



# ■ Promoting safety culture through sharing—a Dow perspective

**Lori Seiler**

*Associate Director,  
Global R&D EHS*

**Mark Jones**

*Executive External Strategy  
and Communications Fellow*

**Cathy Mapes**

*Director, Global Regulatory  
Services, Auditing & Compliance*

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[Dow.com](http://Dow.com)

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**ACS National Meeting & Expo**

Nexus of Food, Energy & Water

**■ Safety Is Easy**

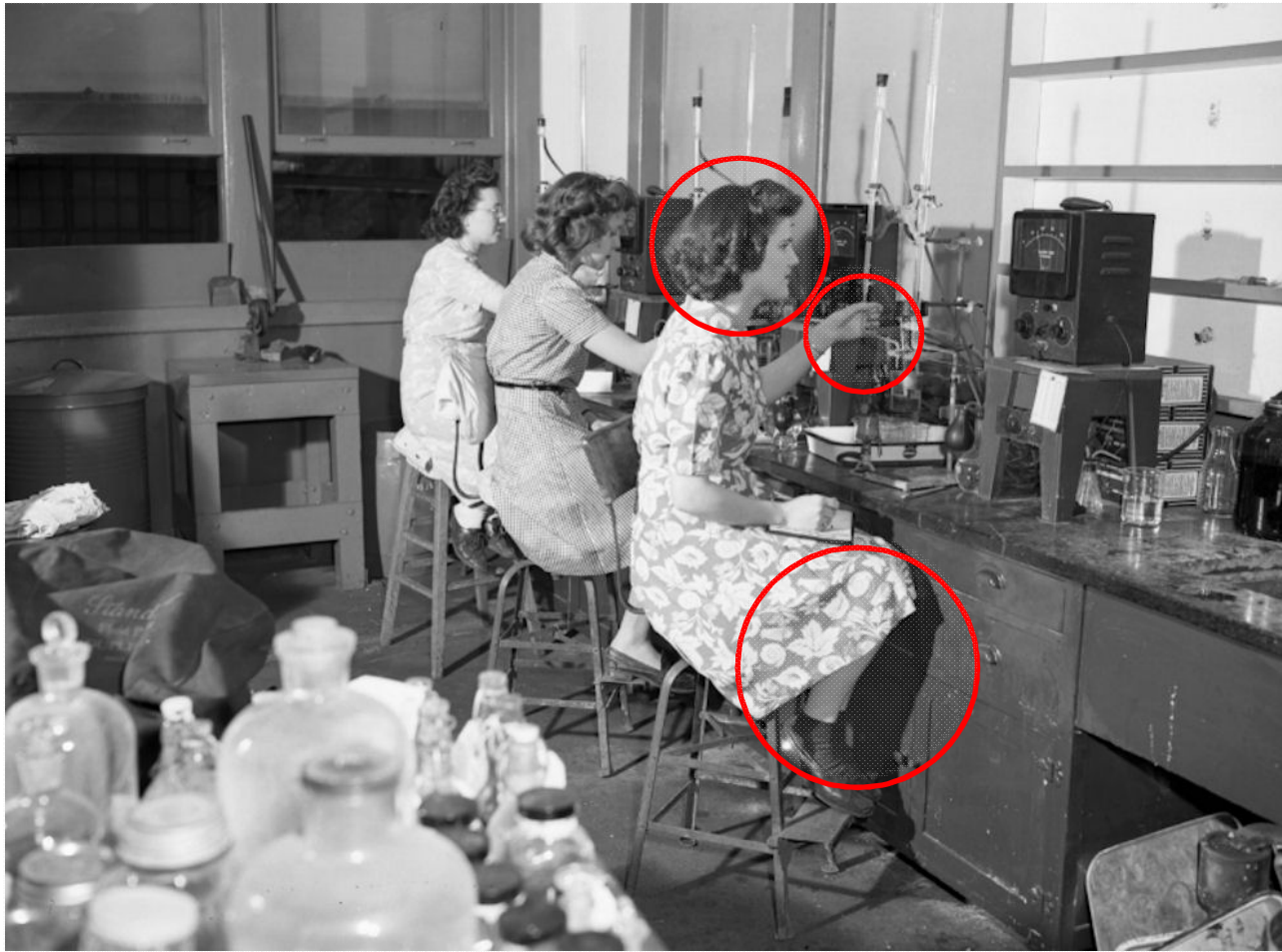


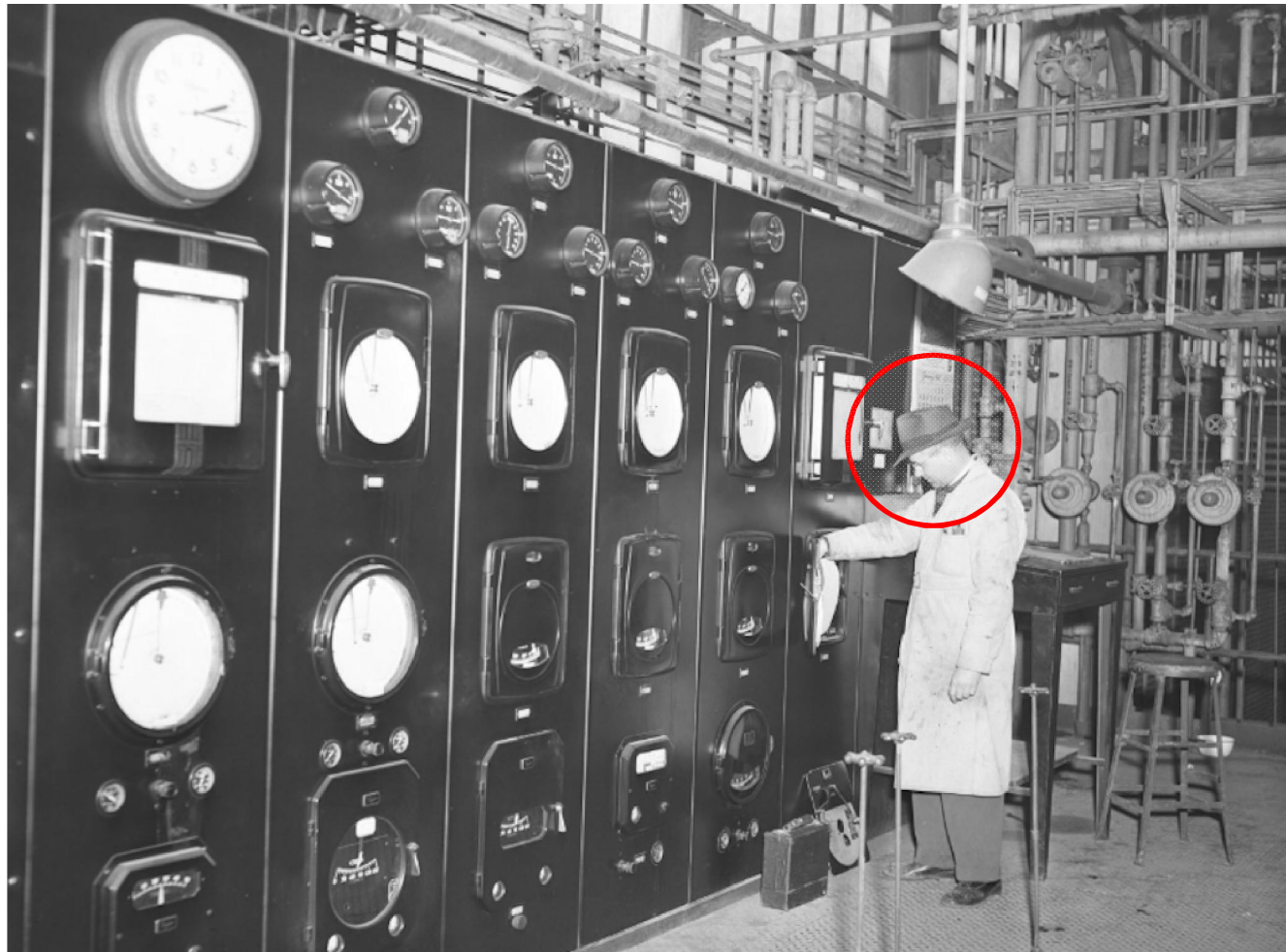
## ■ Definition of Culture

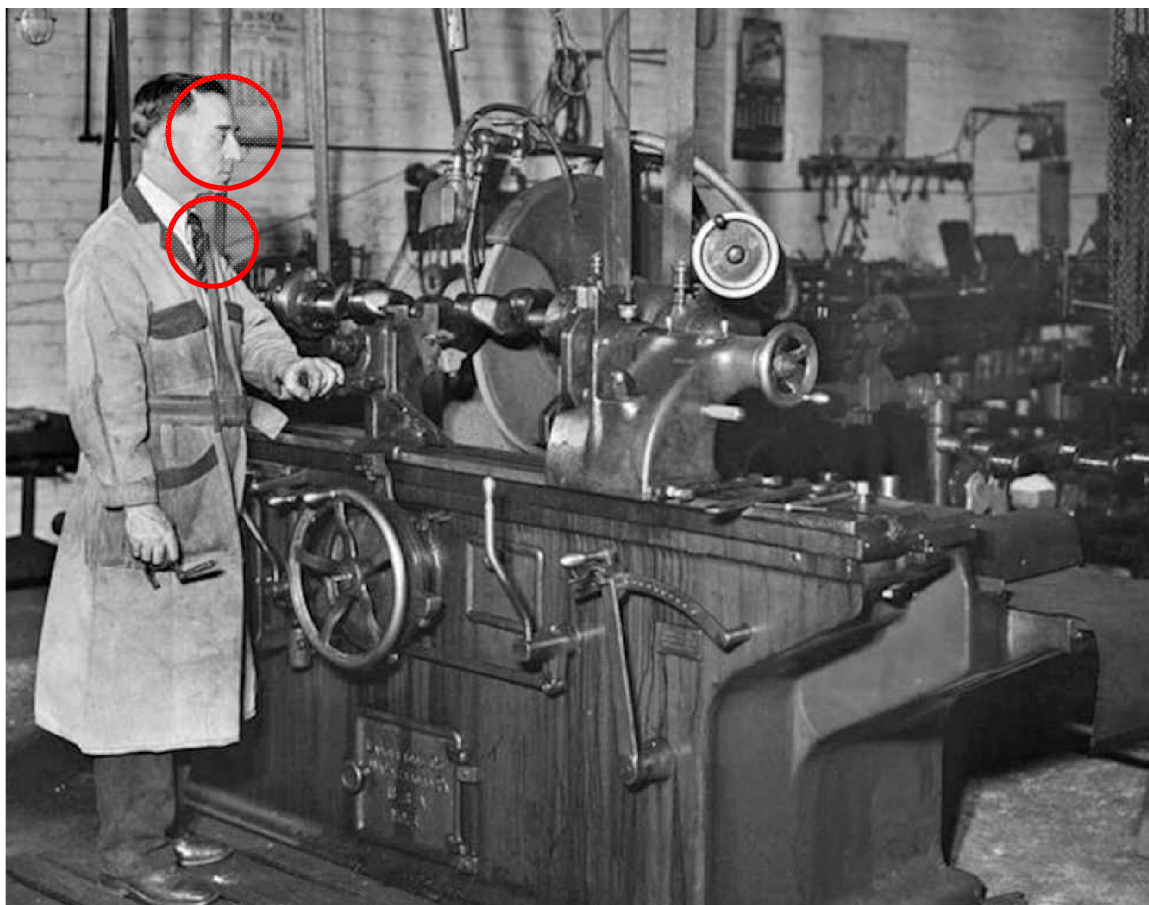
- a: the customary beliefs, social forms, and material traits of a racial, religious, or social group; also : the characteristic features of everyday existence (such as diversions or a way of life) shared by people in a **place or time**
- b: the set of **shared attitudes, values, goals, and practices** that characterizes an institution or organization
- c: the set of values, conventions, or social practices associated with a particular field, activity, or societal characteristic
- d: the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for **learning and transmitting knowledge to succeeding generations**

