



Energising a Brighter Tomorrow



Process Safety Performance Indicators (PSPI)– Practice at HMEL



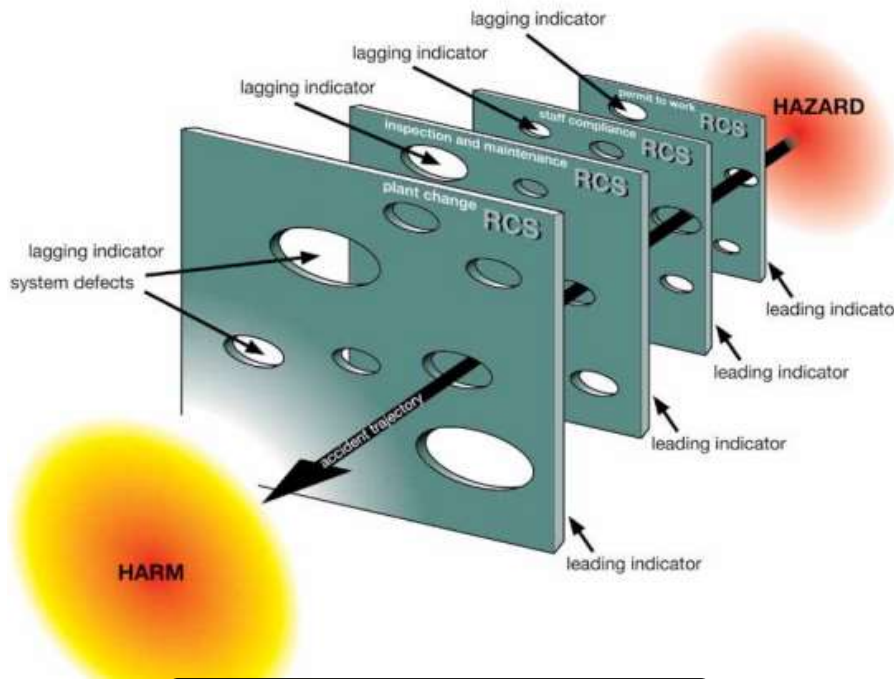
“If you can't measure it, you can't achieve it,”

