

# HAZARD RECOGNITION PROCESS ENHANCEMENT (HAZARDS IDENTIFICATION IMPROVEMENT)

A decorative graphic at the bottom of the slide features two overlapping wavy lines. The top line is yellow and the bottom line is blue, both flowing from left to right.

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Process Safety Leader

## CONTENTS :-

- Hazard Vs. Risk Definition
- Hazard Identification Methodologies
- Risk Management starts with Hazard Identification
- Hazard Recognition 2015 Vs. 2017
- Success Factors
- Success Secret

## HAZARD IS ....

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- A source of potential harm, or a situation with a potential for causing harm, in terms for human injury, damage to health, property, environment, and other things of value or some combination of these.



# RISK

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The effect of uncertainty on objectives.

NOTE 1: An effect is a deviation from the expected — positive and/or negative.

NOTE 2: Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).

NOTE 3: Risk is often characterized by reference to potential events and consequences, or a combination of these.

NOTE 4: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.

NOTE 5: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.



# HAZARD IDENTIFICATION

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The process of recognizing that a hazard exists and defining its characteristics

## METHODS & SOURCES

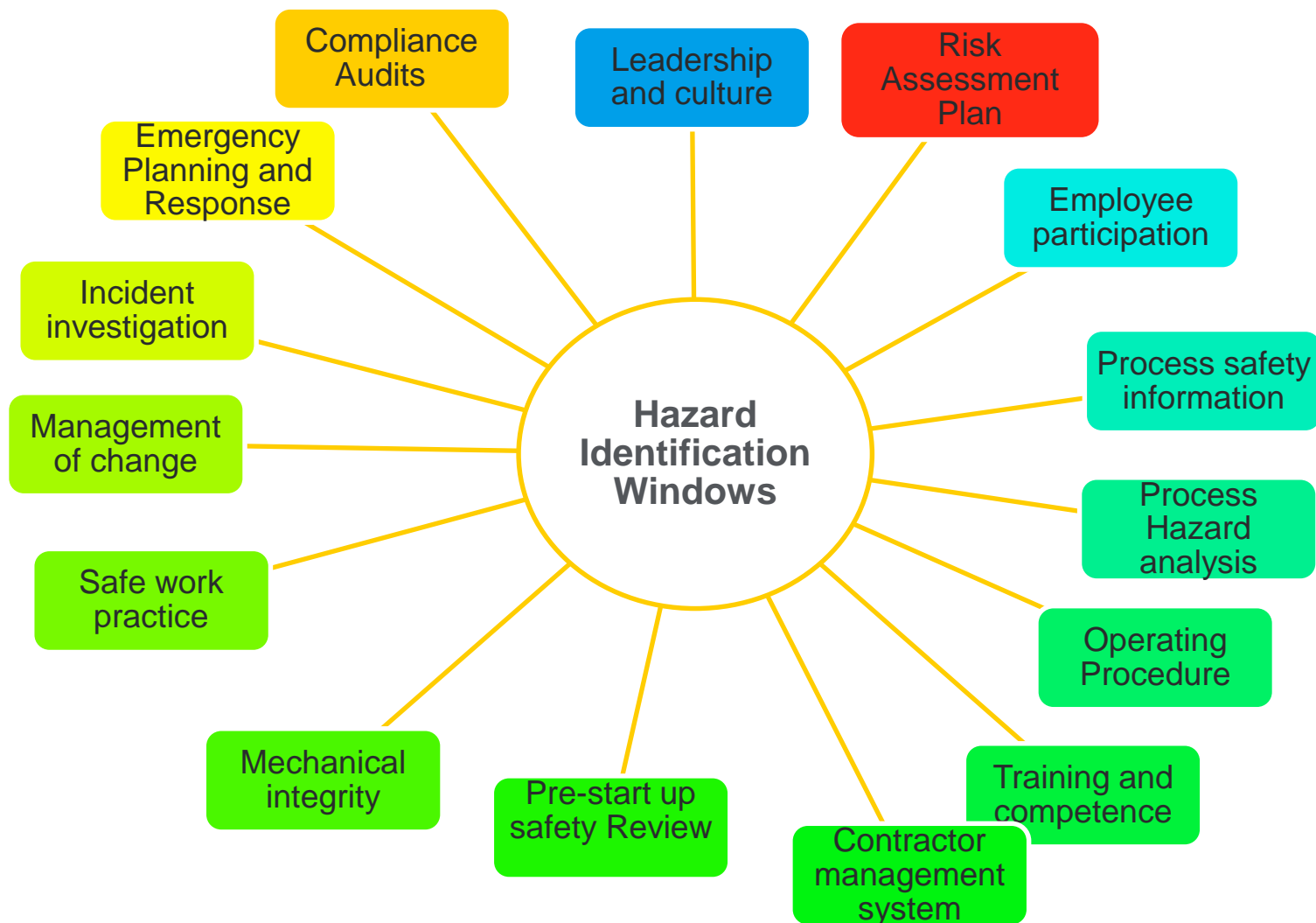
### Hazard Identification Methods



### Hazard Identification Information Sources



# SABIC PRACTICE : HAZARD IDENTIFICATION ELEMENTS



## HAZARD ANALYSIS:-

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- The process of recognizing hazards that may arise from a system or its environment, documenting their unwanted consequences and analyzing their potential causes.





# RISK ANALYSIS

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The systematic use of information to identify hazards and estimate the chance for, and severity of, injury or loss to individuals or populations, property, the environment, or other things of value.



# RISK ASSESSMENT

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Overall process of identification of hazards, evaluation of risks and determination of appropriate measures to control risks.



# HAZARD CLASS

Nature of the physical, health or environmental hazard



# HAZARD CLASSIFICATION

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- The precise identification of the hazard(s) of product (substance or mixture) or raw material by assigning minimum hazard symbols, hazard statements and precautionary statements based on defined national and international legislation.

# HAZARD RECOGNITION PROCEDURES

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- The process of identifying, evaluating and monitoring hazards in the work environment .



## HAZARDS TYPES :-

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A common way to classify hazards is by category:

**biological** - bacteria, viruses, insects, plants, birds, animals, and humans, etc.,

**chemical** - depends on the physical, chemical and toxic properties of the chemical,

**ergonomic** - repetitive movements, improper set up of workstation, etc.,

**physical** - radiation, magnetic fields, pressure extremes (high pressure or vacuum), noise, etc.,

**psychosocial** - stress, violence, etc.,

**safety** - slipping/tripping hazards, inappropriate machine guarding, equipment malfunctions or breakdowns.

## EXAMPLES:-

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Workplace hazards can come from a wide range of sources. General examples include any substance, material, process, practice, etc. that has the ability to cause harm or adverse health effect to a person or property. See Table 1.

