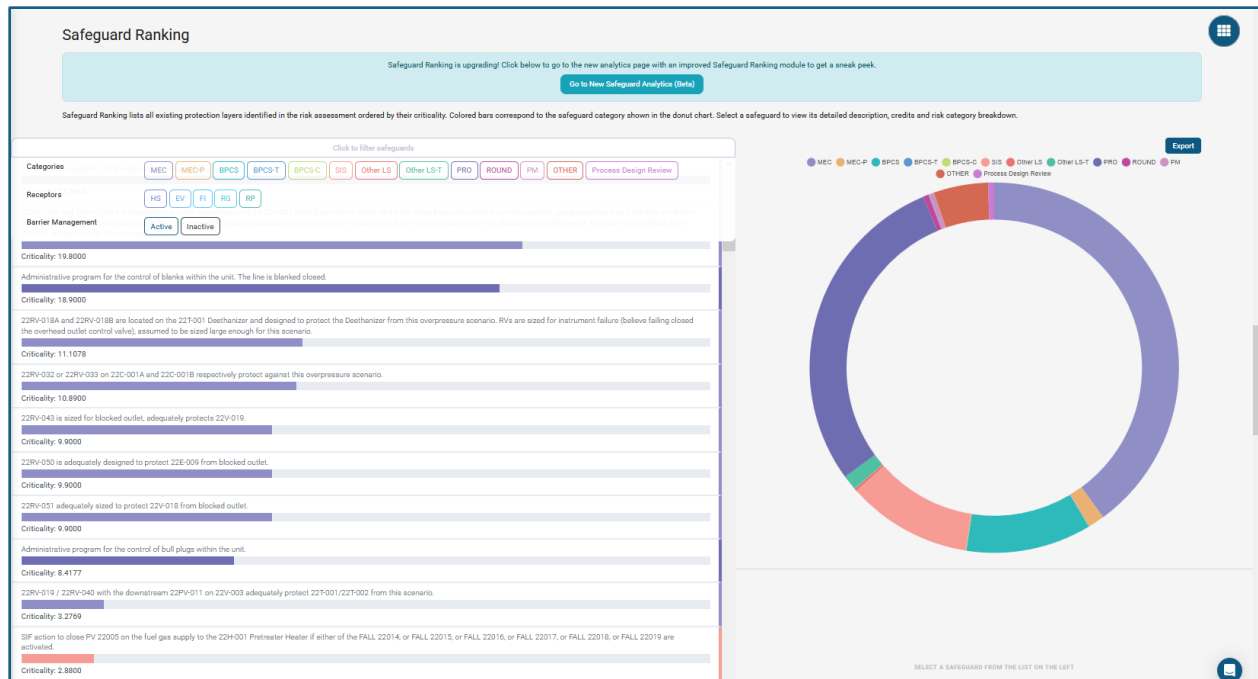
CONSEQUENCES

ID	Type	Description	Max Credits	Search Related	View Scenario
56732	Preventative	BPCS: High level alarm on Fractionator Bottoms with operator intervention.	1		VIEW SCENARIO(5)
50144	Preventative	BPCS: High level alarm on Fractionator with operator action.	1		VIEW SCENARIO(5)
50794	Preventative	BPCS: High pressure alarm on Fractionator with operator action.	1		VIEW SCENARIO(5)
501290	Preventative	SG: Interlock to feed to Fractionator on high Reactor pressure.	1		VIEW SCENARIO(5)
501214	Preventative	BPCS: HSG to storage line plugging alarm.	1		VIEW SCENARIO(5)
50161	Preventative	BPCS: High level alarm on the Fractionator with operator intervention to lower the Fractionator level or cut feed.	1		VIEW SCENARIO(5)
50993	Preventative	PR2: Spare Slurry Pumparound Pump, manual start locally.	1		VIEW SCENARIO(5)

