

Have Facilitation Skills - Will Travel



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9:00am PDT



AcuTech

PROCESS RISK MANAGEMENT



Speaker



David M. Heller, CSP, CPSA

Senior Principal Engineer

David M. Heller has over 40 years of experience in the chemical process industries, 30 of those years in safety. Mr. Heller was formerly a Lead Investigator & Investigations Manager with the US CSB in Washington DC. He led root cause investigations of significant chemical incidents throughout the US. Mr. Heller has held the position of Safety Manager at a multi-unit chemical processing facility and served as Process Safety Manager for a multi-national chemical company.

As a PHA leader, he has conducted reviews of various refinery and chemical plant processes, both batch & continuous, oil exploration and production facilities, and nanoparticle facilities.

Over his career, he and his colleagues have facilitated reviews outside of the chemical process industry, including underwater welding, marine well containment, offshore construction, kelp harvesting, bioenergy/sustainable energy, munitions manufacture and destruction, nanoparticle production, and other odd, but interesting processes.

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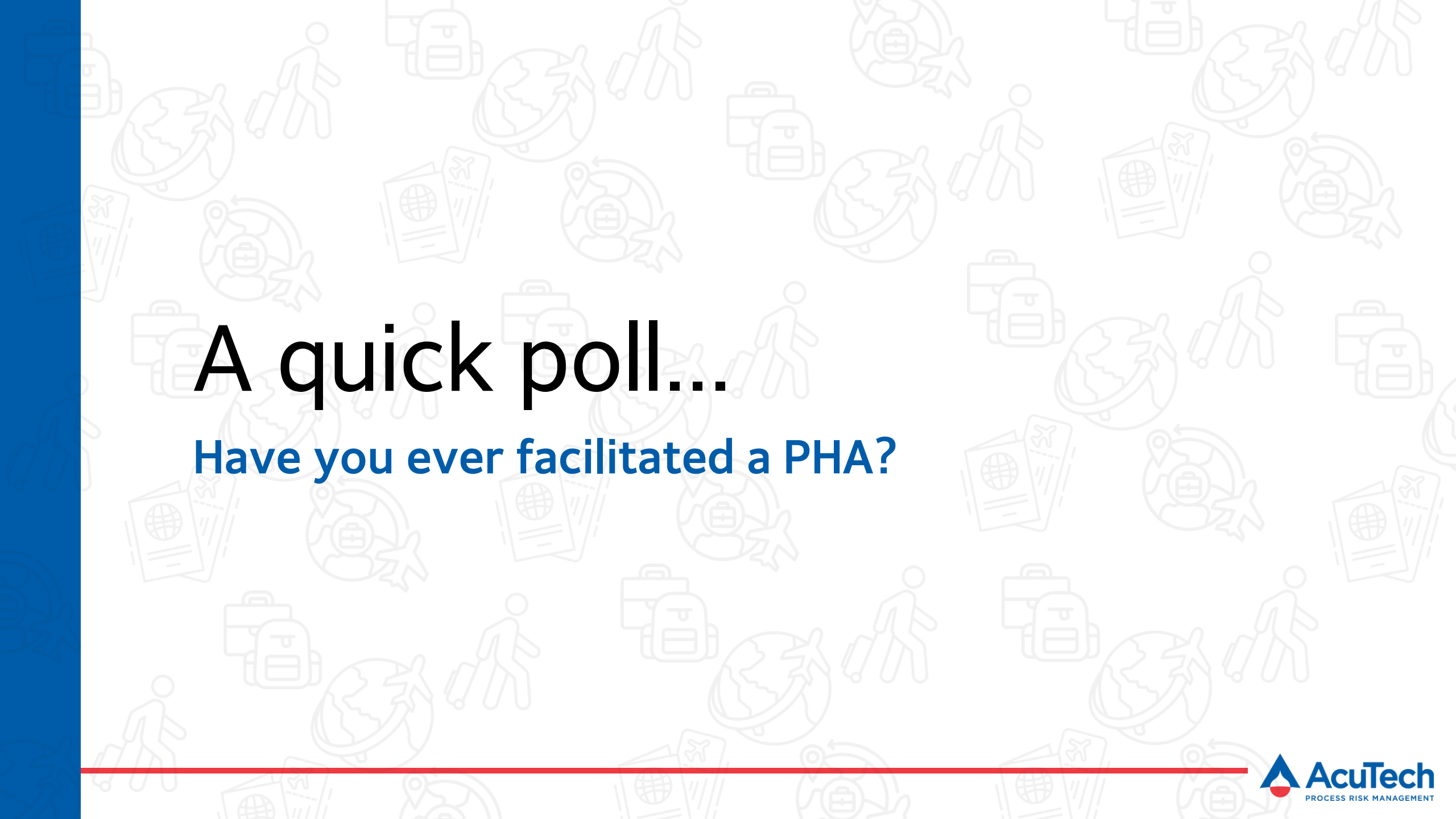