Standards/Guidelines for PSPIs

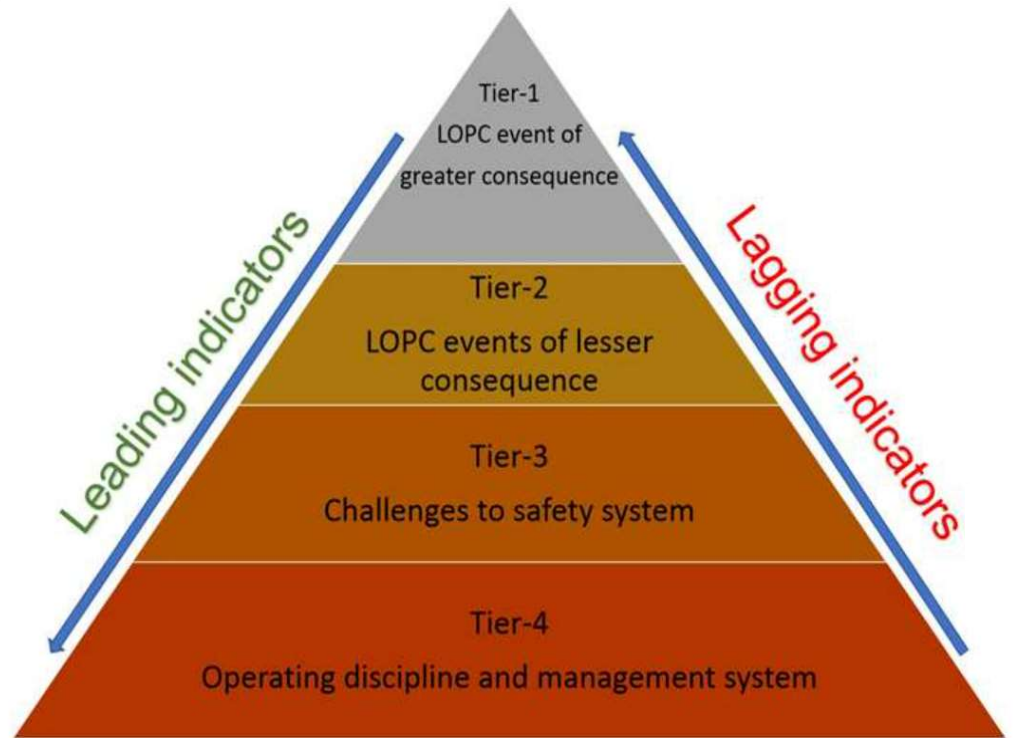


- UK HSE HSG 254: Developing Process Safety Indicators (2006)
- CCPS Guidelines for Process Safety Metrics (2009)
- API RP 754: Process Safety Performance Indicators for the Refining and Petrochemical Industries (2010)
- OSHA CPL 02-00-135: Process Safety Metrics under PSM Standard (2011)
- IOGP Report 456: Process Safety - Recommended Practice on Key Performance Indicators (2018)
- OISD-RP-206: Safety Management System (2022).
- PNGRB T4S (Technical Standards and Specifications including Safety Standards for Petroleum Refineries and Gas Processing Plants) Regulations. (2023)

