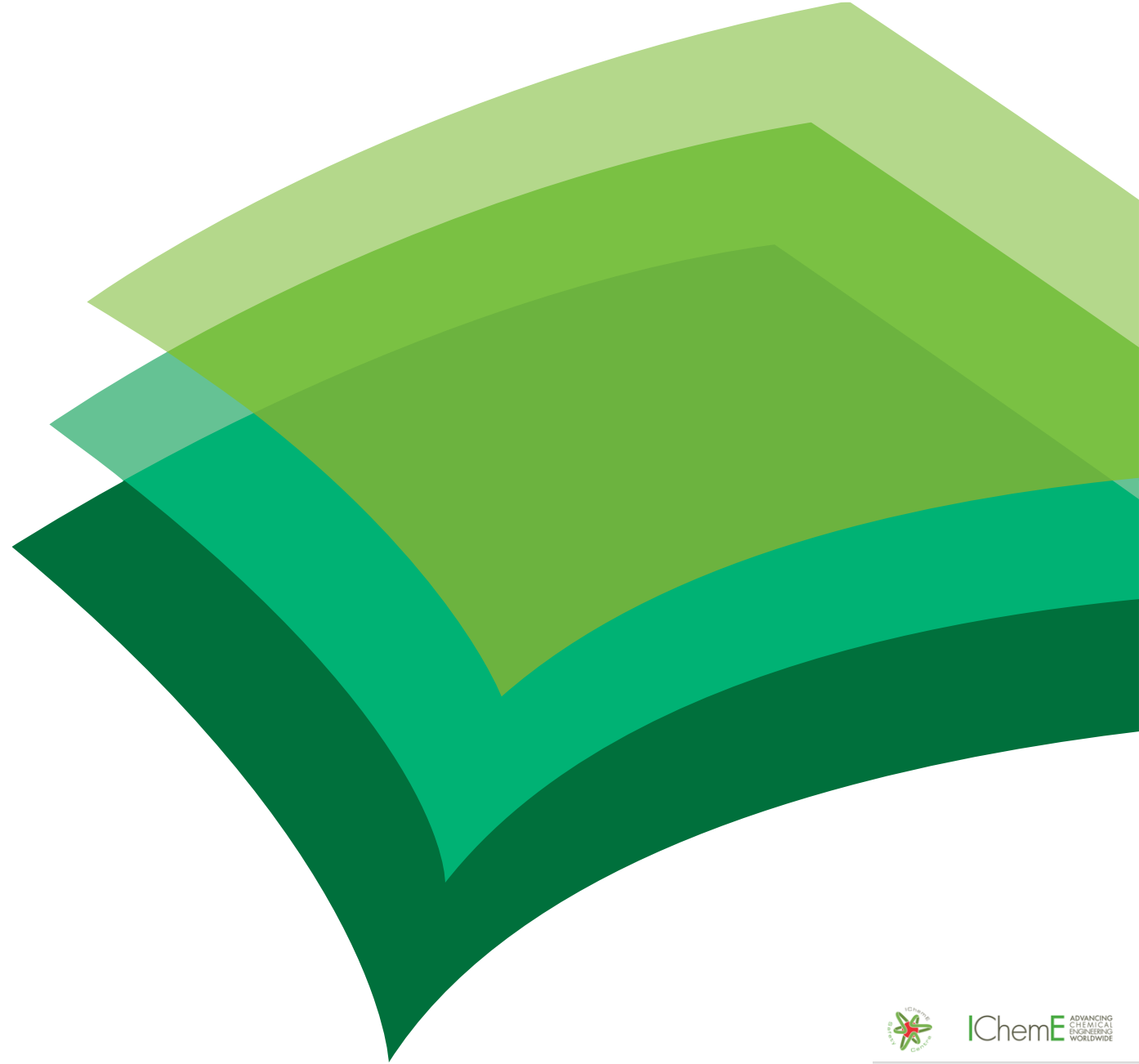




Implementation of API Derived KPIs

Hazard-31 Conference





Process Safety – Challenges at EPCL



Modifications at Site

- Temporary or permanent changes
- Excessive no. of modifications

Procedural Compliances

- Waivers
- Preventive Maintenance for safety critical devices
- Safe work practices