Workplace hazards also include practices or conditions that release uncontrolled energy like:

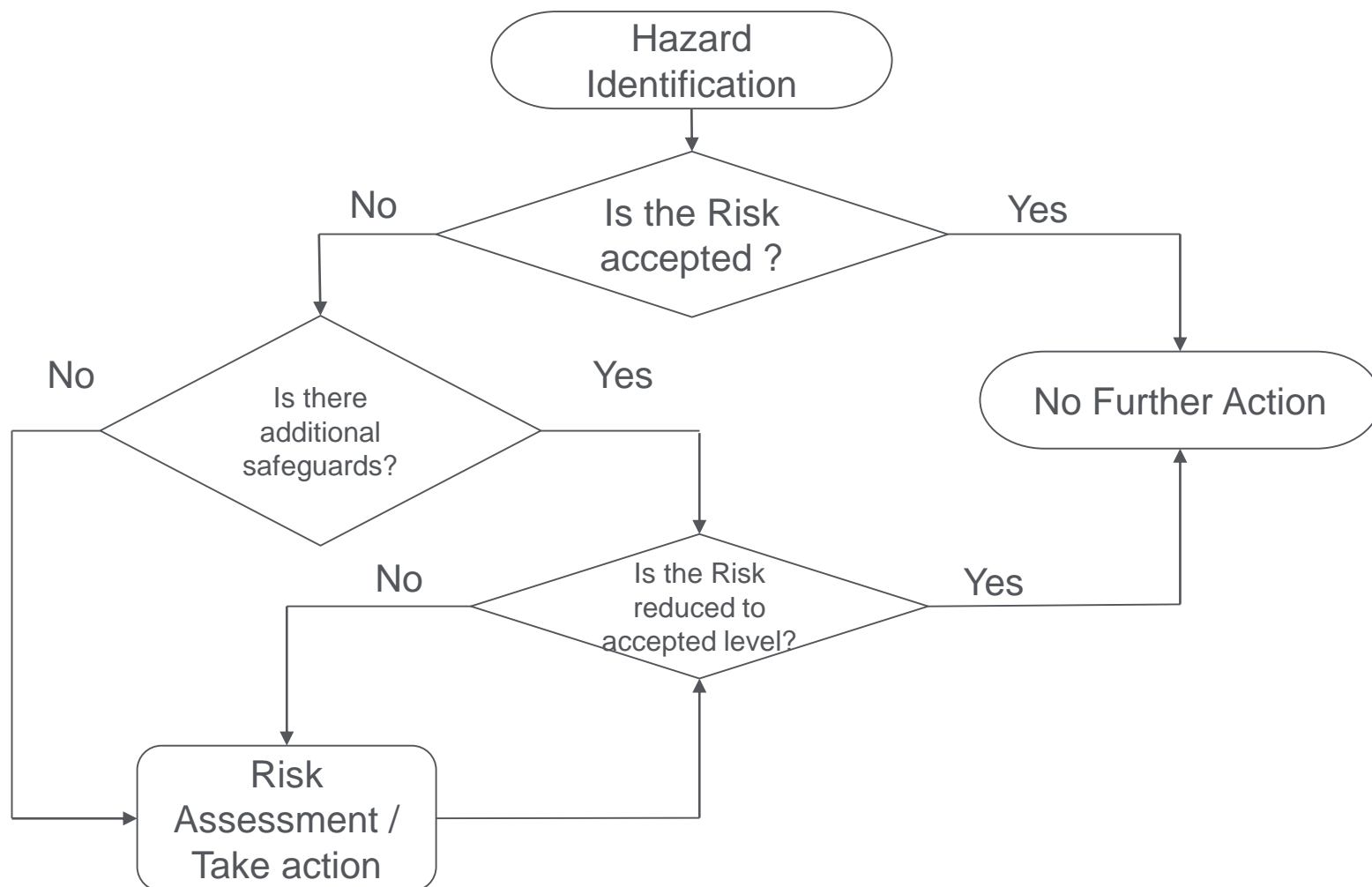
- an object that could fall from a height (potential or gravitational energy),
- a run-away chemical reaction (chemical energy),
- the release of compressed gas or steam (pressure; high temperature),
- entanglement of hair or clothing in rotating equipment (kinetic energy), or
- contact with electrodes of a battery or capacitor (electrical energy).

**Table 1**  
**Examples of Hazards and Their Effects**

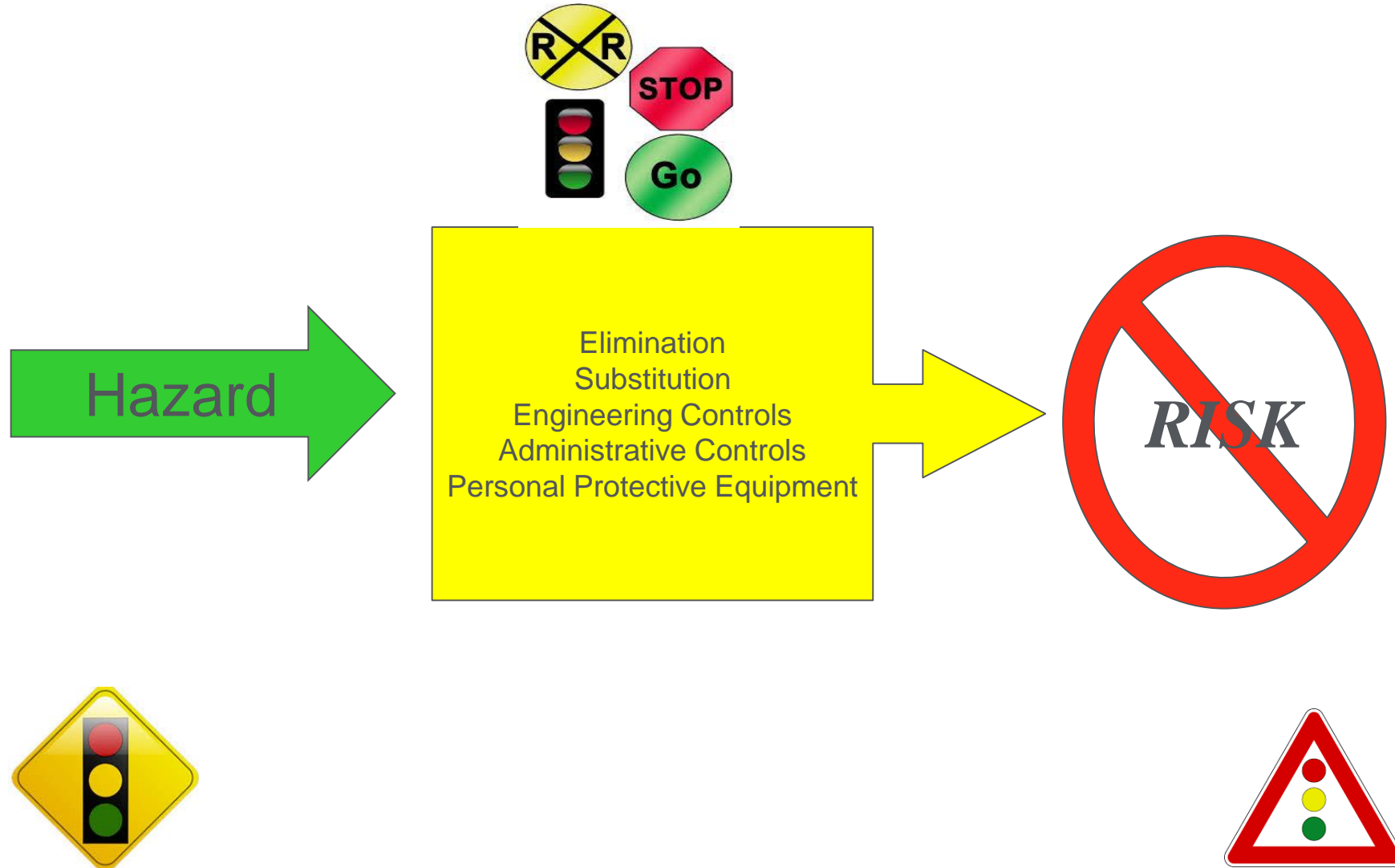
Workplace Hazard	Example of Hazard	Example of Harm Caused
Thing	Knife	Cut
Substance	Benzene	Leukemia
Material	Mycobacterium tuberculosis	Tuberculosis
Source of Energy	Electricity	Shock, electrocution
Condition	Wet floor	Slips, falls
Process	Welding	Metal fume fever