PSPIs - Approach



Barrier Based - HSE UK



Tier Based - Other

HMEL PSM Framework



Proprietary & Confidential

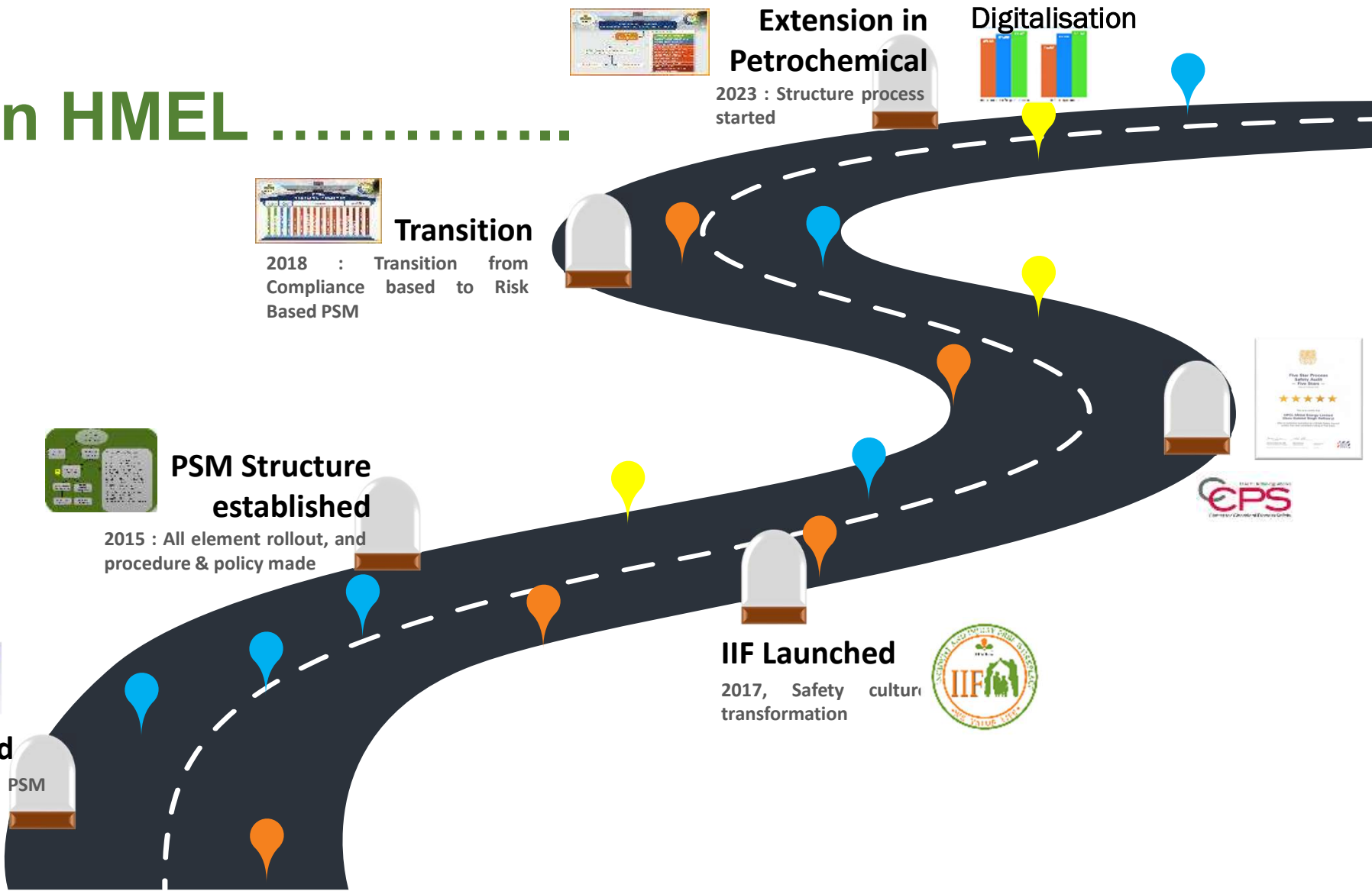
HMEL A GREAT PLACE TO WORK

PASSIONATE
INNOVATION

BOLDLY
EFFICIENT

PROACTIVE
COLLABORATION

PSM in HMEL



PSM Started

2014, OSHA Implementation



PSM Structure established

2015 : All element rollout, and procedure & policy made



Transition

2018 : Transition from Compliance based to Risk Based PSM

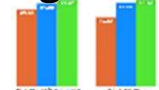


Extension in Petrochemical

2023 : Structure process started



Digitalisation



IIF Launched

