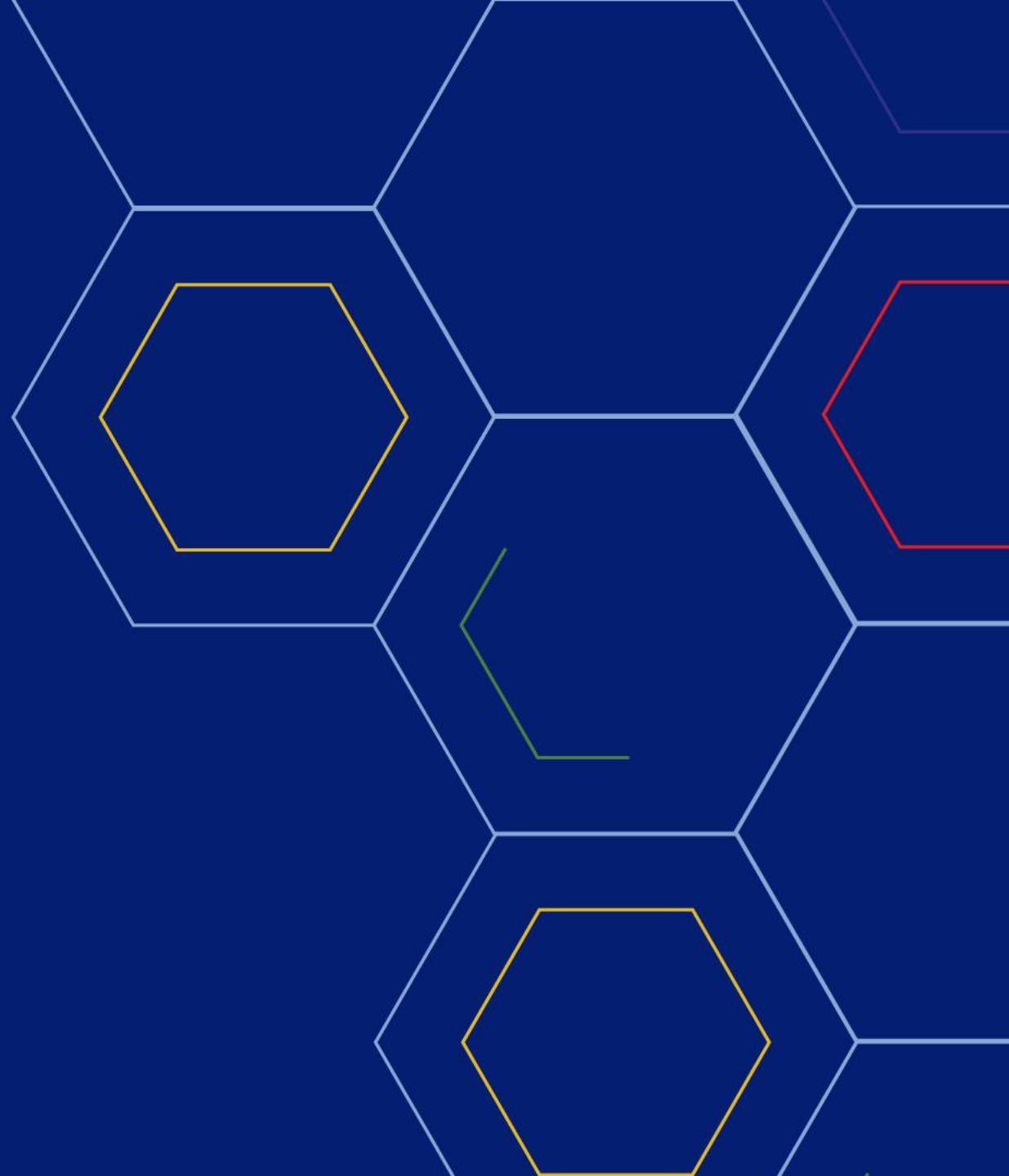




FUELS INDUSTRY
Association of South Africa

IOGP Process safety events





INDEX

- Release source
- Fundamentals
- Barriers
 - Hardware barrier
 - Human barrier
 - Management systems
- Factors
 - People acts
 - Process conditions
 - Organizational
 - Protective systems
 - Tools, Equipment, Materials and Products
 - Workplace Hazards



RELEASE SOURCE

- Compressor/blower/fan
- Tank overflow
- Pipeline
- Piping joint
- Instrumentation and small-bore tubing
- Heat exchanger
- Sample system
- Meter
- Valve
- Flexible hose



FUNDAMENTALS

- Apply procedures
- Control ignition sources
- Respect hazards
- Stay within operating limits
- Stop if the unexpected occurs
- Sustain barriers
- Walk the line
- Watch for weak signals



BARRIERS

- Hardware barrier
- Human barrier
- Management systems
- Hardware barriers
 - Ignition Control
 - Process Containment
 - Shutdown Systems – including operational well isolation and drilling well control equipment
 - Structural Integrity



BARRIERS

- Human barriers
 - Authorization of temporary and mobile equipment
 - Operating in accordance with procedures – PTW, Isolation of equipment, Overrides and inhibits of safety systems, Shift handover, etc.
 - Response to process alarm and upset conditions (e.g. outside safe envelope)
 - Surveillance, operator rounds and routine inspection



BARRIERS

- Management system barriers
 - Execution of activities
 - Monitoring, reporting and learning
 - Asset design and integrity
 - Plans and procedures
 - Plans and procedures
 - Risk assessment and control



FACTORS

- **People acts**
 - Procedures
 - Deviation unintentional
 - Improper lifting or loading
 - Work or motion at improper speed
 - Inattention/Lack of Awareness:
 - Improper decision making or lack of judgment
 - Lack of attention/distracted by other concerns/stress
 - Failure to warn of hazard
 - Improper use/position of tools/equipment/ materials/products



FACTORS

- **Process conditions**
- **Organizational**
 - Inadequate communication
 - Inadequate hazard identification or risk assessment
 - Inadequate supervision
 - Inadequate training/competence
 - Inadequate work standards/procedures
- **Protective Systems**
 - Inadequate/defective guards or protective barriers
 - Inadequate/defective warning systems/safety devices training/competence



FACTORS

- **Tools, Equipment, Materials and Products**
 - Inadequate design/specification/management of change
 - Inadequate maintenance/inspection/testing
 - Inadequate/defective tools/equipment/ materials/products
- **Workplace Hazards**
 - Storms or acts of nature



FUELS INDUSTRY
Association of South Africa

Thank You

2024