### Reactive after incidents → Proactive risk prevention:

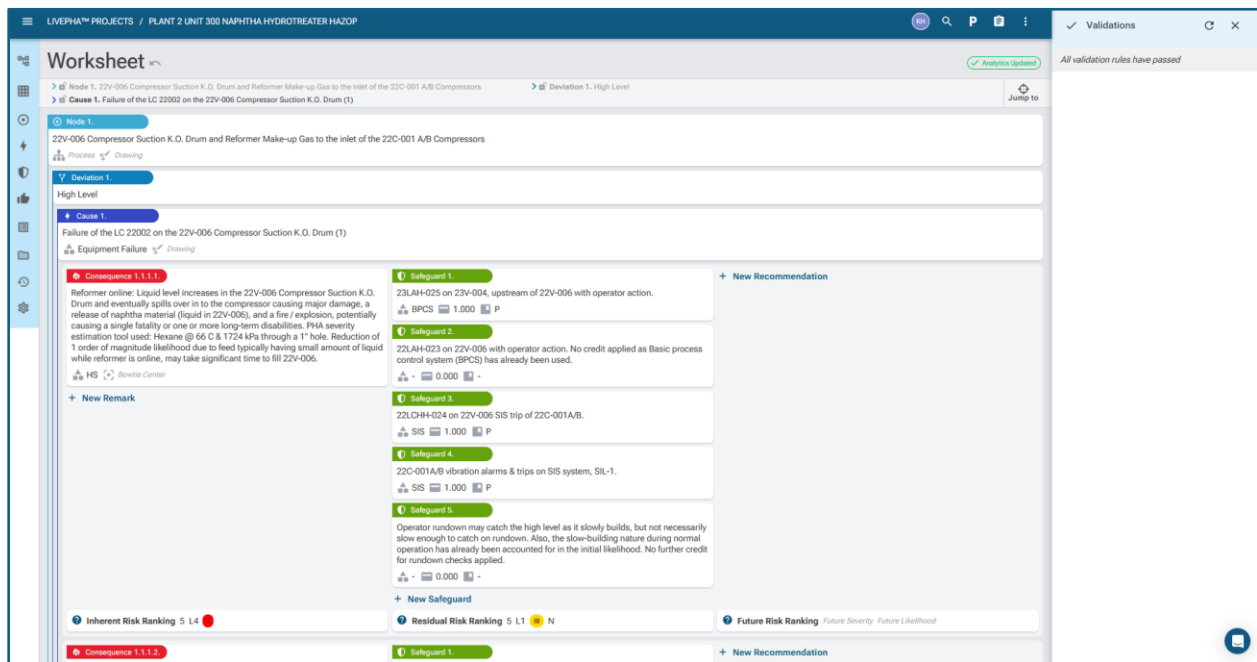
Benefit tremendously from the Risk Alive platform to provide proactive risk prevention on a variety of KPI's with either data already available from your PHA or gap assessments through industry comparison. From human dependent threats and equipment threats and providing safety training and awareness for operations, to most critical safeguard assessments and optimizing cost, preventative maintenance and sparing, all while focusing on what really matters.





- Determine preventative maintenance plans for your most critical safeguards, i.e. mechanical relief devices, controls, etc.
- Assess your most critical human-based safeguards such as alarms, procedures and rounds.
- Much more.