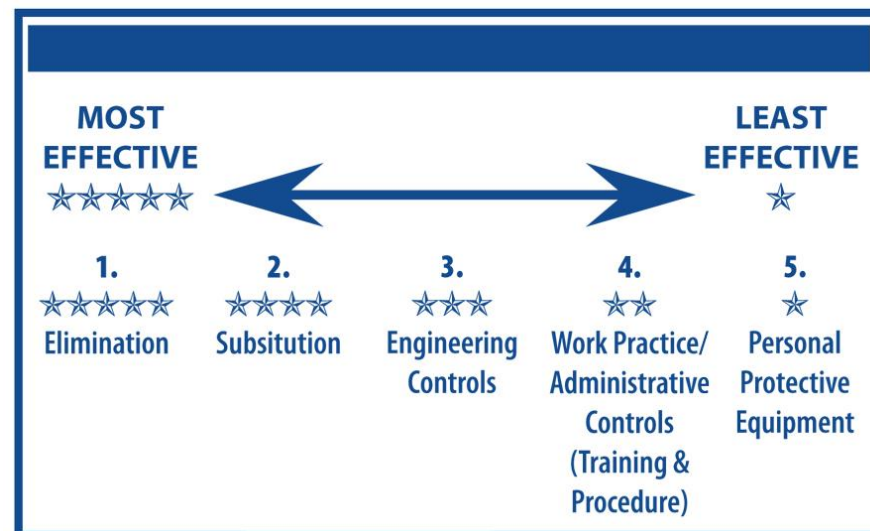
# HAZARD IDENTIFICATION STRATEGY



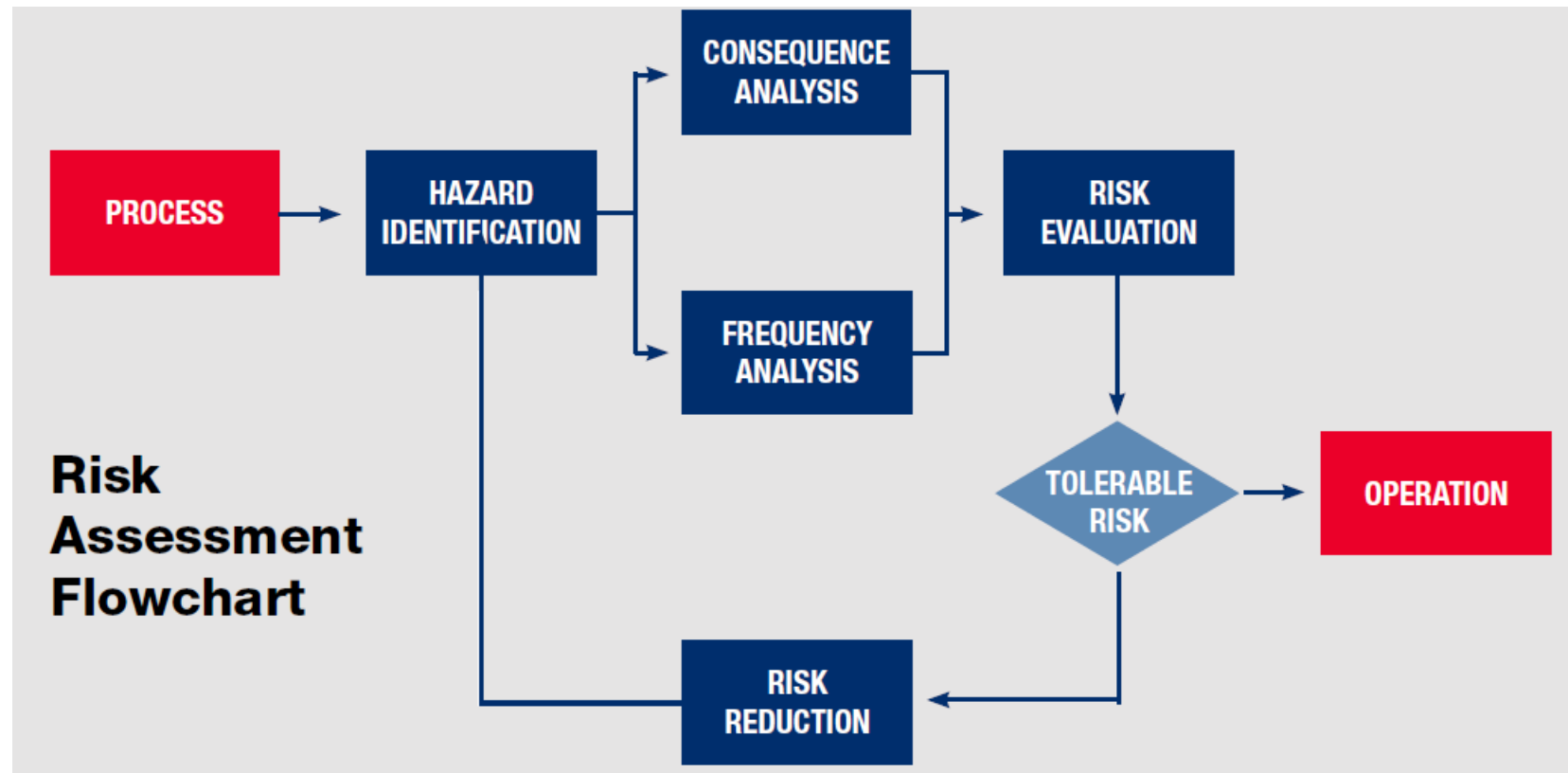
# HAZARD IDENTIFICATION OBJECTIVE



# HAZARD IDENTIFICATION OBJECTIVE



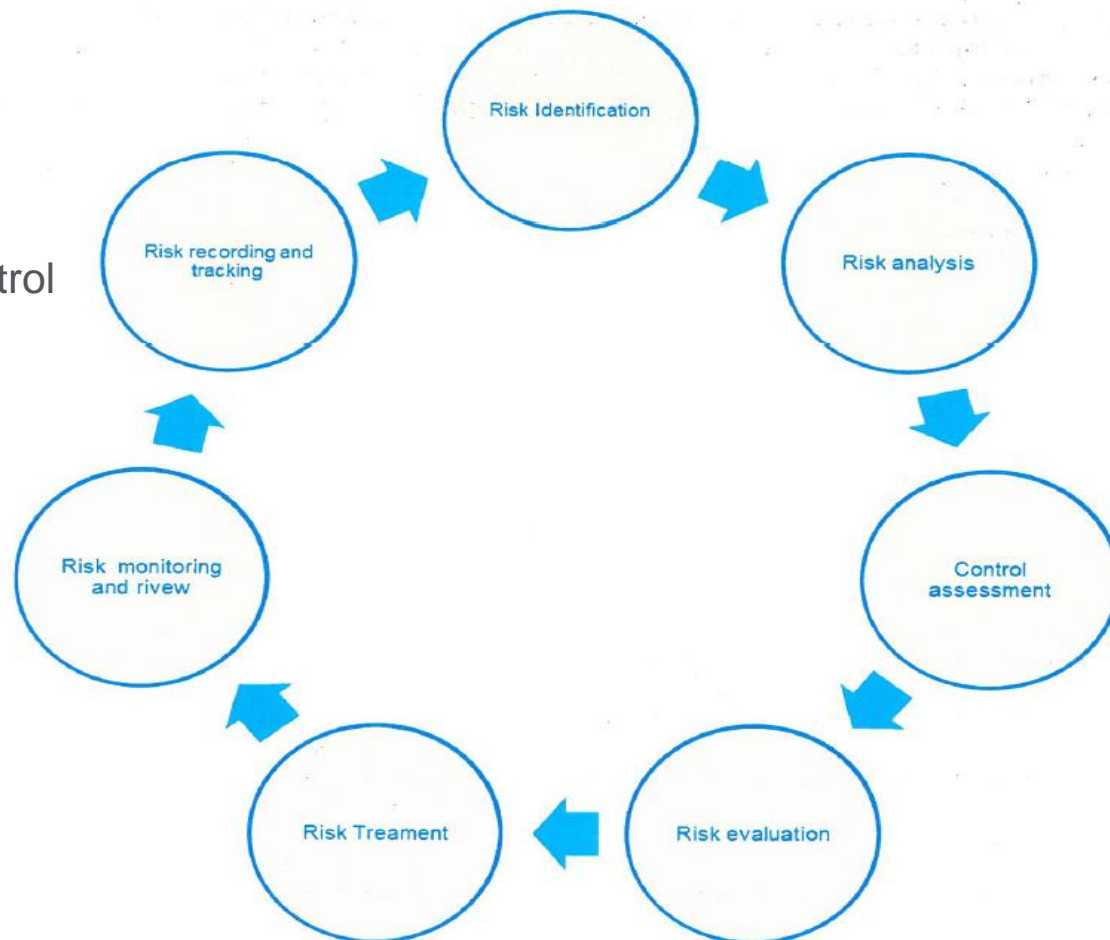
# RISK ASSESSMENT FLOWCHART



# PROCESS SAFETY IS OUR CORE VALUE

Process Safety is the Business Chain that contains :-

- Hazard Identification
- Risk Assessment
- Risk Management & Control
- Stewardship

