



LFI – Learning from Incidents



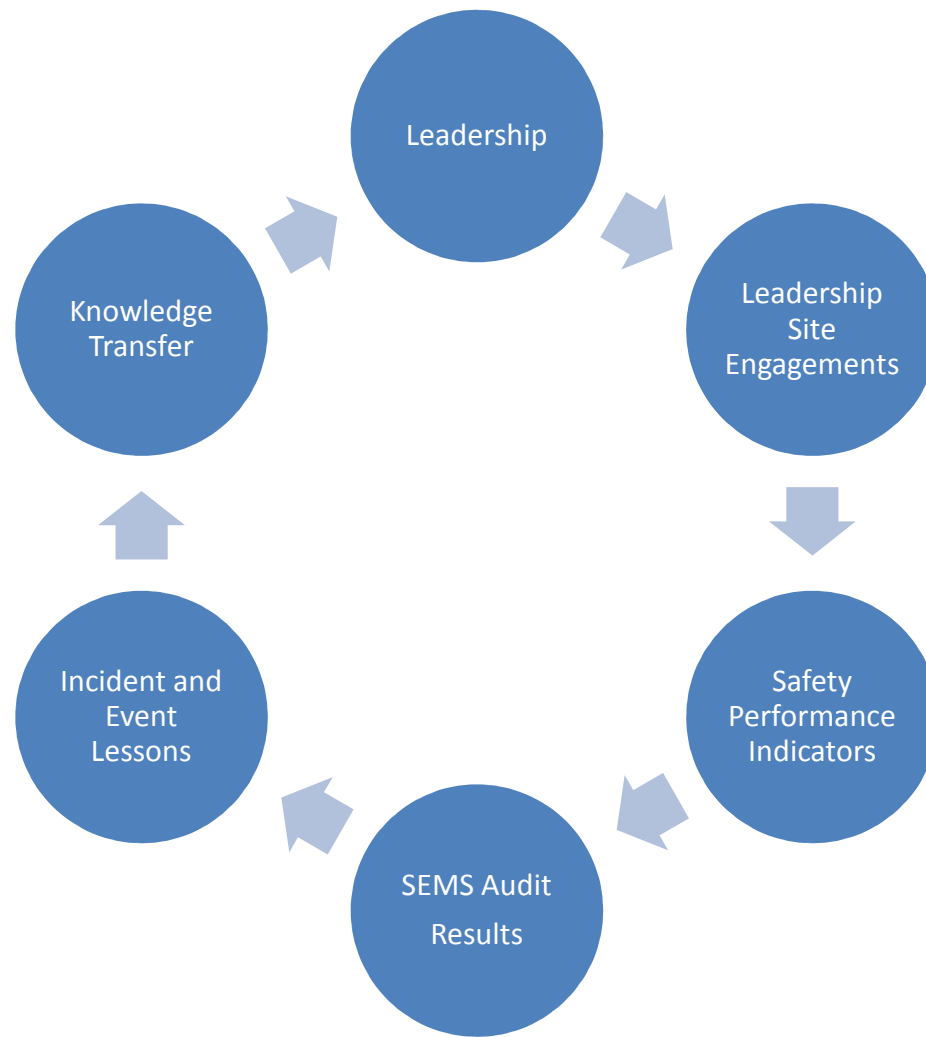
Current State

- Good systems with analysis exist
- Generally good culture of reporting

Areas for Enhancement

- Not shared between organizations
- Safety culture could further encourage reporting
- Analysis could be improved to allow system learning
- Legal protection could improve sharing
- Many existing data bases not well analyzed
- Not necessarily true that pyramid or near misses are indicative of major incidents

COS' steps to improve learning to drive continuous improvement



Phase 1 SPI

SPI 1: *frequency of work-related incidents resulting in one or more of the following*

- A. Fatality
- B. Injury to 5 or more persons in a single incident
- C. Tier 1 process safety event
- D. Loss of well control
- E. \$1 million direct cost from damage to or loss of facility /vessel / equipment
- F. Oil spill to water > or equal to 10,000 gallons (238 barrels)

SPI 2: *Frequency of work-related incidents that do not meet the definition of a SPI 1 incident but have resulted in one or more of the following:*

- A. Tier 2 Process safety event
- B. Collisions that result in property or equipment damage > \$25,000
- C. Crane or personnel/material handling operations
- D. Loss of station keeping resulting in drive off or drift off
- E. Life boat, life raft, or rescue boat event

SPI 3: Percentage of SPI 1 and SPI 2 incidents that involved failure of one or more of COS specified equipment as a contributing factor