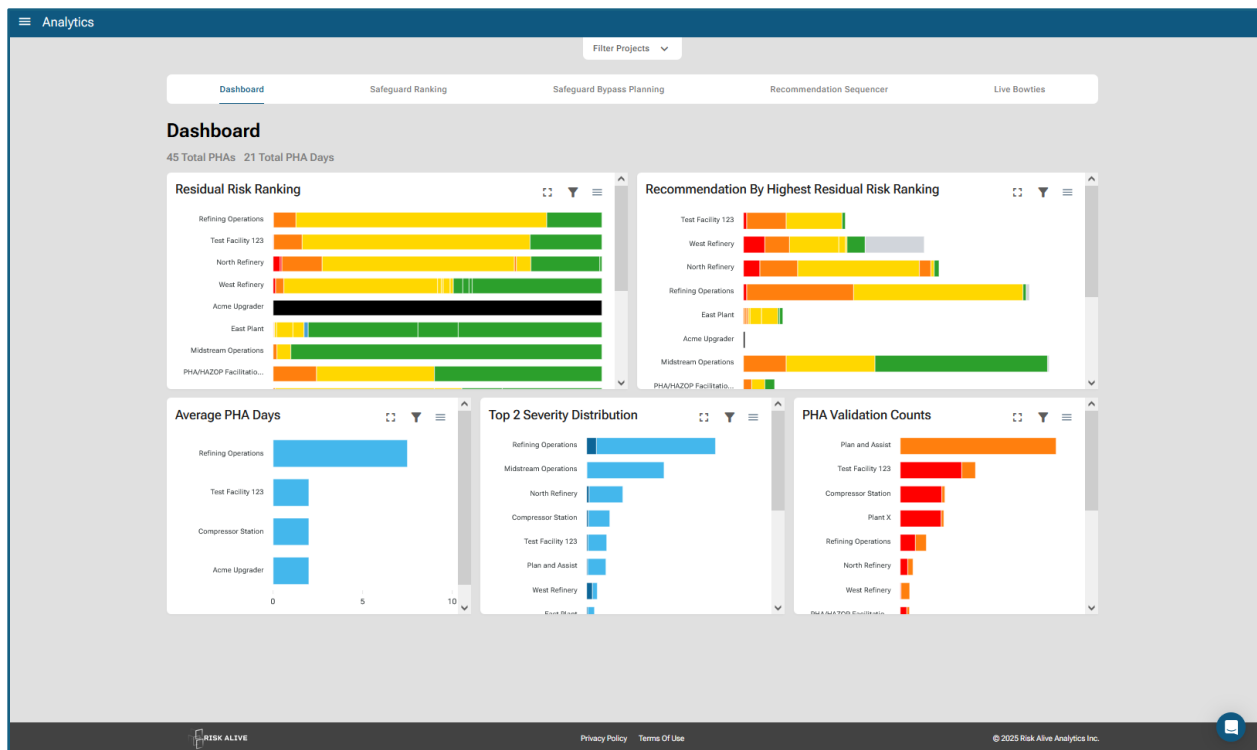
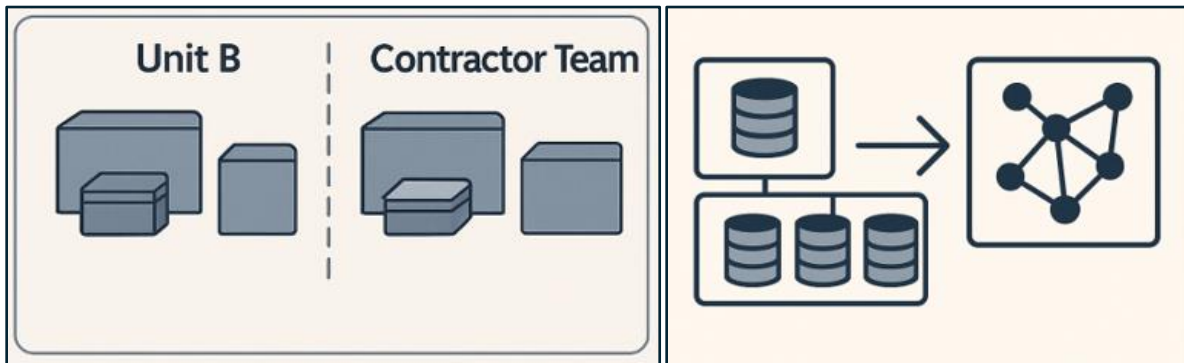
Risk Alive's LivePHA™ is prebuilt for dynamic and continuous real-time access and assessment. Different user permissions can be granted and historical changes tracked with timestamps. Know who updated what and when. With the analytics platform integrated, visualize real time changes in risk data and hazard assessments as they impact your overall unit, site, and enterprise. Risk assessments can be fully integrated into your PSM program with rich dynamic data available at your team's fingertips.