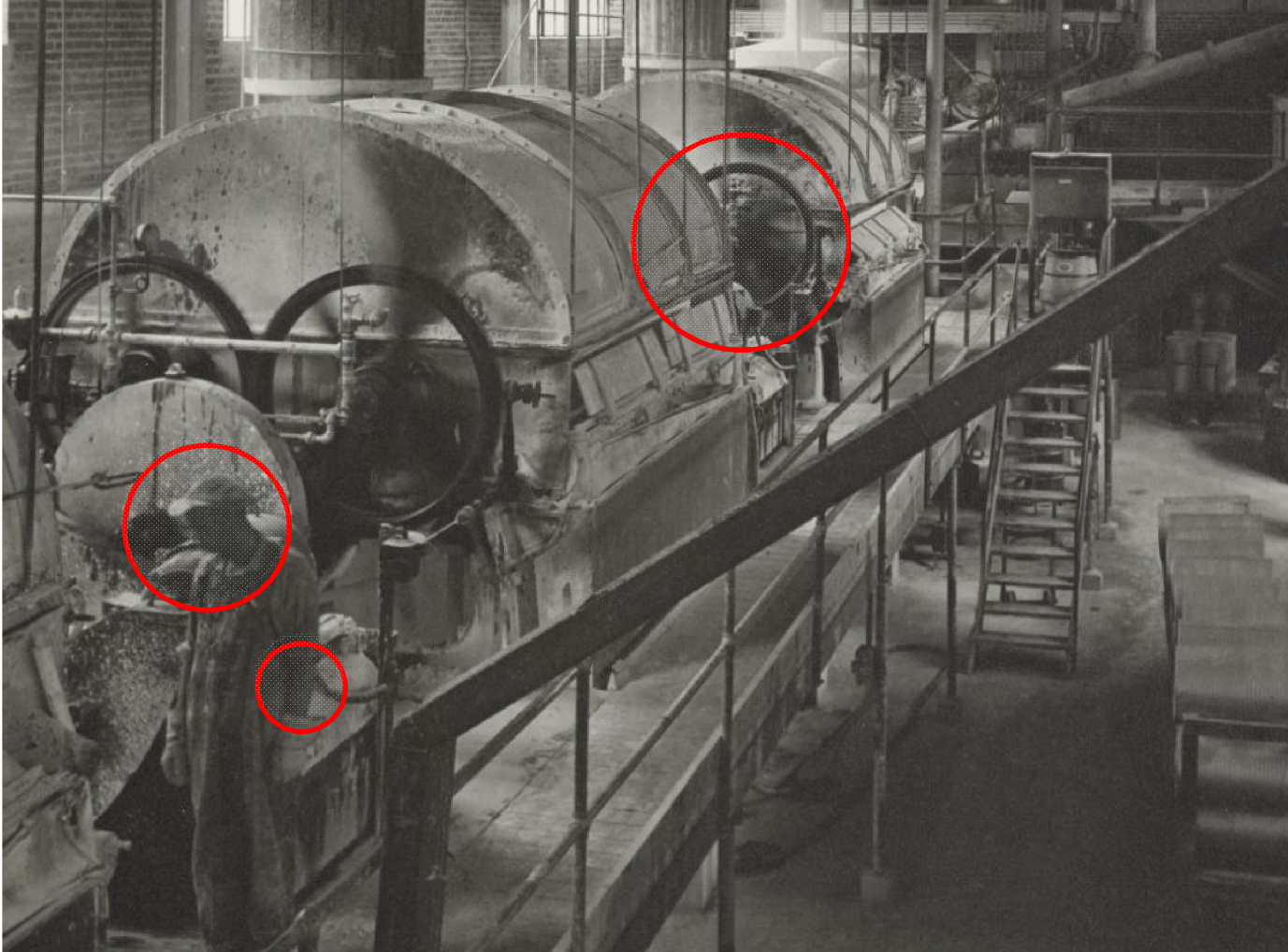
from Merriam-Webster











**Danger** →

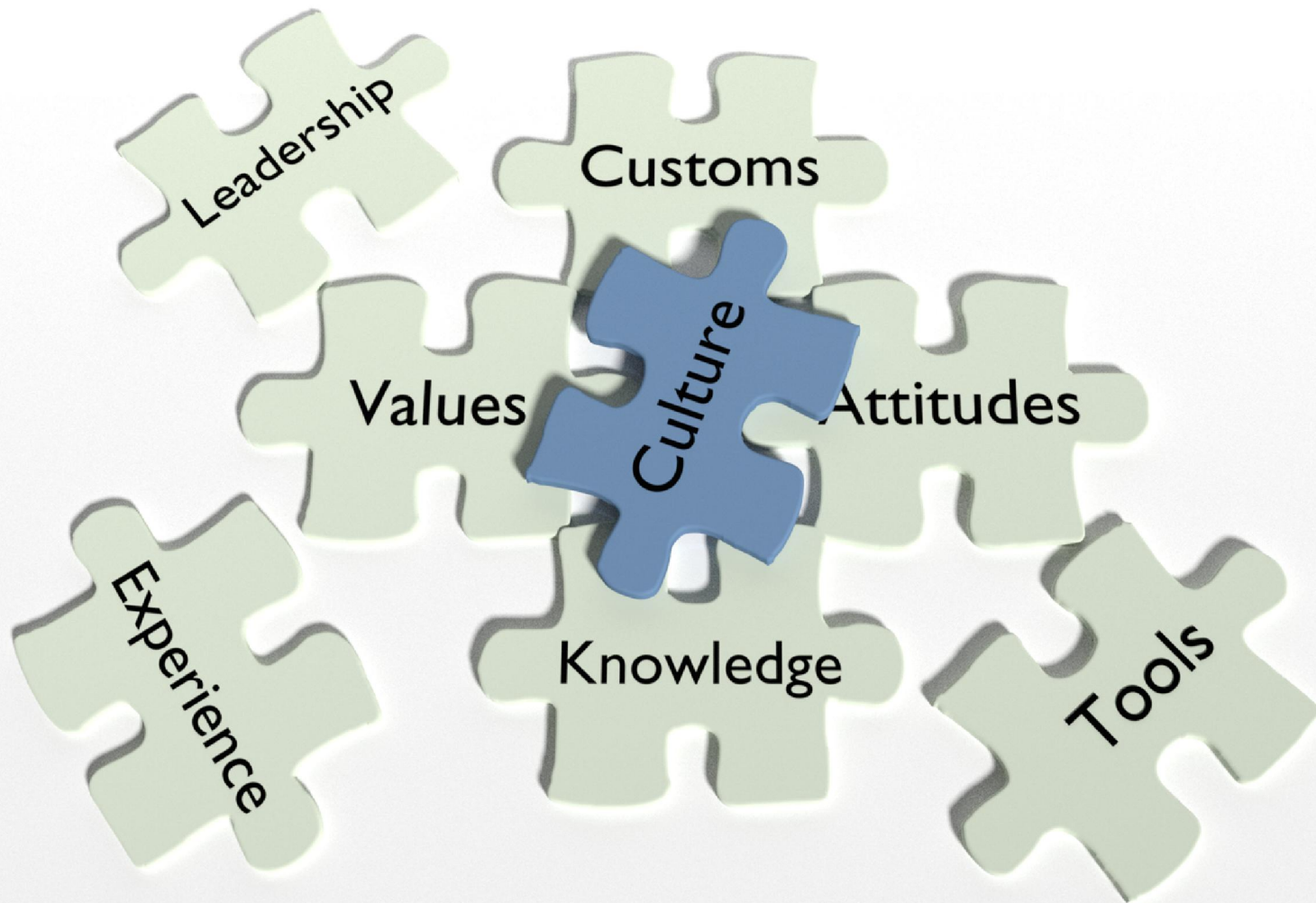
**Benefit** ↓

← **Risk Tolerance**

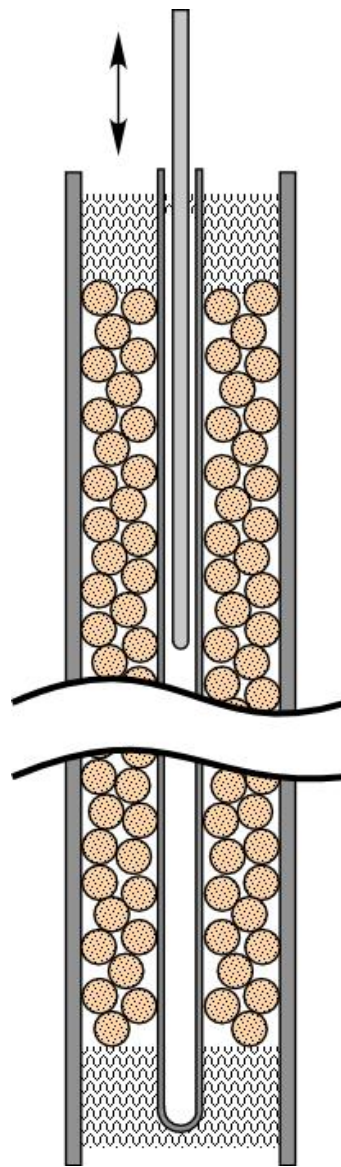


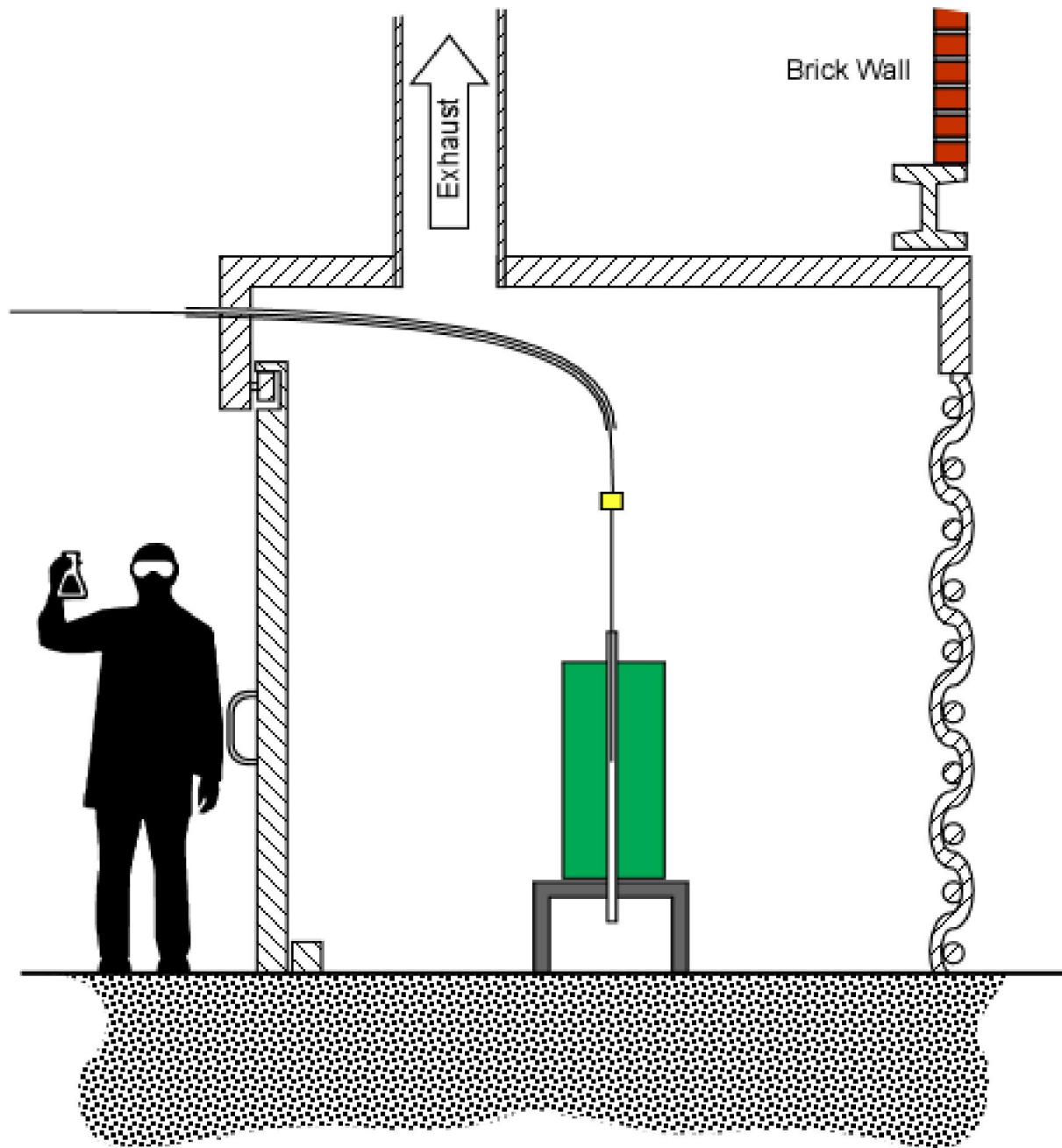


## ■ Culture is Harder



## ■ Catalysis Research






## ■ EH&S Expectations @ Dow

Protect People and Environment

Vision of Zero

Responsible behavior