2017, Safety culture transformation



PSPIs - HMEL



1

Tier 1 PSE : Event significantly impacting people, environment & asset.

2

Tier 2 PSE : Event with no significant impact to people, environment & asset

3

Tier 3 : High potential event with no impact to people, environment & asset but had a potential to do so.

4

Tier 4 : Physical substandard & human producing conditions that has the potential to cause loss of containment event or impact functioning of safety system.

5

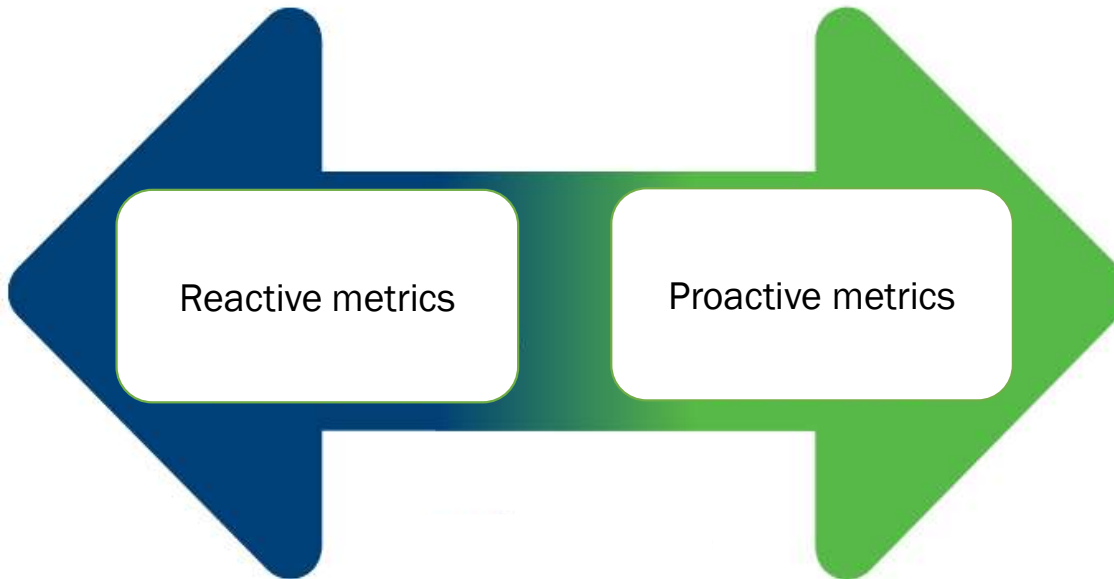
Tier 5:
Focus on Conduct of operation and Operation discipline :
Design & Management system, COW issues