About AcuTech

Since 1994, AcuTech has been a global leader in providing best-in-class consulting, training, and software solutions to manage process risk.

With deep expertise in both the management and technical aspects of risk management, AcuTech is uniquely positioned to support clients ranging from the world's largest companies to specialized private companies to trade organizations and government agencies in improving safety, security, environmental, and operational performance.

This extensive experience across industries and in-depth knowledge of the tools and methods available for managing risk, allows our consultants to be responsive and flexible to meet client needs. In addition, they possess strong project management skills, broad technical expertise, and emphasize high-quality, on-time project work to support safer, more efficient, and, ultimately, more profitable operations.



A quick poll...

Have you ever facilitated a PHA?

Agenda

- Facilitator's Skillset
- Lessons from the CSB
- Common CSB Themes
- Managing the Menagerie

The Facilitator's Skillset

- Technical Ability
- Analytical Discipline
- Group Dynamics
- Rigorous Documentation
- Ethical Leadership



Technical Ability



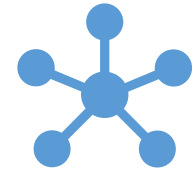
Understand the process deeply enough to ask incisive questions



Be fluent in multiple PHA methods



Recognize weak or non-independent safeguard



Connect findings to PSM elements

Analytical Discipline



Focus the team on
credible scenarios



Break down
complex scenarios



Identify patterns



Maintain
consistency

Group Dynamics

- Create a safe space
- Manage conflicts
- Balance the table
- Keep the momentum going
- Fight the inclination to engineer a solution
- Recap and reconsider



Rigorous Documentation



Capture scenarios precisely



Ensure recommendations are
specific, measurable, &
traceable

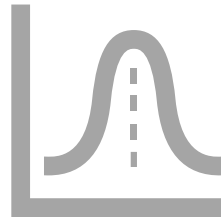


Maintain a clean worksheet

Ethical Leadership



Resist Pressure



Challenge normalization of
deviation



Frame the PHA as a
learning exercise

Lessons from the CSB

- **BP Texas City Refinery Explosion (2005)**
PHAs did not identify credible overfill and blowdown scenarios, in part because the team accepted longstanding operating practices without challenge. The report notes that hazard reviews were “incomplete” and “failed to identify major accident scenarios.”
- **Chevron Richmond Refinery Fire (2012)**
PHA process did not adequately analyze corrosion hazards or challenge assumptions about piping integrity. Investigation highlighted a culture where PHA teams did not rigorously question degradation mechanisms or worst-case consequences.
- **PES Philadelphia Refinery Explosion (2019)**
Consequences of HF release scenarios were underestimated and safeguards were credited that were not active

Lessons from the CSB

- **Husky Superior Refinery Explosion (2018)**

PHA did not fully evaluate the consequences of a fluid-catalytic-cracking unit (FCCU) slide-valve failure. The team accepted assumptions about valve reliability without deeper challenge.

- **Tesoro Anacortes (2010)**

PHAs did not adequately consider high-temperature hydrogen attack (HTHA) risks. The facilitation did not push the team to question long-standing assumptions or examine degradation mechanisms.

- **DuPont La Porte (2014)**

Catastrophic release scenarios involving methyl mercaptan were missed. The team did not explore credible deviations or human-factors vulnerabilities.

Common CSB Themes

Failure to
Challenge
Assumptions

Over-Crediting
Safeguards

Inadequate
Exploration of
Worst-Case
Scenarios

Poor Integration of
Operating
Experience

Insufficient
Participation or
Engagement

Documentation
that Obscured
Causal Chains

Managing the Menagerie



Questions?

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