FOUR COMMON GAPS in Process Safety - worldwide

Four major gaps that are preventing most companies worldwide from achieving excellent process safety performance.

PROCEDURES

90% accidents have at least one root cause related to procedures

CONTENT ACCURACY

OBJECTIVES

+95% ACURACY

+80% FORMAT RULES

HUMAN ERROR

2-10x

DRAFT: Have a user write the first draft of the set of instructions

VALIDATION: Have another user walk down the first draft in the field. Make a revised draft.

VERIFICATION: Have a technical expert walk down the revised draft in the field.

PRESENTATION: Follow rules for page format and writing of steps. Issue final draft.

RISK REVIEW: Reviewing the final procedure. Perform a review of: Performing a Step Wrong or Skipping a Step

This is necessary even if the procedure is perfect because humans do not follow procedures perfectly.

PHAs

+80% PS Accidents occur during startup, shutdown, and online maintenance

+80% of companies DO NOT properly analyze hazards during non-routine modes

NEAR MISSES

Major accident (20% of reports

100 Minor accidents

1,000,000 Free learning

10,000 Near misses (errors resulting from mistakes

TARGET 20 = NEAR MISS INVESTIGATION, ACCIDENT

+95% Chance of finding problems and correcting them

TYPICAL BARRIERS

1 Fear of disciplinary action

2 Fear of teasing by peers (embarrassment)

3 Lack of understanding: Near miss vs. Non-incident

4 Lack of management commitment and lack of follow-through on reported near misses

5 Apparently high level of effort is required to report/investigate Near Misses

6 There is no way to investigate the thousands of Near Misses per month

7 Disincentives for reporting Near Misses

8 Not knowing which accident investigation system to use

9 Company discourages Near Miss reporting due to fear of legal liability

SOLUTIONS

Implement a policy to NOT punish individuals when their errors lead to accidents and Near Misses.

Ensure that all employees understand the importance of near-miss investigation. Demonstrate, through feedback of lessons learned.

Develop a list of “in-context” examples that illustrate what you consider to be near misses and what you consider to be non-incident.

Hold management accountable for achieving a near-miss reporting ratio.

Ensure that the data are entered in a database and queried regularly. Share the results with employees so they can see the value of the reported near misses.

Let first-line foremen or supervisors decide if a near miss or accident needs to be investigated.

Share the costs and incentives are not tied to lower incident rates (since this discourages reporting), but instead provide incentives for high near-miss reporting ratios.

Have one incident reporting system with one approach.

Involve legal on major near misses and accidents to ensure the results are protected as much as possible under attorney-client privilege.

HUMAN FACTORS

HUMAN FACTORS CONTROLS TYPICALLY MISSING FROM PROCESS SAFETY

1 Best practices for content and format of OP procedures

2 Verbal Communication Standard (repeat back, etc.)

3 Fitness for duty (fatigue management, etc.)

4 Task design to match human (includes work environment)

5 Human-System Interface (displays, labels, handheld prompts, etc.)

6 Staffing considerations for error reduction

Closing gaps and finding missing scenarios has greater than 100:1 payback