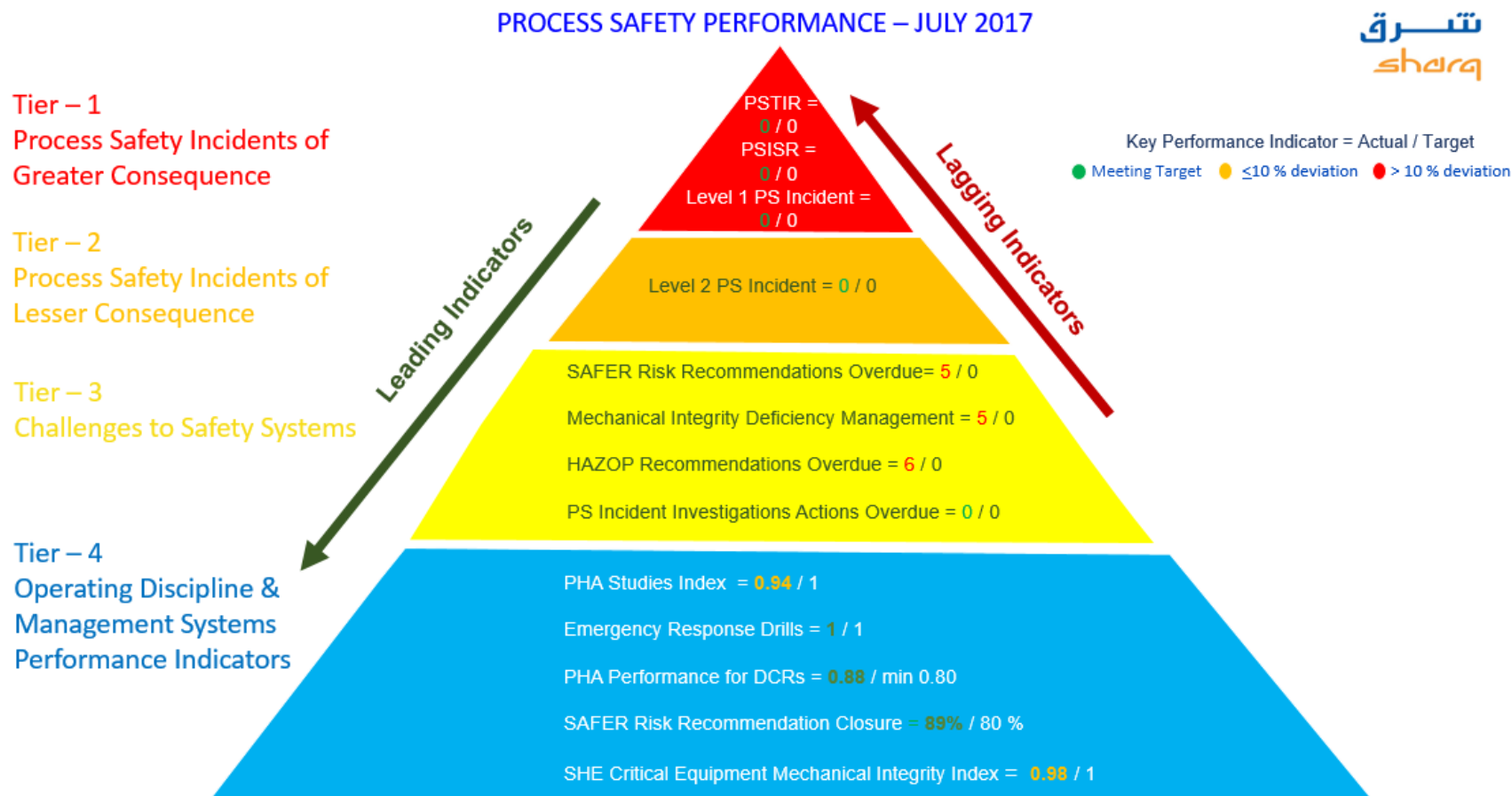


# ONLY AS GOOD AS THE WEAKEST IN YOUR CHAIN

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# PROCESS SAFETY PYRAMID



## SCORE CARDS

### Risk Assessment

RISK overdue



Risks closure



Monitoring status



Closed Audit Findings



### Process Safety Risk Assessment

PHA Index



HAZOP Recommendations  
overdue



Closed Audit Findings



### Health Assessment

Health Assessment  
conducted



IHRA Recommendations  
closure



Closed Audit Findings



### Environment Assessment

Environment  