PSPIs - HMEL



Lagging Safety Indicators

1. No. of Tier-1 PSEs
2. No. of Tier-2 PSEs
3. No. of Tier-3 PSEs



Leading Safety Indicators

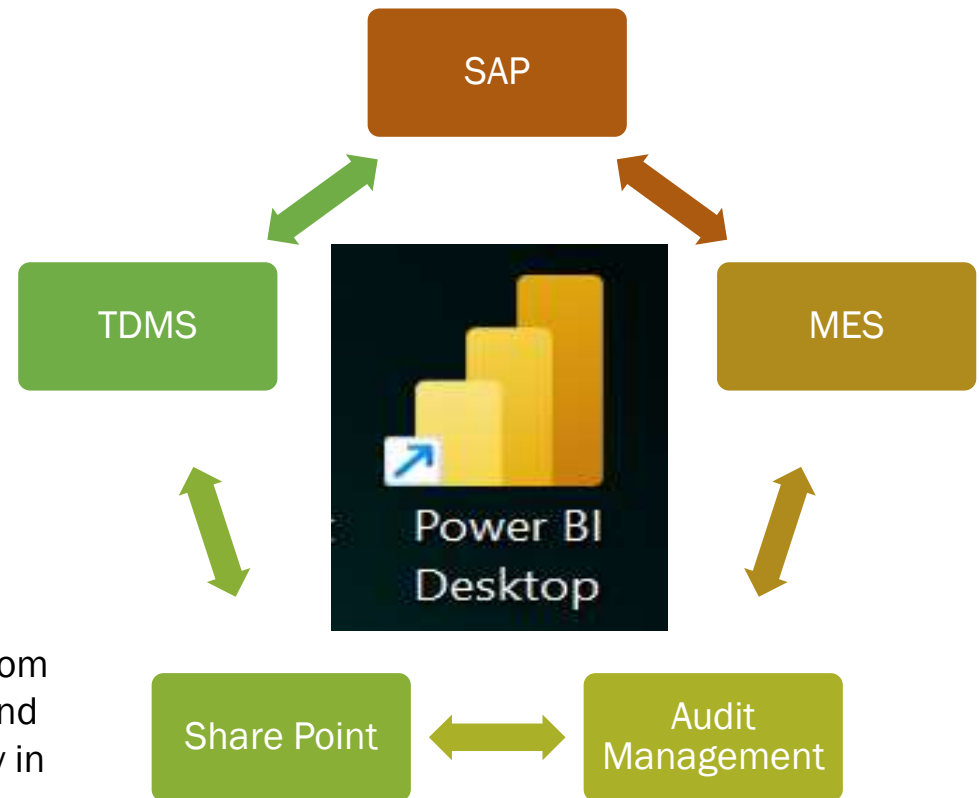
1. Employee participation in proactive safety initiative.
2. Leadership PSM tour.
3. Line supervisor tour.
4. Operator focus safety rounds
5. Near miss reporting & closure
6. Permits Compliance.
7. SOP Verification survey.
8. Safety System Bypasses.
9. Refresher training compliance.
10. PSM IDP Training Compliance
11. PM compliance of SCE's
12. No. of OLS clamps
13. SOP revision compliance
14. SMP revision compliance
15. MOC life-cycle deviations
16. Audit rec. compliance
17. PHA rec. compliance
18. PSSR rec. compliance
19. Investigation rec. Compliance
20. Emergency preparedness.