Key Performance Indicators – API-754 RP



- Process Safety Event (PSE) - Lagging Indicator
- Major LOPC resulting in life loss, fire, asset damage or environment effect
- Process Safety Event (PSE) - Lagging Indicator
- Less impact of LOPC as compared to Tier-1 resulting in recordable injury, fire, asset damage or environment effect
- Challenges to Safety Systems – Leading Indicators
- Challenge to the barrier system that progressed along the path to harm, but is stopped short of a Tier 1 or Tier 2 PSE consequence
- Operating Discipline and Management System Performance
- Indicators at this level provide an opportunity to identify and correct system weaknesses.



Leading Indicators – EPCL

SIS Testing / Failure

- Instrumentation Testing

Mechanical Integrity

- Inspection Recommendations
- Preventive Maintenance Compliance
- Safe Operating Limits
- Temporary Repairs

Recommendations Closure Compliance

- PHA / Risk Studies Recommendations
- Incident Investigation Recommendations Compliance

Management of Change

- MOC Compliances
- PSSR Compliance
- PSSR Recommendations Compliance



Risk Studies Compliance

- PHA Study Compliance

Process Safety Training and Competence

- ERP Drill Performance & Compliance
- Process Safety Trainings Compliance

Operating & Maintenance Procedure

- Operation & Maintenance Emergency Handling Procedures

Demands on Safety Systems

- Activation of Safety Systems.



Lagging Indicators (Debits) – EPCL

PSE –Tier-1/2

Any unplanned or uncontrolled release of a process service or material including non-toxic and non-flammable materials that results in serious injury/fatality or fire having significant asset damage or public evacuation is termed as process safety incident.



LOPC Events (Not falling under Tier -1/2)

LOPC events not falling under Tier-1 or 2 categories cannot be left unrecognized. These incidents often lead to catastrophic events. These may include dropwise leakages of toxic or flammable material which have high consequence if not attended timely

High Consequence Events (Process Fires)

Incidents that do not fall under Tier-1 or 2 categories as per the consequences defined in API, but they can carry potential to any harm or result in major accidental hazard like process fires or fires in classified areas

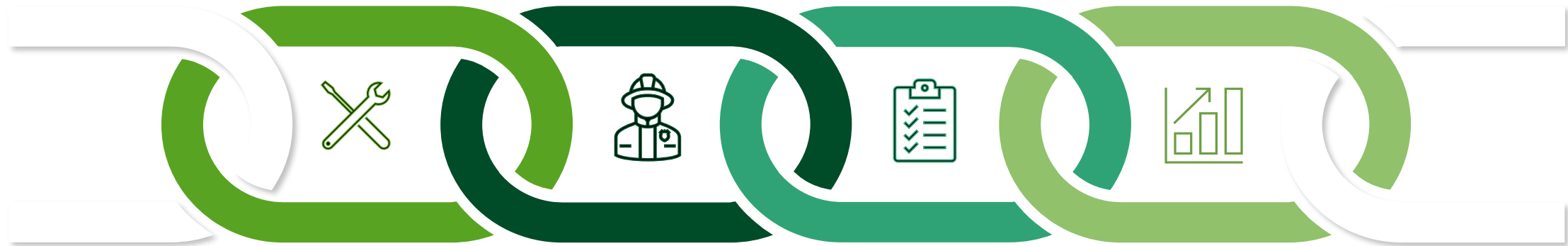


Site Process Safety Waivers

A formal management approval taken on the system or protocols that are not possible to fulfil for a specific time or activity. For example, to have a waiver on preventive maintenance of any single PSV on live circuit



Outcome of API Derived KPIs



Due focus on critical process safety incidents based on Tier categorization

Underlining site integrity issues and quick rectification

Strong follow-up & monitoring of process safety & risk studies items compliance

Process safety risk identification on early stages





Thank You