### Siloed Assessments → Shared Learnings across sites:

Analytics, data and learnings can be shared across an entire enterprise and assessed for individual processing areas. Multi-unit to site wide, as well as company-wide data is available for action, safety excellence and capital savings.





PHA Analytics Dashboard

Unit Comparisons

Amine Unit Comparison

Internal Facilities (2)

Steam Generation Unit Comparison

Internal Facilities (1)

Latest Reports

Plant 45 - Amine Recovery Unit HAZOP	May 05 2023
Plant 2 Unit 200 Hydrocracker HAZOP	Apr 17 2023
Plant 1 Unit 30 HF Alkylation HAZOP	Apr 16 2023
Gas Plant Asset #3	Jan 31 2023
Gas Plant Asset #1	Nov 04 2024
Plant 2 Unit 300 Naphtha Hydrotreating HAZOP	Jun 05 2024
Plant 1 Unit 40 Diesel Hydrotreating HAZOP	Jul 26 2023
HAZOP Template for Workshop	Jul 08 2023
Plan & Assesit - FCC Industry Dataset	Jul 08 2023

Unit Types

Gas Plant

Amine Sweetening and Recovery

Hydrofluoric Alkylation

Froth Treatment

Gas Compression

Fluid Catalytic Cracker (FCCU)

Vacuum Distillation

Selected Reports (3)

The following projects will be included in multiple PHA analysis when "Safeguard Ranking" or "Recommendation Sequence" are clicked. Analytics will open in a new tab.

Gas Plant Asset #1

Gas Plant Asset #2

Gas Plant Asset #3

New Safeguard Ranking (Beta)