PSPIs - HMEL



- All Process Safety Management (PSM) elements are assigned specific performance indicators.
- Each element is managed through an integrated electronic platform.
- The electronic platform is connected to Power BI, enabling the development of a comprehensive PSM performance dashboard.

Any Discipline is now able to analyze data effectively, from anywhere, visualize performance metrics in real time, and can make informed decisions to enhance process safety in respective areas.





PSM Dashboard

PSM Dashboard

Performance Overview

Unit Wise Indicator Stati...

Incident Investigation

Near Miss Tracker

Process Hazard Analysis

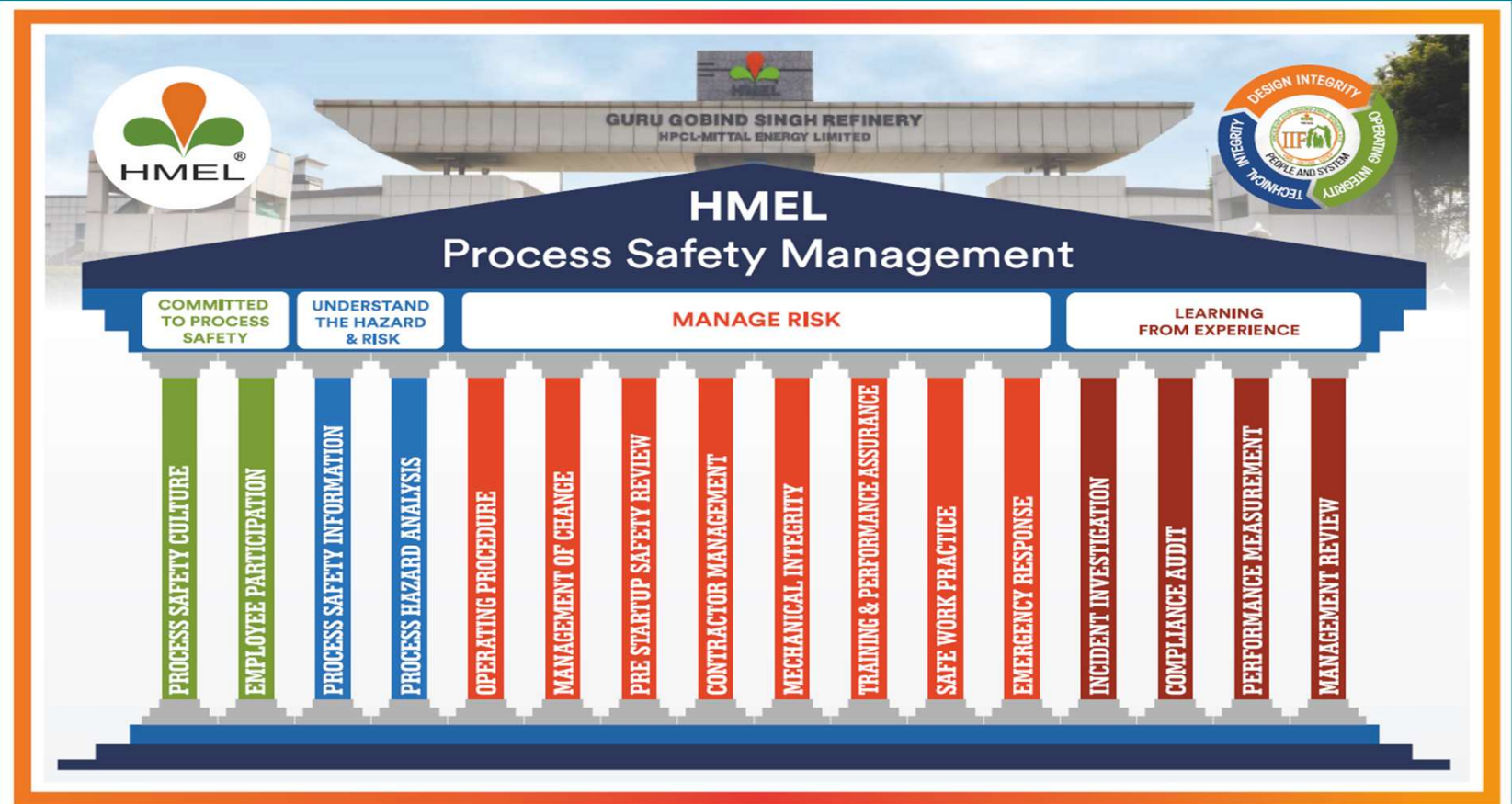
Management of Change

PSSR

Safety & PSM Audits

GOVERNANCE

Go back





Transition from Reactive to Proactive approach via Big data analysis

Process Safety Performance Data Analysis



Leading Safety Indicators

Proactive metrics

1. Employee participation in proactive safety initiative.
2. Leadership PSM tour.
3. Line supervisor tour.
4. Operator focus safety rounds
5. Near miss reporting & closure
6. Permits Compliance.
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8. Safety System Bypasses.
9. Refresher training compliance.
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Enhance data analysis

PSI Predicative indicator

1. Process safety incident
2. Operator focus safety rounds
3. Near miss reporting
4. Permits Compliance.
5. SOP Verification survey.
6. Investigation rec. Compliance..

Big data Analysis Capability



- Process safety incident data analysis.
- Process safety near miss analysis.
- Permit audit & Suraksha Samwad card data analysis.
- OLS data analysis.
- Operator safety round data analysis.

PSM Near Miss Data Analysis.....