Assessment conducted



Environment Assessment  
recommendations closure

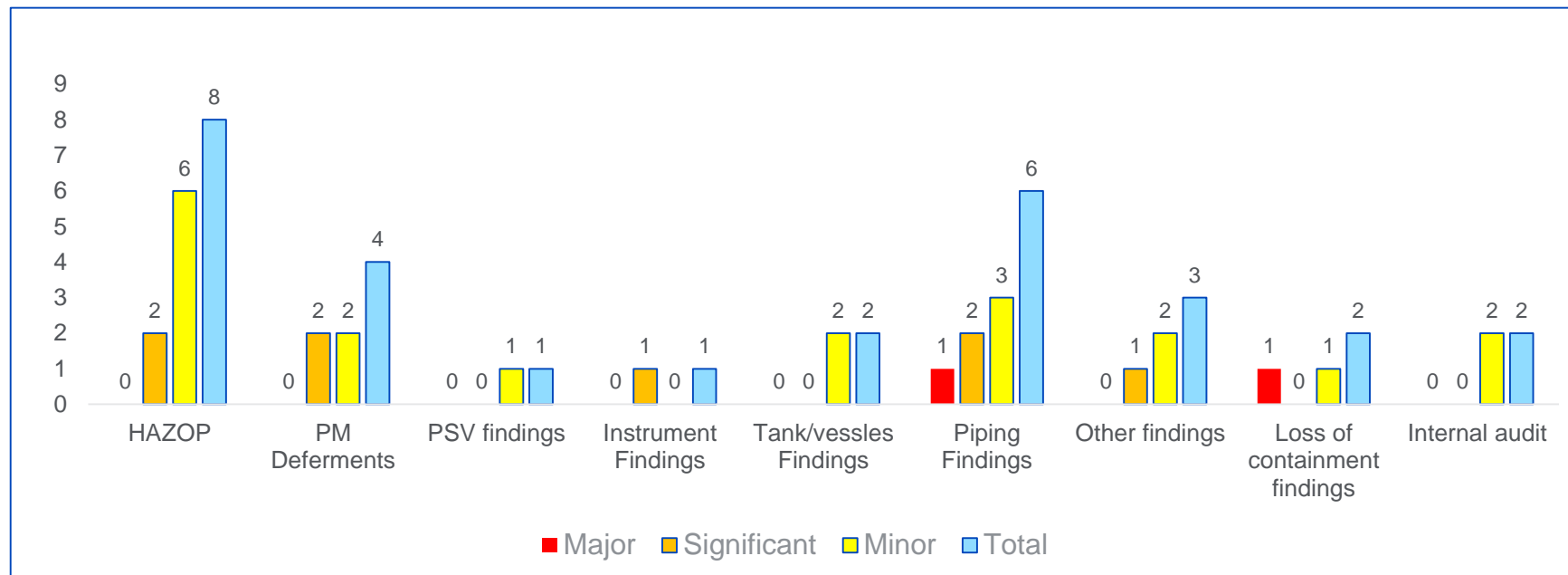


Closed Audit Findings



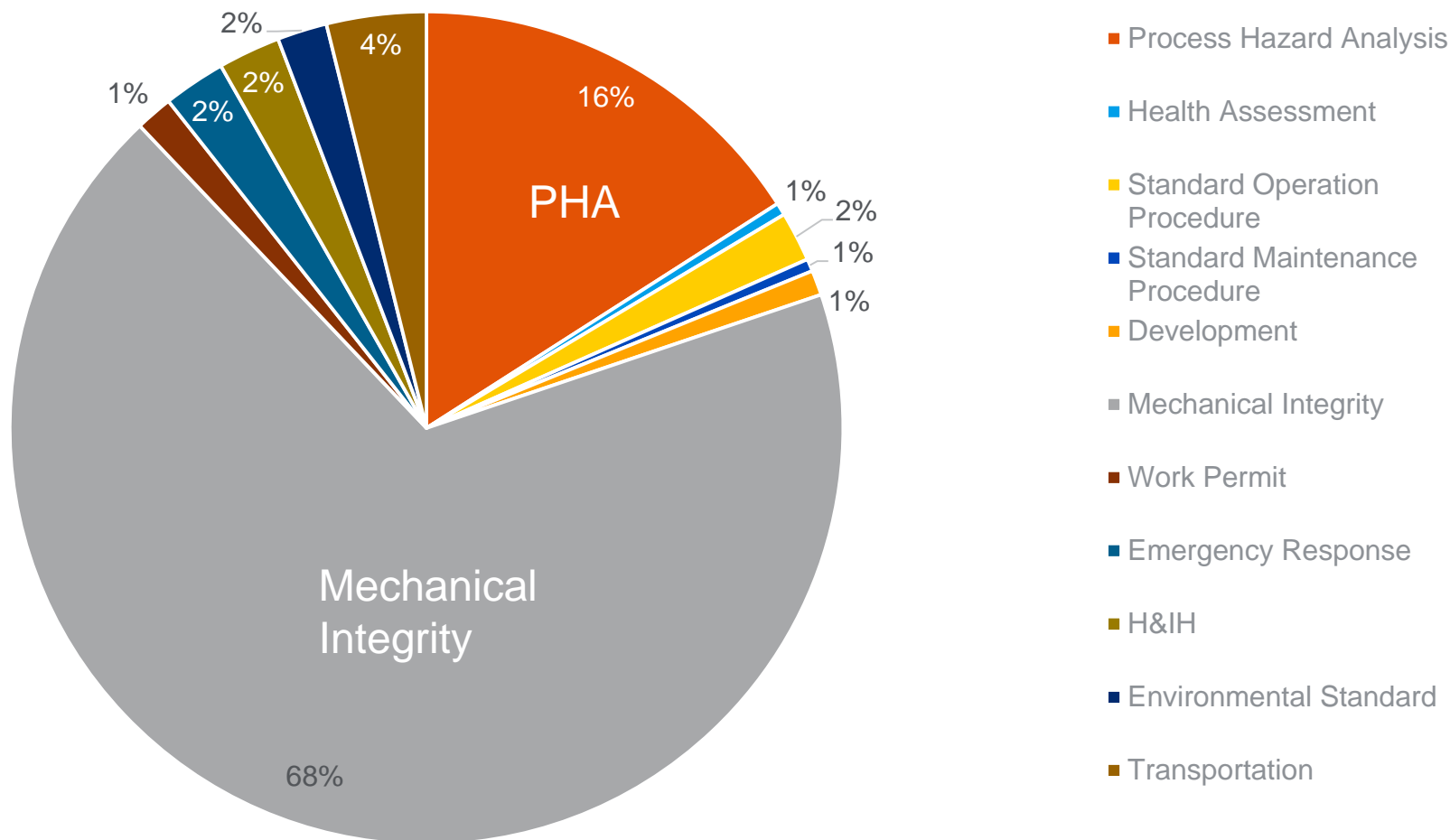


## RISKS ANALYSIS (example)

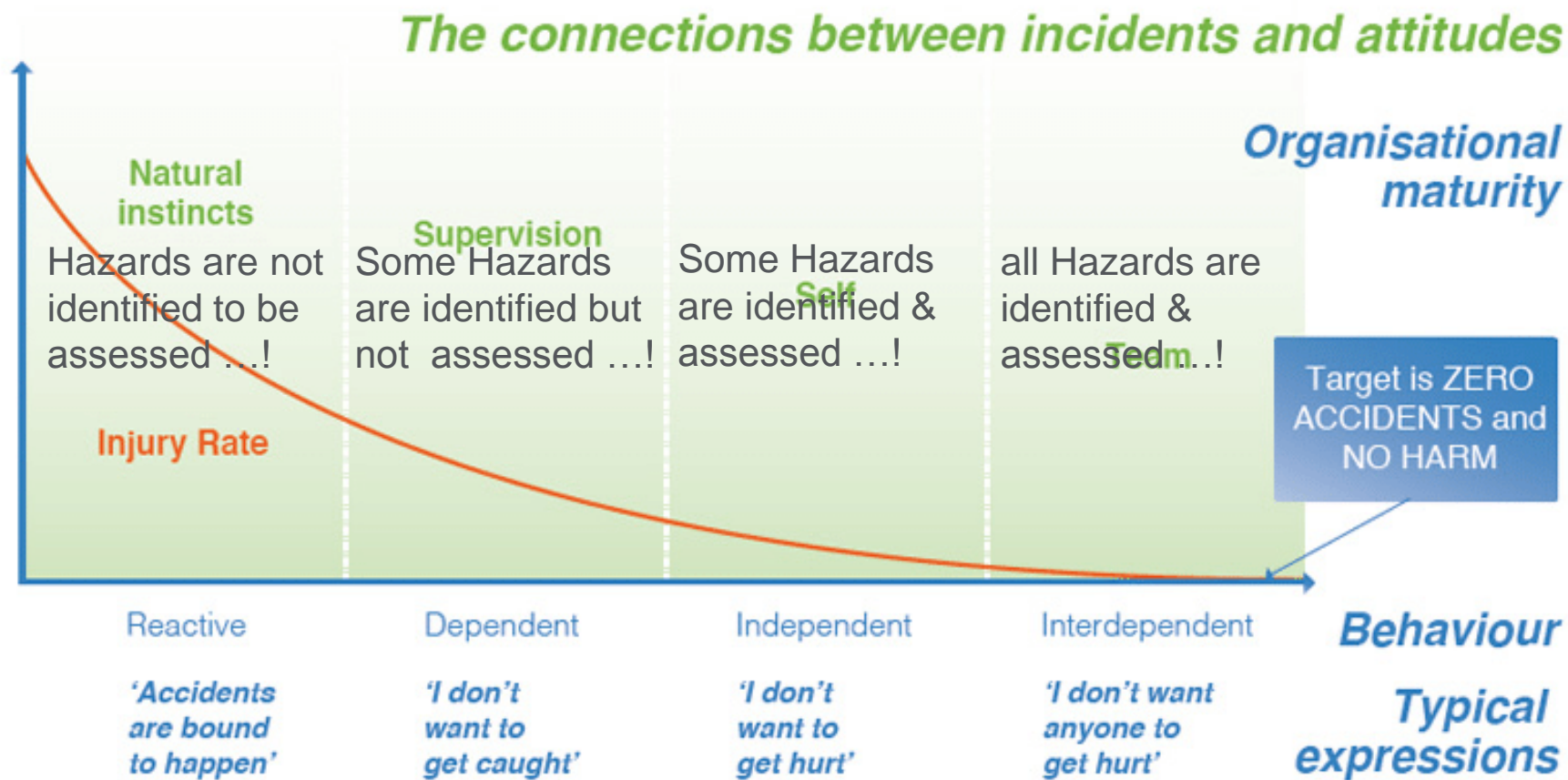


Risk Type	Major	Significant	Minor	Total
HAZOP	0	2	6	8
PM Deferments	0	2	2	4
PSV findings	0	0	1	1
Instrument Findings	0	2	0	2
Tank/ vessels Findings	0	0	2	2
Piping Findings	1	2	3	6
OTHER findings	0	1	2	3
Loss of containment findings	1	0	1	2
Internal Audi findings	0	0	2	2

