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Química e Petroquímica

São Paulo, 21 a 24 de junho de 2010

ABIQUIM
Associação Brasileira da Indústria Química

ABEQ Associação Brasileira
de Engenharia Química

Process Safety in the Year 2010, 2020

Experience & expectations from the first two decades of the new millenium

Kenan Stevick
Chief Process Safety Engineer
The Dow Chemical Company





Process Safety Landscape in 2010

Main challenges in the period:

- Birth of a highly dynamic and complex World Economy
- Compliance with increasingly demanding and complex EH&S / PS / Security regulations in all countries
- Increased capital spending to reduce risk or for inherently safer designs
- Acquisitions, Divestitures, Industrial Parks
 - All Carrying Unique PS Culture Challenges
- **Meet societal expectations towards Process Safety Incident Performance**

... all of each are expected to continue in the next 10 years!



2010 Process Safety in Dow Chemical

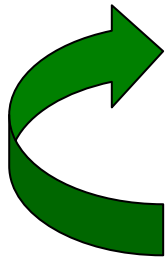
- Dow Chemical Process Safety Tradition, Leadership
- Committed to eliminating Process Safety Incidents
- Share Dow's Learning
 - Leadership and Vigilance needed to eliminate PSIs

Those who cannot learn from
history are doomed to repeat it.

George Santayana



2010 Process Safety



*“Back to the Future:
Lessons Re-Learned”*





2010 Process Safety Lessons “Re-Learned”

**We are
re-learning
lessons on
“Corrosion
under Insulation”**





Lessons “Re-Learned”

- **Learning’s are Broadly Applicable to the operation and maintenance of petrochemical facilities**
 - **Operation and maintenance of facilities consistent with:**
 - **All Company Process Safety Standards / Recognized and Generally Accepted Good Engineering Practices**
 - **100% of the time!**
 - **Leverage learning on common failure modes from inspections and incidents.**



Proper Focus Works to eliminate Catastrophic Incidents

- ✓ We have made history in preventing repeat incidents - we need to continue to make history.
- ✓ We know what we need to do
- ✓ We have the standards, guidance and technical tools
- ✓ **Our Leadership Challenge?**



Our 2010 PS Leadership Challenge:

To summon the will to
carry out these standards
and good engineering practices
100% of the time.



2010 – 2020 PS Leadership Challenge

Industry Performance is Consistently, Publically Tracked with Improvement Goals:

- **Tier 1 PSEs - Process Safety Incidents**
- **Tier 2 PSEs - LOPCs of Lesser Significance**
- **Tier 3 PSEs - Challenges to Safety Systems**



2010 – 2020 PS Leadership Challenge

Tier 4 PSEs – Leading Indicators

- Identified from applicable Incident Investigations of T-1 → T-3 PSEs
- Focuses Leadership to Summon the will to operate and maintain our plants consistent with PS Standards / RAGAGEP 100% of the time
 - Mechanical Integrity
 - Operations and Maintenance Procedures and Protocols
 - Consistent with the underpinning PHAs
 - PHAs, Audits
 - Etc.



Process Safety in 2020

Additional challenges and expectations for the next 10 years:

- **Evolving regulations towards Risk Analysis & Control (Latin America, Asia Pacific)**
- **Reduction or elimination of risk to populations on site and off-site (Facility Siting and Plant Layout)**
- **Demonstration of adequacy to the communities where we operate**

... consolidation of a Global Process Safety Culture!



2020 Process Safety Fundamentals

*Back to the Future:
Lessons “Re-Learned”*

Zero
Process Safety
Incidents



Thank you!

Muito obrigado!