Three classical columns are arranged in a row, supporting a central text box. The columns are rendered in a light gray, semi-transparent style. The text box is a rounded rectangle with a red background and a black border, containing the text: "Our goal is to eliminate all injuries, prevent adverse environmental and health impacts, reduce wastes and emissions and promote resource conservation at every stage of the life cycle of our products."

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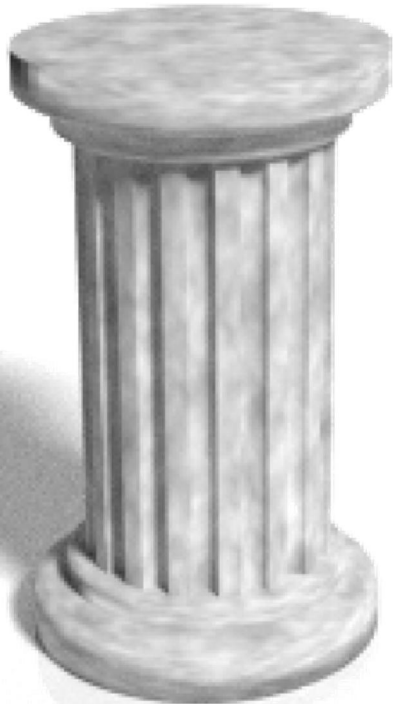


## ■ EH&S Expectations @ Dow

Responsible behavior

Each employee has a responsibility in ensuring that our products and operations meet applicable government or Dow standards, whichever is more stringent.

All employees, contractors, and visitors are expected to exhibit appropriate and responsible behavior during their presence within a Dow facility.