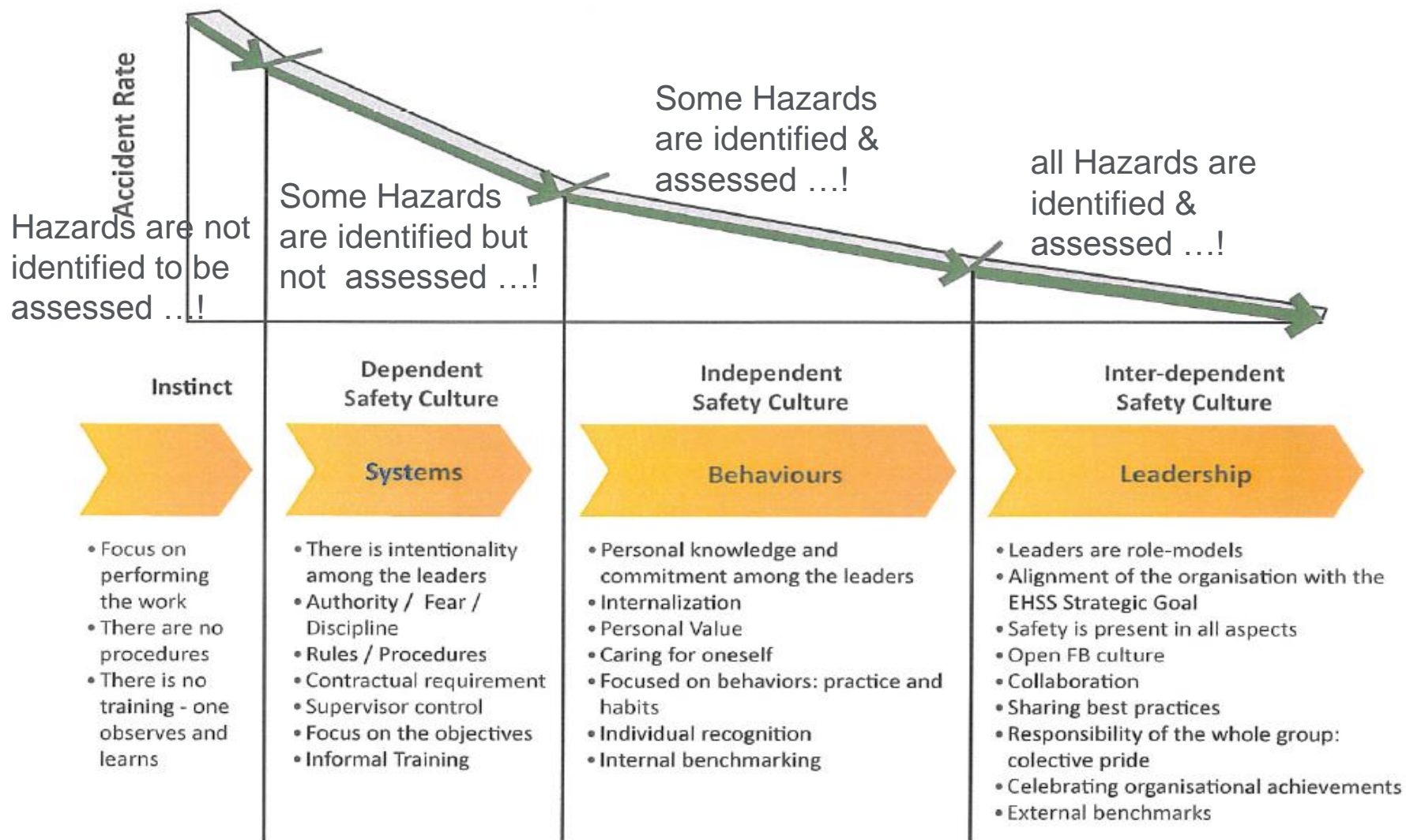
# Risk Wise Identification Summary



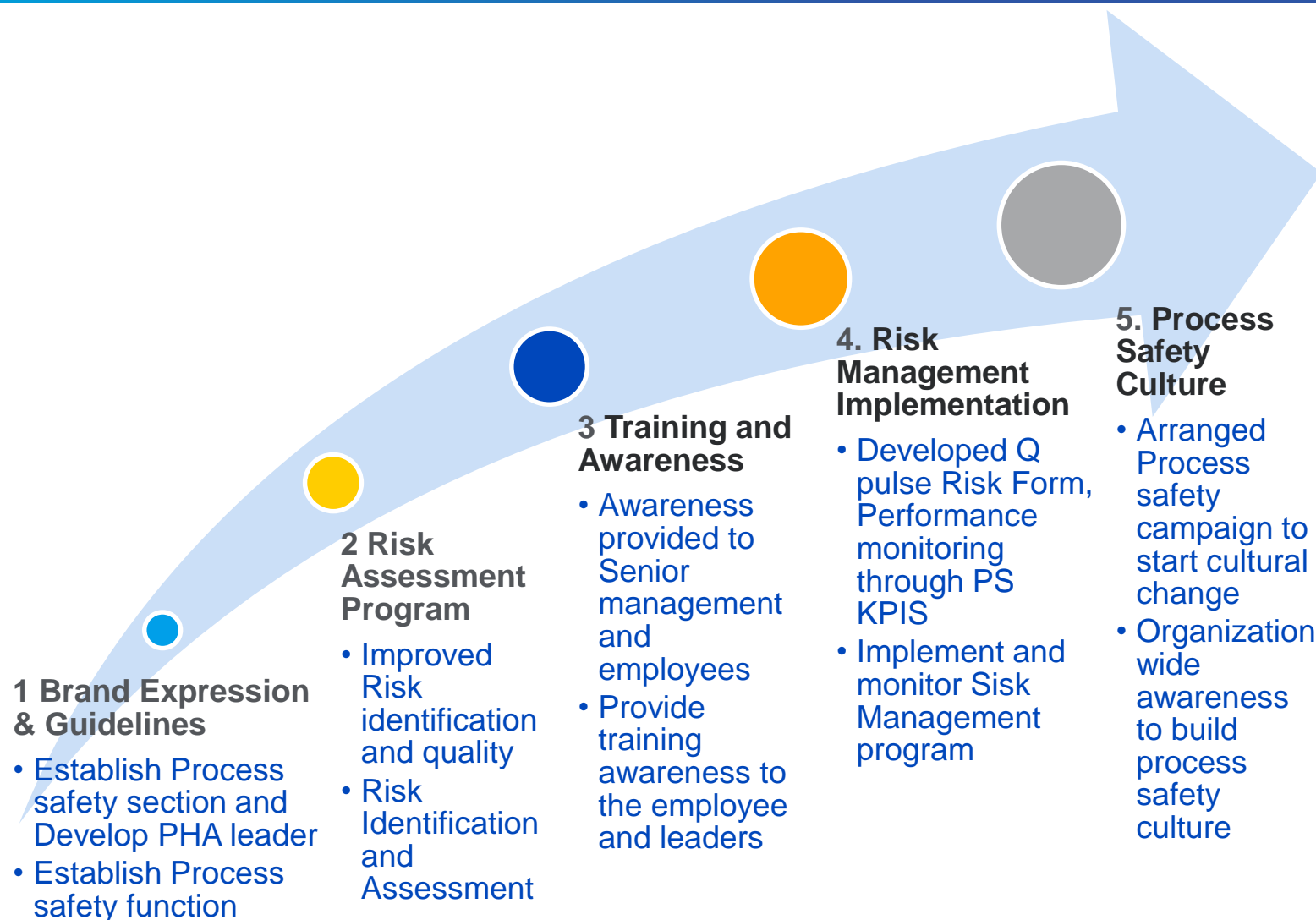
## BRADLEY CURVE



# BRADLEY CURVE



## MAJOR ACOMPLISHMENTS



## MAJOR ACOMPLISHMENTS (APPROXIMATED NUMBERS)



# PROCESS SAFETY ACCOMPLISHMENT

## Engagement with Sabic Process Safety Committee

سابك  
sabic

SABIC EHSS PROCESS RISK MANAGEMENT  
PROCESS SAFETY NETWORK MEETING MINUTES

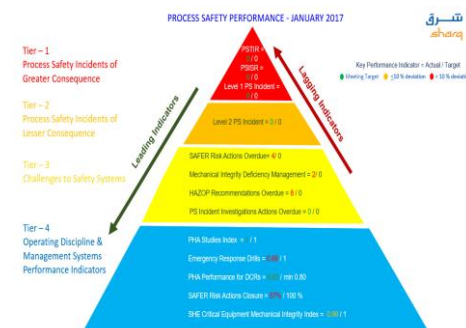
Date : October 13, 2016	Copy to: Distribution list
Place: SABIC Beach Camp - Jubail	
<p><b>Present</b></p> <ol style="list-style-type: none"> <li>1. Qasim Yurus SABIC EHSS (A. Chairman)</li> <li>2. Khawaja Wasim Khalid (Al Bayroni)</li> <li>3. Shaik Tajudeen (Araz)</li> <li>4. Venkatesan P. (Gas)</li> <li>5. Mohammad Shahnawaz (Bin Zahra)</li> <li>6. Abdulrahman Al Dhahri (Bin Rushd)</li> <li>7. Fahad Al Shammari (Kenya)</li> <li>8. Ahmed H. Al Fardan (Petrokemya)</li> <li>9. Ahmed Al Fadhi (Sadaf)</li> <li>10. Khalid Al Ismail (STC)</li> <li>11. Bader Al Musallam (Sabtank)</li> <li>12. Hassan Baubaid (Yanpet)</li> <li>13. Mohammed Al Karfar (Bin Sina)</li> </ol>	<p><b>Present</b></p> <ol style="list-style-type: none"> <li>14. Suprayudi S. Kadir (United)</li> <li>15. Shiv Kumar Wadhwa (United)</li> <li>16. Bandar Al Harbi (Yansab)</li> <li>17. Ibrahim Al Jamaan (Sharg)</li> </ol>

## Process Safety & Risk Management Visit

### OUTLINE

- ☐ SAFER DEFINITION
- ☐ SCOPE
- ☐ EXPECTED RESULTS