Figure-1: Year Wise Near miss Count

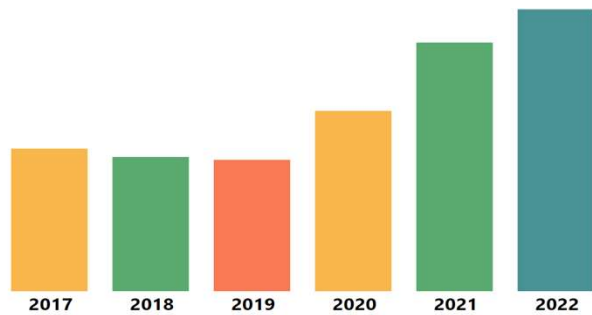


Figure-2: Near miss primary classification

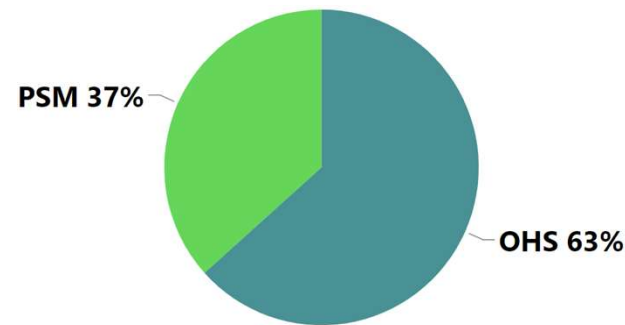


Figure-3: Category Wise classification

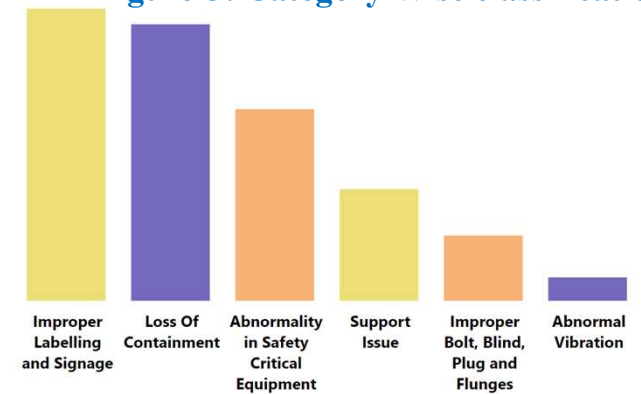


Figure-4: Type of chemical released

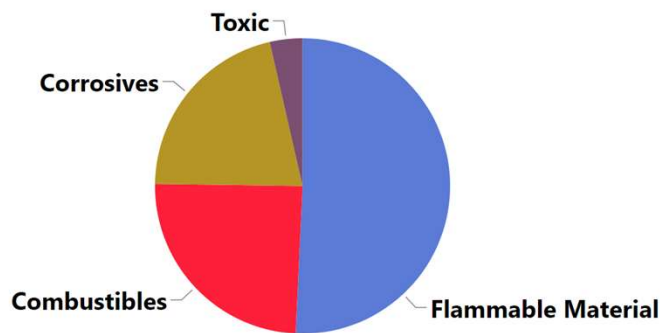


Figure-5: Point of Release

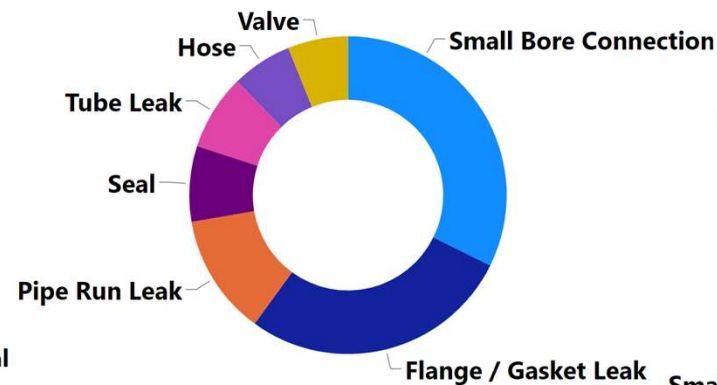
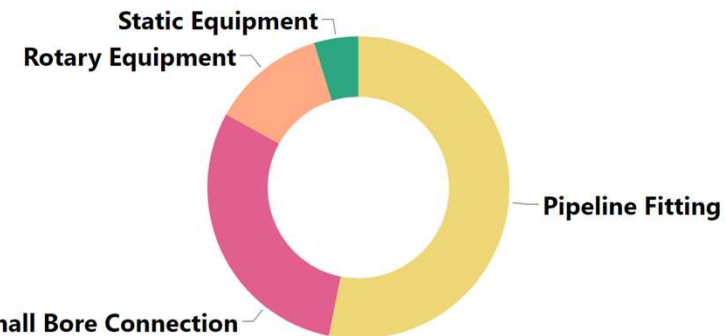


Figure-6: Type of Equipment Involved



achieved



- ✓ Evolved from qualitative performance measurement to a **data-driven, quantitative** performance model.
- ✓ Improved process safety indicators from consistently red to **achieving green**, signifying strong performance.
- ✓ Progressed from a manual, paper-based system to a **fully digitized** safety platform.
- ✓ Transitioned from a dependent system to an **independent, self-sustaining** safety system.
- ✓ Moved from compliance-based process safety to a comprehensive, **risk-based** safety management approach.
- ✓ Shifted from a reactive approach to a **proactive, prevention-focused** strategy.



Thanks for Listening



Together, Let's make HMEL an Incident & Injury Free Workplace.

SAFETY  **FIRST**