SPI 5: % of critical maintenance, inspections and tests completed on time

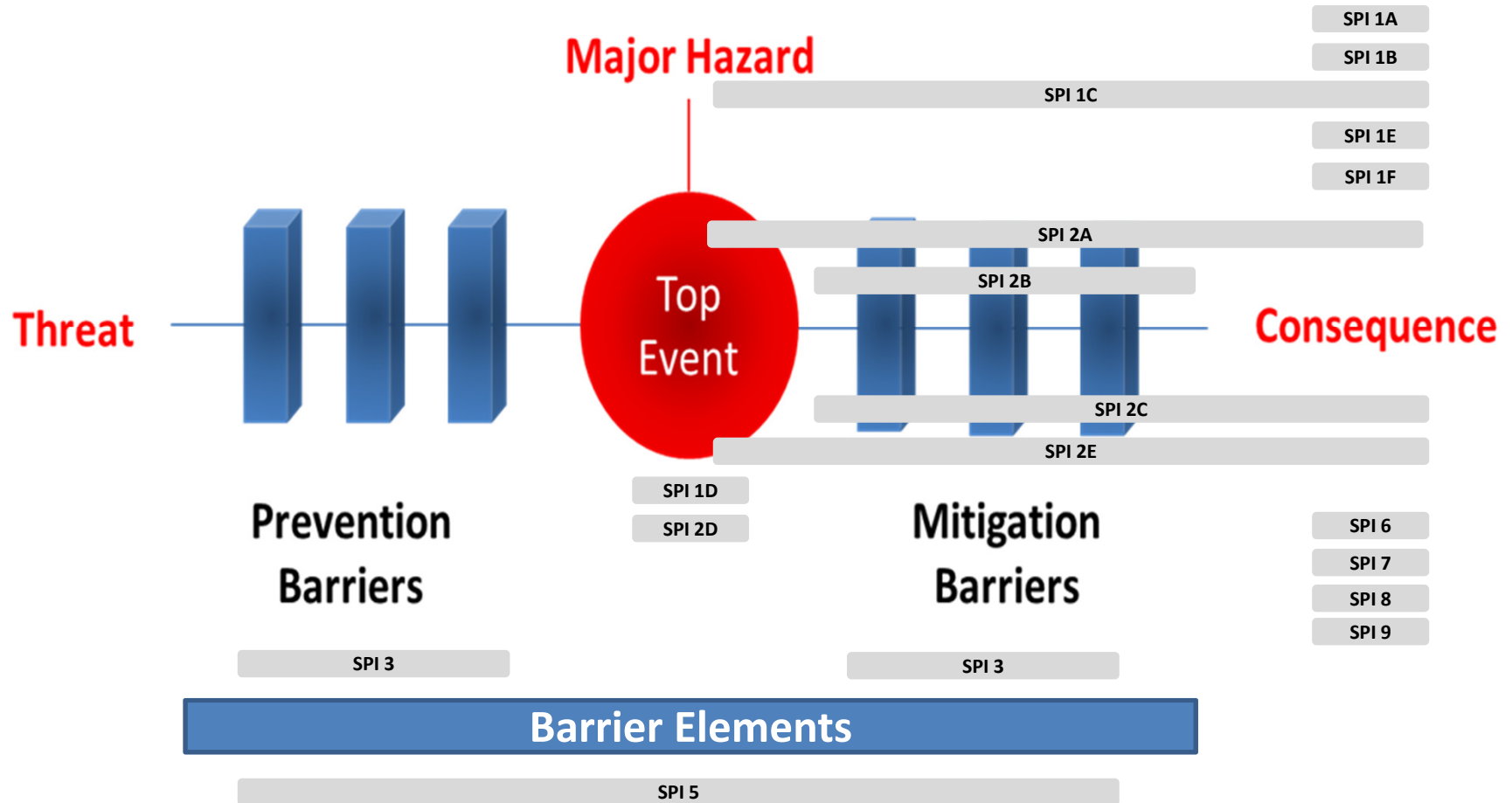
SPI 6: Number of fatalities

SPI 7: DART

SPI 8: Recordable Injury and Illness Rate

SPI 9: Oil spills \geq 1 bbl

Phase I SPI Bow Tie™ Coverage



LFI Program Scope

SPI 1

- A. Fatality
- B. Injury to 5 or more persons in a single incident
- C. Tier 1 process safety event
- D. Loss of well control
- E. \$1 mil direct cost from damage to or loss of facility/vessel/ equipment
- F. Oil spill to water > or equal to 10,000 gallons (238 barrels)

SPI 2

- A. Tier 2 process safety event
- B. Collisions that result in property or equipment damage > \$25,000
- C. Crane or personnel/material handling operations incident
- D. Loss of station keeping resulting in drive off or drift off
- E. Life boat, life raft, or rescue boat incident

LFI Program Scope

High Value Learning Event

An event that may be considered for use as a reference in process hazard analyses, management of changes, project design, risk assessments, inspections, operating procedures reviews and/or training. HVLEs should meet 1 or more of the criteria below:

- A. Identify a previously unknown risk, situation, operational or mechanical hazard, or critical equipment failure
- B. Identify a previously unknown combination of factors that resulted in an unexpected condition or event.
- C. Identify a routine operation or activity that created a previously unidentified risk or consequence
- D. Identify a situation where established industry designs, controls or procedures failed to prevent an event (e.g. loss of wall thickness).
- E. An event that is part of a pattern in industry events which could indicate that certain hazardous conditions are not well understood.

Areas for Improvement and Additional Comments

- **Physical Process and Equipment**
 - Design
 - Material Construction
 - Reliability
 - Instrumentation & Controls
- **Administrative Process**
 - Risk Assessment and Management
 - Operating Procedures or Safe Work Practices
 - Management of Change
 - Work Direction or Management
 - Emergency Response
- **People**
 - Personnel Skills or Knowledge
 - Quality of Task Planning and Preparation
 - Individual or Group Decision-Making
 - Quality of Task Execution
 - Quality of Hazard Mitigation
 - Communication

<p>LESSONS LEARNED.</p> <p>Describe lessons learned and actions taken to reduce the likelihood of a recurrence</p>	<p>Lessons:</p> <p>Lifting sling parted due to an internal material defect. Redundant slings not included in lift plan developed for “routine” lift. Planned path of lift brought tote near, but not directly over, live processing equipment. Team followed guidelines for “routine” lift, rather than for “critical” lift (over processing equipment), as they did not anticipate the lateral movement of the falling tote.</p> <p>Actions:</p> <p>Communication bulletin circulated regarding defective sling.</p> <p>Guidelines for critical lifts updated to include larger areas immediately adjacent to processing equipment.</p>
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