Safeguard Ranking

Recommendation Sequencer

Analytics Data View

Archive

Reports

Archived

Unit Name

Unit Types

Date

East Plant

Unit 01 - Bitumen Treating HAZOP

Midstream Operations

Gas Plant Asset #1

Gas Plant Asset #2

Gas Plant Asset #3

Unit 04 - Compressor Station HAZOP

North Refinery

Plant 25 - Amine Recovery Unit HAZOP

Unit 491 - HF Alkylation HAZOP/LOPA

Troth Treatment

Gas Plant

Gas Plant

Gas Plant

Gas Compression

Amine Sweetening and Recovery

Hydrofluoric Alkylation

Sep 11 2019

Jun 10 2020

Sep 19 2019

Feb 25 2020

Jan 30 2020

Jun 12 2018

Apr 24 2018

HAZOP

HAZOP

HAZOP

HAZOP

HAZOP

HAZOP

HAZOP

View Report

View Report

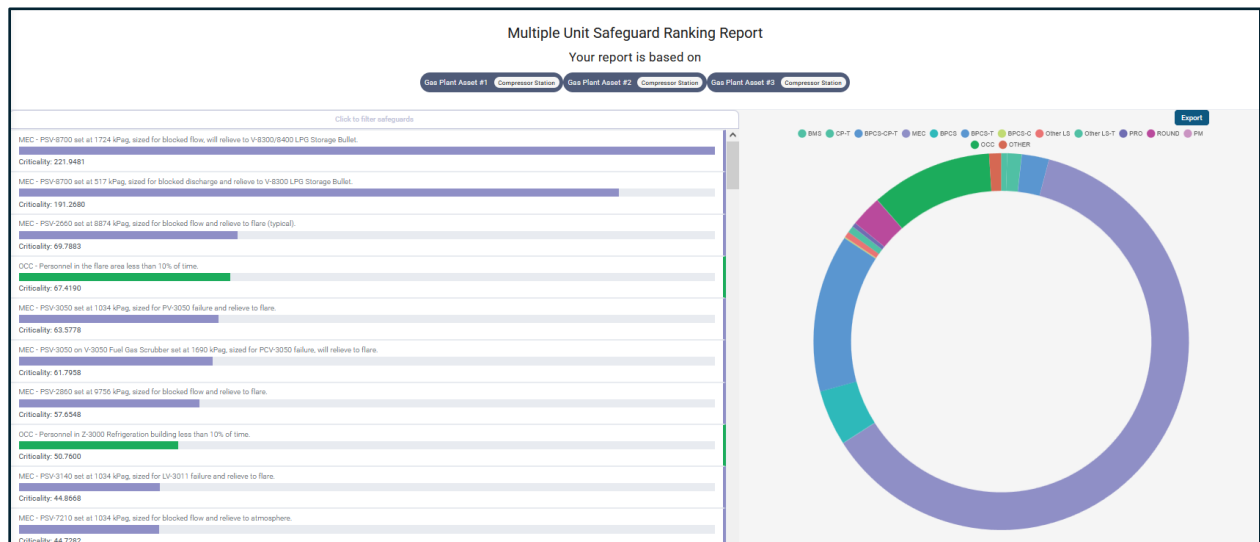
View Report

View Report

View Report

View Report

View Report



## Low visibility of peer insights → Thousand voices in every room

With over 30 years of Global industry PHA assessments, now developed into a proprietary database AI search engine. Leverage expertise from thousands of personnel across the world for PHA assessment data for your specific unit. Know exactly what scenarios others have analyzed and how severe they considered them, as well as safeguarding strategies that have been applied across industry.



The screenshot shows a web application interface for searching project data. At the top, a dark blue header contains a menu icon and the word "SEARCH". Below this, a light grey section titled "Search" with a magnifying glass icon contains the instruction: "Search across all your projects and return results sorted by relevancy." The main content area is white and features an "Industry-wide Search" section with a "Preview Feature" link. This section includes a descriptive paragraph and two toggle switches: "Use Industry-wide Search" (which is turned on) and "Anonymize Data" (which is turned off). Below these toggles is a search bar with the placeholder text "Search". Under the search bar, there are two columns of filters. The "Unit Types" column, with the subtext "Everything will be shown.", lists various project types with checkboxes: Absorption (18 projects), Acetylene Reactor (9 projects), Acid Gas Compression & Dehydration (13 projects), Acid Gas Injection (14 projects), Acid Loading (1 projects), Acid Plant (2 projects), Acid Tank (2 projects), and ACTL Project (1 projects). The "Properties" column, also with the subtext "Everything will be shown.", lists various attributes with checkboxes: Node, Node Process, Deviation, Cause, Consequence, Safeguard, Recommendation, and Remark. A blue "Search" button is located at the bottom center of the filter section. The footer of the application is dark grey and contains the "RISK ALIVE" logo, links for "Privacy Policy" and "Terms of Use", and the copyright notice "© 2025 Risk Alive Analytics Inc." on the right side.

SEARCH

Search

Search across all your projects and return results sorted by relevancy.

Filters

Reset

Q Amine Exchanger Corrosion Leaks

Anonymize Data

Unit Types

☒Amine Sweetening and Recovery  
(110 projects)

Properties

Everything will be shown.

Q Search

☐Node

☐Node Process

☐Deviation

☐Cause

☐Consequence

☐Safeguard

☐Recommendation

PHA Search Results

Results

Export

26 Companies 48 Facilities 85 PHA Projects 35414 Results

Company A

Refinery A

Amine Sweetening and Recovery Plant A

Node 4.

Lean Amine- P-501A/B Amine Charge Pumps, P-502A/B Amine Booster Pumps, TK-501 Amine Surge Tank, TK-XXX Amine Slop Tank, E-502A/B Rich/Lean Amine Exchanger

Deviation 11.

Corrosion / Erosion

Cause 1.

There is significant corrosion potential in the Lean amine vessels and piping (E-502A/B Rich/Lean Amine Exchanger, and AC-501 Lean Amine Cooler etc.)

Score: 13.17

Company B

Refinery B

Amine Sweetening and Recovery Plant B

Node 4.

Lean Amine (from Amine Stripper thru Lean/Rich Amine Exchanger to Lean Amine Surge Tank)

Deviation 1.

~

Cause 6.

leakage/rupture in Lean-Rich amine exchanger

Score: 12.36

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