- ☐ OTHER DEFINITIONS
- ☐ SAFER PROGRAM WORKFLOW
- ☐ APPROVAL PROCESS FOR SAFER
- ☐ OVERDUE FOR SAFER PROCESS
- ☐ SAFER TRACKING & STEWARDSHIP MECHANISM

## Develop and Implement PS KPI's



## Launching Process Safety walkthrough

شترق  
sharg

Process Safety Walk Through check list

Area: PE1/2 Date: 26/01/2017  
 Location: Reaction and TPS Time: 08:00  
 Name of auditor(s): Kamil Turner ID No: 59547  
 Name of auditor(s): Mahmoud Zayed ID No: 60153

Item	Check List	Finding/Observation			SHEM Standard	remarks
		Yes	No	NA		
<b>A. Safety, Health and Fire Protection – Process Area</b>						
1.	Proper PPE used correctly in field	N			SHEM 08.08	
2.	Notice any process potential hazards in field	N			SHEM 02.01	LP stream line in badly routed condition beside granules Sampling System.
3.	Safety equipment been provided & located where needed (e.g Fire extinguishers, eye washers, safety showers, alarm box, ...)	N			SHEM 11.01	
4.	Emergency Escape route is clear and free from obstruction/blockage	N			SHEM 11.01	
5.	Process sight glass, flow indicators, gauges, etc. in good condition and reliable	N			SHEM 03.01	

## Risk Management Intensive Training

### SAFER

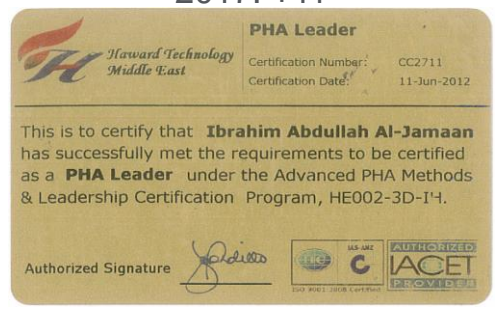


## Participation in 3rd CCPS Global Summit on Process Safety

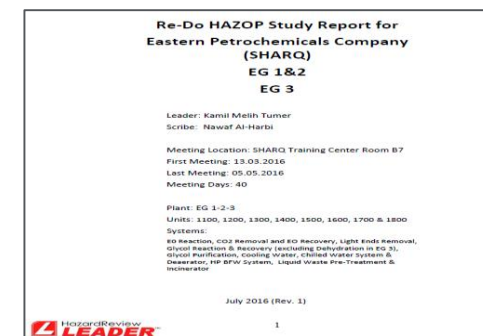


# PROCESS SAFETY ACCOMPLISHMENT

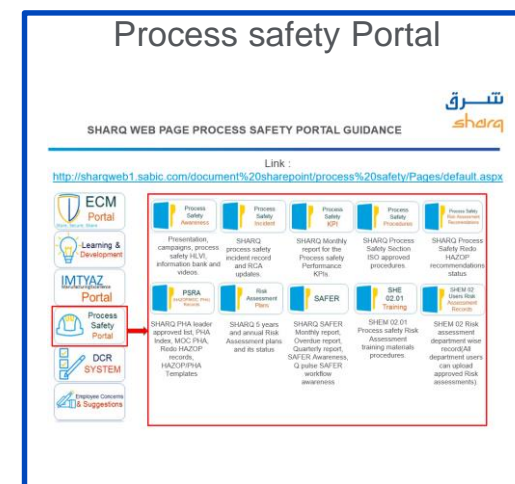
Certified PHA Leaders  
2014:3  
2015:+8  
2017: +11