## ■ EH&S Expectations @ Dow

Protect People and  
Environment

Vision of Zero

Responsible behavior

**Bottom Line:**

Dow Expects Employees to Go Home Healthy  
and Safe....Everyday





Personalization

Culture

Metrics

Organization,  
Work Processes,  
Operating Discipline

Operating Discipline  
Work Processes  
Organization





## Universities and Industry: *Common Challenges & Opportunities*

- Mindset of Incident Prevention Not Inevitable Incidents
- Organizational Design
- Need and Ability to Share Researcher Experience
- Safety Is Core Not an “Extra”
- Commit to Safety Not Compliance

### Researcher Injured in University of Hawaii Lab Explosion

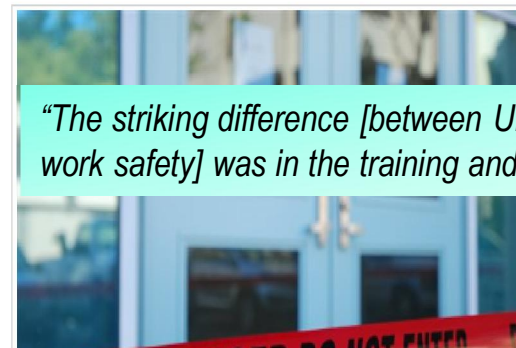
Mon, Mar 21, 2016 |

AUDREY McAVOY, Associated Press

Victims suffered burns and injuries to her face and arm after explosion

*“Safety is a priority and a worker will not be penalized for a delay caused by being safe”*

Honolulu Emergency Medical Services spokeswoman Shayne Enright said Thursday the woman was in serious condition after the explosion Wednesday evening. No one else was hurt. The researcher was alone in the lab,



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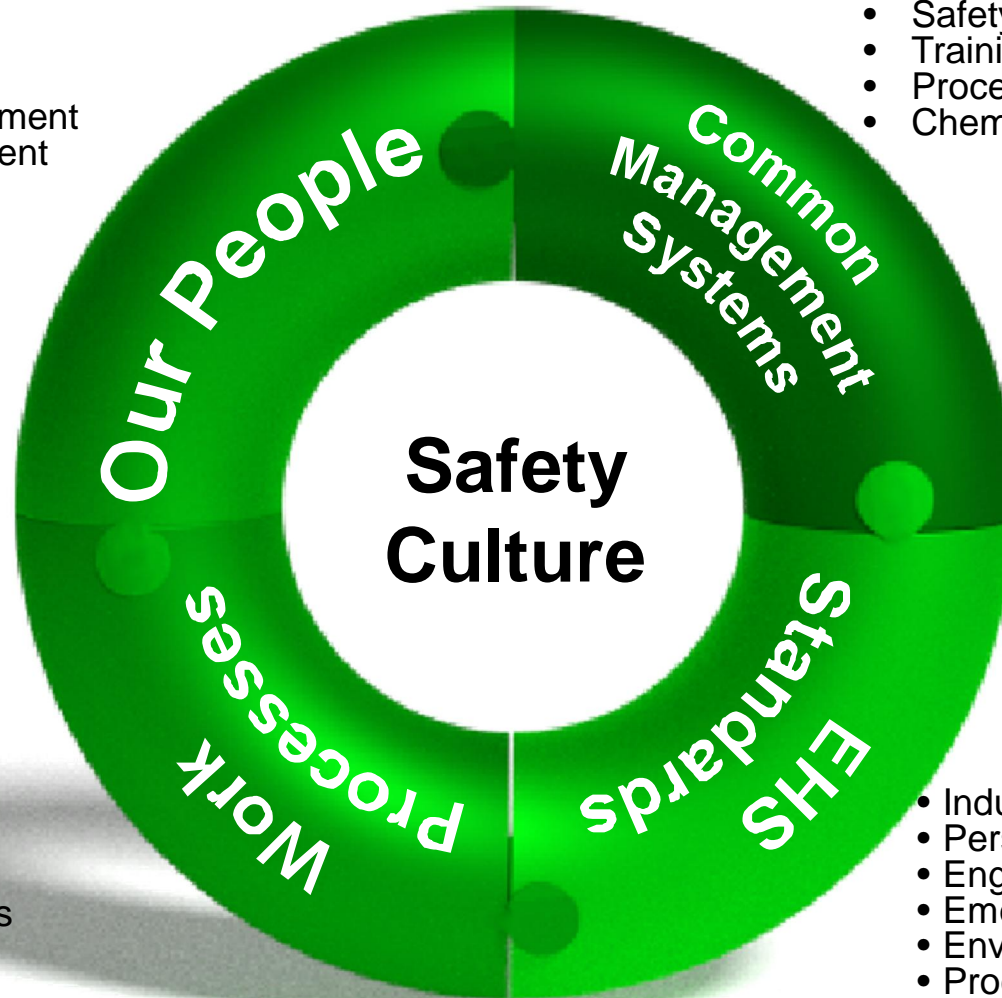
*“The striking difference [between University and work safety] was in the training and awareness”*

*“In Graduate School, pretty much every reaction was run wearing only safety glasses, thin nitrile gloves and maybe a lab coat. Having access to the appropriate PPE has been a major change.”*

The researcher was growing cells by feeding them a mixture of low-pressure hydrogen, carbon dioxide and oxygen, said Brian Taylor, the dean of the School of Ocean and Earth Science and Technology. The same process has been used almost daily and without incident since the project began in 2008, he said.

# Safety Culture

- Leadership Engagement
- Employee involvement



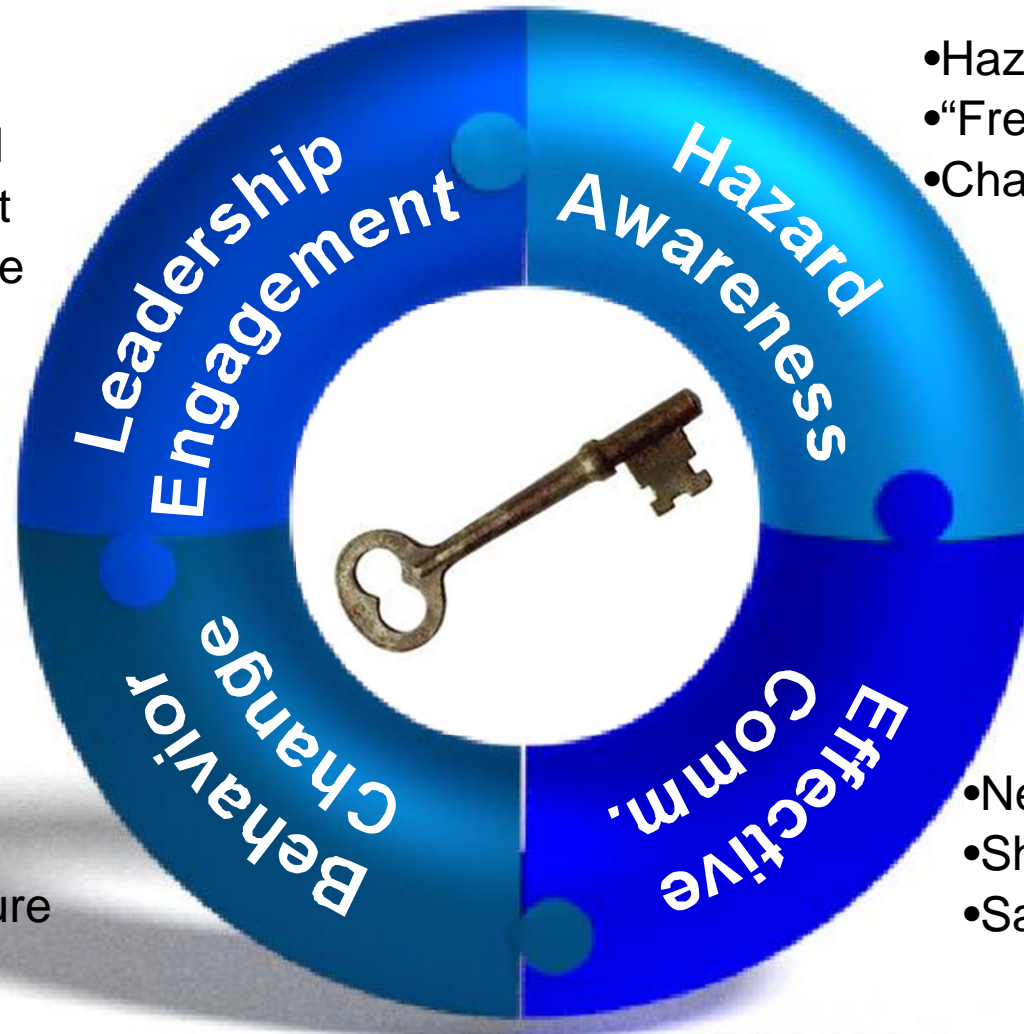
- Safety Goals & Metrics
- Training
- Procedures
- Chemical Hygiene Plan

- Hazard Assessment
- Managing Change
- Inspections
- Audits
- Incident Investigations

- Industrial Hygiene
- Personal Safety
- Engineering Design
- Emergency Response
- Environmental
- Process Safety
- Product Sustainability

## ■ Key Elements of a Sustainable Safety Culture

- Set Expectations
- Visible in the Field
- Show commitment
- Ensure compliance



- Hazard recognition
- “Fresh eyes” approach
- Change management

- Make safety personal
- Intervention culture
- Positive reinforcement

- Near miss events
- Share best practices
- Safety moments

## ■ R&D Management of Change

Incident Prevention



Hazard Awareness



Compliance



Safe Operations

- All experiments evaluated for hazard mitigation
- Compliance with both internal and external regulations are maintained
- Changes have appropriate reviews and approval
- Documentation related to the change is created or updated
- Documentation centrally located to ensure accessibility
- Appropriate training is conducted
- Notification to affected personnel is completed





## ■ Transparent Communication





Make it **P**ersonal

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**A**sk open-ended questions

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**C**reate an environment where people are free to ask questions

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**E**scalate issues

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4 key principles that help us institute safety culture



## ■ PACE Scenario

### Task:

- Make up a standard solution in a volumetric flask consisting of copper sulfate, sulfuric acid and water.

### Apply PACE principles to have a safety discussion

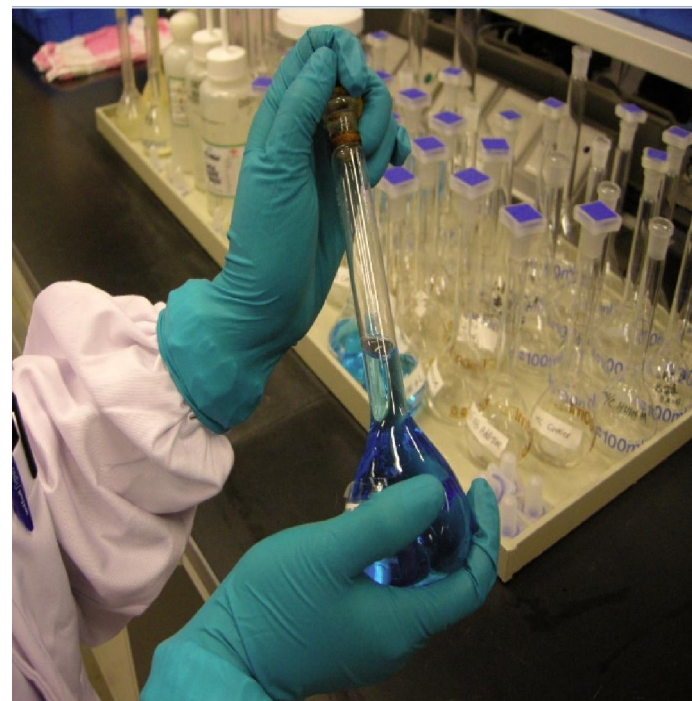
- Share Experiences
- Discuss the tasks associated with making the solution
- Ask Open Ended Questions - Consider Hazards