EHS Critical list verified and identified during Re-do-Hazop



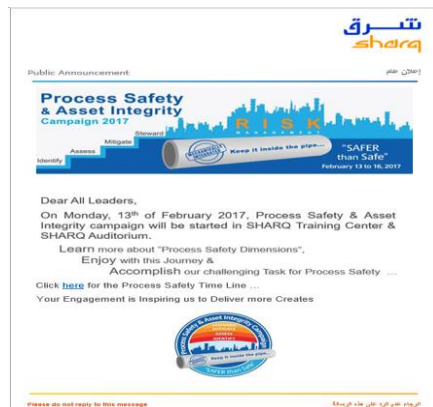
Process safety Portal





## 2017 PATH FORWARD

## Process Safety Campaign

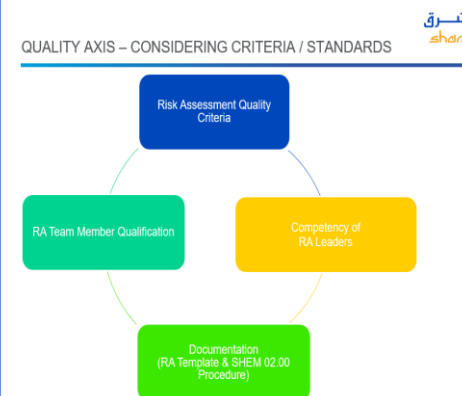


## Process Safety Intensive Training

- Gain an understanding of the difference between occupational and process safety.
- Come to the realisation that all process safety incidents are preventable.
- Become familiar with the tools that enable process safety.
- Become aware of the required behaviour to deploy process safety in the organisation.
- Become familiar with the tools that will drive the required behaviour



## Risk Assessment Quality Enhancement



## Process Safety Engagement for front liner

S.N.	Volunteers	Department	(Part Time)
1	Ghadban-Al, Abdullah Khalid	CHMD	Vendor Co-Leader
2	Beshi-Al, Abdulaziz Turki	EGMD	Vendor Co-Leader
3	Rabeah-Al, Qassim	CHMD	13 <sup>th</sup> of February
4	Mutairi-Al, Nawaf N	CHMD	13 <sup>th</sup> of February
5	Harith Naif	CMD	14 <sup>th</sup> of February
6	Tammam-Al, Mohammed A	EG 1&2	13 <sup>th</sup> of February
7	Ali Marshood Alshammari	EG 1&2	13 <sup>th</sup> of February
8	Mohammed Fahad Alqahani	EG 1&2	14 <sup>th</sup> of February
9	Khalid Yahya Alabdali	EG 1&2	14 <sup>th</sup> of February
10	Fahad Jamal Aldossary	EG 1&2	15 <sup>th</sup> of February
11	Abdullah Salem Al-jaloud	EG 1&2	15 <sup>th</sup> of February
12	Zahrani-Al, Nawaf Ahmed	EGMD	14 <sup>th</sup> of February
13	Harbi-Al, Saud Ajeeb	EGMD	14 <sup>th</sup> of February
14	Otaibi-Al, Mutlaq H	EGMD	15 <sup>th</sup> of February
15	Mowald-Al, Ali Talal	O&UMD	15 <sup>th</sup> of February
16	Ibrahim Al-Hussain	PE 3&4	13 <sup>th</sup> of February
17	Abdullah-Al, Salah	PMD	16 <sup>th</sup> of February
18	Zahrani-Al, Rashid A	SD	15 <sup>th</sup> of February

## Re-Do-Hazop for Sharq Plants as per Sharq Risk Assessment Plan

[illegible]

## RISK Assessment training



## 2017 PATH FORWARD

Develop Shift hand over and logbook processes – (Good Practice)

2017



Effective Communications at Change of Shifts

Critical operation limits  
SOE & COP

2017



2017 Process Safety survey

Public Announcement

Process Safety & Asset Integrity Campaign 2017

Dear All Leaders,  
On Monday, 13<sup>th</sup> of February 2017, Process Safety & Asset Integrity campaign will be started in SHARQ Training Center & SHARQ Auditorium.  
Learn more about "Process Safety Dimensions",  
Enjoy with this Journey &  
Accomplish our challenging Task for Process Safety ...  
Click [here](#) for the Process Safety Survey.  
Your Engagement is Inspiring us to Deliver more Creates

Please do not reply to this message

Process Safety Awareness for  
front liner

- ✓ Review PSL 1
- ✓ Overview on process safety performance indicators
- ✓ LOPC & Threshold quantity
- ✓ Walkthrough finding discussion
- ✓ Case study & Lesson learned

PHA Leaders Workshop



Process Safety Development  
Plan

PROCESS SAFETY DEVELOPMENT MATRIX

S/N	Training Module	Objective	Targeted Layer	Resource	Stage
1	Understanding Risk Assessment	• How to read Risk Assessment • Understanding the responsibility of team actions and mitigations	Operators/Technicians	Internal	Preparation
2	Conducting Risk Assessment	• Develop minimum Risk Assessment knowledge required for a member to be part of Risk Assessment team • Certification of team members	Engineers/analysts/EHS coordinators	Internal	Preparation
3	Leading Risk Assessment	• Quality compliant Risk Assessment Leaders	Engineers/analysts	External	Preparation
4	PHA Leadership Certification	• Quality compliant PHA Leaders • Certify PHA Leaders for LEADER 8 Software	Selected Engineers (annually)	External	Live
5	Foundations of Process Safety	• Learning key process safety areas including Risk based Process Safety, Process Hazard Analysis, Regulatory Compliance and Process Safety in Plant and Design Considerations	Process Safety Engineers/Plant engineers	External	Preparation
6	Process Safety Leadership program	• Understanding process safety & process safety indicators • Understanding Key Process safety leadership behaviors	Experienced Engineers, Managers, Sr Managers	Internal/External	Live
7	SAFER Awareness	• Familiarization with SAFER program • Familiarization with SAFER workflow	SMT, Sr Managers, managers, EHS coordinators, engineers, analysts	Internal	Live
8	Q-Phase SAFER workflow	• Specific module for awareness to Q-Phase SAFER e-Form Users	All system users	Internal	Live

## JOURNEY CONTINUES



## CONCLUSION

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Hazard Identification is the limiting reagent for the Risk Management ...

- if it is enhanced, the other Gears will be enhanced ...
- if it is weak; the complete chain will break ...
- if it fails, the whole system will fail ...

Secret:-

“Engagement” is the secret word to achieve the Process Safety Excellence that drives all individuals to think & consider any identified Hazard in the whole organization.



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Thank you