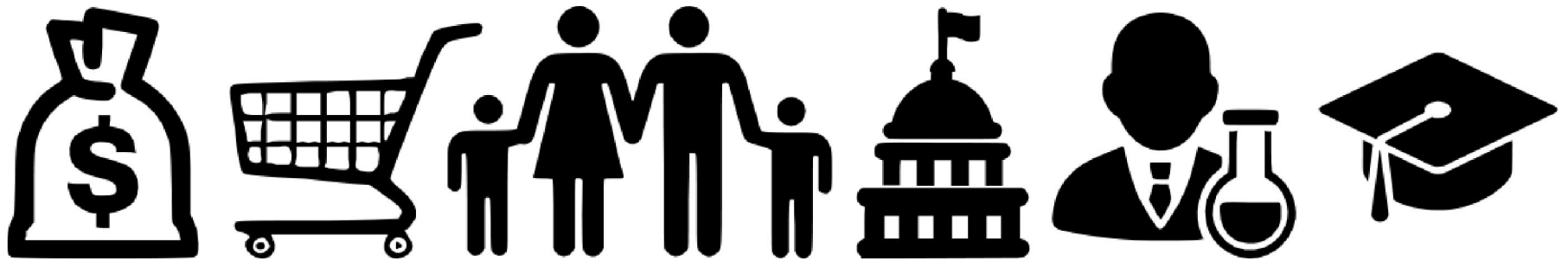
Make it **Personal**

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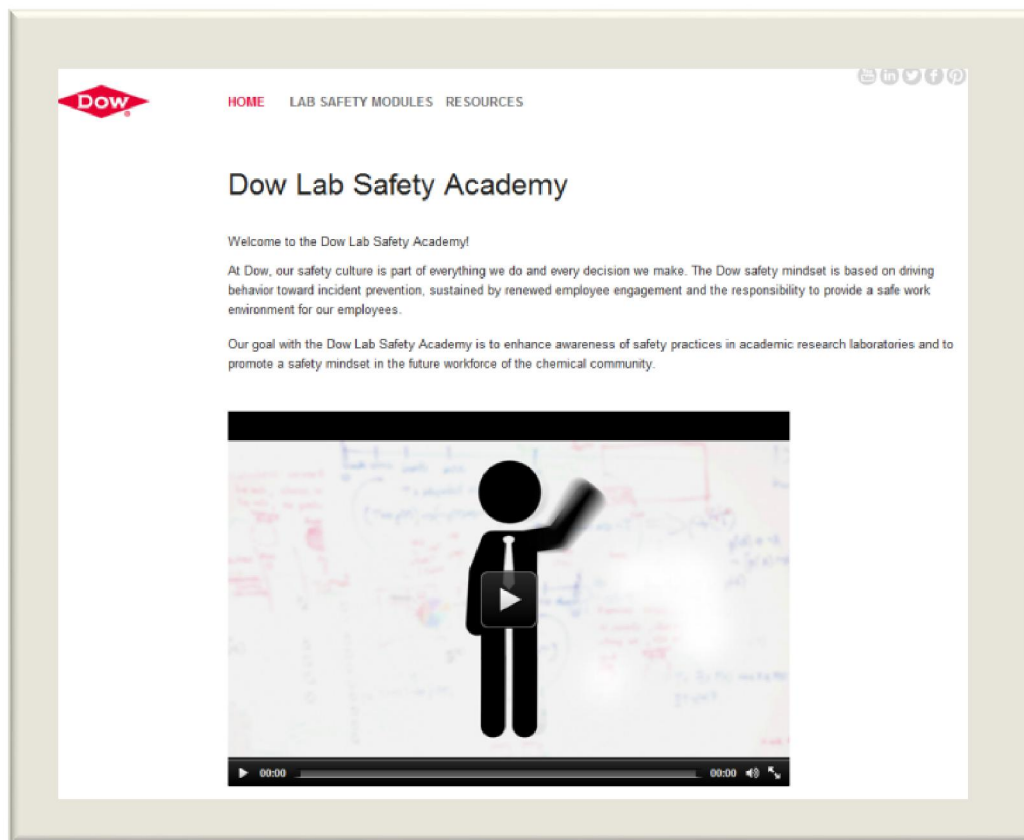
**E**scalate issues







# Dow Lab Safety Academy



## Since 2013 Launch...

- 25,000+ enrolled viewers
- >250,000 views
- >60 universities
- >40 Government Agencies & National Labs
- >100 companies
- 10 countries
- 1 external award
- More than a dozen media stories

<http://safety.dow.com>





## ■ Dow Lab Safety Academy – Modules

Safety Orientation & Training	Specialized Topics	Plan, Evaluate, & Execute	Sustainable Safety Culture
Ergonomics Fall Prevention Personal Protective Equipment Waste handling Secondary containment Housekeeping Electrical Safety Fire Extinguisher Lone Worker	Fume hood Gas cylinder Glassware Handling Mechanical Integrity Vacuum Equipment Biological Hazards Nanoparticles Cryogenics Pyrophorics	Management of Change Hazard Assessment Safe Operation Cards Reactive Chemicals Energy Calculations Interpreting Safety Data Sheets Chemical Labeling Sample Transportation & Shipping Line of Fire	Making Safety Personal Inspections Interventions Recognition Mentoring Near Miss Reporting Learning Experiences Effective Safety Communications Sustainability Leadership Engagement

# Fume Hood Basics

